SOVIET LIFE

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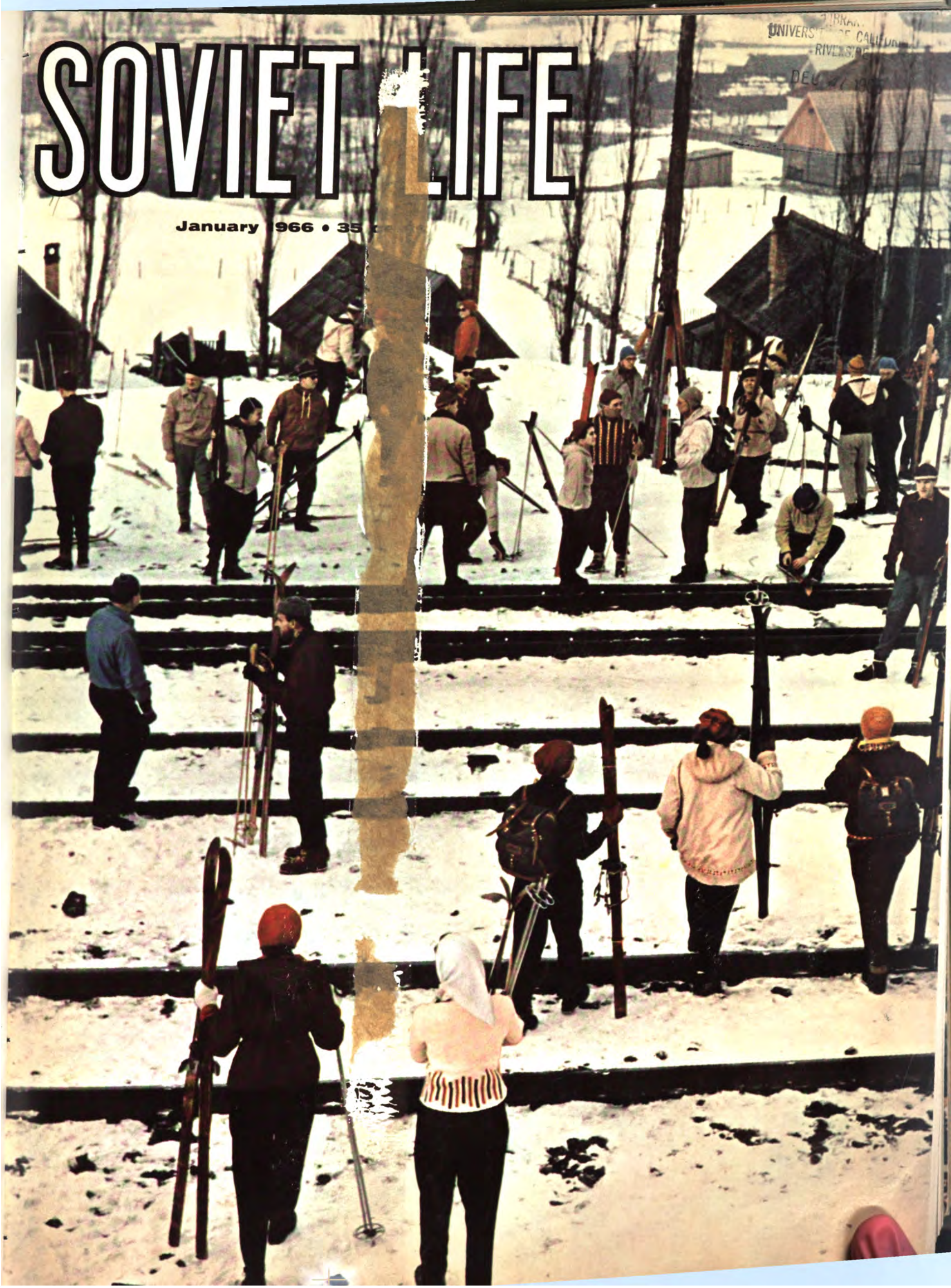

TWENTIETH CENTURY MIRACLE

By Vladimir Fedorovich

Chemistry for the Benefit of Man

"BETTER TO SEE ONCE than to hear a hundred times." That old saw was once again confirmed by the international exhibition Chemistry in Industry, Building Construction and Agriculture held for two weeks last September in Moscow's Sokolniki Park.

Chemistry has revolutionized practically every phase of the economy. At this exhibition—which Western businessmen characterized as one of the "most important European economic events of 1965"—you saw how much it impinges on everyday life.

An artificial kidney and blood vessel substitutes in medicine, car bodies and ball bearings in industry, furniture and house elements in building construction, fertilizers and insecticides in agriculture, artificial furs and textiles as good as the natural product—these are a few of the accomplishments of modern chemistry, the wonder of the twentieth century.

But it was only the best and the latest of what had been evolved in the chemists' laboratories and had materialized in an endless number of novelties that was on display in Sokolniki.

Contracts, Deals, Agreements

Twenty-one countries exhibited: Austria, Belgium, Czechoslovakia, Denmark, the Federal Republic of Germany, Finland, France, the German Democratic Republic, Great Britain, Hungary, Italy, Japan, Lichtenstein, the Netherlands, Norway, Poland, Sweden, Switzerland, the USSR, the United States and Yugoslavia.

Among the 1,800 foreign manufacturers of chemical equipment and products were such major companies as the British I.C.I. and Shell, the West German Friedrich Krupp and Farbke Hohst, the Italian Montecatini and Snia Viscosa, the French Rhone Poulenc and Simca Industrie, the American Union Carbide and Industrial Chemical and Dye, and the Japanese Association of Chemical Industry. The 35,000 exhibits covered an area of more than 750,000 square feet of indoor and almost 120,000 square feet of outdoor space.

The exhibition provided the opportunity for concluding any number of mutually profitable contracts. Before it opened, more than 400 of the participating firms, among them about 100 in West Germany, 40 in France, over 30 in Italy and about the same number in Austria, indicated that the equipment they were exhibiting would be on sale.

In the very first days after the exhibition opened, big business deals were made: Soyuzkhimexport, a Soviet foreign trade agency, bought caprolactam from the Japanese Wako Koeki and an air-conditioning plant from the West German Deutsche Wagen und Maschinen Fabrik AG. A sizable contract was signed with the Austrian Fait company for the delivery of automatic wood milling lines to the Soviet Union. During the exhibition, Soviet foreign trade organizations sold more than 70 million rubles' worth of chemical equipment and products to European, Asian and Latin American countries. Firms from Great Britain and Italy, France and the FRG, Belgium and the Netherlands, Japan and Austria signed big contracts with Soviet foreign trade organizations.

Industrial Chemical and Dye, which has for 10 years been dealing with Soviet foreign trade organizations, signed another profitable contract for the delivery of herbicides, chemicals and solvents to the USSR in 1966.

When the exhibition was over, most of the equipment and exhibits displayed by European and American firms were sold. The total of deals, contracts and agreements concluded was in excess of 140 million rubles.

Land of Chemistry

The Soviet display, among the largest, covered a floor space of more than 100,000 square feet. The 7,500 items came from 600 industrial plants and research laboratories. The imposing size of the Soviet display was not just show: the USSR is second only to the USA in output of chemical products. The mean annual increment of this important industry has reached 14 per cent.

A corner of the Soviet pavilion. Modern-day chemistry has filled in an astonishing number of gaps in the Mendeleyev Chart.

The pavilion of the Federal Republic of Germany. A West German chemist exchanges ideas with a Russian colleague.

ITALY

UNITED STATES

AUSTRIA

GREAT BRITAIN

FEDERAL REPUBLIC OF GERMANY

SWEDEN

FRANCE

GERMAN DEMOCRATIC REPUBLIC

SWITZERLAND

SOVIET UNION

The total of contracts and agreements signed was in excess of 140 million rubles.

International Exhibition on Chemistry

21 Countries Participants

1,800 Foreign Firms Represented

35,000 Exhibits

1,300,000 Visitors

In the past three years the Soviet Union has trebled its output of mineral fertilizers—in 1964 it came to 25.6 million metric tons, and by the end of 1965 to over 33 million. In 1964 the USSR produced 720,000 tons of synthetic resins and plastics, 361,000 tons of chemical fibers and 24 million motor vehicle tires.

The Soviet displays were in four pavilions, of which three were newly built. Artificial diamonds and synthetic crystals for optical generators with new heat-resistant materials, a functioning plasmotron for binding nitrogen and an operating installation for synthesizing chemically pure substances with low-temperature plasma were among the best-attended displays. This equipment is for a new science—plasmochemistry.

Thousands of visitors were drawn to the stand which displayed items that chemistry produces for Soviet sputniks and spaceships. Similarly for the stands with the latest Soviet-made chemical reagents, preparations and ultrapure substances. The USSR has made some 5,000 of these items available for export, and 43 countries already buy them. Stable, radioactive and atom-tagged isotopes are being exported to 32 countries.

The house of the future or, to be exact, a piece of a 16-story house—an apartment assembled of high-strength silicate concrete—was on display outside the Soviet pavilion Chemistry in Building Construction. A house of this kind is to be built soon in a Moscow residential district. Chemistry will make this house light and graceful. Silicate concrete requires less steel support and makes construction cheaper. And nearby, in the "crystal house," domestic visitors and foreign guests could view some other new products of Soviet chemistry—a wide range of structural and decorative glassware.

Great Success

It is difficult to say which stands most interested visitors—those which displayed the achievements of chemistry in heavy industry or in light, in agriculture or in the manufacture of plastics and synthetic goods, in chemical engineering or in medicine. They all drew impressive numbers.

Soviet viewers flocked to the many pavilions and stands of foreign firms. The British pavilion, with 30 firms participating, covered an area of about 54,000 square feet. The Imperial Chemical Industries display of its variegated products was always crowded. This company is one of the USSR's major suppliers of chemical equipment and processes. It is now building six polyethylene and two Terylene plants in various parts of the Soviet Union. This firm sends about five per cent of its export goods annually to the USSR; I.C.I. exports to the USSR are growing at the rate of 10 per cent a year.

The pavilion of the Japanese Association of Chemical Industry was more like an electronics laboratory, both for elegance and precision of performance and for type of exhibits.

One hundred and fifty West German firms showed their wares in a specially built two-story pavilion of glass and steel with a floor space of 100,000 square feet. In a separate inflated pavilion, Friedrich Krupp demonstrated models of its chemical equipment and measuring instruments, items manufactured of polyester resins and glass fibers. The big West German concern is now building 15 major chemical installations in the Soviet Union.

In the French pavilion more than a hundred firms and, especially, Rhone Poulenc and Simca Industrie, with whom the Soviet Union has long done business, displayed items that testified to an exceedingly high level of scientific and technological know-how and industrial design. The very interesting Italian pavilion, particularly the famous Snia Viscosa, attracted fashion-minded women, chemical engineers, scientists and businessmen.

Soviet and foreign specialists in chemistry and visitors generally admired the new chemical developments in the USA. The displays Industrial Chemical and Dye, Gardner-Denver International and Union Carbide International were accommodated in the largest pavilions at the exhibition.

Mr. P. R. Fresia, industrial sales manager of Gardner-Denver International, said, early in the exhibition, that he was sure his company would sell everything it had brought to this show.

At the formal opening, USSR Minister Leonid A. Kostandov, Chairman of the State Committee for Chemistry, declared: "It is difficult to name a sector of the national economy today that is not permeated by chemistry. That is why the interest manifested by businessmen and chemists in this exhibition is very understandable."

The hopes which Soviet business organizations and representatives of the Western business world pinned on the exhibition were completely justified.

The Moscow exhibition not only displayed achievements of world chemistry, it contributed materially to international economic, scientific and technical cooperation.

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Front Cover: Winter sports enthusiasts at a ski lodge in the Carpathian Mountains. *See story on page 42.*

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Leonid Lazarev Cover I; Yevgeni Tikhanov Cover II-2, 57; Gennad Koposov, Vasili Mishin, Lev Polikashin 6-13; Dmitri Donskoy 14-15, 29; Dmitri Ukhtomsky 17; Leonid Sergeyev 19; Anatoli Garanin 22; Yuri Abramochkin, Valeri Shustov 38-41; Lev Borodulin 42-43; Georgi Petrusov 44; Yuri Cherepanov 45; Alexei Bushkin 46; Lev Polikashin 51-53; Mstislav Botashev 54-55; Vsevolod Tarasevich 60-61; Igor Vinogradov, Anatoli Garanin 64-Cover III.

Editor in Chief (Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor (Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor (Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director (Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

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ENOUGH MINERAL RESOURCES?

By Nikolai Nekrasov
CORRESPONDING MEMBER OF THE USSR ACADEMY OF SCIENCES

The exploitation of the country's mineral resources has increased very considerably in the past half century. This is evident from the following table:

VOLUME OF OUTPUT
(in millions of metric tons)

	1913	1963
Coal	29.2	531.7
Oil	10.3	206.1
Gas *(in billions of cubic meters)*	0.02	91.5
Iron ore	9.2	137.5
Agrochemical ores	0.1	19.9

The plan in the next 15 years is to raise the annual output of coal to 1.2 billion tons, oil to 700 million tons and gas to 700 billion cubic meters.

Can we guarantee a sufficient supply of raw material to meet these figures? Do we have enough dependable mineral sources now to be able to site our future plants?

Three groups of industrial raw materials are especially critical for the progress of our industry generally: chemical power (oil, gas, coal, shale, peat), ore (iron and manganese, nonferrous, rare and noble metals) and agrochemicals (apatites, phosphorites, potassium salts, sulphur-containing substances).

Oil and natural gas we consider primary. They provide a major and very economical power source as well as a cheap raw material for industrial chemicals. We are spending more money prospecting for oil and gas than for all other minerals combined.

That emphasis has paid off. A gas- and oil-bearing area, with almost inexhaustible reserves, has been discovered in the West Siberian lowlands. We began to tap it in 1964. Large deposits have also been prospected in the Irkutsk Region and the Yakut Autonomous Republic (Central Siberia), in Central Asia, in the Mangyshlak Peninsula (Caspian Sea), in the Ukraine and in the Crimea. Oil gushers have been opened up in Byelorussia. We have reason to expect big oil and gas finds in the central areas of the country, in the European North.

As many as 510 new oil and gas deposits were discovered during the past seven years. The general geologic-economic evaluation of the oil- and gas-bearing areas already found warrants the conclusion that there is enough oil and gas in the Soviet Union for many decades to come, despite the high levels of annual output planned.

The reserves in our 25 coal fields, 8 major coal-bearing regions and the more than 650 individual deposits are estimated at 8,670 billion tons. With reserves that large we can plan high levels of coal output.

In terms of volume of output and importance for the national economy, iron ore occupies third place. Our potential reserves are very large indeed. We shall be increasing the output of ore in the old areas and tapping rich new areas in addition.

In particular we are developing the Kursk Magnetic Anomaly, the Turgai and the Angara-Ilim iron ore basins. The Anomaly is important because it is in the center of the Soviet Union's European part and yields very rich ore. A new source of iron ore has been developed for the Ural iron and steel industry in the Bolshoi Turgai area, famous for the Sokolovo-Sarbai deposits, and in the Lisakovskoye deposit with its high vanadium content. The Magnitogorsk deposits are largely exhausted, and the new sources of ore will permit us not only to maintain present levels but to expand Ural metallurgy.

The exploitation of Siberia's iron ore deposits has barely started. We have begun to tap the Korshunovsky deposit in the Angara-Ilim area. The feasibility of opencast operation and the high percentage of iron (as much as 62 per cent) give us reason to assume that the Angara-Ilim basin will be the very solid base of Siberian metallurgy. Such big basins as the Angara-Pitsk, South Yakutian and others will be in reserve.

The location of iron ore basins gives us a more even distribution of metallurgical centers across the country.

The ferrous metallurgy and chemical industries have a sufficient supply of manganese ore, chromites and refractory materials. Nonferrous metal deposits are being worked in many economic areas (Kazakhstan, the Northwest, Siberia, the Far East, the Northern Caucasus).

We have deposits with a rich content of valuable metals. But in many areas we have been working comparatively low-grade ores. This is explained to a certain degree by our still inadequate knowledge of the country's resources, even though we continually come on new finds and thereby increase our nonferrous reserves. For instance, we have, for some time, been working the lean nonferrous ore deposits of Norilsk in the northern part of Krasnoyarsk Territory, and only recently did we discover at Talnakh a big nonferrous metal ore deposit with a high content of valuable components. Many areas (the Altai, the Urals, the Kola Peninsula) have to be revaluated now with account taken of the newly discovered rich nonferrous ore deposits.

We have done extensive prospecting for agrochemical ores. The reserves found guarantee the output of phosphorous and potassium fertilizers planned for 1970.

As far as the volume of our raw material sources is concerned, we do not forsee any difficulties for a long time to come. However, we do have a real problem with the distribution of many useful minerals. It is common knowledge, for instance, that we have deposits of agrochemical ores which are world important. And yet we search high and low for new sources of these same raw materials. The point is that the major deposits of apatites, phosphorites and potassium salts are located in the European part of the USSR and that three quarters of our phosphorous raw materials come from the Khibiny Mountains in the Kola Peninsula. Mineral fertilizers are needed in all parts of the country, particularly for farming in Siberia and the Far East, and shipping agrochemical ores is much too expensive. This is why we have to create new centers for the production of these minerals in the eastern areas. The geological prospects look favorable.

Coal resources are also unevenly distributed. The bulk of the coal reserves are in Siberia. The industrial centers of the European part of the country consume the coal mined in the Donets basin, Pechora and the Moscow fields. Coal mining here, however, is seven to eight times more expensive than in Eastern Siberia. We therefore plan to supply the European regions with power in a basically new way. The idea is to build, as coal production grows in the East, long and superlong power transmission lines from Kazakhstan and Siberia to the Volga and the central regions, and also to move the power-consuming industries closer to sources of cheap power.

This is being done in the case of the aluminum industry. Large combines are being built alongside hydroelectric power complexes. Bauxite (aluminum ore) deposits have thus far been discovered mainly in the European part of the country. For the present, the Siberian aluminum industry has to use a leaner raw material—the nephelites—while Siberian bauxite deposits are being uncovered.

Prospecting in our country has long since assumed the scale of a nationwide effort. Many economic areas of the country have been well explored, but there are forbidding regions which are still blank spots on the map. We are getting to them gradually.

But the point is not this alone. The progress of modern science and technology has fundamentally changed the methods of searching for minerals. Figuratively speaking, we have barely scratched the outer crust of our planet. We have bared only the very surface deposits.

This superficial knowledge of the earth's crust has so far met industry's requirements for minerals. (We do not accept the "theory" of a raw materials crisis in minerals.) However, considering the level of production forecast for the next several decades, we must begin to dig deeper.

The average depth of oil and gas prospecting wells in the USSR is soon to be increased from 1.3 to 2.2 miles, and in some areas, to 4.3 miles. The average depth of metal prospecting holes will increase from 650-1,000 to 1,500-2,000 feet, and in some places, to half a mile.

Progress in prospecting techniques will inevitably lead to the discovery of new deposits. What is more, new methods of studying the earth provide a new orientation by which to evaluate raw material resources in the different economic areas of the USSR. For instance, it was thought for a long time that the central areas of Russia, except for the Kursk Magnetic Anomaly, were poor in natural resources. With the new methods we have already discovered not only iron ore and bauxite in the strata of the Voronezh-Kursk and Byelorussian crystalline folds, but evidence of nonferrous metals (nickel, copper, etc.) as well.

Analysis shows that the Soviet Union presently has sufficient and reliable sources of the basic raw materials, with large potential reserves indicated.

NATURE'S REWARD

Photographs by Gennady Koposov, Vasili Mishin, Lev Polikashin

A few years ago many scientists smiled and shook their heads at the idea. It was simply not there! Having delivered this judgment, they would eye a green area on the map of Siberia, the lowlands between the Yenisei and Ob rivers, directly behind the Urals. Academician Gubkin, patriarch of Soviet oil prospectors, had insisted as far back as the thirties that there was oil in Western Siberia. The skeptics were still shaking their heads.

But geologists made their way through the taiga, through forest and marshland. Wells were sunk in the southern part of Tyumen Region.
Though the wells in the south of the West Siberian lowlands yielded nothing, they did help to outline the area that might yield oil and gas.

The prospectors moved northward, and in September 1953 gas fountained from a well near the village of Berezovo. Eyewitnesses said it was like a volcano erupting. Six hundred and fifty feet of steel piping were blown to the surface, sent soaring through the 130-foot derrick and hurled aside like twisted macaroni. Specialists estimated the pressure of the gas at 200 atmospheres. At first the well blew out gusts of a clay solution, then a fairly even column of gas and water.

Nobody argued about oil in Western Siberia after that, but eight years more were needed before a big strike was made. A gusher broke to the surface in the vicinity of Ust-Balyk in 1961. Then oil and gas came pouring as though from the horn of plenty: Megion, Surgut, Shaim, Medvedovskoye, Lokosovskoye, Teterevskoye and Kamennoye oil and Soteh, Punginskoye, Otkheuryevskoye and Tazovskoye gas.
Tyumen geologists discovered five oil fields and one source of gas this year alone.

Nature seems to be rewarding those who kept faith with her, although she does not make those rewards easy to collect. Frost, taiga and impassable marsh all remain to tax man's efforts to the utmost.
The prospectors, true enough, are heartened, for they no longer have to prove that exploring Western Siberia is worth the money invested. The facts speak for themselves.

Columns of trucks move from Tyumen toward Surgut, Shaim and Nefteyugansk, one of the newest towns, with drilling equipment, welding aggregates, building materials and warm clothing. The accompanying photographs show how one of these truck columns gets to the geologists and oil workers.

Once Russia had only one big oil region—Baku, on the shore of the Caspian Sea. A second Baku sprang up between the Volga and the Urals in the past 20 or 30 years. This region yields more oil than Baku.
The oil fields of Western Siberia are a third Baku. Their reserves are immeasurably greater than those of the second. This new oil area will undoubtedly take first place by 1980 when it will be yielding hundreds of millions of tons of oil.

The river was frozen, roads nonexistent, but West Siberian geologists and oilmen had to have equipment, so this convoy started on the 600-mile trek.

SIBERIA:

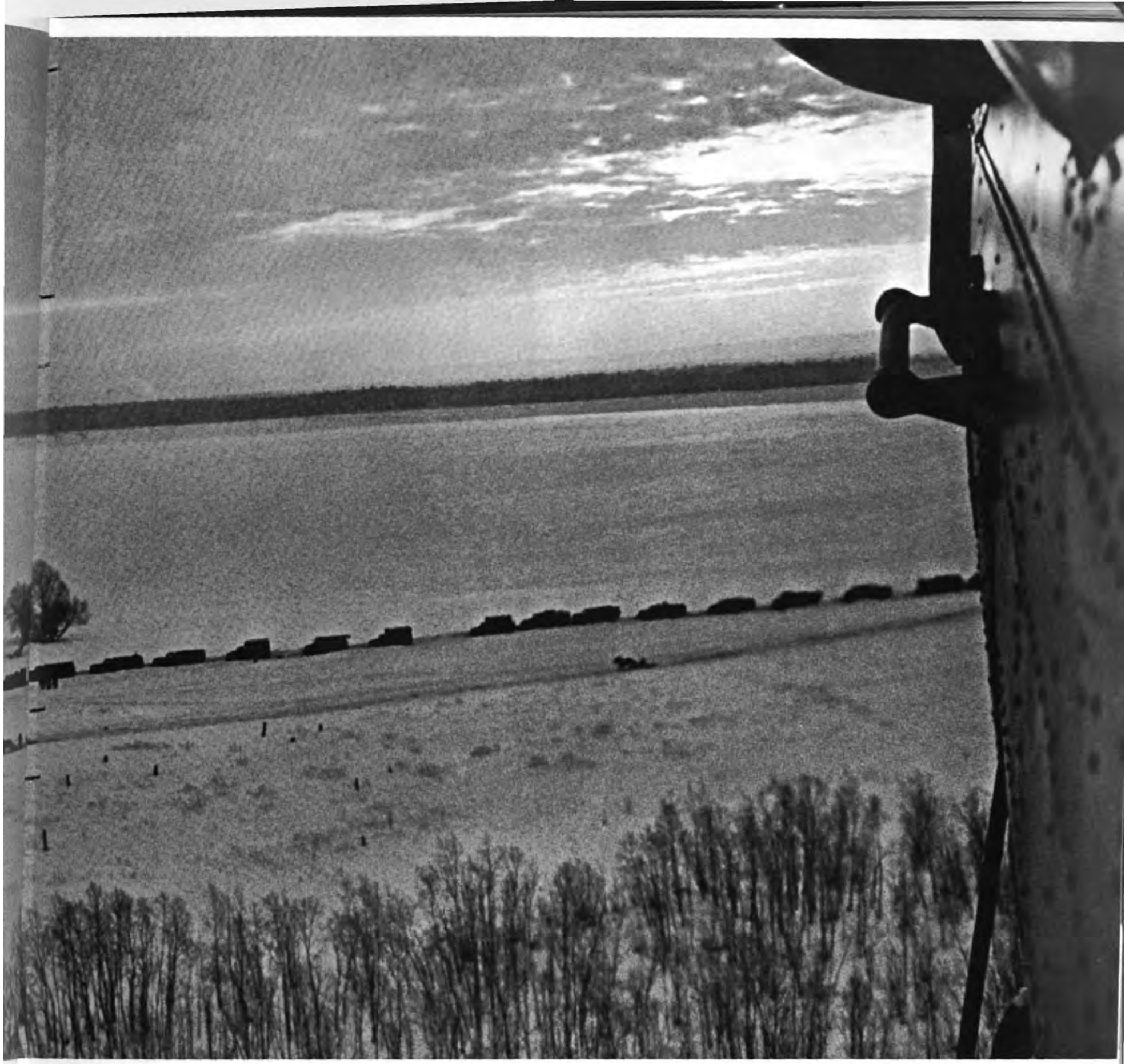
THE NEW FRONTIER

By Vladimir Pozner

IT WAS a job to keep going. The straps of my knapsack cut into my shoulders even through the quilted jacket, and the knapsack itself pressed down heavily on my back, so that I couldn't straighten up. It was terribly hot. The horsehair net that covered my face against the gnats also made it hard to breathe. In spite of the net, those midges were ferocious. They kept whirling all around us in a dark cloud, stuck to our sweaty hands like gray dust, and got into our mouths, ears and eyes. The taiga watched in silence as the eight of us pushed through the dense thickets, climbed over the bent trunks of fallen cedars, fell into holes that were covered with moss and twigs, took off our knapsacks and threw ourselves on the ground with a sigh of relief to rest a few minutes and then start off again.

That was 10 years ago and I was the eighth person in that column.

They say there are moments in life that brand themselves on the brain forever. For one person it may be a village road, a warm evening with a still light summer sky and the whining twang of a saw



someone dropped that breaks the silence, or an unexpected call that touches the heart and is remembered to one's last days. For me it was the branch of a fir tree that had just been dry as could be but which, after brushing the faces of each of the seven ahead of me, was soaked. There it was right before my eyes, beads of sweat dripping from it. And as I moved on, it gave me a wet slap. We were going to Bratsk.

This past autumn, when the TU-104 was getting ready to land in Irkutsk and I was sucking a fruit drop so my ears wouldn't clog, there before my eyes was that sweaty branch, and my left cheek seemed to itch from its rough touch.

A RUSSIAN COLUMBUS, A MOURNFUL WIDOW AND 11,600 RUBLES

Irkutsk is the main point of intersection in Siberia. The paths of those who travel west to east, or east to west, cross here. There were Swedes, Americans, Frenchmen and Italians on my plane, and at the airport, waiting to board the Moscow plane, were Japanese, Mongolians, Chinese and Australians. For many of these people Irkutsk was a change-over, and they stopped off here for only three days, long enough to get a look at the Siberian exotic and then to rush on further. For me, however, it was a memorable acquaintance renewed. In 1956, when I was a student, some friends and I had made a 440-mile trip by foot from Irkutsk to Bratsk along the banks of the Angara. Now, in 1964, I retraced that route, only this time in the capacity of a journalist and in more comfortable transportation.

When Jules Verne visited Irkutsk in 1870, he called this city half-European and half-Asian. Founded on the bank of the Angara in 1661, it is still a mixture. If not for the fire of 1870, Irkutsk would have remained a wooden town for the most part. In memory of the past there still are its outskirts, which consist of little houses dug into the earth up to the windows (to keep the warmth in), the stone towers

From Tyumen the convoy headed north for Nefteyugansk and Surgut. It had to cross icebound rivers, build roads and bridges, hack its way through forest.

of ancient fortifications and thick-walled monasteries that withstood the fire. Later Irkutsk was built of brick, but the architects' love for wood is also evident in their brick buildings. For instance, the Church of the Ascension of Christ, a portion of which was built by unknown masters in 1748, is an attempt to carry over the traditions of wood architecture to stone. The ornament is an exact copy of the motifs carved in the wooden churches of ancient Russia. The old part of the church had only one tower (God), then two others were added (the Son and the Holy Ghost). The new part, built in the nineteenth century in the baroque style by much less skillful masters, has nine towers, thus bringing the total to 12, the number of the apostles. Incidentally, while we are on the subject of styles, Irkutsk has a building in the Roman style, in other places there one can see the influence of Byzantium, and the museum of folklore is a purely Moorish structure. An interesting detail: At the edge of the roof of the museum, along all four walls, there are yellow slabs most of which carry the names of the discoverers of Siberia, names that are covered with glory. There are, however, some slabs without any inscription. Apparently, they are still waiting for the chisel of the engraver who will carve the names of the pioneers of present-day industrial Siberia.

Next to the museum, on the Angara embankment, is an obelisk dedicated to Siberia. It bears Mikhail Lomonosov's words: "Russia's future will rise from Siberia." Irkutsk cherishes the memory of the Russians who came there. Moving ever further eastward, they discovered enormously rich lands destined to become the economic heart of the Soviet Union—that is what all Siberians believe. Streets, factories and even cities are now named in honor of these people.

Two different centuries, each in its own way, honored the memory of Grigori Ivanovich Shelikhov (1747-1795). His wanderings took him as far as Alaska, to which he brought the Christian faith. He lies buried in the cemetery of a former convent, which now serves as an orthodox church and the residence of the Irkutsk archimandrite.

In places where trucks could not get through, the helicopter came to the rescue. The MI-6 handles a tractor or bulldozer as though it were a toy.

Here, too, there is a monument to Shelikhov. It is famous for its bas-relief, for the orders and diplomas—bestowed upon this navigator by Empress Catherine II—carved on it, and for the words of the poet Derzhavin about a "Russian Columbus," which are engraved on it. But what impressed me most was the inscription of his "inconsolable" widow. Bewailing the grief that had overtaken her, Shelikhov's wife, at the end of her jeremiad, did not forego the opportunity to announce that the monument, which was made of rock brought from the Ural Mountains, had cost her 11,600 rubles (a very considerable sum for those days).

Today, a 20-minute ride from Irkutsk, there is a modern city with a huge aluminum plant that is wholly the work of tens of thousands of volunteers, YCLers. Somebody has figured out that the average age of the inhabitants of this town, called Shelikhovo, is 16. And although few people in Siberia look on it as a memorial to the famous Russian traveler, I thought it was a superb Soviet monument to a fearless pioneer who had penetrated that wild, uninhabitated region.

CLARK GABLE

The day after my arrival in Irkutsk I set off for Baikal. The road, which had been winding in and out like a frightened rabbit, suddenly began to climb, taking us high over Baikal. The lake, incredibly blue, splashed down below. It was surrounded by mountains.

For those who love superlatives this lake would be a real find. It is the deepest in the world, and the only one that has more than 300 rivers flowing into it and only one river—the Angara—flowing out. It has been an unexplored mystery from days of old. A hundred and twenty years before our era eastern annals described it, and Marco Polo mentioned it in his travel notes (he called it the "Great Northern Ocean"). Many are its legends. The best known is the one about the Shaman's Rock, a cliff that the father Baikal hurled down in the path

of his daughter Angara when she fled to her beloved, the Yenisei. They say that if the Shaman's Rock is moved, the waters of the lake will rush into the Angara and flood Irkutsk.

But to tell the truth, that was not what I thought of when I glimpsed that legendary lake. I was remembering the last time I had seen it.

Our small concert group had to get to the Baikal fishermen, who were fishing for omul in the most out-of-the-way places. We had covered most of the way from Irkutsk by truck, but the remaining five to ten miles lay across the taiga, where the only possible transport was your own two feet.

Taking leave of the driver, we set off. It was noon of an August day, the sun was scorching hot, and the gnats hung about in clouds. We all walked along in silence. We knew that we had better save our energy and not waste it on talk which, anyway, was almost impossible because of the insect nets that covered our faces. We were silent with one exception.

That one didn't walk, he skipped along in the most carefree manner, like a young colt. He kept bending over to pick a flower that caught his eye, and emitted deafening shouts of rapture when he discovered squirrels perched in the branches of the giant cedars. He was the "head of our musical section," the only one who could play the accordion, guitar and piano—all of them well. That was Zhenya Chernyayev.

Like the rest of us, he was majoring in biology at Moscow University and planned to become an ichthyologist. Everybody was fond of Zhenya, but they did not take him too seriously. The reason, probably, was the inexhaustible energy that impelled him to get into everything. If there was a sports event, you could bet that Zhenya would be competing in the 100, 200 and 400 meter dashes, although he always took a rather modest place. If a concert was scheduled, Zhenya would be on stage singing a song in Spanish and accompanying himself on the guitar, a French song to his own accompaniment on the accordion, and then, most likely, he would accompany someone else on the piano. If there was a scientific discussion on any subject whatsoever, Zhenya would certainly be there. Moreover, he resembled Gerard Philip and Clark Gable because of the way his ears stuck out, which prompted us to call him "Gerard" sometimes and at other times "Gable." This invariably evoked an explosion of anger. In a word, Zhenya was liked but the consensus was that he was frivolous and paid too little attention to his biology. When there was talk about those who would probably devote themselves to science, "Gerard Gable" was not mentioned.

And so there we were, pushing our way with difficulty through the thickets while Zhenya kept leaping about like a goat, making us all feel uneasy lest, as sportsmen say, he would peter out at the finish.

"Hey, there, Gerard, quit jumping. If you don't watch out your ears will get caught on a branch and then you'll hang there in the air!"

"*J'aime flâner sur les grands boulevards*," came his voice, which sounded distant yet mocking from behind his net.

Our fears were not groundless for on the last ascent, a peak that hid Baikal from view, Zhenya staggered as he walked. He was no longer interested in the "grands boulevards." All he wanted was to stay on his feet. Three hundred feet more . . . 150 . . . 75 . . . 30 and there it was, Baikal!

Breathing heavily, we stood there in the twilight, stock-still, overcome by the beauty. Suddenly, in that complete silence, we heard Zhenya's hoarse voice, "I'm going to work here."

None of us paid that statement any attention. Our minds were occupied with other thoughts. Besides, Zhenya did not impress us as the type of person who, for the sake of science, would give up a diverting life in the capital for the quiet of the Baikal.

Yet in 1958, after he had presented his diploma thesis on grayling reproduction, Zhenya quietly and unnoticeably left for Baikal. And there he vanished. He wrote no letters nor did he come to Moscow.

But five years later a brilliant article appeared in one of the most serious scientific journals. It was about the reproduction of two species of fish which had formerly propagated only in Baikal but which now, thanks to a new method, could be bred elsewhere in the country. The author, who had worked out the new method, was none other than Yevgeni Alexeyevich Chernyayev—our Zhenya.

And it was Zhenya I thought of when I saw the lake.

I want to interrupt the chronology of my story here. When I was in the Baikal area last fall, I asked about Zhenya. I learned that he was married, that he had a son named Gerard and that he had grown a big red beard. I was also told that Zhenya is known literally all along the coast of Baikal, that there is not a single place he has not visited. He is known in Irkutsk and in Novosibirsk for his very interesting and original scientific studies, and also because he is the organizer of many amateur concerts given by the fishing collectives. Finally, I was disappointed to learn that from June to August Zhenya takes a boat and provisions and goes off far into the lake to do his scientific observations, far from the many tourist groups that come to Baikal in the summer and make it hard to work. I visited the Baikal biological center. There I was told that "Yevgeni Alexeyevich" is loved and greatly respected because "he is a scientist from head to foot, and very much devoted to his work, to Baikal and Siberia."

Now, as I write this, I realize that although I would not want to change places with anyone, I do envy that Muscovite and Siberian, Zhenya Chernyayev.

"YOU ATE OURS AND WE ATE YOURS"

Our car dashed through the narrow streets of the Kultuk fishermen's settlement, past the village of Slyudyanka where the only thing left from the old times is a prison-fortress built by the Russian traveler Yakov Pokhabov (the local stream is called Pokhabikha in his honor). Then we again began to climb a mountain to Pereval, the name of a marble quarry 4,000 feet above sea level.

At the administrative entrance of the building I was met by the director, Lev Burov. He is a Ukrainian, is 37 years old, is married (his wife was born in a little village on the Volga) and has two sons.

After talking a while I asked him, "Tell me, why did you come to Siberia?"

"Well . . . I served in the army here and fell in love with the country. If you like hunting and fishing, which I do, this place is as close to heaven as you're likely to get. Well, when I was demobilized, I returned to my birthplace. I married and had about everything a man could want—good land, a family and friends. But I kept being homesick for Siberia. When I recalled Baikal and the taiga, I simply couldn't stay away. And so I talked things over with my wife and we decided to come out here. My friends gave me hell: Unfaithful to my own part of the country, and all that. Others predicted that that would be the end of us. Bears, the cold, the backwoods, everything else. But nothing happened to us, as you can see for yourself."

"True, we did come across bears here, and some funny things happened. Before only Buryat hunters and wild beasts lived here. There were 500 of us who came down here to build. Once, in spring, one of the builders arranged a date with a girl near the stream. She came down early to wash some things. The rendezvous time came and passed but her friend still hadn't come. The girl, naturally, began to get angry. Suddenly she heard steps behind her and then felt a hand on her shoulder. She grabbed a wet towel and without turning around, slammed it furiously at what she thought was her beau. She heard a roar. This time she did look around and to her great consternation there was a big brown bear. The girl fainted, and the bear dragged her into the taiga. Several minutes later her boy friend showed up. He saw the scattered wash, the grass which looked as though it had been trampled on, but no sign of the girl. He raised such a howl that all the builders came running. The Buryats immediately realized what had happened and started off, following the tracks. Bears have their own peculiar tastes. They don't like fresh meat, they like it a little rotten. And so the bear had dragged the girl into the taiga and had covered her with twigs and leaves, so that she would "rot." That is where the Buryats found her."

"And nothing happened to her?"

"No, she was only frightened half to death. As for the bear—he met his end."

"?"

"You see, Buryat custom does not let them hunt bear. Legend has it that the bear is a 'brother.' But if it goes after a person, it has to be killed. It becomes a man-eater once it knows that it is easier and also safer to attack a man than a boar or an elk. And so the Buryats track down and kill such bears. Then they hold a big feast, eat the animal—bear meat is very tasty—dance and sing. "You ate ours, we ate

yours—now we're even." They don't go through the ritual any longer, but they always kill man-eating bears."

"Do things like that still happen?"

"No more. We drove the beasts away with our explosions. Only if we happen to wake up a hibernating bear, he may come down for food. But on the whole, things are quiet now, like a resort."

Burov laughed and then added. "This summer my wife and I went to the Black Sea for our vacation. We returned a week ago, but I still don't feel right. The weather there is terrible, nothing like we have here." Then, nodding in the direction of Baikal, he said: "Is the Black Sea any better than that? No wonder the fishermen say, 'If you call Baikal a lake, it will get mad and smash everything with its waves.' "

We got into a car and rode off to the quarries. The road girdled the mountain in a spiral. Along the way we saw signs in red paint, "Careful! Dangerous! Blasting!" Burov explained that the workers get the marble out in three shifts of seven hours each and that the blasters work the remaining three hours. Most of the marble goes to the big cement plant in Siberia.

"Marble for cement?" I asked, somewhat indignant. "That's right. It has too high a content of manganic salt and is too brittle for anything else. The small pieces are used for finishing the sides of buildings, like the Wedding Palace in Irkutsk. The effect is very beautiful."

THE MARBLE MOUNTAIN

When we left the car the scene that greeted my eyes was overwhelming. The marble mountain that had been blasted gleamed in the sun like snow on a bright winter day. All around us the taiga blazed with the yellow flame of its birches and the red flashes of its bushes and maples, alternated with green islands of tall cedars. And down below was the blue Baikal. I immediately began collecting pieces of white, light blue, rose-colored, yellow and green marble. Now they adorn my desk at home and remind me of that meeting with Baikal.

The quarry works simply and economically. The blasters blow up the rock. Tremendous excavators, of which there are seven, load the blocks onto 40-ton trucks which take the marble to the automatic loader of the cableway. The road extends to the place where the initial crushing is done and from here the "rubble" goes to another place, right near a railroad, for final pulverization.

It was impossible to speak to the men here, although that was the very thing I wanted to do. Excavators rumbled, trucks roared, and if I stopped anyone it meant breaking the work rhythm. We went down to the repair shops, which greeted us with a loud whistle announcing the end of the shift. Burov introduced me in a few spare words: "A journalist from Moscow. Wants to ask you some questions."

I told them that this was my second trip to Siberia, that I wanted to write it up for the magazine *Soviet Life*, since our American readers were interested in knowing how Russian workers live. I had hardly finished that preface when a worker of about 40 shoved his way forward. He was a man of average height, with light blue eyes and a hooked nose.

"It's fine that the Americans will read about us, but we'd also like to know about them," he began. "How about telling us how the people live there, what they think about us."

The interview was taking a turn I did not want. Not because I was loath to tell them what I knew about America. I had had occasion to do that rather often, and I knew from experience that if I answered one question, others would pour as from the horn of plenty. Soviet people are very much interested in the United States. But I wanted to ask the men about themselves and Siberia in the little time I had. And so I resorted to an old trick for which, I hope, I will be forgiven—I answered their question with one of my own:

"Why ask me as if I were an American journalist? I have questions of my own I want to ask."

THE "HOST" AND THE WORKER

Our conversation continued in the apartment of miner Vladimir Sotnikov, who had invited us for dinner. He, his wife, son and daughter have a two-bedroom apartment in Slyudyanka.

There were eight of us at the table: Burov, Sotnikov and his wife, Valentin Filimonov, who drove me from Irkutsk, the blue-eyed worker who had asked me about America, a friend of Sotnikov's who had come down from the Urals to visit him, someone else and myself. There was so much talk that I couldn't write it all down, I shall therefore reproduce what I can from memory. I asked how this part of the country is supplied with foodstuffs, while enjoying a mouthful of fried grayling. This is a very tasty species of grayling which can be found only in Baikal. It tastes something like salmon, only more delicate.

"Don't get the idea that we eat grayling every day," Sotnikov said, answering my question. "They rarely have it in the stores. It's an export item; we need machines to build plants. But my friend, a fisherman, lives nearby, and so I asked him for a couple of fish for this occasion. We have bread, butter, sugar, also meat. We don't always have sausage, and fruit and vegetables are a problem. The Siberian winter, you know."

The thing that impressed me most was the relations between the people at that table. If I had not known who was the director, who was the head of the shop and who was an ordinary worker, I could never have guessed which was which. That day I saw many things: modern machinery and mining equipment, apartments for workers (for which they pay very little, about four per cent of their monthly wage), free schools where workers learn new specialties so they can handle the new machines and new processes. (This, incidentally, is very important, it means workers don't have to be laid off when their old skills are automated.) But again, what impressed me most was that there was no "rank" in the relations between the director of the enterprise, which employs several thousand people, the head of the shop, who has a hundred or more workers under him, and the workers themselves.

THE TAXI DRIVER

It was late at night when we rode back to Irkutsk. Filimonov, my rather taciturn taxi driver, handled the car so well along the dark twisting road that I asked, "You know this road well, don't you?"

Perhaps what happened to him is what happens sometimes to people who are not talkative by nature. I don't know. But something seemed to burst in him, and once he began talking, he talked all the way to Irkutsk.

"Familiar? It certainly is. The first time I saw it was when I was arrested in '37. I was just a kid then. We were rushed down this road under convoy, as far as the assembly place. Later we were sent to various camps. They sent me to the Indigirka River, where I spent 10 years. When they let me go, I came back here.

"Once they asked me, 'Want to work as a truck driver in the camps? You can eat your head off and earn good money!' I agreed. You probably wonder how it is that a person who was there as a prisoner would then go to work for the camp. Well, by that time I was married and had a son and family responsibilities.

"One day I got an order to take a group of prisoners from one camp to another. I went down, filled the truck with them and started off. After we'd gone about 30 miles, I stopped the truck to give them a chance to stretch their legs a bit. I remember it was night. It was cold, the moon shone, and it was dead quiet all around. I sat there in the cabin and looked at those people. They were just shadows, scarecrows. All around us was the steppe, not another soul, and these people I was carrying were so pitiful, they looked so lost, I just couldn't stand it. When I reached the automobile base, I went up to the chief and said, 'I've had enough. Valentine Filimonov is no longer working for you.' And I turned around and left.

"I found a job as a taxi driver and that's what I'm still doing. Life now is altogether different. No more camps, no more cults. That's all to the good. I have my own head on my shoulders, I think for myself. We all do that."

We drove into town. The car stopped in front of a hotel.

"Suppose we drop in and have a cup of tea?" I suggested. I wanted very much to continue the conversation.

In reply he suddenly got shy and growled, "Can't."

"Why not?"

"I've got a little girl, she's three, Tanyusha. She won't go to sleep without me, waits for me to say good night. So you see, I can't."

We said good-by. I never saw Valentin Filimonov again but I

The faces of Siberia's frontiersmen are as weather-beaten as this country that stretches from the Urals to the Far East. Oil worker Grigori Norkin.

shall always remember him with gratitude. His story reflected a whole life, a whole era.

YOU CAN'T GO ANY FARTHER

In the morning I was to lecture on modern American literature at the university in Irkutsk. My audience was to consist of literature and history students, but future journalists and lawyers also gathered in the auditorium. It was so crowded that we had to move to another building.

Irkutsk University has a student body of about 6,000. The university itself is considered the East Siberian younger brother of the famous Novosibirsk University, but I was sure that the general level of knowledge of American literature would be considerably lower than in Moscow.

Now I feel ashamed of myself when I recall that.

If there is any difference between the Moscow students and those of Irkutsk, it is only that the latter grab more eagerly at any opportunity to broaden their knowledge. They read without end, pester every person they meet, squeezing out of him everything he can possibly give them. They are in a hurry to learn, to leave their university and institutes as quickly as possible and, like the pioneers of the American Wild West, begin to grapple with the Soviet Far East. But they are pioneers of a different kind. They come equipped with modern technology, with 15 years of education, and what they have to combat is not rustlers, but nature and, at times, bureaucrats. As for the local "Indians," they, too, are pioneers here.

I was surprised at the make-up of my audience. At least 30 per cent of the faces were obviously Mongolian: Yakuts, Buryats, Evenki and other indigenous East Siberian nationalities. A little over 40 years ago these nationalities did not even have their own written languages. The parents of those who had assembled to listen to a lecture on

A normal hazard for oil and gas prospectors. Dame Nature guards her store of Siberian gold, diamonds, oil and gas with every weapon in her arsenal.

modern American literature had been, for the most part, illiterate. They not only had not read any American literature, but they could not read anything at all. While I appreciated the enormous cultural leap they had made, I took it for granted that their children would know very little about translated literature, to say nothing of having read the originals, American in particular. However, I found I was mistaken.

They spoke about Faulkner the way one does about a writer one knows and loves. The "Beatnik" writers Updike and Albee were not a *tabula rasa* for them, and their evaluation of these writers was not superficial. Of course there were naïve opinions as well. Here are some questions which were asked in writing, which is why I can quote them directly. I kept the scraps of paper.

"Please tell us something about Harper Lee. Did she write anything new after *To Kill a Mocking Bird?*"

"Is Ray Bradbury popular in America?

"Which Soviet writers are translated in America? Is Paustovsky known there? Zalygin? Voznesensky?"

"How can you explain the fact that Howard Fast, who wrote such fine novels as *Citizen Tom Paine, Freedom Road, The Last Frontier*, has written of late only one novel, and that a mediocre one, *The Winston Affair*, and has not done anything else noteworthy?"

My "lecture" lasted three hours. Then, after the questions on literature came questions about America in general: the press, young people and the attitude of Americans towards the Soviet Union.

New York, a city that for many symbolizes America, and Irkutsk are 12 hours apart. In other words, those who live in Irkutsk are the farthest away from New York, you can't go any farther. But the people of Irkutsk show the deepest, most genuine interest in America, know a great deal about the country, and have an undisguised liking for Americans.*

* To be continued in *Soviet Life*, No. 2, 1966

Igor Shcheulov,

22 years old

Igor is a linguist and knows English, Korean and Singhalese. And what about the guitar? "Well," says Igor, "I think I play a pretty good guitar, but the boys don't trust me with more than the rhythmic accompaniment. They make up for it by letting me announce all the songs because I organized the trio. I'm the only native Muscovite in the group, so I'm pleased that the trio was born here too."

Vladimir Makarenko,

25 years old

"I came to Moscow from the Byelorussian city of Gomel to study Swahili and to sing. So far I have succeeded in doing both. At my age there is hardly any time left for choosing. However, I believe I will not have to. Actually I have no intention of changing my interests. My friends tell me that I'm inclined to get edgy, but I put that down to the fact that I'm the main soloist, and that takes a lot of work."

FOLK SINGING TRIO

By Alexander Maryamov

Photograph by Dmitri Donskoy

LATE IN APRIL 1964 three lads with guitars had 14,000 Muscovites at the Sports Palace wildly cheering their renditions of folk songs of different countries. They gave six encores before the emcee finally persuaded the audience to let them go.

In the year since, the trio has sung from time to time in telecast performances, in Moscow radio broadcasts, at amateur concerts, or simply at student socials and in youth cafés. But that evening in April was really when the ensemble was born.

Guitar + Soul = Trio

That is the formula of their performances, and it is also their own criterion for a hobby which took on serious proportions only very recently.

How serious may be judged from the fact that famous variety actors refuse to perform at concerts after them: "Only before them, or the audience will not listen to us."

Other evidence is the fact that the three have to keep turning down offers to perform with one or another "star" of the variety stage, because they do not want to upset their mobile balance of talent and enthusiasm. And also because "We sing what we like," as Dmitri Zgersky often says.

And what are the preferences of these three students with guitars who, notwithstanding their success and popularity, persist in treating their art as a hobby, sing and play at amateur concerts and refuse to turn their hobby into a profession?

With a good knowledge of several languages, an excellent command of the guitar and of their voices, low though their volume may be, they have worked up a universal and varied repertory. They began as listeners and ardent admirers of such other ensembles and soloists as The Kingston Trio, Pete Seeger, Josh White, The Brothers Four, Joan Baez, Peter, Paul and Mary, Odetta and others. These and many other folk singers constituted a school of harmony and taste for them, rather than a model for imitation. Beginning with a faithful copy of originals, the trio soon acquired its own personality.

Although its composition has not changed in almost two years, the trio still has no name. The emcee announces each by name, and they come on stage strumming a soft melody. Someone suggested the ensemble call itself Daisy, as a tribute to the South African song which opened the variety stage to them. They, however, did not take to the name, and nothing new has been suggested thus far.

Choosing Songs

They have only about 20 songs in their repertory, but this quantitative scarcity is compensated for by geographical range and thorough preparation. The Negro spiritual "Michael, Row the Boat Ashore," the Russian "At the Pole Over Here," and the Hebrew "Hava Negila" are all rendered with moving fidelity to tradition. Pete Seeger's "Where Have All the Flowers Gone?" the African "Wimoweh," and "I Was Born in East Virginia," are more recent and as popular additions.

The great interest in the youth ensemble is not accidental, evidence is the attention with which Soviet musicians are following its progress. The trio has already received many invitations from composers to sing their new songs. Thus far, they have not accepted. And why?

"It is hard to find songs that suit our tastes, our voices and our guitars," is the explanation Dmitri Zgersky gives. "So far, we have rehearsed 'Polyushko-Polye,' which is on the way to becoming a classic, and we are now rehearsing three more songs by young Soviet composers."

Blues in Major Key

But folk music of different countries remains the preference of these three young Soviet singers. I remember seeing them on the dimmed stage of the Kremlin Palace of Congresses in Moscow. As the narrow searchlight beams snatched out of the darkness the tiny figures of the guitarists, Igor Shcheulov stepped to the footlights and told the audience what Seeger's "Where Have All the Flowers Gone?" was about. Six thousand listeners sat drinking in the words dropped into the quiet hall by the soft voice of this young man. And when the trio began to sing, softly, sadly, everyone in the audience understood them and himself. There was a silence, then a burst of applause, and the melody suddenly had a cheerful ring.

And backstage the guitarists are excited, more so, perhaps, after a performance than before. They laugh, slap one another on the shoulder, always cheerful, always in high spirits.

That is why they sing.

Dmitri Zgersky,

29 years old

A recent graduate of the Eastern Languages Institute and the least tempermental of the trio, his taste and musical knowledge carry most weight. He says, "Frankly, I cannot imagine myself without the guitar. I have remained faithful to it for many years, which cannot be said of my regular occupations. I grew up in Taganrog, where I worked as a fitter and assembler. Then I changed my trades for languages—Arabic and English.

GIRLS AND BOYS

By Ludmila Ochakovskaya
TEACHER

WE WERE GIRLS ONCE too but there are times when we find it very hard to understand our own daughters. The quietest, most modest girl suddenly becomes a puzzle that no grownup can make sense of. Let me try to tell you about a few of the things that have me worried.

Girls would seem to be easier to manage—they are more conscientious in their studies and social responsibilities. We once had a very kind but very lazy boy in our class. Through his school years the girls kept him in tow, they would worry when he got poor marks, would go to the principal to beg that he not be expelled and in the end pushed him all the way to a school-leaving certificate. We despised the fellow and wondered why on earth the girls bothered with him. "We're sorry for him," they explained. "He'd get lost without us." What a typically feminine word "sorry" is. Any woman is always willing to pity someone who is weaker and to bear the greater part of the burden.

Then all at once those very same girls began to use make-up and lipstick. It turned into a real epidemic. And the hairdos! When a girl like that sat in front of someone, he had to lean out into the aisle to see the blackboard. Neither remonstrance nor such punitive measures as washing their faces and combing out their hair, nor sneers had the least effect. I once asked one of the most obdurate why she did it. I asked like one woman of another. And before me there unfolded a girl's world which I had already begun to forget. He was 18, tall and an adult. She was 15, got excellent marks, had pigtails and just normal eyes, not limpid pools à la Cleopatra that extended to the temples. And he never looked at her. She was sure that cosmetics were the only way to attract his attention. She said, "He likes it." Logical? Very!

We spoke for two hours, and I stumped her when I asked what she would do if he'd like her to drink vodka, smoke and God knows what else. And then I explained that one could not subjugate oneself to another's taste, that one must cherish one's own personality, and that one had to respect oneself. But it seems that I only convinced her with the purely feminine argument that the make-up did not suit her and made her old-looking not grown-up. These are terrible words for a woman, even a 15-year-old one.

Once after a test I picked up a crumpled piece of paper in the class and, taking it for a crib, began reading. It was a note from a boy to a girl. I would not want to say out loud what this young Don Juan wrote out in full in his childish hand. The contents of the note were known to the class, for a note passed from hand to hand is hardly a guarantee of secrecy. Frankly speaking, my first impulse was to walk up to the boy and slap his face. But we called a meeting of the class Komsomols. There was a lot of noise, even the usually calm boys were indignant. Someone asked the author, "What would you do if someone sent a note like that to your sister?" The boy was very fond of his fifth-grade sister. He turned pale. Then the conclusion was inevitably arrived at that a dirty word spoken by a boy, or man, hurts not only the girl to whom it is addressed. By using such words he sanctions similar insults to his sister, mother, to any woman, even the dearest. The huge 16-year-old fellow cried with shame. But the girl to whom the note was addressed remained quite unperturbed. Her calm seemed somewhat strange, as if she would not have objected to the proposal had it been couched in a more acceptable form.

I had the girls stay on after the meeting and asked this single question, "Why was the note addressed to you?" Women are quite familiar with the typical shoulder shrug of the female who knows she is attractive. She shrugged her shoulders, and it signified: "What can I do if men like me?" The girls all understood her. And then the talk turned to feminine dignity and pride and the difference between popularity and accessibility. Only then was she put out of countenance. She understood that she had been insulted, and we saw that she would remember the insult for a long time.

The desire to be liked is natural for a woman. It keeps her from becoming degraded and coarsening under adverse circumstances. This is the basis for much of a girl's behavior. But how often she loses all sense of proportion! And when, in addition, there are no serious aims in life, this desire leads to those sad consequences that frighten us so. Her whole world becomes centered in the adored one. And it hurts so when no attention is paid to you and another, a worthless one, is popular while you sit on the sidelines. At 16, when a 30-year-old woman seems old, one seldom stops to think that one's honor must be cherished from youth. At 16 it seems that if you don't win success and happiness today, you never will, and that you have to start fighting for it immediately. This is just when the weaker ones decide that all's fair in love and war. It never enters their heads that boys, on becoming men, naturally marry those who are less striking but more demanding.

We need not be hypocrites. No woman can honestly condemn a girl for an unlucky love affair, no matter how much she has to suffer for it afterward. But usually it is not love that brings the suffering but unrestrained curiosity, the desire to learn everything at 16, afraid that at 20 it will be too late. There was one girl who said to her mother, "Today I'm 17, next year others will be 17. What am I supposed to do, become an old maid?" This is disgusting.

In our literature classes we usually explain why Princess Mary fell in love with the romantic Pechorin*, but hardly ever how Sofia could prefer the pitiful Molchalin to the heroic Chadsky**. And so you have it—a good and wise girl of 18 courting a no-good and in justification saying that she wants to make a good man out of him. But she is devoid of all will power and has no idea of how she is humiliating herself: her chosen one does not heed her advice and stays just as bad as ever. But here is the remarkable thing. This is not what makes the girl suffer, but the fact that she saw this cad walking down the street with his arm around another girl's shoulders!

In every woman's life there is a time when she understands that she is not loved, when she must clench her teeth and harden her heart and break away if she is to preserve her dignity and self-respect. Girls must know about this, then there will be fewer tragedies in girlhood and less bitterness in maturity. You must remain a human being even if another has been preferred to you. But this we do not teach our daughters, either at home or in school.

The creative principle is strongly developed in woman. Like a true artist, she is capable of making a masterpiece out of almost any material. And we engender this in her by affirming in literature and films the ideal of woman's love as a force that can overcome all odds; fidelity, we keep saying, can work wonders. But there are cases when a girl hears her drunken father heaping curses upon her mother. And on the morrow, when he is sober, she sees them go hand in hand to the movies or visiting. At first the daughter feels ashamed of her father and despises her mother, but then she begins to think that perhaps it is right to forgive your loved one everything.

In school we talk of the deep sense of duty of Tatyana*** and the selfless love of Anna Karenina. But girls are concerned with very concrete problems: Who is right, Tatyana in rejecting Onegin's love or Anna in sacrificing everything for love? Who is right? How must they behave if boys make passes at them, and how if no one pays them any attention? Not every girl reads the magazine *Yunost (Youth)*, and not everyone asks her teachers or mother. But they all ask themselves these questions. And they are entitled to a clear and honest answer.

Such conversations are not simple. Perhaps that is why we teachers and mothers are so wary of them. I certainly am. For me the most difficult is to make the girls understand that:

True love, and pretty words
And songs in praise of eyes,
in praise of beauty sung,
They really tend to make God's earth
more pretty,
But life comprises so much more,
and that's a pity.

And if today the fashion is for slim delicate women who wear stiletto heels and change the color of their hair with every season, this does not fool anyone. When duty calls, hardly a single one of them will be found wanting. How I wish that our daughters and pupils would understand that this is also part of the art of being a woman.

It sounds funny when anyone nowadays calls women the "weaker sex." Girls must know that it is wonderful to be a woman, even though the cult of the "fair lady" has long passed and knights no longer perform great feats in our honor.

We long ago abolished the ill-fated separate education. But I believe that certain elements of differentiation are necessary in school. And this applies not so much to talks on hygiene, as to training in character. Woman's character. Because life itself has endowed a woman with many facets: citizen, mother of citizens, guardian of the family and contributor of values without which today's society would be inconceivable. The beauty of our women is a whole world in itself. Her spiritual wealth is her great contribution to our creative effort. It is a whole science—how to be a woman—and sometimes a lifetime is insufficient to master it.

And so, mothers of girls, let us study this science anew with our daughters, always beginning from the beginning. And when you are alone with your thoughts, remember the time when the trees seemed bigger, the world so alluring and mysterious, the time when we were girls, too.

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* From Mikhail Lermontov's classic novel *Hero of Our Time*.
** From Alexander Griboyedov's classic play *Wit Works Woe*.
*** Heroine of Pushkin's novel in verse *Eugene Onegin*.

GIRLS AND BOYS

DO YOU EVER stop to think that sooner or later your son or brother will become a man, a member of that half of the human race that used to be called the stronger half? This is no idle question, I am very much in earnest.

I recently went on a trip with the children. We had a happy time, saw interesting places and met wonderful people. Our boys, our dear clever boys, were a bit lazy, a bit insolent, but on the whole fairly normal. When we boarded the train, they no longer felt inhibited by the usual school restraints, and their characters began to unfold.

To begin with, everything that mother had given, over and beyond what was to go into the common pool, they ate separately, each in his own corner. This was true only of the boys, the girls laid out all they had and ate together to a chorus of noise, jokes and entreaties to try this and try that.

What followed was in the same vein. Every bucket of water, every log of firewood, every chore was debated in such detail by the boys, that not only the girls and I but, it seemed to me, even the logs and the buckets blushed with shame. But the boys argued on, so unwilling were they to do an extra spell of duty, so loud were their demands for "justice." That very justice which we teach them to hold dear and which they understand as an absolute, strict and pure equality consisting of a dividend and a quotient. All the quotients must be equal.

Once we left the camp for a hike. By mistake we took the longest road and, according to the most conservative estimate, walked at least 25 miles. There is no need to say how tired we were. The girls and I dragged our feet toward the village by sheer will power. The boys trod on with a firm, manly step, outstripped us all and arrived first. They never looked back, only forward.

Once we were caught in a downpour. It was brewing all day and finally burst when we were returning past eight o'clock from a tiring hike from Trigorsk to the Pushkin Hills.* The road led across an open field, and the Hills were no more than two miles behind us. But we had already walked there and tramped all over the park and its vicinities for several hours. In other words, we had very little use for rain.

Again every one of the boys raced ahead of us by almost a mile. I'm not saying that they did not get wet too. They were just as wet as we were. But how could they thoughtlessly leave us behind? And why afterward, looking at us with innocent eyes, did they say that if they had had raincoats, they would have given them to us, but since they had nothing, what good would their hanging around do us? It never entered their heads that a joke, a kind word, just the silent presence of a man lends support, that the girls need it, that even they themselves do!

But perhaps they were in a hurry to have water for washing and supper ready by the time we came? And there would be smiles and the blessings of civilization waiting for us? No! We found the boys changing their clothes and ready for someone to feed them. Someone. Who? The world is made up of two halves. If one half waits, that means the other half is expected to do the waiting on.

I don't know, perhaps my understanding of this problem has got bogged down somewhere at the level of the late nineteenth century, but I thought and still think that men should not behave that way.

In the meantime, not knowing what was in store for them, the girls trudged on in the rain and thought of the stone lying on Pushkin's desk. This was the stone Anna Kern had tripped on.**

I was swallowing tears of chagrin. I allow that the boys have not yet met their goddess, their inspiration, nor experienced the tears of love, but they soon will. And then what? Why they have not the least desire to be strong and to give of their strength to others. Though not their loved ones, only friends, they are girls! And when loves does come, will it not be weak and pitiful? For where is the strength and beauty to come from?

Some will say that I am exaggerating. These boys are not hooligans, they are not malicious. Just ordinary boys. And it is just this ordinariness that frightens me.

I can imagine some experienced pedagogue reading my article and saying impatiently, "Madame, you are only acknowledging your own weakness, your own inability. So the boys went off, and what did you do, simply looked on? Why didn't you stop them and explain?

No, I did not stop them, and I did not explain, because I wanted them to understand for themselves, to feel ashamed of themselves, without the teacher's reproof. For the girls to explain to them. And there were explanations and arguments, and the boys did feel ashamed. But to say that the boys understood and became gentlemen after this, alas, I cannot.

In one of her first wartime poems Yulia Drunina wrote with bitterness and pride: "The roads of war are travelled by girls that look so much like boys." And that was fine, we can be proud of it. But we had no choice then. But now when I see boys and girls going on a hike, all dressed in the same kind of jeans, the same cowboy shirts, with neckerchiefs around their necks, the same sneakers and their hair clipped short, I hesitate to say who's who. And it is not just the costume, for this is normal hiking dress. All of them are carrying knapsacks and buckets, equally. Equally? But why not lend a hand to these girls who look so much like boys? They only look like you, boys! But they're women!

Konstantin Simonov called his novel *Soldiers Are Not Born*. You become a soldier when you believe that you and no one else is responsible for your motherland, that you can stand up for it. I believe that real men are not born either. Mothers give birth to weak little red-skinned boys, and some of them will become real men—strong, brave, capable of answering for themselves and for others, of protecting both their families and their land; others will remain grown-up children, naughty, spoiled, and because of their weakness constantly reminding their unhappy girl friends, wives, mothers and daughters of equality and of masculine superiority.

It has become the custom in our schools, at home, in films and literature to extol the strong woman who drives a tractor and raises children and does it all wonderfully well. And this is no glossing over, she really does. But, mothers, tell your sons how you achieved it, why you grow old prematurely. Let the men know what it costs you.

In recent years we never speak to the boys about chivalry, about that noble and purely manly quality that once so beautified all true men. . . . I suppose it is no wonder that today any manifestation of chivalry is considered old-fashioned, even something to be ashamed of. And it is not simply that the boys will not grow up into chivalrous knights with respect to their mothers, sweethearts, wives...

Commencement exercises were over in our eight-year school. The boys and girls strolled through the streets of Moscow and then went home. On the morrow they went to various other schools. Sometimes I meet them, and these are always joyful meetings, when each of us boasts a little: they about their achievements, I about my pupils. Just the usual personal affairs people talk about, no more than that. Then a few days ago I met a tall, broad-shouldered, handsome fellow. He was dressed well and with taste. Taking off his dark glasses, he said hello.

"Where are you studying?" I asked him.

"Nowhere. Why should I?"

I didn't know what to say. If he didn't have to then really why should he?

"Well then, where do you work?"

"In a laboratory. Just the thing I was looking for. I already tried working in two factories and another laboratory. But this is the best."

"Is it interesting work?"

"Not in the least! What I like about it is that I don't have to do anything. I tried working in a factory, but I've had enough!"

"But, how can you spend all day doing nothing?"

"Well, I do something. Today they gave me a sheet of paper to line. I drew the lines, it's not hard. I'm never tired after work."

And so we parted. The tall, handsome fellow with tolerable manners went his way. But I was filled with anxiety. Anxiety for his father, a wise, well-educated man, devoting days and nights to the science he loves. Anxiety for his mother, a gentle understanding woman, who tried her best to protect her son from the harmful influence of the street. She sacrificed everything for him and now, probably, sees that her sacrifices were in vain. Anxiety for the girl who will believe in him and will be so profoundly unhappy. Anxiety for him, for myself. Yes, for myself, too. If in each of my classes there are several such citizens...

It will soon be September and the beginning of the last term with my class. How can I help the boys become better, handsomer, stronger? How hard it is to do this in school!

Have you noticed that when a soldier is in civilian clothes, he can be noisy, arrogant, in fact, anything? But as soon as he puts on his uniform, he is a different man. The uniform binds him! School is also like a uniform: in school boys are different than at home or on a trip. I had been teaching them for two years, and it was only on a trip that I really got to know them. And what opportunity has the school for training character? Doing school chores? Cleaning the blackboard? Diligent study? Don't you believe it! But something must be found. And please don't laugh, but something that would be equivalent to conferring knighthood.

I love boys, but only the strong ones who are growing up to be real men. Who is going to love the weak ones? They are to be pitied. That is why I wrote about them.

Courtesy of Izvestia

* Memorable places associated with the poet Alexander Pushkin.

** Anna Kern, whom the poet loved tenderly, once tripped on a stone while walking with Pushkin on the poet's Mikhailovskoye estate. Pushkin picked up the stone and always kept it on his desk.

Морозко

MOROZKO

A Russian Folk Tale

DRAWINGS BY LEONID SERGEYEV

ONCE upon a time, there lived an old man and his daughter. One day the old man got married to an old woman who had a daughter of her own. The new wife made her stepdaughter work very hard—chop wood, fetch water, tend the fire, feed the cattle and keep the cottage tidy—and all before daybreak. But though the little girl did her best, she could not please the old woman. Finally the new wife decided to get rid of her stepdaughter.
"Old man," she told her husband, "take her out of here. Take her wherever you like, so long as I never set eyes on her again! Take her into the woods and let Old Man Frost get at her."
The old man wept and pleaded, but to no avail. So he got out his horse and sleigh and put his little daughter in it. He took her into the woods and set her down in a snowdrift beneath a spreading fir tree and drove off.
For a long time the little girl sat shivering beneath the tree. Suddenly she heard Old Man Frost nipping at the trees, skipping from branch to branch. When he reached the tree beneath which the little girl sat, he looked down at her and asked,
"Warm, little girl?"
"Yes, dear Old Man Frost."

OLD MAN FROST

Old Man Frost stepped down still closer and nipped still harder.
"Warm, little girl?" he asked again.
"Very warm, dear Old Man Frost!"
And Old Man Frost took pity on the little girl and wrapped her in a warm mantle of fur.
Meanwhile the stepmother was baking pancakes for the wake, as was the custom. She yelled at her husband, "Now, you old bag of bones, bring back your daughter's body!"
The old man drove slowly into the woods. When he reached the place where he had left his little girl, he stopped short in amazement. There she was sitting, gay and rosy-cheeked, attired in a mantle of sable and wearing gold and diamonds. At her feet stood a chest full of riches. The old man's heart was filled with joy. He took his little girl and all her wealth and went home.
When the old woman saw all these riches, she grew very excited and cried out loudly, "Don't stable the horse! Take my daughter into the woods and leave her where you left the other one!"
The old man put his stepdaughter into the sleigh and took her into the woods, to the very same spot where he had left his own little girl.
The old woman's daughter sat beneath the fir tree shivering, her teeth clicking together. Meanwhile Old Man Frost nipped at the trees, skipping from branch to branch until he reached the tree under which the old woman's daughter sat.
"Warm, little girl?" he asked.
"No, it's very cold! Don't nip, Old Man Frost!" she cried.
Old Man Frost came down still closer and nipped still harder.
"Warm, little girl?" he asked again.
"It's terribly cold! Go away, Old Man Frost! Curses on your head!"
Old Man Frost became very angry and nipped so hard that the old woman's daughter froze to death.

YOUR QUESTIONS ON COMMUNISM

The December 1964 issue of Soviet Life was devoted to readers' queries on communism. It attracted wide interest and brought a great many additional questions on the same subject. We shall continue to answer these questions as we receive them.

IS IT POSSIBLE TO CHANGE HUMAN NATURE?

Yes, said Gilbert Bordier, a shopkeeper by trade, and a Buchmanite by creed, whom I met when I was out hunting under a broiling African sun. He did not sidle away from me. Indeed, when he learned I was from the Soviet Union, he argued passionately that Buchmanites and Communists should get together to promote altruism.

My new acquaintance pulled a handbag from under the seat of his jeep. He always had a stock, I learned, of Moral Rearmament literature on hand. Snapping the bag open, he pulled out a yellowed sheet, a "Manifesto to World Communists."

Under God's guidance, the leaflet read, the Communists could move the world toward the grandest revolution of all time. How was that to be done? By refashioning human nature—eradicating evil, asserting the good, transforming the individual and therefore his society.

Many people assert, the leaflet went on to say, that the problem is capitalism versus communism, class versus class, race versus race. However, the problem is not communism or class or race, but character.

People must be pursuaded to become moral, honest, self-abnegating; they must be taught to love their neighbor.

What could be simpler? If we all took this advice to heart, became honest and good, this planet of ours would change into an earthly paradise.

Now Frank Buchman is by no means the first messiah. Confucius and Buddha and Tolstoy also taught self-perfection. The Bible brims with counsel on love and self-abnegation. Indeed, if one could build a ladder with all the edifying things that have been said in past millenniums about morality, we would have reached the moon long ago.

The problem, alas, is not so simple. One can, of course, be a 100 per cent altruist in the veld or jungle, admidst animals and trees. I am quite sure my new acquaintance would have risked his life to save me, a Communist, from the jaws of a lion had the occasion presented itself. Uncorrupted nature does not inhibit such demonstrations of simple morality.

It is far more complicated in a society where human interests conflict, in a society which has different social classes and, hence, different interests and different outlooks on life. I think Mr. Bordier would have thought not twice but thrice before coming to the succor of a rival shopkeeper on the verge of bankruptcy.

I have met capitalists. Some of them are very nice people, good Christians, so far as I know, who willingly donate thousands of dollars to charity.

But when business is at stake, even the kindest of them chucks his scruples. Otherwise he would not stay in business long. Indeed, were an employer not to demand more work from his employees, not seek greater profit, not dismiss workers when business is bad or because of automation, he would simply not be able to meet competition.

The moral reformation of our minds and characters is, unhappily, very remote if it has no stronger motivation than subjective desire, no matter how earnest.

Communists believe that morality cannot be separated from social development and that it is not the cause but the consequence of this development. Human nature changes as a result of the changes in the nature of society. What needs to be done is to alter the social conditions that stand in the way of the morality we aspire to. The main obstacle is Big Business, private ownership. This is what digs the gulf between fine words about morality and real human relationships.

That was understood long ago. In his sonnet the "Golden Age," Tomaso Campanella wrote:

Should all forget that things are "thine"
or "mine,"
In all that's useful, honest, satisfying,
I know that life would be a dream divine,
And blind emotion—
virtue edifying,
And falsehood would convert to
something fine
And tyrant's rule
would be no longer trying.

By abolishing exploitation of man by man and class antagonism, socialism paved the way for new relationships between people. The Soviet man knows that his wealth and good fortune do not lie in amassing property. Collective effort is the key to prosperity for our society as a whole and for each of its members. Every one of us realizes that the more he produces and the better, and the more and the better his workmate produces, the sooner will his own living standards rise and the sooner will it be possible to reduce his working hours, to leave him more time for study and recreation. This is what nourishes the team spirit, the wish to be friends with and help one's neighbor.

The first thing New York newsmen asked ace Soviet flier Valeri Chkalov after his nonstop flight from Moscow to the United States across the North Pole in 1937 was how rich he was. "I have 150 million Soviet people who work for me while I work for them," was his answer.

This was the new man speaking.

It is precisely the realization that society's interests are one's own vital concern that engenders an absolutely new attitude toward others, towards work, towards the state. Lenin said back in 1919 that communism begins where the ordinary worker shows an unselfish concern for more productivity, when he begins to guard every ounce of bread, coal, iron, and everything else produced—not because he or his family is going to benefit by it personally, but because all of society will.

As you see, in its socialist interpretation, the love-thy-neighbor principle is the Christian commandment the other way around. It is not self-perfection that spontaneously improves the world, but the active transformation of the world that changes people for the better.

To think that changes in social conditions automatically change human nature is, of course, an oversimplification. By abolishing Big Business and the exploitation of man by man, the socialist revolution creates the foundation for benevolent relationships between people. But nothing happens by itself. It takes years of painful effort to mold man to think anew and live anew.

Though complex, it is possible.

That is why Communists believe human nature can be changed. They not only believe it can be done, they are working at it.

WHY DO NOT COMMUNISTS APPLY THE PRINCIPLE OF PEACEFUL COEXISTENCE TO THE IDEOLOGICAL SPHERE? IF YOURS IS A SUPERIOR IDEOLOGY, IT MUST WIN OUT ANYWAY.

Communists look on peaceful coexistence as a definite historical period during which two differing socioeconomic systems must live side by side. Peaceful coexistence is today the only alternative to thermonuclear war. Communists propose that both systems agree not to resort to arms in settlement of international disputes and to cooperate without interfering in each other's domestic affairs. There is no contradiction between this and the view held by revolutionaries that capitalism is doomed because of its inner contradictions. Communists believe that the future belongs to communism because it is the better social system. Proponents of capitalism are free to take a different view, of course, and they do.

Some public figures in the West see peaceful coexistence in a different light. Raymond Aron, well-known French sociologist and writer, for instance, holds that peaceful coexistence can be achieved only when statesmen in the communist countries cease to regard the ideological conflict as unavoidable and the victory of their own camp as inevitable.

Raymond Aron and those who share his opinion want to see in peaceful coexistence

a guarantee that capitalism will go on forever.

But peaceful coexistence cannot provide any such guarantee. Peaceful coexistence has to do with foreign policy and depends on the good will of all nations and governments, while a country's social system is a purely internal affair. The Soviet Union cannot guarantee capitalism everlasting life. That does not depend upon the Soviet Union but upon the people of the capitalist countries themselves. They, and they alone, will decide the question. All talk of exporting revolution, including revolutionary ideology, is ballyhoo. Revolution is made by the masses of people, when they come to accept the new ideas and to feel an urgent need for social change.

In the Declaration of Independence, Thomas Jefferson proclaimed for the first time the right of each nation to choose the form of government it finds most suitable. Every nation, declared this great American, has the right to rebel when its sovereignty is violated, to destroy the old governmental system and set up a new one. This is a sacred right.

Thus, the principle of peaceful coexistence presupposes, as an indispensable condition, that there be no interference in the internal affairs of any other nation. But it does not and cannot mean that the ideological struggle between the different systems must end. Nor does it mean an end to the ideological and social conflicts inside the country that arise from class antagonisms.

The socialist revolution was victorious in Russia in 1917. Nobody could have exported it to Russia since there were no socialist countries in existence at the time. On the contrary, the British, French, Japanese and other imperialist countries sought by force of arms to export counterrevolution to Soviet Russia, to restore the capitalist system.

Lastly, nobody with any common sense will argue that the national liberation revolutions in Africa, where dozens of independent states have been set up, were the result of plots by outside forces. The emergence of these young states is too obviously the legitimate fruit of a historical process—the breakdown of colonialism.

And this final example. From time to time strikes break out in the United States, in Italy, France and other Western countries, often developing into prolonged and bitter class conflicts. You do not, I am sure, look for "the hand of Moscow" there. The truth is that even were the Soviet Union to agree to suspend the ideological struggle, the oppressed peoples and social classes would not suspend their struggle for their elementary rights. And whether the Soviet Union would or would not be willing to extend peaceful coexistence to the sphere of ideology would not make the slightest difference there.

But does the fact of the class struggle in capitalist countries necessitate bad relations between them and the Soviet Union, or even war? It is enough to pose the question for the absurdity of the thesis—either peaceful coexistence or a struggle of ideologies—to become evident. The one does not and can not exclude the other.

"But suppose capitalism refuses to die and insists on demonstrating that it has plenty of resources?" bourgeois ideologists ask.

Well and good, this is just what Communists propose: Let capitalism show its potentialities and socialism its potentialities.

No, the ideological struggle cannot be ruled out. It is a clash of convictions, of philosophies. However, as sharp as that clash may be, it need not lead to war. You can adhere to one ideology and at the same time trade with people that hold to a different ideology, exchange films and exhibitions with them, work jointly in the exploration of space. This should be clear to any reasonable person.

The foregoing two Questions were answered by Edward Rosental.

WHAT IS THE COMMUNIST POSITION ON THE NATIONAL QUESTION?

A practical illustration is the experience of the Soviet Union, whose territory is inhabited by more than 100 nations, peoples and ethnic groups.

Before the 1917 Revolution most of them were economically and culturally backward, rightless and oppressed.

All non-Russians were lumped together contemptuously as "natives." Many of the people of Siberia, the Soviet Far East and the Arctic were dying out as a result of ruthless exploitation, hunger and disease.

Soviet power based its national policy on this principle formulated by Lenin: No nation is to occupy a privileged position. All must have the right to self-determination. Relations among the Soviet peoples must be equal in theory and in fact, based on mutual assistance and friendship.

On November 15, 1917, the eighth day after it assumed power, the Soviet Government issued the Declaration on the Rights of the Peoples of Russia. It was the first document to legalize the equality of all citizens regardless of color, race or nationality. That equality is also guaranteed by the Constitution.

The principle and practice of equality of nations and races is central to communist thinking and a communist social system.

How is the equality of peoples, both large and small, ensured in the Soviet Union? The rights to work, leisure, education and social insurance are guaranteed to all Soviet citizens without exception. Men and women of all nationalities, everywhere in the country, get equal pay for equal work. The same principle holds in political life. It is not unusual for a city with a predominantly Russian population to elect a Georgian or an Uzbek to the Supreme Soviet, or for Uzbeks to vote in a Ukrainian.

The Soviet state is based on the national principle. The peoples inhabiting a definite territory set up their own political-administrative structure. The size of the population determines the form—republic, autonomous republic, autonomous region or national area.

There are 15 union republics: the Russian, Ukrainian, Byelorussian, Latvian, Lithuanian, Estonian, Moldavian, Georgian, Armenian, Azerbaijanian, Uzbek, Kirghiz, Tajik, Kazakh and Turkmen.

The union republic is a soverign state. It has its own supreme organ of power—the Supreme Soviet—which appoints the republic's government—the Council of Ministers—and elects the Supreme Court. Each union republic has its own coat of arms, flag, anthem and capital. The republic's territorial boundaries may not be altered without its explicit consent. It is within the competence of the republic's Supreme Soviet to adopt annual and long-term economic development plans and a budget. The national life of a union republic is formulated and executed by its own agencies. All official correspondence and school instruction within the republic's confines are conducted in the local language. Despite big differences in their population sizes, the republics are all equally represented in the central organs of power.

The President of the Presidium of the Supreme Soviet of union republic is also one of the 15 vice presidents of the Presidium of the USSR Supreme Soviet. Both the biggest republic in the Union—the Russian Federation, with a population of 125 million, and Estonia, with a population only a hundredth as great—send 25 deputies to the Soviet of Nationalities, one of the two chambers of the Soviet parliament.

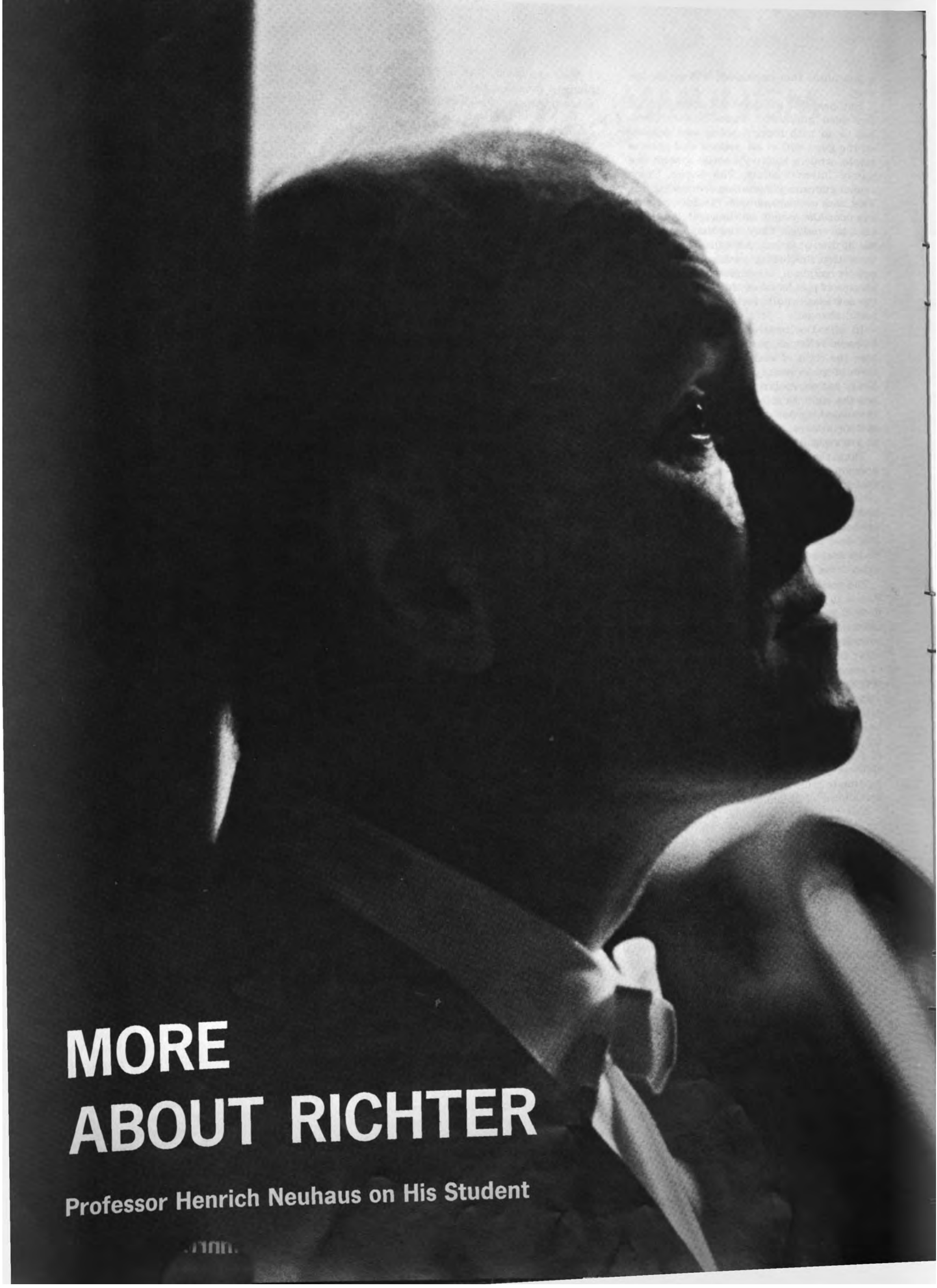
Within the union republics there are autonomous republics, autonomous regions and national areas.

An autonomous republic also has its own territory, constitution, Supreme Soviet, government, budget, Supreme Court and capital. Each of the autonomous republics is represented in the Soviet of Nationalities by 11 deputies.

The autonomous regions and national areas are self-governing administrative areas established by minor nationalities. They are not states but they discharge many state functions. Each autonomous region elects five deputies to the Soviet of Nationalities, and each national area one deputy. Their local organs of power—the regional or area Soviet of Working People's Deputies — have full jurisdiction within their respective confines. They are constituted with due regard for local conditions and conduct all their business in the local language. They adopt and administer their own budgets.

The equality of the Soviet peoples is also manifest in their economic and cultural development. Before the 1917 Revolution large-scale industry was for the most part concentrated in Central Russia, in the Urals and the Ukraine. Today all the republics are developed industrially. The Central Asian republics—Uzbekistan, Kirghizia, Tajikistan and Turkmenia—which had only a few semihandicraft shops, now have many modern plants. Tajikistan alone has more than 300 large-scale plants representing some 30 industries. They not only manufacture goods for domestic use but export them to all parts of the world. In the past several decades they have trained their own highly qualified engineering and technical personnel, managers of plants and farms, and executives.

Cultural standards have also risen dramatically. The Kirghiz, Kazakh and most of the minor nationalities of the North and the Far East did not have a written language 40 years ago. Today every republic has its Academy of Sciences and scores of research institutes. Even minor nationalities have evolved their own literature and arts.



MORE ABOUT RICHTER

Professor Henrich Neuhaus on His Student

Henrich Neuhaus, eminent pianist and professor at Moscow Conservatory, died last year. This article was published in the magazine* Sovetskaya Muzika *shortly before his death.

SVYATOSLAV RICHTER is so well known that it is hard to say anything new and revealing about him. And since my own bias in his favor, shared by hosts of listeners, is well known too (I have even been reproached for it), I shall try to imagine an interlocutor saying to me, "Can you really find no fault with Richter, who has often enough been criticized by connoisseurs of music? Some quite frankly prefer other pianists."

I do not propose to argue preferences. It is a good thing for people to be guided by their own judgment and impulses rather than by any set code which, for example, requires you to classify Pushkin as our greatest poet, Lermontov the next greatest, and so on.

But to judge and be judged, in other words, to criticize is a human prerogative as old as the hills. Such being the case, I can certainly find fault with and criticize Richter. I can do it for several reasons, the first and simplest reason being that I am not he (a regrettable fact) and he is not I (a heartening fact, I think). On this my critical remarks are founded. Firstly, when still a pupil of mine, Richter played like an accomplished musician, flawlessly, faithfully and consummately. Yet his playing was more an exposition than a performance of the music. It did not go deep to the heart of the listener—young Busoni may have played like that. Secondly, as regards Richter the artist of today, I don't think it worth talking of the points on which I do not see eye to eye with him. They are minor and I believe that the differences are rooted in my own personal attitude, which I do not care to dwell upon.

And yet—I am being inconsistent as usual—I shall say a word about these points. At times—rarely enough, it is true—I found Richter lacking in "human warmth." I felt this once when I listened to the *Appassionata* and another time during a performance of Schubert's Sonata in B flat major, despite the depth and virtuosity of the recital. Busoni's words about Beethoven then came to my mind: "He is too human to be called divine and this makes him great."

Such notes as aloofness and reticence—inclined to have a cooling effect on the unsophisticated listener—a seeming indifference to human actions and frailties instead of generous forgiveness, the frigidity of a long-suffering soul but not dull insensibility sometimes creep into Richter's performance. This may "freeze" some listeners, but not me. In Richter the musician I see Richter the man and "to be a man means to be a fighter" (Goethe). Richter indeed fights with the intangible but no less effective weapon of his art against such enemies as the sordid, the false, the low-minded, the hypocritical.

Richter possesses, to my mind, a gift of reincarnation which the finest actor may well envy. (He, too, is an actor, even a director, in the noblest sense of the word.) Every time he plays a new composer, he is a different pianist himself. His kind of skill is the answer to the problem of faithfulness to the composer. Richter commands this skill (which includes consummate virtuosity) to perfection. It may be the consequence of his grasp of music as a whole. If great composers are particles of the "musical universe," like the bright stellar bodies and constellations are of our galaxy, Richter has penetrated deep into the mysteries of that universe.

A few words about Richter's pianism in a narrower sense. In his technique—his command of the piano or rather his symbiosis with it—there is a daring and an element of risk, something which recalls the knight on the battlefield: Prince Svyatoslav* warning his enemies that he is going to attack.

Richter's virtuosity is utterly devoid of that cold calculation which has brought fame to many pianists, particularly in our day. It must be remembered that there are other sources of virtuosity—passion, reason, force and emotion. And they are powerful enough to surmount the greatest obstacles.

It is this "element of risk" that I particularly value in Richter. The audience, too, beyond doubt, appreciates it, although there are those who shrug their shoulders and ask, "Why does he get so agitated and wrought up when he plays even simple pieces?" Daring is a quality possessed by every towering virtuoso, Gilels, for example, whose virtuosity, for all its distinctive individuality, is akin to Richter's.

I should now like to say a few words about Richter's rendering of Beethoven's last three sonatas, that exquisite triptych which will live for ever as a tribute to Beethoven's art as well as to music in general.

When still a student, Richter played the Sonata in A flat major like the finest musician (in the same way as such pieces are performed by great composers, for example, Prokofiev and Richard Strauss), but without the individual charm which was so characteristic of Sofronitsky or—to go back to earlier times—Padarewski (I heard him play only once when I was 14).

Later Richter's performance of this sonata scintillated in the glory of all its colors and acquired true depth; the drawing became a picture. *Arioso dolente* was pathetically penetrating with a declamatory emphasis. The integrity of the concept and the formal perfection of the performance never wavered, and it still does not when Richter plays it today at the age of almost 50. There is great tonal refinement with the contrasts more marked especially in dynamic movement; *arioso dolente* is languid, whereas *adagio ma non troppo* is extremely slow, despite Beethoven's markings, and as a whole more aloof, as if lifting the sonata another few feet above sea level. . . .

Richter himself was more pleased with his rendering of the Sonata in C minor, op. 111. So was the audience. To me his playing of all three sonatas carried great conviction. They conveyed to me what I really wished to hear myself, aside from any interpretation.

In brief, this is what I want to hear in these sonatas. Sonata op. 109, replete with the poetry of nature (and man in nature), springs from a profound feeling for nature. It seems to have passed, as it were, through the prism of Spinoza's "God is Nature." Debussy claimed Beethoven's depiction of nature to have a bookish tinge (he certainly had a right to say so). To me, however, Beethoven in op. 109, notably in the last movement (*andante* with variations), is the father of impressionism. The third movement with its sublime melody is a prayer and divine variations! Take the last variation with the unsurpassed glow of the mountain tops gradually fading. The blue night descends on the earth, the music grows softer, the prayer theme more moving, hardly audible with the last notes dying away. They melt into dreams bringing joy after all earthly toil. These are the pictures suggested to me both by Beethoven's music and Richter's playing.

What was rather amusing was Richter's own reaction to his performance of these sonatas. I dropped in to see him in his dressing room after the concert and said that I had had misgivings about his playing any "encores" after the Arietta from op. 111. "What a good thing you played them," I said. To which he replied, "I couldn't help it, I made such a mess of Beethoven, I just had to remedy things." He must have read my surprise in my face, for he went on to explain that the piano had a horrible way of coming back at him with a jarring clamor and shattered sounds. He was actually fighting a duel with the piano all the time. "Sonata op. 32 went better," he said.

I was quite accustomed to hearing such things from him. I would step in to see him after a concert rapturously received by the audience to thank him for a delightful evening only to hear that he thought he had played a particular part, perhaps 16 bars, quite well. "But the rest . . ." and he would make a sour face.

People who are naïve think that Richter is a poseur. It seems to them that he cannot possibly fail to see the impression he produces on the public. Less naïve persons say he underestimates himself. Those, however, who are not naïve at all, and to whom I (perhaps naïvely) think I belong, know that he is speaking pure truth.

I have said enough and had better heed the poet Tutchev who said that "a thought expressed is a lie—where music is concerned."

*A grand prince of ancient Rus who lived at the end of the tenth century.

AROUND *the* COUNTRY

FARM EQUIPMENT FAIR

In the next five years the Soviet Union's annual output of tractors is scheduled to rise to 625,000. Manufactured in quantity, Soviet tractors are exported to 48 countries. The USSR also buys farm machinery from foreign firms: grain cultivators, various types of harvesters, equipment for fertilizing, self-propelled chassis on which to mount implements, and the like. To expand contacts in this field, an international exhibition of farm machinery and equipment will be held in Moscow in May 1966. Firms in the United States, Britain, the Federal Republic of Germany and other countries have expressed a readiness to participate.

BIRD WATCHERS

The Moscow Bird Ringing Center of the Academy of Sciences has been watching the habits of winged migrants and the routes they travel for some 40 years now. Birds living in the Soviet Union fly to spend the winter, or the summer, in 50 other countries. Many of those returning to Moscow wear rings inscribed "Moscow Bird Ringing Center."

With their own long-term observations and those of colleagues abroad, Soviet scientists have been able to chart the routes taken by the birds. One of the longest trips, from Siberia to Australia, is made by the sharptailed snipe. Their closest competitors are the Polar terns, which migrate from the shores of the North and White Seas to the Antarctic in the summer, a 14,000-mile flight.

What instinct prompts the birds to make such long flights is thus far unknown.

GARLIC VS MICROBES

Vitamins are not the only reason fresh vegetables and fruit are good for you, they also contain a substance called phytoncides that destroys harmful bacteria. The classical phytoncide bearers in the northern and temperate latitudes are garlic and onions. What about in the South?

Soviet scientists have found that the juices of oranges, lemons and grapefruit tend to suppress staphylococci and other microbes. The skin of tangerines, lemons and oranges contain an even more potent phytoncide. It kills the simplest microorganisms in a matter of minutes and suppresses the growth of mold funguses.

MOSQUITOES STOP A SHIP

The steamer *Khimik Zelinsky*, headed for Odessa from Kherson, was stopped by a swarm of mosquitoes on the Black Sea. Descending on the vessel in great clouds, they covered the deck with a four-inch layer, invaded all quarters and covered all portholes and windows. Visibility was reduced to the point where the captain had to stop the ship. Smoke cartridges were exploded, but to no avail. The fight against the mosquitoes continued for two days and nights. It was only when the temperature dropped and the insects grew feeble that they could be washed away with powerful streams of water.

RARE COIN

No Russian coin is as treasured by collectors as the 1825 Constantine ruble—there were only six minted. The coin was to have been circulated after Constantine was crowned czar on the death of his brother Alexander I. When Constantine renounced the throne in favor of his brother Nicholas I, no more were minted. The story of the coin is the subject of a book recently published in Moscow. It was written in part because counterfeit Constantine rubles have been showing up at international coin auctions.

AIR POLLUTION

A city's air pollution index depends largely on the density of its automobile traffic. The battle for clean air in Soviet cities takes two forms. First, we know that toxic substances are precipitated mostly when car speed is changed in stopping, starting, and shifting gears. To cut down on the changes, avenues are being built in the larger cities for through-traffic, with transportation and pedestrian tunnels at the crossings and automatically controlled light signals. All this will help to keep cars moving. Also, planting catalytic neutralizers in mufflers will cut toxic gases by a half. Neutralizers have already been designed for all Soviet-made cars.

A FISH ON LAND

Digging flower beds in the Naurzumsky Preserve of Kustanai Region recently, workers unearthed a crucian carp. They threw the fish into a bucket of water, and it came alive and began to swim. When the workers reported their find to a university in Kazakhstan, they were told: "Your crucian carp is not unique. Some fish bury themselves when their reservoirs dry up and wait for better and wetter times."

FOR PIANISTS FROM PHYSICISTS

The pedal is the soul of the piano fortel" said the Russian pianist Anton Rubinstein. By manipulating the pedals, the artist gives his interpretation emotional emphasis. Young pianists would find it very helpful if they knew just how the masters use the pedals. But how are they to find out? Physicists have now come to the aid of the musicians. Two researchers at the acoustics laboratory of the Moscow Conservatory have made tape recordings of pedal work during concerts. Special devices attached to the piano recorded the changes in sound with pedal application. The concerts of Emil Gilels, Lev Oborin, and Svyatoslav Richter (USSR), of John Browning and Van Cliburn (USA) and other artists were so recorded. An original system, simple and convenient to read, has been added to the score to show the musician just how the pedals were used.

SOVIET *HAMLET* IN U.S.

About 500 of the world's studios buy motion pictures from Sovexportfilm, the foreign trade agency. Soviet films are now running in 105 countries. At the Fourth Film Festival in Moscow last summer 45 countries ordered 80 full-length features from the Soviet Union in a two-week period. When United Artists bought *Hamlet*, the United States became the forty-seventh country where this film will be shown. Sergei Bondarchuk's *War and Peace* has been ordered by nearly every country in the world.

Sovexportfilm, for its part, has bought scores of films abroad, including Stanley Kramer's *This Mad, Mad, Mad, Mad World*.

MOSCOW'S GREEN BELT

Every year some quarter of a million trees and two and a half million shrubs are planted in Moscow streets and parks. By now there are 325 square feet of greenery for every inhabitant. Plans call for enlarging the "green area" per inhabitant to 500 square feet. It is easier to plant a tree, however, than to keep it growing. That is why the capital's greenery is the special concern of the city's volunteer nature protection society, which has 800,000 members.

WOOD MOSAIC PORTRAITS

Andrian Osmolovsky teaches at Riga Vocational School No. 17 and has trained more than 1,000 cabinetmakers. He and his pupils make mosaic pictures and portraits of wood. Osmolovsky's mosaics are most dramatic and very beautiful. Each portrait is made of from 500 to 1,000 bits of wood: walnut, rosewood, blackwood, and Karelian birch. His portraits of Shakespeare and Lincoln and a panel he calls *The Metallurgists* won Osmolovsky a gold medal at the USSR Exhibition of Economic Achievements.

THE WHY OF OLD AGE

Many theories have been advanced to explain why an organism grows old. All of them treat the process of aging as a slow and gradual extinguishing of life. Researchers at the Gerontology and Experimental Pathology Institute in Kiev, however, do not think that the process is like a candle burning down slowly, but compare it with a musical instrument whose parts wear out unevenly.

The studies of the Kiev gerontologists point out the need to change the healing methods used for aging organisms. A review is called for, among other things, of the dosages of many medicines physicians prescribe for people of advanced age.

THE EARTH IS TWICE AS OLD

Geochemists figure the age of the earth by the rate of decay of uranium. Using this method, they found that the earth was five billion years old, and that figure was generally accepted as authentic. Many astrophysicists, however, do not go along with the theory on which that calculation is based—that all the earth's elements were formed simultaneously. They hold that the earth's substances were first formed of light elements, and that the heavy elements followed only as a result of their synthesis. If the age of the earth, therefore, were calculated according to the light elements, the figure would be different. Studying xenolith, an ancient rock containing considerable light argon, on the Kola Peninsula, they deduced that our planet is 10 billion years old.

LOOKING FOR NEIGHBORS IN THE UNIVERSE

A new radio telescope is being set up in Armenia. Its main reflector, 328 feet in diameter, will be fixed, but the 26-foot-diameter mirror above it will be mobile. It will gather the rays from the main reflector and direct them into a receiving apparatus. This mode of construction does away with the distortions that hamper astronomers working with the usual spherical telescopes.

More and more scientists are coming to believe in the possibility that there may be intelligent beings on other planets. The Armenian astronomers will use their new radio telescope to try to contact our nearest stellar neighbors.

SHOLOKHOV AWARDED NOBEL PRIZE

The 1965 Nobel Prize in literature went to Soviet writer Mikhail Sholokhov, author of *And Quiet Flows the Don* and *Virgin Soil Upturned* (published in the United States under the title *Seeds of Tomorrow*).

In connection with the event the Central Committee of the Communist Party of the Soviet Union and the USSR Council of Ministers sent Sholokhov a congratulatory message, which said in part: "We regard the award as another proof of the international recognition of your outstanding gift, of the indisputable achievements of the literature of socialist realism."

And Quiet Flows the Don and *Virgin Soil Upturned* are in the great tradition of the Russian realistic literature started by Pushkin's *The Captain's Daughter* and continued by great creations like Leo Tolstoy's *War and Peace*.

All the Soviet people are glad that the remarkable works of Mikhail Sholokhov, which truthfully portray the difficult struggle for a new kind of human, have become understandable to millions of people the world over.

"OH, PETER!"

There are 200 birds and animals in the Frunzensky District Young Pioneer House in Leningrad. The children take care of them and study their habits. At an exhibition arranged by the All-Russian Society for the Protection of Nature, the schoolchildren of Leningrad were shown a talking crow. When the bird is annoyed by overcurious visitors, it mournfully exclaims: "Oh, Peter, Peter! What shall I do? Oh, oh, oh! . . ."

HANDICRAFTS FROM SIBERIA

A decorative art exhibition at the Moscow Folk Art Museum displayed brightly patterned carpets, bone and birch bark carvings, reindeer skin garments and footwear, and other items made by handicraftsmen of 15 nationalities from Northern Siberia and the Far East. In the photo are a fur coat and boots made of reindeer skin by Dolgan craftsmen.

AMERICANS LEARN UKRAINIAN DANCES

The Soviet dancers, so warmly received in the United States, kindled a desire to learn Soviet dances in Americans. Ten young men and women from New York, Detroit and other cities are now visiting Kiev as guests of the Ukrainian Society for Friendship and Cultural Relations with Foreign Countries. They have been learning Ukrainian dances at the source and under expert tutelage.

AROUND *the* COUNTRY

By Professor Sos Alikhanyan
DOCTOR OF SCIENCE (BIOLOGY), ASSISTANT EDITOR OF *GENETICS*

SOVIET GENETICS

THE DECISION to publish *Genetics* marks an important change in Soviet biology. It will be the largest journal in the field, a monthly of some 200 pages. That, however, is not the major consideration. Over the past 15 to 20 years Soviet genetics has not developed normally; that is what prompted the decision to publish this journal.

Let us review the history of genetics in the Soviet Union.

Until the early twenties no independent genetics research was done in Russia. Books and articles on the subject were concerned chiefly with popularizing the science. The most noteworthy were the articles on general problems of heredity by Kliment Timiryazev, the noted plant physiologist.

Socialism, which predicated the maximum use of nature and science, stimulated interest in genetics very considerably. Distinguished teams of researchers in both the theoretical and experimental aspects of the science came to the fore in the twenties. At Leningrad University Professor Yuri Philippchenko organized a department of genetics. Somewhat later a similar department was founded at Moscow University by Professor Alexander Serebrovsky. Ingenious experiments were done at the genetics station near Moscow which Professor Nikolai Koltsov set up. Later he directed the Institute of Experimental Biology, which became a center for gifted young researchers. From Saratov on the Volga Nikolai Vavilov, later president of the USSR Academy of Agricultural Sciences, moved to Leningrad to establish a department of applied botany and plant breeding that later developed into the USSR Institute of Plant Breeding. Academician Vavilov's talent and energy made the Institute one of the world centers for plant genetics. Under the auspices of the USSR Academy of Sciences, Vavilov established the Institute of Genetics, where basic theoretical research was combined with practical work. Among the guests who worked at the institute for several years were the distinguished geneticists Calvin B. Bridges and Hermann J. Muller, pupils of the great American biologist Thomas Morgan, who evolved the chromosome theory of heredity.

While Leningrad was growing into a center for botanical genetics, Moscow was becoming a center for animal genetics. At the USSR Institute of Animal Husbandry Professor Serebrovsky set up an animal-breeding laboratory where genetic methods of breeding pedigree cattle were evolved and developed. Also in Moscow Solomon Levit established the world's first Medical Genetics Institute. There he and his assistants became famous for their basic studies in human genetics.

In this early period Soviet genetics made steady progress, through not without internal conflict. Biologists the world over were familiar with the work of Sergei Chetverikov on the genetics of populations (combinations of specimens of the same species in which differences are only secondary), Nikolai Vavilov formulated the law of homologous (identical) series of plants. Georgi Karpenchenko was the first to obtain an intergenetic hybrid (cabbage and horse-radish) and worked on remote hybridization. Alexander Serebrovsky did productive research on allelomorphism (the ability of the gene to display differences) by stages and the genetics theory of plant breeding. Anton Zhebrak made valuable studies of polyploids, organisms whose cells have a multiple of the basic chromosome number.

The second generation of Soviet geneticists was no less talented. Among their achievements was the concept of the complex structure of the gene. They elaborated genetic methods of studying evolutionary problems and discovered chemical mutagenesis.

Of the practical geneticists the best known was the gifted Ivan Michurin, a self-taught scientist. Approaching plant breeding from the standpoint of genetics, he evolved 350 varieties of fruit and berry plants that not only regenerated our orchards and gardens but moved them far to the north.

In the Ukraine, at the Askania-Nova Preserve, Academician Mikhail Ivanov organized an experimental station where he raised highly productive strains of cattle.

I am not writing a history of Soviet genetics. What I want to emphasize is that in the 20 years between 1928 and 1948 Soviet genetics accomplished a great deal and was very much in the mainstream of world research.

Of all the sciences, the Stalin personality cult had the most disastrous effect on biology. The cult arbitrarily made Academician Trofim Lysenko the final authority on all questions of biology. Over the course of several years Lysenko made widely-publicized promises to bring about an unprecedented flowering of Soviet agriculture. To back up his promises, Lysenko tried to lay the foundations of a "new biology" and a "new genetics." He found it convenient, on no grounds whatever, to call it "Michurinist biology," thereby giving his ideas the high repute that attached to the name of Michurin, whose plant-breeding work had won the respect and praise of all Soviet biologists.

Lysenko himself confirmed the fact that the personality cult gave him his standing when he proudly declared that his report to the meeting of the Academy of Agricultural Sciences in 1948—the meeting that did so much to check the development of Soviet genetics—had been approved by Stalin himself. Stalin's name was a shield against any criticism. Within a few years Lysenko and his followers had "revised" Darwin's theory, "condemned" Mendel's classical experiments and "rejected" all of classical genetics. In their place they put forward their own theories: the abrupt and spontaneous conversion of one species into another, the absence of struggle within a species, adequate (adapted to environment) hereditary changes, and a denial of specific material transmitters of heredity. There was only one step left to a complete rejection of all that twentieth century world biology had achieved.

There is no need in this short article to

go into a criticism of Lysenko's theories, especially since it is so hard to find anything positive in his writing. It lacks valid arguments, consists of diatribes against "Mendelism-Morganism," or is filled with agronomical recommendations that have no foundation and are not tested by long experiment. More important is the plain fact that experiment did not confirm his theories. To be perfectly objective I should note that we have scientists who, although they criticize Lysenko, maintain that some of his scientific work has merit. The author of this article is not one of them.

Lysenko ignored facts and experiments. Appointed president of the Academy of Agricultural Sciences in 1948, he soon came to believe in his own infallibility. Although practical results were few, there were plenty of claims that in his struggle "for new biological principles in agriculture the Mendelist-Morganists constantly interfered with him." He demanded that obstacles be removed. He wanted hegemony. And he got it.

In one way or another he had Vavilov, Koltsov, Serebrovsky and many others removed from his path. All power in biology was entrusted to him alone.

One may wonder why it was that Lysenko, who achieved his position under the Stalin cult, continued to monopolize biology after Stalin's death in 1953. How could a man who had handed out so many promissory notes to Soviet agriculture (notes that have not been met to this day) continue to enjoy the trust of the authorities? To understand this, one must remember that between 1958 and 1964 agriculture was administered from the center, that direction was incompetent and that the goals set were prompted by subjective desires rather than by real possibilities. It would be hard to conceive of a situation more favorable to a man like Lysenko. Long, hard work was needed to improve farm administration and farming itself. Lysenko offered solutions that would settle our agricultural difficulties at one stroke. He was backed by the prestige of an important institution, the Academy of Agricultural Sciences. That is why even after the Stalin cult had been disposed of Lysenko was able to retain key positions in both biology and agricultural science.

The October 1964 and March 1965 plenary meetings of the Central Committee of the CPSU were sharply critical of the subjective thinking and the authoritarianism that had characterized agricultural administration. The roots that nourished Lysenko and the champions of hasty decisions were plucked up, and that also put an end to administrative high-handedness in biology.

It has been replaced by free and business-like discussion of genetics in the scientific and the general press. Every scientist now has the opportunity to prove his theories through experiment. So has Lysenko, at the laboratory he heads in the Institute of Genetics.

All this accounts for the decision of the USSR Academy of Sciences to publish *Genetics*. Academician Pyotr Zhukovsky, at one time an active associate of Vavilov's, has been elected editor in chief.

Genetics will be somewhat different from analogous journals. In addition to experimental studies it will carry survey articles, necessary because college students, biology teachers and others know little about the progress world genetics has made in the past 20 years.

But if, after the meeting of the Academy of Agricultural Sciences in August 1948, work in genetics came practically to a standstill, where are we going to find the material to fill the journal?

It is important to realize this fact: Despite the difficulties Lysenko placed in their way, the majority of our biologists did not share his views. They continued to develop their ideas, working on a strictly experimental basis. There were not so many, after all, who violated fact and science. Those aligned themselves with Lysenko at the Academy of Agricultural Sciences, Moscow University and the Institute of Plant Breeding and Genetics in Odessa which, incidentally, was named after him. Many geneticists had to work in allied branches of biology or, if they stayed in genetics, to keep their findings to themselves.

In 1954, when our country started to undo the damage of the personality cult, geneticists had an unusual opportunity to broaden their research. It was unusual in that genetics laboratories were opened everywhere except at biological institutes. Genetics research began to be done at the molecular level. Physicists, chemists, mathematicians and cybernetics experts developed an interest in biology, and vice versa. Alexander Nesmeyanov, former president of the USSR Academy of Sciences, helped set up a large laboratory under Nikolai Dubinin, corresponding member of the academy, to study outer space genetics and the effects of radiation on heredity. Such leading physicists as Academicians Igor Kurchatov and Alexander Alexandrov created excellent conditions for work in genetics by setting up a laboratory to study the genetics of microorganisms. The work of our entire antibiotics industry is based on the methods this laboratory evolved.

An Institute of Cytology and Genetics was founded in Siberia through the efforts of Academician Mikhail Lavrentyev, an authority on hydrodynamics. The director of this institute, Dmitri Belyayev, corresponding member of the USSR Academy of Sciences, has succeeded, using genetics principles, in obtaining astonishing new varieties of blue and beige mink. The opposition to Lysenko has had a long and fruitful history. The very great majority of those who do research at these laboratories and institutes are young people between the ages of 25 and 30.

We thus have all the prerequisites for genetics research in breadth and in depth. *Genetics*, founded at this turning point, will be an important factor in eliminating the unhealthy leftovers of the monopoly a group of dogmatists held on Soviet biology.

RUSSIAN BOOKS IN ENGLISH

Among the recent translations in English issued by Soviet publishing houses are:

ON RELIGION. By V. I. Lenin. Paper cover, 90 pp.

In which Lenin reveals the social roots of religion and its incompatibility with a scientific world outlook and points the way to end religious prejudice. Included in this collection are the articles *Socialism and Religion* and *Leo Tolstoy, Mirror of the Russian Revolution* and two letters to Maxim Gorky.

MY UNIVERSITIES. By Maxim Gorky. Cloth cover, 260 pp.

My Universities is the third volume in Gorky's autobiographic trilogy. He comes to Kazan with the naïve hope of university study and is enrolled in the grim "university of life" with the tramps and poor of the Kazan slums.

This is when Gorky first came into contact with the revolutionary movement, when he made his first friendship with people of the revolutionary working class, whose destiny the great writer later made his own.

MY APPRENTICESHIP. By Maxim Gorky. Cloth cover, 597 pp.

The second volume in Gorky's autobiographic trilogy. It describes 14-year-old Alyosha Peshkov's trials and torments, his wanderings in search of a crust of bread. This is the period of his life when he acquires a passion for books and begins to dream of entering a university.

AND QUIET FLOWS THE DON. By Mikhail Sholokhov. Cloth cover, 4 volumes: Book I 647 pp., Book II 619 pp., Book III 686 pp., Book IV 861 pp.

Sholokhov's epic *And Quiet Flows the Don*, perhaps the finest work of Soviet literature, was one of the first Soviet books to be translated into English. Mikhail Sholokhov said in a message to his English readers:

"I should be happy if in this description of the life of the Don Cossacks . . . the reader discerned something else—those colossal changes in everyday habits, life and psychology that resulted from the war and the Revolution.

"My purpose is not only to show the diverse social groups in the Don Region, to trace the tragic fate of individual characters drawn into the powerful vortex of the history of 1914-21, but also to show the people engaged in peaceful construction under socialism."

PRACTICAL RUSSIAN. By E. Vladimirsky, G. Bogatova et al. Paper cover, 144 pp.

For English-speaking students working with a teacher or independently. Its purpose is vocabulary expansion. The running texts and dialogues are on such subjects as "My Family," "On the Sports Field," "At the Theater." The drills and exercises include answers to questions, choice of synonyms and antonyms, building sentences from given words.

Each text has its own vocabulary, and a general Russian-English vocabulary is appended. All Russian words are accented. Explanatory material is in English.

These and a large selection of Russian and Soviet classics, textbooks and publications in science, economics, history and philosophy are available in translation at:

New York: Four Continent Book Corporation
156 Fifth Avenue
New York, New York 10010

Washington: Victor Kamkin, Inc.
1410 Columbia Road, N.W.
Washington, D. C. 20009

Chicago: Cross-World Books & Periodicals
333 South Wacker Drive
Chicago, Illinois 60606

San Francisco: Znanie Book Shop
5237 Geary Boulevard
San Francisco, California 94118

QUERIES FROM READERS

QUESTION: Why did the first four five-year plans (before and after the war) concentrate on the production of heavy industry at the expense of consumer goods? (Lawrence Putman, Burlingame, California)

ANSWER: Our country inherited a primitive industry from czarism that could manufacture consumer goods only in small quantities. To mass produce consumer goods, we had to have machine tools, and to make these machine tools, we had to build a heavy industry and provide the metal, coal, oil and electric power it needed. But where other countries had taken many decades to build a basic industry, we had no time for this slow, normal growth because the threat of military attack was always present. More than that, we had to do it on our own, with no aid to speak of from other countries.

The heavy industry we built included defense. Thanks to that, in the critical months of 1941 we were able to shift over rapidly to defense production and finally push back Nazi Germany. The fact is that 96 per cent of all the armaments used in the battles on the Soviet-German front were Soviet-made, only four per cent came from abroad.

The war damaged our economy badly. Whole industrial complexes had to be rebuilt from scratch. The first two postwar five-year plans concentrated on reconstructing ruined plants and establishing a large enough heavy industry base for the mass production of consumer goods.

There was, of course, no special Soviet method of accelerating this process of industrialization. The 10 postwar years that turned a backward country into one of the leading industrial powers in Europe were years of great privation for our people. We were short of many things. But this great effort justified itself historically.

QUESTION: Is there evidence of any degree of awareness on the part of Joseph Stalin concerning a probable war with Nazi Germany? (Lawrence Putman)

ANSWER: Yes, there is such evidence. It was published in the Soviet press and in historical studies of the Second World War.

There were numerous reports that the Hitlerite army was preparing to move East. Among those who managed to transmit such accurate and valuable information to Moscow was antifascist Richard Sorge, the famous intelligence agent who was a press attaché of the German Embassy in Tokyo.

How can we explain the fact that Stalin did not take these reports into account and that the nazi attack caught our troops unprepared? To begin with, Stalin underestimated the prospects of war with Nazi Germany and overestimated the Soviet-German nonaggression pact. This was a serious miscalculation of the military and political situation in Europe. He thought the information that the Wehrmacht was preparing to attack the USSR was planted by enemy intelligence. Up to the very last moment Stalin believed that he would be able to forestall a war with Nazi Germany by diplomatic means. Fearful that putting the Soviet Army on the alert and bringing up troops to the country's frontiers would serve Germany as a pretext for starting a war, Stalin categorically prohibited any kind of army mobilization.

QUESTION: In your country . . . if you have less of a certain product than people to buy it, who gets priority? (Lewis Kimball, Lenox, Massachusetts)

ANSWER: They are sold on a first come, first served basis. Nobody has priority. For example, in the past few years we could not produce enough refrigerators to satisfy the demand. The stores took the names of prospective buyers and informed them when refrigerators were available.

We still have occasional temporary shortages of some items, and people have to stand in line for them. Studies are now being made of consumer demands, and the changes these studies suggest are expected to remedy the situation.

QUESTION: Do most native Russians have dark hair and complexions? (Frank W. Roach, Miami, Florida)

ANSWER: Historical evidence indicates that a thousand years ago the Russians had fair hair, fair skin and blue eyes. But by now there has been so much mixing of the many nationalities living on Russian territory that it is hard to say which Russians are related genealogically to the people of ancient Novgorod and which have other ancestors. Hair color and complexion have changed correspondingly. There are probably as many Russians now with blond and auburn as with dark hair.

INSURANCE IN THE USSR

Several readers have asked about insurance in the Soviet Union. Vasili Baranov, department head of the State Insurance Office, provides this answer.

WE HAVE NO private insurance companies in the Soviet Union. Insurance is sold only by the government. A policy is operative when the first premium is paid.

There are four types of life insurance: endowment insurance, straight life and disability insurance, life and disability annuity insurance, and accident insurance.

The most popular are endowment insurance and accident insurance.

Endowment policies are issued to individuals 16 to 60 years of age in any amount for 5, 10, 15 or 20 years. The person insured gets the full amount at the end of the term indicated in the policy if he survives; if he dies, it goes to his beneficiary.

Accident insurance policies are issued to persons 16 to 70 years of age for a term of one to five years, also in any amount. The full amount of the policy is paid to the beneficiary if the accident results in the death of the insured or to the insured in the event of his total disability as a result of the accident. In case of partial disability, the insured receives an amount proportionate to the disability.

Besides the above-mentioned insurance, which is voluntary, we have compulsory insurance. Air, rail and water transport passengers are insured. The cost depends on the distance traveled, but does not exceed 25 kopecks and is included in the price of the ticket. Some factories and organizations insure their personnel who work at hazardous jobs—blasters, firemen, plane crews, miners, and so on. The premiums are paid by the factory or organization.

Cars and motorcycles and boats of various kinds may be insured. Collective farm and other cooperative property, both common and individual, also may be insured. The amount must not exceed the value of the property insured. Property belonging to the state is not insured.

Persons owning a house or other structure or domestic livestock in town or country are required to take out insurance.

Other property that must be insured includes collective farm buildings, its farm machinery, nonmechanical means of transport, fishing vessels, materials, processed items, animals and crops.

Property insurance covers destruction or damage by fire or natural calamity (flood, storm, earthquake, landslide, lightning, etc.).

The State Insurance Office does not limit its activity to paying for losses caused by accidents or natural calamities. Roughly 8 to 10 per cent of all premiums received from compulsory and voluntary insurance is spent to prevent and combat fires, epizootic diseases and crop loss by the construction of fire stations, special water reservoirs, veterinary hospitals, and so on. In other words, a part of the premiums goes to protect the insured property against elemental forces and accidents.

All forms of foreign insurance are handled by Ingosstrakh, office of foreign insurance).

Ingosstrakh arranges for and insures, in the USSR and abroad, export, import and transit shipments; ships; Soviet property in foreign countries; property of foreign citizens and organizations. It also insures foreign citizens.

Policies issued by Ingosstrakh conform to the rules and rates obtaining in the USSR and also to generally accepted international insurance practice.

Ingosstrakh does business with the big insurance companies in many countries. Where it has no agents of its own, as for instance, in Latin America, it is represented by Lloyds.

Ingosstrakh bears full responsibility for its commitments, and in this sense it is completely autonomous.

Dunk Shots, Pot Shots & Potbellies

USA - USSR BASKETBALL

By Vladimir Lidov

THE BIG TWO of Basketball clashed again in titanic battle, on the corkboard floor of Moscow's Lenin Stadium indoor arena.

As the scarred veterans of the backboards ambled out of their locker rooms, awed fans stood up in hushed silence to greet them. The Russians, dressed in dark blue shorts and striped sweat shirts, averaged about 5 feet 9⅜ inches and a neat 30 years. The Americans, all in white, were slightly taller—5 feet 11⅞ inches—and a bit older—35.

Robert "Bud" Korengold, flashy defensive genius, *Newsweek* Moscow bureau chief and captain of the U.S. team, solemnly shook hands with Alexander Avdeyenko of Novosti Press Agency, the captain and high-scorer of the Soviet team.

The Americans quickly opened an 8-point lead with two lay-ups, a hook shot and a long set shot. The Russians answered by banking two shots off the backboard and jamming a couple through the basket.

At half time the U.S. team was ahead 34-32.

The second half looked like a rout. Holding the Russian's Avdeyenko to a mere 2 points, the Americans poured in 20, making the score a lopsided 54-42. But age takes its toll. As the Yanks began to totter and their postures suspiciously betrayed potbellies, the Russians caught fire. With 10 seconds to go the Americans' lead was cut to a scant 2 points: 60-58.

But they had the ball. All they had to do was freeze, and the game would be over. Korengold took it out and with a gasp of horror watched the ball carom off the outstretched fingers of an American player and into the huge paws of 6-foot-5-inch Alexander Maryamov. The star sports reporter for Novosti Press Agency pivoted, set and from half court sent a long floating shot toward the U.S. basket. The ball hit the rim, hung in balance for a split second and fell into the expectant arms of an American player: The game was over.

The delirious crowd swamped the court, pulling off the players' sneakers and sweat shirts for souvenirs. The two teams, arm in arm, walked off the court for a shower and well-earned cocktail party.

Thus ended the 1965 season for the Novosti Press Agency basketball team and the American All Stars, made up of newspapermen, students and embassy officials and their offspring. The celebration continued well on into the small hours.

Boris Bobkov

Sullo Kyakher

Fyodor Buslo

Anatoli Sukhanov

A decree of the Presidium of the Supreme Soviet recently published in the press awarded posthumous decorations to four railroad workers. This is the story.

15 Seconds

LOCOMOTIVE ENGINEER Sullo Kyakher lived a three-minute walk from the depot. Kyakher liked that. His wife Antonina did not, because he spent every free minute there. And when she sent her son Volodya to call his father, the boy would disappear too. They would come home finally, much the worse for wear, and explain that they had been cleaning the diesel locomotive. She had long become reconciled to having her cleaning rags and detergents vanish, but not to her family's running off in the middle of the night to the depot. She was not impressed by their explanation—that theirs was a special locomotive, that it had run 186,000 miles without a single repair job and, therefore, warming it up could not be entrusted to anyone else. Volodya even had dreams that he was driving a locomotive.

"Are you suffering from the same disease?" Antonina had asked Fyodor Buslo.

He had smiled at Kyakher, a little smugly, and answered: "Well, everybody knows that the assistant isn't any better than the engineer he is working with. You know what they say about birds of a feather flocking together."

The younger engineers of the Leningrad-Vitebsk depot could not understand why Kyakher preferred Buslo to all the other assistants. He was no longer young and was short on education. But he did a first-class job. His work was never slipshod. What he did, you could depend on. He had inherited this quality from his father and uncles, they were all railroad men—couplers, switchmen and trackwalkers. Kyakher had trained Buslo, as he had dozens of others. When aspiring young locomotive engineers took their tests, the first question the examiner usually asked was, "Who trained you?" And if the answer was Kyakher, "Well, then you should know your business."

Anatoli Sukhanov was trained by another highly thought-of locomotive engineer, Boris Bobkov.

Bobkov liked to promenade along the depot avenue, pushing a baby carriage with one hand and holding his little daughter's hand with the other.

Now for the story. It has to do with the last few minutes these four men lived.

. . . When his train pulled out of the Chashcha Station, Kyakher pushed the speed up to the normal 60 miles per hour. All four diesels worked as one. On both sides of the single-track road was forest, and between the gaps in the trees were meadows which stretched almost to the track. From time to time he stuck his head out of the cabin window to feel the stiff breeze on his face.

A good locomotive engineer sees and hears everything in his cab, even when he is not looking or listening. Kyakher checked the motors, he needed only a second to know they were working perfectly. Three pines appeared on the right, dark against the light green background of birches, and his memory obligingly told him that they were coming to a curve. to the grade before Novinka, and soon after they left that station the road became a double-track which went all the way to Leningrad. But what was that? A diesel locomotive? A dark green, almost black rectangle against the white-trunked birches. And it was not standing still, it was rushing toward him, coming head-on!

Running ahead of the story, how was it that two trains had been dispatched from two stations along a single-track section? It was not a mechanical breakdown that was responsible for this tragedy, but people, irresponsible people. On a railroad there are hard and fast rules that specify precisely who should do what and how, under all sorts of circumstances. Antonov, the man on duty at the Novinka station had grossly violated these rules from the very moment he had gone on duty. He had come to work with a hangover, and to make a bad situation worse, had to switch over from semiautomatic blocking to telephone contact. . . . He took the telephone message without clearly understanding what had been said. He did not repeat the message word for word, as the rules demand, but passed it on by phone to the Chashcha Station. And he, too, did not ask the man on duty there, Mishagin, to repeat it.

These telephone messages were recorded at the two stations:

"From Chashcha, 9:46. Can I dispatch train No. 12? Mishagin. 9:48. Am expecting train No. 12. Antonov."

"From Novinka. 9:46. Can I dispatch train No. 2409? Antonov. 9:48. Am expecting train No. 2409. Mishagin."

Besides liking his liquor, Antonov was deaf in one ear, and the doctors and his superiors knew that. But since he was of pension age, they let him be. How much tragedy such thoughtless pity can cause!

. . . The hand of a locomotive engineer thinks by itself, and in the slightest fraction of a second Kyakher's hand did what needed doing: pulled the emergency brake. One jerk! Another! Kyakher pressed hard on the sand box to stop the wheels' turning. The train was full of passengers! He leaned out of the window to see better, and his fingers unerringly pressed the two closest buttons on the control panel and then slipped over to two others: the motors shut off. The pointer of the speedometer crawled to 45 . . . 40 . . . 35. . . .

Locomotive engineer Bobkov saw the danger two or three seconds later than Kyakher. He was hauling a freight train from Novinka, and from that side the curve is sharper and the forest denser. His reaction, too, was instantaneous and he acted exactly as if he and Kyakher, both of them Communists, both of them highly trained locomotive engineers, had agreed on everything in advance.

There is no way of telling whether Bobkov managed to switch off all four diesels and if he ordered Tolya Sukhanov to jump. In any event, the 18-year-old assistant stayed in the cabin, just as Fyodor Buslo stayed with Kyakher. They did not jump and save themselves, believing, as they must have, that at a moment of danger the place of the assistant is at the side of the engineer.

If only they had had one minute more! If only these men, who had traveled millions of miles, had had another 1,000 feet of free track! But all they had was 15 seconds, something experts later determined precisely. And 15 seconds was not enough, for when two trains are rushing toward each other, their velocities are added.

Now this:

"As eyewitnesses, we want to say the following: At 10:05 P.M. we felt two jerks, one after another (that was when Kyakher used the emergency brake), then there was a terrible blow, after which our train stopped. . . . We want to corroborate the heroism of the locomotive engineer and his assistant, who, in the face of inevitable death, at the last moment braked the train and thus saved the lives of many people. We ask you to let all railway workers know about the heroic deed of these comrades who died in the performance of their duty."

This letter was sent by the passengers of the express train Kiev-Leningrad to the Minister of Transport. It was signed by 47 people on behalf of the 700 passengers.

"I, Vladimir Vasilyevich Mironov, chief conductor on train No. 2409, when approaching the fifty-fifth mile, heard a sharp braking." That was the last act of Communist Boris Bobkov and YCLer Anatoli Sukhanov.

The train crews did everything they could possibly have done, and then took that fatal blow. As a result, only one passenger was killed.

. . . When they were buried, all the diesel locomotives on the depot tracks sounded their whistles. And one of the old-timers, formerly a locomotive engineer himself, said to Kyakher's son Volodya, "It was with such whistles that we said farewell to Vladimir Lenin."

Courtesy of the newspaper Gudok

Girl in a Sarafan (1928)

Russian Museum

PETROV-VODKIN

A PAINTER OF THE RUSSIAN SCHOOL

By Dmitri Sarabyanov
Docent, Moscow University

Notes on the paintings of Kuzma Petrov-Vodkin (1878-1939) recently exhibited in Moscow.

KUZMA PETROV-VODKIN made a name for himself as a painter of note at the turn of this century, when one of the themes of Russian art was expectation and hope. It resounded in the symbolical verses of Alexander Blok, the romantic aspirations of Maxim Gorky's heroes and the destructive rhythms of young Vladimir Mayakovsky's poems. Petrov-Vodkin likewise created his own new myth of the modern world, expressing himself in terms of image-metaphors. His concepts led him to an art that had stood the test of the ages and could be discovered anew. His style of brushwork was unique.

Style

Petrov-Vodkin's painted figures give the impression that they have frozen into immobility, that his colors are too glaring and static. But if you make a closer and more sympathetic study of them, his images will grip the imagination and subordinate it to their mood.

In Petrov-Vodkin's paintings what we call artistic generalization is presented in its "pure" form. Generalization is contained in the very theme he chooses. One of his paintings features the life of man in its chief manifestations—from birth to death. A great many of his pictures are devoted to motherhood. Petrov-Vodkin liked to depict children, but they were not living children with their individual qualities but childhood itself.

Just as important is the manner in which the artist treated his subject. In his genre paintings you are prepared to see the ordinary features of bathing women or children's figures, but instead you are shown inspiration, chastity or youthful artlessness cleansed of all chance and superficial layers. You perceive a mother nursing her child as the incarnation of motherhood. This image is as pure as the Madonnas of the Italian Renaissance, with the difference that it is Russian and, notwithstanding its "eternity," belongs to the twentieth century. The feelings of Petrov-Vodkin's characters are never petty or disintegrated. They are a universal category, monolithic and unchanging. Even the objects in Petrov-Vodkin's still lifes express austere harmony and logic.

Tradition helped Petrov-Vodkin to preserve the principles of pictorial reasoning. Besides, it gave him national form. His paintings express a certain traditional Russian element both in the feelings of his characters and in the heroes he chooses for his pictures. His images are calmly heroic, patiently exalted. Through these images, he told us his thoughts of Russia, her beauty and destiny.

System of Painting

The structure of Petrov-Vodkin's works is akin to that of an austere and solemn poem. If the master wished to convey a strong movement, he searched for the moment when that movement could be caught and held, and then included it within the framework of his integral composition, with the result that his characters seem to be molded in bronze. More often, however, the figures in his paintings move with slow stateliness. Each gesture has been discovered and cannot be otherwise. The figures, heads and objects are amazingly tridimensional in effect. Petrov-Vodkin loved volume and for that reason often favored faceted objects, the precise form of a ball or an egg. His objects are simply magnificent.

The idea of the self-value of each component of his painting determined the character of Petrov-Vodkin's color palette. He sought for no kinship of tones, no blending of them into a single gamut. His color chords are often "difficult," but they show up the great value of each particle of our world.

Petrov-Vodkin's was a logical and clear-cut system of painting. He combined in it love for men and honesty. The result was superb. Petrov-Vodkin's art has stood the test of time. It is unvanquishable.

Washing a Red Horse *(1912)* *Tretyakov Gallery*

Motherhood *(1925)* *V. A. Favorsky Collection*

Still Life with Apples *(1912)* *R. Y. Kaplyansky Collection*

After the Battle *(1923)* *Central Soviet Army Museum*

Anna Akhmatova *(1922)* *Russian Museum*

THEORY, EXPERIMENT, PRACTICE

The contemporary revolution in science and technology touches every one of us and every aspect of living. Sparked by theory, it pervades all of our practice. Yesterday's theoretical discovery is at our service today. A few decades ago nuclear physics, genetics, cytology were pure sciences. Now they have moved outside the laboratory into factories, fields and hospitals.

RADIATION BREEDING

Radiation breeding is a relatively new field of research with unlimited practical applications. Through the action of X-rays, gamma rays, neutrons and protons on the seeds of plants, molecular changes can be induced in the chromosomes of the cell nucleus. Various hereditary deviations, some of great value, result. Plants with such deviations are called mutants.

In the Biophysical Institute of the USSR Academy of Sciences investigators in the radiation genetics laboratory have developed varieties of nonlodging wheat mutants, high standing power being a very important quality in our changeable summer weather. By crossing the initial wheat variety with nonlodging wheat mutants obtained in the laboratory,the scientists hope to combine resistance to disease with a strong culm. Erectoid 74, a nonlodging mutant obtained by the action of gamma rays, has a short, strong culm and is not easily affected by diseases. It was used as the initial material in breeding a new variety. For two years this mutant was tried outside the black-earth area and was found to exceed the initial variety in yield by 44 per cent (it gave 68.4 bushels of grain per acre) and to have an unusually high standing power.

A growing number of the country's biological institutions are looking into this promising field of study. In Uzbekistan scientists have developed an interesting cotton mutant. It was obtained by irradiating budding cotton plants with a 20,000-roentgen dose of cobalt-60 gamma rays. The resulting plant is a compact shrub. Its stalk and leaves grow lower and this reduces the likelihood of injury by mites. The bolls are larger, the fiber is longer and its yield is higher. The mutant has more fruiting branches, the average number of bolls is 10.3, as against 7 in the standard variety. It is now being grown on a large scale to be used in the production of a new variety.

The harsh climate of Siberia makes it important to ripen plants early. The Novosibirsk Institute of Cytology and Genetics subjected potato tubers to gamma rays and X-rays, the dose ranging from 1,500 to 8,000 roentgens. Selected were early ripening and highly productive potato mutants high in starch and disease resistant.

Many scientists believe that every cultivated plant can be improved by radiation breeding.

HOW OIL IS FORMED

Oil has been known to man for many thousands of years. Oil fields were found when ancient Babylon was excavated. But it was only recently that we arrived at an acceptable explanation of its origin. Several hypotheses were projected, among them Dmitri Mendeleyev's theory that oil was the product of chemical reactions at high temperatures and high pressures which went on deep in the earth's crust.

Newly established facts tend to corroborate his theory of the inorganic origin of oil. Hydrocarbons are produced industrially from carbon dioxide and molecular hydrogen. It would be reasonable to consider that a similar process may be taking place in the earth's crust. For a long time this possibility was ignored by geophysicists because no such gases were discovered in oil-bearing regions, and because catalysts had to be employed in the industrial process.

We now have some evidence of the presence of hydrogen and carbon dioxide in sedimentary oil-and-gas bearing beds. Recently gas from the wells of Alambek and Shakhpaty in the Ustiurt (Kazakhstan) was found to contain hydrogen. It was probably because nobody had looked for it that hydrogen had not been discovered before.

Also, researchers of the Institute for Oil Synthesis have found the possible "geologic catalyst." They have established by direct experiment that some sedimentary rocks act as catalysts in the synthesis of hydrocarbons.

The earth's interior is nature's chemical factory where simple compounds—natural gases—flowing in the crevices and fissures of the deep-lying beds—chemical reactors of a sort—are combined into complex compounds under the influence of certain rocks which act as catalysts. Subsequently, treatment by pressure and filtration converts them into oil. It may be that before too long we will be duplicating these processes in man-made factories to obtain oil from gas.

THE BIRTH OF A CRYSTAL

An industrial setup for growing single crystals of ruby, sapphire, amethyst, alexandrite and other precious stones as long as one meter has been built at the Institute of Crystallography.

Aluminum oxide and chromic oxide reduced to powder are charged into a hopper, the particle diameter not exceeding one to two microns. The charge moves on a fine sieve (25,000 holes per square centimeter) and is sifted into a mixing chamber to which oxygen and hydrogen are admitted under high pressure. The gases mixed with the charge move from the chamber into a furnace. A hydro-oxygen gas burner brings the temperature in the furnace to 2,000° Centigrade, and the aluminum oxide is crystallized.

A single small ruby crystal is placed in the furnace for inoculation. It grows as the charge passes through the furnace. The rate of its growth is 8 to 10 millimeters per hour. The process is automatic throughout

The man-made crystals are of higher quality than the natural varieties, free from impurities and from various gas inclusions. They are already being used on a large scale in the manufacture of precision instruments, in watch and clock manufacture and by jewelers. They are also in large demand for the production of lasers.

LIGHT FROM A LIVING CELL

The cells of our body emit light. This has been established by means of a special microscope designed at the Institute of Cytology in Moscow.

The cells have been found to contain substances which become luminous under the action of ultraviolet rays. A fantastic world opened before the biologists when they put the cells under the microscope and illuminated them laterally. They seemed to be looking down from an airplane on a nocturnal city.

Different parts of the cell radiate light differently. The mitochondria are the shiniest. These minute grains are the cell's power stations; they supply the energy for its vital processes.

One discovery brings others. The intensity of luminescence was found to depend on whether the cell is normal or pathologic. Its light is brighter or darker depending on what produced the change in the cell metabolism. Thus in the case of some malignant diseases of the blood, i.e., leukemias, the cell's radiation is much intensified. Specialists have established a definite relation between the nature of the disease and the intensity of the light emitted by blood cells.

One more regularity has been noticed. If a cell begins to be involved in malignant growth which cannot yet be detected by other methods, the change in the cell's light gives the warning. It becomes brighter. Thus, at an early stage, we can distinguish normal cells from those suffering morbid modifications. This opens up new possibilities for diagnosis.

THE SOVIET AND AMERICAN WORKER:

Sociologists Andrei Zdravomyslov and Vladimir Yadov of Leningrad published "A Study of Occupational Attitudes" in the Soviet magazine Voprosy Filosofii (Problems of Philosophy). The New York Times, *in a discussion of the study, quoted Professor Frederick Herzberg of Western Reserve University, a distinguished authority on industrial psychology.*

The editors of Voprosy Filosofii *requested Vladimir Yadov, head of the Sociological Research Laboratory of Leningrad University, to comment on* The New York Times *article. The following are his comments, somewhat abridged.*

PROFESSOR HERZBERG visited Leningrad twice. We discussed in some detail various problems of worker occupational motivation. In particular, we considered the possibility of an objective comparison of Soviet and American sociological studies in the field.

We made such a comparison. The results indicate that in a socialist society worker occupational attitudes are determined predominantly by the content and character of the occupation, while in the United States, according to American sociological data, such nonvocational motivations as "security" (against unemployment and old age) are primary. This consideration no longer motivates the Soviet worker because there is no chance of his being unemployed or losing his old age pension or sick benefits.

According to *The New York Times*, Professor Herzberg questioned our conclusion. He said that Soviet specialists were "very well grounded in and concerned for good methodology as the basic touchstone of social and psychological problems. However, knowledge of what is being done in the United States and other Western nations was more limited." In their conclusions the Soviet experts "choose to quote from the American literature that, in a sense, serves to put the Soviet workers in perhaps a better light." The reasons "fall somewhere between propaganda and a legitimate lack of awareness of much of the American literature."

These contentions deserve some comment.

Under what conditions can we compare worker job motivation research in the USSR and the USA? The problem hinges first of all on methodology—not in the sense this concept is usually interpreted by American sociologists (as the principles upon which they organize their research and the requirements imposed on their methods and techniques) but in the sense of a method theory by which social realities may be studied. Second, the problem hinges on comparable methods and techniques of concrete research.

When we interpret the results of American occupational motivation research, we must take into account several essential characteristics in which it differs from Soviet studies of similar problems.

(1) Supply and demand has a decisive effect on the worker job motivation pattern. Acording to some American studies, general job satisfaction and attitude motivations depend primarily on the level of employment in the country, state and occupation during the time interval under study.

In his survey of nearly 2,000 studies made in the United States between 1920 and 1957, Professor Herzberg refers to the investigation by Grove and Kerr (1951) of job attitudes in two firms, one of which was unstable economically at the time. According to Professor Herzberg, though the pay rates, working conditions and the type of management were quite similar in both, the economic instability of one of the firms had a decisive effect on the workers' dissatisfaction with many other factors. Security was mentioned very frequently as the most important of all of them. In other words, any serious and objective occupational motivation study in the United States must indicate the economic situation during the period under study. Unfortunately, this information is lacking in most papers.

Thus, to be objective, we must take into account certain general characteristics of the American economy that have direct bearing on the problem under consideration. According to official U.S. sources, unemployment is a constant factor and affects all sections of the working class; among young people the average for the past 50 years is 10 per cent* (see *Monthly Labor Review*, 1956, vol. 79, p. 1150).

On the whole, the effect of economic instability on worker occupational attitudes is expressed by specific American sociological studies as follows:

—the general level of job satisfaction rises with the growth of unemployment;

—the occupational motivation pattern changes as employment becomes less stable; economic factors come to the fore and labor-content factors recede;

—skilled workers are inclined to be more interested in their work not only because of its character but also because of its relatively higher level of stability.

(2) In American studies it is extremely difficult to identify the worker proper, since in most cases American sociologists class as employees both industrial and office workers, including managerial personnel. Owing to this mixed grouping, some American studies overrate interest in work in the labor motivation scale. This happens because those doing mental work and other highly skilled workers find their jobs more interesting.

Thus, for an objective comparison, we must select only those American studies in which industrial workers are identified as such.

(3) Finally, comparability of methods is a problem. As Professor Herzberg notes, correctly enough, the method is the basic touchstone of research. The statement of the problems and the measurement of the relative weights of different factors (or motives) must all be taken into account.

Obviously the calculations for reducing the data to comparable units will be very approximate. Thus, we can accept a certain average 10-step scale as the reference scale for the measurement of the rank order of the motives according to their importance. Groups of comparative motives are then arranged in order of

* Important because the subjects of our Leningrad study were young workers under 30.

TABLE 1

Comparison of the Relative Importance of Job Satisfaction Motives According to Data from Polls of U.S. Workers *

Compared job satisfaction (or dissatisfaction) motives (in order of decreasing importance)	1934 (250 persons)	1942 (286 persons)	1945 (84 persons)	1950 (700 persons)	Average indices for 4 polls (1,320 persons)
Security	1	5	2	1.6	2.4
Wages	2	7.5	0.6	3.2	3.4
Chance for advancement	4	2.5	6	4.8	4.3
Attitude of foreman to worker	6	10	9.3	4.8	7.5
Content (type) of work	—	—	10	5.6	7.8
Working conditions	3	—	7.3	9	6.4
Relations among workers	—	—	9.3	9	9.1

* Relative importance of a motive is determined by its position on the 10-step scale: the least important motive has 10 points and is at the bottom of the scale.

TABLE 2

Summary Table to Compare the Average Results of U.S. Job Satisfaction (or Dissatisfaction) Motivation Polls and the Polls of Young Leningrad Workers

Compared Motives	USA			USSR
	1934 to 1950 (according to table 1, 1,320 persons)	1932 to 1937 according to Maier's data	to 1957 according to Herzberg (over 3,000 persons)	1962 by our data (2,665 persons)
Type of job	7.8	10.0	5.0	2.0
Feeling of security	2.4	1.0	1.6	This motive made no sense, therefore this question was not asked.
Wages	3.4	3.2	3.4	4.0
Chance for advancement	4.3	5.0	4.8	4.0
Working conditions	6.4	4.2	5.6	8.0
Attitude of management to worker	7.5	6.5	4.8	9.0
Relations among workers	9.1	—	4.0	10.0

JOB ATTITUDES

By Vladimir Yadov

importance for each investigation. We follow this arrangement in the reference system accepted in the study under consideration (e.g., percentages of votes in favor of a certain item of a questionnaire, magnitude of the author's index, average point, etc.).

The maximum amplitude in each reference system is accepted to be 10 (*i.e.*, the standard scale is accepted), and the position of each item is recalculated in this decimal scale.

Taking into account what we have said about the comparison of occupational motivation data obtained in the USSR and the USA, let us now try to compare the results.

Table 1 lists the data on the arrangement of job satisfaction motives compiled from four polls of American workers and recalculated into the 10-step scale. The period chosen was from 1934 to 1950 in order to cover different employment levels in the United States and to base the comparison on the method discussed above. The table lists the results of the following polls:

(a) 1934: 250 workers, both union and nonunion, men and women (R. B. Hersey, "Psychology of Workers," *The Personnel Journal*, 1936, vol. 14, pp. 291-296).

(b) 1942: 286 workers, men and women, in New York (M. Blum and J. Russ, "A Study of Employee Attitudes Toward Various Incentives," *Personnel*, 1942, vol. 19, pp. 348-350).

(c) 1945: 84 workers doing manual labor (R. Centers, "Motivational Aspects of Occupational Satisfaction," *The Journal of Social Psychology*, 1948, vol. 28, p. 193).

(d) 1950: 700 workers, men and women, employed by a major corporation (R. Stranger, "Psychological Aspects of Industrial Conflict," *Personnel Psychology*, 1950, vol. 3, pp. 1-16).

Table 2 lists the average data calculated in Table 1 and the average data calculated by N. Maier and F. Herzberg (USA). These figures are compared with the results of our investigation of 2,665 young Leningrad workers. All the data are given on the 10-step scale.

What do the data of these two tables show?

In all cases (except the wartime period of 1942) the most important motive for the American worker was security. This is the result of our calculations of the American data and of the calculations done by Maier and Herzberg. For the Soviet worker (as indicated above) this motive is ruled out because socialism guarantees the right to work and social insurance, both in law and in fact. Among young Soviet workers the type of job motivation tops the list, ranking as high as security does for American workers. To put it simply, an American worker wants most of all to have a job he is sure he will keep and make a living at. The Soviet worker wants most of all to have a job which will be interesting, varied, etc. The importance of the content (type) of his work is approximately from 2.5 to 5 times higher than the importance of this factor for the American worker.

Wages in both countries have approximately the same motivation rank, though the social significance of this factor is essentially different in the two countries. In the USA remuneration is regarded not only as a means of satisfying personal needs but also as a social status indicator. In the USSR social prestige is gauged not so much by wages as by the employee's occupation and progress in this occupation, on which his wages also depend.

Chance for advancement also has a specific social significance for the American. This is noted in particular by sociologists J. Strauss and L. Soiles, who state that chance for advancement means more money (J. Strauss and L. Soiles. *Personnel*, "The Human Problem of Management," New Jersey, 1960, p. 28). In the USSR advancement is also a material incentive. Besides, it enables the worker to raise his skill.

The job conditions motivation does not differ much acording to the data under discussion. It depends on many concrete circumstances: the type of production, its technical standards, etc. According to other Soviet studies, this factor has an important place as a job dissatisfaction motive. It points to deficiencies in the organization of work at many Soviet enterprises.

It is clear from the data under discussion that the management-worker attitude is a more important job satisfaction (or dissatisfaction) motive for the American worker than it is for his Soviet counterpart. This can be explained by the fact that the worker of a capitalist enterprise depends much more on the "mood" of his superior than the worker of a socialist enterprise, which has various forms of worker control of management.

Finally, let us consider the relations among workers.

Here it is difficult to compare the data. According to our study, these relations have very little effect on job satisfaction motives because both occupationally satisfied and dissatisfied workers rate equally high "good comradely relations among workers."

These are some of the conclusions we reach from a comparison of American and Soviet studies.

Obviously, by weighing the motives in the above table, we thereby "weigh" the two social systems. We believe that the difference between the sociologist and the druggist is that the former always has a definite social attitude as he "weighs and measures." Therefore it would be wrong for us to take exception to Professor Herzberg's charge that we are engaged in "propaganda." Of course this is communist propaganda. However, one comment is in place. We regard propaganda as the propagation of genuinely scientific data on social realities. But if there are any essential objections to our analysis of the comparison of data, that we would welcome for discussion.

During his stay in Leningrad Professor Herzberg told us about his job attitude investigation of engineers and suggested that we do a similar study in Leningrad. We agreed. For our part, we suggested that Professor Herzberg do an occupational motivation study of American workers by our method. Professor Herzberg also agreed. We hope that the method he follows in this study will take into account all the factors discussed at the beginning of this paper: that the level of employment will be recorded, that the workers will be polled directly, that the type of worker (industrial, office, managerial) will be specified, and that those polled will be asked about the social value of their labor, a question which has "probably never been asked in American studies," according to Professor Herzberg.

IRINA TOLSTIKOVA AND YURI POPOV GO TO A SCHOOL WHERE ALL THE TEACHING IS DONE IN ENGLISH. THERE ARE SEVERAL LIKE IT IN MOSCOW, AND ENGLISH SCHOOL NO. 1 IS AMONG THE BEST. ITS GRADUATES HAVE A VERY GOOD KNOWLEDGE OF THE LANGUAGE AND GET THEIR PICK OF TRANSLATION JOBS IN SCIENCE, INDUSTRY AND GOVERNMENT. AMERICAN TELEVISION VIEWERS HAVE MET IRINA AND YURI BEFORE. THEY WERE THE STARS OF TWO ABC-TV PROGRAMS, "DISCOVERY '64" MADE IN MOSCOW AND "DISCOVERY '65" MADE WHEN IRINA AND YURI VISITED THE UNITED STATES.

The school is situated on a quiet street in the Sokolniki District, once the hunting grounds of the czar. When the older students begin to rake up the school's garden plot, it's a sure sign that the time for summer vacation frivolity is over and that the hard work season is here.

READIN', 'RITIN', 'RITHMETIC... ALL IN ENGLISH

Photographs by Valeri Shustov and Yuri Abramochkin

Much of the varied extracurricular activity, like this display on the left, centers on English. Especially popular are the get-togethers from time to time with Americans, Britons and other English-speaking visitors to the Soviet Union. Below they listen to their own English.

Where the best book reports, in English of course, are exhibited. Anna Sewell's Black Beauty *and Rider Haggard's* King Solomon's Mines *are perennial favorites with the younger students. Upper classmen are inclined to much more sophisticated reading—Hemingway, Steinbeck and Salinger.*

Sampling the contents of a package that just arrived from England. The school library carries on a systematic exchange of books and records.

When our photographer asked whether they were playing chess in Russian or English, they answered, "Russian, it's after school."

Except for the emphasis on English, the school follows the regular course of study. This is a shop class in metalworking.

When Natasha Krasovskaya leaves school, besides her English and other book subjects, she will have some knowledge of household arts.

MANY OF THE STUDENTS HAVE PEN PALS ABROAD, IN THE UNITED STATES, ENGLAND, POLAND, BULGARIA AND ELSEWHERE. THESE EXCHANGES HELP THEM LEARN THE LANGUAGE AND WAYS OF LIFE OF PEOPLE IN OTHER COUNTRIES AND OFTEN BUILD WARM AND LASTING FRIENDSHIPS AS WELL.

ELBRUS SKI TRAILS

Photographs by Lev Borodulin

THE TALLEST PEAK in Europe, Mt. Elbrus in the Caucasus (18,481 feet above sea level), has long attracted mountaineers and skiers. A ski lift carries devotees to an altitude of nearly 10,000 feet, where ski trails finger down in all directions. The Elbrus slopes are usually the practice grounds of the national mountain-skiing team, as well as the venue of competitions staged by sports clubs.

Once up, many alpine fans are in no hurry to come down. They trade stories in above-the-clouds snack bars and sit out spells of bad weather over a glass of Georgian dry wine.
The popularity of alpine skiing is growing as fast as an avalanche. Even Moscow flatland aficionados are talking altitude.

To meet the winter sports demand, several new hotels are being built, mostly in the Caucasus, including Elbrus. A new cableway with 40-passenger cars is being erected at the top of the peak, and the old ski lifts are being lengthened.

The skiing season presently is from November through March, but will become a year-round affair with the completion of the Elbrus development program.

With its mild climate, southern sun and proximity to the tableland areas of Central Russia and the Ukraine (600 to 12,000 miles, all in all), the Caucasus so far tops the popularity poll among skiers, but there is a steadily increasing flow of people to the lower altitude but picturesque Carpathians, to the Urals, to Ala-Tau in Kazakhstan, and to the Altai and the Sayans.

The Elbrus hotels and mountaineering camps are now getting ready for an influx of skiers which will reach its peak at the end of January and the beginning of February, the mid-year vacation period for students.

Engineer Mikhail Bogomolov (Jester) and fitter Dmitri Nikolayev (Jacques) in As You Like It.

The stage hands in a people's theater are aspiring young actors working their way up to a part.

AMATEUR ACTORS

By Zoya Blumina
ASSISTANT STAGE DIRECTOR

THE MANY nonprofessional dramatic companies in the Soviet Union—they are called people's theaters—are a subject of perennial discussion. Is amateur dramatics a hobby, pure and simple recreation, or is it something more? If the first, then it should not be judged by professional standards. Director Lev Novsky of the Metrostroy People's Theater, sponsored by the Moscow subway construction organization, doesn't agree. He says, "Our goal should be to train real actors and create genuine works of art."

His five years of experience with amateur actors prove his point.

To see and bring out dramatic ability, to help the amateur actor develop his individuality rather than squeeze him into a particular mold, to help the amateur actor find himself—that is the difficult task the Metrostroy Theater has set itself. It functions as a school for acting. Each rehearsal is a lesson in mastery, with the director the teacher.

Stage people, professional and amateur alike, do a great deal of debating about methods of work. Many of our younger stage directors are passionate adherents of the Stanislavsky method of analysis; they believe it to be by far the most serviceable method of working on a play. Directors Georgi Tovstonogov and Zinovi Korogodsky (Leningrad), and Anatoli Efros and Oleg Yefremov (Moscow) have demonstrated its advantages in practice.

The method Konstantin Stanislavsky developed in the latter period of his life bridges the gap between the psychological and physical aspects of a role. Rehearsal time is not separated into a round-the-table period and actual rehearsal. There is no attempt on the director's part to explain every detail. Only the main idea of the play, the act or the episode needs to be outlined—the process of its development, its direction of movement—in short, only what is needed to give the actor's imagination food for free play and improvisation. With this approach, the action acquires a logical basis from the first improvisational studies. By thus acting out logically and consistently the situation suggested by a play, the actor learns to think on the stage, to see and hear, to evaluate the situation he is to act out. Then when he has it evaluated, he can coordinate his actions with those of the other characters on the stage.

The Duke is engineer Valeri Khankin. The make-up artist is laboratory technician Boris Dykin.

For a long time it was thought that this method could be used only with well-prepared actors accustomed to improvising. On the amateur stage the director, interested in putting on the best possible show and only incidentally in schooling his actors, often by-passed creative improvisation. The actor carried out the director's instructions for better or worse, down to the very intonations—and that was all. There was no room for developing imagination, for bringing to light the actor's personality.

The actors and directors of the Metrostroy Theater believe that the Stanislavsky method is not only applicable for amateur companies, it is indispensable. Not the text but what lies behind it is important. The actor learns to think and act without his text, he follows his partner. The training sketch becomes the first step to the future production.

On this subject, Dmitri Nikolayev of the Metrostroy Theater says:

"It's very distressing, sometimes, that the scene is over and you are already offstage just as you had made contact with your partner and begun to really feel your part. The barrier between you and the person you were playing had dissolved. You had forgotten all about the hall and the footlights. All of your thoughts were turned on yourself and the person you loved or hated, despised or admired."

The Metrostroy's was among the first hundred people's theaters to be opened in the Russian Federation. Five years later the number has grown three-fold. Annually they show about 10,000 productions to three million spectators. Like others of its kind, the Metrostroy company is made up of people of various ages and professions. The youngest actor, Vladimir Stroilov, is 15 years old and in the eighth grade of secondary school. Last season he played his first role. The oldest actress, 79-year-old Alexandra Kurepina, is a pensioner. Unlike professional actors whose interests are largely limited to the theater, these people bring to the stage the differentiated experience of their many vocations.

What is it that brings these 60 people—students, workers, scientists and engineers—to the Palace of Culture three times a week to change into actors for a few hours? Are they merely amateurs with time on their hands and a hobby? They probably could not tell you themselves which is the more important for them—their profession or their hobby—because they do not oppose the two. Nor do they think of themselves as dilettantes for the simple reason that they have a compelling love for the stage.

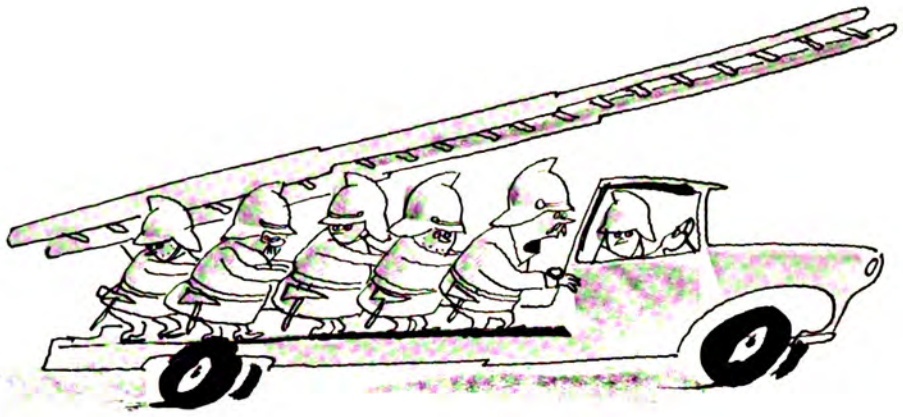
Artistically, the productions of the Metrostroy Theater are on a high level. Critic Iosif Yuzovsky wrote about the Metrostroy production of Maxim Gorky's *Yakov Bogomolov*:

"The audience was carried away by the play, and its unexpected denouement. The rapt attention of the hall was an even greater tribute to the acting than the applause."

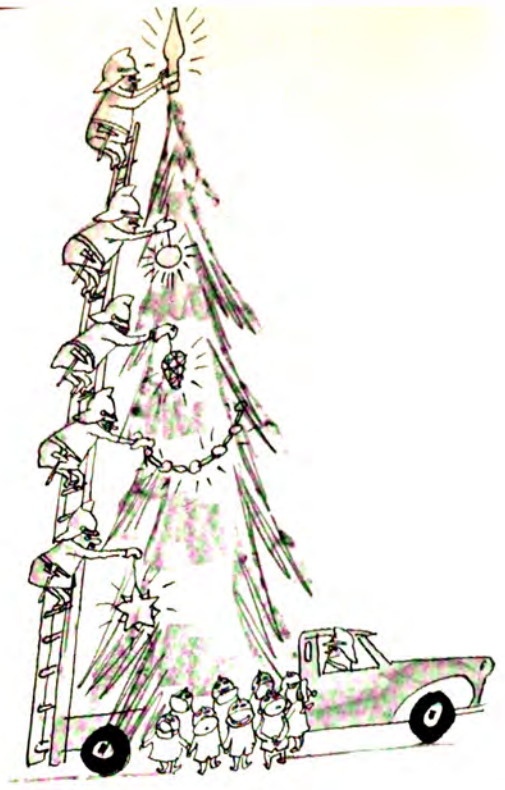
The company is now staging Shakespeare's *As You Like It*. Its aim is a production highlighting man's rich and talented nature, the joyful and ennobling power of love. The wit, gaiety and laughter of the play confronts the actors with psychological nuances of all kinds to think about and work on.

The theater's creative and organizational activity is directed by an art council headed by the chief stage director. The council discusses new plays, distributes roles, approves stage designs, analyzes rehearsals and admits new actors. Metrostroy's Palace of Culture subsidizes the productions. Each actor is simultaneously an electrician, make-up man and stagehand.

It is too early for any significant appraisal—the company is only five years old. The caliber of the acting is high, evidence is the fact that many of the members have been invited to join professional companies. They turned down the offers. Apparently they like their own professions too much to leave them and they like the stage too much to give it up. And so this happy compromise.



"Get moving! It's an emergency call."



Happy New Year

All lit up.

Hopeful.

Trained broilers.

DAHLIAS

By Yevgeni Bogat

Photograph by Alexei Bushkin

AT THE FLOWER SHOW in Moscow last autumn, near the stand displaying dahlias, I noticed an elderly woman with a sad, thoughtful face. She wore a dark, old-fashioned dress and looked strangely out of place amidst the splendor of the flowers and the gay animation of the crowds. It struck me, too, how oddly her tanned, work-roughened hands contrasted with her delicate, refined face.

When I left the show, the face haunted me. It had the depth that makes you want to approach a total stranger and, with no regard for convention, beg him to tell you the story of his life.

On my second visit to the show I found her again near the dahlias. Approaching the stand, I told her how beautiful I thought the flowers were.

"Are you from Siberia, Comrade?" she asked eagerly after thanking me for the compliment I paid her flowers.

She explained that she was expecting someone from Siberia and then, as I continued to admire the dahlias, remarked that they looked far more impressive in the garden.

"Could I see your garden?"

She said she would gladly show it to me.

I took down her address, but in two days I flew to another part of the country on an assignment from my editor and did not return to Moscow until early winter. The flower gardens lay mantled in snow, and I had quite forgotten Charlotta Petrusevich, my acquaintance of the flower show.

But strangely enough I was reminded of her again many months later when I happened to be visiting a children's home maintained by the Navy on the Pacific Coast. A young teacher, the daughter of a seaman who fell in the war, showed me a garden her charges had planted. It was late autumn, and the ground was strewn with leaves. As they fell, they lent the scene a faint yellow glimmer that was gloriously outdazzled by a fresh and flaming bed of dahlias.

"Our children try hard to keep the garden looking summery as long as possible," said the teacher. "And the dahlias, blooming late, are a great help. They were sent to us by a woman florist in Moscow."

The tall and stately dahlias, reaching almost to man's height, gave a curious impression of strength. Their gorgeous flower heads recalled the beauty of the rainbow and the glow of sunset; it seemed to me I had seen them somewhere before.

"Do you happen to know if the Moscow florist you mention lives at Ilyinskaya Station?"

"I don't, but our superintendent would. He went to see her once."

The superintendent, who was away on business, she told me, would

be back in a day or two. But I could not wait to see him. However, I had the feeling that the woman who had sent the dahlias to the children's home was my flower show acquaintance.

It was winter this time, too, when I returned to Moscow. The day after my arrival I went to Ilyinskaya Station. The little suburban settlement was blanketed with snow. A woman wrapped in a shawl stepped out of the little house and walked slowly to the gate.

Diffidently I reminded her that she had promised to show me her flower garden.

"Gladly, if you have the eyes to see," she replied, giving me a searching glance.

Amidst aged pine trees unfamiliar saplings peeped out from the snowdrifts as I followed her down a half-obliterated track.

"They're lilac bushes," she said, "white and purple. But we'll leave that for later. The daffodils are the first to bloom, after them come the peonies, when spring settles down in the garden, traveling from the hedge to the doorstep, just as we are walking now. When the peonies are followed by white lilies, summer is here. The irises and jasmine open up, and half the garden is in bloom," she said with a sweeping gesture. I noticed that she wore a man's old fur mitt. She pointed to the rose beds. "After the roses," she said, "autumn sets in with phlox and hydrangea followed by the dahlias, hosts of them, bright as a bonfire. I have more than a hundred varieties growing in my garden. During the war potatoes and onions were planted in all the flower gardens and along the country roads. We, too, grew vegetables in between the lily and peony beds. But this part of the garden remained untouched, so that even in 1942, the hungriest war year, we kept it for our dahlias. Gennadi was eager to raise one of his new Fantasie dahlias, and he absolutely refused to have a break in the planting of this variety."

"Who is Gennadi?"

"My husband. We have now reached the part of the garden which blooms in late autumn. Behind the house are the apple, cherry and nut trees. But you must be frozen." With these words she led me into the house.

The only habitable room, the sunset visible from its windows, had a very humble look. It was clear that her own tiny abode received the least attention from its mistress. Above the shelves containing books on horticulture was a picture of a young man in a peaked cap, cavalry coat and boots. He was snapped by the photographer in the kind of pose that our army men of the twenties were especially partial to, head held high, hand resting elegantly on a flexed knee, one leg forward, the other drawn back. He gave the appearance of a soldier who had suddenly plumped down in the middle of the march and the next minute would rise to rejoin his comrades. His lean, jovial, rugged face, with prominent cheekbones, bore the typical expression of the campaigner.

"That is my husband," she told me. "He grew several new varieties of dahlias known as the Fantasie dahlias.

"Was he a botanist?"

"No, he was a railway construction engineer. As a young man he spent seven years at war—in the First World War, when he served in the czarist army, and later in the Civil War. He fought in Budyonny's cavalry then. Flowers were his hobby."

She invited me to sit down. I looked at her lined face, deeply tanned even now in winter, and remarked that surely it was she who had brought flowers and the garden into his life.

"What put that idea into your head?" she said. And then, as though regretting her curtness, she continued in a gentler tone: "I had been leading a rather dull life, working as a secretary, banging away at the typewriter and filing letters, going to the movies too often. One day, however, instead of going to the movies, I dropped in at a poets' evening. I met my future husband there. He wore an army uniform but in jest called himself a perpetual student of the St. Petersburg Polytechnic Institute.

"Do you remember Chekhov's story 'The Darling'?" she asked smiling. "Well, I was a little like its heroine. I, who never before gave railway construction a thought, soon considered it the most fascinating work in the world. At the time we had not yet begun building, much as we dreamed of it. My husband was looking around for a job. In the evenings we pored over a huge map on which he traced new railway lines across deserts and mountains, taking particular delight in drawing tunnels and bridges. I imagined myself, quite dizzily, standing at his side on a railway bridge. As Gennadi put it laughingly, I had turned into a Soviet version of the young woman Chekhov described in his story. The day finally came when we packed all our possessions into one valise and set off to a railway construction site. The railway was to be only a narrow-gauge line running across peat bogs. The marshy country where we lived was a very dreary place, and we were glad to make friends with a woman who grew potted plants. The only inkling Gennadi ever gave before that of his love for flowers was during the very first evening we met when he recited a poem about them."

"Do you remember it?"

"Why don't you grow flowers?" she evaded an answer. "My husband began when he was your age. From the peat bogs we moved North to build another section of railway. He planted his first dahlias at a little station, but we had moved on to the East by the time they bloomed. He now called himself an itinerant horticulturist. Dahlias were his special favorites. Perhaps he loved them because they were so hardy—the birthplace of the dahlia is the Mexican mountains, and they are not afraid of the chilly nights—but more likely because they are so beautiful. And then, too, because they are as different as human faces. Each flower has its own coloring and expression.

"I remember a most impressive autumn sunset many years after we had left the peat bogs. My husband had by then built a great many railroads and had grown many new varieties of dahlias. We were getting on in years, too. It was here in our garden that we were lost in admiration of the Moscow sunset, which seemed to us more beautiful than all the sunsets we had seen at the seashore, in the steppes and in the mountains—a sunset no artist could transfer to his canvas. 'Canvas may not be able to convey it, but my dahlias shall!' cried my husband enthusiastically. That was the last peacetime autumn before the war, the third great war in our lifetime."

She averted her face from the pallid winter sunset, looked at the young man in the photograph and then turned to face the dying day.

"Gennadi had a young nephew whom he loved dearly. Volodya came to visit us very often. Our own child died. But children stayed with us every year, from the spring to the autumn, my relatives or his, and sometimes just boys or girls we befriended. When the war began, the children left us. In wartime my husband worked at the Ministry of Railways all day and often all night, too."

She raised her hand to brush away a gray strand of hair but then let it drop back into her lap before it reached her face. The gesture conveyed to me the sadness of those lonely wartime nights. The last glow of the sunset faded, and the cold gleam of snow invaded the room. My hostess, who seemed but a minute ago oblivious of my presence, gently touched my hand.

"Would you like to see the dahlia bulbs stored in my cellar over the winter?" she asked.

I followed her into the entry where she raised a trap door and lighted a lamp. By its oblique beam we climbed down a wooden stepladder into the cellar. I looked around with interest. It was lined with shelves of what looked to me like old, blackened potato tubers.

Pointing to each group in turn, my hostess said, "This is the Dream dahlia, a dark pink variety, and that's the Garden Queen, with rich golden flowers, and this is the Madrid dahlia, which is a flaming orange, like tongues of fire. And this one is Fantasie No. 2 . . . ."

I noticed a dark sturdy bulb that looked like a heavy clod of turf. Inked in was the name of this variety, "In Memory of Petrusevich dahlia."

"This is the dahlia with the colors of the Moscow sunset," she said. "Gennadi had hoped to grow it, but I had to finish what he began. After great effort I finally achieved what he had been after. It's a pity you can't see it. A bed of these dahlias looks like a rainbow hugging the earth."

"If I'm not mistaken, I saw this very variety on the Pacific Coast."

Delighted, she said I could find her dahlias in South Sakhalin and in Siberia, too. She then spoke of her Desirable dahlia, a frost resistant variety with white fluffy clusters of flowers. She showed it to me, and then we put on our coats and went outdoors, where the air was still and frosty.

A nipping wind blew gusts of snow, and my companion shielded her face with the cuff of her sleeve.

"Spring, when the garden comes back to life, is not too far off," she remarked, treading heavily at my side.

We had reached the gate and I was about to say good-by when she paused.

"You asked me about the lines my husband recited. They are by Alexander Blok, Gennadi's favorite poet. He recited them to me the day we first met, in November 1922, and I still remember them." Softly she repeated them:

Roses, autumnal roses,
I dream of them row upon row,
In the mist and the light and the frost,
On the crisp and the whitest of snow.

A sloping road took me away from the house, but as I turned to look back, Charlotta was still at the gate, her face bared to the wind. It now seemed to me that she stood on a bridge joining two lives.

From that day on, in the hope of finding Gennadi Petrusevich's name, I began reading everything I could get hold of about dahlias. And soon I was lucky enough to come across a booklet he had written. It was published just after the war, and the poor paper gave it the imprint of that period. The booklet contained advice on how to grow dahlias and descriptions of the many varieties.

Although it had been written by a man well on in years, from its pages a young man's jovial, rugged face in the peaked cap of Budyonny's cavalry looked out at me. His smile imparted a warmth and a wisdom to even the most commonplace hints to gardeners.

I wrote a feature story for my newspaper and called it "Dahlias." After it appeared, letters addressed to Charlotta kept pouring in from all parts of the country—from Karelia, Transcarpathia, Kirghizia and Yakutia. In all she received nearly 500.

Here are four of the letters which I think have great human appeal. They show how flowers can bridge the distances between people and bring warmth and beauty into their lives.

First Letter

Dear friend of our friend,

Do not be surprised, Charlotta, that we address you in this way. We are three comrades, Maria and Pyotr Dunkan and myself, who have known each other since the Civil War. On my last birthday the Dunkans, as they always do, came to see me. With great excitement Pyotr placed an open newspaper in front of me and told me to read it. Seeing the title "Dahlias," I thought that, knowing my love for gardening, Pyotr had put the copy aside for me. But he insisted that I read it at once. When I began reading the article, my heart stood still. It told me, alas too late, of Gennadi Petrusevich, our unforgettable friend.

There were five of us who were inseparable comrades serving in Budyonny's Cavalry—Gennadi, the Dunkans, my husband and myself. Your husband was the liveliest of us all. His memory is particularly dear to me because he saved my life.

We were crossing the Dnieper in the spring, when the ice was no longer solid. And while the men in front of me got across safely, my horse fell through. Clutching to the edge of the ice, I cried out. Gennadi jumped down from his horse, rushed to my side and pulled me out of the water. Drenched, we dashed off on his horse to overtake our unit. I have been called his godchild ever since.

A year later I left for home because I was expecting a baby. When we parted, the five of us vowed always to keep in touch. I began working at the local Soviet, and my husband, on returning, was assigned a job at the military commissariat. Later the Dunkans, too, were assigned to jobs in a nearby city.

During a White Guard raid, my husband was killed, and I was left a widow with two children. Life has not been kind to me, Charlotta. My son fell in the last war.

It was sad not to have had any news of Gennadi all these years. But there is really no one to blame for it. War and construction, and then again construction and war. Today a job in the North of the country—tomorrow in the South. From the newspaper story I learned that he built railways, bridges and tunnels and at the end of his life wrote a book called *Dahlias*. Please, if you can, send it to me. I should like to have it to remember him by.

I, too, love trees and flowers. In my garden I grow Amur grapes, berries and fruit. I should like to grow the beautiful blue dahlia variety Gennadi raised. Pyotr Dunkan says he would love to go to Moscow to see those beautiful dahlias, but he is not well and can hardly move without a cane even in his own home. Please send him a dahlia bulb.

On my birthday we kept recalling the grim days of our youth, crying and laughing at the same time. Please write to us about yourself, Charlotta, friend of our unforgettable friend.

Sincerely yours,
Anna Bublai

Second Letter

Dear Charlotta,

I had hoped to pay you a visit but have been confined to bed by illness.

Our hospital was built in a suburb, actually in the steppes, where the dry earth cracked from the heat and there was not a bush or flower bed. Only a meadow of thistles relieved the monotony of the hospital grounds.

But in the past three years part of the grounds have been transformed into a blossoming oasis, thanks to the efforts of Dr. Dmitri Krivonos. This doctor was stationed in a hospital at the front all through the war. He saved thousands of lives and was badly wounded himself.

He cheers and gives hope to every one of the patients. And he is doing his best to beautify the grounds. There are beds of roses and other beautiful flowers, but as yet no dahlias.

Could you please send us some of your Dream dahlias, Garden Queen or the beautiful Fantasie varieties. We'll plant them under the windows of the surgical ward where some of our sickest patients are. And may the dahlias, as beautiful as your heart and Gennadi's, restore these patients to health.

We want to have beautiful flowers despite our arid climate.

Sincerely yours,
Nina Kasperskaya
Genichesk, Kherson Region

Third Letter

Dear Charlotta,

I read in the newspaper that your husband raised a new variety of dahlia which he called the Madrid dahlia, and that its color is like the flame of fire. I was greatly moved by this, for I come from Madrid myself and my name is Manuel Seinero. I have the greatest admiration for the man who raised a new flower in tribute to my long-suffering country.

I left Spain as a young man and remember my country well. If ever I return to Madrid, I shall plant a tree or a rose bush on Spanish soil and name it after your husband.

I owe a great debt to Russia, and to people like you and your husband. Dear comrade, I beg you, if you can, please, send me this priceless variety of dahlia, which will give me the greatest joy. I have a little garden around my house, and these flowers will remind me of my native land, of the great friendship between nations and the hope of the Russian people for peace in the whole world, for all mankind.

Manuel Seinero

Fourth Letter

Dear Charlotta,

We have never met, but I should very much like to be your friend by correspondence. I live in the small town of Kupyansk near Kharkov. My name is Sofia Revenko. My husband returned from the war blind.

We have two sons, 13 and 11 years old, and are a very close family. In our little garden we grow dahlias, gladioluses and other flowers.

Dear Charlotta, after reading the article about you, I went to many bookstores hoping to find your husband's book on dahlias, but without success. I shall be ever so grateful if you could send me a copy. My whole family, especially my husband, will appreciate it very much. When the dahlias bloom, he can "see" them by gently feeling each flower with his fingers. I should like our garden to have the most beautiful dahlias so that my husband can "see" them this way. His blindness is only one of the many curses that war brought to our people.

I should be grateful, too, if you could help me with advice on gardening.

Regards from my husband and children,

Sofia Revenko
Kupyansk

Letters can be sent at any time of the year and at any season, but the time to send dahlia bulbs is spring or just before spring. That is when Charlotta Petrusevich is busy packing parcels to send to all corners of the Soviet Union.

Stately and flaming dahlias will grace gardens in the towns and villages of our Far North and arid South. Their young buds will open up and tell Anna Bublai of the comrades of her youth, delight the blind war veteran and bring the memory of his native Madrid to Manuel Seinero.

"No one can become a Communist unless his mind has been enriched with a knowledge of all the treasures mankind has created." **Lenin**

OMAR KHAYYAM

BY RANO SALOMATSHAYEVA

HIS CONSTELLATION was the Twins. It was in 1048, when the sun and Mercury were in the third degree of the Twins, that Omar Khayyam was born. He lived for some 80 years—a mathematician, astronomer, philosopher and leisure-time poet. For this man of many parts, God was a philosophic abstraction, the First Cause, but with no influence thereafter on the destiny of mankind.

Islam forbade the depiction of the human face, and so we have no idea what he looked like. His full name was Ghiyath ad Din Abul Fath Umar ibn Ibrahim al Khayyami Nishapuri. Ghiyath ad Din was an honorary title bestowed upon him; Abul Fath stands for Fath's father; Umar was a personal name; ibn Ibrahim, the son of Ibrahim; Khayyami, the Arab for tentmaker, obviously derived from his ancestors' occupation; Nishapuri, a native of Nishapur.

He was born in the Seljuk Empire, a great medieval state that spread all the way from the Mediterranean Sea to the borders of China, and from the Persian Gulf to the Kazakh steppes in Russia.

Two accounts of Omar Khayyam by men who knew him have come down to us. One, by the historian Abulhasam Beikhaki, reads in part:

"Mentor, philosopher, proof of the truth, Omar Khayyam . . . was the disciple of Avicenna in diverse fields of science. By nature he was very exacting and never satisfied. Once, in Isfahan, he read a book seven times over and learned it by heart. On returning to Nishapur, he dictated it, and when his version was compared with the original, there was no great difference to be found. He was terse in writing his books and in teaching . . . knew languages and Moslem law and history."

What the ancient historian meant by "terse in writing" was that Omar Khayyam wrote simply and laconically. Many of his papers were only a few pages long.

Among his works that have come down to us are the *Rubaiyat* (quatrains), studies in philosophy, mathematics and science, and the *Nauruznama* (New Year's Book).

Omar Khayyam was famed in his lifetime for his treatises on mathematics, which he turned to first among the sciences. His scientific contributions outshone his subsequent studies in philosophy and his poetry. History did him justice, however. The centuries did not deplete his fame, they merely shifted its accent. Omar Khayyam's treatises may be the ABC's of a modern mathematics which has moved far beyond those early beginnings, but few can claim that their verses have progressed much beyond the *Rubaiyat*.

In a period when religious dogma and blind faith were sovereign, mathematics proclaimed a new criterion of truth: free and logical thought. Khayyam's treatise on algebra originated a systematic theory of cubic equations.

In an introduction to the treatise, he writes that he had tried to investigate all forms of equations and find among these forms every possible and impossible case, basing himself on proof. However, he adds, he was deprived of the opportunity of systematically working on this problem and could not even concentrate his mind upon it because of the adversities of fate and the death of scientists of whom a small number of much-suffering men remained.

He classified all the linear, square and cubic equations with positive roots. His classification contains 25 forms of equations, and he shows how each of them can be solved.

His treatise "Some Difficulties of Euclid's Postulates" is devoted to the three most difficult problems of Euclid's *Elements*.

In a treatise, "Difficulties of Arithmetic," which has not come down to us, Khayyam developed the method of extracting roots of every degree from integrals, evident proof that he applied Newton's binomial theorem long before its author's birth. The fifteenth century Samarkand mathematician Jamshed Ghiyath ad Din Kashi attributes the formula to a predecessor whose name he does not mention.

Central Asia of ancient times used the sun calendar, the sun being a sacred element in Zoroastrian worship. Beruli, the Central Asian scientist, wrote of this calendar in his *Traces from Past Generations*:

"Their year was 365 days, with no provision for the fractions (five hours, 48 minutes, 46 seconds) until the quarters of the day formed, in the course of 120 years, a whole month. . . . Then they added a month to the year."

The Arab conquerors of Central Asia did more than convert its peoples to Islam. They enforced the use of a lunar calendar whose reference date was the hegira—the flight of Mohammed from Mecca to Medina on July 16, 662. This lunar calendar was 11 days shorter than the sun calendar.

In 1074 Omar Khayyam became chief astronomer of the Isfahan Observatory and headed a group of calendar reformers.

We know of three variants of Omar Khayyam's new calendar, with the 62-year, 70-year and 33-year cycles. Each has its own periodicity of leap years. In the 33-year cycle, for instance, the leap years are the fourth, eighth, twelfth, sixteenth, twentieth, twenty-fourth, twenty-eighth and thirty-second years. The error in this cycle added up to one day every 5,000 years. In the calendar we use now, the error adds up to one day in 3,333 years, so that Omar Khayyam's calendar was more precise than ours. With an encyclopedic background, in the prime of his fame, and not yet 30 years of age, Omar Khayyam might well have left us even greater astronomical contributions. But "a moment of fate foreordained the centuries." His patron died and was replaced by a tyrant, and the "leap remained unfinished." A hundred years later Omar Khayyam's descendant, the great poet and philosopher Saadi, mentioned Khayyam's calendar in his verses.

There were many poets in the East, but even more tyrants. Though reason was extolled, it did not triumph.

We do not know when Omar Khayyam began to write his quatrains and how many he wrote. The oldest copy of the *Rubaiyat*, dated 1207, is preserved in Teheran. It contains 252 verses. Some scholars think it was fabricated by many hands. That would not be too surprising. We must remember that Khayyam is twice as remote from us in time as Shakespeare. Khayyam was an optimist. Let us also be optimists about his authorship.

The *Rubaiyat* has a varied enough poetic character to be a gallery of word paintings by different masters.

Khayyam glorified wine:

As much as Wine has play'd the Infidel,
And robb'd me of my Robe of Honor—well,
I often wonder what the Vinters buy
One-half so precious as the ware they sell.

Living in cruel times, he cursed the heavens:

And that inverted Bowl we call The Sky,
Whereunder crawling coop'd we live and die,
Lift not your hands to It for help—for it
As impotently rolls as you or I.

He was so plagued by disbelief that he decided to make a pilgrimage to Mecca. That was one of the most dramatic episodes of his life. But the pilgrimage did nothing to sustain his faith.

Oh threats of Hell and Hopes of Paradise!
One thing at least is certain—This Life flies:
One thing is certain and the rest is lies;
The Flower that once is blown forever dies.

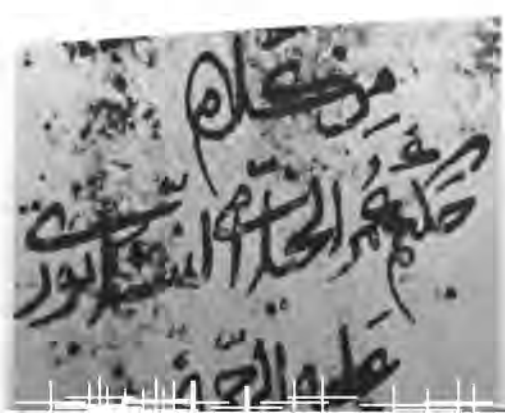
The philosopher and poet spent the last year of his life in solitude in Nishapur. He wrote rarely, and his verses were laden with weariness.

Impotent Pieces of the Game He plays
Upon this Checkerboard of Nights and Days;
Hither and thither moves, and checks, and slays,
And one by one back in the Closet lays.

The date of Khayyam's death is uncertain. Khwajah Nizami, a contemporary, writes:

"Khayyam once said to me: 'My grave shall be in a spot where the spring wind may scatter blossoms over it.' I was perplexed by these words. . . . When, in 530 (1135) I came to Nishapur, it was four years since that the great man had covered his face with the blanket of earth and left this base world desolate.

"For me too he was a mentor. On Friday I went to pay tribute to his remains and asked a man to guide me to his grave. He led me to the cemetery of Hiré. I turned to the left, and just outside a wall surrounding a garden I saw his grave. Pear and apricot trees stretched their boughs over the wall and dropped their blossoms upon his grave, so that the stone was hidden under them. And I remembered the words I had heard him say in Balkha and broke into tears, for nowhere on earth, or in the lands of the promised quarter, could I have found a better place for his grave."

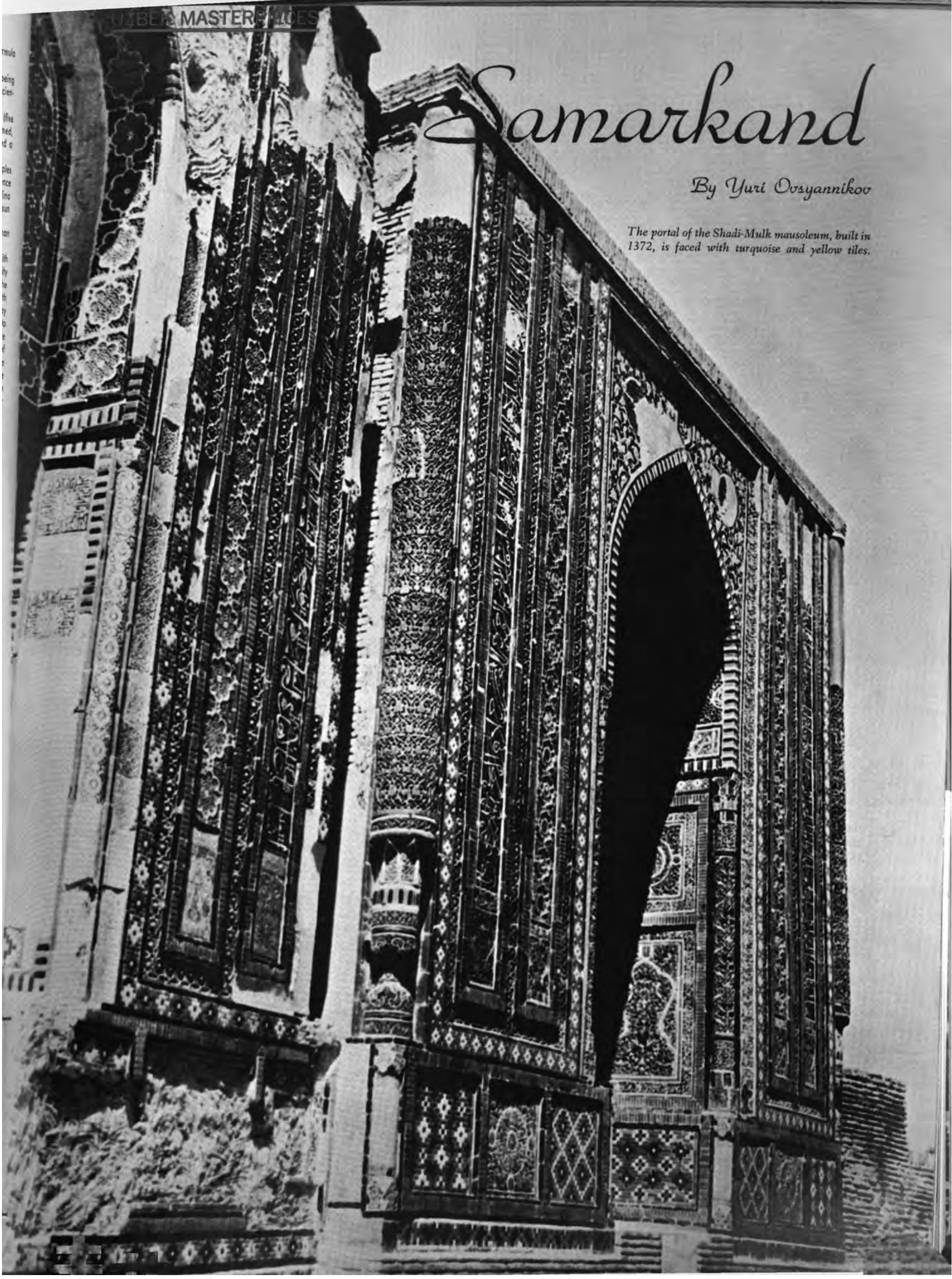


Omar Khayyam's autograph.

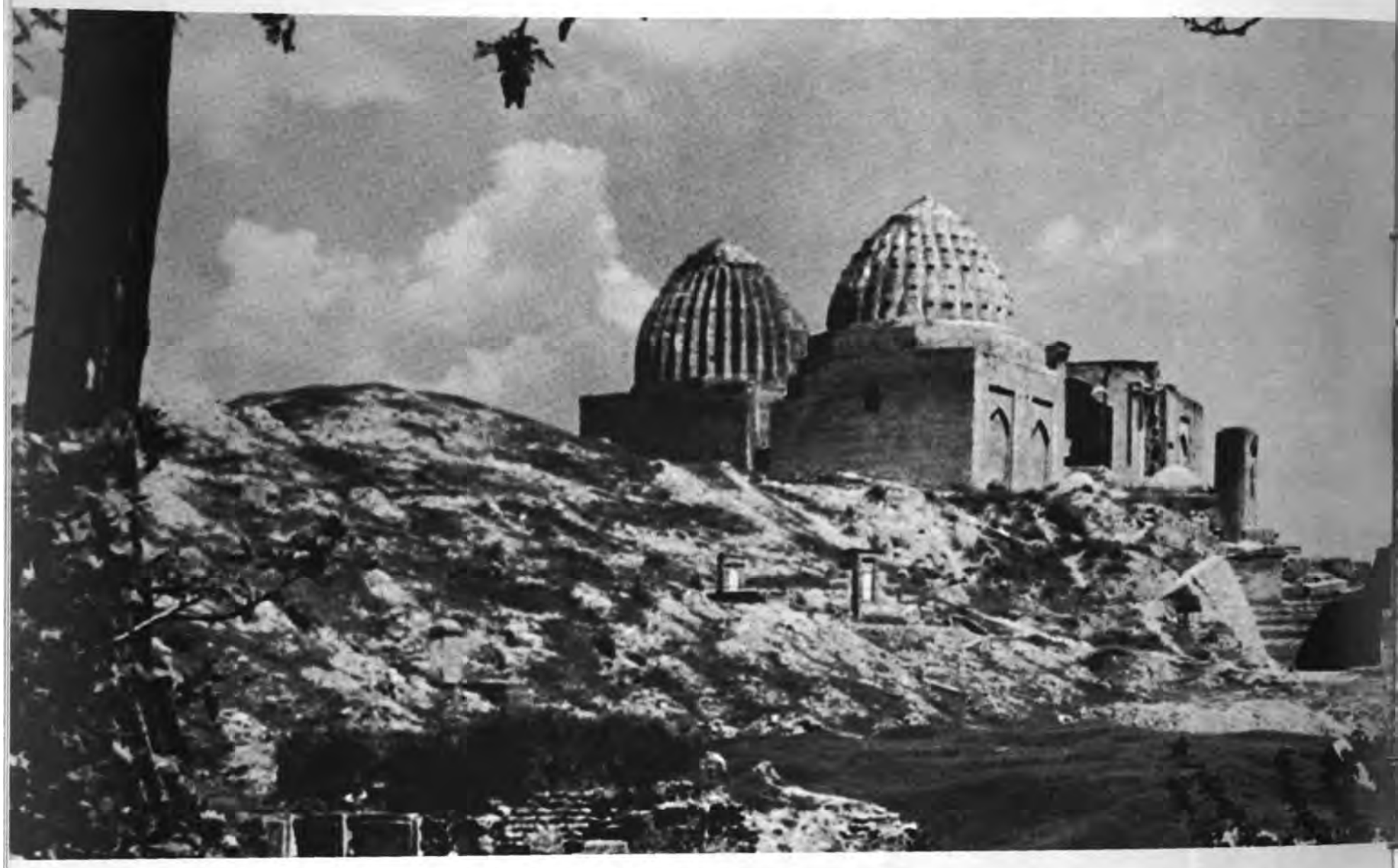
(The above article ***is the sixth in a series on the great men of the world to whom we owe our cultural heritage. We began in April with an essay on Vladimir Lenin, whose heirs the Soviet people consider themselves to be. We continued with an article on Democritus in June, Thomas Paine in July, Jean Jacques Rousseau in September and Andreas Vesalius in November.)***

Samarkand

By Yuri Ovsyannikov



The portal of the Shadi-Mulk mausoleum, built in 1372, is faced with turquoise and yellow tiles.



"THE MOST ANCIENT and most beautiful gem in the necklace of Central Asian cities," was how the poets characterized Samarkand. Two and a half thousand years ago, in the fourth century before our era, this rich city was plundered in the wars waged by Alexander the Great. In 1220 it was laid waste by the Mongol conqueror Genghis Khan.

As the centuries passed, the city, like the mythical Phoenix, began to arise from its ashes. At the end of the fourteenth century Tamerlane, "the iron lame man," made it the capital of his new empire. And to show his might and contempt for the other cities of Asia, this potentate renamed the villages around Samarkand "Baghdad," "Damascus" and "Cairo."

The most famous architects and artists of the countries Tamerlane conquered—Iraq, Syria, India and Iran—labored to beautify Samarkand. Not many of their works have survived, but those still intact evoke the viewer's admiration and wonder. The superb Bibi-Khanum Mosque suffered most from the ravages of time. Legend associates the name with Tamerlane's beloved wife. It is said that she ordered the mosque built to celebrate his safe return from one of his many wars. But Tamerlane thought the mosque too small and had it rebuilt into a 548 x 358-foot structure. Its galleries are supported by 400 white marble columns. At the corners are four well-proportioned minarets. The diameter of the cupola of the central structure is 100 feet, and its height is 130 feet.

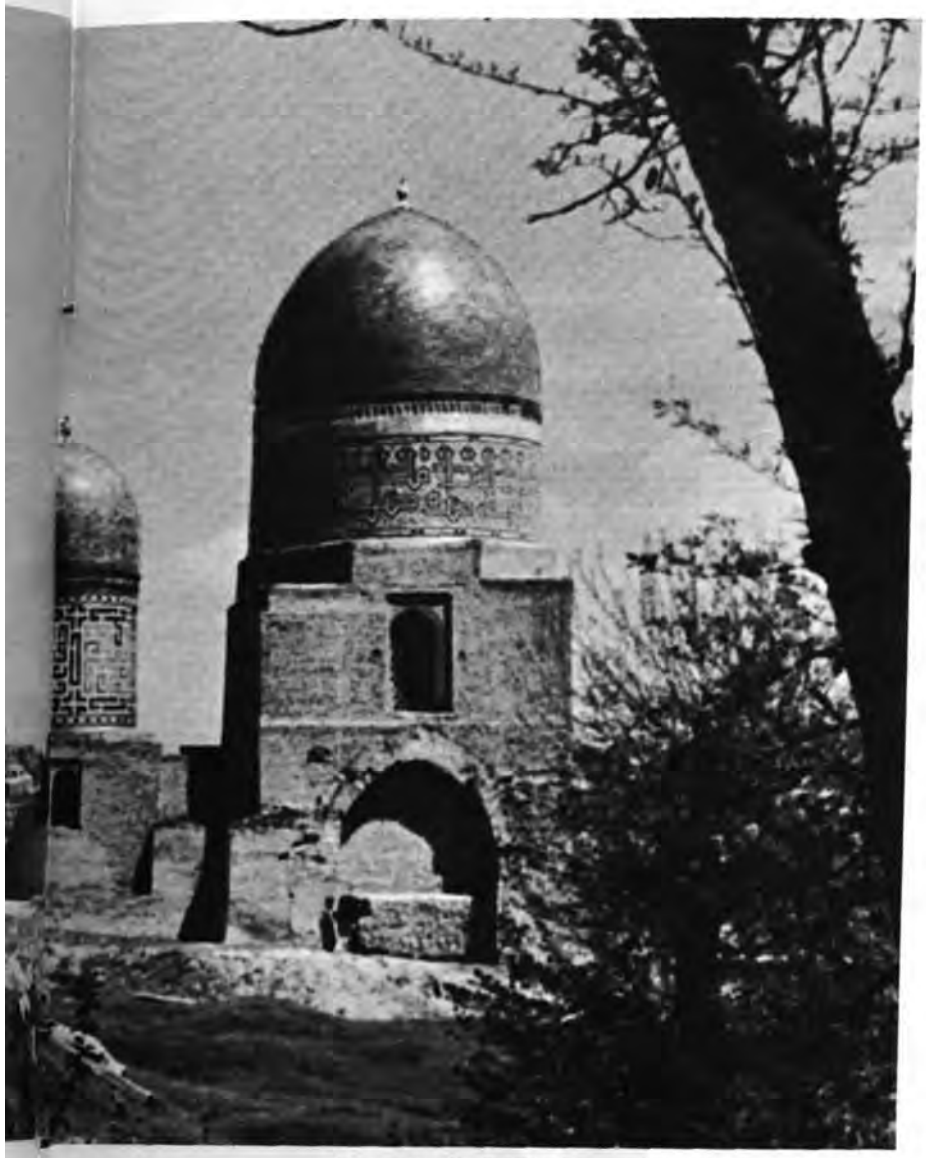
Tamerlane wanted the Bibi-Khanum to be the biggest mosque in the Moslem world. But the laws of architecture cannot be broken with impunity. Implacable time quickly destroyed this unstable structure. And now only its ruins give evidence to its onetime grandeur and richness of decoration, in which snow-white marble was harmonized with colored glazed ceramics and dark blue and gold paint on a white background.

There is another monument of medieval Samarkand associated with Tamerlane. In 1403 his favorite grandson, Mohammed Sultan, died on a campaign. The grieving grandfather ordered a superb mausoleum built for him. In 1404 the mausoleum, called Gur Emir, the grave of the emir, was finished. A year later Tamerlane himself died, and the mausoleum of the grandson became the mausoleum of the grandfather.

A cylindrical drum crowned with a ribbed cupola that extends upward rests on an enormous eight-sided foundation against which the delicacy of the architectural lines, the lightness of the forms and the richness of the mosaic decor stand out in striking contrast.

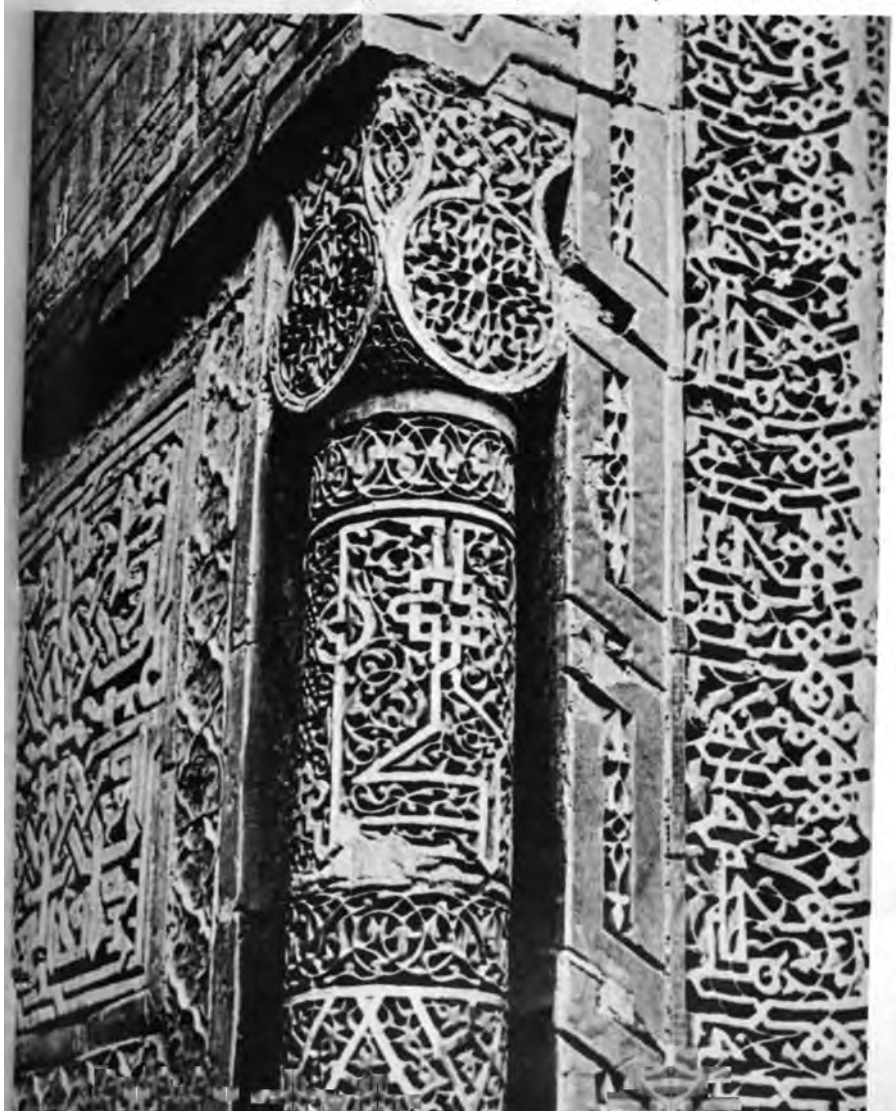
The Bibi-Khanum Mosque and the Gur Emir mausoleum are only two of the better-known Samarkand monuments. As interesting are the fourteenth century Shah-i-Zinda structures, a complex of 25 mosques and mausoleums, and the forum of post-Tamerlane Samarkand, Registan Square, surrounded on three sides by the important Moslem seminaries of the Middle Ages: the Ulugh-Beg, Shir-Dor, and Tilla-Kari. Another must for visitors are the huge buildings of the Ulugh-Beg astronomical observatory built in 1424.

An ancient poet said of one of the builders of Samarkand, "He built a madrasah that nearly reached the zenith and adorned both the earth and the skies." In this comparison we see the intemperate splendor so characteristic of the East. But there is truth here too. Samarkand, with its monuments of antiquity, does "adorn both the earth and the skies."



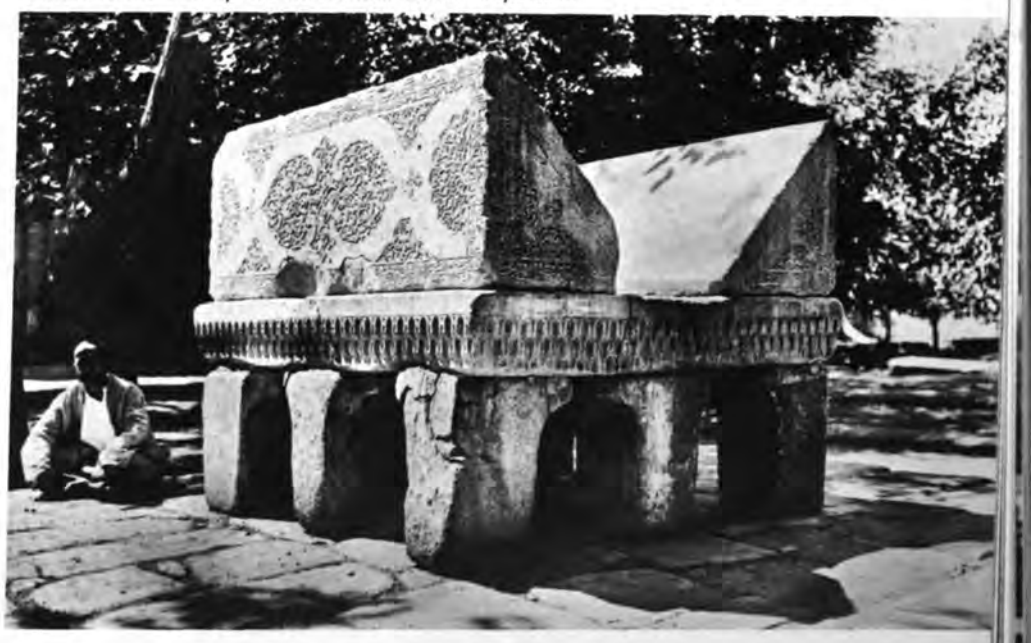
Part of the Shah-i-Zinda complex of 25 mausoleums and mosques. These were built in the late 14th century.

This intricate carving in stone offset by colored tile is typical. A detail from the Hodja Akhmad mausoleum.



The minaret of the Shir-Dor madrasah, one of the three medieval Moslem seminaries in Registan Square.

Stone bookrest for a Koran. The delicate tracery is witness to the skill of the old Mohammedan craftsmen.

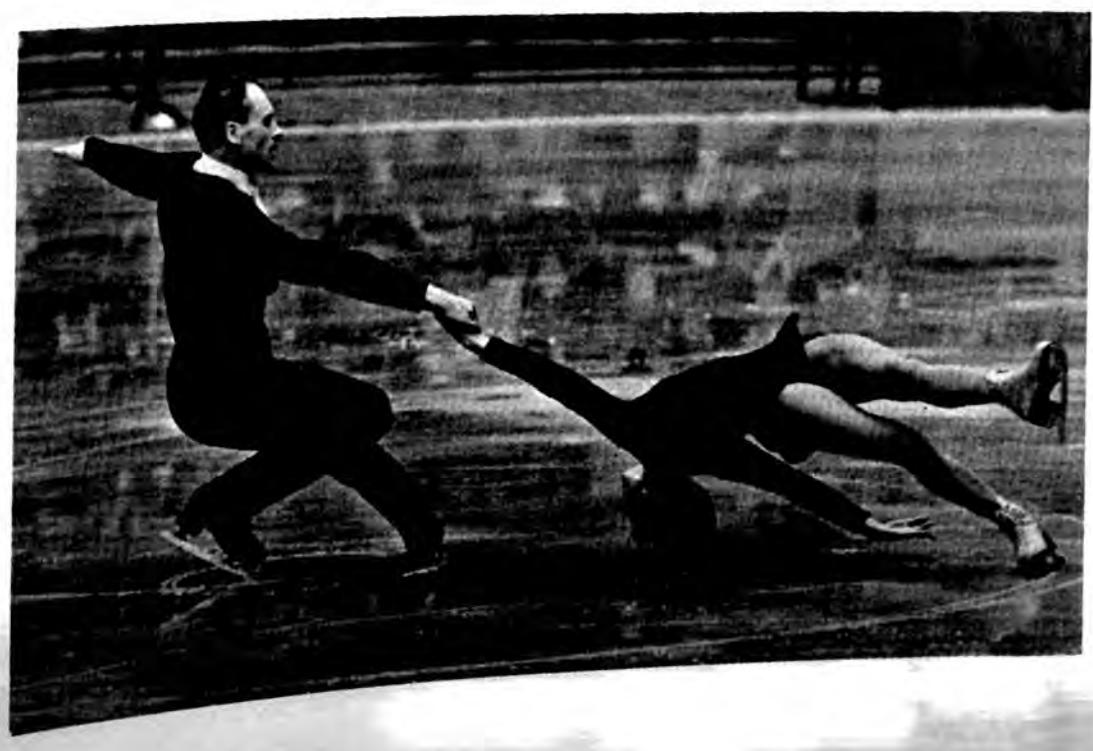


TOP TEN 1965

Until a few years ago the Soviet Union lagged behind considerably in water events. One of our up-and-comers is Semyon Belits-Geiman. He chalked up an unexpected win at the 1965 World Student Games in Budapest.

Although Romuald Klim has not set a world or European record in the hammer throw, he rates among the very best. He rarely loses at a home tournament. As for foreign competition, he is the Tokyo Olympic champ.

Soviet ice-hockey players have taken the world and European titles for the last three years. Vyacheslav Starshinov (closest to puck) was rated the best forward of the 1965 world championships at Tampere, Finland.



Aspiring athletes could use Ludmila Belousova and Oleg Protopopov as models for how to become champions. They worked punctiliously year in and year out and in 1965 skated their way to the world pair title.

European champ Edward Matusevich heads the cohort of Soviet speed skaters who have been dueling with the Norwegians for several years with alternating success. The way he has been going, it could be the 1966 crown.

Alexander Ivanitsky is famous for his finished mat style and great strength. He demonstrates here how a "bridge" should be done. Ivanitsky is the 1965 free-style wrestling king of the world in his weight division.

When it comes to speed skating Inga Voronina is in a class by herself. She made a clean sweep of all the events in the 1965 world competitions and holds the record in all distances—500, 1,500 3,000, and 5,000 meters.

In basketball the Soviet teams relinquish Olympic medals to the Americans with unwilling regularity. But U. S. coaches regard Gennadi Volnov, here scoring a field goal, as a player of threatening world-class caliber.

His was an upset victory that surprised not only the fans but the experts as well. Despite the well-earned reputation of British, Swedish and Czechoslovak motorcyclists, Victor Arbekov took the 1965 world title.

Valeri Popenchenko is the 1965 European champ. At the Tokyo Olympics he won a gold medal and the Barker Cup, awarded to the best amateur boxer. Most of his bouts are knockouts and he has never been counted out.

LETTERS TO THE EDITOR

ABOUT CHILDREN

Dear Sir:

Orchids to the editor for presenting these two exceptional glimpses of young children in Soviet society: "The Nikitin Approach" and "Drawn from Imagination" (September '65)!

As to the first, we await with interest further medical findings. But two questions do bother me:

1) How will the Nikitin children adapt to the conventional temperatures of the schoolraam? Will they risk flu or pneumonia, often developed by Arctic explorers on their return to "civilization"—?

2) May we see some of their spontaneaus drawings and/or paintings, made during these Spartan preschool years?

Turning to the authentic art of Nadya Rusheva, ages 7-10, my hope is that some higher-ups in the educational world are pondering the significance of the fact that this work—so moving and so varied—was produced at home, while "the formal drawings she does at school are no different from those of the other children." *Must* the schools put children's creative work into a straight jacket? "Formal drawings" indeed!

My view, based on many years experience in nursery education in the U.S., can best be stated in the words of Rose Alschuler, author and research authority in the field: "The young child paints not what he sees but what he feels—the lights and darks, the joys and sorrows of his day-by-day experience." Each child lives in a complex environment, in part selected and arranged by the adults, who also control much of his experience within this environment, so that he may understand it better and function effectively in his social world. Perhaps we can all agree that this is one main task of education. But what about the related task of drawing out the inborn potentialities of each child?

The child has his own inner reactions to each experience and it is this that he sometimes is able to convey to us in words, music, dance or drawing. In no other way can we enter the inner world of childhood, or glimpse the rich emotional life as well as the imagined fantasies below the quiet (or not-so-quiet) surface. Perhaps then the aims of art education would do well to emphasize less the perception and creation of "beauty" in some approved sense, and more the freeing of the child to communicate with the world in his own unique way.

Is it possible, indeed, to "teach" art during these early years? My answer would be—the adult has an important role, *not to tell the child how to work, not to urge him to copy nature,* but to make easily available a wide range of materials and to encourage children to use these freely and experimentally. It helps also to play out remembered experiences, asking the children: How did it look (sound, feel, smell, taste)? This revival of sensory memories often leads to fine art productions later.

Questians as to structure, perspective, techniques will come as youngsters grow impatient with their awn results, and answers are then in order. But careless, derogatary comments ("A cow? I never saw a cow *like that!*") can end a child's artistic efforts for life. What then may be said? Expressions of interest and enjoyment can always be sincere. "Do you want to tell me about your picture?" is a safe query at any age. And why not hang it for a few days where all may see? It is nat praise but *respect for his work* that the child wants and hopes for, wordlessly.

Let us do what we can to encourage communication, in this difficult world of ours, from the earliest years of life, in our country and yours!

Sincerely,
Mrs. M. A. Koshuk
Lakewood, California

There is an article commenting on "The Nikitin Approach" on page 62. ***Editor***

YOUR ARTICLES

Dear Sir:

This is in regard to the September issue. I want to give careful attention ta the material on spaceflight, which certainly merits special attention; I've only given it a cursory once-over. I'll get around to the rest of this issue eventually, but since I am a university-level astronomy student and an experienced astronaut (armchair variety), the material on space autweighs all else.

That lovely caver by Alexei Leonov gives one food for thought. The position of the head and arms suggests that the cosmonaut is overwhelmed by the glory of Earth and the stars. I stared at this caver for some time, savoring this interpretation and agreeing with it. I have seen those wonderful color pictures of Edward White's "leoning," and I must say that with the possible exception af the rings of Saturn, there is no other sight so gloriously beautiful to terrestrial eyes that I have ever seen.

This brings up a suggestion: *LIFE* (the U.S. publication) printed those lovely color pictures of White in space, so why couldn't *SOVIET LIFE* print some color stills of Leonov in space? I saw the film, but I was one of the unlucky majority who couldn't see it in color. There were quite a few pictures which I thought would be very beautiful in color, and I would like to see them so. What do you think?

That article by Professor Shklovsky was most interesting, and brought ta mind the report, made some time ago, that Soviet radio astronomers had detected a supercivilization. I wrote to *SKY and TELESCOPE* requesting that full details be printed whatever the results happened to be. They haughtily refused, saying that they would not print anything in regard ta this ". . . obviously distorted news item." Distorted or not, the item is interesting and I would like to read full particulars, if only to learn how the error came about. On August 28 (by GMT) Radio Moscow broadcast a short summary, but this wasn't enough. Would *SOVIET LIFE* fill the gap?

Sincerely yours,
William J. Westbrooke
San Francisco, California

A FAILURE

Dear Editor:

I am a rather regular reader of the magazine SOVIET LIFE. It attracts me for several reosons: Firstly, I om interested in its layout techniques. Secondly, it is interesting to see the way we write about our country abroad (in the same woy as here or differently?).

To my mind, SOVIET LIFE is an excellent production. I am not an artist, but among my acquaintances there are experts who say the magazine is top-notch in that respect. As for the second question, it seems to me that you give a fairly full and objective picture of our life. (I would like only to see more direct material from our press.)

I have just finished looking through the November issue. It contains several interesting features (John Reed, Kozyrev, Vesalius). And still it seems to me that the issue is one of the less successful. The article that might have become one of the most interesting proved a failure. I mean the article "Soviet Youth Answers Gallup Poll Questions." Judging by everything, the American youth also answered its questions, but there are no comparisons. Why? That would be the most interesting part for us Soviet readers and for Americans. Generally, I would like to see comparison-based features in the magazine, after all it is very instructive to have, for example, an article "Whot Does Soviet Youth Know of America?"

Eagerly awaiting further issues,
Andrei Markov
Student
Moscow University

MEET ANNA GUZIK

By Isaak Tverskoy

WHEN the Yiddish Skit Group is billed. tickets are always sold out several days in advance, even in Moscow with its dozens of variety theaters. One of the very important reasons is Anna Guzik.

This uncommonly talented artist has been on the stage for nearly 50 years. She was born into an acting family. Her father, Yakov Guzik, founded the Yiddish Folk Musical-Comedy Traveling Company. This was where her mother and three of her sisters played and where Anna gave her first public performance when she was five. At 16 she played the demanding role of Zhenka in a stage adaptation of Kuprin's novel *Yama.* Ever since, she has had dozens of roles in Sholom Aleichem sketches, in the comedies and operettas of Avraam Golfaden, and in other plays.

In 1931 she turned to the variety stage where she wedded the fine traditions of the Yiddish folk comedians to the high standards of contemporary Soviet variety artists.

A most versatile performer, Anna Guzik moves almost imperceptibly from tragedy to a touching lyricism, from a nostalgic sadness to hilarious mirth. Her sharply defined gallery of stage portraits have the true Yiddish flavor. She possesses to perfection the rare gift of instantaneous transformation. A gesture or two, a changed hairdo, a few pieces of clothing are all she needs to create an entirely different character.

In 1939 the distinguished novelist Alexei Tolstoy wrote of Anna Guzik that she had a genuine artistic flair. Even today, a quarter of a century later, one marvels at the youthful vigor with which this 55-year-old actress performs. Time seems not to have touched her many gifts.

"You Are My Only One, or 300,000" is the title of a skit by Berengolts and Keller billed in the group's most recent program. The plot is very simple. Philip Solomonovich, idler and womanizer, has chosen the profession of "perpetual bridegroom." While one wife tries to track him down he proposes to another. Anna Guzik and her partners Sofya Muratova and Mikhail Chaikovsky give a masterly performance. The audience is treated to a whole gallery of characters, besides the principals—the deceived wife Lyuba, the seamstress Masha, to whom the bridegroom proposes, and Auntie Zlata, who is supposed to receive an inheritance. The laughter is side-splitting, the satire biting. Other of the skits—like Bergolts' "The Happy Couple" and Kogan-Bayev's "Visiting My Daughters-in-Law"—are infused with a subtle humor and at times a charming lyricism.

Yiddish folk melodies, as well as songs by Soviet and foreign composers, feature prominently in the programs. Anna Guzik has her own very characteristic and original song interpretations. She acts and dances as she sings. Her ever-popular repertory includes such old Yiddish favorites as "Mama," "The Matchmaker," "Bright as the Moon," as well as such new Russian songs as "The Toll of Buchenwald" and "May There Always Be Sunshine."

The group will soon produce, under the direction of Moisei Goldblat, a stage adaptation of Sholom Aleichem's *Wandering Stars.*

Anna Guzik's sharply defined stage portraits have a true Yiddish flavor. A gesture or two, a changed hairdo, a few pieces of clothing, and she creates a character.

Photographs by Yevgeni Tikhanov

HERE,

By Alexander Kron

SOME YEARS AGO Izrail Metter, a Leningrad writer, had three of his stories published in literary magazines. They were about the day-to-day work of the militia. The stories were well received, particularly the last of the three, "Mukhtar," which became very popular.

As is often the case, the success of these stories has drawn readers to his other work. Metter has had several collections of short stories published. The greater (and incidentally better) part of them deals with school, teachers and school-age children. As a matter of fact, the author used to teach mathematics.

The shift from mathematics to the militia would be curious, except for the fact that whatever Metter's subject, his basic message is humanism. He believes that the Soviet way of life and humanism are one and the same thing and that genuine communist education cannot be confined to the family and school but must have its roots and reflections in every aspect of living. Everything witnessed or experienced, he says, shapes personality. We should expect the same considerate and thoughtful attention from a schoolteacher, a militiaman or anyone else whose job is to set an example.

Metter points up the value of a kind word said in time and the harm an unkindness can do. His favorite characters are ordinary Soviet working people—ordinary in the sense that there are a great many such people in our country. This does not mean, however, that they are humdrum and impersonal. On the contrary, their spiritual life is rich, complex and responsive. They—and the author—have no greater enemy than indifference, no matter what uniform it wears.

Metter strikes a note which is peculiarly his own; it is alive and vibrant with a gentle humor. His narrative is cinematographic—not in the sense of a multiplicity of incidents, a quick succession of scenes, etc., but in the way he traces psychological undercurrents. His descriptions are always visual. A small detail of his tells more than pages of other writers' narration. His dialogue begs for screen treatment.

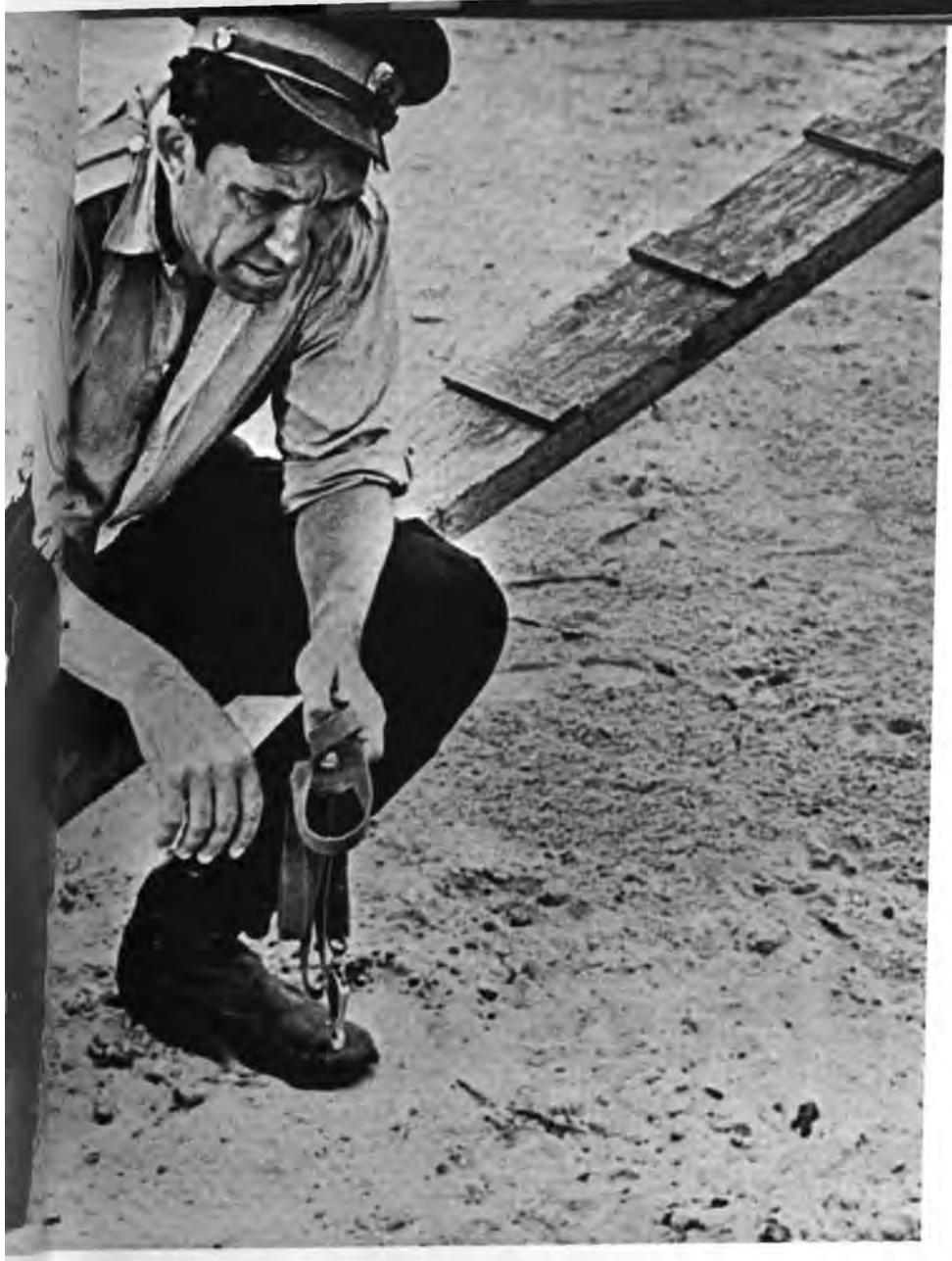
Yet for some considerable time no film studio was interested. The turning point came with his tales of the militia. We have no detective stories in the Western sense in the Soviet Union, but stories and films about the militia and crime detection are invariably popular. Two of Metter's stories have been adapted for films: *This Happened in the Militia* and *Here, Mukhtar!*

Mukhtar is a German Shepherd, but the film (and the story it was adapted from) is about men rather than a dog, or more accurately, about things human. The dog provides the focus for the plot. The real hero is Mukhtar's master, Junior Militia Lieutenant Glazychev.

Glazychev is neither a space pilot nor a famous sportsman nor a brilliant explorer. He is a run-of-the-mill militiaman. But he takes pride in his job, not because he is doing anything extraordinary but because he has been educated by our society to be truly humane, and now his function is to educate people in the same spirit.

The storehouse of a sanatorium has been robbed and the theft is considerable. Summoned to the scene, Glazychev finds the young girl in charge of the storehouse in tears. To cap her other worries, the militiaman who interrogated her talked as though she were the suspect.

Glazychev is very upset. "Well, it can't be helped now. As for the militia," he tells her, "don't you go bearing us a grudge, Vera. There are as many fools in the militia as there are anywhere else."



EMUKHTAR!

There are some people who think a remark like that undermines the prestige of the militia. What it actually does is raise it. From any point of view it is important that Vera should not identify the militiaman who interrogated her with the militia or authority in general.

A pair of rabbits have been stolen from an old woman. The loss is hardly more than three rubles. No tracking dog would be disturbed for such a trifle.

Nevertheless Glazychev thinks this case, which promises no laurels, needs looking into, and he says so. This provokes a hostile rejoinder from one of his colleagues: "Will you stop barging in?"

Yes, he does barge in! And this is the habit that differentiates the citizen from the philistine. He follows up the three rubles' worth case, finds the culprit and calmly ignores the ridicule heaped on him by Dugovets, his career-minded colleague. In an argument he says something that makes Dugovets sit up: "To me a kid's bike is just as important as 10,000 rubles' worth of state property."

From the philistine point of view this is a highly questionable approach. To wave away so much money, and state property at that! Actually, Glazychev is right. To think and act like Dugovets is to squander something more precious than money: the people's trust in Soviet institutions. By finding the old woman's rabbits, Glazychev demonstrates to the whole neighborhood that the militia is not indifferent to even their small problems.

The main conflict of this story is not between detectives and criminals, but between people like Glazychev and people like Dugovets, in other words, between sympathy and indifference. Glazychev and Dugovets are colleagues, but they do differ, and not only in their method of training dogs. Their philosophy of living is completely different.

Now, what has the dog Mukhtar to do with all that? The dog is essential, not as a prop around which to build an exciting plot, but as a catalyst. The clash of views and interests crystallizes in the dog.

In one beautifully done scene the bandit Frolov is pushed into a militia car while Glazychev holds the wounded dog in mute grief. No comment is necessary, the scene speaks for itself.

I heard someone in the audience say: "What a wonderful dog. Such a fine actor." Animals are always fine actors. They don't need the Stanislavsky method. To get a good performance out of a dog is a laborious rather than a difficult process.

What is difficult is to play opposite the dog.

Junior Lieutenant Glazychev is Yuri Nikulin's third major film role, and he does a first-rate job. He is an actor for whom scripts should be written and pictures made. To say that Nikulin's every gesture is natural and authentic is merely to say that he knows his acting ABC's. Much more important, he is sensitive to the generalized idea behind the film and yet is able to create a unique individual. He does not idealize Glazychev. The lieutenant is not overly brilliant, but he is a sensitive man who evokes interest, sympathy and respect. I can still see Nikulin's eyes, now deep with thought, now mischievous, now wistful, reminding one somehow of Chaplin. For all the physical difference between the two actors, Nikulin has something of Chaplin's very rare ability —he is able to reveal the subtle connotations of a role. Nikulin makes any role he plays significant by tapping a powerful flood of associations.

Courtesy of the magazine Iskusstvo Kino

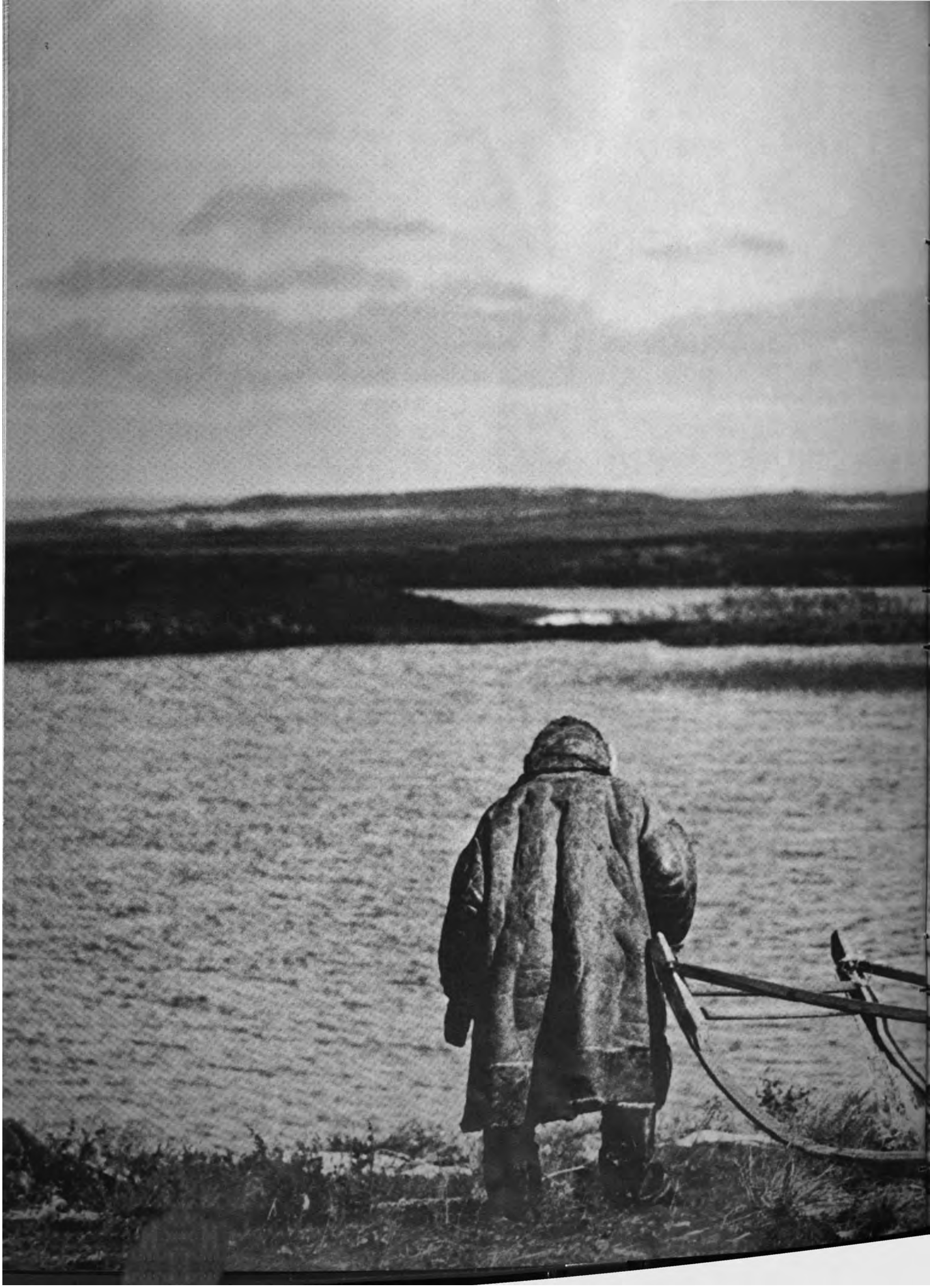
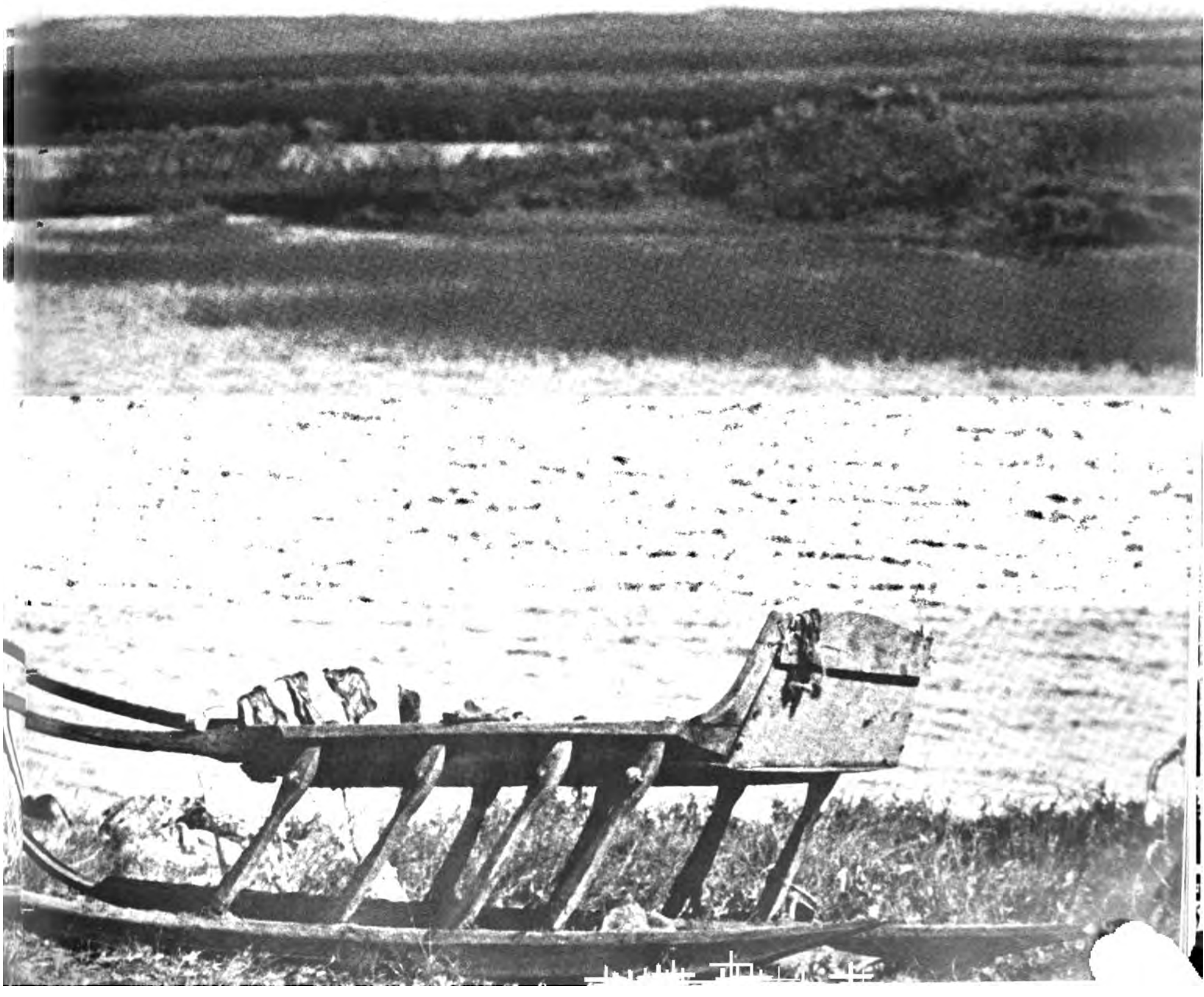


PHOTO OF THE MONTH

BY VSEVOLOD TARASEVICH

END OF WHITE SILENCE

"End of White Silence" is the title of a lead story in a forthcoming issue. The Arctic makes up a seventh of the Soviet Union. This is a region of three-month summers and long, dark nine-month winters, of unending flat tundra, snow and biting wind. Our correspondents journeyed across 1,200 miles of this North country in the company of gnats and mosquitoes. They saw dismal swamps and monotonous tundra. But they also saw cities growing, flotillas of ships bound for the Atlantic, huge industrial complexes that are supplying the country with nonferrous metals. They met and talked to people who are breaking the white silence.



EDUCATING TALENT

By Galina Ulanova
People's Artist of the USSR, Lenin Prize Winner

TIME molds our views, ideas and characters. Time rushes by so fast that we sometimes do not see the changes taking place in the world around us, in other people, in ourselves. I ponder over the performances which in my youth, and even maturity, were such milestones in the development of ballet. We have left those milestones far behind; new performances, using new means of expression, are in sight. Soviet choreography is searching, finding, moving ahead.

Youth looks for new answers. This is as it should be.

But the molding, the education of the younger generation, is not always a neat and orderly process. What we see is not a straight line that keeps ascending in well-ordered steps, but a zigzagging curve with ups and downs. Our Soviet way of life creates the most favorable environment for the "ups." But where do the "downs" come from? And, mind you, I do not mean the occasional failures in acting or production. They are bound to happen when one experiments boldly. I have a different thing in mind: the source of the infection, of the cynicism, of the transient and mercurial interests of certain of our young people who see in art only a way to personal aggrandizement. It is not that this phenomenom is very widespread, but still it worries me, for even in its embryonic state it is a threat to an art which demands pure and single-minded devotion.

When we of the older generation remind our young people how hard our lives used to be, many of them ask: "Do you want us to lead a hard life too?" No, we do not. We see no value in artificially created difficulties. What we want—and I think we are right in wanting it—is a realization of the great purposes of one's work rather than: "But what will *I* get out of it; how will *I* be benefited by this part or that performance?" We want our younger generation to realize how much the Soviet state has done to relieve our theater of the hardships and insecurities companies elsewhere face.

Let them compare the status of any of our Soviet companies and a company in the West, let them soberly appraise the prospects of any of our Soviet actors and an actor in the West. Is not this difference a good enough reason for being grateful?

Gratitude in itself is not, of course, important. What is important is the attitude with which one approaches his responsibilities.

It is a complicated process to refine tastes and feelings, to instill a sense of responsibility. Lecturing will not always bring results. The thing that really carries weight is what a budding artist sees around him, the esthetic and moral example his elders set. Whom does he pattern himself after ethically and artistically? Whom does he believe? His delighted and uncritical admirers, an adoring father and mother? Or those who tell him where he falls short and when he is wrong?

I think that among the many qualities a gifted person must have is the ability to shut his ears to the chorus of praises and to listen to the sober, critical voice of his own conscience and to the voices of those who call on him to grow as an artist, to perfect his skill. An artist must model himself on his betters in art and in wisdom. The smallest spark of personality has the look of talent alongside mediocrity. That is why mediocrity tries to surround itself with drabness.

To achieve any important goal in art, one must master the most difficult science of all: he must learn to evaluate his own abilities soberly, to distinguish his true achievements from the superficial.

Good taste is a tremendous asset for a self-critical attitude. I recall that when we first came to the theater from school, our elders used to ask us about the books we read and the paintings we saw in the Hermitage Museum. We had heated arguments about likes and dislikes. And that greatly influenced our cultural and moral growth.

I do not say that this striving for the beautiful is alien to young people nowadays. Our young dancers rush to a concert or an art exhibit every chance they get. Every free moment on a guest tour abroad is used for visiting a museum, a theater or an art gallery. But how rare these moments are in an artist's life!

We are most critical of tasteless and half-baked productions on the variety stage, in musical comedy, in theater and ballet. And yet we hear endless "Oh's" and "Ah's" showered on a young girl from an amateur ballet group who dances in Fokine's and Saint-Saens' *The Swan,* this peak of choreographic art. Those who praise the girl seem to forget that, like any other summit, this one is beyond the powers of many a grown-up professional, let alone a young amateur.

Let us imagine a child going to a theater for the first time. And let us also imagine that by a stroke of bad luck the performance is poor and tasteless. This first childhood impression may take months and even years to eradicate. And if the child is so unlucky as to read as tasteless a review of the unfortunate performance! That also could happen. How vital these first impressions are, and how important it is that our children learn to be critical, that they do not look at a tasteless performance and whisper: "How beautiful!"

The present trend of Western ballet toward the classics is not accidental, in my opinon; it is a reaction against ultramodernism. It is not without the influence of our Soviet art that the Western ballet is returning to classical productions. It has grown tired of aridity, of lack of feeling; it is parting company with those who have been violating the unwritten but imperious law which says that a real work of art is a creation of the spirit. The whole world says that it is the spirit of our dance, what Stanislavsky used to describe as the life of the human spirit represented on our stage, that is most captivating. It is precisely this humanness, this spiritual quality, that the Soviet ballet and theater emphasize.

We must transmit to the younger generation these spiritual principles of our art. While creating new productions inspired by great contemporary ideas and feelings, we must at the same time preserve our classical works and bring our young artists up on them.

More and more young people are moving into the arts. This, too, is as it should be. The overwhelming majority of the Bolshoi Theater's company is young. And these young people all want to create new interpretations based on new themes and set to new music. But without complete command of the classical methods, one cannot hope to master the new methods, the new techniques of dance expression. It is good that these new methods and techniques appear. They will be tested by life, and the best will be absorbed.

But a broad repertory is necessary for the development of young performers. Just as the making of an actor requires more than two or three plays, so a ballet dancer needs a varied repertory to grow up on. Here we put our finger on the sorest spot in our creative, or, to be more precise, our productive life. Time calls for quite a different "ballet rhythm" now. When I was young, two ballets, or three at the most, were given nightly at the former Mariinsky Theater. The same for the Bolshoi. We had time for physical and spiritual regeneration. We had enough time for the rest and exercise to make every performance a masterpiece. We had time for thoughts, dreams, for self-education in the broadest sense of the word.

Nowadays we must give many more performances and concerts. And we know that it simply cannot be otherwise. The whole world wants to see our ballet. No sooner do we come back from one tour than we must almost at once begin to rehearse for the next. And we have to build our repertory in the meantime and keep giving new performances. Our company in Moscow dances at the Bolshoi and at the Palace of Congresses Theater. Movies and TV also call on our artists. We have much more to do than ever before.

Time runs ahead of us, urges us on, makes demands on us. We must do intensive, thoughtful, creative work for every new part in every new ballet. Man remains man, and no mechanization or automation will help to speed up his *creative* process.

How shall we organize our work so as to avoid overstrain? What conditions must we establish so that our repertory keeps growing, but not at the expense of our artists' overexertion? Might it not be worthwhile turning the Kremlin Palace of Congresses into a multinational, or even an international, theater for large-scale productions, including ballets?

This is a far from complete list of the problems time poses for us, problems we must solve collectively. Upon their solution depends the artistic development of our younger generation.

ARE THE NIKITINS RIGHT?

By Professor Z. I. Kolarova

Last September *Soviet Life* reprinted an article from *Komsomolskaya Pravda* entitled "The Nikitin Approach." The authors Lena and Boris Nikitin described their experience in bringing up their children. They have published a book called *Are We Right?* and a film showing their child-rearing methods has been telecast.

The somewhat unusual methods used by the Nikitins have aroused much argument. The Institute of Pediatrics of the USSR Academy of Medical Sciences organized a conference on the subject of the Nikitins' experience after the children had been carefully examined.

This article is based on that investigation.

TO BRING UP a child properly, the parents must know its capabilities and peculiarities.

A child's organism is very strong and can stand considerable strain for a long time. The result of this strain will not make itself felt immediately, but only after considerable time has elapsed. This is precisely what Lena and Boris Nikitin have not taken into consideration. They actually created the conditions in which their children of different ages have been kept under constant mental and physical strain.

When visiting the Nikitins, you are at first amazed and then indignant at seeing a child raise a rod almost equaling its own weight. Such exercises could not fail to leave their traces. The still immature muscles and sinews could not stand such a load and the result was ruptured abdominal muscles.

This is only one example of unjustified—or, rather, impermissible—physical overstrain.

If a baby cannot hold its head up properly, if it is made to sit up too early or to stand on its legs before they are strong enough, if it is carried about for a long time in a wrong position, the spinal cord will not develop correctly. Physical overstrain is particularly dangerous in this connection. It is easy to conceive how a little girl's spinal cord will be deformed if she tries, before she is three years old, to stand upright holding a heavy rod on her outstretched hands.

Is there any need to prove how important fresh air is for a child? Unfortunately, this was forgotten in the Nikitin family. During the autumn and winter the children do not spend more than half an hour a day outdoors. The rooms are insufficiently aired.

Winter and summer alike, the children wear only shorts. In the winter the temperature in the rooms is only 62-64°F with windows closed, and if the ventilating pane is opened, the children feel cold.

In a child the ratio of the skin surface to the weight of the body is greater than in an adult. Therefore, more heat and moisture are given off and there is a greater tendency to catch cold.

If a child constantly goes about naked, as is the case in the Nikitin family, its body loses an absolutely unjustified amount of heat. Perhaps that explains why these children usually choose a squatting position. Their instinct tells them that they will be warmer that way.

Naturally, a child should be properly toughened from an early age. But this training should not exceed the physiological limits of its age.

Existing methods are based on gradually accustoming the body to lower temperatures. But running about barefoot in the snow, or taking cold showers outdoors in the frost is not the way to do this.

The parents say that the children do what they like, but we think that, without special training, children would be unable to do the acrobatics which they have already become accustomed to demonstrate.

The fact that all the Nikitin children are underweight and underheight, that they have had several illnesses due, to a considerable extent, to exposure (head colds, pneumonia, inflammation of the middle ear) proves the harmfulness of all of this.

And so, are the Nikitins right? In their desire to toughen their children, to train them to work and to do regular exercises they are indisputably right.

But their methods include crude mistakes.

IN THE NEXT ISSUE

This is the colophon of *Yunost*, the magazine for the young of all ages. Its million copies a month go to people from 14 to 70. By far the most popular youth magazine in the country, it is on a never-ending quest for new and talented young writers. More recently *Yunost* enlarged its area of search to a companion art. It is now seeking out painters and sculptors. Their work, on exhibition in a Moscow mansion that Leo Tolstoy made famous in his epic novel *War and Peace*, has been attracting throngs of art-lovers and is one of the much-talked about shows of the season. Details? See the next issue.

Gold in the desert! Soviet prospectors have found that precious metal under the sands of the Kara-Kum Desert in the heart of Central Asia. Parties of geologists have been probing these sandy wastes for years without success. The unique and very promising deposit was discovered in the neighborhood of the village of Muruntau. One of our roving correspondents, Felix Alexeyev, reports to us from there.

This water color was presented to the First Lady by artist Orest Vereisky. Another of his pictures, "They Killed the President," presented to Jacqueline Kennedy, will be in the Kennedy Memorial Library. Former Senator William Benton is the third American owner of an Orest Vereisky drawing. The three pictures will be reproduced in the February issue, accompanying an article by the artist on his two visits to the United States, with some comments on American trends in art.

The All-Russian Society for the Blind has 170,000 members. They study at universities and hold down jobs of all kinds. There are textbooks and fiction published for the blind and specially-equipped lathes mounted for them in the factories where they work. Boris Zimin, president of the society, describes its work, and Georgi Petrusov gives us a picture story on a boarding school for the blind where even such subjects as drawing are taught.

Other articles in the February issue are:
Camp of All Nations—photo story on Sputnik, the international youth camp in the scenic Crimea; Communist Party Congress—on the role Party congresses play in Soviet life; Eastward Ho!—high school graduates talk about the kind of work they would like to do and where they would like to do it; Do Communists Have Special Privileges?—answer to a reader's query; Man Believes—a discussion of ethical ideals; Visitors from Illinois—the Institute of Soviet-American Relations plays host to a group of American businessmen in Moscow; Yuryev-Polsky—part of the series on ancient Rus architecture; From First Grade Through Graduate School—a detailed description of the educational system; Old Kazakhstan's New Artists—about the young painters and sculptors of the Central Asian republic; Very Young Film Stars—on working with child actors; Siberia: The New Frontier—journalist Vladimir Pozner continues his travel notes.

NOVOSTI PRESS AGENCY **SOVIET LIFE**

Living on the World's Roof A series on life in the Gorny Badakhshan Autonomous Region situated thousands of feet above sea level.

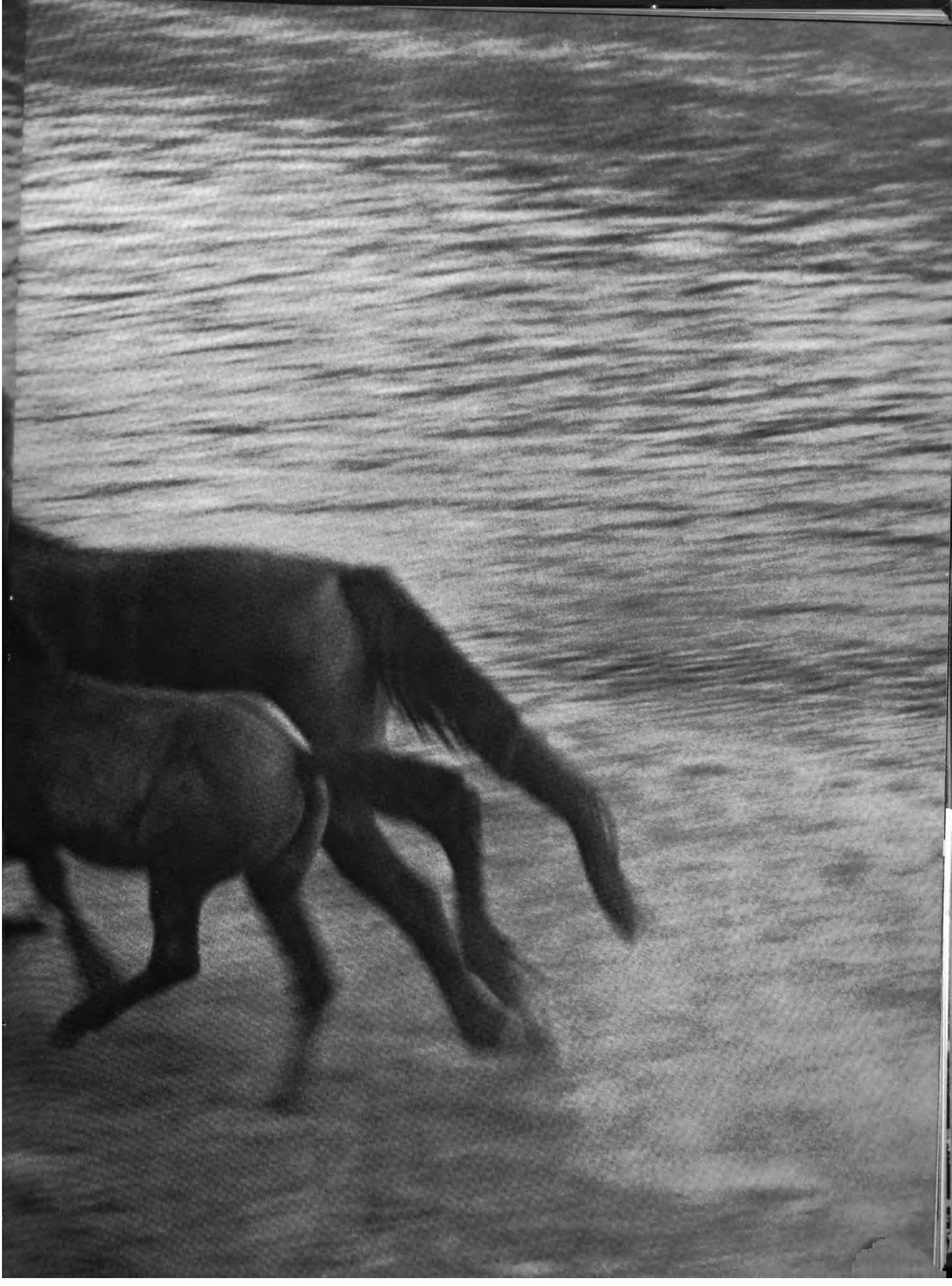
Faulkner and Hemingway A Soviet literary historian's view of two titans of American prose and their influence on contemporary literature.

COMING SOON

TROTTERS AND RACE HORSES

At the international yearling sale held in Moscow September 17 and 18 last year Prodintorg, the Soviet export-import agency, sold 65 Orloff and Russian trotters and 21 thoroughbreds, bays, grays and blacks sired by Derby and Grand Prix winners and other famous horses. At the auction were a distinguished assembly of foreign bidders, among them Britain's Lord Beresford and representatives of West German, French, Finnish, Danish, Swedish, Swiss and other stables. While the auctioneer impassively announced the bid which won each lot, the less fortunate horse fanciers looked on regretfully as the yearlings were led off for shipment. The trotters and thoroughbreds were all raised at the Soviet Union's leading stud farms: Khrenov in Voronezh Region (the birthplace of the prize Orloff trotter), Tula, Voskhod and Kabarda. Some of the horses auctioned were the progeny of Lowe Hanover and Bill Hanover, brought to the Soviet Union from the United States. Incidentally, Golos, sired by Lowe Hanover, was rated best year-old trotter.

The Soviet Union exports horses to many countries. Britain and the Federal Republic of Germany buy hundreds. They are also favored by stables in Ireland, the Scandinavian countries and the German Democratic Republic. American buyers offered 200,000 dollars for Zabeg, who placed third in the Washington International Stakes, and bid 250,000 dollars for the famed Anilin.



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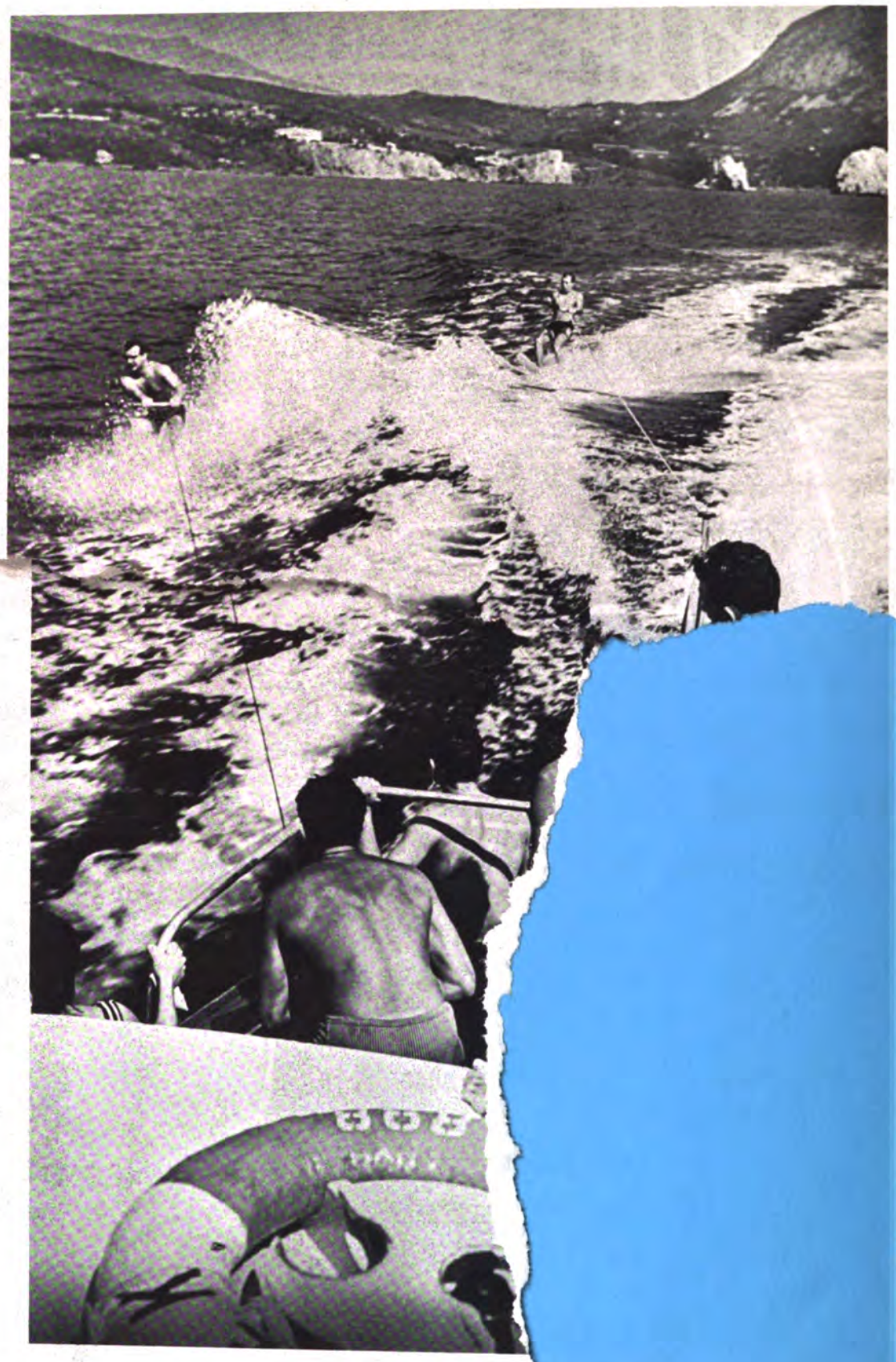
Sputnik on Cape Martyan



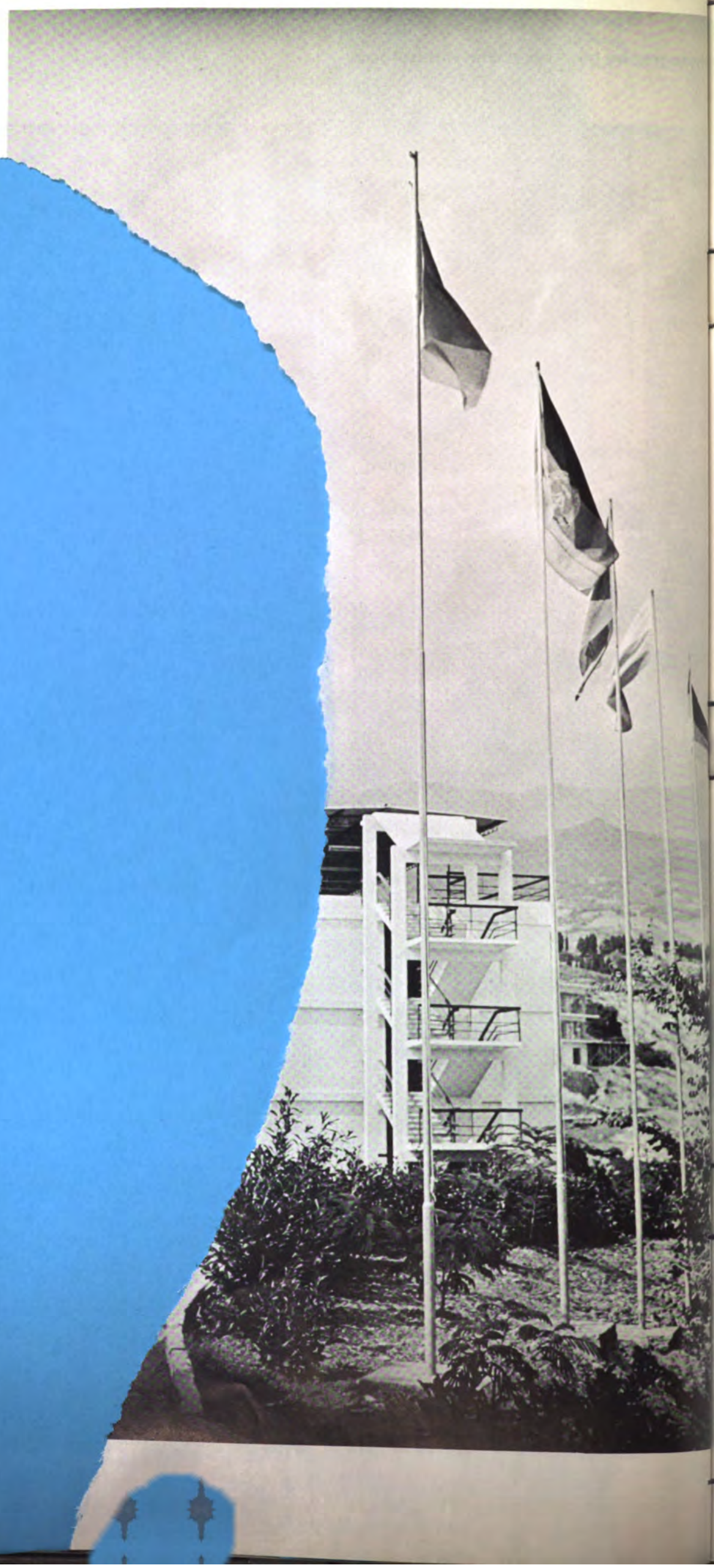
(Above) ... young pe...

(Center) An ideal setting and accommodations are reasonable, very important for young tourists.

(Far right) Boy meets girl. She's a student at Warsaw University and he's a Leningrad engineer.

flags of Cuba, France, the FRG, Poland,
D[illegible] GDR and Czechoslovakia
morning begins

no



LETTERS TO THE EDITOR

IMPRESSIONS OF A VISIT

Dear Editor:

Last summer my wife and I visited the Soviet Union. We found the people there friendly, warm and likable, more so than in the dozen or so Western European countries that we visited. I have never before or since seen a people more anxious to be helpful without expectation of personal reward. Upon arrival at Moscow airport at midnight we inadvertently left our luggage behind us. It was delivered to us in our hotel room a half hour after we arrived there.

People whom we met informally were genuinely spontaneously friendly. Strangers, many of them, they went out of their way to make us feel welcome and at home in their land, even to the point of making unsolicited small gifts of cigarettes and vodka. A friendly word and gesture always overcame the language barrier. The Soviet Union is the only country where I have had this experience.

Wherever we got into small difficulties, Soviet citizens unselfishly bent every effort to help us out and see us through. Soviet citizens seemed to us to be without guile. This impressed me even more than the tremendous construction everywhere and the garden atmosphere in many places in the Soviet Union.

We just got our developed snapshots back and I was surprised to discover what my camera had captured (see enclosed photo and negative which I present to you in return for the hospitality presented to my wife and me by Soviet citizens).

This photo, taken on Gorky Street in Moscow, shows, in addition to gleaming new buildings and many other good things, a Soviet citizen carrying a ladder that seems to reach endlessly upward toward the cosmos. This seems to me to represent socialist construction in all its forms—the construction of the guileless new Soviet man, the construction of the unselfish new Soviet society, the construction of the humanistic new Soviet state. I know that all of these goals are not yet fully achieved. But my wife and I feel privileged to have witnessed the beginning of them.

Yours most sincerely,
Bernard Edwin Galitz
Wellesley Hills, Massachusetts

WE CAN LEARN

Dear Editor:

I am so glad of this opportunity to foster a friendly interchange of ideas and information.

Now I am quite an old lady (born 1886) so I can look back on many years of interest in and appreciation of things and talents Russian.

In reading Tolstoy many years ago I gained a vivid picture of his respect for the native ability of the peasants—his indignation that they should be deprived of an opportunity to have an education. Your respect for educational opportunity for all is truly admirable.

You have had a long hard struggle to improve your country. We have struggled, too, in this country but with very different handicaps. That is what we need to understand more and more sympathetically—how alike we are as eager human beings, how prone to overenthusiasm for our own way of thinking and doing, how prone to make mistakes. We can learn. Again, thank you!

Sincerely,
Florence Minard
Berkeley, California

ABOUT MAPS

Sirs:

Have been reading SOVIET LIFE for many months now and am very interested in the USSR. I wish to make a few comments on the October 1965 issue.

1) The suggestion in Bruce Walker's letter (pg. 49) is a good one. I would like to have a big, accurate map of the USSR so that I could locate all the places you mention in your articles.

2) The USSR geological map (pg. 19) looks very interesting. I like big maps, especially good ones like this. How can I get a copy?

3) The new pictures of the far side of the moon are also of great interest (pg. 19). . . .

M. Helps
Los Angeles, California

SECOND LOOK AT HISTORY

Dear Editor:

Your magazine is to be commended on its contents and should make for a better understanding between our two great countries. Many Americans do realize that while Germany has been the instigator of two world wars and Japan attacked us at Pearl Harbor, Russia was our ally in two world wars and has never attacked our country. We also had some trouble with the British who wanted to colonize us, in fact, they were still trying in 1812. My great grandfather fought against that tyranny. So you see, many intelligent Americans are taking a second look at history. They also see that after Japan attacked us, we are now in the process of making them a great nation again. The same fact holds true with West Germany. Many people predict Germany will start a third world war unless the present trend is reversed. So let us not call Russia an aggressor, let us read history again!

Keep up the good work—and I hope our magazine in Russia is doing as good a job as SOVIET LIFE is doing here in America.

J. Upton
Santa Ana, California

RESTRAINED ENTHUSIASM

Dear Sirs:

In regard to a letter which appeared in the October issue from Mrs. Hyland concerning Ilya Ehrenburg. . .

I, too, just recently read his novel *The Fall of Paris*. Russian is a just-learned language for me and though it took me many weeks, I read all 494 pages of his book in Russian. Perhaps it is the fact that Russian is not my native tongue or maybe I missed something, but I have now a very restrained enthusiasm for Ehrenburg and I do not agree with those conclusions reached by Mrs. Hyland in connection with *The Fall of Paris*. It will be many years before I feel motivated to read another work by Ilya Ehrenburg, for I did not find this book in any way artistic or inspiring. The main characters, for the most part, are mere sketches whose substance is missing, a frame without its picture; the events, the political and economic undercurrents are factual and show an obvious understanding of them on the part of the author; the style is open and clear and the novel is readable if one has the stamina for journalese. *The Fall of Paris* is neither a good Soviet book nor a good book!!

Just how Mrs. Hyland feels that this novel could be set in any American town, 1965 or otherwise, eludes me. Exactly what one might be enabled to UNDERSTAND better also escapes my comprehension. I am not defending fascism, but Ehrenburg cannot be given sole credit for exposing it and its evils to the world.

I've read Paustovsky, some early novels of Vera Panova, Tolstoy's *Khojdeniye po Mookam (The Ordeal)* and novels by Sholokhov (among many others). And I urge that these novels and authors be called to the attention of American readers. If Americans want to know what Russians/Communists are like, let them read these novels! There is not a more charming biography than Paustovsky's *Povest o Jeezni (Story of My Life)*. Let Americans read these books, then they'll understand better what it's all about. People, person to person, do not become enemies. Once you've met a real Russian and talked to him, once you've met Russians in Russian books, you suddenly are aware of a great nation and a great people who have withstood and accomplished what no other people can claim. And still, they are just simple people, like Americans. I, personally, would rather have no other ally than a Russian.

Sincerely,
Mrs. W. J. Fries
Indiana, Pennsylvania

LIGHT-MINDED ATTITUDE

Dear Editor:

It was with mixed feelings that I read the article entitled "Miscarriage of Justice," in the October 1965 issue of your magazine. On the one hand, I fully share the stand of the editorial board that sharply criticizes the employees of the procurator's office who tried to decide whether the accused person was guilty or not before the trial took place. On the other hand, I feel indignant that this question, due to the light-minded attitude of some of our press organs, suddenly became a subject of discussion. For us students of the department of law such a discussion looks groundless and senseless. Every Soviet citizen knows that only the court elected by the people can decide whether the defendant is guilty or not.

To my mind, in this case it is much more important to find out why such an ignoramus as Filimonov became assistant procurator. I would very much like to hear what the procurator general would have to say on this score. And what should be discussed are really vital problems of Soviet law, of which there are quite a few. Among these, in my opinion, are:

1. Does increased severity of punishment help to reduce the crime rate?

2. Is it not time to abolish capital punishment?

3. What are the advantages and the shortcomings of a court with the participation of people's assessors, as compared to a court with a jury?

4. Is the conditional, preterm release of convicts beneficial or harmful? And so on and so forth.

Respectfully yours,
I. Solovyev
Leningrad

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PICTURE CREDITS

Alexander Mokletsov Cover II, 1 2; Alexander Blokhnin 6-9; Sergei Petrukhin -9,12- ; Miroslav Murazov 12-1 ; Israel Ozersky 18-23; Yuri Neskvernov 25-27; Leonid Sergeyev 47; Alexei Bushkin 48; Leonid Laguta 51; Georgi Petrusov 54-61; Alexander Goryachev 64-Cover III; Vsevolod Tarasevich Cover IV.

Editor in Chief
(Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor
(Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor
(Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director
(Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

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NOVOSTI PRESS AGENCY

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COMMUNIST PARTY CONGRESSES

By Fyodor Petrenko

The announcement that the Communist Party of the Soviet Union will open its Twenty-third Congress on March 29 has drawn world attention. This is hardly surprising, since these forums not only play a vital role domestically but have a significant bearing on international affairs.

The CPSU congresses have been historic landmarks in the development of the Party and of Soviet society generally. Virtually each of them marked a new stage in Party policy, some big step forward. At these congresses the Party decides and maps out its goals, both immediate and long-term. Thus, at the Fourteenth Congress, held in 1925, the decision was taken to industrialize the country, at the Fifteenth Congress (1927) to collectivize farming. The Twentieth Congress (1956) condemned the personality cult and adopted measures to restore the democratic principles that Lenin formulated for the Party and government. The Twenty-second Congress (1961) approved the new Party Program for the construction of communism.

The CPSU congress is the supreme, authoritative and most representative body in the Party. Its decisions are binding on all local and central Party organs and on all members.

Many years ago, the Mensheviks, a faction within the Party, fought this definition of the powers of a congress. They said "the congress is not a god and its resolutions are not sacred." But this anarchical opinion was not supported by the majority of the Party. Disregard of congress decisions was held to be incompatible with membership because it threatened the unity of the Party and hampered its activity.

From one congress to the next the Party and its founder and leader, Lenin, sought to enhance the role of the congresses in shaping Party policy.

Since the Party's founding more than 60 years ago 22 congresses have met—six prior to the October Revolution of 1917 and 16 since. The Party Rules require that they be held at specified intervals. Thus, between the third and fourteenth congresses they were held annually. The Fifteenth Congress decided that all-Union congresses were to be called every second year. The Seventeenth Congress, held in 1934, lengthened the interval to three years, and the Nineteenth Congress (1952) resolved to call congresses once every four years. This last decision is still in force.

The Party rule requiring that regular congresses be held was disregarded during the last years of Stalin's life. The Leninist principle of collective leadership was grossly violated. After the Eighteenth Congress in 1939 there was no congress called for almost 14 years. Since Stalin's death they have been convened regularly.

The effectiveness of congress decisions hinges entirely upon whether they reflect the views of the membership, its understanding of current events, its practical experience. In preparation for the Twentieth, Twenty-first and Twenty-second Congresses and during the congress sessions the Party called on every citizen—Communist and non-Party people alike—for opinions and suggestions. Draft decisions subsequently adopted at these congresses were discussed at meetings attended by both Party and non-Party people. At the sessions of the congresses the procedure was democratic and the discussion businesslike. Eighty-five delegates took the floor at the Twentieth Congress, 86 at the Twenty-first, and 89 at the Twenty-second. The congress podium was open not only to Party, government and trade union officials but to rank-and-file workers and farmers as well.

Citizens sent thousands of letters to each of the Party congresses. They were read by the congress committees and influenced the decisions taken.

The idea current in the West is that CPSU congresses are meetings of Party functionaries and officials. This is not true. Even before the Revolution, when the Party was underground and had to hold its congresses abroad, they were attended not only by professional revolutionaries but by workers from the factories also. The congresses became even more representative when the Communist Party became the ruling party.

Among the 4,408 delegates to the Twenty-second Congress only 1,158, or a little more than a quarter, were Party officials. There were 2,139 delegates from industry and agriculture (1,453 of them factory workers, foremen, collective farmers and state farm workers), 465 were government officials, 104 were trade-union and YCL officials and 305 were servicemen. Among the delegates to the Twenty-second Congress 226 were scientists; 975 were engineers and economists; 260 were agronomists, zootechnicians, veterinarians and other farm specialists; 379 were teachers, doctors, lawyers and journalists; 45 were writers, painters, composers and artists.

All congress delegates are free, independent and equal in the exercise of their powers. A delegate may address the congress on any question of Party policy and activity. One of the concerns of the Party is to have every delegate take an active and interested part in the discussion of problems facing the congress.

Delegates are elected by secret ballot. The basis of representation to the Twenty-third Congress is one delegate per 2,500 members and one consulting delegate (with voice but no vote) per 2,500 candidate members.

The procedure for the election of delegates is as follows: local Party meetings elect delegates to district Party conferences; they, in turn, send delegates to the Party conferences of the regions and national republics who elect delegates to the congress.

Democratic procedure at the congresses is assured by the fact that they sit in the glare of full publicity. Congress decisions are published in the press, and the delegates are obliged to report back to their constituents and to the citizenry generally.

Lenin was most emphatic about collective leadership in the Party. The principle is reflected in the size of its central bodies. Thus, the Central Committee elected at the Eighth Congress (1919) consisted of 27 members; at the Thirteenth Congress (1924) the number was raised to 87; the present Central Committee consists of 175 full members and 155 candidate members.

The Central Committee is empowered to act collectively for the Party between congresses. The forthcoming congress will review the experiences of the four years since the Party adopted its program of communist construction and will chart future policy. It will hear the report of the outgoing Central Committee and elect a new one. It will also approve the directives of the five-year economic development plan for the period 1966-70. This point on the agenda is especially important because of the new system of industrial management that has just been introduced.

"The desert has mothered magic things before this."
John Steinbeck

GOLD UNDER THE SAND

By Felix Alexeyev

Photographs by Alexander Blokhin and Sergei Petrukhin

PASSENGERS always draw their porthole curtains when the plane flies over the Kyzyl-Kum Desert. The sun seems to have heated the ground so red that it hurts to look at it. Kyzyl-Kum means red sands in Turkic. There are 116,000 square miles of desert in the western part of Uzbekistan, one of the Central Asian republics. The wind here keeps the sand dunes in constant motion. Several timeworn ridges in the heart of the desert push through the dunes.

This is a desert without oases, and its wells are few indeed. Sink a bucket into one, and if you are lucky it will just barely break through the rusty salt crust. Water is plentiful only at the edges of the desert where the muddy sand-burdened rivers Amu Darya and Syr Darya flow.

It would seem that life could not maintain itself in this burnt-out land. But as the plane descends, you discern other hues besides the glaring red of the sand. At rare intervals are grayish circles which seem to have been drawn with a compass—ancient and long-abandoned turquoise mines. There are black marks denoting wells with a very few pock-marked sheep trails radiating from them. And beside the wells are the brown spots of nomad tents. Nearby the white squares of slate roofs, houses, machines and the silver of gasoline storage tanks stand out sharply. The shadows of big derricks lie across the sands, and around them a tangle of tire tracks reminiscent of the Brownian movement seen under the microscope. Somewhat farther you catch a clear view of the antenna of the radio station, a fluttering cloth cone showing the direction of the wind, and a landing field evidently leveled by bulldozers. This is one of the many bases of the Kyzyl-Kum geologists. Expeditions of topographers, geophysicists and geologists are busy all over the red desert, and more and more steel derricks are rising beside the observation hills of the ancient nomads.

No Klondike

Although it was early morning, the office of Ilya Sokol, who heads the prospecting directorate, was frightfully hot. It did not seem necessary to put the kettle of green Uzbek tea on the stove; it would boil just as fast on the desk littered with samples of rock.

Sokol had been sitting there silently, his eyes closed as though he were asleep, listening to the radio report of the leader of one of the field parties. Watching him, I tried to think whom he reminded me of; probably Khoja Nasreddin, the legendary, sly and sharp-tongued wit credited with so many Asian parables. The impression was strengthened when I asked him: "How do the Kyzyl-Kum geologists work?"

"What do you know about geology?" he asked in return. Receiving no reply, he went on:

"Perhaps I ought to answer you the way Nesreddin did when a friend asked him how minarets were built. 'Don't you know?' he answered. 'It's simple, really! All you do is turn a well inside out.'"

Sokol switched his radio to another wave length and spoke into the microphone.

"It's all clear. It's agreed!" To this he added the traditional Uzbek "*Khop*" (good luck).

Turning back to me, he went on:

"There was a time we thought all this was empty desert, nothing but sand. Now we know there is something under the sand—gold."

"And you've found it, I understand."

"What do you mean—found? You think we're still in Jack London's time? You win your dog sled race, stake your claim, and after that it's easy going! No, this was no Klondike. To prospect the desert you've got to use reliable machinery and modern prospecting methods. Deposits are not found anymore, they are made. Here in the Kyzyl-Kum gold was made by scores of expeditions and the work of hundreds of geologists. That's why, for instance, I couldn't tell you who actually located the Muruntau bonanza."

Reflecting for a while, he continued:

"When you go to Muruntau, take one of Jack London's books along. You won't feel the heat so much reading his stories about the Far North. We geologists have found his books useful. I got a valuable piece of advice, for instance, from Jack London's character Elam Harnish. I've often thought of what he said about gold fields. Unreliable, he called them, the real stuff came only from deposits of gold-bearing quartz.

"Until recently we thought that the country's gold shop lay in Siberia, in the Far North. There's no denying that geologists up there have a rough time. Still the gold in the North is mainly in fields near the surface, and these are comparatively easy to locate.

"In the Kyzyl-Kum we also kept searching the surface for the first years. We prospected several places with a fair content of gold. But they were of no commercial significance, enough for a year's work, perhaps two. 'It's not worth it!' said the skeptics on top. 'There are no big deposits in the Kyzyl-Kum, and we might as well quit prospecting.'

"Luckily there were people who thought

The geologist's is a romantic vocation in the Soviet Union. He is our modern frontiersman, the subject of ballads and tall tales.

otherwise, and the prospecting went on. When we stopped dazzling ourselves with the glitter of gold veins, we began to dig through the sand to the native rock. The skeptics quieted down when it turned out that most of the Kyzyl-Kum gold lay dispersed, invisible to the naked eye. Invisible gold clothed in sand—that's what Kyzyl-Kum gold is like. To find it we had to cover innumerable possibilities, checking the anomalies geophysicists found. We had to analyze thousands of samples.

"You've probably heard the old saying that every geologist has two opinions and that every two geologists have five. In Kyzyl-Kum every pair of geologists has at least 10 opinions. We had to scrap many of the classical prospecting methods. We argued bitterly and often found ourselves cruelly mistaken. But the work went on for all that, and successfully too. Hundreds of spots now dot the map indicating the contours of prospective gold fields. Muruntau is the most important. The second most important is the gold-bearing rock of Kok-Potas. All this, however, is only a token. There's more to come.

"That's all I can tell you about minarets, wells and gold in the desert. Want my advice? Pick up one of Jack London's books and go to Muruntau. *Khop!*"

At the End of the Rainbow

"Muruntau straight ahead," reads a sign that must have been put up by one of the first truck drivers to come through the Kyzyl-Kum. That was a very grim warning not too long ago, when it was easy to stray off the barely visible tracks in the desert and get hopelessly lost in the dunes. Now the Muruntau road is marked by the tires of many truck convoys and can easily be made out. Heavy trucks, dump trucks, the cross-country vehicles of prospecting parties and tank trucks labeled Milk but carrying an even more precious freight—water—keep plying the road to the gold field by day and night.

Muruntau was strictly prohibitionist. Its founders had a double dry law for a time, a curb on water and wine! I was lucky, the law was repealed shortly before my arrival. A 12-mile pipe carrying water had already been laid, and the shelves in the shops were lined with bottles of all sorts of wine.

The settlement established by the geologists in this part of the Kyzyl-Kum is already famous but has no name as yet. Some call it simply Muruntau—after the hill in the vicinity—while others prefer the more descriptive name of Solnechny (Sunshine Town). The 6,000 inhabitants are in no hurry to find a name since they are already thinking of mov-

ing on. The foundations of a new town, the future capital of Kyzyl-Kum, have been laid some dozens of miles from Muruntau. The future capital has already been christened Zeravshan (The Bearer of Gold).

From the hill Muruntau resembled a sector of the front not during the Second World War but the First, perhaps at Verdun. An entire army seemed to have dug in. There were trenches everywhere. The mine headframes and derricks in the desert were surrounded by deep trenches stretching along the reddish brown hills until they were lost in the dry shimmering heat of the horizon.

The hill we climbed in the cross-country vehicle of Georgi Kasavchenko, chief geologist of the expedition, seemed to have been cut from top to bottom by a gigantic saw. Heaps of white quartz with rusty oxidized spots lay at the foot of the bluffs.

"This is the main deposit of auriferous rock," said Kasavchenko, jumping from his car. "We could hardly believe our eyes when we examined our first samples. Have you ever heard of the famous golden mile in Kalgoorlie, Australia? A hundred mines were sunk there. We will have only one mine, but it will give us more gold than all of Kalgoorlie's. This is where the Kyzyl-Kum's golden mile begins.

"When you're not busy have a look at those blondes over there!" said the chief geologist, nodding at the quartz heaps. "With a little patience you'll find some bits with visible gold. The deposits are not limited to this spot, of course. The auriferous rock and quartz schist covers an enormous area. We've actually had gold under our wheels as we drove up here. The auriferous ore begins about four or five feet below the sand. In Muruntau we're going to mine by the open-cut method. We'll strip off the covering layer of sand and dip gold out of the quarry, like out of an enormous bowl. That is why Kyzyl-Kum gold promises to be the cheapest in the Soviet Union.

"We had no luck in the Kyzyl-Kum before. Not enough to matter, anyway. Looking back, now that we know where the deposits really are, our efforts would seem almost comic if they weren't so heartbreaking. Our expeditions camped at the very edge of the gold and wandered farther and farther afield every morning, coming back with poorer and poorer samples, less and less auriferous. We were moving away from the gold, leaving it behind

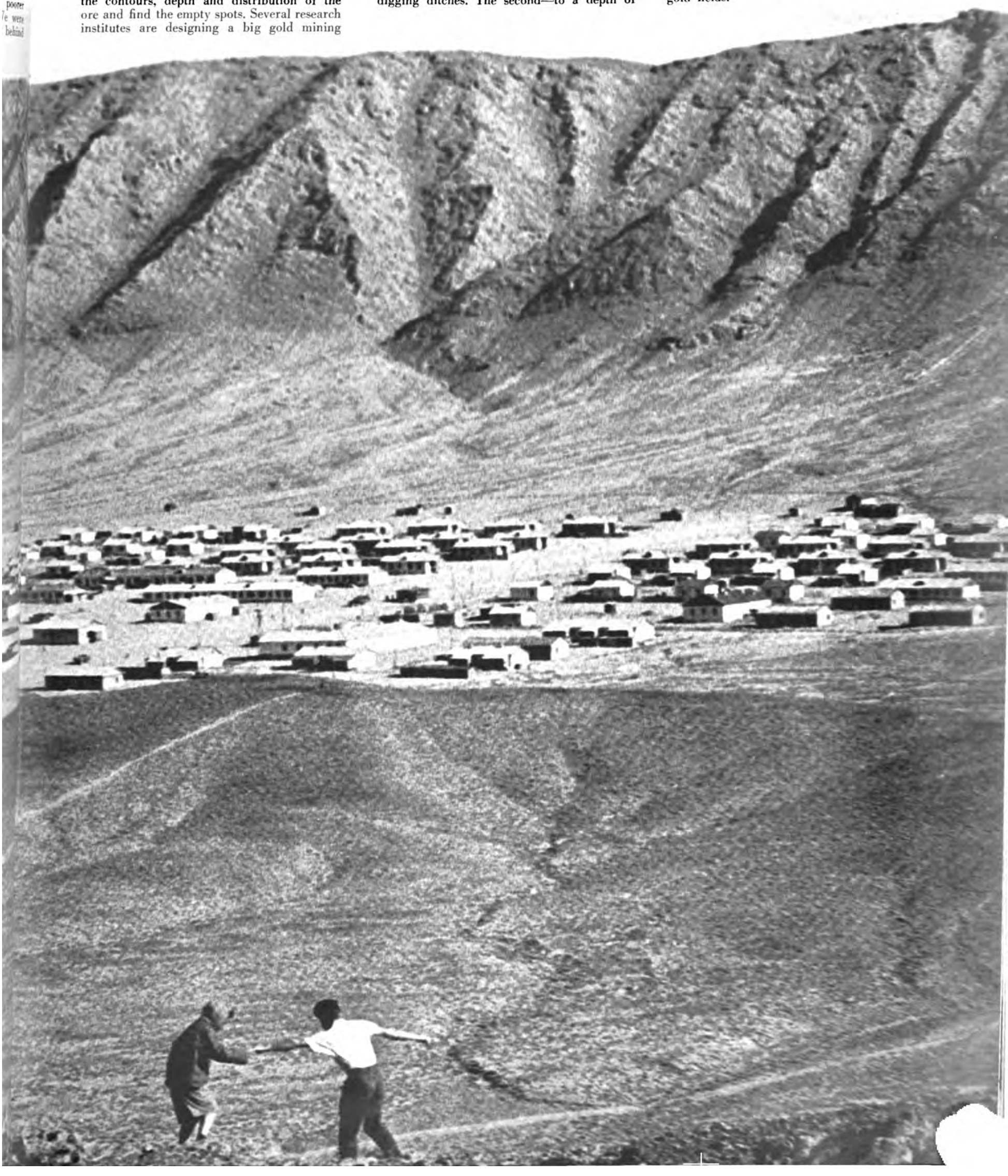
The Muruntau mine, where Kyzyl-Kum's golden mile begins. A city is being constructed nearby.

us. If the geologists had only turned around and gone the other way.

"They found very little gold, and what they did find assayed low. To go to the expense of industrial mining seemed completely unwarranted. The reports submitted by the expeditions were pessimistic, to put it mildly.

"But all's well that ends well," the chief geologist continued, smiling. "We have different problems now. We've got to establish the contours, depth and distribution of the ore and find the empty spots. Several research institutes are designing a big gold mining complex. Where is the ore refinery to be? A site was nearly decided on, but it turned out to have too much auriferous ore. That would have made a very solid but somewhat expensive foundation. We had to look for a cheaper site. We also intend to dig a basin, make a small lake that will be fed by the water under the sands. That's why we've been exploring Muruntau in three stories, so to speak. The first story, the surface, we're exploring by digging ditches. The second—to a depth of 325 feet—we're studying through samples from the mines. And we're sinking wells to the third story, the deepest level.

"How much gold is there in Muruntau? We can't say definitely yet. But the estimates for the prospected reserves are fantastic. When we worked out our original figures, we used the available reserves as the basic unit. We now multiply that figure by 10. The Kyzyl-Kum will soon be in competition with our Siberian gold fields."



By Simon Soloveichik

GROWING UP means making discoveries. There are boys and girls who never make some of the most important discoveries, like art, music, literature and the pleasures of companionship. Others make them much later, in adulthood, and wonder how they could have endured the dull and shallow lives they led before.

Natasha Kuznetsova was lucky. She made these discoveries at 14, in the seventh grade, when Boris joined the class. Natasha fell secretly and hopelessly in love with him. Boris read poetry to her, took her to Bach concerts and broke her heart with confidences of his love for another girl.

Natasha was 15 when she discovered people in general. She was in the ninth grade and her big question was: "What am I—a thinking or an emotional person?" Before then, emotion (mostly falling in love) had governed her life. She could not be bothered by people with whom she was not in love. And she fell in love indiscriminately, with persons of both sexes and all ages. But a world made up exclusively of emotion she found too narrow. She began to change her relations with people. She began to have long and fascinating conversations with classmates she had never really talked to before. She was delighted with herself that she could talk to everybody on such subjects as life, the future, talent, poetry and music.

The class noticed the change in Natasha. Others, too, were going through something of the same kind. Natasha's appetite for companionship was contagious. Marina Bardier, a high-strung girl, was all admiration for Natasha. Her favorite words were "awful" and "terrific," and she declared often that Natasha had a "terrific" mind. What amazed Lyuda Moroz about Natasha was something different—the way she combined bluntness with kindness, qualities which, according to Lyuda, usually clashed. The result was a triple alliance—Natasha, Lyuda and Marina.

Volodya Stolin joined their class at about this time, dazzling the girls with his beautiful eyes, his brilliant answers in literature and history, his utter contempt for the sciences and his reputation as a lady-killer. Serious-minded Olya Kravchenko, always at the top of the class, declared that students who kept failing in their subjects were good-for-nothings. Whether she had Volodya especially in mind was a question. But when elections to the school YCL committee were held, Volodya spoke against her. Olya, who had never before had anything but the nicest things said about her, was deeply hurt.

As it turned out, they were both elected to the committee and Natasha was chosen secretary. They all became close friends—Natasha, her two chums Marina and Lyuda, Volodya, Olya, her friend Lida and Boris, everyone's favorite, the same easygoing Boris who had taught Natasha to love music and poetry. After finishing classes they spent their summer holidays together. They went on a trip to Leningrad, canoed in the river at Serebryany Bor, had a party to celebrate Natasha's birthday, sat in the evenings singing songs to the music of Boris' guitar. They formed a sort of commune to which they all contributed their best qualities. Natasha contributed her good mind, book learning and generosity, Lyuda her earnestness and her "terrific" (as Marina put it) self-discipline, Marina her very emotional nature, Volodya his energy and decision, Olya her efficiency and intuitive knowledge, Lida her understanding and sympathy (she soon became everybody's confidante), Boris his artistic sensitivity. They complemented each other so well that it was only when they were all together that they felt complete.

And to top it all, Natasha's parents left town, and her home was at the disposal of the seven friends.

What more can a person want?

Happiness for a 16- or 17-year-old is to be caught up in a whirl of activity. We often wonder at the energy pent up in five-year-olds. Teenagers are just as bottled up. But where the little boy or girl of five finds an outlet in toys, the youngster of 16 is bored by games. His own life and character is what he wants to play with. He wants to change himself, take himself apart, see what is inside himself and how the pieces fit together.

At first the seven friends were completely involved in YCL committee activities. Natasha did a lot of talking about student self-government. Marina, also a member of the committee, laughed at the whole business, teasing Natasha about her self-importance, as the committee secretary. Volodya scolded both of them, Natasha for being so disorganized and Marina for ridiculing everything and everybody. As for himself, he had a job after his own heart. With Olya—the two had made up—he was putting out a school bulletin which was a great success.

It was Volodya's idea that they try to get through school a year ahead of time. They would take their final examinations and be free to go . . . Where? To the northernmost and easternmost part of their big country!

They all jumped at the idea. To save a whole year—that would be something! They all had great plans for the future. For some of them the plans were quite definite—to go on to college. For others they were vague, but they all hoped to do something important with their lives, something worthwhile. They all wanted the experience of joy and pain, the taste of victory and the anguish of love, even if it was unrequited love. The vitality they were full of cried out to be used. They were bored with the slow rhythms of lessons and bells and the small dramas of school life—"Why haven't you brought your gym shoes? I'm sending a note to your parents!"

Grownups, to protect their own dignity, are not inclined to credit teenagers with the intelligence they have. And teenagers, consciously or not, play along, perhaps out of politeness or from the instinct for self-preservation. One day a boy of 16 came to our editorial office with a short novel which showed literary talent. When we discussed the manuscript with him, he confessed that he had deliberately underplayed his hero's intelligence. "I did it," he explained, "because I knew that adults would not believe that a person of 16 could feel and think the way he really does and that the novel would be rejected because of that."

New young heroes and heroines have come on the scene to claim a place in life as well as in literature. These young people are 16 or 17, intelligent, educated, serious-minded—and uncertain.

"I first read Shakespeare's sonnets when I was 23," a man of 35 said. Natasha stared at him openmouthed. Not to have read Shakespeare's sonnets until he was 23! How could he possibly have lived without Sonnet 71? When she was in the ninth grade she recited that sonnet to herself every day. And to have missed Sonnet 117. . . .

These boys and girls, now 17 or 18, are absorbed in philosophy and literature. In their letters to each other they exchange opinions about the articles in the scholarly journal *Voprosy Literatury (Questions of Literature)*. They argue with Boris, who thinks Chopin is too ethereal. Their minds are alive, their emotions explosive.

Volodya's idea excited them. Here was an opportunity to test their powers. If they took and passed the examinations, they would be able to skip the senior year. Natasha, whose grades were always high, could probably do it. But how about Volodya? He was hopelessly behind in mathematics, physics, chemistry and English. However, Volodya was a great believer in will power, the Great Will, he called it.

The decision taken, they spent the next three or four days studying. They got up early, met and did their setting-up exercises. Is any new way of living conceivable without exercises? Volodya led the exercises and so strenuously that he had the girls exhausted. Then one morning Natasha missed the exercises, the next day the others did, and the day following they stopped studying. After a few remorseful entries in their diaries—such as "What are we good for?"—they lapsed into the old way of life.

Then they had a spell of self-improvement, tapped the many cultural opportunities Moscow offers. They signed up for a series of lectures at the Cinema Club, took the Young Marxist course, a music course and two or three others.

When January came around, Volodya announced that he was fed up with himself for talking so much and doing so little. He was going to quit school, take a job sweeping the schoolyard, study by himself and take the final examinations as an extramural student.

Volodya was out to prove that nothing was impossible if you had the will power. One of the lecturers at the Young Marxist course had said that to master a subject, you did not have to study it the way you did in school, so many hours a week. If you concentrated on it exclusively for a period of time, saw it as a whole, you could learn any subject fast, including his hated algebra and trigonometry.

The idea was fascinating but he had no chance to try it out. Resorting to subtle tactics, Volodya's parents, with the principal's help, induced him to go back to school.

EASTWARD HO!

It was not until the beginning of April, in fact April 4, when only two months were left before the end of the term, that Volodya and Natasha made up their minds for good. Hopeless as it was to think that they could prepare for the final examinations in two months, they were going to do it.

The Great Decision, was what Volodya called it. Marina said Natasha and Volodya were "terrific." Lyuda added sadly that she herself did not have the backbone for such an undertaking.

How they plugged! They made up a timetable and ground away 18 hours a day, every day, day after day. Their heads went round, little dots danced before their eyes. It was particularly tough on Volodya, who was not used to cramming. His brain "lacked training," he said. But there was the Great Will and the Great Decision. And every morning there he was sweeping the schoolyard. He had to have a job to be an extramural student.

Their five friends helped in whatever way they could. Natasha was soon out of funds. The money her parents left her she spent on books. Marina, Lyuda, Lida, Olya and Boris brought money or food.

Enthusiasm ran so high that Volodya undertook to persuade Sasha, another tenth grader, to join them, although only three weeks remained before the examinations. Volodya made him a four-hour speech and Natasha laughed scornfully. Sasha was crushed. He faced the dilemma —was he going to prove himself a man or a puny creature incapable of big things? After a sleepless night of indecision, he showed up in the morning ready for study.

At the end of May, when examinations were around the corner, a new problem arose. Natasha needed a document to certify that she had a job. Without such a document she was not eligible for examinations as an extramural student.

Volodya phoned the girls and asked them to come at once and sit with Natasha. He himself went off and said he would not be back until he found a way out.

The girls had already given up comforting Natasha, who was on the verge of despair, when Volodya turned up, beaming. Natasha, he said, was to report the next morning for work as an attendant at a bacteriological laboratory.

"Volodya, you're marvelous!" Natasha cried.

Examinations at last! The first was a written composition in which Natasha and Volodya got top marks. Their hopes rose high. A special bulletin called "The Extramural Student," which Lyuda put out at Natasha's home and for which there was now a rush, carried the headline: "Grade Must Be Above Fair!"

Nor was this an empty boast. They studied hard, not just to pass, but to acquire a good grounding in the subject. Whether it was their zeal or what Volodya called seeing the subject "as a whole," the fact is they showed a more fundamental and better understanding of the material than their fellow students.

They had 13 examinations to take.

In the morning Natasha went to her lab, Volodya to his sweeping job in the schoolyard. In the evening they took an examination and at night they studied for the next one. This went on for a whole month. Natasha's marks were all above Fair. Volodya got a few Fairs. Sasha flunked one exam, but with the right to take it over in August.

They had passed the examinations, proved that they had it in them to do great things. They had proved it to themselves and that meant to the whole world.

The school graduation ball was a grand affair, with flowers and champagne, everybody yelling "hurray," and nobody the least bit envious. Off they went to Red Square, jammed that night with graduates like themselves. Volodya was so overwhelmed by his own power that he talked Boris into climbing to the top of St. Basil's Cathedral and ringing the bell. That they did, barely managing to give the outraged militiamen the slip. Returning home singly, they were soon together again, singing, dreaming and feeling the world was theirs. It was now agreed that Natasha, Volodya and Boris would take a job on Dixon Island, the northernmost and easternmost spot they could think of.

"I love Fortune, but Fortune does not love me," wrote one melancholy poet. Volodya was on the best of terms with that good lady, perhaps because he was a lady-killer. Fortune smiled sweetly on him and would probably continue to, he was that kind of person. And yet Volodya had chosen to live the hard way. His friends, too, were bent on leaving their Moscow homes. Why?

To get a bigger bite of life?

To be independent, to feel what it is to be grown-up, to get away from their parents' protective wing?

To make their own way?

It was all that, and it was also more.

Take this business of the examinations. There were three of them who took the examinations—Natasha, Volodya and Sasha. But Sasha, although he really deserved more credit than either Natasha or Volodya, having prepared for the exams in a far shorter period—only three weeks—somehow did not belong with them.

The point was not that they had taken the examinations, but why they did. To Sasha it boiled down to his entering college a year earlier. To the other two as well as to their close friends the whole thing had a greater significance they could express only vaguely.

They wanted to shape their own lives, to knead them with their own hands. The very thought of a smooth and easy life was anathema to them. That kind of life meant school, college, a good job and a family. When someone said that even that formula did not necessarily mean a smooth and easy life, they accused him of trying to justify conformism.

It is hard for a person that age to make a decision that will affect his whole life—a hard thing to do at any age! Their thoughts may have run something like this: We don't like the way some people live, we want to make something different of our lives, we want to live clean and hard, to live passionately, to hold life in both hands.

And surely when we no longer have boys and girls with such aspirations, vague and transient though they may be, the world will come to a stop. These girls and boys demonstrated their faith in their own powers. They were in no hurry to hitch their wagons—to get into a college, land a good job. They wanted to live, not merely adjust themselves to life.

However, Natasha for one, had not counted on the force of circumstances. And circumstances in her own family, her father's serious illness, prevented her from leaving home. Once again she despaired. To make it easier for her, Volodya, too, stayed on in Moscow. It was a hard decision to make, and he was not at all sure that his friends would think it was generous. To them all his talk of going to far-off places might have been just that—talk. He took to brooding.

When the worst was over and Natasha had gotten over her despair, Volodya unexpectedly and secretly—any more talk would have been torture to him—went off to Murmansk.

Olya Kravchenko managed to join a student group going to the virgin land areas. Marina, after a few sleepless nights, hit on the idea that she wanted to do some really hard manual labor—the harder the better. This, she argued with herself, was a good way of proving her mettle.

When Marina walked out of the house with a ruble in her pocket, her grandmother remarked scornfully, "Go to the zoo, you'll get all the hard work you want there."

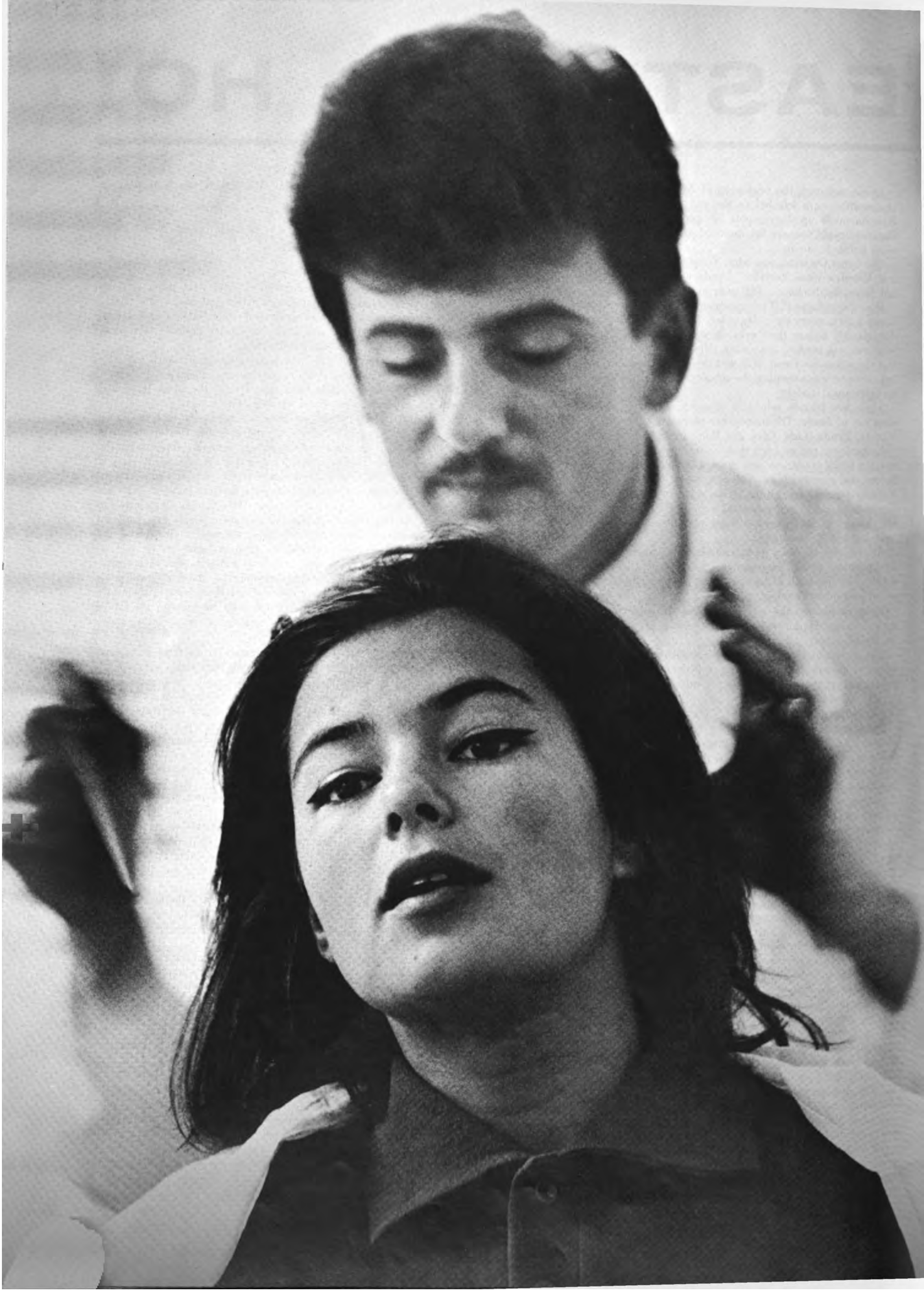
And that is exactly what Marina did, first cleaning the monkey cages and then the elephant enclosures. She also decided to take her examinations for the school-leaving certificate extramurally and save a year.

In Murmansk Volodya cooled his heels in the waiting rooms of managers and superintendents before he got himself a fitter's job at the docks with hostel accommodations. After that his spirits soared and he felt at last that he was "doing things," as he wrote in his letters.

Natasha got herself a job, too, and enrolled for a college course by correspondence.

Lyuda, Olya and Lida were now finishing school. They had their own fascinating plans for the future.

In every one of his letters Volodya tried to persuade Boris to join him in Murmansk. Finally, in a fit of anger he wrote: "So long as the mountain does not come to Mohammed, the mountain can go to hell!" Boris took the last words as literally as possible and signed up to work as a stevedore at Tixi Bay. Natasha and the other girls, knowing that he was not strong, raised objections. He explained that the reason he would not join Volodya was because he wanted to be completely independent. Privately he was pleased with himself that he had chosen an even more northern and eastern spot than Volodya.



1. *Galina Aivazyan (left) won the Moscow hairdressers' contest.*
2. *No lack of willing guinea pigs for the annual hairdo tourney.*
3. *The creator of the two-color production called it "Fantasy."*
4. *The spectators liked this one, but the experts were unimpressed.*

HAIRDO ARTISTS

By Robert Tsfasman

Answering a query about Soviet hairdressers from reader Richard Long of Goleta, California.

A THOUSAND young Muscovites learn the hairdressing trade annually. At one time this trade (like many others) was hereditary, it was passed down in a family from one generation to the next. Such cases are now rare, although Tatyana Konstantinova, to whom women flock from all over Moscow, inherited the trade from her father and grandfather.

Usually it is the very young people—graduates straight out of school—who go in for hairdressing. Some learn the trade as apprentices. But since a course is required to qualify, most future hairdressers take classes at a professional school for a year.

There they get theoretical and practical instruction. The course includes a survey of anatomy, physiology, microbiology, epidemiology and related subjects. The first two months of practice is on the heads of friends, after that on volunteers from the surrounding neighborhoods, of whom, by the way, there is no dearth. Before holidays even an apprentice will have a line of women waiting. The wish to look pretty is stronger than any fear of delivering themselves up to inexperienced hands.

On graduating, the young hairdresser immediately goes to work as a full-fledged journeyman. After three years at the job he is raised to the second-class category, after another four—to the first, and after 10 years of service, he earns the title hair stylist. Besides years of service, he must, of course, meet the standards for the higher grade. The winners of citywide contests get to the top more quickly.

Raises for length of service are not large. A hairdresser's earnings depend in the main on how many customers he handles. He works

1. *The judges looked hard for stray hairs. They didn't find many.*

2. *The best hairdos are photographed for citywide shop displays.*

3. *Finishing touches on a creation. The jury said, "Too fussy."*

seven hours a day and gets from 33 to 44 per cent of the receipts. The price of a haircut or hairdo is inexpensive by comparison with other European countries. Men rarely have to pay more than 30 or 40 kopecks for a haircut, and women usually pay from 70 to 90 kopecks for a hairdo.

Hairdo fashions and other such professional matters are discussed by the city and district artistic councils which are made up of the best hairdressers in the city. For instance, the chairman of the artistic council of Moscow's Sverdlovsk District is Lev Yanovitsky, famous in the trade since the thirties. Author of many articles, he lectures on the care of the hair and has trained any number of coiffeur artists like himself.

Lev Yanovitsky says that in recent years the level of skill has risen, the trade is becoming a real art.

The masters in the trade have taken part in various competitions abroad in the last several years, and many delegations from France, Italy and elsewhere come to our competitions. District and citywide contests are held in Moscow annually. At the last one, in May 1965, the prize for the best hairdo went to Galina Aivazyan, a pretty 30-year-old blonde. She developed a penchant for hairdressing at the age of nine, practicing on her sister's head. The prize for the best men's haircuts was also won by a woman, Yelizaveta Grudskaya.

The barbers' and hairdressers' trade journal is called *Service*, an appropriate title since it highlights the big problem in the trade—not enough beauty parlors and long waits. The longest lines are at salons in the center of Moscow, where the best hairdressers work. Some of the famous salons on Gorky Street, Petrovka and Kuznetsky Most are so old that they are still called by their prerevolutionary names, like Basil's Parlor. Basil's is elegant in the old tradition—mahogany walls and decorated ceilings.

Moscow in construction is spreading far and wide, and the number of hairdressing establishments is growing apace. They are open from 7:30 A.M. to 10:00 P.M. daily. The women of Moscow last year got 11 new hairdressing salons.

YOUR QUESTIONS ON COMMUNISM

The December 1964 issue of Soviet Life was devoted to readers' queries on communism. It attracted wide interest and brought a great many additional questions on the same subject. We shall continue to answer these questions as we receive them.

DO COMMUNISTS HAVE SPECIAL PRIVILEGES?

The Communist Party is the ruling party of the Soviet Union, and its members are government leaders, industrial executives, local officials, heads of educational institutions, eminent scientists, writers, etc. Most of the people holding the responsible and hence the better paid jobs are Communists. But if you were to ask a Soviet citizen what special privileges Party members are accorded, the question would puzzle him.

A privileged group in any society implies that the group is closed, exclusive. You belong to this group either by right of birth or you penetrate the group by making a fortune. Does this apply to the Communist Party? No! The Communist Party is a political organization, the political vanguard of the people. The Rules of the Party specify that its member "can be any citizen of the Soviet Union who recognizes the Program and the Rules of the Party, actively participates in the building of communism, works in one of the Party organizations, fulfills the Party's decisions and pays membership dues." Consequently, there are no such considerations as social status, origin or official position to prevent any person from joining the CPSU. The growth of membership and the social composition of the Party demonstrate that this article of the Rules is observed in fact. Membership today exceeds 12 million. About 45 per cent of those who have recently joined are industrial workers; 14 per cent are collective farmers; 38 per cent are white collar workers and professionals (approximately 28 per cent); and 1 per cent are students.

It is clear from the same article of the Rules that membership entails very definite responsibilities. By joining the Communist Party, a citizen pledges to work in one of its units, *i.e.,* to devote a portion of his leisure time to community service. He must pay from 0.5 to 3 per cent of his income for dues. Only politically active citizens who wish to make a larger social contribution join the Party.

The Communist Party originated in 1898 as a revolutionary organization of the most progressive class, the proletariat, as an organization which was to lead the working people to the socialist revolution, to overthrow the reactionary and despotic regime of the czars. Joining the Communist Party promised no benefits, only dangers. If arrested, a member of the Party was liable to a long term of imprisonment, hard labor or death "if he was especially dangerous." "In grim fatal fighting you fell" are the opening words of a Russian revolutionary song.

Once a persecuted group, the Communist Party became the ruling party with the triumph of the Socialist Revolution of 1917. Did Communists thereupon become privileged people?

It would be absurd to deny that their position did not change fundamentally. Now they were in power. However, this was a special kind of power aimed at ending the exploitation of man by man. Vladimir Lenin called that kind of power "elected, accountable and changeable." Besides, the situation ruled out any tranquil enjoyment of the fruits of victory. The country had been devastated. In building the new society the people faced tremendous odds—from the onslaught of counterrevolutionaries to the invasion of foreign powers.

Leafing through the works of Vladimir Lenin and other documents of those years, it is easy enough to gauge what was required of the Communists and what their "privileges" were. "Members of the Party must set an example of labor discipline and effort," said Lenin. He emphasized that the Communist Party "calls for socially conscious people prepared for self-denial."

Of course, membership today does not require the heroism it did in the prerevolutionary period, the country's first years or the war against the Nazis. However, the roles of vanguard and example are still the Communist Party's. Its members are still working where the going is hardest. It is to them that the Party and the Soviet Government appeal first when a great effort is needed. Members of the Communist Party are bound by the discipline they voluntarily pledge, and their Party can send them wherever they are needed.

The Communist has no privileges except those that derive from his official position, if he holds one. If two citizens, one a member of the Communist Party and the other not, hold similar positions, their salaries are the same and their retirement pensions depend only on seniority and their former earnings.

As we said earlier, the Party has a membership of more than 12 million. Obviously they cannot all hold important posts. To hold such a post it is not enough to be a member of the Communist Party. Competence, knowledge and ability are absolute musts.

This brings us to the question: Why do not all Communists hold important jobs? Does one have to be a member of the Communist Party to get such a job? By no means. If a citizen has the inclination and ability for public or administrative service, he can be elected, and often is, without being a member of the Communist Party. Thus, of the 1,443 deputies in the highest legislative body, the Supreme Soviet of the USSR, 349 (or 24 per cent) are not members of the Communist Party. Nor is the percentage lower in the Supreme Soviets of the republics or the regional, city and district Soviets.

These examples could be multiplied. The point is that any person of integrity who wants to be active in community affairs may become a member of the Communist Party. On the other hand, any citizen who is not a Communist Party member for one reason or another but wants to be active in community affairs can make his contribution with no hindrance and every encouragement.

It is true that most responsible positions are held by members of the Communist Party. But a Communist holds a certain post not because he has a membership card. It is the other way around: he has joined the Communist Party because he wants to participate more actively in the construction of the new society, and it is because of his greater competence and integrity that he is appointed to a responsible post.

The question arises: Cannot opportunists and other such dishonest individuals cover up, by a great show of community activity, their efforts to get what they can for themselves and their families? Such a danger does exist for a party in power. The integrity of its membership has always been one of the primary concerns of the Communist Party. Vladimir Lenin wrote soon after the victory of the Revolution:

"The only ruling party in the world which is concerned not with augmenting its membership but with improving its quality, with cleansing the Party from 'hangers-on' is our Party, the Party of the revolutionary working class. We have more than once carried out a reregistration of membership in order to rid ourselves of 'hangers-on' and leave in the Party only those who are socially conscious and sincerely devoted to communism. We have used mobilizations for the front and voluntary work on free days to cleanse from the Party all those who want only to 'make use' of the benefits they may derive from their position as members of the ruling party, all those who do not want to carry the burden of selfless work for the benefit of communism."

The Communist Party punishes and, if necessary, expels those of its members who prove themselves untrustworthy or undisciplined.

Suppose a member of the Party commits a crime. Will his sentence be any the less severe? The Rules of the Communist Party expressly say: "If a member of the Party has committed a crime, he is expelled from the Party and legal proceedings are instituted against him in accordance with the law." Thus, a membership card will not reduce a legal penalty. On the contrary, the offender may very well expect more severe treatment.

To sum up: Can we say that to be a member of the Communist Party is a privilege? Yes, if privilege means belonging to the leadership group in society, the group which society trusts and follows. However, membership is not exclusive and brings no personal benefits; what it does do is increase the member's responsibility to society.

This question was answered by Marina Fiveiskaya.

MAN BELIEVES

By Pavel Simonov

Readers have asked how anti-religious propaganda is conducted in the Soviet Union. The article below, from the popular science magazine *Nauka i Zhizn*, is a sample. The author is a Doctor of Science in Mathematics.

BY REPRODUCING an integral picture of the world that satisfies man's need for absolute truth, for harmony and justice, art makes up, in a certain sense, for the gaps in his scientific and analytical cognition of surrounding reality. We know, however, that in the long course of his historical development, man has often tried to fill in these gaps with myths and religion, belief in a preordained destiny and a god. This means that there must be an essential distinction between the truths asserted by an eternally living art and the absolutes of religious dogmas.

Writers in the West are troubled by the lack of belief of wide sections of the youth, by their moral and esthetic values, their concern with material things, their cynicism. The ideals of Christianity have been shaken, and the spiritual environment has nothing to offer in exchange. A man who does not believe in anything is lost to society, whatever his formal knowledge. And so, there is knowledge and there is faith: there is faith which is inimical to knowledge, and faith without which knowledge becomes useless "dead capital"; faith which calls man forward, and faith which throws him back into the twilight of ignorance and impotence.

Religion and Art

Religion has always and at all times turned to art as its helpmate. The relationship between religion and art has been so close that many scholars, especially foreign scholars, are inclined to consider religion the source and motive power of man's artistic endeavors. The only element of truth here is that both religion and art originated out of the process of man's cognition of his surrounding realities; but they did not quite coincide from the very outset, since their social functions were never identical. If we look at the earliest pieces of art—rock drawings and reliefs—we see that they had to do with people's material activity, with their efforts to obtain material things. Animals, hunting scenes, battles—these are the subjects of the most ancient pictures and sculptures. They depict realistically the daily struggle for survival, a life filled with hardships, danger and labor, rather than fantastic monsters or mysterious symbols.

Not that we think the first drawings were made for the utilitarian purpose of transmitting information to other members of the community; most probably the primitive artist addressed them to himself. Through drawings he was able to express, fix and record the visual associations that crowded his mind. But the results of his labors attracted the notice of his tribesmen, and the rock "diary" unexpectedly became a "letter." The new medium of communication had definite advantages over speech. It made communication with other members of the community possible not only when they were present, but across distances of space and time. Departing from a cave, an individual could leave word of his destination and instructions to his tribesmen. To be used as a written language, the drawing had to be simple, easily and quickly reproduced. Very literal at first, the written symbol gradually became more generalized, brief, conventionalized, until it developed into a hieroglyph, letter and figure.

And what of applied art—necklaces, ornaments on sword handles, paintings on household utensils, belt and cloak buckles? It is hardly likely that they all had magic significance. Consequently, the application of man's artistic efforts (writing, ornamentation of household utensils, work songs resounding as commands to synchronize group activity, etc.) moved from the very outset beyond the sphere of religious rites. This does not mean, however, that we underestimate the role of religion in *using* art from its very beginnings to our own time.

Every religion seeks to win people over to its own view of the world, man and society, to its particular ethical system. Works of art, by reason of the emotional directness of their perception, give religious ideas the appearance of objective reality. And the greater the artist's talent and the more perfect his production, the stronger the impression it makes.

Religion uses the power of art with much greater subtlety than seems apparent. For example, it cannot be reproached for being partial to "naturalism." The White Dragon in the religion of ancient China was a most powerful and terrible monster, the "dragon of dragons." *It was pictured by a white quadrangle with no pattern.* And people understood that it was impossible to picture so evil a monster by the usual quaint combination of a snake body with a predaceous, fire-spitting mouth, a repulsive tail and paws. The White Dragon exceeds man's most morbid imaging. It is inexpressible, a White Horror with no shape or outline. Compared with the brilliant guess of that ancient artist, all the efforts of modern abstractionists seem like poor afterthoughts. Many centuries ago, when the White Dragon was created, abstractionism reached its limit by picturing Nothing. Were I an abstractionist painter, I would abandon my occupation out of pure jealousy of that ancient Chinese artist who cannot be surpassed.

A true artist, even working on a church commission, remains a true artist. Just as a scientist working with authentic facts has to be a materialist regardless of his idealist biases, an artist who reproduces real life paints into his picture a great deal that is not only useless to but even denies religion. Therein lies the *insurmountable contradiction* between religion and art. Because it must make its dogmas believable, religion demands of art a truthfulness that will affect conscience. Searching for truth, the artist turns to real life, and it is then that saints are painted with earthly features, then that the mother of God becomes the *Sistine Madonna*, who carries her child toward his tragic fate. That is why generations of atheists have seen the triumph of justice and of good in the pictures painted and the chorals composed for the greater splendor of church services. Because it is the mission of art to learn the purpose and meaning of life, while the religious element in art is a growth on the living tree of this knowledge, just as idealism is on the living tree of real science.

Many were the times when their patrons, the popes and patriarchs, accused artists of sacrilege for the "mundane," "blasphemous" and "vain" elements they wove into church painting, music and architecture. There were fanatics who, in casting out the "vain" and "mundane," cast out art with it. Art withered away in those pious faces and decadent phantasmagorias of the Middle Ages, with the result that it lost its power to convince, its power over man's mind and heart.

The magic, sorcery and religion which appealed to contemporaries in many of the works of art of bygone epochs has long disappeared, but the reflection of life, the quest after truth and beauty, the grain of knowledge of "humanized nature" in *these same* works continue to serve mankind. That is the nature of the inner dialectics of art.

The purpose of religious teaching is to give people a certain system of ideas, to force this system upon them as the only one possible, everlasting and irrefutable. Religion needs art, not as an instrument with which to explore those aspects of knowledge we cannot acquire by logical analysis, but as a means of masking the gaps in knowledge, to pass off the *expedient* for an objectively existing fact, to impart to dogma the persuasive illusion of a directly perceived reality.

Art is an exploration into the unknown. The ways of religion and knowledge do not coincide. Religion says it possesses the "absolute truth." Its task is to sustain by every possible means the illusion that it does have it.

What a Word Can Do

Unlike science, which must confirm its deductions by experiment and practice, religion denies the need to test the dogmas it postulates. Only in isolated cases does religion try to create the appearance of "practical confirma-

tion," skillfully using such accidental coincidences as solar eclipses, which ancient priests were able to forecast with a fairly high degree of accuracy. Thereby they could threaten believers with the imminent anger of the gods and so demand offerings and sacrifices. A priest of whatever denomination is not likely to let slip an occasion for using an unfortunate circumstance in the life of a skeptic to demonstrate that the hand of God cannot be averted. But the appeal to such accidents is an extreme and auxiliary means of indoctrination rather than the general rule. Let me repeat that it is the very purpose of religion to rule out the need for proving or confirming anything. The foundation of religion is *faith*, the assimilation of a certain sum of ideas without critical evaluation, without comparing them with real facts, without logical analysis.

A man has a vital conflict, he tries desperately to find a way out of a difficult situation—solitude, the sickness of a loved one, an injustice done him. The disparity between the information he must have to meet this desperate need and the information actually at his disposal aggravates his anxiety, fear, sense of injustice, depression and hopelessness. This is when he is likely to succumb to religion's explanations about the inevitability and the virtue of patient suffering and its promise of reward in the other world. From a condition of information scarcity, he moves into a condition of complete information about "truth," "justice" and "good." The painful emotions are not only drastically eased, they are often replaced by pleasurable emotions—calm, appeasement, even radiant joy that he now understands the meaning and purpose of life. This mechanism is so effective that in many cases a man deliberately works up an urge to be wronged, to be tempted, to be martyred.

The result is a monstrous desire which is at variance with man's whole being, a desire for suffering, for privation, for self-flagellation, like an addict's need for health-wrecking drugs. I need hardly emphasize what an advantage this is to certain sections of society. Not only does it smother rebellious anger at privation and slavery, it elevates this suffering to the highest virtue.

The entire psychological apparatus of religion shows how shrewdly churchmen employ the laws governing cerebral activity they have learned empirically. An example is the confession.

A sincere believer brings his anxieties, fears and conflicts to the priest. While telling the story, he himself is obliged to analyze, systematizc and recognize the events and acts that bring on his painful emotions. Even a one-sided confession appreciably reduces the information scarcity. And the priest's comments, his advice, his absolution all help to feed the "information hunger." Hence the feeling of relief, of calm, of mental equilibrium restored.

Perfidy of the Unknown

From the moment of its origin religion has relied upon ignorance. I am not talking of abstract ignorance, the reasons for the phenomena around us, but of pragmatic ignorance of the *ways of satisfying* man's most burning needs, biological and social. Religious ideas originated not because people did not understand and kept wondering whether there is life on Mars, why children resemble their parents, why it thunders during a storm, but because by far not always could they fight off hunger, disease, slavery and social injustice.

How skillfully religion has exploited the *difficulty of disproving* the myth about life in the world to come. That was truly a lucky strike for the churchmen. Indeed, from the viewpoint of formal (and not dialectical) logic, only a man "back from the other world" could disprove the immortality of the soul. The impossibility is inherent in the very conditions of the "experiment." Even cases of revival after clinical death prove nothing, because the very fact of revival shows that the man did not get "there."

Let me emphasize that the question is far more complex than may seem at first glance, and this complexity makes itself felt not only in superstitions of epochs long past. Only a short while ago, at a conference on philosophical problems of cybernetics, I got into a discussion with a young scientist who long ago won my admiration for his erudition and the clarity of his scientific thinking. We were talking about telepathy, about "reasoning machines." about extraterrestrial civilizations. The word "God" came up in some connection.

"Don't be sarcastic," my esteemed companion reproved me. "The concept is not quite so simple. Could you disprove the idea that intelligent beings have chosen the planet earth for a gigantic experiment in evolution? And that this cosmic experiment is going on while generations of long-living beings are observing it, recording the results, and at times also . . . intervening in the course of developments? Can they not be deities to you, even though in the plural? Are you *in a position* to disprove my hypothesis?" he queried, in triumphant conclusion.

It occurred to me that an analysis of the blunders of this scientist and of those who for different reasons share his way of reasoning could furnish an excellent theme for our materialist philosophers. The staggering discoveries of modern science and the "strangeness" of its new theories also seem to provide food for parasitic thought about the possible truth of any fiction. In science the established is presumed to be true until it is proved false. Science is not required to prove the falsehood of an unfounded assertion; it is the job of the authors to *prove its veracity*. Otherwise, science will seek not for an understanding of surrounding reality in mankind's behalf but for confirmation of endless fanciful "assumptions."

Knowledge OR Belief? Belief AND Knowledge!

Unlike animals, whose emotions passively reflect the environment that satisfies their needs, man, through speech and artistic activity, can influence emotions by forecasting the way toward biological and socially determined aims. Religion, on the other hand, by filling in the gaps in real knowledge with inventions and dogmas, generates and keeps charging emotions which serve only to sustain faith in the truth of religious myths.

But faith is not only and not necessarily a product of ignorance. There is a faith based on knowledge, a faith which rests on intellectual investigation. Norbert Wiener, one of the founders of cybernetics, writes: ".

"I have said that science is impossible without faith. By this I do not mean that the faith on which science depends is religious in nature or involves the acceptance of any of the dogmas of the ordinary religious creeds, yet without faith that nature is subject to law, there can be no science."

Belief is least of all identical with a sum of knowledge; there must always be a certain extrapolation of present knowledge for possible developments, a bold probable forecast based on firmly established laws. Therein lies the basic distinction between the confidence of a materialist and the blind faith of a religious man.

We believe that the healthy forces of society, the collective will of people will avert a thermonuclear war. This faith is based not on comforting self-consolation; it rests upon a knowledge of the laws governing the process of historical development. That is why we have no use for the precept: "Get everything you can out of life while there is no atomic mushroom on the horizon."

The struggle against religion does not involve simply breaking down religious faith by logical proof of the bankruptcy of church dogmas. It means the replacement of faith in some god by a faith in man, in his ability to settle all his earthly affairs, to change life in the interest of the vast majority, the working people, faith based on knowledge of natural laws, making up by this knowledge for his areas of information scarcity.

The strength of faith lies also in the fact that it may be communicated to other people without the need for completely filling their information gap. A man who is convinced of something thanks to the breadth and depth of his knowledge can communicate this confidence to others by helping them skip the lengthy and complex process of assimilating what is already known. This does not mean that we prefer faith to knowledge. However, in certain emergency cases direct example, impassioned speech and determined conduct can move people sufficiently to convince them of the correctness of a proposed plan in all its details. In a situation where human destinies are decided in the space of minutes, it would be hypocrisy to demand comprehensive logical explanations and a crime to refrain from indirect emotional influence.

Man should believe. But what does "should" imply? Unbelief, the lack of high social and ethical ideals, substitutes a simple set of very primitive instincts for a great variety of human emotions. And no store of formal knowledge in modern physics, mathematics and even in letters will help a spiritually impoverished "intellectual."

Knowledge or faith? Both, faith and knowledge!

Vereisky presented this water-color to America's First Lady.

A WORD OR TWO ON AMERICA

By Orest Vereisky
ARTIST

I HAVE VISITED America before, but even a hundred and two visits would not be enough to get to know and understand that big, diversified country. Nevertheless, I have ventured to write a book about it.

Since I am an artist it is easier for me to put my ideas into drawings. Besides hundreds of sketches and drawings, I have used the written word also. It may help to describe what lies behind a sketch.

My pencil and sketchbook were with me always in America. The sketches became the foundation for many compositions after I returned home. There visual memory and recollection came to the aid of my pencil. Memory, filtered by time, often omits the details but it preserves what is important and most needed. Many of the drawings in my American series, however, were born on the spot, done from life.

The series was exhibited in Moscow. Then it went to the printshop, and now it has come back to me. But three compositions traveled from Moscow back to the place of their birth. One, the water color *Negro Woman Patching a Flag*, was presented to Mrs. Lyndon Johnson.

The black-and-white drawing *They Killed the President* was presented to Mrs. Jacqueline Kennedy. The widow of the late president has given the drawing to the John F. Kennedy Memorial Library.

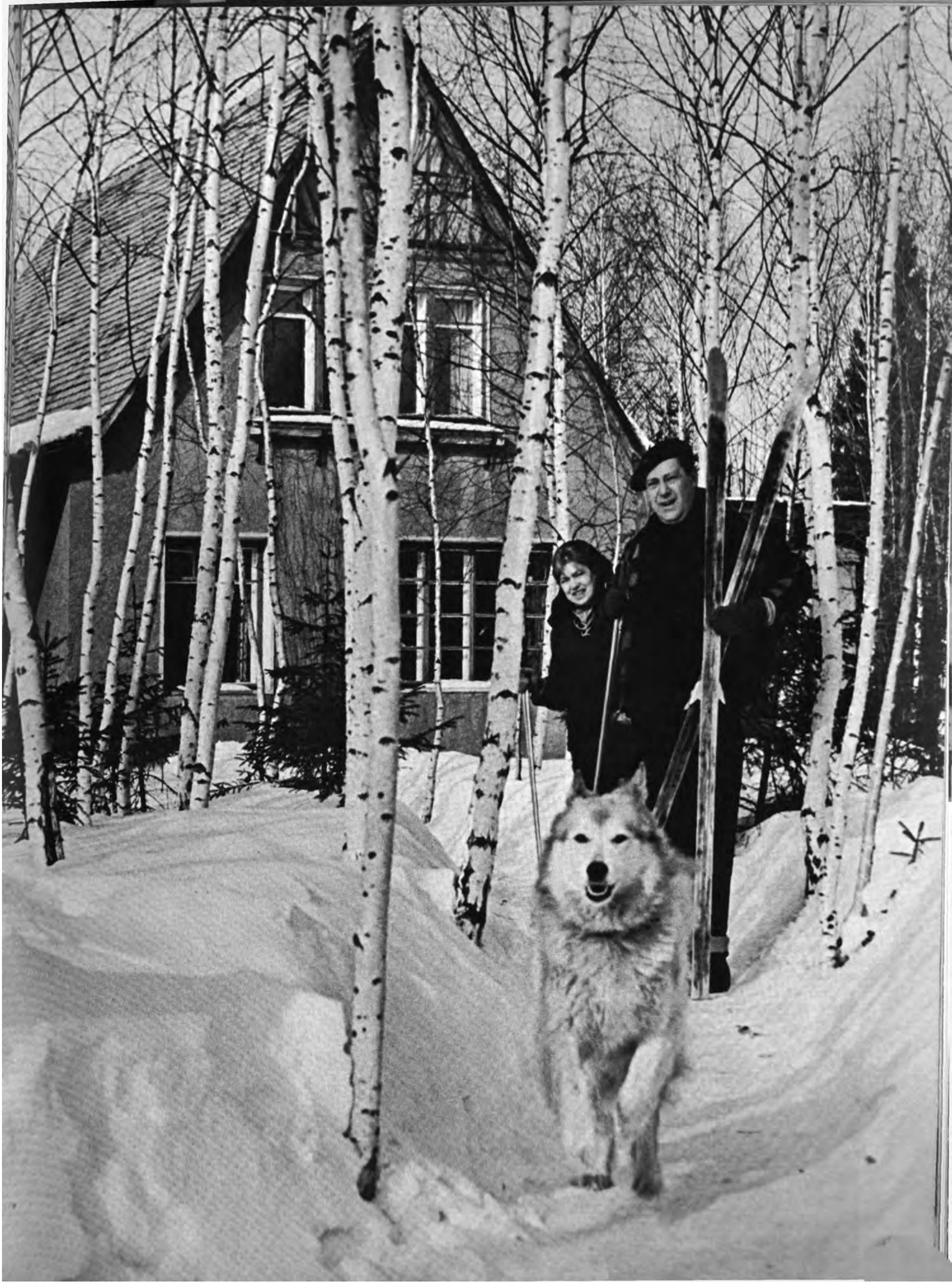
The third drawing went to former Senator William Benton, whom I had the pleasure of meeting in Moscow after my return from America.

What I say in my book does not, of course, pretend in any way to give a full picture of America, its life and its problems. In America

Painter's hobby. Vereisky carves these playful animal figures out of tree roots and branches.

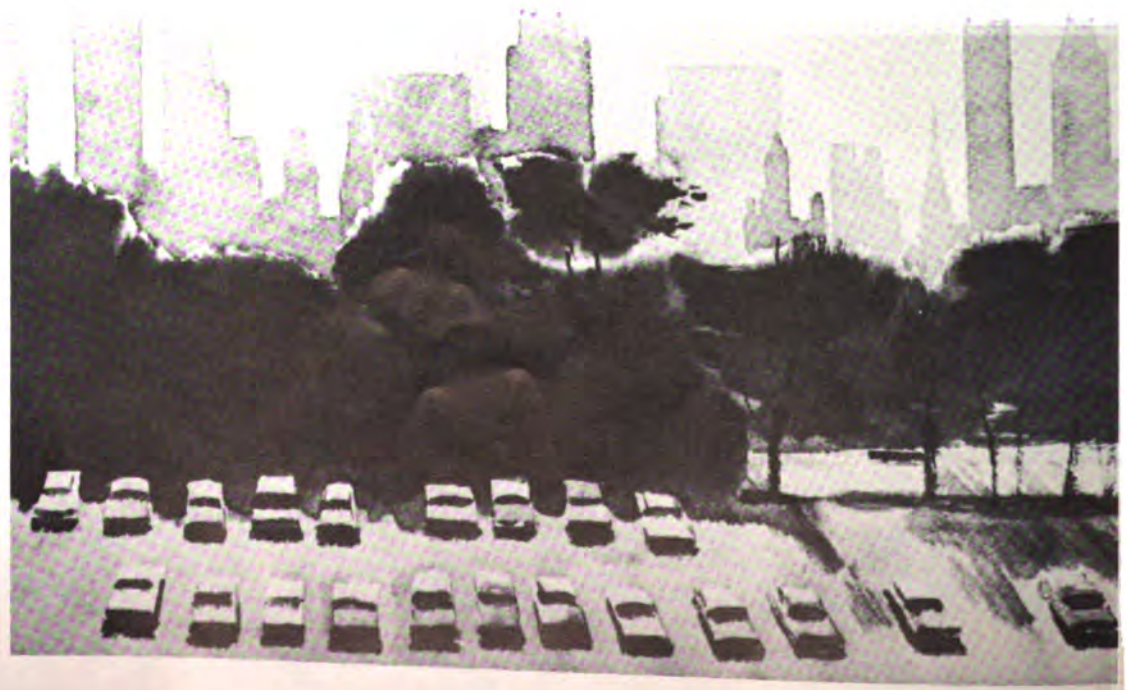
The artist at home. He believes that art brings nations closer and promotes peace.

Skiing is Vereisky's favorite sport and the rest of the family is just as enthusiastic about it.



Russians have always thought of the birch as their particular tree. This is a grove in Pakhra, a suburb of Moscow, where the artist's home is located.

This is another of Vereisky's works owned by an American. The artist presented it to former U.S. Senator William Benton, whom he met in Moscow.



At the studio of a Philadelphia artist. This was Vereisky's second trip to the U.S., and he visited galleries and art schools all over the country.

The Soviet artist gave this black-and-white, They Killed the President, *to Jacqueline Kennedy. It will be in the John F. Kennedy Memorial Library.*

December 14, 1964

Dear Mr. Vereisky:

I have recently received one of your lovely watercolors and I do want to express my appreciation and also to inform you that it will be sent to the National Archives Building in Washington and eventually be placed in the Kennedy Memorial Library.

It was indeed kind of you to send me this picture via Mr. Benton and I am most appreciative of your thoughtfulness.

Sincerely,

Jacqueline Kennedy

Mr. Orest G. Vereisky
Academy of Art
Moscow, U. S. S. R.

I was merely a well-wishing and, I hope, an objective observer.

We talk a great deal about "establishing contacts." It seems to me this conventional phrase means more than just meeting and talking with people who think much like you do. My idea of "establishing contacts" to promote peace includes arousing the interest of those who think differently and of those who are prejudiced. Many people before me have said that art and men of art serve the cause of peace as much as diplomats, even more at times. I do not intend to develop this thought. I only want to mention what I was told in America—that in 1830 Walt Whitman wrote of the mighty power of art that brings people closer than any peace treaty. So the idea is not new. But I am happy to serve it in any way I can and as much as I can.

As can be seen from the drawings here, I am a realistic artist. The word "realism" as applied to the fine arts is not in favor in America. It immediately puts people on guard. The reason, I believe, is that the word is interpreted to mean something narrow-minded and arid, something that curbs the mind and the hand of the artist. We look on realism more broadly. For us it means generalizing from the individual, the free use of metaphor and hyperbole.

We can argue about the validity of one style or another, about what is modern and what is outmoded, but there is one characteristic of genuine art that never goes out of fashion—and that is humanity .

I did not find that realistic art has been shelved in America. My feeling is that the chorus of praise for abstract art comes more from the fashionable critics than from anyone else. People generally seem to prefer figurative art. I visited the studios of American artists, school art departments and a great many galleries, and it seemed to me the fashion for abstract art is on the wane.

When the arts begin to resort to circus tricks, they are committing suicide. But I believe this is only a temporary disease, a tribute to fashion. I met a great many American artists, very different but all gifted, searching and thinking people. And I have faith in this healthy element in American art.

I very much hope that my acquaintance with America and American art did not end when the plane carrying me home took off from the airport in New York but that it will go on. And I hope that my friendship with America's artists will transcend even such barriers as time and distance.

VISITORS FROM ILLINOIS

MANY of the foreign visitors to Moscow this past year called at an old mansion on Kalinin Avenue—the House of Friendship with Peoples of Foreign Countries. This is the headquarters of the Institute of Soviet-American Relations, an organization of Soviet citizens from every occupation and walk of life whose purpose is to strengthen cultural ties between the two countries, less formally put, to acquaint more Soviet people with things American and more Americans with things Soviet.

In September a group of 57 Illinois businessmen visited Moscow on a goodwill mission sponsored by the "People to People Program." Roland Blaha, executive vice president of the Illinois Bankers Association, headed the group.

The Institute of Soviet-American Relations was host at a reception for the guests from the United States. Present were industrial executives, public officials, scientists and writers.

A lively discussion ensued, and though opinions did not coincide on all matters, there was wholehearted agreement on the need for more understanding between the Soviet and American people.

Welcoming the American guests, Stanislav Menshikov, Doctor of Science (Economics) and assistant director of the Institute of World Economics and Foreign Relations, said: "We offer the hand of friendship to everyone sincerely interested in strengthening peace."

Responding for the group, Blaha and Mrs. Sara S. Jones , president of the Williamsville State Bank, thanked the Soviet people for their hospitality, gave their impressions of the visit and stressed the values of such exchanges.

GREAT VIOLINS

Interview with Vladimir Bystrozhinsky
DIRECTOR,
STATE COLLECTION OF UNIQUE MUSICAL INSTRUMENTS

WILL YOU TELL US something about the collection?

The State Collection of Unique Musical Instruments has no counterpart either in our country or anywhere else. It is world famous. The collection was set up in 1919 and contains outstanding instruments made by Italian, French, German and Russian craftsmen—Amati, Stradivari, Guarneri, Guadagnini, Villom, Batov. The violins, cellos, violas and other instruments came from the czar's palace ensemble and from private owners.

We call our collection a museum without exhibits. Most of the instruments we have only board here, so to speak. They can be heard in many concert halls. We lend them to leading Soviet artists and to talented young people who play in international contests. David Oistrakh, Mstislav Rostropovich, Galina Barinova, Igor Bezrodny are among the Soviet artists who have played our instruments.

Why are those made by the old masters prized so much?

The violins made by Stradivari, Guarneri and other great craftsmen have not been equaled to this day. Their tone color is astonishingly close to the human voice. They are prized for their extraordinary purity, range, sweetness and volume. The violins have a prodigious volume, they can fill the biggest concert halls. The old instruments are marked by their exquisite shapes and unerring choice of woods and varnishes. Because of their unique workmanship, they are as valued as masterpieces of painting or sculpture. They give the musician truly unlimited scope to show his talent.

There are not many of these first-class instruments. Almost all of them have been identified.

How do you account for the fact that the names of Stradivari, Amati, Guarneri are found on so many fiddles?

Such claims are frequent. But we generally have to disappoint the owners of these instruments.

Since the nineteenth century instrument factories in many countries, especially Germany, France and Czechoslovakia, have made a great many fiddles on the pattern of Stradivari, Amati and Guarneri. Labels which were exact replicas of those used by the great violinmakers were pasted inside them. In prerevolutionary Russia such violins were turned out by the Zimmerman factory. We occasionally find them around, still deluding their owners.

Unique musical instruments are found very seldom. For example, in the past 30 years we have added many valuable instruments to our collection, but only two of them can be called really exceptional —a violin by Joseph Guarneri and a cello by Domenico Montagnana.

Of course, I don't rule out the possibility of our finding another of these very rare violins even today.

How would it be authenticated?

Neither a description or photograph would help much. It would have to be authenticated by experts. The State Collection has its own commission of experts which includes our oldest and most experienced violinmakers and conservatory professors. Of course we should be very gratified indeed if we discovered an unknown masterpiece. Well, maybe we shall one of these days.

Courtesy of Izvestia

YURYEV-POLSKY

By Yuri Ovsyannikov

The tiny time-eroded cathedral was restored in 1471 by the architect-sculptor Vasili Yermolin.

It is carved from top to bottom with fanciful figures. The dragon St. George slew.

SOME 125 miles to the northeast of Moscow lies the little town of Yuryev-Polsky, a slightly younger brother of the Soviet capital: in 1952 it celebrated its 800th anniversary. The part this town played in the destiny of the Russian state was small, but for art scholars and historians it is a veritable Mecca.

In the center of Yuryev-Polsky stands a little whitestone cathedral whose walls are carved from top to bottom with fanciful ornaments, figures of warriors, and masks and fantastic beasts in high relief. It seems as though the ancient architects had wished to build a huge decorative casket and not simply a house of worship. The church is named for St. George, the most popular saint of ancient Russia. The more closely you examine the decorations, the more you are puzzled. Why are the figures, ornaments, and masks in such studied disorder? Why the chaos?

Many scholars, from the middle of the last century to very recently, tried to solve the riddle. The man who finally did was Georgi Wagner, a Soviet scholar.

St. George's Cathedral was completed in 1234, when Vladimir-Suzdal Russia was in its prime. Magnificent palaces and temples were then being erected, and talented painters were creating unique frescoes and icons. Then, three years later, Russia was overrun by the Tatar hordes from the East, who destroyed everything in their way. Fortunately the precious cathedral survived, although

A bas-relief head of Christ is set over the main western entrance of the cathedral.

One of the 50 bas-relief images of the saints adorning St. George's Cathedral.

Yuryev-Polsky itself was twice leveled. But in the middle of the fifteenth century the cathedral was besieged by that ubiquitous conqueror—Time.

Crumbling churches were usually torn down and new ones built in their place. An exception was made for this one. In 1471 Ivan III, Grand Prince of Moscow, dispatched the gifted architect and sculptor Vasili Yermolin to Yuryev with strict orders to restore the cathedral. Why the mercy shown this time-decayed temple?

Carved stone tells its own stories. Prince Ivan Kalita, founder of the Moscow State, who began in 1326 to build the principal church of Russia—the Cathedral of the Assumption—in the Moscow Kremlin, had it patterned after the one at Yuryev-Polsky. Besides, our ancestors were aware of the artistic value of the whitestone high and low reliefs. As the ancient chronicles put it, "All the stones of your wall are precious."

The first Russian restorer, Vasili Yermolin, turned out to be a man of sensitivity. He took great care to preserve the ancient sculptures without adding anything of his own. But he got the placing of the sculptures mixed up and thus created the complex "rebus" of whitestone reliefs. It was this "rebus"—why the reliefs were placed where they were—that had scholars guessing for almost a century.

Georgi Wagner began to work on the problem in 1959. Day after day, month after month he searched for the original placement. For analogies he studied other cathedrals and churches built at about the same time. Sometimes, confronted by a particularly unyielding enigma, he turned to the ancient chronicles and icons and even to old Oriental fabrics. For instance, the exotic elephant on the wall of the cathedral he explains by the fact that the builder and artists used Iranian thirteenth century fabrics as models. Some of the figures, especially the mythological creatures, derive from old, pagan beliefs. But most of the reliefs have Christian associations.

Wagner's research led him to the conclusion that the cathedral reliefs were a unique "Mirror of the World." The figures at the bottom half of the building represent the terrestrial world; those in the upper half, the world of the gods.

Judging from the workmanship, Wagner concluded that the figures apparently were carved separately, then fitted into the cathedral walls. As many as 11 sculptors worked on the structure, directed, most likely, by Bogun, as would seem to be indicated by the remaining letters of his name on one of the reliefs.

Prince Svyatoslav Vsevolodovich must have personally supervised the work, since, says Wagner, his sculptured portrait is fixed over one of the cathedral portals.

A thirteenth century stonemason probably copied the elephant from Iranian fabrics.

Curious heads like this one ornament the capitals of the cathedral's many columns.

(Left) Archangel Michael Monastery was founded in the early thirteenth century.

While some of the reliefs derive from pagan myths, most have Christian associations.

FROM FIRST GRADE THROUGH GRADUATE SCHOOL

We have received many letters asking about education in the USSR. Readers want to know when children start school, what subjects they study, about the marking and examination system, the requirements for college entrance; in short, about the system of Soviet education from first grade to graduate school. The same questions were asked by the many American tourists in the Soviet Union who visited our editorial office in Moscow last summer.

FIRST, some general information. All education in the Soviet Union from elementary through graduate school is free. There are no private schools. Textbooks are not free, but they are cheap, less than 50 cents in American money. If the student cannot afford to buy his textbooks, the school or college provides them but they must be returned when the course ends.

Education is compulsory through the eighth grade. Coeducation is the rule at all levels, including the university.

The marking system is one to five. Five is excellent, four good, three fair, and two unsatisfactory. One is used only in elementary schools and as a disciplinary measure. Oral quizzes and written tests are given during the course of the year in elementary school. The upper grades also take year-end examinations. Schools of higher education give examinations twice a year. They are preceded by course credit tests which are marked Passed or Failed. Unless he passes the course credit test the student may not take his examination.

The school year is divided into four quarters: September to November, November to January, January to March, and March to May. Marks, based on quizzes and tests, are given at the end of each quarter. The final mark for the year is based on the marks received at the end of each quarter and in the final examination in the subject, if one is given. If a student receives an unsatisfactory mark at the end of the year, he may take a second examination in the fall. If he fails that examination, he must repeat the grade. The college and university year is divided into two semesters. Marks for the semester depend entirely on examinations.

School vacations include 10 days in November, 10 days in January, seven days in March and the three summer months —June, July and August. College students have a two-week winter vacation at the end of January and the beginning of February and a summer vacation of one and a half to two and a half months.

The school curriculum is the same throughout the Soviet Union. In some schools in the union republics all instruction is in the native language except courses in Russian language and literature. In addition to the regular subjects these schools give courses in the native language and literature. The union republics also have schools where all instruction is in Russian. Which of these schools their child will attend is decided solely by the parents.

The school system is divided into three stages: elementary, eight-year and secondary.

THE ELEMENTARY SCHOOL

The elementary school covers grades one to four. The age range is seven to ten. There is only one teacher for each grade. In the first to third grade the child learns to read, write and count, that is, he is taught his native language and arithmetic. In addition to the readers, which have stories and poems by Chekhov, Leo Tolstoy, Pushkin, Mayakovsky and other Russian and Soviet classics, there is an after-school reading program. (The books may be borrowed from the school library.) Two other subjects are added in the fourth grade: nature study and the history of the Soviet Union.

All four grades give drawing, singing and physical training.

Children go to school six days a week. Lessons are 45 minutes long. Elementary grades have four lessons a day, the upper grades six.

THE EIGHT-YEAR SCHOOL

The eight-year school covers grades five (11-12 years), six (12-13 years), seven (13-14 years) and eight (14-15 years). Beginning with grade five, each subject is taught by a different teacher. In the fifth grade the children study their native language, reading, arithmetic, botany, ancient history and the physical geography of the world, a foreign language (English, French or German). A foreign language is studied in grades five through ten. Drawing, singing and physical training are studied in grades five through eight.

The native language continues to be studied in grade six, but reading is replaced by a course in literature which is divided into oral folk poetry (epic poetry), the classical literature of the native language and Soviet literature. Arithmetic is replaced by algebra and geometry, and ancient history by medieval history. Instead of physical geography the children study the physical and political geography of parts of the world and the most important countries. There is an introductory course in physics. Toward the end of grade six zoology replaces botany.

The study of the grammar of the native language continues in grade seven. Syntax is introduced. The course in Russian literature becomes more specific, with emphasis on the nineteenth century writers Pushkin, Lermontov and Gogol. Students are introduced to theoretical aspects of literature and the means of expression language has—poetry and the fundamentals of versification, rhythm, comedy, humor and satire, and the basic principles of plot. They continue to study algebra, geometry, physics, the geography of parts of the world and the major countries, a foreign language and zoology. History is now the history of the peoples of the Soviet Union from ancient times to the beginning of the twentieth century. And they have a new subject, chemistry.

Grade eight studies the Russian language, Russian literature of the nineteenth and twentieth centuries, the concept of the short story and the novel, the ideological meaning of a work of literature, and related theoretical problems. It also has algebra, geometry, physics, chemistry, human anatomy and physiology, the geography of the USSR, the modern history of foreign countries, and a foreign language.

Final examinations in grade eight (in June) are given in these subjects: Russian language, oral and written (an essay), algebra and arithmetic (written) and geometry and algebra (oral)—a total of four examinations. In addition, non-Russian schools have written and oral examinations in the native language. Written examinations are three hours maximum. On completion of the eight-year school the student is awarded a certificate.

That marks the end of compulsory schooling.

SECONDARY SCHOOL

The ninth and tenth are the secondary school grades (15-17 years). Several years ago an eleventh grade was introduced at a number of secondary schools as an experiment. It did not justify itself, and beginning with 1966 there will be no more eleventh grade.

The following subjects are studied in the ninth grade: Russian literature from the nineteenth century to the sixties of the nineteenth century, algebra, trigonometry, plane geometry, solid geometry, mechanical drawing, physics (mechanics), biology, chemistry (inorganic), the modern and contemporary history of foreign countries (this includes the literature and arts of the period—Balzac, Dickens, Heine, Whitman, Bach, Beethoven, Chopin, etc.), the history of the USSR from the time of the primitive communal system to the sixties of the nineteenth century and a foreign language.

In the tenth grade students take Russian literature of the late nineteenth and early twentieth centuries and a complete course in Soviet literature, mathematics, physics (molecular physics and heat, electricity, optics, the structure of the atom and atomic energy), chemistry (organic), the contemporary history of foreign countries and the history of the USSR from the end of the nineteenth century to our day, the economic

geography of the world, social science, astronomy and a foreign language.

Graduation examinations in the tenth grade are held in June. These include a composition on a literary subject (six hours is allowed for it), oral examinations in algebra, geometry, physics, chemistry, the history of the USSR and social science, and the foreign language—a total of seven. The ten-year school completion certificate lists the final marks, determined from his examinations and the marks the student received during the course of the year. Two marks are given for the composition, one for language mastery and the other for literary content.

In addition to marks for the subjects in which examinations were taken, the certificate lists marks for trigonometry, world history, biology, geography, astronomy, mechanical drawing and physical education. The marks are based on the student's record for the last year he studied those subjects.

Students with five in every subject are awarded a gold medal. Silver medals go to students with a five in every subject but two, and a four in those. The mark in physical education is not counted.

Students who fail their final examination in one or two subjects may take a second examination in those subjects in the fall.

Students who fail more than two subjects and those who fail to pass the second examination in the fall in either one or both subjects receive a certificate that they have attended the school. They are permitted to take the examinations once again the year after.

VOCATIONAL TRAINING

All eight-year and secondary schools in the Soviet Union teach the basic principles of a trade. An examination in the acquired skill is given at the end of the course and a certificate of qualifications awarded.

OTHER SCHOOLS

Besides the general secondary school there are several other types of schools. They include:

Schools where special emphasis is laid on foreign languages. At these schools one foreign language is taught beginning with the first grade. Later many of the courses are taught in the foreign language. The schools are intended to train future philologists, linguists, translators and interpreters.

Specialized mathematics-physics schools. The children who attend these schools will later specialize in cybernetics, electronic theory, and theoretical mathematics and physics.

Music schools, to which gifted children are admitted from the age of seven and taught to play one or more musical instruments. Graduates of complete secondary music schools may enter a conservatory; graduates of the eight-year music schools may apply for admission to higher music schools.

Pilot schools, where projected changes in the curriculum are tested and may later be introduced into all general education schools—the teaching of algebra beginning with grade one, for example.

Students of all these schools cover, in addition to their specialized subjects, all the subjects in the general school curriculum, take the corresponding examinations and receive the same certificates as all other students.

Specialized secondary schools. Students are admitted to these schools after completing the eighth grade and passing the entrance examinations. The schools train highly skilled technicians. In addition to learning a trade, students cover the subjects taught in the ninth and tenth grades but in somewhat shorter courses. Graduates receive both school-leaving certificates and certificates attesting to their vocational skill. The law requires that jobs in their trade must be provided for them. Graduates of specialized secondary schools may take entrance examinations for schools of higher education. If they have a record of Excellent marks and have worked three years at their trade they get priority in admission to higher schools in their field.

Vocational training schools. These train highly skilled workers. Eight years of study at a general school is a prerequisite for admission. Students finishing vocational training schools are given a category rating and are provided with jobs in their trade.

HIGHER EDUCATION

The student seeking admission to a school of higher education must take competitive entrance examinations. The number of examinations and the subjects vary with the type of higher school, except for the examination in the native language and native literature, which is required by all schools. Examinations range in number from three to eight. Graduates of secondary schools who have won gold and silver medals and honor graduates of technical schools are required to take examinations only in the key subjects. For example, matriculation at the mechanics-mathematics department of Moscow University requires written and oral examinations in Russian language and literature, in algebra and geometry with the application of trigonometry and in physics —five examinations in all. The last three are considered the key subjects. If the honors or gold medal applicant receives less than a five in any one subject he must take all the other examinations. The aggregate passing mark depends on the number of vacancies.

The term of study at higher schools is five years, with the exception of medical schools and some others, where it is six.

INSTRUCTION IN HIGHER SCHOOLS

The curriculum varies with the type of school or department and includes required lectures, seminars and laboratory work and elective courses. The school year runs from September 1 (October 1 for upperclassmen) to the beginning of June. Many higher schools hold summer sessions where first- and second-year students do practice work from June to mid-July.

Specialization usually begins in the second or third year. From their first to fourth years students write annual term papers on some problem related to their future specialty. The student himself chooses the professor to guide his research.

At the end of his fifth year the student submits a graduation thesis, the result of one or more years of independent research. The diploma he gets is approximately equivalent to the American Bachelor of Arts degree.

The state is obligated to provide the graduate with a job in his chosen field. And the graduate repays the state, as it were, for his free tuition by working in the field for which he was trained for at least two years. He receives the regular salary for his work.

Throughout his period of study the college student receives a monthly maintenance allowance from the state of up to 60 rubles a month. Honor students get somewhat more. Specialized secondary school students also get stipends.

GRADUATE STUDY

The student may enter a graduate school immediately after completing the school of higher education or after he has worked at his specialty for two years. Admission to graduate study is by competitive examination in three subjects: the subject in which the student majored, a foreign language and the fundamentals of Marxism-Leninism. Graduate study is three years, during which time the student receives either a monthly allowance of 80 rubles from the state or the equivalent of his earnings if he held a job previously (but not exceeding 100 rubles a month). The student pays no tuition. He defends his thesis before the Learned Council of the school, after which he is awarded the degree of Candidate of Science (roughly equivalent to the Master of Science degree).

The Doctor of Science degree is conferred upon the successful defense of a doctoral dissertation which embodies the results of independent research. The title of Academician is not awarded for a dissertation but for an outstanding contribution in one or another field of study.

This, briefly, is the Soviet educational system. We have not dealt here with such vital aspects of the educational process as the role of the Young Pioneer and Young Communist League organizations; extracurricular activities in the schools and colleges; the part played by schools and Young Pioneer clubs in discovering aptitudes and talents at an early age and by college science clubs in drawing high school seniors into research; evening and correspondence schools; and the blend of theory and practice in teaching. All these will be dealt with in future issues.

THE MANPOWER PROBLEM

By Inga Maslova, MASTER OF SCIENCE
and Vladimir Yagodkin, MASTER OF SCIENCE

TECHNOLOGICAL PROGRESS releases manpower in our country as it does anywhere else. The number of workers employed in our coal industry, for example, dropped by 94,400 between 1958 and 1962. In our logging camps the drop was 112,700 over the same period. The average annual number of workers in rail transport fell by 47,000 between 1960 and 1963. This same trend is shown in other cases we could cite. One of our growing economic problems is the rational use of this labor power.

Jobs Automated

For us technological progress means, among other things, reducing or eliminating completely laborious and unskilled work. In the coal industry, for instance, we no longer have such trades as hammerdrill operators and cutters or breakers doing hand work. And in metallurgy we have no such trades as rollers, iron founders and charge mixers.

The last USSR census showed that between 1939 and 1959 there was an absolute decrease in the number of people employed at the traditional trades, as this chart indicates:

Trade	1939 (in thousands)	1959 (in thousands)	Decrease in numbers employed at the trade (in percentages)
Common laborers	321.8	180.0	44.1
Riveters and boilermakers	956.6	750.0	21.6
Cabdrivers and carters	1,118.3	784.3	29.9
Harness makers	107.5	47.8	55.5

By the end of our present decade much of the heavy work in industry will have been mechanized and automated. Hundreds of thousands of people will have shifted over to physically easier, less monotonous, more productive and better paying jobs. There is a sharp rise in the number of people working at jobs that involve modern machinery. This is confirmed by the following data.

Trade	1939 (in thousands)	1959 (in thousands)	Increase in numbers employed at the trade (in percentages)
Cutting machine operators	9.2	29.7	222.8
Electric and torch welders	109.9	445.6	305.5
Building and road-making machine operators	1.6	116.5	7,181.3
Excavator operators	9.0	124.0	1,266.7
Drivers	725.0	3,174.9	337.9
Electric locomotive engineers	8.0	78.4	880.0
Power truck and electric truck drivers	3.2	18.0	462.5

Employment Growing

The country's over-all employment also keeps rising, as these figures show: in 1939 there were 78.8 million employed; in 1959, 99.1; in 1962, 104.5; and in 1964, 107.

This rise in employment is a result of the high rates of economic growth. Between 1959 and 1964 more than 5,000 large industrial enterprises were built. They had to be staffed with machine operators, engineers and office workers.

The shorter working day and expanding public services—education, public health, entertainment, retail trade and the like—all account for employment growth.

Where Do the Workers Go?

We can use all of the workers that are automated out of jobs. However, this does not mean that technological progress does not present us with problems.

The most important one is the systematic training and placement of workers changing over from one branch of production to another. Efficient use of our manpower resources needs to be an important aspect of our economic planning. Thus far there is no consideration in our current or long-range planning of the number and composition of the workers we expect will be in excess. There are also no agencies planning the redistribution of these workers.

All this has its explanations. Until recently new machinery and technological processes were introduced on a factorywide not an industrywide scale, and as the factory was modernized, it was also enlarged. Most of the workers whose jobs were automated could be used elsewhere in the factory, and those who could not were easily placed in jobs at other factories in the same city.

However, the more recent trend is toward comprehensive mechanization and automation on an industrywide and territorial scale, with consequent effects on the numbers of workers in excess and their industrial and territorial spread.

Despite the fact that most of the released workers are re-employed by their own factories in some other capacity, there is a growing tendency for them to take jobs elsewhere. For instance, a study done by the Ural Branch of the USSR Academy of Sciences of plants in the Chelyabinsk Region show that about 20 per cent of all the workers released (in some cases the figure is even larger) took jobs at other plants.

Relocation

Here is the picture then: more technological progress means more workers released and their redistribution in the same and in other industries. Redistribution in other industries is especially typical in coal, peat and lumber where, as we indicated, the drop in numbers employed is absolute.

Regulating this redistribution is obviously very important. In large and rapidly developing industrial centers the redistribution (in the same or different industries) takes place without any special difficulties. It is done organizationally, through personnel departments, and individually, by the worker himself. In small and medium-sized cities, however. it is more difficult to find jobs for workers in excess. What has to be done here is to get these workers relocated in new and developing areas. The same problem may arise in time at plants and construction projects located in big industrial centers of long standing.

With technological progress accelerating, the planned redistribution of workers in excess will become more difficult. They will comprise a larger source from which to draw skilled labor for new plants and industries, but we will have to pay more attention than we do now to such factors as the level of skill, the nature of the trade, etc. In a word, we will have a new aspect of the problem to cope with—how efficiently we are redistributing our excess labor.

We think a single all-embracing agency should be set up to redistribute and retrain workers in excess. That agency would combine the functions of such bodies as the Committee for Vocational Training and the labor employment departments of the various republics.

In our country the citizen has a constitutional right to employment. Most workers whose skills are automated are re-employed on other jobs at no loss of pay or seniority. Others, after retraining, get better jobs. But the transfer is not always easy or painless. To make relocation as easy and painless as possible, we must take into account the worker's national habits and ways of life, the maintenance of his living standards, adequate housing and a host of such other factors. That can best be done by a single agency.

Courtesy of the newspaper Trud

An illustration for the fable "The Silk Brush." India ink. Yuri Detinkin and Yuri Mingazittinov.

ARTS

OLD KAZAKHSTAN'S NEW ARTISTS

By Grigori Anisimov

THE EDITORIAL OFFICES of *Yunost*, perhaps the most popular Soviet youth magazine, whose emblem we print on our front cover, double as a gallery for the work of young artists and sculptors.

One of the more recent *Yunost* shows—they are held regularly—was devoted to paintings, etchings and drawings by young Kazakh artists.

The second largest republic in the USSR, Kazakhstan extends from the lower reaches of the Volga at its western edge to the border of China in the east, occupying 1,063,200 square miles. Legend accounts for the origin of the Kazakhs in this way. A band of nomads left their badly wounded leader Kolchi-Kadyr on the field of battle. Agonized by thirst he prayed for merciful death. But his prayer was answered by a benevolent spirit in the shape of the white goose Kaz-Ak. She flew off for water, brought the suffering warrior drink and nursed him back to health. Their descendants are the Kazakhs.

Kazakhstan's art goes back to a remote past. Its ancient art was purely ornamental: woven fabrics, embroidery, articles of felt were made by the women; the men carved in wood and bone and did metalwork.

Painting is of relatively recent vintage. It gained a foothold only in Soviet times. That is why this big republic has only 150 professional artists today. Of various ages, they are all graduates of art schools.

To understand an artist and relate to his work, one must know at least a little about the country he lives in.

Yellow hot sand dunes, luxuriant oases, the ranges of the Altai and Tien Shan capped with eternal snow, endless seas of wheat—hidden in this inventory are the colors used by the artists of Kazakhstan.

Sabur Mambeyev exhibited two paintings at the *Yunost* show: *Poppies* and *Mirage*. He favors warm balanced tones and color contrasts. In his *Poppies*, Mambeyev reaches for artistic truth through dynamic composition

that carries his viewers deep into limitless vistas. His color catches the radiant quality of the light in the steppes.

Ali Dzhusupov's small landscapes *Winter Evening*, *Issyk*, *Flourishing Gardens* and *Rocks* seem like études at first glance. True enough, they were painted in a single sitting, preserving all the force of the first impression. Dzhusupov, however, not only looks through the surface of the things he portrays but sees into their hidden depths. His work shows the creative influence of the famous Semyon Chuikov, who did so much to turn Dzhusupov into an artist. He lives and works in a solitary yurt in the steppe, searching for the fresh color and evocative forms that characterize his every painting.

Alexei Stepanov's work has real substance and feeling. He has tried himself in various genres—portraits, still lifes and landscapes. Lyrical freedom of narrative is happily joined to sensibility in his paintings. Stepanov had seven pictures at the show. The best? "I haven't painted my best one yet," he said when he showed me through his studio. A very good landscape, I thought, was his *Cyclists*. The cyclists themselves were purely decor, but how grand, how monumental were the rusty, bluish, dazzling mountains! Conveyed in a startling broken rhythm, it was those stark ranges and not the cyclists that seemed to be riding, moving slowly towards the clouds.

Admirable draftsmanship and striking use of ornamental detail marked the etchings and posters of Nikolai Alexandrov. His poster "May There Always Be Me!" (from the popular song "May There Always Be Sunshine") was chosen—and a very good choice—to keynote the *Yunost* show.

Frontispiece for Anthology of Soviet Kazakh Poetry. *Engraving. Albert Guryev.*

May There Always Be Me. *Tempera, crayon and charcoal. Nikolai Alexandrov.*

Poppies. *Oil. Sabur Mambeyev.*

Raushan. *Tempera. Alexei Stepanov.*

Cyclists. *Tempera. Alexei Stepanov.*

By Nikolai Popov

SHARING THE PROFITS

PROFIT is now the principal index for gauging the efficiency of a Soviet factory, store or farm. The change, introduced last fall, was proposed by the Central Committee of the Communist Party and approved by the Supreme Soviet. It allows each enterprise more initiative in planning production, sales and personnel needs and enlarges the part played by economic levers, notably by profits.*

Several enterprises started operating along these new lines before they were introduced generally, so as to check them in practice. Truck Depot No. 1 in Moscow, which we shall deal with here, was one of the pilot enterprises. The depot has a fleet of 1,110 motor vehicles and employs 2,500 truckers and office workers. Its business is to transport building materials and other items. It delivers concrete, brick, house elements, etc., to construction sites in Moscow and also delivers sand, road metal and gravel to the plants that manufacture these items.

Planning: 30 Indexes

Previously the depot operated by a plan which provided for 30 indexes. The so-called gross index was the most important. Applied to trucking, the gross index was the product of the tonnage of the goods and the distance it was carried. That ton-kilometer index had to be met at any cost.

It was a carry-over from the 1930's, the first five-year-plan periods, when the most important thing was to get as much production as possible and in the shortest possible time. Whether it was produced in the most profitable way and with the least possible input was a secondary consideration. That attitude was dictated by need. The country had no developed industry at the time, and rigid centralized planning made it possible to build that industry quickly.

Planning with priority given to quantity continued even when there was no longer a shortage of basic commodities and the problem of quality, of production efficiency, was very pertinent.

What was it that the Truck Depot did not like about the old system? First, it imposed too many restrictions. You would think that it would not matter to the state precisely how the items were trucked so long as they arrived on time, in the required quantities, and in good condition. But the plan dictated how many vehicles were to be used for the job, how many drivers were to be employed, what pay they should get, and what the total wage bill should come to. Besides the transportation costs, 23 other indexes were planned.

Profits were also planned, but they had a tenth or even a twentieth order of priority. The big thing was the ton-kilometer, the gross index. All the rest was of small account, even if transportation was expensive and badly organized, even if the depot operated at a loss (it meant a loss to the state and not to any individual, since all facilities are state-owned).

The depot did meet its plan quotas. But neither the depot as a whole nor its personnel was interested in overfulfilling the plans or of taking on more commitments. And that was the built-in paradox in the practice, it was unprofitable for both the drivers and the depot. For them the plan, production and profits had no connection to speak of with wages.

It is true that during this period the men were also paid bonuses for exceeding the plan quotas, but they did not begin to compensate for the effort involved. Besides that, the bonuses had to come from the depot's regular wage bill, which was rigidly fixed by the plan and could not be exceeded.

Another thing: Plans were drafted in a way that left very little margin for overfulfilling them. If the depot did 5 per cent better than the plan, for instance, then next year's plan would automatically stipulate a volume of transportation higher than that reached. More often than not, there were no possibilities for enlarging the scope of the depot's activities, or if there were possibilities, they were temporary—items that happened to be more profitable or easier to truck. These were transient factors, the plan itself was fixed. If an enterprise did make improvements and enlarged its field of operation, you could be sure that the new rate of growth would be fixed for the future, too. The result was that factories, power plants, transport depots, etc., often tried to hide their reserves and not expand production so they would not be taken to task for failing to meet plan quotas that were too high in the first place.

Give and Take

Only two indexes are planned for the depot now: profit to be paid into the state budget (in our country it is a major portion of the profit an enterprise makes, not to be confused with the income tax that American companies pay their government) and the scope of transportation with reference to individual customers.

Where does the profit come from? The depot draws money from the state for gasoline, oil, spare parts and wages. These are its expenses. It contracts to carry goods to industrial enterprises which pay for the work at government fixed prices, *i.e.*, they transfer money from their accounts with the State Bank to the depot's account. These are the depot's receipts. What remains after expenses and after deductions paid to the state for the depreciation of fixed assets—vehicles, garages, repair shops (land is not paid for)—constitutes the net profit. How is this profit distributed? Planned profit is paid into the State Budget, while above-plan profit is divided into two parts: 40 per cent goes to the state, and 60 per cent remains at the disposal of the depot. The table shows how profits were distributed in the

* See Yevsei Liberman's "Are We Flirting with Capitalism?" in the July 1965 issue, "Economic Planning and Management" in the October issue, and the summary of Alexei Kosygin's report at the Plenary Meeting of the Central Committee of the CPSU in the December issue.

summers of 1964 and 1965, when the experiment was under way:

	May-August 1964	May-August 1965	1965 in percentage of 1964
1. Number of vehicles	962.0	914.0	95
2. Volume of goods transported (thousand metric tons)	2,051.8	2,322.7	113
3. Number of people employed	2,636.0	2,456.0	93
4. Profit (thousand rubles)	517.2	923.7	179
a) paid to state budget	517.2	660.5	128
b) left at the depot's disposal	—	263.2	—

As we see, the share of the state in profits has increased considerably. Actually, the share of the profits left for the depot is a new addition. Previously the depot was not interested in making profits, now it wants to make as much as possible. And, in process, it expands its area of activity.

After its planned customers have been served, the depot can now service other enterprises, and it does. Formerly it used to avoid any additional orders.

Thirty per cent of the share of profits which the depot holds on to goes to improve its transport facilities and for the welfare of its employees (housing, clubs, sports facilities, etc.). Ten per cent is used to establish a reserve. The remaining 60 per cent goes for bonuses to workers.

Sharing Profits

Today Gennadi Krauze, the manager of the depot, and Alexander Finkelstein, its commercial manager, are empowered to fix salaries, pay rates and bonuses. They may also hire or fire workers with the consent of the trade union. Pay raises, decided on by the management, come out of depot income.

The workers also get their share of above-plan profits. The administration does not participate in the distribution of the worker's share. Quarterly the trade union calls meetings of the drivers and workers. They decide who is entitled to the profit and to how much of it. This general principle is followed: Every driver is entitled to 10 per cent of his three-months' earnings, but with qualifications. When the question came up at the meetings, the workers decided that those who were responsible for losing money for the depot should get less than their share of the profits. For instance, Antonov, one of the drivers, had broken traffic regulations. His license was revoked for one day and his truck stood idle. It was clear to everybody, including Antonov himself, why his 10 per cent was cut to five. Driver Grigoryev got no bonus at all because he came to work drunk.

The money left over after the distribution of profits is used for additional bonuses to individuals who demonstrate a creative approach to their jobs by suggesting improvements and the like.

The drivers very soon realized the advantages of profits. In the first three months of the experiment they received a 10 per cent addition to their wage, which was about 200 rubles a month. All in all, including this addition from profits, their wages rose by 25 per cent.

The salary arrangements of engineers and technicians at the depot have also been revised. Previously they got fixed salaries. Now the earnings of a specialist depend on the average wage of the drivers under his supervision. Coefficients have been fixed for each of the engineers and technicians. For the manager it is 1.9, for the chief engineer 1.7, for dispatchers it is 0.5 to 0.63.

New Requirements

The new system makes new demands on people. The old, rigid plan, which paid no attention to anything but the gross index, produced a special type of executive, the kind who declared an emergency at the end of the quarter or year so he could boost production to the plan targets. Many of these people were incapable of improving operations, although it is true that they were not usually given the opportunity.

"Formerly, we wanted only specialized vehicles," says Nikolai Slastukhin, the depot's engineer. "Then, when we started counting not only the rubles but the kopecks too, we realized that specialization was not an end in itself. We needed general purpose vehicles too. We used to have special trucks for ceramsite. They made the return trips empty, their sides were too high. Our drivers modified the body so as to lower the flaps on hinges. Now when a truck delivers ceramsite to a customer it carries sand on the way back."

The men at the Truck Depot are very much interested in profits. But there are problems in the way of making it. First of all, transportation prices have stayed practically unchanged for 10 years and are out of line with the labor invested. The result is that some jobs are profitable, others are not. But the depot has to take them regardless of whether they are profitable or not. Secondly, direct contacts with other enterprises are still not well established. Many of them have not yet introduced the new system and as a consequence do not meet their contract commitments. For instance, dump trucks arrive to pick up concrete, and the concrete is not ready. That means an idle run and a waste of money. Or there is an urgent call to transport some unexpected freight and everybody works feverishly. But the penalty which the customer pays does not cover the depot's extra expenses.

Despite these things, the new system is making its way and is winning a growing number of supporters. Its merits are indisputable. It is good for the country, the individual enterprise and the worker.

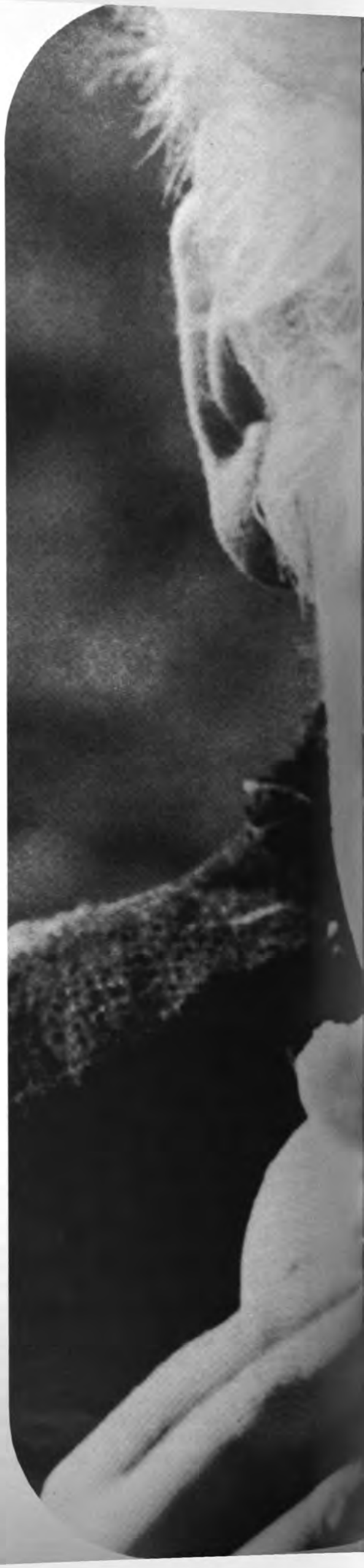
VERY

YOUNG

FILM

STARS

film director
on starring
little children



By Ilya Frez
SOVIET FILM DIRECTOR

VERY YOUNG FILM STARS

I HAVE MADE any number of films in which a child was featured. With each little actor we had to use different means to get the effects we wanted, depending on his age, personality, the nature of the part and sometimes on quite unpredictable circumstances.

The most precious thing about a child's acting is its complete lack of affectation. It takes the place of professional techniques and can be as moving as the inspired flashes of great dramatic actors.

But how can this quality be retained when our junior star must learn lines by rote, move to orders, laugh or cry at someone else's direction? Moreover, the little actor finds himself in an atmosphere of jumble and commotion, surrounded by cameras and racks of light and, on top of that, if the scene is shot in the street, by a gaping crowd.

One of the "musts" in filming children, therefore, is to make them feel at home on the set, place them in accustomed and congenial surroundings.

For the picture *School Beginner*, the set was made to look as much as possible like an ordinary classroom—big windows, potted plants on the sills, maps on the walls, a real blackboard with chalk and cloth, and even a fish bowl. The lessons, too, were not make-believe but real, and the children were even given marks (which, by the way, were also real, not in the film story).

All this gave the children such a strong sense of reality that their teacher was not actress Tamara Makarova but Anna Ivanovna, as she was called in the film. And she inspired the usual feelings that a teacher does in school beginners. They adored her, followed her around, peppered her with questions, while she did her best to keep up the illusion of reality by being as gentle and as strict as their real teacher would be. We maintained this atmosphere of reality throughout the 40 days it took to shoot the picture.

In working with child actors another thing to remember is that they must always be in good humor if the sequence or scene is to come off. Little children particularly must feel happy. If they are tired or sleepy, they are better left alone and the shooting postponed. Of course, you may be able to get a well-behaved and well-disciplined child to go through the motions, but the light in his eyes will dim and the acting will be strained and self-conscious instead of being natural.

I recall the trouble we had shooting a scene in the picture *Vasyok Trubachev and his Pals* in which a year-old baby is given a bath. Everything was ready for the scene, the air and the water just the right temperature, the sponges and bath towels were at hand. And here, too, with his mother was Vova, our main "actor," a chubby boy whom we had picked after making sure that he was a perfectly contented, healthy baby who did not get colds and liked splashing about in water. However, when we got down to shooting the scene, everything went wrong.

"He won't do what you want him to," said the mother definitely.

"Why? Everything was going all right until a while ago."

"Look at your watch!" We did. It was exactly noon, time for Vova's nap.

Vova gave a great yawn. We thought we might have another try, but nothing doing! He went into a tantrum. We put him to bed and walked about on tiptoe.

Two hours later, when Vova awoke, he was in the best of spirits and had a nice lunch of cereal and strained fruit. When we started shooting again, he behaved like an angel, enjoyed his bath and didn't even mind the soap.

A director must go to all sorts of lengths if he wants a natural performance from his child actor. On one very hot summer day, so hot that our lighting men had taken off their shirts, the little girl playing in the scene had grown listless. The break was still a long way off. The girl tried hard, but you could see that she was trying.

I knew that something special had to be done. I threw open the door of the set, whispered to my colleagues to keep everything ready and, bent on reviving my little lady's drooping spirits, I took her outdoors. First we played tag—I puffing and panting, and she flying about as though on air—and then hide and seek. Soon her fatigue was gone, and I rushed her to the lot. The sparkle was back in her eyes, and the scene came off beautifully.

Much more than with the professional actor, the screen character is tempered by the child's own personality. This is something the director must always bear in mind when choosing children for a part. He can change that part somewhat to fit the potentialities and the individual characteristics of his actor. This needs to be done with great care, of course, but it must be done if the acting is to be natural.

A case in point is the little girl Natasha Zashchipina who played Lidochka in the children's film *The Elephant and the Rope*. Lidochka was a five-year-old girl who could not skip rope. In the spring, when all the little girls in the yard played with their jump ropes, she was terribly upset because she could not join in. She was so ashamed that she cried bitterly.

Natasha Zashchipina was in many ways very much like the little heroine she played. She was the same age as Lidochka, and she too could not skip rope and so suffered from an "inferiority complex." But unlike Lidochka, she never cried. In fact, we discovered that for a child her age, she had amazing control. She was not easily hurt nor could she be made to shed tears. This was quite a problem since the part demanded that she cry.

When I asked Natasha herself what we could do about it, she answered with the air of a martyr: "Try hitting me, maybe I'll get hurt then and cry."

That was going a little too far, and after racking my brain, I decided that we might change Lidochka's part a little, do away with the tears and turn her into the kind of girl that Natasha herself was. The result was that Natasha actually played herself, and the film was the better for it.

There are pictures, however, in which a child's tears cannot be dispensed with. Alyosha Zagorsky, who played the part of Dimka in the film *I Bought a Daddy,* was another one who refused to cry. Alyosha was a happy youngster with a mother and father at home. But Dimka, the little boy he played, had no father, and so he decided to buy one. As he looked at a dummy in a shop window and thought how nice it would be to have a daddy, the tears were supposed to roll down his cheeks. But how were we to make a perfectly happy boy like Alyosha shed tears? He was too young to understand the tragedy of a fatherless child, and yet some means had to be found to put the boy in that mood. We resorted to a well-tried trick. Alyosha had a little toy pig, a favorite he always brought to the lot. One day, when the world seemed all sunshine to Alyosha, we stole his pet toy. Moreover, we told him that the robbers were bad boys who threatened to make short shrift of his pig. When he heard this, Alyosha's face clouded. We pressed the matter further and scolded him for not being sorry enough for his poor pig.

Meanwhile the whole scene around the show window with the dummy was prepared for the shooting. There was the "background" with the streaming automobiles and the crowds of passers-by. Alyosha, downcast, stood for a long time in front of the camera without even noticing it, still holding back his tears. Then at last they came, great big round tears rolled down his cheeks. At that moment real grief was written on Alyosha's face, the exact expression that we wanted from Dimka as he gazed at the male dummy in the show window. The shot turned out to be one of the best in the film. The little pig was duly returned, and thereafter our small actor would never be parted from his toy.

It would have been pointless to make the boy "act" the scene. In this case he merely conveyed his own feelings, and they served our dramatic purpose very well.

Often, however, a director has a far more complicated task than tears. He must help the little actor convey a very complex set of emotions.

Take those experienced by a little girl who, because of illness, is two weeks late starting school. Her classmates have already learned a good many things. They know that they must stand up when the teacher comes in and raise their hands when they want to ask a question. They have already made friends. She is at a loss, does not understand many things and, worst of all, she feels left out. How could we make the seven-year-old little girl convey this gamut of emotions convincingly?

We decided to isolate her from her classmates in the picture, not introduce her to them and even keep her off the lot while the other scenes were shot. As is my custom, before rehearsing the scene on the lot, I ran through it at home. I wanted the little girl to grasp the meaning of the lines and get some idea of what was expected of her, leaving, however, a wide margin for improvisation. It was with growing disquiet that she waited to be called to the lot.

And when she got there, because she had had no chance of getting used to her surroundings, she behaved with just the degree of embarrassment and loss that we wanted. Outwardly calm, she was tense inside; her look was apprehensive and her movements faltering and uncertain. In a word, we had achieved exactly what we aimed at. By placing our little actress in similar circumstances, we had helped her enter perfectly into the emotional world of the screen character.

Once in a while, however, you come across children who do marvels of incarnation. Such a marvel I observed when Natasha Rychagova, in my picture *Vasyok Trubachev and His Pals,* had to play the comic role of a little girl who was a terrible chatterbox, gossip and tattletale. Natasha, in real life a modest, quiet girl and a star pupil, was very upset at having to play "such a bad girl."

As a general rule, we try not to make up children for character roles. But to help our little actress, we altered her appearance a little by changing her hair style, turning up her nose a little, and having her wear glasses. The effect was quite comical.

Natasha was a very gifted girl and literally before our very eyes transformed herself into the character she had to play, altering her manner of speaking and moving with the greatest naturalness.

Another extremely talented little girl was Natasha Zashchipina, whom I mentioned earlier in this article. Some time ago I happened to see a vaudeville act at the Theater of Satire. The actress seemed very familiar. After a while I recognized her as the little girl who had starred in *There Was a Little Girl.* It was her first screen role. And, as in the vaudeville act, she had sung and danced.

No matter what part he plays, the child's own individual traits will show through on the screen. These traits are obvious and recognizable, and since they can easily repeat themselves in the next role, I rarely have the same child in a second picture. Natasha Zashchipina was the only one with whom I made two pictures—*The Elephant and the Rope* and *School Beginner.*

I had occasion to observe Natasha from the age of four. And even at that early age I could see that she had the makings of an actress. I saw evidence of the typical "acting temperament," with its good and bad points.

I found Natasha to be unusually self-reliant for a child her age. She would dress herself for the part without the help of the wardrobe mistress and put on her own make-up as well, being particularly careful about the mascara. She had astonishing poise, determination, stamina and patience. I never heard her complain of fatigue even on the most tiring days. She easily overcame her fears, when, for example, in *The Elephant and the Rope,* the action required that she climb on the elephant's back, sit on the camel's hump, pat the leopard and even hold his paw. There were also such scenes as a chat with a bear and driving a troika of three dashing ponies whose reins Natasha could hardly hold in her little hands.

I am not ashamed to admit that I dreaded some of the rehearsals. But when the camera was turned on her, I was certain Natasha would see the scene through, undaunted by fear or fatigue.

As a rule, children find it tiring to go over the same scene again and again. Not so Natasha. She followed all the technical instructions and would go through the same motions without the least sign of tedium. Rarely was she shy or at a loss.

Natasha was an exception, and I worked with her much as I do with adult actors, following the Stanislavsky method. Not only did I explain everything to her, even the "problem" and the "kernel" of the role, but I read her the text between the lines. And whatever was within her mental grasp, she followed well.

Even a child who makes a hit in films rarely follows a screen career when he grows up. One little boy who starred in a picture of mine is a poet today, another is an engineer, a third a lathe operator. Others are doctors and teachers. Natasha Zashchipina, though, has graduated from the Institute of Cinematography and is an actress. Natasha Rychagova is now a student at the same institute. But in these two cases it was easy enough to divine real dramatic talent.

Children come to our studio from home or school where parents and teachers do the educating. But in the course of shooting, it is the director who becomes their teacher and great authority.

It is the business of the director to see to it that each day the child spends at the studio is both instructive and interesting, that the child gets gratification and pleasure from his acting and carries away with him happy memories.

Courtesy of the magazine
Iskusstvo Kino

AROUND *the* COUNTRY

NEW SOVIET PRESIDENT

Nikolai Podgorny was elected President of the Presidium of the USSR Supreme Soviet on December 9, 1965, at the Seventh Session of the Supreme Soviet. He replaced Anastas Mikoyan, who asked to be relieved of his duties because of failing health.

The new president, who is 62 years old, is a Ukrainian by nationality. He was born in Poltava Region to the family of a foundryman, and at the age of 15 became a worker himself.

Podgorny was active in the Young Communist League for five years. At the age of 20 he entered the Kiev Technological Institute of the Food Industry. In 1930 he joined the Communist Party.

From the time he was graduated from the institute until 1946 he worked in the sugar mills of the food industry, was Deputy People's Commissar of the Food Industry of the Ukraine and the USSR, and headed a food industry institute in Moscow.

From 1946 to 1950 Podgorny represented the Council of Ministers of the Ukraine in the government of the USSR and then transferred over to Party work and headed the Regional Party Committee of Kharkov, an important industrial region in the Ukraine. He was elected Second Secretary of the Central Committee of the Ukrainian Communist Party in 1953 and First Secretary four years later.

In 1956 Podgorny became a member of the Central Committee of the Communist Party of the Soviet Union and in 1958 a candidate member of the Presidium of the Central Committee. He was elected a member of the Central Committee's Presidium in 1960 and secretary of the Central Committee in 1963.

Nikolai Podgorny has been elected a deputy of the USSR and Ukrainian Supreme Soviets several times. He is also a member of the Presidium of the USSR Supreme Soviet.

In 1963 he was awarded the title of Hero of Socialist Labor in recognition of his great services to the Party and the Soviet state.

TWO MILLION TRACTORS

The Minsk Tractor Plant, the newest in the country, has turned out its 400,000th Byelaruss tractor. These tractors are used at home and are exported to 50 countries. In the past seven years the Soviet Union has manufactured 2,000,000 tractors, twice as many as were forecast by preliminary estimates. Annual output is to rise from 329,000 in 1964 to 625,000 in 1970. Altogether, 1,790,000 will be manufactured in the next five years. More than 2,800,000 tractors worked the 38,000 collective and 10,000 state farms in 1965.

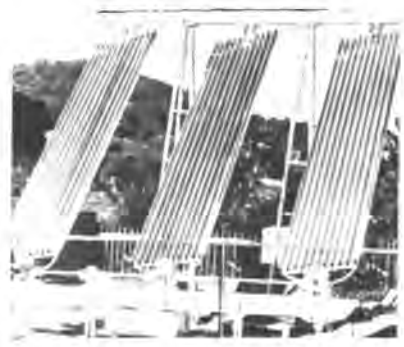
OLD WEAPONS DISPLAY

The Armory Museum in the Moscow Kremlin is to be remodeled and a year from now will be displaying about a thousand old weapons. The most ancient, made by Russian craftsmen to battle the Tatar-Mongol hordes in the thirteenth century, will be on view in five showcases. Other items on exhibit will include the helmet of Prince Yaroslav Vsevolodovich (thirteenth century), another helmet engraved with the image of Christ, and a boar-spear that belonged to Boris Alexandrovich, Prince of Tver. Weapons brought to Russia by Persian and Turkish ambassadors and collections owned by Peter I and the Russian empresses Catherine I, Anna Ioanovna and Elizaveta Petrovna will also be displayed. They are now being restored by the hereditary armorers of Tula.

FURNITURE SHOW

One million six hundred and eighty thousand Soviet families moved into new apartments in 1965. They needed almost that many suites of furniture. Besides that, there are people in old apartments who want modern fittings. In the Furniture 1965 exhibition held last fall, 70 factories showed their wares. Some 140 different suites demonstrated the furniture tastes of 13 of the country's republics.

The items displayed had decided national features. There have been significant changes in design the last two years. Sixty per cent of the old standard models are no longer being produced. Half the items shown at the exhibition are now being manufactured.



SOLAR ELECTRIC STATION

Installations that transform solar energy into electric power can find wide application in hot parts of the country and in places where there is no other source of power and a surplus of solar radiation. Electricity can be used, for one thing, to pump water to pastures. Of the 860 million acres of pasture land in the USSR (this figure does not include tundra and forest tundra), some 740 million are in desert and semidesert zones in Central Asia, in Southeastern Russia and the Southern Ukraine, all of which suffer from lack of water.

Seen here is one of the devices using silicon photoelectric cells. The ribbed surfaces are mirror concentrators. They increase by two and a half times the light intensity of the photoelectric cells at the bottom of the panel. In order to create a power output of one kilowatt the area of the phototransducers must be from 20 to 26 feet square.

FOR SHALLOW RIVERS

This motor ship, which might be called a semihydroplane, is intended for shallow rivers. Its draft is only 16 inches and it works up a speed of 30 miles an hour. The ship does not require a wharf, with its flat prow it can run several yards up onto a bank. It needs a crew of two and can carry 83 passengers. The ship has gone through tests and will soon be in operation.

ARTIC ICEBREAKERS

A great many Soviet ships sail the Arctic seas, which are icebound most of the year. The Northern Sea Route circles all Europe and Asia, from Murmansk to Vladivostok. Whole convoys sail this route, strung out behind an icebreaker that blazes a trail for them. All told, 13 icebreakers ply the high seas, among them the atom-powered *Lenin*. Also, 20 freighters have increased icebreaking ability. Planes, helicopters, hydrographic ships, radio centers and polar stations on ice blocks service the maritime navy.

FOR TASS

A 26-story building for the Telegraph Agency of the Soviet Union (TASS) is now under construction in Moscow. The agency has outgrown its old nine-story building. TASS has correspondents in 85 countries and sends its news material on a regular basis to 60 countries. It has a staff of 500 correspondents inside the country. TASS dispatches are used by 2,400 Soviet newspapers with a total circulation of 80 million. The agency has 84,000 miles of its own communication lines inside the USSR.

MATILDA THE STEPMOTHER

When Rosa, a tigress at the Tashkent Zoo, gave birth to her first cubs, she refused to nurse them. A dog named Matilda had had a litter a short time before. While Matilda was nursing her pup the attendants placed the tiger cubs Druzhba and Bombay next to her. She took to them at once.

All three feel fine and are great friends. Matilda nurses them tenderly and shows no favoritism.

OPERATION ON THE VERTEBRAL ARTERY

The vertebral artery is the artery that carries blood to the brain. If a man's brain gets no fresh blood for more than six or seven minutes, he dies. Blood may not be able to reach the brain because of arteriosclerosis, an abnormal thickening and hardening of the arterial walls due to fatty substances. First spots form, then clots. Sudden death is not inevitable. It may come in a month, a year, three years or ten. Meanwhile, the sufferer is an invalid.

The Institute of Neurology of the Academy of Medical Sciences has launched an attack on arteriosclerosis. The fourteenth operation on vertebral arteries was done not long ago by neuropathologist Jano Jibladze, surgeon Yuri Bogatyryov and researchers at the Institute of Clinical and Experimental Surgery. The patient was a truck driver, Nikolai A., and the operation took three hours, preceded by two hours of preparation. A section of the artery was clamped at both ends, cut, and removed. Then the artery was sewn together with a nickel-sized patch on it. Like his 13 predecessors, Nikolai A. will soon be back at work.

A 10-MONTH WINTER

People who live in Norilsk in Eastern Siberia, inside the Arctic Circle, say: "We have 10 months of winter and the rest is summer." Now, when the thermometer is registering 40 and 50 degrees below zero Fahrenheit, everyone talks of last summer. It came early and unexpectedly. The snow still covered the tundra when bright orange Arctic roses burst into bloom in thawed patches. After a few days the water in the lakes warmed up noticeably and the sun began to feel decidedly hot. Most of the residents of Norilsk went south to the Black Sea for their vacation. But those who stayed home were not sorry. The thermometer went up to 86 degrees and the beaches along Lake Dolgoye were strewn with bodies turning brown in the sun.

HIGHER EDUCATION IN THE USSR

There are 69 million people in the Soviet Union doing some form of study and 7 million of them are in universities, institutes and specialized secondary schools. This year 845,000 men and women entered institutes and 1.5 million were admitted to specialized secondary schools.

Tuition at all levels is free. Most of the college students (5,500,000) receive maintenance allowances from the government of 20 to 60 rubles a month. The allowances of honor students are 25 per cent higher than the average. It costs the government from 820 rubles to 850 rubles a year, including the monthly allowance, to keep a student in college.

FIREWORKS CONTEST

The Gorky Recreation Park in Moscow (something like Coney Island), which is visited daily by thousands of people, recently held a fireworks competition in which experts from 12 cities took part. The contest lasted a month and was watched from many parts of the city. First place and the championship went to pyrotechnicians from parks in Romna, a town in the Ukraine, and Armavir, a town in the Russian Federation.

HELICOPTER MOUNTAINEER

Helicopters are not height-loving machines, and they find mountain flying difficult and dangerous. Records are set for altitude with and without loads but no one sets them in the mountains. Not long ago, however, a MI-4 helicopter designed by Mikhail Mil carried loads to a height of 15,000 feet in the Pamir Mountains. It landed on the Garmo glacier to help set up a base camp for climbers scaling Communism Peak, which at 7,495 meters (24,590 feet) is the highest in the country.

HYDROGUNS

Hydraulic giants which deliver a jet of water under high pressure have been used for years in mining coal and stripping overburden. But they are not powerful enough for certain types of rock. Improvements in the old design did not increase their capacity.

The Institute of Hydrodynamics at the Novosibirsk science center has built a new hydrogun, or impulse water-jet, as the researchers call it, which shoots out water in short impulses instead of a steady stream. The gun has a "shot" of two quarts of water and can smash through a wall 10 bricks thick.

VOLGA SIGHTS

Intourist, the Soviet travel agency, has opened a branch office in Yaroslavl on the Volga. Branch manager Nikolai Shilov says it will make it easier to show foreign guests the many fascinating sights of this very old and very historic Volga city. En route to Yaroslavl from Moscow, they will stop at the famous Russian monastery, the Troitse-Sergievo Monastery, in Zagorsk; Pereslavl-Zalessky, the birthplace of Alexander Nevsky; and the world-famous Kremlin in Rostov-Yaroslavsky.

Many tourists from the United States, France, Yugoslavia and other countries made the trip to the banks of the Volga last year.

Annelisa Mattenberg, leader of an American group, wrote in the Intourist visitors' book: "We spent some very lovely days in Yaroslavl. Each minute there was a great pleasure for us."

AROUND *the* COUNTRY

SIBERIA:

THE NEW FRONTIER

By Vladimir Pozner

continued from the January issue

ONE EVENING I was invited to be the guest of some old Bolsheviks. I very much wanted to meet them. For one thing, I had never talked to people who had actually made the 1917 October Revolution. And it seemed to me that their views on the past and the present, as well as the future, should be worth hearing. There were any number of things I wanted to ask them about.

The only native Siberian in the group gathered at the home of Ivan Dmitriyevich Shchipovskikh was the host himself. His house, on a quiet little street opposite an old brick building, had been the premises of the YMCA during the Kolchak regime in 1918 when American troops were stationed in Siberia. Shchipovskikh has a comfortable three-room apartment whose walls, in Siberian style, are hung with rugs.

When I arrived all the other guests were already there. I was flabbergasted when I saw the amount of food on the dining room table: mushrooms of all kinds gleaming through marinade, pickled cucumbers larded with garlic that teased the nostrils, steaming cabbage pies, decanters full of vodka and other drinks. Near the table, on a buffet, stood bowls of strawberry jam, cherries, bilberries and wild apples. It looked as if I was in for serious work, a sort of examination, you might say. In Siberia how good a guest you are depends, in large measure, on your ability to eat much and with pleasure and to drink accordingly. There is no use trying to justify your meager appetite by protesting that you have already dined, although, to tell the truth, that was exactly what I wanted to do. But there was no way out for me. A journalist must always be ready for any sort of difficulty in his search for information. And Ivan Dmitriyevich, my host, confirmed the worst of my fears:

"No serious talk until the table is completely clear."

While dining, we talked weather, told anecdotes that were followed by Homeric laughter, praised the food, drank to the health of the Muscovites, the mistress of the house and to Siberia. It was only when I really felt as though I would burst that Ivan Dmitriyevich, looking severely at me over his glasses, said:

"Well, you've come through nobly. Now we can get down to business."

Cromwell, Robespierre and the Year 1917

The first to begin his account was a powerful-looking old man, the oldest there. He was at least six and a half feet tall.

"My name is Dmitri Pestoon," he began. "I'm 78 years old and was born in Petrograd. I began to work in a factory when I was still a youngster. I took part in the revolutionary struggle. I was arrested five times, did time in czarist prisons, and once I was sentenced to hang. But instead, they exiled me to Siberia. After 1917 the Party sent me back to Siberia to fight against Kolchak and the interventionists. You can read about that period in the history books.

"When the Civil War ended I was called to the regional committee of the Party, which had just been formed—Ivan Shchipovskikh was the secretary at the time. There they said to me: 'Comrade Pestoon, we've got to build the country all over again. We must build our industry, must buy machines, and we need gold for that. You'll be director of the Lena gold fields.'

"I didn't know a single thing about gold mining. But nobody else did either. Most of the specialists had either fled or sat waiting at home for the Soviet Government to fall apart. Bandits, ruin and hunger—that's all you saw around you. I made plenty of mistakes at first, using my tongue instead of my head. But then I learned what to do, and things took a turn for the better. That was when I decided to become a mining engineer. . . ."

"But we had other plans," Shchipovskikh interrupted. "We wanted him to become a schoolteacher. That was in the twenties, when we needed workers desperately. The country was simply choking, if I can put it that way. It needed everything: gold, machines, tractors, bread, textbooks. And so we Communists began to learn one specialty after another. Not because we wanted to, but because we had to. Dmitri

Pestoon was an engineer, a builder and a teacher. Party work took me all over Siberia. It sounds easy talking about it now, but when I think of the difficulties we had to overcome—the complete illiteracy of the people, their lack of understanding, their superstition and the ruin—I can't understand how we did it. What I'm sure of is that only the Communist Party could have managed all that because it is the party of the people, in the most profound sense of the word. The Party did an unbelievable job. It transformed a backward country into one of the first industrial powers in the world. It beat down the most terrible threat mankind ever faced—fascism. This proved once again that nothing can destroy our Party. The Revolution that we made with arms in hand was the first of its kind in history, and it differed fundamentally from all previous ones. It was a *socialist* revolution, so there is nothing to compare it with. But there is one comparison we can make:

"What happened to the other revolutions? There was nothing left of Cromwell's plans after his death and the restoration of the king. There was very little left of Robespierre's ideals and those of Marat. One was beheaded and the other was stabbed to death. As for Bonaparte, he was about as much of a revolutionary as I am a monarchist. But our revolution continues.

"We are traversing a path no one else has yet taken, and every step is an experiment, a discovery. Mankind has our successes and failures to learn from, but we had no one to learn from. We pulled ourselves up by our own bootstraps, stumbled, but advanced toward our goal and are still moving ahead. That is the service the Communists rendered. Now when we look back we can see the fruits of our labor, see what our country has become. Our faith is based on the concrete things that we have already done and are continuing to do."

I realized, as I listened, that these people had that priceless ability to examine events in their entirety, to see the connection between events. If they picked out one or another phenomenon from its historical setting the better to study it, they never forgot what came before and what followed it.

Dinosaurs of Siberia

Two days later I flew to Bratsk. In the interim I had managed to drive around Angarsk, which only 15 years ago did not even exist. Now it is one of the most modern cities in the country. I also visited old Cheremkhovo, an East Siberian coal center, a city of disparities, where the latest technology is combined with the traditional attributes of any mining town: small wooden houses, coal dust, dirt. Yet new apartment buildings are springing up, every mine has a fine palace of culture, and the city has a drama theater, a stadium and a college. There were three things that particularly struck me.

The first was the machines. In Cheremkhovo most of the mining is done by the opencast method. Walking excavators strip off the upper layer of the soil. These excavators are something to see. They remind one of huge prehistoric animals put into present-day service. But even these giants seem normal-sized against one particular caterpillar excavator I saw—it had a 300-foot boom and stood as high as a five-story building. The bucket can hold 65 tons of dirt and easily lift the biggest railway car. The fact that it is being used in Cheremkhovo bespeaks the significance of this coal center for the country.

The second thing that specially impressed me were the pains taken not to ruin the landscape. Ordinarily in opencast coal extraction the upper fertile layer of soil is stripped off, with the result that the area stays a desert for years thereafter. In Cheremkhovo miners and agronomists worked out this procedure: The fertile layer is stripped by special machines and put aside. Then a thick layer of rock is removed, the coal bed is bared, a railroad siding is built, and the coal is dispatched. Then bulldozers replace the fertile layer of soil.

The third thing that struck me was the conflict between the past, between what has already outlived its day, and the present. Cheremkhovo is a city which is now experiencing its second birth by reason of the fact that Eastern Siberia is industrializing and needs coal. Cheremkhovo is different from cities that have been built in the past 10 years, in which most of the inhabitants, from engineers and building workers to Party workers, are young people.

As I flew toward Bratsk in an ordinary two-motor plane and looked down, through the little window, on the green Angara, on the narrow Kuda River—it was named "Kuda," which means "whither," because it keeps winding in and out snakelike—and on the taiga, I tried to understand all I had seen and heard in Siberia.

A Cossack Who Spoke English

I again recalled my first acquaintance with Siberia in 1956. Our journey across the taiga was drawing to a close. We were not far from Bratsk when we came to a camp of lumberjacks. They were cutting a path through the taiga from Irkutsk to Bratsk to put up a high-voltage cable. Power from the Irkutsk station was needed to build the Bratsk Hydroelectric Power Station. The lumberjacks were delighted to see us and invited us to rest up in their tents. The gnats were gone, but toward evening blood-thirsty mosquitoes came in their stead. But compared to the gnats, mosquitoes were a godsend. I went into one of the tents and lay down on someone's bunk. A man was sitting on the bunk alongside.

"I understand you're from Moscow," he said.

"Yes, from Moscow University. With a concert group."

"Hmm. What do you do?"

"Sing. I also play a comic role, the art critic Kishkinazi, if there's no one else to do it."

"What songs do you sing, ours or others?"

"Others. Foreign songs. French and American."

"In what language?"

"In French and English."

"Do you know the language?"

"I do."

I was beginning to feel annoyed by the questions and was wondering what I could say to discourage my overcurious neighbor when he suddenly said in obviously American English, "Have you ever been to New York?"

I sat up immediately and looked at him. He was a man of about 30, with a rather ordinary although pleasant face. The only thing unusual about him was his mustache. Contrary to the popular idea that Siberians wear beards and mustaches, this was the first person I saw in Siberia who did. We introduced ourselves. His name was Alexei Kurnakov. In answer to my question as to where he had learned English, he told me the following:

"My father was a Urals Cossack. During the Civil War he fought in the Urals and Siberia against the Red Army. In the twenties he fled to China and there he settled. I was born in China. My father worked at an American concession—the place was full of Americans and there was a special school for their children. My father enrolled me in that school. The teachers were Americans. They told us all about the United States, showed us films. That was where I learned to speak English. By the time I was 17 and had finished the American school the war was on between China and Japan. Since I spoke—and still speak—Chinese, Russian and English, I was recruited into the Chinese army as an interpreter. I also fought. When the Second World War ended I decided to stay in Chiang Kai-shek's army. In 1949 I was taken prisoner by the Chinese Communists. They kept me for five years while they checked up on all the war prisoners. When my turn came I said I was Russian. And so they sent me to the Soviet Union, to Khabarovsk. There they quickly discovered what was what, gave me a Soviet passport and offered me work as a translator. Instead, I asked for a construction job on the Bratsk hydropower project."

"Aren't you sorry that your knowledge of languages is going to waste?" I asked.

"It won't go to waste. As soon as we build the power station and the new city, there will be schools and colleges. And then I'll work with languages. Right now we're all lumberjacks. A few years from now we'll all be other things. Come around then and see for yourself."

. . . The concert began when the sun had already set. All around us

was the silent taiga, its cedars stretching grandly to the sky in which the stars and moon shone coldly. One of our students, a seven-foot giant by the name of Ostap, stood in front of the blazing bonfire and softly began to tell one of Hans Christian Andersen's tales: "Snip, snap, snurry, purry, bazilurry. There are all kinds of people in the world. . . ."

Siberians Sound Off Like Texans

The old city of Bratsk was built in 1631. Today it is covered by the man-made Bratsk Sea. There is a new Bratsk, but only part as yet. It is being built some 20 miles from the power station where there was nothing but taiga and wild animals before. It will be several years before the new Bratsk is completely built. Construction methods are the most modern available, and beautiful, commodious apartments are going up. No "communal" apartments for Bratsk! The stores are better than those in Moscow both in appearance and, in some cases, in choice of goods—manufactured goods, that is. As for food, there are the same problems as in other parts of Siberia—meat is not always to be had and there is not sufficient variety. Several streets have already been asphalted, and the main thoroughfare is divided into two lanes by a wide strip of greenery on which every now and then you see a small sign with the declaration: "We do not walk on the grass." Beneath the words is the picture of a pig and the inscription: "But I do!" A sufficient hint.

"Bratsk" is not so much the name of a city as a designation for an epoch. When we hear the word "Bratsk," we immediately think not only of the hydroelectric station built there but also of all the other projects under way in this region: a huge timber industry complex (known as LPK), an aluminum plant which will be the biggest in the Soviet Union, a new city which has been wrested from the taiga. We think of the artificial sea when it reaches the level planned and the power station when it reaches planned capacity—a vision of mighty torrents of water dropping from a height of more than 300 feet onto the turbines below. There will also be a new Ust-Ilim Hydroelectric Power Station further along the Angara. The words "Bratsk" and "new" could almost be synonyms.

For many people Bratsk is a preview of Siberia's future. What I noticed here is that Siberians in some ways resemble Texans, especially in their tendency to speak in superlatives. They like to say: "500 miles? That's nothing at all." "100 rubles? That's not money." "A bottle of vodka? You don't call that a drink, do you!" Witness to their unharnessed pride in this gigantic area, which plays an ever more important role in the development of the country. Incidentally, it is not only the indigenous Siberians but the new ones as well who talk so big.

Victor Dyomin was the quintessence of a Siberian in this respect. I first met him in Irkutsk, and then again at Baikal and in Bratsk. His sky-blue eyes even gave him the look of a Texan. Thickset, broad-shouldered, and prematurely gray—he cannot be more than 32 or 33 years old—he confounded me with his irrepressible optimism about literally everything. That combined with his love for Siberia made it quite impossible to argue with him. But I tried:

I: "Say what you will, but it's terribly cold in Siberia in winter."

Victor: "Sure we get snow, but it's white like snow should be. And we get little breeze. What's that? You ever see our sun in winter? It's dream country! And what about the Siberian spring? And autumn? It's so beautiful that there aren't words to describe it. And we don't have any of your slush."

I: "All right, but you've got no sea here, and it's hot in summer."

Victor: "No sea? What about Baikal? That's better than any sea. Have you ever gone bathing in the Angara in summer? And if you want sea so badly, there's the whole Pacific Ocean."

I: "All right, let's grant that nature here is like in paradise. But you have to admit that so far as cultural activity is concerned, you're a little weak."

Victor: "Anyone can see right off that you're not a Siberian. Do you know who Alexander Fadeyev was? And who Sergei Zalygin is? And Yevgeni Yevtushenko? They're all Siberians. Hasn't anybody told you about the Novosibirsk science center? Or the Omsk National Chorus? What do you mean—weak!"

I decided I'd have to stop Victor with something or other and so I said, "At any rate, there haven't been any Siberians in outer space yet!"

"There haven't? What about Gherman Titov?" and Victor laughed.

I shut up, but completely. Lucky for me that our conversation took place before Siberian Alexei Leonov "took a walk" in outer space.

Victor, however, was good at more than arguing. During his as yet short life he had worked at a fishery, then was appointed the director, and after holding the post for a while, became interested in building. He now heads an enterprise which is constructing various public buildings for Irkutsk, among them a new Wedding Palace. He longs occasionally for the free life of a Baikal fisherman he gave up for Svetlana, who charmed him to the city. She teaches English at Irkutsk University. She now doubles as his wife and teacher. Evenings Victor is a student of journalism and will shortly be taking an English examination, his examiner being Svetlana, obviously.

Now, as I recall the things I saw in Siberia and the people I met there, I realize that Dyomin has good reason to be optimistic. In a short 20 years Siberia was transformed from a region of dense taiga and limitless steppe into an industrial region. There is no predicting what it will be like in another 20 years.

But Dyomin predicts. He says flat-footedly, "Communism will be built in Siberia first because Siberia is a million times richer than the rest of the Soviet Union."

Perhaps he is right. But what I would argue is the prerequisite. (I can hear Victor declare: "Go ahead, argue!") If the speed with which a communist society is built were determined only by the natural resources of one or another region, how simple everything would be! I agree that Siberia will play a leading role in building communism in the Soviet Union, but the determining factor will not be natural wealth, it will be people.

Like Victor Dyomin.

Oldsters of 30

The people who settle in Siberia are an entirely new type.

The Bratsk station, engineers say, is fundamentally different from all previous hydroelectric power projects. But although it does represent the success of socialist construction, such a station could also be built in a nonsocialist country. What one needs is money and a certain level of economic development, which a number of countries have. But the people who created the Bratsk Hydroelectric Power Station are the product of a half century of socialist revolution. As typical as they are in their own country, they are inconceivable anywhere else.

Take Grigori Greenberg, for instance. He is one of the engineers on duty at the "brain center" of the Bratsk station—the central control panel. He is 25 years old and a graduate of the Leningrad Polytechnic Institute. He understands the complexities of that tremendous station the way a musician does his instrument, the way a first-class engineer anywhere else in the world does. But there the parallel ends. Grigori came down here, leaving one of the most metropolitan of cities, and even gave up the opportunity to do graduate work. He turned down the post of senior scientific researcher in Leningrad although he would have received more money than he does as an engineer at Bratsk. But what is most striking is his feeling about the power station. It is the property of the people, Grigori Greenberg included. And he shows you the rightness of his viewpoint with infinite simplicity.

"Who benefits from the power this station generates? Do any of our leaders draw profit from it? No. Does any one person or group of people get rich from it? No. It supplies electric power for industry, which works for all of us. It was built by the people and it is raising their standard of living. Then whose is it, if not the people's? And I, too, am part of that people, besides which I run the station. That means it is mine, too."

The young men and women here are an amazing breed. Many of them came from large cities, gave up comforts and conveniences for the backwoods, for frost that sends the mercury down to minus 40° Fahren-

heit, for battles with the gnats (whose native habitat has now been flooded by the Bratsk Sea) just to build a new life. There are about 50,000 of them at the Bratsk complex alone. True, some come down in search of easy money, but they soon go back because they cannot live side by side with people like Grigori Greenberg. Others leave because of the hardships. I met a Moscow girl of 19 who said to me: "We came down here in a group, but I'm the only one left. The other girls found it too hard." This, however, is the rare case. But it's the process of natural selection taking place. The best remain, tens of thousands of the best.

One of them is Alexander Yelokhin, 32-year-old secretary of the Party Committee of the Bratsk timber industry complex, which has a Party membership of about 8,000. The workers call Yelokhin the "old man," their average age is 27.3. Yelokhin, whose father was killed at the front during the war, was brought up by his mother in Omsk. There he graduated from the Automobile and Highway Construction Institute. He came to Bratsk in 1958. At first he built roads in the taiga, then managed all the transport. For that he had to have a real talent for dealing with people. In these places, where distances are measured in hundreds of miles, transport is as vital as air, and in the early period of construction, when there were not as yet enough technicians, people literally stormed Yelokhin, pounded on his desk with their fists, threatened him and promised him all the gifts of heaven. But, as one old-timer said to me, "In spite of everything, there was not a single case when Sasha turned anyone down unless he had to or when he passed the buck.

Perhaps that is why Yelokhin was made secretary of the Party organization.

I remember him also because he was always the first to greet people, addressing them by name; I remember him for the warmth with which they answered him, also calling him by name, as an equal among equals: and the gentleness with which he spoke, never raising his voice. Only once did I hear him sound off, and that was in an argument with his chief. I remember him for his athletic figure—"We haven't time to grow bellies here," he said, joking—for his self-respect which was reflected first of all in his respect for others—from the driver of the dump truck, who would come into his office wearing boots and overalls covered with silt and feel perfectly at home, to the waitress in the workers' dining room, who, without the slightest hesitation, told him he would have to wait because the workers who had just come off their shift had to be fed first. And one other thing that makes me remember him: He simply could not wear a hat properly, it always sat on his head like a pot.

A Sacrifice

In Bratsk most of the people I spoke to were under 30. It was good to see how outspoken they were, how wholesome. It was good to hear with what passion they spoke about their work. They talked about their successes and failures, about problems as difficult to solve as the lack of housing (tens of thousands of people had come down here, and there was not a single house for them at the time), about the as yet insufficient number of nurseries, kindergartens, schools, movie theaters. They talked of the delays in supplying the project, about the monotony of the food and the fact that some of the workers drank too much.

Yes, housing is a big problem, but just two or three years ago people still lived in tents. You don't see those any more. There are not nearly enough nurseries and kindergartens, but there are some and new ones are being built. There are few theaters, but I visited two absolutely superb palaces of culture which had just been built. The food is not very varied, but there is plenty of it. These difficulties are temporary. Another year or so and many of them will be disposed of.

But it is not the physical inconveniences that constitute the major sacrifice these young people make. An engineer, no longer young, who has already helped to build five hydroelectric power stations, told me about that.

"Our young people here work hard, and in their free time they study, learning new specialties and getting a better technical background," he said. "And all too often they don't have the time for cultural improvement. You probably remember what Lenin said, that one can become a Communist only when one enriches himself with all of mankind's heritage of culture. Of course our young people read, they read a lot, but not enough, and they don't have the time to digest and analyze what they read. And that is the great sacrifice. True, not everyone understands that, especially the foreigners who come down here.

"I remember one of them telling me this anecdote: 'The head of the family comes home with a new book and his wife yells at him, "Are you crazy? Where will we put this book? We already have one!"' Of course a person who will say that has no great yearning for culture and will not feel deprived if there is no time for reading. But for those who are building communism, by which I mean the worker-intellectual, for him it is a real sacrifice not to be able to satisfy his spiritual needs. He is sacrificing for the sake of those who will live at so high a level of productivity and abundance that they will be able to spend less time on physical work and more on mental work."

"You mentioned foreign tourists who come down here to look at the power station," I said. "Have you talked to them on the subject?"

"I have. But they usually emphasize the money aspect of things. These Swedes, Americans and West Germans will tell you that their workers live better than ours. There's no point in arguing that. I haven't got a two-bedroom apartment, but my two sons did get a higher education and I didn't have to worry about how I was going to pay for it. It's also true that I don't have an automobile, but neither do I have a boss. For the American worker a TV, a washing machine and a refrigerator are the norms. But for our worker the norm is an apartment for which he pays almost nothing, medical service and hospitalization which he gets free, guaranteed work and a guaranteed pension. Material benefits are things one can acquire. Compare what we had 10 years ago and what we have today. But it's other values I'm talking about—values of the spirit, if you please, social values that have become the norm here. Do they come by themselves? I doubt it!"

The Drunken Bull

Now that I'm back from Siberia and have written this article, I realize that I have related only a small part of what I actually saw. I have quoted few figures and given no details of the new construction projects. Probably the things I haven't written would fill a big book. But I wanted to convey something else—the feelings I felt and the thoughts I thought on this second Siberian trip of mine, which differed so from my first. And not so much because new cities and gigantic industrial plants had sprung up—an astonishing fact in itself—as because of the change in the psychology of the people and the emergence of a new generation of pioneers.

Today's Siberia is associated for me with a certain legend. There used to be three raging rapids at the place where the Bratsk hydroelectric station now stands. That was when the powerful Angara flowed past the old city. It was the rare daredevil who would venture to ride them. This custom prevailed: the person who rode the first of these rapids treated all the others to wine. He who rode the second gave them enough wine to get drunk on. And he who rode the third treated the whole world. One young man rode all three rapids. After the noisy feast everybody went to sleep, leaving one barrel of wine for the morning. But late that night a bull came to the camp. It shoved its muzzle into the keg, tasted the wine, and finished it all to the last drop. Drunk, the bull rushed at the sleeping people. They jumped up and fought it off with hooks, axes and anything else they could get hold of. The bull, frightened, ran off to a cliff which overhung the third rapid. At the edge of the cliff it reeled, staggered and fell over. Since then the cliff has been called the Drunken Bull.

Today the Drunken Bull is no longer a cliff, it is a barely visible mound above the surface of the new Bratsk Sea, which keeps rising. Before long it will be completely covered.

For me this is symbolic of the way everything in Siberia that is old and has outlived its day is gradually sinking to the bottom, making way for the new.

Thus is the future born.

THREE QUESTIONS WITH A SINGLE ANSWER

By Dmitri Shostakovich

THERE WAS A TIME, and not so long ago at that, when we used to argue heatedly about opera. A new opera would generate a whole body of critical literature, to say nothing of discussions in the Composers Union. Now I am not trying to set myself up as the worldly-wise skeptic who goes around crying that things aren't what they used to be. Nevertheless, a study of the music press does show a decline in creative thinking.

The present article is not, of course, an attempt to fill in this particular gap in the theory of modern opera. It is prompted simply by a desire to share with the reader some of the thoughts now uppermost in my mind. I have not had much experience with opera, and it is quite possible that what I have to say here is not particularly new. But I do not believe we need to fear "traditionalism" of this kind. It is useful to all of us to recall what our great predecessors understood and put so well.

The first question: Attitude toward the plot.

"Art does not require that its works be accepted as reality," said Feuerbach, and Lenin emphasized this statement in his "Philosophical Notebooks." Paraphrasing these famous words, we might say that opera does not require that its works be a faithful copy of the source material. That is, theoretically, a truism. But how often, in practice, do we still approach an opera with the yardstick of another art and compare the resemblance of an operatic character with his literary prototype! Comparisons of this kind are not without value and are sometimes necessary, but they should not be the main criterion. Let us take a clear-cut example. What is there in common between Goethe's great philosophical poem and the opera *Faust?* Gounod did more than simplify the literary original. He created a different composition, using only part of Goethe's plot and adapting it superbly to the type of lyric opera that met the requirements of his age. Gounod's music will continue to live for a long time because it lives according to its own esthetic laws.

Or take another example, one closer to our time—Prokofiev's opera *War and Peace.* I am only one among many who consider it a work of genius. The fidelity of intonation with which the most subtle emotions of the characters are conveyed is amazing. Yet are they the same characters that come to life in Tolstoy's great novel? And is, therefore, the content of Prokofiev's opera identical with the content of the novel, identical with Tolstoy's philosophy and his attitude toward Russian life in the nineteenth century that he presents with so great a sweep? I believe not. Prokofiev wrote his own *War and Peace.*

I have dwelt on this point because a composer's work starts with the work of the playwright, no matter whether the composer writes the libretto himself or not. It seems to me that when a composer undertakes an opera, he must have a clear idea of the kind of composition he wants to write. Is it to be identical with the literary work on which it is to be based, or something of his own? What will be the main features that determine its message and its genre? Only when these questions are decided can the story or novel be turned into a libretto. Otherwise, no matter how good its music, the composition will always seem inadequate. Inevitably lacking the fullness and breadth of the literary composition, failing to give operatic embodiment to several main story lines, such a work will hardly be a well-constructed drama.

I know it is not easy to create a truly operatic conception, that sometimes the literary material bewitches you and dictates to you, as it were. This is where the difficulty of writing an opera lies. It is a special kind of difficulty. On the one hand, you need a good plot, and the best is probably a literary work whose characters are known and loved by millions. On the other hand, the plot has to be translated into musical language, not word for word but freely, giving scope to the stream of emotions that music and only music can express. It sometimes takes years for the opera-going public to get used to the new images of beloved literary characters presented by an opera. But when they do, these images become their favorites, whether Violetta, Carmen or Herman, whether transferred to opera from a demimonde novel, a short story or an engrossing tale. It is not that Verdi, Bizet and Tchaikovsky improved on Dumas, Mérimée and Pushkin. Rather, each of these composers heard the story in his own way and reworked the literary plot into a completely original composition both in genre and idea. The character delineation and intonational structure of the above-mentioned operas are evidence.

Finding what is close to his heart in the literary composition he has chosen for his opera is half the composer's battle. The rest depends on his talent and craftsmanship.

The second question: Relationship between music and drama in opera.

I had never, I will admit, considered this an especially difficult question. What I have said above can, actually, be regarded as an answer. It is thought vital that the stage director be a good musician and the composer able to understand the nature of stage action. I share this general conviction, so there would seem to be nothing to discuss.

But not so very long ago something prompted me to reconsider many aspects of the problem. A music critic and a composer of operas were discussing the La Scala presentation of *The Barber of Seville* at the Bolshoi Theater a few hours after attending a rehearsal. The critic was enthusiastic, the composer skeptical. Yes, the composer admitted, the voices were good, but was that the main thing in opera? It goes without saying that actively renovating old operas with the help of modern dramatic means of expression and even some of the devices used in the motion picture cannot but gladden lovers of opera. The experiments of Cyril Molchanov, for one, seem to me extremely promising. His "Via del Corno" shows his vigorous efforts to overcome some of the opera's rigid canons and introduce into opera the dynamics of the motion picture. This can certainly be regarded as operatic innovation. Many of those taking part in our discussion, myself included, also find attractive some of the experiments being tried abroad, such as Bernstein's *West Side Story*, experiments designed to bring the art of the opera closer to the forms of life itself. But only to the forms.

It seems to me that however much we may welcome such a movement, we should nonetheless, remembering Feuerbach's words, strive for what is most important—artistic embodiment of the essence of life's great happenings. This always requires a distillation of the general from the mass of everyday detail. It calls for the truly realistic operatic conventionality that forms the foundation of this medium. I recall a French opera, Francis Poulenc's *The Human Voice.* It is the exact opposite of Bernstein's. *West Side Story* pulsates with life in the streets of a big city; it abounds in dynamic situations and dialogue. In *The Human Voice* the action is static; it is an operatic monologue. But if you were to ask me which was the greater innovation, I would say Poulenc's. Why? Because Bernstein varies opera chiefly through devices and means taken from the other arts, while Poulenc develops the specific nature of his work from within, experimenting with strictly vocal intonation. That is always more difficult, but it is genuine operatic innovation.

We often evaluate the boldness and novelty of a composition by its omissions. Take film director Mikhail Romm's unusual approach to music in that excellent film *Nine Days in One Year.* The unusual feature was that the picture had no music. I will not take it on myself to judge the actual fact that no music was used. Perhaps it was not needed. I simply want to say that rejecting something that is essential cannot, in principle, be made an artistic virtue. Otherwise it is easy to descend to the absurd, such as: "So-and-so has written a completely new kind of opera—without any singing."

Exaggeration aside, however, the objective logic of the esthetic attitude that in opera the singing is "not the main thing" leads to that. I maintain that in opera the singing is everything! You can use the "services" of the motion picture, the theater and television on the operatic stage as much as you wish. You can and should create new operatic forms, such as satiric reviews and the like. But all these experiments will move opera forward only if they are founded on a renewal of the vocal art, only if new expressive means are found for the human voice. All of opera's greatest reformers, Mozart, Verdi, Moussorgsky, Wagner and Prokofiev among them, achieved this. And when they succeeded in making musical in-

tonation convincing, they created works of unsurpassed artistic value, moreover, works that offered greater possibilities of achieving theatrical expressiveness through music. This is the nature of theater in general. There would have been no Stanislavsky or Nemirovich-Danchenko if not for Chekhov, Gorky and Ibsen.

A skillful stage director can, of course, stimulate the imagination of the composer with an original scenic design for future stage action. This is a noble role, and all composers are grateful for the opportunity to work with such directors. But it seems to me that when a composer undertakes to write an opera, he should think less of the outward aspects of the future production than of being true to the emotional life of his characters as expressed in their musical language. This is true as much of the cantilena as of the recitative, which all composers of opera have thought so important.

Again I turn to the experience of Prokofiev, who discovered amazing "clots" of modern recitative melody. What an artistic find the intonational "molecules" of his truly new operatic style are!

There are other operas that have contributed much of value to our art in this respect. They include Tikhon Khrennikov's *Into the Storm*, Dmitri Kabalevsky's *The Master of Clamecy*, *Taras' Family* and *Nikita Vershinin*, Yuri Shaporin's *The Decembrists*, Nazib Zhiganov's *Jalil*, Shalv Mshvelidze's *The Hand of the Great Master*, Otar Taktakishvili's *Mindia*, Rodion Schedrin's *Not Only Love*, and Vissarion Shebalin's *The Taming of the Shrew*.

In a word, the composer's work on "intonational fusion" decides whether his opera is an innovation or not.

The third question: Opera is a very democratic art.

More than any other musical medium, with the exception of the song, opera is addressed to a wide audience. At the same time it is an involved synthesis of many art forms. Its appreciation requires not only some musical background but the ability to orient in many components of theater. But opera's strongest point is vocal character delineation. Without this, it is impossible to create a real operatic production.

It seems to me that stage directors have been carried away by too much enthusiasm for the outer dynamics of the action. Nowadays singing is all too often looked upon as something static, which means boring to the listener. They are beginning to "liven up" singing. During a dramatic dialogue we get a film projection on the backdrop; during a lyrical aria two or three actors energetically do an "expressive" mimic scene. What for? Modern man, they say, demands a rapid change of emotions, a rich complex of perceptions, and singing alone does not provide them. That depends on the singing, however. It would be well for opera directors to read, before starting on a new production, what Rimsky-Korsakov had to say in his introduction to the opera *Coq d'Or*. "The replacement of recitative singing by talking, whispering and shouting, supposedly to make a given moment more comic, dramatic or realistic, breaks the melodic thread and harmonious structure of the opera and usually spoils rather than heightens the impression, impairing the musical pattern and colors." Further on Rimsky-Korsakov says, ". . . during lyrical and near-lyrical moments, those on the stage who are not singing must not distract the audience from the singing by unnecessary acting or movement, inasmuch as an opera is *first of all a musical work.*"

I believe that the key to popularizing opera lies in bringing high vocal culture within the reach of an audience of millions. I fear, however, that a considerable number of operatic directors and actors belong to that audience. It is not because things are fine that the attempt is made to distract the operagoer from the singing. The attempt is made because otherwise it would be boring. That is because when singing is treated merely as one of the many elements comprising an opera performance, it can never be truly inspiring.

All our opera houses should, it seems to me, stage Mozart and Wagner, where the outer action is relatively simple and the vocal melody has infinite power. To begin with, singers themselves must believe that opera exists chiefly for singing. Then opera lovers will come to believe it too. And not only to believe it, but to love modern opera, welcoming a "vocal embodiment" that stimulates and moves them. It was not mere chance that the performances and concerts given by the Italian singers in Moscow were such a tremendous success. When you listen to someone like Mirella Freni, you cannot help thinking that the human voice has everything needed to create an expressive operatic image and that all the theatrical trappings are no more than a delicate setting for a precious stone or a tasteful frame for a great painting.

I hope I shall not be suspected of playing down the role of the stage director, the stage designer or the conductor. We all realize how difficult and valuable their work is—and all the more valuable to the degree that it is subordinated to the inimitable human voice.

To sum up, there is only one answer to all three of the questions I have touched on briefly (a long article or even a book could be written about each of them), and that is: Opera is music first and foremost. The answer is very simple, and if I have undertaken to repeat it once again, it is only because each of us interprets all the known truths in his own way.

Abridged from the magazine
Sovetskaya Muzika

CHILDREN'S CORNER

MERRY YOUNGSTERS CLUB

DRAWINGS BY LEONID SERGEYEV

The Merry Youngsters caught
a fish. But they can't
pull it up.
See why?
You do, but they can't.
Come on, you tell them why.

PHOTO OF THE MONTH

SELF-PORTRAIT

BY ALEXEI BUSHKIN

QUERIES FROM READERS

QUESTION: Was the script of the Soviet film* Hamlet *in English or Russian? If in your language, were many problems encountered in translation? (Michael Segers, Sylvester, Georgia)
ANSWER: Since Grigori Kozintsev's picture was made for Soviet filmgoers, the script was written in Russian. There were no special problems. The new translation was made by the poet Boris Pasternak. The Shakespearean tragedy was the most popular Soviet film of 1964.

QUESTION: Is Shakespeare very popular in your country? Are his works studied in school? (Michael Segers)
ANSWER: In Soviet times 299 editions of Shakespeare's works have been published in 28 of the languages spoken in the USSR. The total printing was 5,351,000 copies. Nine Shakespeare titles have also been published in English. The latest edition of Shakespeare's Collected Works was 150,000. The sonnets are very popular, thanks to Samuel Marshak's translations. Almost all of our theaters have staged one or more of the plays. Vissarion Shebalin wrote an opera after *The Taming of the Shrew*, and Alexei Machavariani a ballet after *Othello*. Secondary school seniors study Shakespeare's major works.

QUESTION: Has a recording been made of Innokenti Smoktunovsky's performance as Hamlet? (Michael Segers)
ANSWER: A recording of Smoktunovsky's performance as Hamlet will be out this year.

QUESTION: The July 1965 issue of* Soviet Life *had an article on Thomas Paine. Have Paine's writings been translated into Russian? (R. Holler, Philadelphia, Pennsylvania)
ANSWER: There is a two-volume Russian translation of Paine's Collected Works. Our schoolchildren learn about Thomas Paine when they study the history of the United States. *Thomas Paine* is one of the volumes in the Thinkers of the Past series to be published this year.

QUESTION: Can an American attend the Artek Young Pioneer Camp? What are the age requirements? (Jessica Carter, Bronxville, New York)
ANSWER: American children can stay at the Artek Young Pioneer Camp on the Crimean coast of the Black Sea. As many as 600 children from 44 countries, including the United States, vacation there annually. They are invited by the Young Pioneer Organization of the USSR through the YMCA, also by the War Veterans Committee, women's organizations and other groups. You can get directly in touch with the Central Council of the Lenin Young Pioneer Organization in Moscow. Children from 12 to 15 can spend their summer vacations at the Artek camp.

QUESTION: Where does the Soviet Government get the funds it needs to operate? (Hans Lavik, Tacoma, Washington)
ANSWER: The budget requirements for 1965 totaled 99.6 billion rubles. It came mostly from taxes on the turnover of enterprises (39.1 billion rubles) and a percentage of their profits (31.6 billion rubles); both these taxes were on net profits. Several other sources and individual income taxes brought 7.3 billion rubles.

QUESTION: Which are your highest mountains? (Ben Bacon, Los Angeles, California)
ANSWER: Eleven of our peaks are more than 3,000 meters high (9,842 feet). Among the highest are Communism Peak in the Pamirs (7,495 meters), Pobeda (Victory) Peak in the Tien Shan (7,439 meters), Lenin Peak in the Zaalaisk Range (7,134 meters), and Khan-Tengri Peak in the Tien Shan (6,995 meters).

QUESTION: Do teenagers in Russia know who the Beatles are? Who is the most popular singer or group there? (Pam Carlisle, Albuquerque, New Mexico)
ANSWER: Our young people know who the Beatles are and listen to them. But they are not as popular here as in Britain and America.

The most popular Soviet pop singers are: Muslim Magomayev, Tamara Minansarova, Vladimir Troshin, Edita Pyekha, the eternally young Leonid Utesov (who is already 71), Maya Kristallinskaya, Oleg Anufriev and Ludmila Zykina. Popular vocal ensembles are Accord and Orero.

QUESTION: Can a man in the Soviet Union be arrested for criticizing the government? (L. Davids, State College, Pennsylvania)
ANSWER: No. The work of government agencies and leaders at all levels is constantly being appraised and criticized at meetings, Party congresses and in the press.

QUESTION: What are the penalties for murder, arson, smuggling, etc.? (James Hogan, Elizabeth City, North Carolina) For what crimes is the death penalty imposed? (Bill Callaway, Cumming, Georgia)
ANSWER: The penalty for murder is eight to fifteen years imprisonment (our prison terms do not exceed fifteen years) or death if the murder is premeditated and attended by the following aggravating circumstances: murder as a result of rowdyism; murder perpetrated with especial cruelty; the murder of a pregnant woman; the murder of two or more persons; a feud murder; and murder committed by a particularly dangerous recidivist.

If the murder is intentional, but there are no aggravating circumstances, the penalty is three to ten years. If the murder is the result of negligence, the maximum penalty is three years imprisonment or one year of corrective labor without imprisonment.

The penalty for arson is a maximum of 10 years.

The penalty for smuggling is three to ten years imprisonment with or without two to five years of exile to another part of the country, also confiscation of property.

Capital punishment by shooting is imposed as an exceptional measure of punishment under aggravating circumstances for the following crimes: high treason, espionage, terrorist acts, subversive activity, banditry, counterfeiting, the theft of state or social property in unusually large quantities, deliberate murder under aggravating circumstances, rape with grave consequences, taking bribes under exceptionally aggravating circumstances. Capital punishment is also imposed for unusually serious crimes by servicemen during wartime or in combat. You can get more information on the Soviet courts in the April 1965 issue in which leading jurists are interviewed.

QUESTION: What is the divorce rate in Russia? (James Hogan)
ANSWER: In 1963 (the figures for 1964 and 1965 have not as yet been published) there were 13 divorces per 10,000 of the population.

QUESTION: What changes took place in Soviet foreign policy when Kosygin succeeded Khrushchev? (James Hogan)
ANSWER: Soviet foreign policy is set by the collective leadership of the CPSU and the government of the USSR, and its basic principle—the peaceful coexistence of states with different social and public systems—has not altered in the almost 50 years since the Soviet state was founded. There were no major foreign policy changes when Kosygin took over the post of Prime Minister.

QUESTION: What are the requirements for a position in the Soviet foreign office? (James Hogan)
ANSWER: The requirements are the same as for positions in any other state institution—business-like capacities and civic qualities, in other words, fitness for the job.

QUESTION: What type of welfare programs are government sponsored? (James Hogan)
ANSWER: All our welfare programs are government sponsored. Everyone is entitled to free medical service, tuition-free education, including higher education, and low-cost preschool training. All working people, in industry and agriculture alike, get old-age pensions. The salaries of doctors and teachers were recently raised. Thanks to the higher purchase prices on agricultural products and a number of other recent measures, the collective farmer's income has gone up. The state carries on housing development on a large scale, and rents are low. All this is financed from the state budget.

QUESTION: Must children join the Young Pioneer organization? (Ralph Wilson, Chicago, Illinois)
ANSWER: No.

QUESTION: Can one vote against at elections? (Fred Morgan, Seattle, Washington)
ANSWER: Of course. Elections are by secret ballot. The voter can cast his ballot into the box, which means he votes for the candidates listed on it, or he can cross out the names and write in any others. He can also simply cross out the names, thereby indicating that he is voting against.

QUESTION: How many Communists were there in Russia at the time of the Revolution of 1917? (Maksim Pecelj, Occidental, California)
ANSWER: Delegates to the Sixth Congress of the Party held in July 1917, a few months before the Socialist Revolution, represented 240,000 Communists. In October 1917, when the Revolution broke out, there were 400,000 members in the Party.

By Nikolai Rylenkov
WRITER

ONE HAS TO GROW into an appreciation of the Russian landscape.

Its beauty unfolds gradually, as one experiences it and watches the seasons change.

Like a mature artist, Russian nature does not spend all its colors on a single picture, which it then repeats in endless variations. No, all of its pictures are original and therefore unforgettable. Perhaps that is why we always greet spring and summer, autumn and winter as though they were new.

Everyone has his favorite season. Mine is winter.

Nothing else in nature is as pure and chaste as the first snow. Untouched expanses of white to remind us of childhood joys and youthful hopes, to take us back to our native doorstep, from which we look at the paths our lives have taken.

No poem for me is as moving as the tale of the Snow Maiden, that celestial damsel who awakens ever new generations to the joy of creation and the fulfillment of dreams.

And what about the new trails to blaze, the pure joy and excitement of breaking new roads?

Except that winter does not put up with beaten trails long. A snowstorm dances across the fields, and there is no trace left of the roads you have smoothed to a high polish. And there is the job to do again. Russians have always considered it their duty to set up landmarks along winter roads, so that travelers would find their way.

How dear to a Russian is the winter road, breath-taking spaces on both sides, whirlwinds twisting the snowbanks, fabulous canopied forests along the way, where the birch trees, like hostesses clad in white fur, stand on the threshold to welcome the traveler.

So many songs have been composed about the first snow and snowstorms, so many poems written about the "beauty dressed in a white dress with silver brocade," but never enough.

When she washes early on a frosty morning with crisp snow, and then, smiling with a blush, flashes her blue eyes from under drooping and snow-flecked eyelashes and frees her bullfinches and titmice, we are ready to swear that no one before us has looked on such beauty.

Small wonder that the carnival of seeing winter out has always been one of Russia's most colorful and popular. A monument to the festival is the famous painting *Shrovetide* by Boris Kustodiyev. It is truly a poem about the Russian's love for his native scene.

From out of my childhood I can still hear the merry tinkling of the bells and see the painted shaft bows rising above the swanlike necks of the horses, bearing winter away to some place beyond the fields and forests.

In our village it was good horses that the more ambitious were proud of. Loudest of all to brag of his well-fed, glossy horses was smug muzhik Filipp Stepanovich.

"What I eat at home nobody knows," he would say, "but everyone can see what horses I drive."

During the Shrovetide races not many could overtake him. But when my father hitched his playful mare Malka to a light sleigh, Filipp sweated in his heavy coat.

I held my breath when, with shafts almost touching, our Malka raced Filipp's dapple gray Syomka down the wide village street.

I held tight to the grill at the back of the sleigh so I would not fall out when we hit a rut, but father just fingered the reins and sang:

Farewell, winter, and adieu,
We're all crazy about you.

"Stop!" Filipp would yell at last. "I give up."

Malka, as if to savor her triumph, would stop at the porch, proudly tinkling her bells.

Mother would run out almost in tears. "My God! Why don't you leave the child alone? His heart could burst from fright."

"That's all right. God grant him many more such frights," father would answer.

And later, in my schooltime youth, how I looked forward to the winter recess!

It was 12 miles along a woodland road from the town where I studied to our village. My cousin Andrei, who was my age, would drive after me in a sledge, and we would set off immediately after school to get home before dark. By twilight we would still be in the forest.

Andrei, having told me all the village news, would sit listening to the faint forest sounds, and I would look spellbound at the silvery-pink, pearly lights playing over the hoarfrost and at the blue shaded trees.

I still feel the same thrill when I recall those winter rides through the darkened forest.

Seeing me preoccupied, Andrei would wait for a rut and, with a well-timed shove, would push me off into the snow and would then whip up the rime-covered horse.

I knew these tricks of his well, but still he always managed to catch me unawares.

"Come on, shake a leg, it's still a long way home. You'll freeze, sitting like a log," he would yell without looking around.

In the heavy felt boots and long sheepskin coat which we always wore for such trips, it was not easy to run, but I ran as hard as I could, and Andrei would stop the sledge only when I began to stumble.

"See, now you're warm, like after a hot bath," he would laugh, helping breathless me back into the sledge.

After resting up a bit, I would try shoving him out of the sledge, but I never managed it.

A sharp-horned moon hung above the forest.

Squinting at it, Andrei would tighten the reins. "We better hurry. God forbid that we come across a wolf pack. This is just the time they start gathering. You know what happened to that Zimnitsky forester Kapshuk. He was driving home one evening, and there they were. It's a good thing he had a loaded gun in the sledge. Two big brutes he shot, the rest he had to fight off with the stock."

I only half believed Andrei's terrible tales, but to come across wolves was a frightening, though alluring, business, so I let him urge the horse on.

The forest thinned out, and soon we came to its edge.

Andrei reined the horse to a walk so he would not be accused of galloping him all the way.

It was still about three miles to home. Once we topped the rise there would be the village lights.

How heart-warming those lights were on a frosty winter evening!

Pulling the sheepskin coat tighter around me to ward off the field wind, I would anticipate the long session at the samovar surrounded by neighbors, then climbing onto the hot stove-couch and dozing off under the blue gaze of that storyteller winter.

No, it is impossible not to love the Russian winter. Those who have not seen it cannot appreciate the Russian scene nor understand the poetry of Russian folk life and the Russian character. It can be seen at its best only in the villages, in the fields and forests. In the cities it feels out of place, like a guest from the country who is frightened by the traffic in the streets and in the houses does not know where to sit down.

For many years now I have been seeing the winter in and out from the confines of the city, but still the first snow beckons me to the village. For me the first snow is a letter from the heart of Russia.

SCANNING SPORTS WITH VICTOR KUPRIANOV

Professionals vs. Amateurs

ARE THE PROFESSIONALS really better? That's a question that fans ask every now and then, especially in ice hockey. The Soviet Union has won the world title three times. Every time the cheers quiet down the doubting Thomases come up with this: "You've only played amateur clubs. Try playing the pro teams and we'll see how good you are."

The Soviet coaches have heard it so often that they decided to do something about it. They asked the International Amateur Hockey Association to sanction a meeting with the top pro clubs. Last year the association was silent. "This year," says Soviet coach Anatoli Tarasov, "we hope to get the go-ahead on our visit to Canada and the United States." Senior national coach Arkadi Chernyshev says that if such a match did take place, he'd predict probably two victories in a row for the pros, until the Soviet side got used to their system of play, which is considerably rougher than allowed under international rules. Following that would come a string of seesaw games probably ending in a draw. "But then," he says confidently, "the Soviet team would go ahead to win the rest of the series."

We anticipate a howl of indignation from the fans of big league hockey. But let's forget biases a moment. What is it the pros have that the amateurs don't have?

Who's Got What?

Muscle and power-play ability? The Soviet team and all the clubs in the championship leagues go through a stiff physical fitness program. This, by the way, is the pattern in all sports. The hockey players not only skate and play hockey, they play basketball, go in for track and field and even do weightlifting. The coaches put the players through a rigid program to build up muscle and stamina. As a result many a player could match the pros in fitness and power-play ability.

What else have the pros got? Technique? Speed?

Soviet players are brought up on a diet of speed. In fact I don't think I'm exaggerating if I say that if we ran a race of hockey players, the Soviet team would put on a very good show.

Disadvantage

The disadvantage the Soviet team would have is that the boys don't play together all the time, but are assembled from their clubs just before tours and major international tournaments. Although the selectors try to pick trios from the various clubs that click, it doesn't entirely meet the problem.

This season the Soviet team is after its fourth world title, and it would also like to show skeptics that it can measure up to professional hockey. In fact coach Tarasov says it isn't just for pride's sake—both the pros and amateurs would benefit from such a test of skill.

Younger Team

The team here will be selected from a squad of over 40 players who went into training in July. The first tryout of the national was in November. The average age of the players was under 20. That makes officials optimistic about the future.

The Soviet hockey season started off on October 3. Ten clubs playing four rounds are contesting for top honors in the big league. Their territorial span is from Leningrad to Novosibirsk in Siberia.

The minor league has 26 clubs competing for the right to move into the big league. Statistics show that the game is growing in popularity, with some 400,000 players taking part in tournament competition this season.

This month the selectors will sit down to choose the national that goes to the world championship. They will judge by performance in the players' home clubs and at the Colorado Springs tournament where they met the U.S., Canadian and Czechoslovak teams, and also by a certain sixth sense that only selectors seem to have.

Seasonal Mix-Up

Some of the fans were complaining the other day—why is ski jumping considered a winter sport? They have a point. You don't need snow for skiing in this modern age of ours. First of all we understand that special "snow-making machines" can be had for 15,000 dollars each. Secondly, plastics meet all our problems. In August Muscovites gathered one sweltering afternoon to watch a . . . ski-jumping contest on Lenin Hills. The winning jump chalked up by Leningrad engineer Yuri Zubarev was 226.4 feet. Not bad even for winter! There's one drawback about this sort of thing. The crowd sits and hopes it doesn't rain, while the skiers pray it does. In rainy weather the skis glide better. We understand the experts are working out an arrangement to keep everybody happy.

We expect that this mix-up of seasons in sports will give sports editors

everywhere many a headache. Take track and field. First the coaches were clamoring for more indoor competition. Now, with results mounting higher and higher, indoor training is not enough.

Stadium with a Roof

Moscow officials want to put a roof on Dynamo Stadium to make it possible to hold tournaments sheltered from the snow and ice, which are more than abundant in winters here. But the athletes would be running on a regulation cinder track and using sand aprons and turf for the field events.

Problem No. 1

The big problem facing athletes is how to prepare for the Mexico City Olympics. The altitude! Different countries plan to tackle the problem in different ways. The physiologists haven't said their last word yet, but two training sites have been chosen in the Soviet Union which are much like the Olympic area. One is in Kislovodsk, the famous spa in the North Caucasus, the other is the shore of Lake Issyk-Kul in Central Asia. The moguls plan to hold a string of meets at both places as part of the acclimatization program.

Meanwhile coaches will be working hard with athletes to improve times and distances. The boys and girls have got to be able to run faster, jump higher and throw farther whether they are above sea level or below it.

Other Headaches

Coaches have other headaches besides acclimatization. Gavriil Korobkov, the man at the helm of the team, was unhappy about the girls for a while. Knowing that Gavriil is not that much of a woman-hater in everyday life, I inquired. The complaint, in a nutshell, is this: the modern girl will spend hours fussing with a hairdo, but how many of them are willing to train that many hours to reach the standard of modern sports?

How Many?

Indeed, how many? I asked that question of the distaff coaches. They seemed to be more optimistic. Girls' coach Natalia Petukhova tells us that there are quite a few youngsters on the way up. Incidentally, she feels that time for hairdos is just as important as training, but maintains that the modern girl is willing to do both. That explains why magazine editors are only too glad to have a girl athlete or two adorn their covers.

Hairdos to Blame?

Hairdos are not to blame for the fact that Soviet sprinters are being outpaced by their opposite numbers abroad. And it's not that the younger generation would rather twist than compete in sports tournaments. With well over two million girls going in for track and field on a national scale there certainly should be a few who could set a burning pace. Some of the know-alls blame the training methods.

It is true—with track speeds as high as they are, an athlete cannot reach record speeds all by himself. This is where training methods come in. Our coaches know that. As a matter of fact the crowd had not yet left the stadium after the USA-USSR track-and-field meet in Kiev last August when an announcement came booming over the stadium's PA system to the effect that a countrywide conference of track coaches was opening the following day to discuss training methods.

Strong Squad in View

Subsequent performances since then indicate that some very promising runners are being developed, and coach Natalia Petukhova predicts that by Olympic time the Soviet Union will have a strong squad. Some of the athletes will be seen in action in about a month's time at the big national meet to review readiness for the outdoor season.

How useful is indoor running for a trackman? Boys who have run the indoor circuit at Madison Square Garden and elsewhere complain of the smoke from thousands of cigarettes that makes breathing hard. They also say the board floor is tough on the feet. Coach Korobkov believes that outdoor running is the best solution. "What needs to be done," he says, "is to spread track and field southward—toward Odessa, for instance. That would give us a season nearly as long as the one athletes on the West Coast of the United States have."

Sports or Family?

Girl athletes not only give the coaches headaches with their hairdos. It seems that there's a companion problem in girls tennis. It became particularly noticeable in August during the international tournament in Moscow. The top three players were not competing because of —babies! Anna Dmitrieva, number 1, and Vera Troshkina, number 3, were expecting, and Valeria Titova, number 2, had hers a month before. Mrs. Titova, however, has since let it be known that she would return to competition play in time for the international meet in Moscow.

Mrs. Titova previously had a boy. That took her out of tournament play for a while, but then she returned playing still better. Statistics seem to indicate that a woman athlete turns in better results after she has had children. And at any rate, athletes here do not let sports interfere with family building and vice versa. The feeling is that both can be combined. And they are. Wonderfully, in fact.

IN THE WORLD OF THE BLIND

Boris Zimin was born in 1911 of peasant stock. He worked in a Moscow chemical plant, was active in civic affairs and lectured at the Industrial Academy. During the war he was seriously wounded and lost his sight. After protracted treatment he took a job at the All-Russian Society for the Blind. He was elected president of the society in 1958.

Reporter Prokofi Begunov asked him these questions:

Q.: Some of our readers have inquired about our organizations for the disabled. Could you tell us about your society?

A.: Our society is a voluntary association with a membership of 170,000 blind people living in the Russian Federation, one of the 15 Soviet republics. Founded 40 years ago, it has its own factories, offices and housing projects, built and maintained from government subsidies. The society is run by blind people. Board chairmen and executive committee members are usually sightless. The society's leading body is the All-Russian Congress for the Blind, convened every four years.

Q.: What special provisions have been made for the blind in recent years?

A.: A blind woman with a service record of 15 years is now eligible for a state old age pension at 40 (ordinarily it would be 55), and a blind man can retire at 50. However, a blind person can get disability pension even at 20, all he needs is a one-year service record. Between the ages of 20 and 23 he needs a service record of one to two years, and so on upward.

More than 75,000 blind people hold down jobs in the Russian Federation. They work a six-hour day and get a month's paid vacation every year.

Tuition for blind college students is, of course, free, as it is for the sighted, and their stipends are one and a half times larger. The blind ride free on all types of municipal transport with the exception of taxis and may mail parcels and letters in Braille without charge.

Any blind person who wants to work can get a job without any trouble. A blind worker draws his full disability pension in addition to his wages, all of it tax-free.

Every year more than 15,000 blind people are accommodated at special sanatoriums or at the usual type of vacation resorts. Accommodations are free, the society pays the bill.

We build for blind people not only housing but factory and office buildings, clubs and sports fields. As for housing, in recent years the society has been providing its members and their families with as many as 2,000 apartments annually.

Q.: You said that the society has its own factories. How many? How are they equipped? And what do they manufacture?

A.: Our society has 262 factories, most of them equipped with

the usual conveyor belts and machine tools but adapted for blind people to operate. The society's design office does the adapting.

Our factories make electric motors, transformers, heating appliances, automobile parts, radiotelephone and television equipment and many other things. We still have some of the old brushmaking, cardboard-making and woodworking factories, but they have been completely modernized. I should note that even we here, not too long ago, considered such traditional trades as basket weaving, rattan furniture making and brush-making basic for blind people.

Q.: What sort of working conditions do blind people have?

A.: Here is what our Visitors Book has to say on the subject:

Hekmat Abu Zaid, Minister of Social Affairs of the United Arab Republic, writes: "The enterprises I visited bear witness to the work being done here to make life better for the blind."

Derek De Vote, senior research associate at the British Royal Society for the Blind, writes: "I was deeply impressed not only by what the blind do but also by the working conditions provided. We have nothing like this factory."

I might add that the factory Mr. De Vote visited and which he writes about is quite average from our point of view. Most of our factories are well ventilated, have sheathed dies, conductors to direct the part or movement, special tools and, of course, medical supervision, all of which guarantees absolute safety.

Q.: How do you train adults who lose their sight?

A.: Our society has two rehabilitation schools that teach a person who loses his sight how to take care of himself, do household chores and study. When he graduates, he is taken on at a factory where he learns a trade and is taught to move about and work by himself.

We also have a music school for choral directors and music teachers. And we have vocational schools that train blind people for work on farms; they give ten-month courses in cooperage, carpentry, saddle making and harness making.

Q.: Your society, I gather, is a sort of clearing house for the problems blind people have.

A.: That is one of our functions and a very important one. For example, a group of blind students in Leningrad universities got in touch with us not long ago. When they graduated they wanted jobs where they would be using their college backgrounds. We applied to the Ministry of Higher Education on their behalf, and it is seeing to suitable jobs and housing for these young people.

We used to get a good many letters from members about housing. They have fallen off somewhat because we have been doing so much building. Our most frequent complaint now is about "talking books." We have been putting them out now for three years. The trouble is that the usual type of tape recorder is difficult for a blind person to handle. We asked one of our factories to design and produce a new type of tape recorder that could play for a full 21 hours. What we want is to get a big book like Dreiser's *The Titan* or a whole course of lectures on one reel.

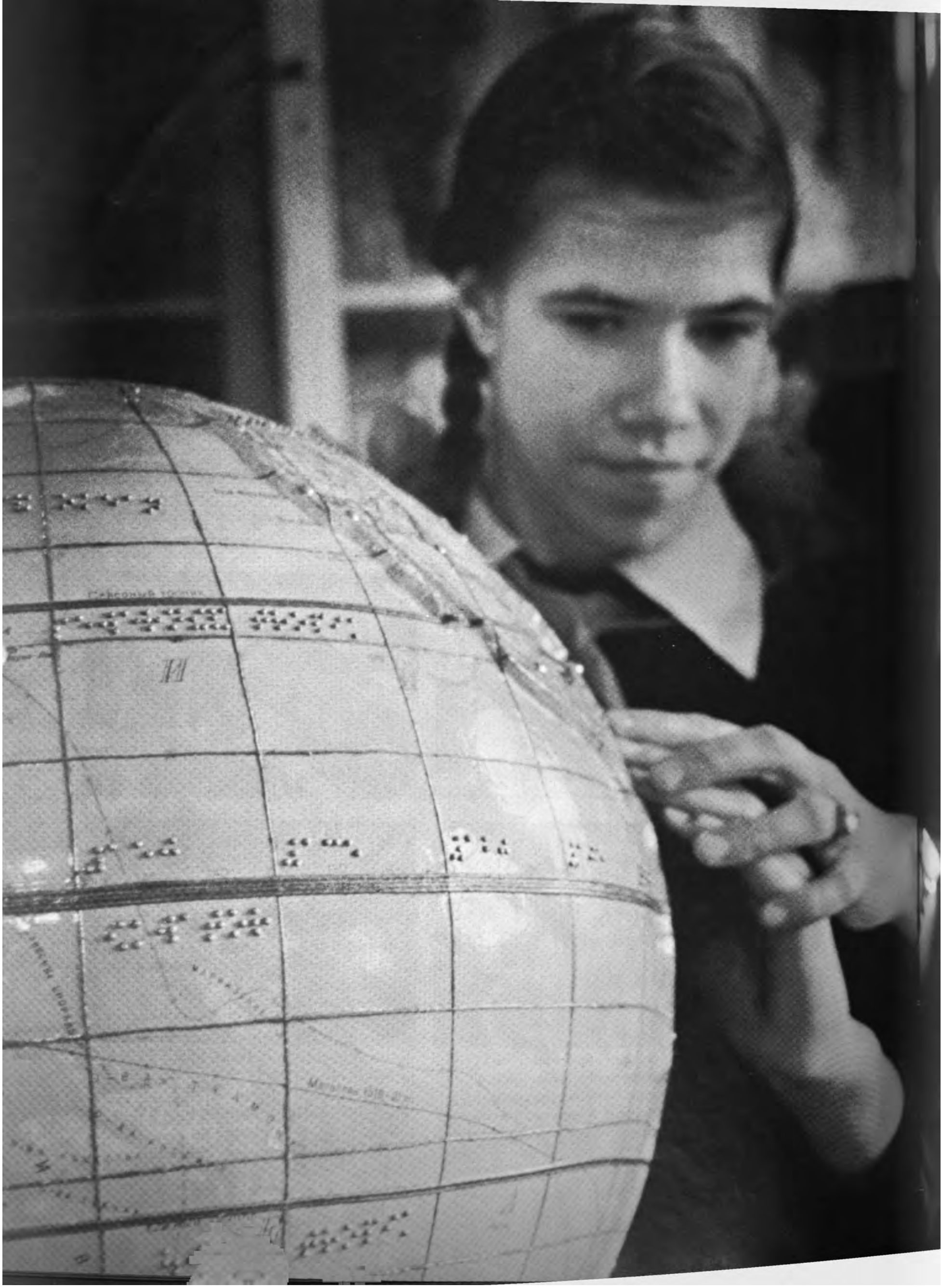
Scientists, teachers and students have been raising objections to the Marburg system of mathematical symbols. It has serious drawbacks. We set up a commission to work out a new system of mathematical, physical and chemical symbols based on Braille. Incidentally the old system of scoring music for the blind is also being improved. Our society and its counterparts in Czechoslovakia, Hungary and Poland are working on a unified set of music symbols.

And here is a letter from a Moscow boarding school for blind children. Their music groups want scores by George Gershwin, Leonard Bernstein and other composers. We are doing what we can to provide them.

There are 250 special libraries, with a thousand branches and a total stock of three million books that serve the blind all over the country

FINGERING THE GLOBE: education of blind children

Children who are blind, just like those whose sight is perfectly normal, begin their schooling with the alphabet. A few years later they are assembling complicated electronic equipment. At Moscow's Boarding School for the Blind even such subjects as drawing are taught. Sports are of special importance because they help build up a feeling of confidence.



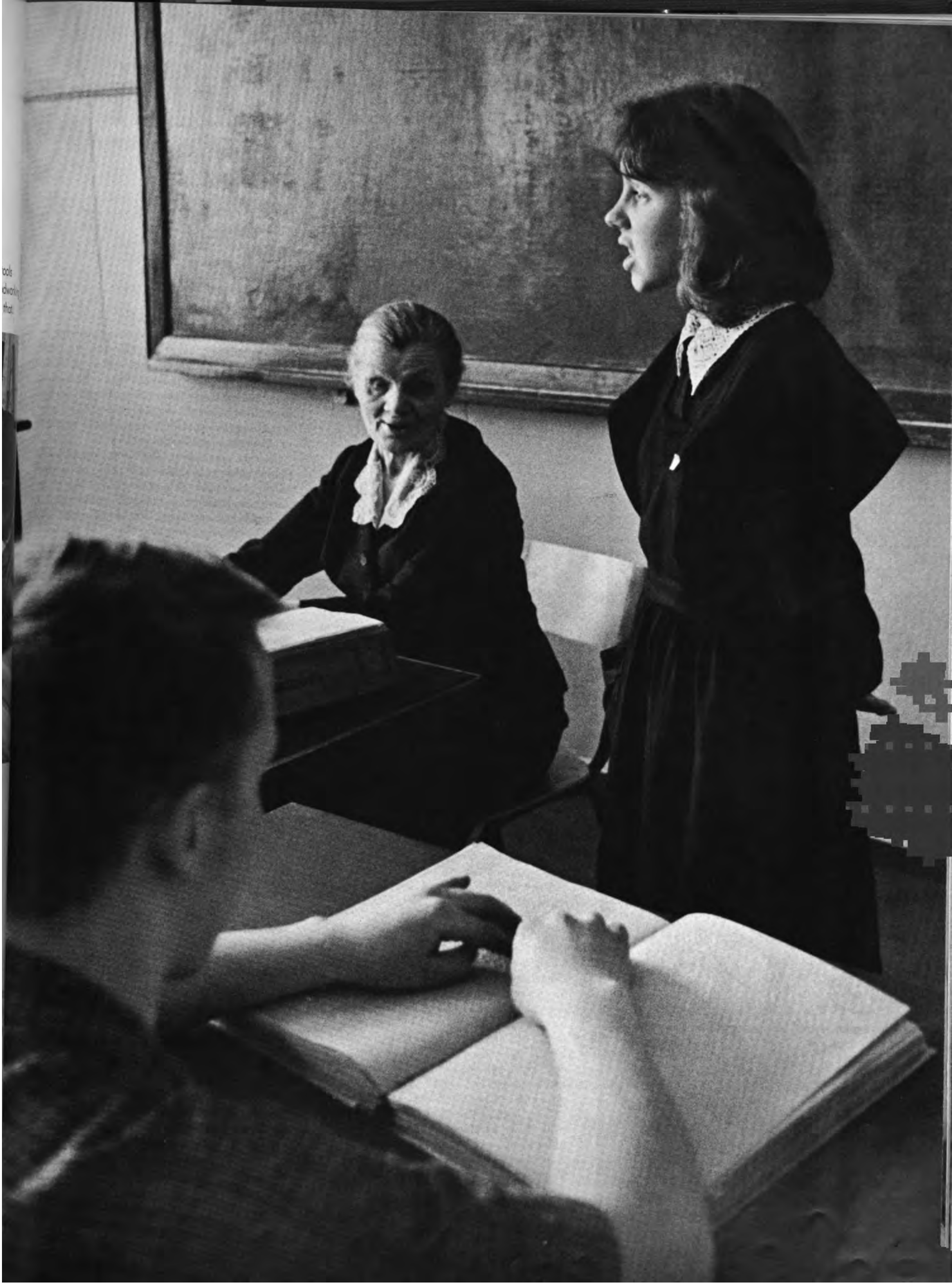
Blind people develop a remarkable tactile memory. Their hands "see" and "remember." These girls are learning what our planet "looks" like and how to distinguish flowers by their shapes, their varied textures and smells.

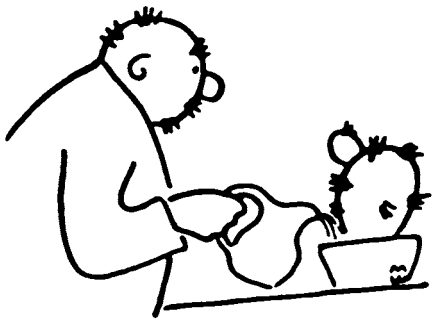
Before they leave school, the children will know the fundamentals of a trade. Typing is a favorite choice with the girls.

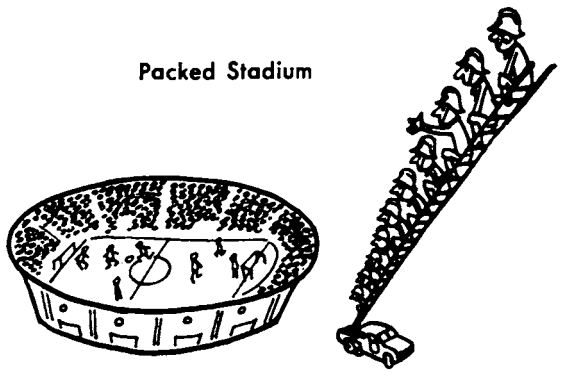
Boys love to putter around with tools and materials. In the school woodworking shop they get a chance to do just that.

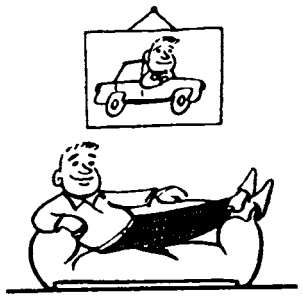
Between classes the corridors are as noisy as those in any school, with the normal quota of mischief-makers.

A class in Russian literature. The blind seem to have a special feeling for the sound and rhythm of poetry.









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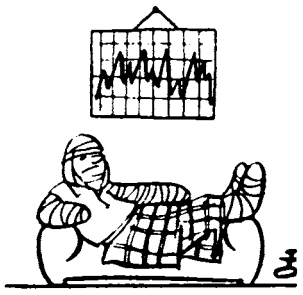
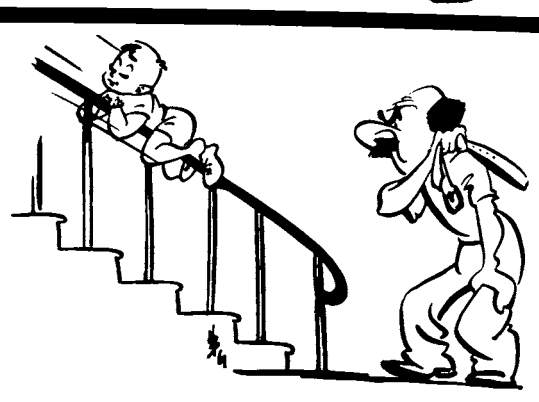




HEALTHY, WEALTHY AND WISE

By Professor Georgi I. Kositsky
DOCTOR OF SCIENCE (MEDICINE)

mental work and health

A DISTURBING INCREASE in cases of hypertension, atherosclerosis and other ailments of the cardiovascular system have been noted in all industrially developed countries. Some physicians even think of them as "diseases of civilization." But civilization and mental work in themselves cannot be blamed for hypertension or atherosclerosis. On the contrary, they provide the conditions for preventing these ailments. There is no better preventive than properly organized work and the great satisfaction that it brings. The ailments occur not as a result of work, but as a result of its abuse—from overwork, emotional disturbance, worries and other such things.

But there is no disputing facts. More teachers, engineers and scientists suffer from these ailments than other groups in the population. What preventive steps should they take? Modern science has accumulated a great deal of evidence which tells us, paradoxically enough, that the use they make of their muscles has a great deal to do with the health of people who do mental work.

Studies confirm the fact that the chief reason for ailments of the cardiovascular system is not simply the surplus consumption of animal fats or the partial traumatization of the nervous system but the combination of these unquestionably harmful factors and insufficient physical exercise. As a matter of fact, cattle breeders, hunters and fishermen consume tremendous amounts of animal fat, and yet they practically never suffer from atherosclerosis. Why? They are always on the go, always physically active.

Why is it that people who live in the suburbs or in rural communities complain less often about cardiovascular ailments than city dwellers who do the same types of work? Probably because village life requires a great deal of walking and physical exertion. Mental workers who live in large cities will spend their working day sitting down, go home by bus or subway, take the elevator to their floor and spend the evening seated in front of the TV or with a book. Man's liberation from manual work has certain advantages, but it also has its disadvantages. Apparently there is nothing in nature that is absolutely harmful or absolutely beneficial.

In this connection, the great significance that Academician Ivan P. Pavlov attributed to physical work is pertinent. He did gymnastics and played *gorodki* (a game similar to ninepins) regularly. He called these occasions "days of muscular joy." "I have always loved mental work and physical, probably the second even more," he wrote in a letter to the Donets Basin coal miners.

Muscular work helps metabolism, which means also that it helps the formation of those compounds which are the source of energy for cardiac activity. At the same time the blood gets lactic acid, a by-product of metabolism. The greater the physical load of the skeleton muscles, the greater the amount of lactic acid. And it, too, serves as a source of energy for the heart. So closely is our cardiac action coordinated with the work of the muscles!

But it is a matter not only and not so much of cardiac action as of the proper functioning of those mechanisms that regulate the cardiovascular system. The derangement of these mechanisms leads to hypertension, coronary disease, etc.

Muscular work is vitally important here. The mechanisms that regulate the cardiovascular system are also designed by nature to keep the muscles working properly. The muscles make up 40 per cent of the body's weight. Unlike any other machine, which wears itself out working, the living organism undergoes a continual self-renewal of all its structures, and the processes of restoration are possible only because of the processes of destruction. The processes of restoration are stimulated by activity, work, training. In the living organism a structure that is idle eventually degenerates.

We cannot strengthen the mechanisms that regulate the cardiovascular system without constant muscular work. People who "spare" their hearts by avoiding muscular exertion and by swallowing all kinds of medicines should keep this in mind.

Emotional disturbances also play a role. We know how dangerous they can be for the cardiovascular system and how important it is not to lose control and self-restraint. These

harmful emotions can be "unloaded," discharged by muscular exertion.

Nature gave us emotions mostly to provide energy for our muscular activity. Hence the emotions must be discharged largely through muscular exertion, through work. A person who is "wrought up" should run up the stairs, or walk to work, or take a bicycle ride. What the general run of mental worker needs is a decided change in his attitude toward manual work and exercise.

In the Soviet Union tens of millions of people are active in sports. Most of them, however, are under 30. In young people the level of cholesterol in the blood is fairly stable regardless of the motor regimen. But as people grow older it tends to rise. And middle-aged and elderly mental workers are more prone to atherosclerosis than those who do physical work.

Some people think it is almost indecent for anyone over 40 to come to work by bicycle. Cars and elevators and labor-saving devices are very much part of modern life. But the mental worker has to learn to combine mental activity with physical if he wants to stay healthy.

Academician Pavlov said that there is nothing more imperative in the life of the human organism than rhythm. And rhythm means the wise alternation of work, rest, food and sleep. Mental work frequently requires working for long periods, seated, doing one and the same thing. To prevent fatigue, regular five- to ten-minute physical exercise sessions are a great help. True, if the work is absorbing, the individual is not conscious of fatigue. But the fact is that it does accumulate, and it is important to do something different periodically. Pavlov, for instance, looked at pictures, others listen to the radio, walk or paint.

Regular and deep sleep is vital for good health. When a person wakes he should feel rested and ready for work. For better sleep, take a walk in the evening, no matter what the weather, and keep your window open at night.

Remember, too, that a lot of food and rational food are not the same thing. Too many calories combined with a sedentary life and mental overexertion will hasten the development of atherosclerosis.

There are dozens of factors on which our health and well-being depend. Proper lighting at work, good posture, plenty of fresh air, sensible clothing, gymnastics, a periodic change of interest, a creative, friendly living and working environment—all of these are far from trifles.

Doctors have long been aware of the relation between happiness and health. Happiness is an omnibus word, it means a healthy view of yourself and your environment—the ability to bear up under difficulties, self-confidence, work you like, a good relationship with the people around you.

The creation of a healthy environment is something we must think about, be concerned about, fight for. This is really a fight for a longer and more creative life. There are no "diseases of civilization," but there are diseases that come from mental strain, insufficient rest and bad diet.

Courtesy of Pravda

IN THE NEXT ISSUE

This little girl's name is Zaragul, which means Golden Flower in her language. She lives on the "Roof of the World," in mountainous Tajikistan, where lowlanders often find it difficult to breathe the rarefied air. Some of the snow-capped peaks of the Pamirs are more than 22,000 feet above sea level, a perpetual challenge to the mountaineer. The mountains are cut by deep gorges with torrential rivers thundering at their bottoms. In the next issue you will travel with our reporter through one of these gorges on a visit to the Gorny Badakhshan Region, whose inhabitants like to say they live in the earth's pressure chamber.

Professor Yuli Savitsky gives us his reflections of his visit to the Architecture in the United States Exhibition in Moscow. He sees a trend away from the "glass parallelepiped" period ushered in by such purely "logical" structures as the Seagram Building in New York. He ascribes the reason to a weariness with unornamented cubes. He tells of some more recent creations of architects in the Americas and Europe. One uses a "senseless" proliferation of ribbed elements. Another, the interior of the big I. Miller shoe store in New York, evokes associations with the medieval Gothic. Architecture, he says, must exploit the esthetic possibilities of standard design and conveyor methods.

It takes a brave man to be a test pilot but it takes a very brave test pilot indeed to catapult from a jet plane flying nearly 560 miles an hour. Yuri Garnayev was first to do that. He was also first to catapult in a spacesuit, first to fly at zero G, first to test a turbojet, first to . . . . But read Test Pilot in the March issue—action photo illustrated—to find out what his next first will be.

American artist Rockwell Kent fell in love with Georgia before he ever visited that fascinating republic. He saw it first through the eyes of Lado Gudiashvili, whose work can be found in museums and private collections all over the world. His paintings are strange, mysterious, only half-real, but extraordinarily alluring. His illustrations of Georgian classics do more than evoke an ancient past, they almost give you its smells and textures. Gudiashvili was living in Paris and had begun to make a name for himself when Georgia became a Soviet republic. He returned to gain a place as one of Georgia's famed artists.

Other articles in the March issue are:
A Dialogue on Guilt and Punishment—a discussion on the prevention of crime; Pulkovo—a picture story of the world-famous observatory; Children's Surgeon—how a doctor prepares young children for surgery; Heartache and First Love—short stories by Vladimir Bogomolov about love and compassion in the cruelest of all wars; Work for Free?—about a group of volunteer inventors; Getting the Ball Rolling—chairman of the Azerbaijanian Council of Trade Unions appraises the new profit approach in plant management.

NOVOSTI PRESS AGENCY

SOVIET LIFE

Nine Days over the Polar Circle — The people, geography, ethnography and economy of the northern part of the USSR.

Paying Back 5,000 Dollars — How the graduates of Soviet universities and institutes get started on their jobs.

COMING SOON

THINGS CULTURAL

By Natalia Chulaki

THE ARTS

A very memorable art event this season was the exchange of two big exhibitions by France and the USSR. A large selection of canvases by French painters from Leningrad's Hermitage Museum and other Soviet galleries went to France for six months to be shown at the Louvre and then in Bordeaux. In return, paintings by French, Dutch, Flemish, Spanish, English and Italian masters, a representative collection of West European art from the Renaissance to the early twentieth century, came from Paris, Bordeaux and other French cities for a half-year's stay in Moscow and Leningrad. Although not the first big exchange of this sort (a group of nineteenth century French paintings were shown here in 1956), it was the most ambitious to date, in fact it was the largest art exchange any two countries have ever made.

Art lovers here know the painters represented at the Louvre Show from other works of theirs in Soviet museums, so that interest was high. From the day the show opened at the Pushkin Museum of Fine Arts in Moscow, the line of people waiting to get in, three or four deep, stretched around the corner and halfway down the block, a fitting tribute to this towering assemblage of old masters.

"Is that what he looked like?"

History suddenly comes to life when you find yourself face to face with the men who made it. Mikhail Gerasimov makes such meetings possible. Anthropologist, archeologist and sculptor, Dr. Gerasimov has produced—or reconstructed, as he calls it—authentic portrait busts of such historical figures as Czar Ivan the Terrible; Tamerlane, the legendary conqueror of Central Asia; Scilurus, a Scythian king of the second century B.C.; and the German poet Friedrich Schiller.

He works by a method he himself has evolved which combines his comprehensive background in science with natural artistic gifts. Using the actual skull of the historical personage, he builds in clay the layers of "cartilage," "muscle tissue" and "fat" which give the head its individual character. Although the resulting portrait has often proved strikingly accurate (in the case of persons whose photographs made during their lifetimes were available for comparison after the bust was completed), there is nothing waxworks about it; it has all the vitality of good sculpture!

There is nothing archaic about the traditional handcrafted articles made by the Eskimos, Nenets, Evenks and other peoples of the Soviet Far North, from the Ob to Chukotka, even when displayed alongside clothing and furniture of the most modern design. And why should there be when the traditional costume of the hunter and fisherman is so well adapted to the job at hand and every art object is a much-used household article? A lesson in functional art? The clothing, footwear, rugs, boxes, bags and other items from the North now on display at the Museum of Folk Art on Stanislavsky Street in Moscow are a delight to the eye, so rich are the textures, so fresh the design.

The style of decoration is ancient. It derives from ritual and magic symbols that long ago lost their original meaning. Yet the combination of the "antler," "fish tail," "water beetle," "jumping frog," and other traditional motifs result in patterns sometimes flowing, sometimes architectonic, often surprisingly gay, and always welded with the object into one organic whole—a much prized quality when achieved in modern applied art! The techniques and items exhibited include applique in colored cloth or fur on garments, purses, bags; odd, figure-eight-shaped mosaic fur rugs with a glossy, almost iridescent, play to the texture; beadwork on leather, cloth and fur; and cylindrical, birch bark boxes with a painted design in relief.

Othello is perhaps the best known Shakespearean character to Soviet theatergoers. With a new Moor making an appearance every few years, starting with Alexander Ostuzhev's in 1935, a stock Othello —as he should look and act—has not unnaturally grown up. Russian Othellos have always stressed the Moor's nobility of mind and character, made him a peer of the Venetians, indeed their superior in moral stature, and equally civilized, although from a different civilization. The approach to the part has been correspondingly emotional, with every gesture and speech calculated to win the sympathy of the audience.

Sir Laurence Olivier, in Moscow with the British National Theater, played a deliberately unromantic Othello that may very well have shocked his admirers. But the fact that he did not try to be outwardly appealing made his performance all the more impressive—"great" was the unanimous verdict.

The British Iago of Frank Finlay was not the devilishly clever villain Russian audiences are used to. He was just an unscrupulous careerist with the minimum of brains needed to move him up the ladder of success through promotions, portrayed as cold-hearted but only too human.

Some Soviet critics saw Billie Whitelaw's Desdemona as a determined, spirited girl, obviously in love, but like Othello himself, something less than demonstrative, her acting almost detached. Others thought her a shade too different from the fragile innocent of past interpretations.

British composer Benjamin Britten, vacationing at a rest home for Soviet composers near Dilizhan, Armenia, found the mountains so inspiring that

before leaving he wrote a six-song cycle to words by Pushkin. Titled **Poet's Echo,** it is dedicated to his friends Soviet soprano Galina Vishnevskaya and her cellist husband Mstislav Rostropovich, who were also staying at Dilizhan. The couple said they were delighted at the honor and very excited by the music. Later, Vishnevskaya, Rostropovich, Britten and tenor Peter Pears performed several of Britten's works at concerts of the Yerevan Philharmonic Society. The first Moscow performance of the **Poet's Echo** cycle was very successful.

"Music—what's it all about?" Dmitri Kabalevsky talks to children on a new recorded series released by Melodia. In these informal get-togethers, the composer introduces youngsters (of all ages) to the ingredients that go into, say, a Prokofiev symphonic suite. Then, using various musical sounds and sequences to illustrate, he discusses such abstruse problems as the development of a theme and orchestral color until the listener begins to hear, and understand, what it is that makes music so "special." Now and again an outright question invites participation. The tone throughout the entire series is an appealing combination of serious, even earnest familiarity, with no talking down whatsoever.

"I just want to give them a push in the right direction," the composer sums up his aims. "Once they know a little about it, they really get interested, and that's the time to start music lessons—not before!"

A massive, six-foot-high stone head jutting into the street announces that inside (the gallery of the Artists Union on old Kuznetsky Most Street is Moscow's first art show from Kazakhstan. The origins of Kazakh art are ancient, but though the cliff drawings of Ulutau go back to the second millenium B.C., painting, sculpture and the graphic arts as we know them today are products of Soviet times. Many of the works exhibited show the changes in this once nomadic country—life in the **aul** (Central Asian village) and in the virgin lands. The show is reviewed on pages 31-33.

We were treated to a riot of brilliant color, rhythm, and movement early this season when the National Dance Ensemble of Ghana brought its young company of dancers, singers and musicians here. We were bewitched by the ancient African ritual chants and the authentic tribal dances done against a compelling background of voice and drum.

Combine rare artistry with perfect technique, add large handfuls of joyous abandon and mix well. What do you get? Amalia Hernandez and the Ballet Folklorico de Mexico! Started by this small feminine bundle of energy and charm several years ago, the Mexican troupe has won itself a special place among the world's top dance companies. Soviet audiences and critics alike were carried away by the brilliance and intensity of such dances as "The Deer," the "Aztec Gods" and "The Old Men."

MOVIES + BOOKS

Third Youth, a feature film about Marius Petipas and the world-famous Mariinsky Theater of St. Petersburg, is being made jointly by France and the Soviet Union, with Gilles Segal as Petipas and Natalia Velichko as his ballerina wife.

Nevsky Prospect, once the best known thoroughfare in Russia, is to be filmed full-length, widescreen, at the Leningrad Popular Science Studios.

A documentary film on Soviet author Wanda Wassilewska, of **The Rainbow** fame, is being shot at a Ukrainian studio using archive material from Poland and the USSR.

All Things Stirred His Tender Mind. Pushkin, His Books, His Friends, a new biography of the poet by Arnold Gessen, has been published by Nauka.

Anton Rubinstein: How He Taught, a collection of articles by his former pupils, compiled, edited, and with an introduction by L. Barenboehm. Published by **Muzika.**

PUPPETRY + PORCELAIN

Four stories by Soviet satirist Mikhail Zoschenko, famous in the early thirties for his literary caricatures of every brand of status seeker, time server and fortune hunter, have been staged as a puppet play for grownups.

The puppet theater in Volgograd is playing Kipling's **The Elephant's Child** to packed houses of appreciative human children.

The House of Porcelain, a new shop in the capital, stocks all the patterns of china and ceramic ware made in the country as well as samples of ware to be made in the future, after customer votes have been tallied.

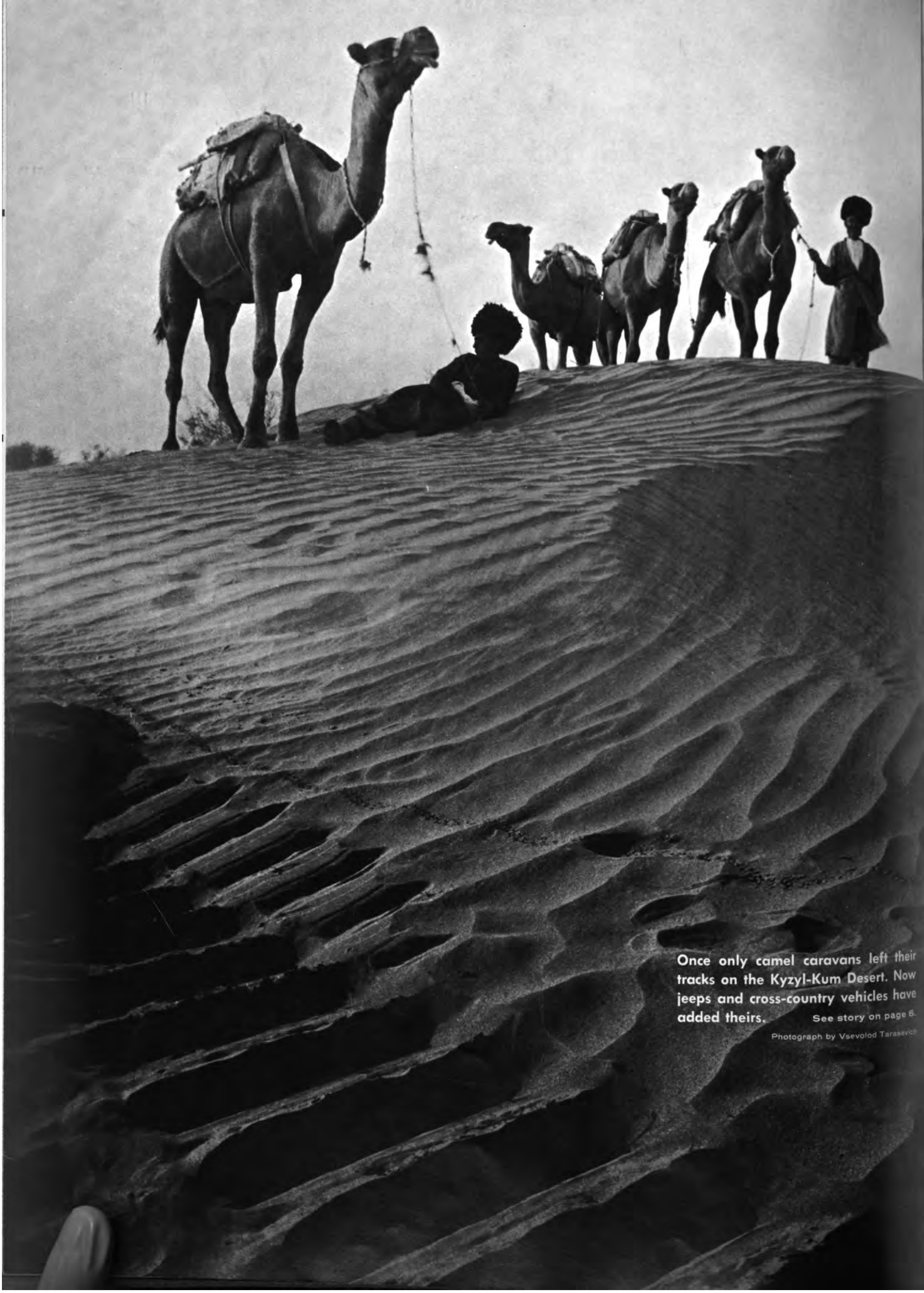
FLATS + SHARPS

The Shostakovich Thirteenth Symphony (to words by Yevgeni Yevtushenko) was recently performed at the Moscow Conservatory, with Kirill Kondrashin conducting the Moscow Philharmonic Orchestra, bass choir, and full men's choir. Also on the program was Brahms Third.

The Prokofiev (String) Quartet (Brakker, Stepanian, Odinets, Tsvetkova)—all young, all female, all graduates of the Moscow Conservatory—has left on a tour of Japan, where it will play works by Mozart, Haydn, Beethoven, Brahms, Tchaikovsky, Prokofiev, Shostakovich, and Akira Miyoshi.

The Far East Symphony, now a permanent orchestra, resident of Khabarovsk and regularly touring Kamchatka, Vladivostok and other East Siberian cities, is also to be heard in radio concerts reaching the entire Soviet Far East.

At the Price of a Life, a new opera by A. Nikolayev (based on **The Drummer Girl** by A. Salynsky), had its premiere at the Stanislavsky-Nemirovich-Danchenko Musical Theater.



Once only camel caravans left their tracks on the Kyzyl-Kum Desert. Now jeeps and cross-country vehicles have added theirs.

See story on page 6.

Photograph by Vsevolod Tarasevich

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SOVIET LIFE

ROOF OF THE WORLD

TEST PILOT

GUILT AND PUNISHMENT

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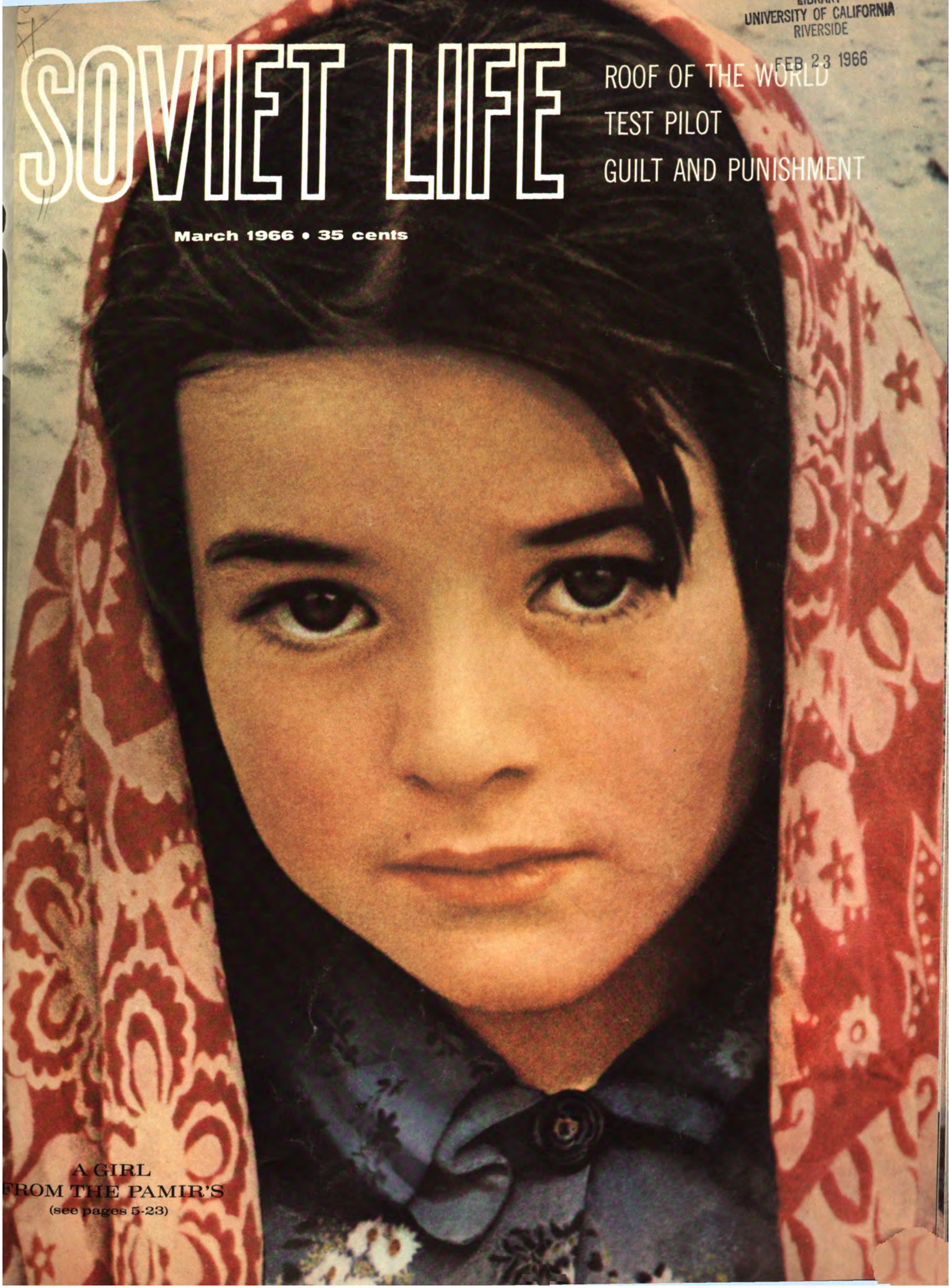
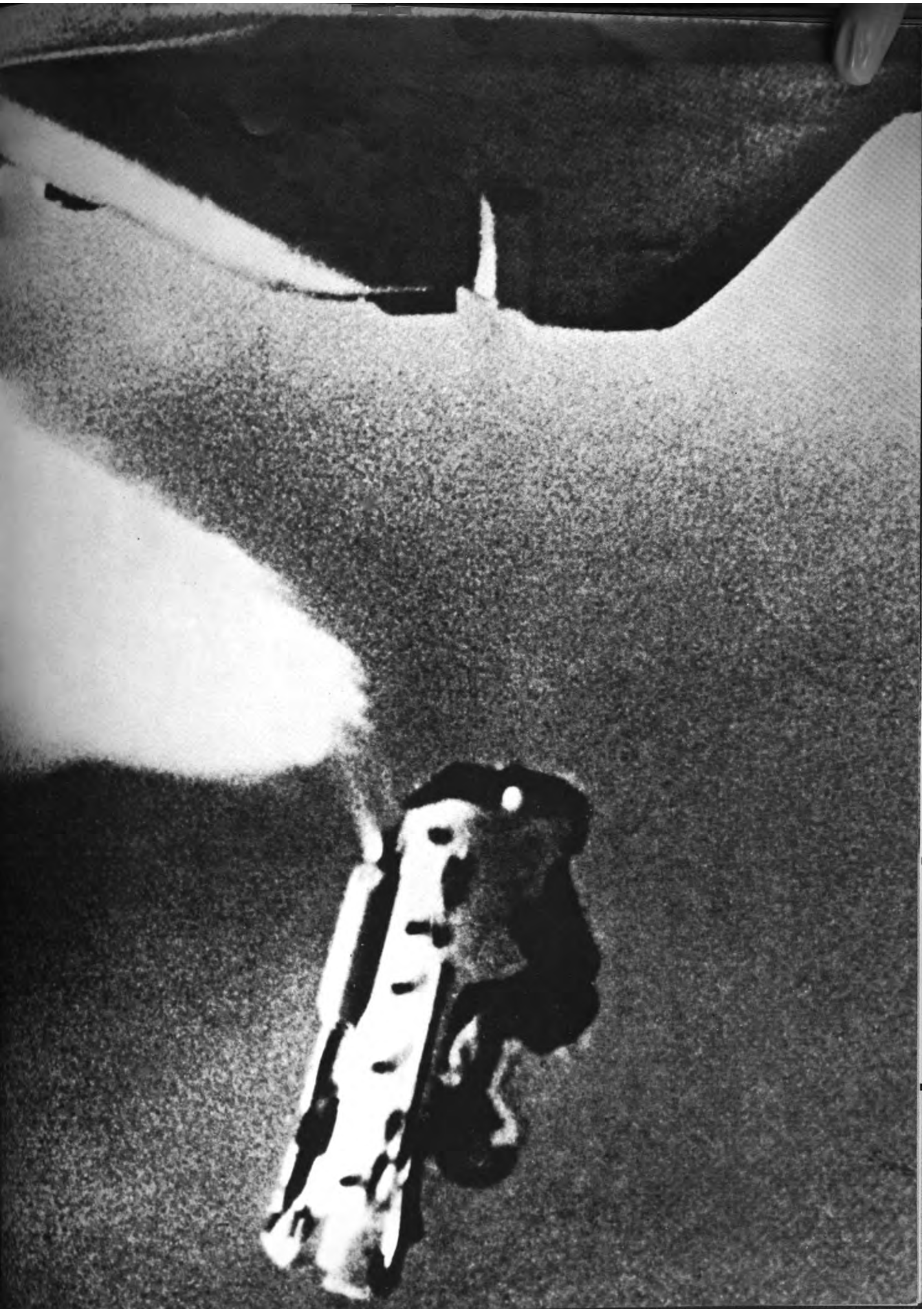


A GIRL
FROM THE PAMIR'S
(see pages 5-23)

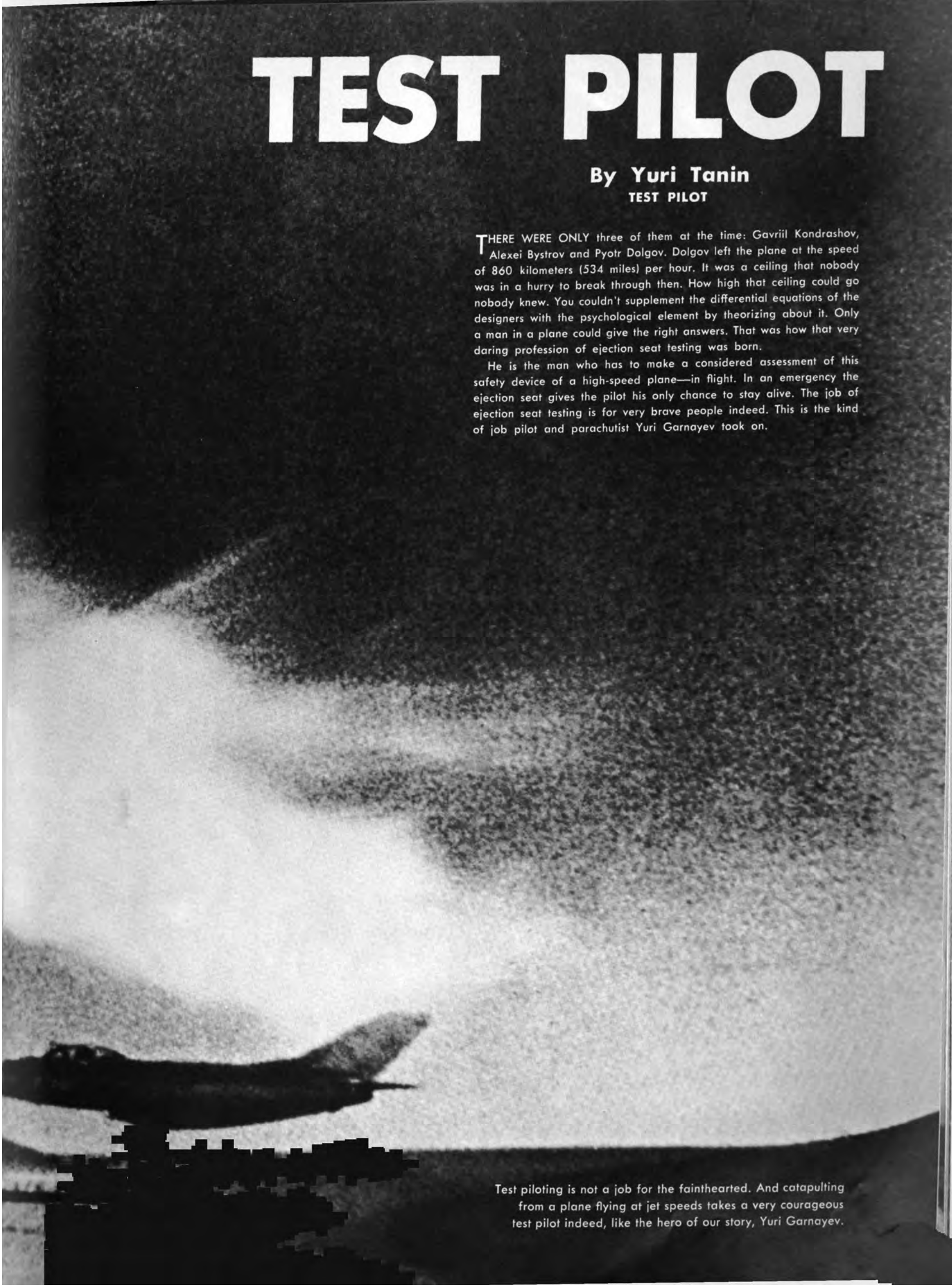


TEST PILOT

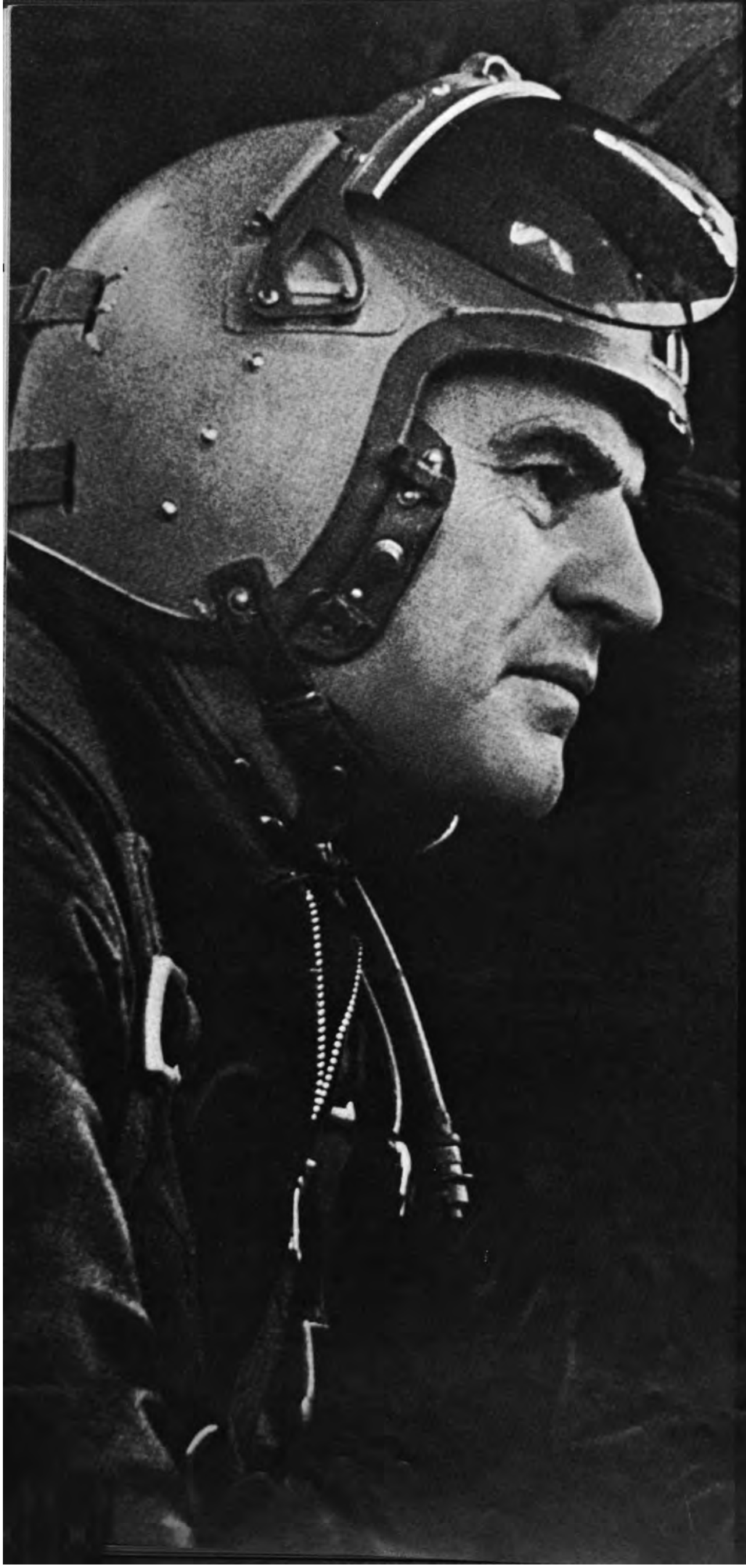
By Yuri Tanin
TEST PILOT

THERE WERE ONLY three of them at the time: Gavriil Kondrashov, Alexei Bystrov and Pyotr Dolgov. Dolgov left the plane at the speed of 860 kilometers (534 miles) per hour. It was a ceiling that nobody was in a hurry to break through then. How high that ceiling could go nobody knew. You couldn't supplement the differential equations of the designers with the psychological element by theorizing about it. Only a man in a plane could give the right answers. That was how that very daring profession of ejection seat testing was born.

He is the man who has to make a considered assessment of this safety device of a high-speed plane—in flight. In an emergency the ejection seat gives the pilot his only chance to stay alive. The job of ejection seat testing is for very brave people indeed. This is the kind of job pilot and parachutist Yuri Garnayev took on.



Test piloting is not a job for the fainthearted. And catapulting from a plane flying at jet speeds takes a very courageous test pilot indeed, like the hero of our story, Yuri Garnayev.



No, this is not a plane crashing, just the blades of a helicopter being blasted off. The pilot? He bailed out seconds earlier. This is one of the many jobs that gave Garnayev the steel nerves he has.

TEST PILOT

Human Projectile

A gunpowder charge with the force of half a ton shot the man, and the ejection seat with him, out of the cockpit of the jet bomber. The onrushing stream of air hit him with terrible impact, tore his arms and legs out of the braces that fixed him to the seat. He rotated chaotically with his seat, helpless against the fury of the wild stream. A terrible force was trying to break his spine, arms and legs; it hit him in the face and pushed violently at his chest. His limbs were either pulled with the stream or whipped back. He resisted the swirling air. A few seconds and he was too weak to fight, but fortunately the thrust of the air stream had lessened by then. The safety belts released the test pilot from the seat, and he was falling with the customary sensation.

This was a big and very happy day for Yuri Garnayev. Nobody before him had ever bailed out at a speed of 900 kilometers (559 miles) per hour. It was a record, the limit of knowledge of ejection seat catapulting at high speeds.

Aviation was then beginning to conquer the stratosphere, and experimental planes were climbing to altitudes of scores of miles and developing supersonic speeds. Plans for space flight were becoming very real.

The G-suit was not a novelty any more. It was used for parachute jumps and for plane and stratosphere balloon flights, but it had not yet been used for catapulting in ejection seats. There were hopes and apprehensions, as in any new venture.

The plane left the concrete runway and shot up into the morning sky for another test. The G-suit muffled the sound of the turbines. The second hand moved unhurriedly, counting time. To Garnayev the only realities were the ejection seat, the G-suit and the parachute. Belted into the ejection seat and wearing a costume like a diver's suit, he looked up through the transparent canopy. The eyes under his broad eyebrows, contracted by grim concentration, peered into a limitless universe. Time to begin the test.

A signal, and Garnayev turned into a ball of nerves, muscles and will power. He pressed the ejection trigger but heard no shot. The overload did not bother him too much. The inflated G-suit shielded him, though at the same time it interfered wth his control of the flight. He was falling groundward, rotating like a doll with spread-eagle arms and legs. The glass of his visor froze up immediately so he could not see out. But he had his learned, professional reactions to depend on. When the time came, he yanked at the parachute release. There was a soft jerk, and he hung suspended with the parachute above him.

That was the first catapult in a G-suit from a jet plane. After that there was no longer a problem of having to leave aircraft flying at great speeds and altitudes. A second triumph for Yuri Garnayev.

In Search of the Golden Mean

He is also a jet plane and helicopter pilot. The control sticks of many experimental machines awaited his hand, with problems like this one: A helicopter, its nose pointing upward, would keel to the right when its engine failed after a few last puffs. There would be no chance to use a parachute. The helicopter would fall almost vertically, and the propeller blades would slash away at the test pilot who left the cockpit.

In a plane the danger is loss of speed, in a helicopter it is a drop in the number of revolutions per minute of the propeller. That is actually what happened with Garnayev. The propeller lost rpm. All he had to do was switch on the engine and everything would be all right, except that the problem would remain unsolved. If the engineers were right, the propeller would keep turning at its lower rpm even with the engine switched off, enough to permit the aircraft to land. But suppose they were wrong! With a great effort Garnayev managed to stop the machine from keeling to the right. When you fall, the earth does not always seem to be rushing up at you. At first you do not notice it. It creeps up toward you deceitfully until you are at a low altitude, and then it makes a sudden rush. In such cases a man's fate is decided in a fraction of a second. Garnayev did not look at the earth. He saw only its distant horizon, which helped him find his bearings as he tried to control the machine. There was no time left for thinking, he seemed to be part of the falling machine.

The propeller kept turning as though it was not going to stop. Perhaps it was not the end. There still was a chance that the rpm might decrease. He decided to wait to the very last second and see if that would happen. The altimeter needle showed that he was losing hundreds of feet of altitude. Suddenly the rpm counter needle stopped at the set point on the dial. Everything was normal. His daughter would see her father again.

The rest was as usual. We mean "usual" in the sense that Garnayev uses it, the Garnayev who was the first to land a helicopter with the engines switched off. In principle this is still a complicated problem. What makes it complicated is that you can reduce the landing speed of a helicopter only at a certain altitude. And you make only one mistake. At the time the golden mean was still unknown, Garnayev was the man who found it.

Time gives birth to new ideas. Barely had the helicopter begun to make a place for itself when a search began for a speedier machine. And here again risks had to be taken.

Flying a Fire Jet

Ejecting a red-hot jet of gas, the strange-looking craft shot out of a little cloud of dust and hung suspended close to the ground. It inclined to one side, to the other, and then, having made a complete revolution around its axis, returned to its former position. It all seemed normal. Inclining forward, the contraption shot with ever increasing speed to the other end of the field. It actually flew! This was the first hovercraft flight. Those who witnessed the unique experiment will probably never forget it.

There was no question that the new machine was able to fly: its engine developed a thrust greater than the weight of the craft and met all the conditions for vertical takeoff. What was in question was the machine's stability and pilotabilty. It could capsize from the slightest careless motion. And everybody, Garnayev especially, knew what the price of such carelessness could be. The mastering of the craft proceeded at a snail's pace. Flights were made at such low altitude that there was no possibility of using a parachute, and yet the altitude was sufficient for the cockpit to smash to pieces on hitting the ground.

The aircraft had neither wings nor a propeller, and it was kept in the air by gas and jet rudders which were not at all easy to operate. Whether the craft responded faster or the pilot is hard to say, but both underwent a second by second and minute by minute learning process until Garnayev unraveled the mysteries of flying a fire jet. When the day came for the air parade at Tushino, viewers saw a real flight of the new craft. This experiment was the foundation for developing vertical take-off machines and more efficient landing systems.

This was not so long ago, even though it does seem that a lot of time has passed since. Planes are now flying at speeds several times that of sound, and manned sputniks are being orbited in space. Garnayev is one of those who stand where the roads of aviation and astronautics cross.

100 Tests

In 1960 Garnayev visited the United States. He was then learning to pilot American helicopters with the help of American fliers. In 1965 he demonstrated his skill at the international aviation exhibition in France.

He was the first to catapult from a plane at great speed. He was the first to catapult in a G-suit. He was the first to fly a hovercraft. He was the first to work out the weightlessness technique. He will be the first in many other things, as time will show. But the firsts are not important. What is important is that no matter what Garnayev tested—whether a supersonic plane or a huge jet liner, a helicopter, an ejection seat or a G-suit—all these became usable by man.

Garnayev's life is a model of purpose and of man's capacities. He is a pilot with a wealth of feeling, with a fanatic loyalty to the sky and with rare flying skill. He is a man of strong will and remarkable self-control. And always when it becomes unbearably hard for him as a flier, his experience as a parachutist comes to his aid. He is the embodiment of the union of these two perilous trades. He has tested about 100 different types of aircraft, and many of these tests are epics in the conquest of the skies and space.

Garnayev is a man of many parts. He has a subtle appreciation of art, he loves music and the theater. But his deepest level of feeling he must experience in flight. For Yuri Garnayev, Aeroflot flier, Honored Test Pilot of the USSR, Hero of the Soviet Union, the meaning of life is in new battles in the proving grounds of the sky. We wish him many more victories.

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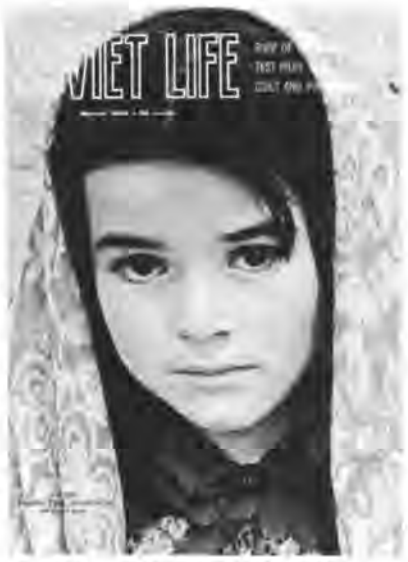

Front Cover: Zaragul—Golden Flower—who comes from the mountainous Gorny Badakhshan Region in Tajikistan.
See the story on page 5.

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Editor in Chief (Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor (Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor (Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director (Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

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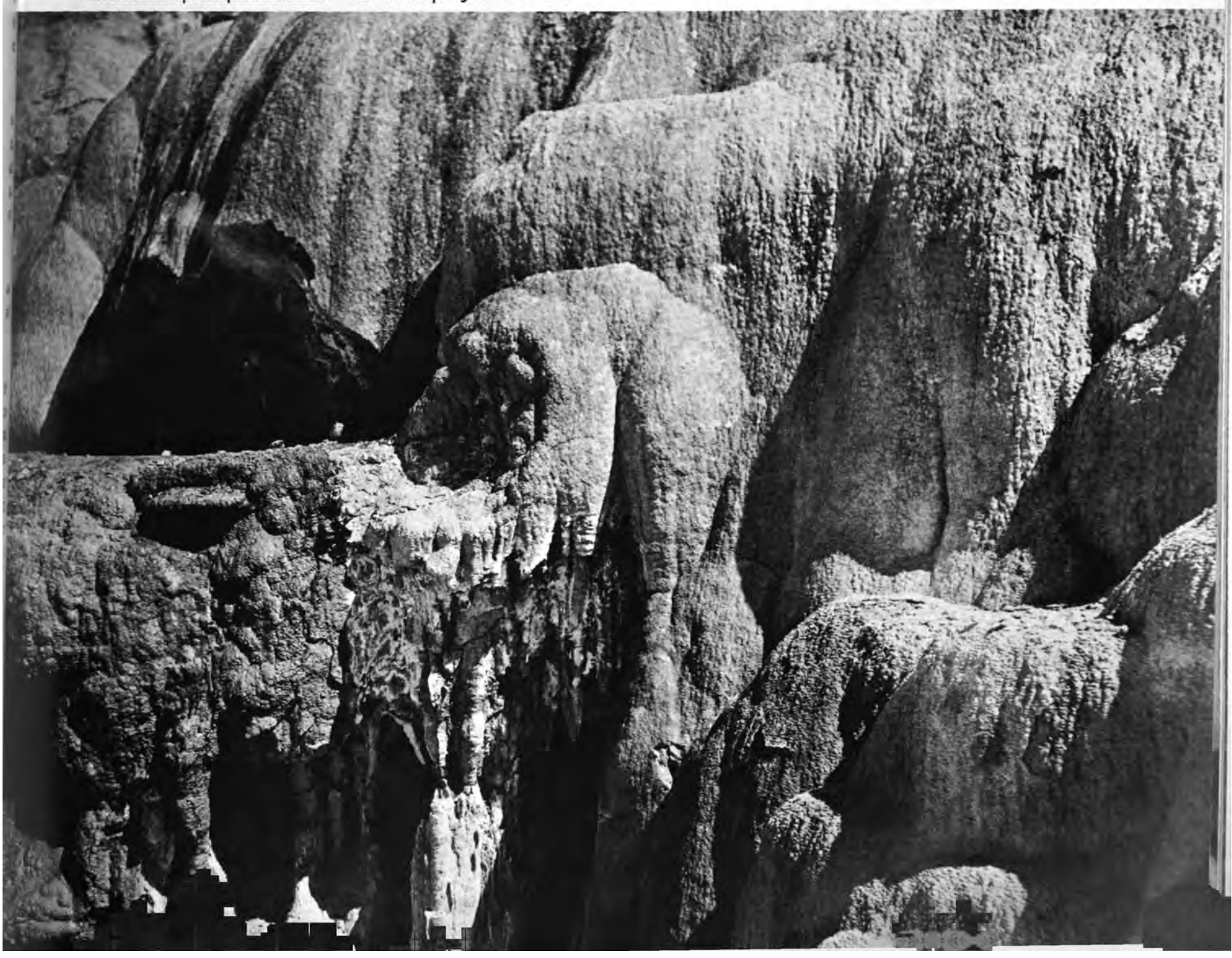
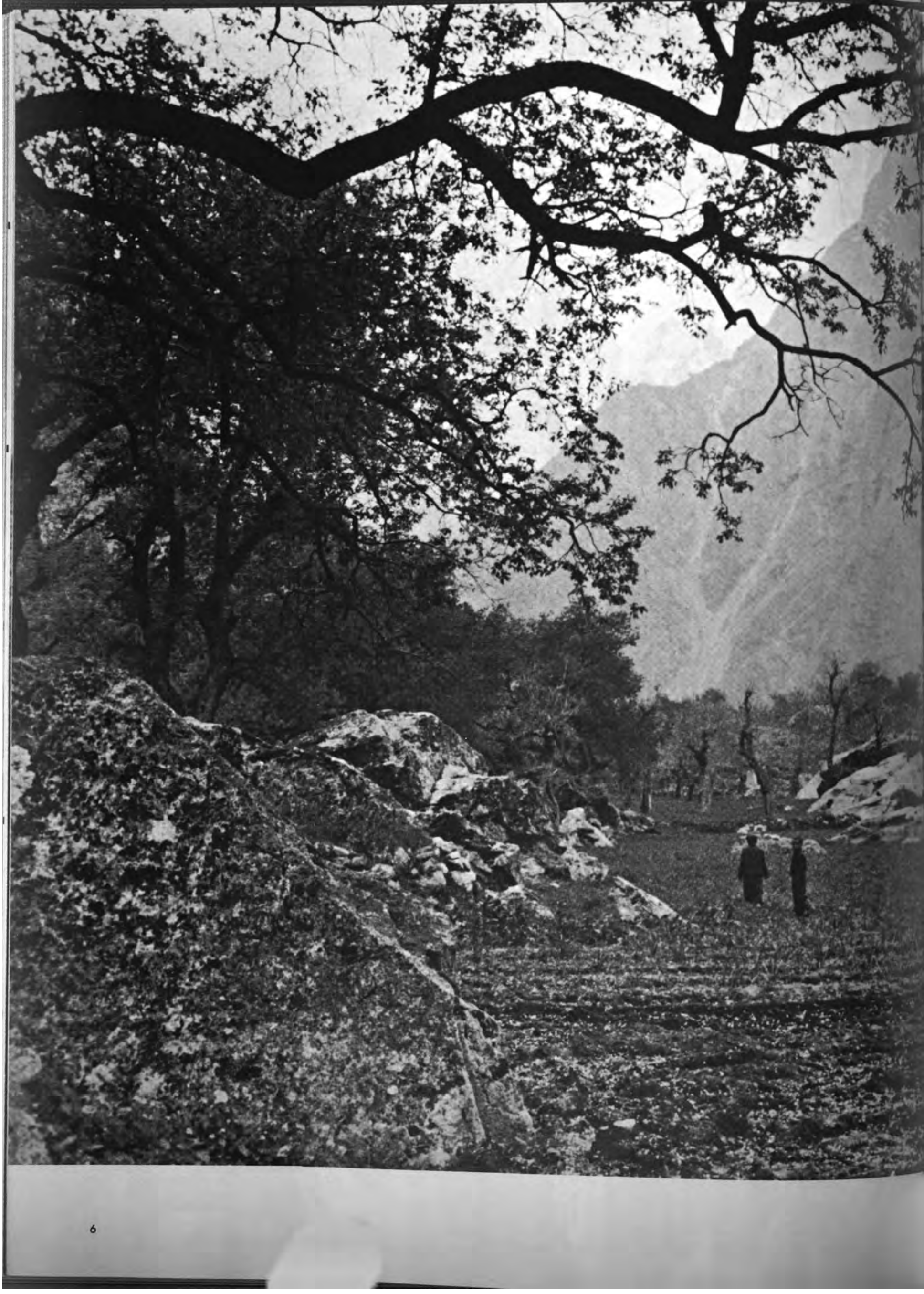
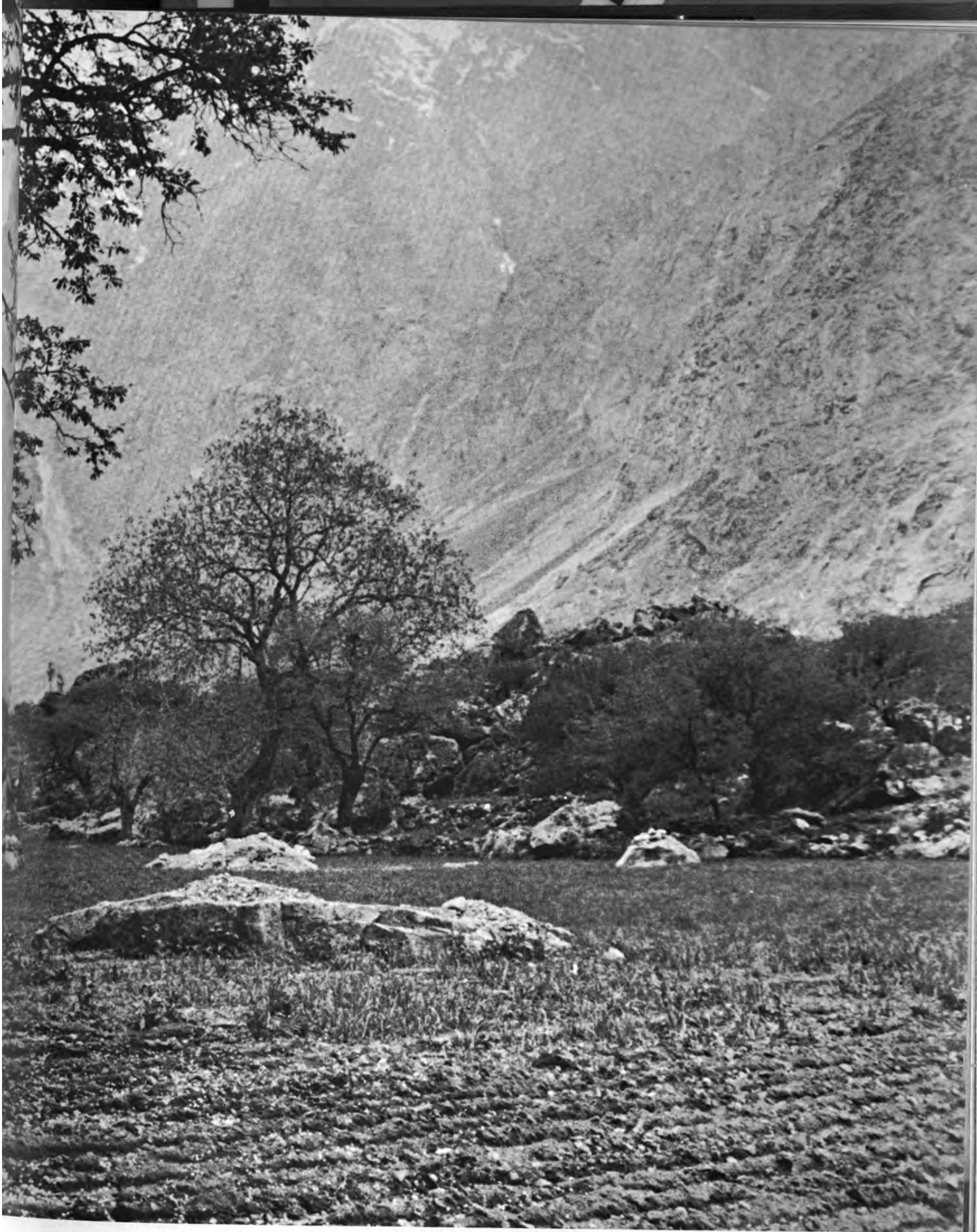
ROOF OF THE WORLD

Where snow leopards prowl like cats. A mountain spring in the Pamirs.







Nature has bulldozed this 15,000-foot mountain wall.
The summits sparkle white in the sun. Rivers run down like
torrents of rain from a city rooftop and disgorge
into long green valleys, each valley a self-contained paradise.

ROOF OF THE WORLD

And then I turned to the driver and said: "Give me the wheel, Kadam," I said. "Give me the wheel because I have gone too deep into self-analysis."

By Leonid Likhodeyev
Photographs by Lev Ustinov

IN the Dushanbe-Moscow liner every passenger holds a bunch of roses. The rubber smell of air-conditioning oxygen is diluted by the leisurely aroma of hothouses. The passengers all look like bridegrooms sitting in line for happiness. They will soon step onto the concrete of the Domodedovo Airport, and this riot of roses will dissolve in the huge city.

Dushanbe's roses and sun will be a memory. To go to Dushanbe on a business trip is something like being sent to the Garden of Eden on an expense account. You realize that going home. Meanwhile, my return just loomed somewhere at the back of my mind. I had to fly on, beyond Dushanbe.

Beyond Dushanbe lie the Pamirs, the roof of the world, where snow leopards prowl like cats and hide behind the dormer windows of caves, and rivers run down like torrents of rain from a city rooftop and disgorge into long green valleys, each valley a self-contained paradise.

This is the rooftop I was bound for.

Salaam, dear reader!

I was bound for a land which, alas, had been visited by many before. I was bound for a land about which many stories had been told. Each of these stories has a beginning but no end. People who know say that Aristotle himself believed that Parnassus was situated somewhere in these mountains. Today only a good librarian can give you the details of Parnassus, but not so long ago no poet could do without the place. They spurred the winged horse Pegasus to make him carry them up there where poetry dwelt.

You all remember, of course, Aristotle's pupil Alexander the Great, a very capable young man who, unfortunately, had his own views of horsemanship. He put more trust in war horses than in Pegasus. He conquered all the world, from his native Macedonia to this area and beyond. He was fond of poetry, but he had no time for it except, of course, those weekends when he was not too busy making war. He was a lot shrewder than his teacher, though hardly wiser.

However, his war horses fell, his invincible phalanxes were disbanded, and his empire crumbled to dust. No one can locate the brave young man's tomb, and only a few legends survive. Meanwhere Parnassus remains as abstract and sublime as good old Aristotle saw it. Pegasus proved to have much more stamina than Bucephalus, the equivalent of a chauffeur-driven limousine of our day. Pegasus still wings his way to these almost inaccessible mountains. Poetry is hard and high, and surely there is no place higher and more difficult to reach.

Let's begin at the beginning, and if my story is not destined to become history, let it be just a magazine article, for unlike history, a magazine article has both a beginning and an end.

Put on, reader, a pair of shoes that will stand the wear and tear of long journeys, and let us go to glittering vastnesses of snow, to desolate and infinite plateaus, to the Archeozoic and Paleozoic eras, and the Mesozoic and Cenozoic too, of course, to consumer cooperative canteens, teahouses, *oshkhons*, ancient settlements of modern expeditions, and the entire mysterious world, the mecca of truck drivers, geologists, tourists and high-ranking executives.

Let our narrative follow the sequence of our journey.

Three stages of consecration must be passed by every traveler. Acquaintance, which rejoices his eye. Meditation, which rejoices his mind. Participation, which rejoices his heart.

So joy or even three joys await the traveler, and all of them begin immediately.

1

Physically the Dushanbe-Pamirs plane is small and tremulous, like a dragonfly, but its prowess makes me compare it with a merlin or some other kind of falcon. There was no conventional traveling by air: there were no icy herds of mare's tails sparkling in the upper light of the vanishing sun, no crystalline haze of cirro-stratus, no ugly boil of endless gray billows, nor any other features of a decent air travelogue. Out of the murky Paleozoic era the mountains—imperfect, unorganized, sadly unfinished—floated toward us.

Allah created these mountains when evening was dangerously close, and the plan for gross output had to be met, no time for subtle considerations like quality.

He was behind schedule, and here you are!

Right ahead of us were brown walls wrapped in the cellophane of ice, on our right were other walls with onionskin peaks, and on the left were walls with peaks we could not see at all. The plane was flying right over

the river, following its winding course as a river ship would, designed to sail not on the surface of the water but some distance above it.

What lies beyond those mountains, those boulders, those sky-high walls? Some Oriental nether world? The paradise where houris are fishing trout at lunch hour in the fountains of Bakhchisarai?

It is not impossible, of course, that beyond lie more mountains and boulders and walls, but we cannot fly over them because the plane is too small, the ridge too high, and if one must get lost in the mountains, getting lost in a plane is surely not the best way.

The pilot took his chin out of his oxygen mask.

"Please don't write that the plane almost grazed the rock!" he begged. "There are at least a hundred yards in between."

What an exhilarating sense of independence! One feels it especially acutely when the plane veers and a cloudlet concealing the wall bursts head on so that one is not at all sure

that the aforesaid hundred yards still exist. However, the cloudlet races by, and those hundred yards seem to remain—the most beautiful hundred yards I have ever seen.

The famous Dushanbe-Khorog highway lies somewhat above the level of our flight and looks like a random scratch on the mountain. Then the scratch dips into a drift of snow with a curling haze above.

The mountains, which began quite decently and even gently, rose in a towering rage and finally billowed and curled over us like the crests of the tenth wave in nineteenth century marines.

The mountains overlapped like the skirts of an Oriental robe. Then even this seemed to them paltry. They hemmed us in, and our plane was like the toy in a gyrocompass, its wings swaying between the two edges as between Scylla and Charybdis.

Then we saw some fragments of Martian landscape. There were the canals. Not the problematic canals of Mars, but ideally straight horizontal *aryks* carrying real water to real fields. We could see these fields within the same sacred hundred yards, like tiny mattresses thrown over a fence or pieces of carpet nailed to a wall. It was not the distance that made them tiny, because there was no distance to speak of, they were really tiny. To dispel any possible doubt, the pilot again took his chin out of the mask:

"Farm fields!"

"But how do they get there?" I shouted.

He shrugged, "On foot!"

Meanwhile a new cloudlet jumped at us.

Behind it was a new mountain and a new peak bandaged in sterile snow, and finally we performed the hit number of our circus act, without net, without audience, without dramatic diminuendo of music, without glaring lights. We were to fly into a crooked passage, swing around without letting our wing touch a friendly neighbor power, and land from around the corner, blindly, on a tiny strip, pressed hard to the mountain by the river.

Pretty soon people will fly to Mars, Venus and other uninhabited places. The distances they will cover will look impressive even on paper, and on return they will be given huge welcomes with flowers and all. Yet tiny planes will still be flying through the relentless crevices of Badakhshan, and these Paleozoic crevices will be as narrow as ever, and these boys will sit calmly facing a cloudlet beyond which is the devil knows what. Each flight of theirs is the discovery of the world's hardest route, each flight is a feat followed, however, not by a huge welcome with flowers and all, but by a truculent check marked by the chief, for whom all this occupational hazard and service courage amid the chaos of stone are just so many miles to be added to the mileage of his subordinates' service records.

While we are busy doing something perhaps far removed from the sky, these fellows fly on, and no one knows their names either before or after the flight. They are not watched by the entire civilized world, just by a couple of radiomen servicing this tiny route which is as long as infinity. On they fly, and their names would be better known if they had made just one small error whose magnitude is infinite.

Well, if this is the case, let no one know their names except their chief, who must know them in his official capacity; and except their waiting women gazing at the sky.

Here we are in Vanch, the rich emerald Vanch in which the apricots can well afford to cast shadows on the silken grass, in which the old plane trees, surrounded by plates of clay, look like old men on cushions, and the omnipresent mountains unexpectedly part for the Vanch to join the Pyandzh.

The unreal green grass of a meadow tempted me to shake off the shoes of long journeys, sprawl and gaze through the tracery of branches into the unreal blue sky in which fleecy clouds and translucent dreams were roaming.

The wide, wide expanses of the Pamirs. Or rather the threshold of the Pamirs. Badakhshan, so generous with sunshine. The crazy roads and the fields above the clouds were left somewhere behind, and the coolness of the limpid *aryks* brought a vision of perennial refrigerators from which water streamed leisurely down.

However, no visitor can afford the luxury and privacy of just stretching himself on the grass all alone. A feast carpet and 12 boon companions (one of them a sharp-tongued wit very much like the legendary Khodja Nasreddin) materialize immediately. The feast includes a tea called *kok*, flat cakes called *chapoti*, and silver-and-gold chicken *shurpa*.

And the feast talk under the cherry trees of Vanch! No beginning and no end! Like the water that quenches the thirst of a field and runs away, leaving the heavy ears of wheat.

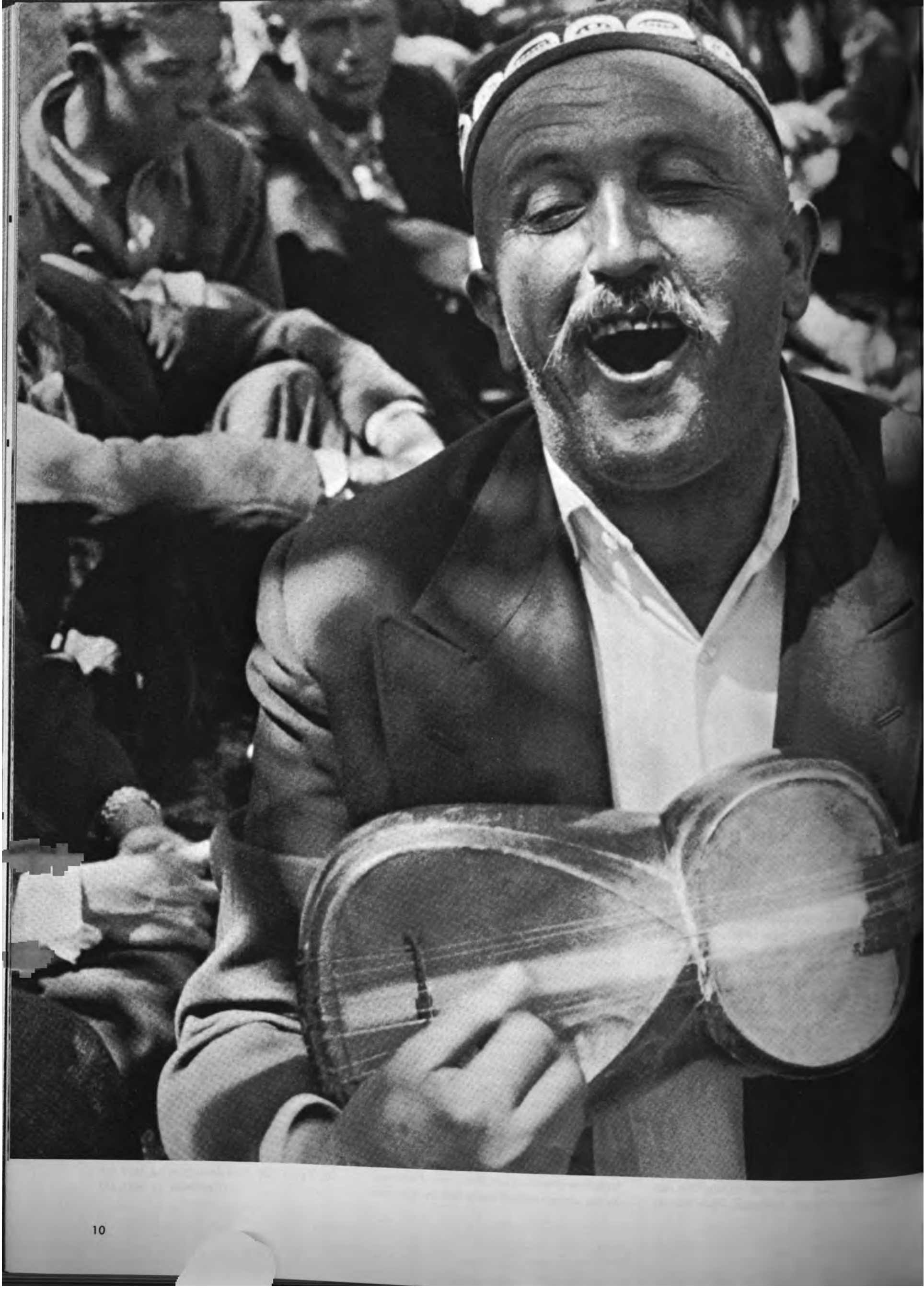
The fine team leader with eyes of Farhad raised a cup, and his mustache trembled like black pennants. He did not know how to begin, so he began with a smile.

Vanch is probably richer in land than any other area of the Pamirs. There they have tractors and they have roads and they have enough elbow room. They speak of their highland neighbors with sympathetic condescension.

This is the beginning of the Pamirs, the first stage of consecration. Fields the size of a man's palm high over the clouds, roads and deserts are still ahead. However, it is here that the jealous patriotism of the Pamirs begins and where I heard the proverb: "If in Vanch you haven't been, the Pamirs is not what you've seen."

In Vanch they have been plowing land for

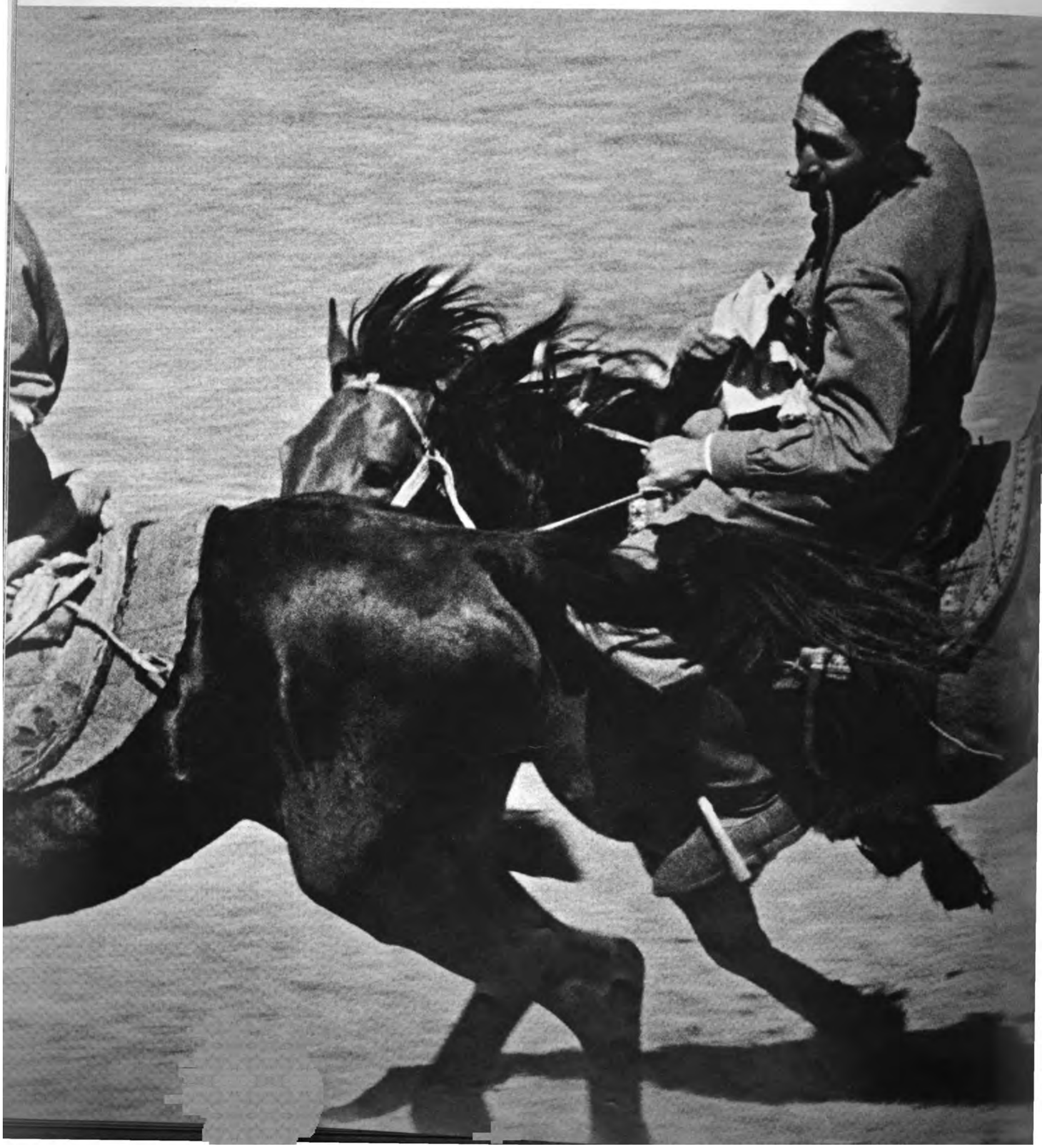
(Continued on page 14)

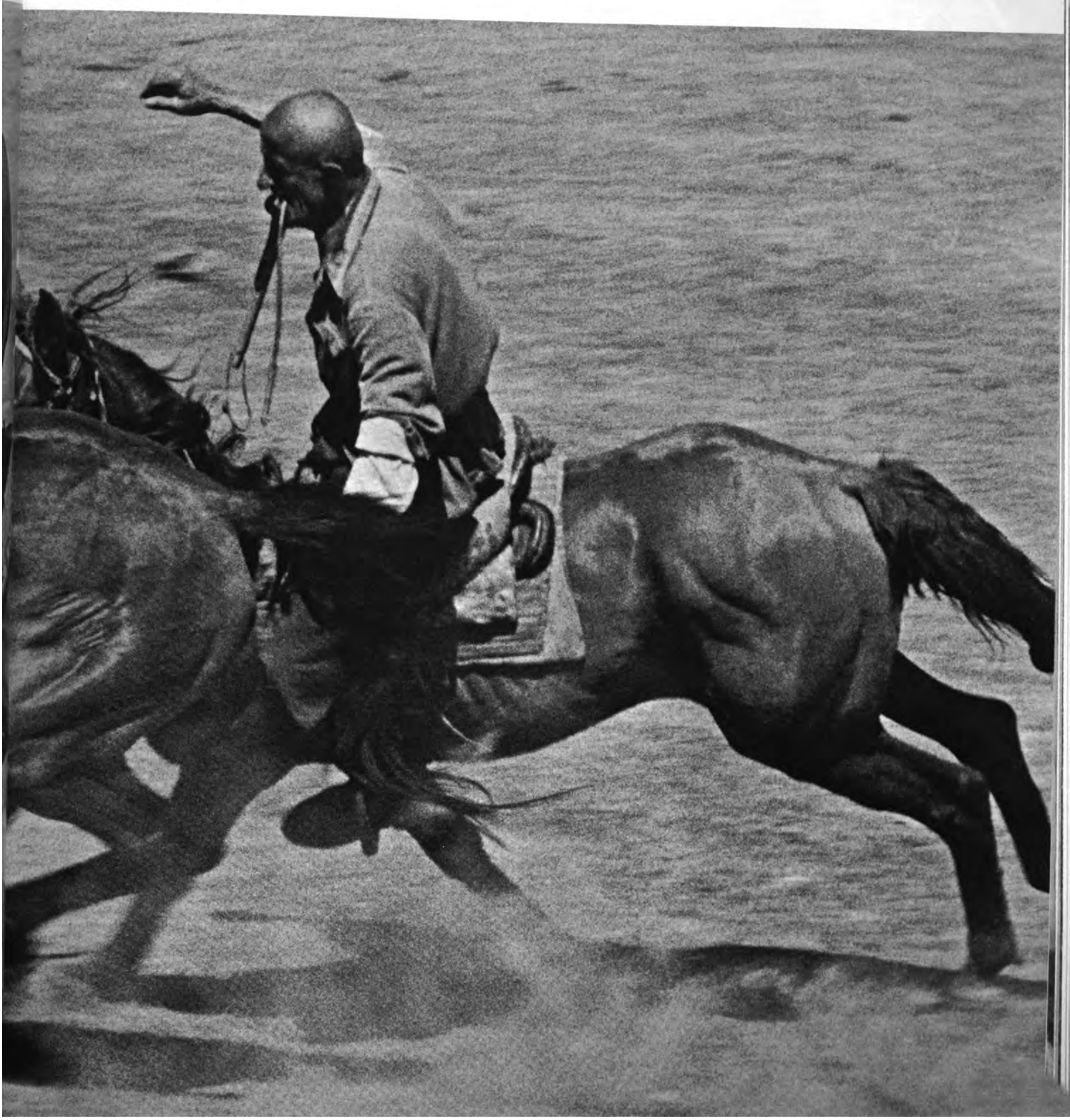


No Pamir festival is complete without its *shirinkors*—amateur folk singers, comedians, satirists—who make a fine art of improvisation. Their songs have an elemental enthusiasm, grace and wisdom distilled out of everyday living.

ROOF OF THE WORLD

The mountain people are audacious horsemen. Wrestling and other such conventional sports are popular, but the big national pastime is goat punching. The general idea is to catch a wild goat and be the first to get it to home base.





ROOF OF THE WORLD

thousands of years, and no one remembers how the first canal was dug, and the first handful of grain or rye was cast. The great biologist Nikolai Vavilov called this area a hothouse of quickly ripening wheat and rye. Perhaps it is here that wheat, half-created by restless nature, prompted man to settle, to plow the land and grind the grain and bake the thin *chapoti* of Vanch!

Many devotees of science and travel have been attracted by this land, and many songs have been made about it by those who know how to make songs.

The truth will be revealed to you only if you have the courage to read the book of nature on your own, letting go of your teacher's hand and looking through your own eyes. For a grain of knowledge, just like a grain of wheat, is only sown, and it is the business of the grain to sprout. Man's mind is no warehouse for unsprouted grains.

We walked around Vanch, inspected its fields and orchards and took stock of the harvest.

Our hosts claimed that the world's best potatoes were grown in Vanch. I was to check this claim in the evening because I wanted to hear those improvised songs for which Vanch is famous.

In the evening we had a preview of local talent. Laid out on the carpet in Granddad Abdulla's house were delicious and elaborate concoctions, the world's best potatoes, baked to the color of 14-carat gold, holding the place of honor.

Every man present improvised on the *dudar* and *doira*, as though playing these instruments was what he had been doing all his life. Yet those men were farmers, agronomists, mechanics and one was even chairman of a consumer cooperative.

The chairman took up the *dudar* and in a high-pitched voice sang a song which proclaimed that one was wild and weak if he had no room in his heart for love. Eager to endorse the singer's words, we raised our *pialas* filled with the best brand of vodka.

Lovely young girls peeped in at the door. They wore neither *paranjas* nor *chadras* nor any other oriental screen of feminine beauty. They contemplated us with unperturbed tranquility, as though they had been contemplating men like that for millennia. We were not rulers to them, just men who, along with babies, needed to be looked after before they got into mischief.

The chairman sang epigrams and madrigals and then he passed the instrument on, and his neighbor took up the instrument and the song.

The team leader twirled his mustache and announced that I would not hear such songs again until I reached Khorog, and I would hear them in Khorog only when the singers of Vanch were there.

"They are *shirinkors*, which means jesters, comedians, satirists. The love song is just a cover-up. Watch out."

We saw a dervish. In an old, worn-out chapan, small turban and hobbling on a crutch. We hardly recognized the chairman in this disguise.

"I was a young man when I lost her," whined the dervish. "I am going to the edge of the world to find her. I need proper shoes for my long journey. Now, in the local store the shoes. . . ."

Then he let them have it—the collective farm, the cooperative, the various and sundry services, only he was so fast that the translator could not keep up with him. There was a roar of laughter. The dervish rolled up his eyes like a muezzin at a minaret and folded his hands like a Moslem at namaz. He played his role with such life-like precision that whoever he addressed joined in as though the play had long been rehearsed. Yet it was an improvisation. They were gifted comedians, for them jesting was a fine art.

I heard songs which sounded like opera recitatives, and others which were fine gazels, and still others which were clearcut quatrains, or were full of primitive exuburance verging on wisdom and probably nourishing it. Aristotle's concept of the world composed of earth, water, air, fire and ether was made vivid in these songs, as in a child's drawing or the simplicity of a mathematical axiom.

The wine I drank at the feast was the best I ever had, and I tried not to miss a single gulp of it. I listened to these jesters who would go to work in the morning—to their fields, farmyards, ledgers, steering wheels and electric switches—and I was sorry that time was slipping away along with the songs.

When the people of Vanch get going, there is no stopping them. If you take away their tambourines, they will use tea trays or chessboards instead. But riotous as the merrymaking was, not a single gross or insulting word was uttered. Their jokes were arrows, not boulders. And surely no warrior is afraid of arrows if he has a proper shield.

An exchange of socks! Our socks were heaped together and then distributed at random to peals of delighted laughter. My socks with a trademark which guaranteed pure wool went to the team leader with the eyes of Farhad, and he put them on with a shrewd wink.

The guests departed, the table carpet was taken away, and feather beds and cushions were brought in. Meanwhile the nightingales outside were ecstatic, delirious. One of them was simply crazy. Or perhaps he was more in love than any other nightingale in Badakhshan. It would be slander to say that the nightingales kept us awake all night; we slept all the more soundly for them. The local radio woke us. It was switched off in a minute, but not before we understood why the great hafizes were so fond of nightingales.

I was to go early in the morning, and all my new friends turned up at the airport. The team leader decided to do some exercises

while we waited for the plane and puttered about in a nearby vegetable plot. The plane was long overdue. A table carpet was laid on the grass. Dear Abdulla said that the longer the plane was delayed, the harder would be the take-off, and therefore he proposed bluntly that I stay. "Everything will be just as it must be even if it happens differently," said an old hafiz. The plane finally came and all was as it must be. I was flying farther into the Pamirs, carrying away the songs of Vanch and a generous helping of *chapoti* which someone had put into my valise.

The same good old company of pilots, and again a gorge with relentless, gray and brown mountains all around.

"Lovely!" said the pilot. "They are lovely!"

Poplars, still tiny, but real balsam poplars,

were rushing toward us from the gorge, and then a canal—not an *aryk*, but an honest-to-goodness man-made canal—glittered like a metal wire.

2

Rushan Gorge was narrow, and the green of its banks swept upward over the rocks like the juice of the crushed river.

What is farming, reader? Sometimes it brings up the vision of wide expanses, geometrically regular, generous planes of land; and sometimes it is just tiny patches of soil which must be wrestled from nature. No vehicle can bring you to these patches. You cannot reach them even on foot. You can only climb or crawl to reach them. To bring water to each patch, you must climb, spade in hand, higher and higher up to the glacier. The water must be kept running, the law of communicating vessels observed, but the water must not be too abundant or it will wash away the plants instead of wetting their roots.

The ugly truth of the objective laws of nature dogs the farmer at each step. This is not just a figure of speech, because each step is counted, as is each square foot of plowland and each grain to be sown.

It takes courage to stand up to the objective laws of nature.

In some book I saw a picture which showed people plowing with an *omach*. The *omach* is an ancient wooden plow. The caption ran: "This is how they plowed in the Pamirs of old." They plowed with the *omach*. Not with the modern plow and certainly not with the tractor. And now? Now they are using the modern plow and tractor, aren't they?

No! They just can't use a tractor because no tractor, nor any other vehicle, can climb

to this acreage above the clouds unless the vehicle has wings and has been charmed by Allah himself. Even then the vehicle will roll down, because the field is nearly vertical. And if it does not roll down, it will be trapped, because there will be rocks a few feet ahead of its radiator, and there will be more rocks not much farther on, and if the tractor driver stretches out his left hand, he will touch rough, eroded stone, and if he stretches out his right hand, he will touch pristine basalt, cold and indifferent, like an ostentatious monument.

The tractor is out of the question, dear reader.

The modern plow is also ruled out, because its metal will be jagged as soon as it touches the subsoil rock, as hard as diamond.

Only the ancient wooden *omach* is effective here. It will climb with the plowman to any height and it will evade an invisible piece of rock, like a smart lecturer a ticklish subject.

Let us not build paper castles instead of facing reality. Let us not deprive industrious people of something without which they will no longer be themselves.

For some reason or other it is thought improper to write that the ancient wooden plow is still used today, in the age of over-all mechanization. Yet the *omach* is used. Not because there are no tractors. But because this is the only way to get a good harvest of wheat in these parts. The effort is too great and each ear of wheat is too precious.

"We lifted a tractor there," I was told in Rushan, "because we were told to. It took four weeks to lift it and only a week to get it down. That shows it is four times harder up than down."

Yes, it's all right to say that the *omach* is still used for plowing.

I believe that pride in our achievements has been overdone. I don't think that being proud is the best full-time occupation for an adult. There are better occupations, it seems to me. However, if it's so necessary to be proud, we must be less self-conscious about it. In mountainous Badakhshan farm machines work beautifully where conditions permit. There is nothing surprising about that. But, in mountainous Badakhshan the *omach* is used widely. This can be ignored only by those who do not want to look up at the world's highest fields and the amazing industry of the mountain wheat growers for whom the Pamirs is land they will not exchange for any other.

Dr. Kaisov, general practitioner, has just returned from a call. On foot he covered 124 miles in eight days. He strode across the mad Bartang about which they say, "If in Bartang you haven't been, the Pamirs is not what you've seen." He climbed up and down steep crags because there is no such thing as a gentle slope there. A mile upward plus a mile downward makes half a mile or less forward. Again a mile upward, then two miles downward, and then three miles upward, and beyond these wild miles there was the patient who had to be saved. His illness had been radioed to Rushan. Radio waves are quicker than man's legs and death faster than the doctor.

You saw this in some film, dear reader, or read about it in some book. Well, it can't be helped, I suppose. The fact is that Dr. Kaisov pressed doggedly forward, sparing neither himself nor the mountains. But people have been living there from time immemorial. Dr. Kaisov, a handsome young man (scholarly type), washed his hands as though after an operation which he had not been destined to perform. It was not about his superhuman journey that he told me. He spoke about some latest finding in medicine. He wanted to relieve the hard stones of the disaster with virile green creepers of hope.

Cars scurry nimbly about and little boys run races in Rushan's streets. Mountains hem in Rushan on all sides, and the passes bear names like "Put on Calked Boots" or "Here the Saddle Slides Down."

But cars must cross these passes. People must come and go. Routes must be laid, and daily bread must be grown.

Malikov, secretary of the Rushan District Committee, showed me first of all an ancient fortress in which the *ishan*, the ruler of this land, lived.

"This is part of sightseeing, you know," he said. "The *ishan* was busy with his houris while food and drink were carried through that gate yonder."

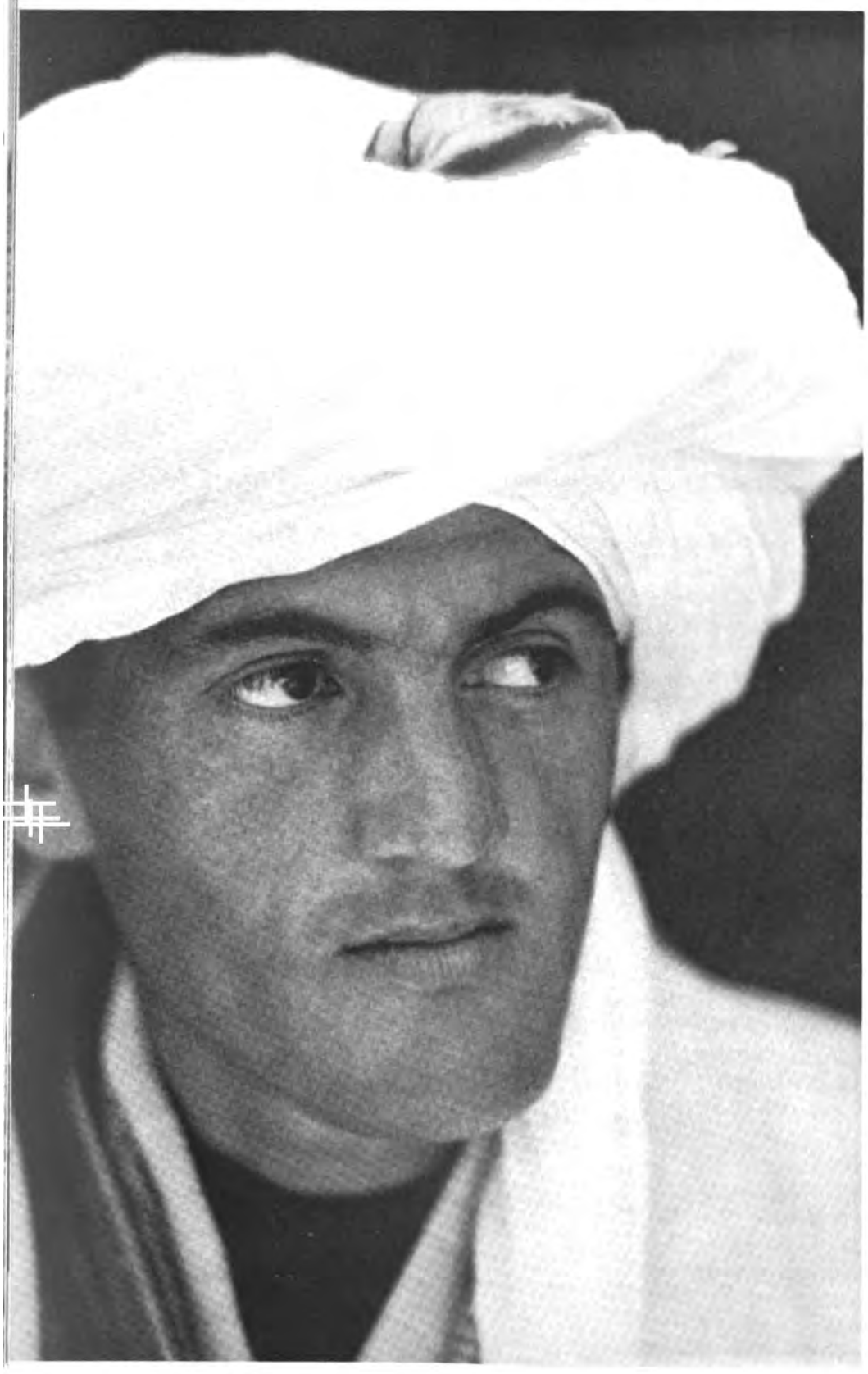
Malikov's opinion of the *ishan* was unfavorable. He even said that the *ishan* had been a rotter, and he based his opinion on several biographic items which reflected very sadly on the *ishan's* morality. The upkeep of the emir was said to have consumed 95 per cent of the entire budget of Bukhara, and thus provided a shining example for the *ishans*, showing them how they must handle the local budgets.

Somehow the sightseeing highlights were connected with horrible historic reminiscences. One place was famous for disembowelment, another for the debauchery of children, still another for red-hot pokers. Those who built these sightseeing castles were drowned to keep the secret or get rid of a witness or get

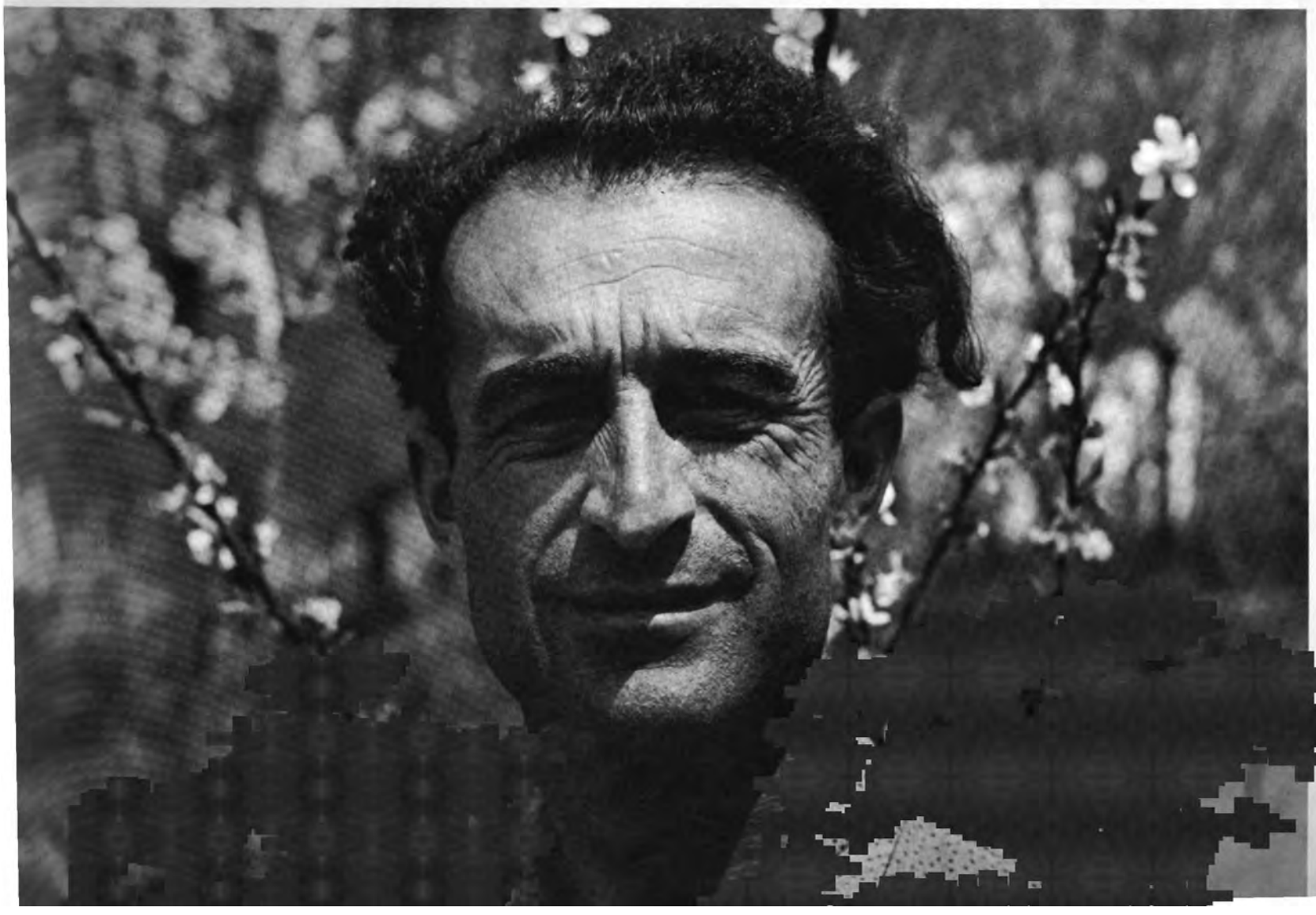
(Continued on page 20)

ROOF OF THE WORLD

Three generations of Pamir mountaineers. Their clothes and faces show the changes time has brought to this remote part of the world. The old man still wears traditional dress, the young man only on festive occasions, and the boys . . .



Less than 40 years ago this corner of Central Asia wa
a region of total illiteracy. Books, music, theater are no
general commodities. Mazarsho Surobshoyev, mountai
born and bred, stars in a local production of a play by Molière



ROOF OF THE WORLD

The women of the Pamir Mountains never wore the traditional veil of the East. Their faces are calm, open, they have the stamp of pride in freedom. They are very much their husband's equals. The men say they like them that way.

ROOF OF THE WORLD

rid of an intelligent being or just to be on the safe side. Thus only the executioners prospered under the auspices of their patrons.

Malikov contemplated the Rushan valley from the rampart where we stood.

"A good man did not even suspect who his ruler was. A good man knew that he would not last without a day's work and he imagined that any two-legged being was just like him.

"To hell with these castles," Malikov said finally. "Let's go."

He is a very likable guy, this Malikov. I told him that I thought we had met before.

"Don't tell me now that you believe in metempsychosis," he smiled. "I bet we've never met before."

"Why can't you admit that we met, say, a thousand years ago. It won't interfere with our materialist world view, and somehow it's pleasant to believe such things."

He laughed.

As we walked over Rushan he showed me their fields above the clouds.

"We have too little land," he complained. "Not like Vanch. But Vanch is not the Pamirs yet. We say, 'If in Rushan you haven't been, the Pamirs is not what you've seen.'"

I told him I had heard the proverb before. He smiled and said that proverbs were better for civic pride than for truth seeking.

The loudspeakers were blaring, we could hear the babble of screen voices from the open-air movies, and a *rubob*, the instrument of the great hafizes, was playing somewhere in soft undertones. The Martian canals on the mountains grew dark, while the snow-capped peaks glowed an intense pinkish glow, because the sun was loath to depart.

Lights were turned on in the teahouse, and the *pialas*, tea kettles and chessboards burst into intense and colorful being. The dark-eyed Moslem madonnas wrapped their infants in motley shawls. The first overdressed young men sprinkled the streets.

The steeplechase of life, more or less correct despite some particulars of terrain, led me on. As the old hafiz said: "Everything will be as it must be even if it happens differently."

This is what I thought, speeding along the Badakhshan highway at night. I was bound for Khorog, the highland capital of the Pamirs, where I could sum up my first steps on this soil and see if reality corresponded to the well-known proverb: "If in Khorog you haven't been, the Pamirs is not what you've seen."

Nestled in green and somewhat standoffish, Khorog was living out its last patriarchal vestiges, and you still saw national costumes with wide trousers mixed in with European

clothes. Yet these costumes were also influenced by fashion, were much bolder than tradition prescribed, and the wide trousers looked more independent than in Vanch or Rushan.

Young men all sported fashionable suits and exposed their heads to the open air instead of wearing Eastern skullcaps.

Chance meetings are always improbable. The first man I met was a journalist I knew from Moscow, and he immediately dragged me out of the car.

"A visitor to the peaks!" he screamed. "We'll have a midday feast in your honor!"

Straight out of the car I plunged into Muscovite chatter, nice, noisy, superficial, yet instructive.

Instructive because in three minutes it was crystal clear that Vanch was not the Pamirs, and Rushan was not the Pamirs either. Nor was Khorog the Pamirs. They all belonged to Badakhshan, and Badakhshan was not the Pamirs.

"Now what are the Pamirs?" I asked, nerving myself to hear the terrible truth that the Pamirs are not the Pamirs.

It transpired that the Pamirs was Murgab, because even in excavations they had found an acrostic decoded roughly as follows: "If in Murgab you've never been, the Pamirs is not what you've seen."

As a result, we went to the Regional Committee to pester the busy people so we could wangle a car to Murgab.

3

The Murgab road led us higher and higher, past exposed rock, and heaped up rock, and across rivers which flowed at a perceptible angle and burst here and there into waterfalls. Badakhshan passed into the Pamirs plateau unwillingly, making the road difficult, tangling it up and towering its mountains higher and higher. The mountains blanched and faded, and their vegetation melted until it completely vanished, giving place to what might be taken for well-spaced porcupines. Aired by the sun, the snow clung tenaciously to the rocks.

We were approaching Koitezek: 14,000 feet of rock above sea level. The Koitezek pass looks like a nineteenth century parlor whatnot with tiny toy cars here and there as bric-a-brac. On closer inspection the bric-a-brac turned out to be huge trucks.

At this altitude the engine begins to fail. The air is too rare to distill the oil, and the mixture is too rich.

Our driver Kadam Khashnazov, browned by the wind and the sunshine and the road dust, was humming a song which can be summed up as "All is vanity of vanities, and on you must drive." Just as we approached

the pass, he stopped the car and got out to stretch his legs.

It was as cold as winter. The sky was arctic, clear, coldly distant, as though it belonged to a different planet.

"Can you still breathe?" he asked.

"Uh-huh."

"Good for you. Let's go then."

Now we were climbing the parlor whatnot of stone. Traffic signs displaying a triangle with an exclamation mark and denoting "Other hazards" met our eye. A question mark or dots would have been more in keeping with the style of the road.

On the top shelf of the whatnot the winding road, perched high over a precipice, had once been lined with posts of concrete. Now only the steel rods remained, bent to the shoulder as though with a heavy sledge hammer. Actually they had been knocked down by cars when the road was icy. Fortunately the precipice is filled with snow in winter, and that saves the cars that slip over. They are dragged back onto the road with cable. Now there were neither posts nor snow. Kadam looked like an experienced surgeon doing a complicated operation. He knew he

would do everything he had to with great precision, and yet wayward nature must be reckoned with.

The theory of probability worked perversely: We met cars head on just where meeting them was most improbable.

The plateau began abruptly. Breathing was difficult, and I was sick. This sickness passes quickly, I was told. Anyway, until it does it is very unpleasant. First there is a stitch where rheumatism once was, then the traces of removed dental nerves begin to itch—a string of memories and sighs. Finally, your heart misses a beat as it did in youth when something very interesting came to your mind's eye.

Finally I was so wrapped in memories that I thought I was going to be sick, and then I turned to the driver and said:

"Give me the wheel, Kadam!" I said. "Give me the wheel because I have gone too deep into self-analysis."

"Take over," said good Kadam. "Think about the road and don't think about yourself. The road always helps that way."

The steering wheel is an instrument for blending personal and social interests. Sometimes a personal turmoil must be overcome to avoid road accidents.

Only now was it clear how high we had climbed. The poplars of Khorog would be cramped under the sky of Murgab, they would simply pierce it.

The first thing we saw in Murgab was a

volleyball net stretched across the main street emphasizing the fact that volleyball was possible even at low air pressures. There were traffic signs over the net forbidding passage to trucks and motorcycles. So trucks and motorcycles tempted fate by rushing under the traffic signs, in full view of the militiaman. That passion for traffic signs! In one mountain village of ten houses the sign "No horn blowing!" was displayed, and no driver could resist the temptation to toot when he passed.

Murgab is in a small valley without a single blade of grass. The only plants look like very old pincushions which are never dusted and are left full of bristling needles and pins. The loudspeakers were working full blast, and passersby whistled popular tunes.

The man behind the counter had an enigmatic face: He looked like Tamerlane, mustached and in a cook's cap. On the walls were canvases in the style of Niko Pirosmanishvili. The Niko who had painted them saw Murgab all in ecstatic splashes of color, and if nature or some pedant were chary of bright colors, so much the worse for them.

The teahouse was crowded.

Truck drivers with brick-red faces were chewing spring onions they had brought from Osh. Militiamen were munching cookies with a concentrated air, and two elderly men in *chapans* were playing chess on the dais. They were strong players, no worse than players in Badakhshan, but their movements were slow, and instead of the Badakhshan hafiz beards they sported warlike shaggy beards à la Sabudai-Bagatur.

The drivers who had raced their trucks all night along the Pamirs highway were chewing unhurriedly and thoughtfully, like hungry saints after a long and difficult miracle. The trucks were parked outside under the "No parking" sign. Those drivers! Perhaps they did not want to work miracles, but the Pamirs road forced them to.

Any travelogue must ask the sacred question: "What did you like most?"

The answer is no less sacred: "People."

Strangely enough, this answer fits my case perfectly.

In Khorog everything went as before except for the cold wind, which suggested that there was no hurry going back because there was no flying weather and the pass was closed and I might as well have stayed in Murgab, or in Rangkul, or on the shore of fine Lake Bulunkul. There was no flying weather because nature was wayward. And the hotels were crowded, of course.

I like crowded hotels. They point to an intense interest in the locality. In Khorog there are always hordes of strangers. However, the worst invasions come with the movie people, as was true this time.

A blizzard curled on the mountains nearby. The list of those who wanted to go by plane was formidable. We were also listed. However, still no flying weather.

Then something happened which might seem quite insignificant but which shows the meaning of friendly sympathy in the Pamirs. True, the event related personally to me, but surely it is through our personal perceptions that we generalize. Kadam the driver paid me a visit and brought me a driving license he had penned out himself on a sheet of paper from a school notebook. The document stated that he, Kadam, had tested me as a driver and gave me the highest rating for my skill and that "herewith it is certified that he can drive a truck in mountain badakhshan." The document must have cost him a tremendous and agonizing effort. But he thought himself in duty bound to draft it. Kadam was a good man for whom no effort was too great for the sake of a friend. This is the most precious certificate I have ever received. Usually I have to coax, drag out, wangle certificates from people who are supposed to give them. Kadam was not supposed to, he was simply a good man.

It is sad that the most precious document proves to be absolutely useless in the hierarchy of official papers. It will not serve as a driver's license.

Anyway, it's time to take off. Beyond the pass lies Dushanbe, the city of roses and heat. Beyond the pass lies the paradise city where grass bursts through the asphalt, where bats run races in the city park, and the mountains keep discreetly away to make a good landscape.

And what about the weather?

Now, didn't the old hafiz say that everything would be as it must be? In the morning we were all summoned. The word "weather" sounded like the word "victory." Our tickets were checked as though in a bus at rush hour. Who knows what the earth, water, fire and air may conspire to do in a couple of hours?

Our plane was pawing the ground with impatience. Suddenly we heard the familiar hooting. Kadam's car. Kadam jumped out, his new passengers watching in disgust.

"Hi!" he shouted. "I am going to Murgab. I shall look at the sky. Good weather. Good flight. Be good. Come back soon!"

We hugged. Kadam jumped back into his car and went to Murgab.

He was a good friend.

The plane bumped before taking off. I looked out the window and I thought I saw Kadam's green car crawling up the highway.

Courtesy of the magazine Smena

To the visitor from the lowlands, it would seem that there are easier places to live in than this high country with its rarefied atmosphere. But Pamir people would not trade their piece of the earth for any other anywhere.

WORK

By Boris Pankin

THERE is only one sample of it now, but it is not a homespun version, no perpetual motion machine laboriously conceived at home by a lone amateur. It is only a few months old, and it took two years to make. Nearly everybody knows about it by now, everybody, at any rate, who is interested in the complex problem of mechanical milking. Economists and milkmaids, engineers and zootechnicians, designers and physiologists have studied this milking installation thoroughly and carpingly. Their approval is all the more weighty because it was not given lightly, and in some cases it was given quite reluctantly.

Said Lida Ilyina, a milkmaid, "I don't even feel as though I'm working."

Said Alexei Sineshchekov, Doctor of Science: "I'm very much impressed. It's the best installation of its kind I've ever seen. The milking time is 3.7 minutes. Splendid!"

Said Venyamin Mutovin, Doctor of Veterinary Science, "There were no cases of acute or clinical mastitis."

Said Vasili Korolev, designing engineer, Doctor of Technical Sciences and the dean of mechanical milking in the Soviet Union: "The Komsomolka installation has for the first time mechanized and automated important operations which have to be done by hand with the usual mechanical milker. As for the sanitation station idea, the inventors themselves do not realize how important it is."

Said Vasili Novozhilov, economist and assistant professor of agriculture: "As compared with the Yolochka installation, the Komsomolka milker cut labor expenditure by 48 per cent. In other words, or rather, in other figures, one milkmaid operating 8 to 10 machines can milk 110 cows an hour. Each cow keeps her half a minute. She actually spends no more than 10 to 12 seconds of that half minute in physical labor."

Milkmaid, economist, physiologist and designer have had their say. What can the journalist add? Perhaps the most remarkable item: that the Komsomolka machine was designed by a group of amateurs, newcomers then, but no longer, to this field of engineering. The inventors of the new milking machine with automatic controls are young city people, engineers and aircraft builders. They set up an amateur designing bureau and devoted countless hours of their leisure time to the project. They got no pay for the job though they worked very hard indeed. It was their contribution to the society in which they live. They had technical problems aplenty to solve. But over and above those, they had a whole series of nontechnical questions they were asked and they had to find the answers before they were through.

To tell how they arrived at those answers would take a book. This is only an outline, not so much of the results as of the process, not so much of their discoveries as of their searchings.

The first question (one of those they were asked when they had been bitten by the milking machine bug) was: "What in the world do you need that thing for?"

What did they need it for? They had set up a volunteer designing bureau and had elected Mikhail Goikhenberg (he was the oldest in the group) to run it. What problems were they to tackle here? There were all kinds, and many too many to cope with in a regular eight-hour working day. Some of the members got tired of thinking about it, so they put on their jackets and left. But this particular group stayed on, making calculations and putting things together. One person, looking at them, shrugged his shoulders and remarked: "They seem to like working overtime!" The name "Overtimers" stuck. These people really liked their work, liked it very much, but they didn't like to be called "Overtimers." That sounded like people who worked on and on just for the sake of working.

What they wanted to do was to create something, to help someone. Thinking back on it, they are surprised now at how little they knew about what turned out to be so important later on. What they did was leaf through magazines and newspapers, hoping to read about someone who happened to need seven willing heads and twice that many capable and restless hands.

They went on looking until the Central Committee of the Young Communist League asked them whether they would be interested in trying to improve the new Veyer milking installation. Gennadi Yurin was the one they approached.

"I came home from work," he related, "met Goikhenberg, and we spent the evening 'milking cows.' "

Why should these city folk have become intrigued by a milking machine instead of something closer to home, say, a machine to scrape winter ice off the sidewalks? They don't know themselves.

They had a look at the Veyer and did not like it much. Then they inspected two other machines, the Yolochka and Karusel. The latter deserved respect, the machine really milked cows, its conveyor really worked. They still thought the cow-milking terminology funny, but they were thinking with those terms now. The first ideas were hatched, the most troublesome one being the realization that no matter how much they improved the Veyer, it would never be any better than the Karusel. And the Karusel was there, ready to go to work. They eyed the Veyer angrily. "Why is the damn thing round?" The machine set limits on any inventive ideas they might have. It fenced in their thinking.

"It got on our nerves. We didn't like limiting ourselves to improvements.

"There was the Karusel. The milkmaid sat in one spot while the cows went round and round. And there was the Veyer, with the cows standing still while the milkmaid rode round and round, complaining that she got dizzy and nauseous. What if we stopped the cows and the milkmaid too? There was no need for her to keep moving in a circle. She could be put in a cradle, a sort of armchair, which would travel along the machines. And the machines, raised slightly so she would not have to bend over, could be set in two rows with a passage between."

The second question (related to the first but really independent): "What do you stand to get out of all this?"

To some people the study, endless questioning and grueling practical work that the seven had put in just to find a project to work on would seem to be senseless, just about as senseless as the way they were passing out their free time, efforts and talents without remuneration, or the way they were trying the patience of their sweethearts and wives.

The philistine cannot ever reconcile himself to the fact that there are people who don't think in terms of "what's in it for me." The very fact that such people exist shakes them up in the same way that a model which is completely irrational except that it works can drive a rational designer half crazy. The philistine, too, wants a simpler world, wants to get to the bottom of incomprehensible phenomena, to reduce them to elementary terms, to convince himself and everybody else that "nobody wants to be anybody's fool! That nobody does anything for nothing."

The management of the plant where the seven worked praised their initiative, so did the union and the YCL. But even good union people and active YCLers kept plying them with questions:

"What the devil are you doing this for, working after hours? Why the sudden interest in milkers, waterers, and all that? Trying to make some extra money, are you?"

The question was not out of order. After all, none of the seven had ever been known to deny themselves the pleasures of life. None of them, so far as anyone knew, had ever gone in for ascetism and the sackcloth and ashes of self denial! What was the matter with them? More than that: Not one of them had ever given a sign that he was different from the usual run of person. And yet, of course, they were.

Here, by the way, is what they have to say about one another:

Gena Yurin comes from Kharkov. He is the one who really got us worked up about the milking machine. He has a flare for organization. A stickler on the job, he won't eat or drink until he's done what he's got to do. He's pushed all sorts of things through, among them, a new gym and an apartment house for newlyweds. And now he's with the milking machine every free minute he can find.

Valentine Yasinsky is a man of many enthusiasms. The milker is not Valentine's only craze. He's known in local soccer circles, he's the senior trainer of the Krylya Sovetov team. His room is stuffed with clippings and photographs of famous soccer players.

Industrial esthetics is another of his passions. The Industrial Esthetics Pavilion is located near the cowsheds at the Exhibition of Economic Achievements. If he's not at the milking machine, you'll find him in that pavilion.

He's a do-it-yourselfer. He made all his furniture at home.

How he manages to do all these things is a riddle, even to his friends.

Yura Kanakhin is nicknamed the Great or the Prophet. While

FOR FREE

others sit around making calculations, he puts his elbows on the table, clasps his hands behind his head, and before you know it he's got all the parameters. Not always the right ones, true enough. He's something of a dandy, likes the twist, also "rock" and, of course, girls. They like him too, incidentally.

Volodya Filippov is a devourer of problems, a man of titanic working capacity, always spouting ideas, of which 70 per cent turn out to be nonsensical. But the other 30 per cent deserve close attention. His nickname is Bulldozer, because of the way he argues. He won't listen to or agree with anyone and brands all his opponents reactionary.

Igor Panteleyev was born with a soldering iron in his hand, his friends say. There isn't anyone who can cope with the caprices of a computer like Igor.

Alexei Kashirtsev is one of the older generation. When he puts on his glasses and reaches for a tool, you can be sure the problem will be solved.

Mikhail Goikhenberg is the leader of the group. His cast of mind and position prompt him to give more thought than the others to the larger implications of the group's activities. For the same reasons he serves as spokesman, something like the group's theoretician. It was he who formulated its three basic principles:

"Designing bureaus like ours can make their greatest contribution in the technically backward spheres of the economy where they can use their overcharge of ideas."

"In college the student is taught to build the whole machine, but on the job he works on a single part. That sort of division of labor is necessary in modern production, but the individual's reserve energy and imagination remain untapped. Our project gives us the chance to shape the future of an entire branch of the economy. That is how we see it, not just as a problem of inventing a milking machine. It's the total scope of the problem that attracts us."

"Working under our conditions is possible only if a man feels he is evolving a new idea. To have to work on ready-made ideas every day for two years is something none of us could take. We're always throwing new ideas around."

Third question: "What ideas?"

To explain them better, let's begin at the end, with the ideas already in operation.

The unit in question has been installed in a standard brick dairy with an anteroom containing the sanitation station—a small compound accommodating a single cow. The instant a cow enters, a device is actuated to wash her udders at a specific temperature. Note that this important operation which stimulates the release of milk has to be done by hand with any of the other installations. Remember Vasili Korolev's comment: "As for the sanitation station idea . . ."

When the washing is finished, the door opens to let the cow into the milking room. The animal goes to one of the machines, to the one where the milkmaid's cradle has come to a stop on its monorail. The cow knows from the last time that its fodder will be waiting at this machine. The animal sinks its head into the feedbag, while the milkmaid wipes the udders and attaches the glass cups of the milking apparatus.

Each cow takes less than a minute of the milkmaid's time: a half minute to ride to the machine, press a button and wait an instant, and 10 to 12 seconds to wipe the udders and attach the glass cups. That's all. She has nothing more to do at this particular machine.

Watching the process is a joy, and few visitors, including distinguished experts, people well on in years, with learned degrees and resounding titles, seem to be able to resist the temptation to take a ride with the milkmaid in her armchair.

Above each of the machines is an inconspicuous small gray box, its seeing eye and directing hand. This control block is known as BUD-III, and with it we return to the story of the design bureau's search.

When the group presented its idea of two rows of machines with feedbags and a passage for the cradle and monorail, nobody got excited. It was just another idea, maybe a little better in some ways, questionable in others. What they had in mind was to free the milkmaid's hands, give her less work. They were seeing the problem only from the milkmaid's point of view. But there was another point of view, the cow's, if you can put it that way. The cow objects categorically to freeing the milkmaid's hands, rough and cracked from the cold though they might be. Without those hands the cow will not yield its milk, all of it, for those hands alone can judge when to begin massaging and, more important, when to stop. Otherwise the cows get all sorts of ailments and give less milk.

The machine can't make decisions, they still had to be made by the milkmaid. She attached the pneumatic devices, switched on the machine, did the massaging and washed the udders if she could find the time for all that. But since she now had to milk not 10 to 12 cows but a great many more, she could not remember the peculiarities of each and every cow. This meant that one animal stood attached to the machine longer than was necessary while another was not attached long enough.

"Your idea," said Ivan Teslenko, the inventor of the Karusel, "takes us no further than we have already gone. You've got to go on to the next step."

This self-taught engineer, a man who had led a hard but rewarding life, knew that the group of young engineers of the designing bureau would eventually solve the problem because they had what Goikhenberg would probably describe as "overcharge potential" on their side. And not so much because of their talent but because of their engineering training and the variety of skills they had. Teslenko understood that. He did not regard them as rivals, but as comrades, people working along the same direction as he, carrying on the development of ideas to which he had devoted his life.

The young men were crestfallen for a while. They thought they had finished their job but found that they had hardly begun it. The same point was made by others beside Teslenko, of course. But what he said and the way he said it made an especially deep impression on them. When the young engineers arrived to test their first block, Teslenko was with them. The block had been tested before, but under laboratory conditions. It had obeyed all orders and behaved very well on that occasion. It was as obliging and attentive as a schoolboy who has memorized his lessons well; so well, in fact, that its inventors were a little wary.

This was the real test. The cow Manyunya was to be milked by the entire group. Kanakhin rolled up the sleeves of his flashy shirt and washed the udders. Goikhenberg licked his upper lip and attached the glass cups. Manyunya, not to be left out of the fun, stepped on somebody's foot and poked someone else with her horns. Yasinsky switched on the installation.

The apparatus milked evenly, and obediently did the massaging. Then it was time to switch itself off . . . but it didn't. It kept on milking for five minutes, six, seven. The milk had stopped flowing long ago, but the apparatus was still sucking away, the silly schoolboy who had forgotten the last line of his poem. Goikhenberg waved his hand: "Switch it off!" The young men looked at one another. All were flushed and sweating. Teslenko was miserable: "That's as far as the rest of us have gotten," he repeated and left.

They soon figured out what was wrong. The transmitting element had failed. Kanakhin was already raising a moist palm to his head, and a new idea came to them that night. A few days afterward they hauled Manyunya to their machine again. The transmitting element worked fine this time. The apparatus did the milking, the massaging, and switched itself off on time. Everybody was so happy that they overfed the cow. Each of them shoved something good into her mouth. "Here Manyunya. That's a good girl!" She broke away from them finally as they were escorting her back to the cowshed and they had to chase her across the soggy snow all over the exhibition grounds.

Long days followed. They worked until five at the plant and until twelve at the "cattledrome." Kanakhin caught cold and Yurin also fell ill. Some of the others had to stay away for various reasons, but in spite of all that the first model of the Komsomolka was soon being set up next to the Veyer. New problems. Designing and assembling a block you could hold in your hand was one thing, building one to run 24 machines was quite another, especially on a volunteer basis. The management finally recognized that it was more than a "childish toy" the young engineers were building and did not stint materials. Several workers and technicians were assigned to help them. Within a week they too had become members of the designing bureau and spent all their free time with Yasinsky, Goikhenberg and Yurin at the Komsomolka.

Those were glorious, though hard, months. The installation grew day by day, and the young men could talk on equal terms now to the professors and distinguished specialists who dropped in for a look. But now when the talk turned to the technical subtleties of the equipment, it was the guests who were cautious, afraid to put ignorant questions.

AROUND *the* COUNTRY

THEY TEACH ALL THE TRADES

Our system of vocational training is 25 years old. It is open to everyone with eight years of schooling. That includes practically all young people, since eight years of schooling is compulsory. The 4,000 vocational schools in the cities and the countryside teach all the trades, including such modern ones as automated-line setter and computer operator. They are attended by a million and a half boys and girls, and graduate more than 800,000 annually.

In the quarter of a century since they were established, these schools have given the country 15 million skilled workers.

INTERNATIONAL WINE SAMPLING

Our country is one of the world's major wine makers. Last year's total was 3.17 billion gallons of wine, 57 million bottles of champagne and 68.7 million gallons of cognac. We make 600 brands of wine, many of them world famous. Perhaps that is why the latest international wine makers' contest was held in the Soviet Union—in Tbilisi, Georgia. A thousand wines made by 150 wineries in 25 foreign countries were on display. Eleven of the Soviet republics submitted their products.

The jury awarded 329 gold, 466 silver and only 46 bronze medals. The unusually large number of prize winners, explained the judges, is due to the fact that the quality of wines, champagne and cognacs has improved generally in recent years.

Soviet-made wines won 157 gold, 136 silver and 6 bronze medals.

ANOTHER FORERUNNER OF COLUMBUS?

The man in the picture lived 700 years ago. Nasreddin Tusi, an Azerbaijanian, founded the largest observatory of his time in Marag, a town in the Caucasus Mountains. While studying the astronomical tables he compiled, Soviet scientists discovered that he seems to have known the geographical coordinates of the American continent. Columbus discovered America two centuries later!

SWINGING DAM

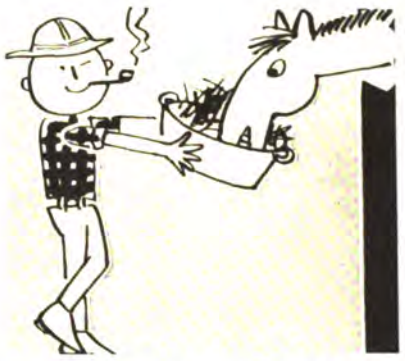
Instruments in the 330-foot-high dam of the Bratsk hydropower project show that the mammoth structure oscillates with the season, in the summer toward the reservoir, and in the winter toward its tail water end. The swing, quite harmless incidentally, may be more than an inch. Engineers explain the strange behavior of the dam by Siberia's big temperature fluctuations from minus 53° Fahrenheit to plus 86°.

MICROSCOPIC BALALAIKA

Nikolai Syadristy, a famous handicraftsman and agronomist from Transcarpathia, has made two miniature musical instruments: a violin a little more than an eighth of an inch long and a balalaika so small that it fits easily into a poppyseed. Only under a microscope can one discern the wooden body of the balalaika. It was assembled from 10 inlaid segments. The strings are one-fiftieth the thickness of a human hair.

DISCRIMINATING TRAWL

The Institute of the Biology of Water Reservoirs has designed an electric trawl that drives the fry away and catches only large fish. The trawl, a system of electric fields, has increased catches by 50 per cent and cut down appreciably the number of fingerlings caught. The picture shows Vladimir Shentyakov, the inventor of this new method of electric fishing.



TAMING THE WILD ASS

Animals caught for zoos behave differently. Some accustom themselves quickly to captivity, others become frantic, refuse to eat and die. Getting a captured animal to eat is no easy task.

The onager looks like a small, not especially bellicose horse. But its legs, head and teeth are terrible weapons in a fight. Every year 10 of these wild asses are caught in Central Asia for the zoos.

For the first three days the captured onager is kept in the dark, without food and water. Then a narrow opening is cut in the clay-coated side of the cage. A bowl with water is pushed through. With its teeth and hoofs the onager smashes the bowl. But the smell of water changes its attitude to a second bowl. Hay is then pitched into the cage through an opening in the roof. If the animal takes some, it is as good as tamed.

SEA PIERS FROM PIPES

Reinforced concrete pipes 34 feet high and 20 feet in diameter are placed on the sea floor next to each other. The giant barrels are filled with sand, and the gaps between them with concrete. The next and final step is the assembly of the abovewater portion, and you have a deepwater pier. The new method of constructing sea piers, tested in Baltic seaports, is very economical. The pipes are manufactured at plants that make reinforced concrete elements. This fully mechanized method eliminates the need for divers, usually required in building deepwater piers.

HEALING OIL

At Naftalan, a resort area in Azerbaijan, local oil and preparations from it are used to treat nervous, gynecological and skin diseases. The efficacy of the new treatment is confirmed by thousands of cases of complete recovery. Naftalan oil ointment is in great demand abroad and is exported to many countries.

Naftalan sanatoriums are now expanding to accommodate 150,000 people for treatment. A pharmaceutical plant is under construction nearby.

LONGEST GAS PIPELINE

The first miles of the world's longest gas pipeline, to stretch from Central Asia to Central Russia, have been laid by builders on the territory of Turkmenia. The 2,128-mile-long line will be piping 742 billion cubic feet of gas from the Kara-Kum Desert to Moscow annually.

A gas pipeline that long involves a very heavy investment. Figures show, however, that the switch Central Russia will be able to make from Donbas coal to Central Asian gas will recoup construction costs in four years.

CURE FOR RADIATION SICKNESS?

Radiation exposure may affect only a part of the body, not necessarily the whole organism. Professor Georgi Strelin of Leningrad considers that a major factor in treating radiation sickness. He conducted the following experiment. He exposed a monkey to radiation with only its paw protected by a lead muff. Bone marrow was taken from the unirradiated area and a solution, a cell suspension, prepared. This suspension was injected intravenously into the same animal. The monkey recovered. The healthy cells of the bone marrow are carried by the blood stream throughout the organism and save it from death, even if the radiation dose is lethal.

HE SCORED 50 OUT OF A POSSIBLE 25

The fourth Siberian schoolchildren's competition to find gifted young mathematicians, physicists and chemists was held recently in Novosibirsk. As many as 10,000 children from the big towns and the most out-of-the-way taiga villages took part. The 800 second-round winners were invited to a summer camp run by the Siberian Branch of the USSR Academy of Sciences, where they tackled the third and final round of difficult problems. The best 330 were accepted for admission to the physics and mathematics boarding school of Novosibirsk University.

One of the third-round winners was Boris Shikanovsky from Yuzhno-Sakhalinsk. Solving problems in chemistry, he scored 50 points out of a possible 25. Having solved all the five problems perfectly, he followed that up with alternative solutions, also perfect. The boy, however, was not admitted to this "school for geniuses," as it is half-jokingly called here, the obstacle being his age. Boris had only just finished the fifth grade. He will be coming to the Novosibirsk school next year.

VENOM COSTS LESS

One gram of snake venom for medicinal use costs more to obtain than its weight in gold. Many of the very expensive ampules are filled in the laboratories of the Kirghiz snake venom plant.

Previously the snake tapped for its venom was released. But besides the fact that snakes are hard to catch, researchers found that the yield of the "herd" increases appreciably if, after shedding their venom, the snakes are kept in captivity, under proper conditions, of course. The venom can then be obtained at a thirtieth of the cost, a finding that will reduce the price of the drug very considerably.

AUTOMATIC MINING

The construction of a new combustible shale mine has started near Kohtla-Jarve in Estonia. The entire process of shale mining and handling is being automated. The mine will be capable of producing 33,000 metric tons of shale per day. The mine field will cover more than 50 square miles and will need 29 miles of conveyor. The plan is to build three such mines in the republic. The complex seems to be applicable to other types of mining as well.

WHOSE QUEEN DID HE SWALLOW?

What a bewildering variety of articles surgeons extract from people's gullets! Gennadi Petukhov, who is a doctor at a hospital in Bryansk, Central Russia, has a "museum" of articles retrieved in such emergency operations. The collection now includes buttons coins, safety pins and even a wrist watch. But the star item is the chess queen an absent-minded player swallowed.

Doctor Petukhov says the patient never disclosed whose queen he had gulped down, his own or his adversary's.

MOST POPULAR TRADE

The Soviet Union's urban population has increased four times since the Revolution, and its volume of city housing has grown seven times.

Last year in Moscow 450,000 people moved to new apartments, and 210 stores, 44 schools, 16 hospitals, 25 polyclinics and 119 kindergartens and nurseries were opened in new residential districts.

The state spends 4.7 billion rubles annually on housing construction, and 11 to 12 million people move to new homes every year.

Building is perhaps the most popular calling in the Soviet Union, with a total of six million people employed on construction projects.

BACHELOR SEALS TAXED

Only four countries—the Soviet Union, the United States, Canada and Japan—trade in sealskins. They have signed a convention prohibiting the hunting of fur seals in the open sea, where it is difficult to determine the sex, age and size of the animal. They are to be killed only at rookeries. But these rookeries are found only on American and Soviet territory. Japan and Canada therefore get their share of skins from these two countries in return for adhering to the convention.

Sealing is based on the very peculiar biology of the animals: the number of males and females born is equal. When the animals grow up, they come to rookeries and choose a breeding place. One male lives with 40 to 50 females. The remaining males in the herd stay bachelors. They are the ones hunted.

Many countries impose a tax on bachelors. Seals do the same, but their bachelors pay it with their own skin.

BURN VERSUS BURN

The dog had recovered from severe burns and it tolerated a subsequent burn much better. A coincidence?

We know that a person who has had an infectious disease need not worry about a recurrence, at least for some time thereafter. He develops an immunity. Apparently much the same thing happens with burns. Researchers at the Institute of Hematology and Blood Transfusion found antibodies inhibiting burn toxins in the blood of animals that had suffered from burns. When other animals were injected with serum from this blood, they survived even lethal burns. Human beings, it was found, produce the same kind of antibodies. This method of treating burns is now used generally abroad, in the United States by clinics in Chicago, New York and San Francisco.

OLD CROSS RESTORED

This is a Novgorod memorial cross made by early sixteenth century wood carvers. It was recently restored. In the old days the cross was venerated for its power to cure toothache. In our age of dental drills and plastic artificial teeth, people no longer turn to the cross for a cure. Now it is admired simply as a work of folk art.

During the war the fascists plundered the museums of the ancient Russian city of Novgorod and sent the cross to Germany. Now it is back home again and on display.

AROUND *the* COUNTRY

QUERIES FROM READERS

QUESTION: How many committees does the USSR Supreme Soviet have and what function does each perform? (Several readers ask)

ANSWER: Each of the two chambers of the Soviet parliament has its own committees. The Soviet of the Union has four, and the Soviet of Nationalities five.

Four of the committees are duplicated in both chambers.

The Credentials Committee (21 members) verifies election materials and the credentials of deputies.

The Budget Committee (39 members) drafts the national budget for adoption by the Supreme Soviet and checks budget receipts and expenditures.

The Legislative Proposals Committee (31 members) studies proposed new legislation and suggestions for changes in draft laws made in the nationwide press discussions held around important legislation. It also organizes the work on bills to be acted on by the Supreme Soviet.

The Foreign Affairs Committee (23 members) studies matters that affect the USSR's relations with the rest of the world and prepares pertinent legislation for consideration by the Supreme Soviet.

In addition, the Soviet of Nationalities has a standing Economic Committee of 31 members (a chairman, usually recommended by a group of deputies from the several union republics, and 30 members, two from each of the 15 union republics). This committee sees to it that the economic plans and budgets approved by the Supreme Soviet take due account of the special economic needs and interests of each of the national republics, territories and regions.

If its work requires it, the Supreme Soviet may also set up committees to investigate and review any problem. Thus, in 1962 a special committee was set up to prepare the draft of a new constitution. The offices of the working staffs of these committees are in the buildings of the USSR Supreme Soviet in the Moscow Kremlin. (For more detailed information on the Soviet of Nationalities' committees, see the October 1965 issue, page 46.)

QUESTION: How does a church like the Leningrad Baptist Church which we visited, contribute to the peace effort? I understand that at one time this church gave 500 rubles a month to the Soviet Peace Committee. (Dr. Carl Soule, co-executive secretary for the Division of Peace and World Or of the Methodist Church, New York, New York)

ANSWER: Prayers for peace constitute part of nearly every service of the Leningrad Baptist Church. "Blessed are the peacemakers," "They shall beat their swords into plowshares," and other such texts serve for sermons. The Christmas Eve sermon is traditionally dedicated to peace on earth.

The Leningrad section of the Baptist Society is frequently host to church dignitaries from other countries. In 1965 the society was visited by coreligionists from New York, Florida and California. Members of an English delegation preached six sermons at the Leningrad church. The society believes that these visits help to build mutual understanding and friendship between nations. Anatoli Kiryukantsev, pastor of the Leningrad Baptist Church, was a delegate to the recent World Congress of Baptists in the United States, where he spoke on "The Church in Defense of Peace."

The society has authorized the church to make annual contributions to the Peace Fund.

QUESTION: How does the Leningrad Peace Committee operate? We were told that last year it raised 280,000 rubles largely through theatrical performances and athletic events whose receipts were contributed. (Dr. Soule)

ANSWER: The Leningrad Peace Committee receives voluntary contributions from individuals and groups. Some people send in regular contributions. This past year, for instance, circus performers, including the famous animal tamers Irina Bugrimova and Walter Zapashny, and the Fairy Tale Puppet Theater gave benefit performances for the Peace Fund. The proceeds of various athletic events were contributed. Inventors at the Sevkabel Plant and an anonymous engineer employed at a furniture factory were among the many groups and individuals who made donations.

The 1964 Peace Fund contributions totaled 280,000 rubles. The 1965 total is expected to be as large.

Part of the money is used for the upkeep of the large building where various friendship meetings and exhibitions are held. Most recently children's drawings from India and Sweden were exhibited there, and a party of 250 English tourists who arrived on the motorship *Bashkiria* were entertained at a reception and concert given by the Soviet-English Friendship Society.

The committee arranges lectures by Soviet people who travel abroad. It schedules documentary film showings about other countries and sends Soviet books, records and photographs of Leningrad to foreign organizations.

The committee is host to scores of delegates and tourists affiliated with peace movements. Among its guests last year were several from the United States—clergymen and representatives of the Citizen Exchange Corps.

The committee employs two full-time people and has the services of more than 200 volunteers, among them writers, scientists, teachers and retired officers of the Soviet Army. The present chairman of the committee is Alexei Treshnikov, Director of the Arctic and Antarctic Scientific Research Institute.

QUESTION: With such big organisational problems in industry and everywhere else, how can you believe in the eventual elimination of government? (Lewis Kimball, Lenox, Massachusetts)

ANSWER: We believe that as we build communism, the state will wither away and be replaced by public self-government. Naturally, this will take considerable time. It is something for the distant future. We hope by then to have solved many of our organizational problems in industry and other fields. The process of withering away, as a matter of fact, has already begun: public organizations have taken over some state functions. For instance, all over the country we have groups of citizen volunteers helping the militia and serving on various committees of the local Soviets. We have workers participating in the management of factories through production conferences, etc.

QUESTION: What is the diet of the average Russian? Which are the most popular meats, vegetables and fruits? (Frank W. Roach, Miami, Florida)

ANSWER: We eat much the same food as the people of the Central European countries. Shchi, a vegetable soup, is one specifically Russian dish. As a rule we eat more bread than people in the United States and in Europe. We like different varieties of porridge (wheat, oats, buckwheat and millet) and potatoes (boiled, fried and roasted). As for meat, we eat mostly beef. We prefer it to pork and mutton. Among vegetables, we especially like cabbage, carrots, cucumbers, tomatoes and beets. Our favorite fruits are apples, pears, tangerines, plums, apricots, peaches, cherries, canteloupes, watermelons, grapes, strawberries, black currants, etc.

QUESTION: What are the most popular types of public entertainment? (James Hogan, Elizabeth City, North Carolina)

ANSWER: Probably movies and soccer. We have more than two million people playing soccer and scores of millions of fans. In spite of the competition of TV and movies, theaters and concert halls are almost always full and tickets hard to get.

We welcome your questions. All will be acknowledged. Some will be answered by mail, those of general interest will be answered in this column or in a future article.

THEORY, EXPERIMENT, PRACTICE

The Soviet Union has 600,000 working scientists. Ranking third in number after engineers, and physicists and mathematicians are the 40,000 medical investigators probing the unknowns of the human body. Each of their victories, great or small, means more lives saved.

Blocking Heart Disease

By artificially inducing angina pectoris and myocardial infarction in animals, researchers have found that these diseases are often caused by disturbances of the nervous system of the cardiac blood circulation. The experimenters can cause angina pectoris and even myocardial infarction by disturbing certain nerve areas; in other words, these diseases cannot be fought effectively unless the nerve centers of the heart, not simply the heart itself, are treated.

When some of the patient's reflexogenic areas are irritated, the resulting nerve impulses reach the heart. In other words, in heart ailments a barrier needs to be placed in the path of these harmful stimuli. The indicated treatment is to block the current of nerve impulses to the heart by some drug and thus prevent pathological signals from reaching the patient's heart.

The studies were done by Dr. Nina Kaverina of the Institute of Pharmacology and Chemotherapy.

Vegetarianism: Good or Bad?

Is a strict vegetarian diet good or bad for you? This is no idle question: in some Eastern countries great numbers of people are vegetarians by religious conviction. Many Westerners are vegetarians for health reasons. A frequent argument of vegetarians is that the human organism and its digestive system are better adjusted to a vegetable diet.

Professor Konstantin Petrovsky, a prominent Soviet dietitian, declares that vegetarianism should be resorted to only in exceptional cases and as a purely temporary expedient. A prolonged or permanent vegetable diet, he says, disturbs metabolism and makes the vegetarian susceptible to various diseases.

But how then do we explain the fact that some lifelong vegetarians look very healthy? Apparently the human organism eventually adjusts itself to such a diet—but at the expense of some strenuous rearrangement and mobilization of all its internal resources—and not without harmful consequences. According to Professor Petrovsky, an exclusive vegetable diet is unquestionably harmful.

New Developments in the Theory of Digestion

For decades, ever since the studies of the great physiologist Ivan Pavlov, it has been assumed that food breaks down in the human intestine under the action of various enzymes. The molecules resulting from the process are assimilated through the intestinal mucous membrane and build up the organism's energy resources.

When the intestinal juices act on various nutrients in a test tube, the enzymes do their job well and the nutrient molecules are duly broken down. But—in the organism the breakdown of food is many times more rapid than in the test tube. Why?

Professor Alexander Ugolev of Leningrad offers a bold hypothesis: our organism contains some unknown digestive mechanism. The scientist made this experiment: He placed in a test tube with a solution of starch a pancreatic enzyme which breaks down starch into glucose molecules, then slipped a tiny strip of intestine into the same tube. The strip accelerated the breakdown of starch molecules many times over and brought the reaction rate close to that observed inside the organism. He repeated the experiment with other foodstuffs and found that the breakdown of carbohydrates, fats and proteins was similarly accelerated. Thus, his hypothesis that the human organism has some unknown digestive mechanism was confirmed. The scientist called the process mucous membrane or contact digestion.

It has been established that the breakdown of food that occurs in the intestine results in fairly large molecular compounds. The final breakdown occurs at the intestinal mucous membrane. In other words, the mucous membrane digests and not only assimilates. This contention has been confirmed by research on the intestinal structure.

While only relatively large villi can be detected on the intestinal mucous membrane through the conventional microscope, the electron microscope detects additional microvilli: cylindrical processes densely covering the intestine cells. Each microvillus is approximately one micron high, and its thickness is one tenth of its length. There are from 50 to 200 million microvilli on each square millimeter. They increase the surface of the intestine by 30 times.

Nutrient molecules are broken down somewhere in the middle of the intestine. Molecular fragments, still too large for assimilation, approach the microvilli on the intestine membrane, where they are acted on by various enzymes that are present between the microvilli. Some of them are produced by the intestinal cells themselves, others are captured from gastric juices and fixed over the membrane. If too large a fragment of a nutrient molecule approaches the microvilli, it is tossed off to be broken down into smaller particles. Nutrient molecules small enough to pass between the microvilli immediately run into the corresponding enzyme. Chemical bonds are ruptured in the molecules, and the resulting components are assimilated.

This production line is very efficient. The enzymes concentrated near the microvilli act on practically all nutrients passing by, accelerating the breakdown of molecules. Thus the food is broken down in a matter of hours; it would take days to process it otherwise.

Mucous membrane digestion protects our organism against the invasion of microbes. Microbes cannot assimilate food in the intestine on their own. They can only feed on the final breakdown products. However, in the middle of the intestine there is very little food for them, as we now know. All the food the microbes could assimilate is concentrated near the microvilli. However, the microvilli are so densely packed that no microbe can get in between them. In other words, the concluding stages of nutrient breakdown occur in a sterile medium.

The discovery of intestinal mucous membrane digestion will help the physician to treat gastrointestinal diseases. Many of these are caused by the "baldness" of the internal surface of the intestine which has lost microvilli and thus cannot break down nutrients into sufficiently small particles. Other diseases, especially of infants, are caused by insufficient enzymes at the microvilli. So far only the causes of these diseases have been established, the search for their treatment and prevention is still ahead.

Healing with Ultrasound

Ultrasound has come into its own in medicine. It is being used at the Central Research Institute of Spa Treatment and Physiotherapy to treat several diseases, including lumbar radiculitis. The conventional portable device available at most clinics is employed. The course consists of 10 to 12 two- or three-minute sessions. Irradiation intensity is gradually stepped up. The result: in 51 out of 60 cases pain disappeared or decreased, and normal motor functions were restored.

Cancer Detected by Beta Rays

The sooner cancer is diagnosed and the more radical the operation, the higher the patient's chances.

Until recently biopsies of tissues, cells, fluids, etc., and X-ray examination were the principal methods of cancer diagnosis. These methods have many disadvantages. A new instrument known as a Beta radiometer has recently been designed for the purpose by the USSR Research Institute of Medical Instrumentation and Equipment.

At examination, the patient drinks several ounces of a harmless radioactive phosphorous solution. It distributes uniformly through the healthy tissue but accumulates in malignant tumors. Thus the instrument registers the cancerous area.

The Beta radiometer is highly sensitive. It can detect even very small tumors, for example, tumors of the anterior and posterior walls of the eye.

The instrument also registers the intensity of the disease by the rate of accumulation of radioactive phosphorus. In surgery the radiometer quickly locates the exact site of the tumor. After the operation the instrument helps to determine accurately how effectively the tumor has been removed.

The Lvov Medical Equipment Plant has started mass production of this instrument. It is simple to operate, weighs only 40 pounds and can be installed easily, even at an outpatient clinic.

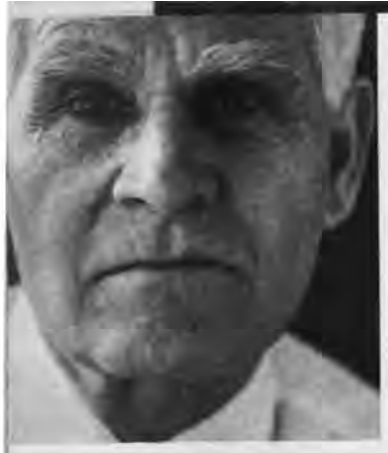
Vendors Feast with a Woman. *Oil. 1920.*

GUDIASHVILI'S

Tsotskhali Fish. *Oil. 1920.*

GEORGIA

ART



GUDIASHVILI'S GEORGIA

By Marina Khachaturova

A PAINTER with a long and distinguished reputation, 69-year-old Lado Gudiashvili calls himself "a fanatically hard worker." Showing me an impressive array of work he has done in recent years, he said, "I paint every day from morning till evening though I know that an artist my age cannot go much farther than he already has."

From the outset of his career Gudiashvili was intent on evolving a style of his own with deep roots in the traditions of his native Georgia. That motivated his life-size copies of the frescoes in ancient Georgian temples. And in 1919, with that same objective, he left Tbilisi, now the capital of the republic, for Paris, where he spent six years.

"Paris either makes or breaks a man," he said. He himself did not become enamored of modern French art but chose to follow his own inspiration. In such pictures of this period as *Khashi* (a national dish), *Tsotskhali Fish* and *Vendors Feast with a Woman* he depicted urban ways of life which are characteristically Georgian. His manner revealed a greater preoccupation with line than color. The form was treated conventionally, the rhythm clearly defined.

Gudiashvili's Paris was like that of thousands of other artists who came there with high hopes and great dreams—a garret in Montmartre, friends and talk about art at the famous Rotonde Café, poverty, painting day and night—the sort of life that has been described in countless novels and biographies of artists.

"A man's feeling for his country is perhaps his strongest emotion" he said simply. And I realized how much this sentiment, which people do not often put into words for fear of sounding trite, really meant to him. He left Paris in 1926, when he had won both fame and fortune. He went back to his native land not knowing what the future there held for him. Georgia had become a Soviet republic in 1921, and in Paris he had heard a great deal about what was going on there, hardly a word of it true.

When his ship neared the port of Batumi, the rumor circulated that returning Georgians were shot as soon as they disembarked. Some of the passengers decided to go back to Europe. Gudiashvili went ashore. He was lonesome for his native soil. His kinship with his own people and their art was too deep for him to become an expatriate. He had no idea how he would be received in his homeland and had brought with him only a single valise. His paintings today are scattered all over the world—in the United States, France, Italy, Holland in museums and in private collections.

At a one-man show in Moscow in 1957 critics and viewers were fascinated by the singular charm of his imagery, colors, and line.

Gudiashvili is the Georgian intellectual at his best. He was educated as a European and is at home in both cultures, the Western and the Oriental. He is a man of great conviction, a quality that has kept him true to himself and honest with others. It brought him back to his homeland to identify himself with the new life being built there. It has also helped him, in a troublous time, to weather charges of formalism. "The all-important thing in life and in art is to serve your fellow men," he told me.

This painter's studio reveals a world of art born of a strong creative urge and fantasy. Original, forceful, poetic, refined without being affected, his painting is deeply rooted in the national tradition and is, at the same time, highly personal. There is no artist he can be said to resemble. His works are remarkably different from each other, the paintings disturbingly odd, alluring and mysterious, the gouaches radiant and vital. The graphics he did in the forties are reminiscent of Goya, the animal and the human mingled, half symbolic and half real. His illustrations, in the classical style, for *The Man in the Panther's Skin* by the great twelfth century Georgian poet Shot'a Rust'aveli, convey all the pungent aroma of that distant age. Gudiashvili's pictures make you want to go back to them over and over again. Rockwell Kent said that it was by the grace of Gudiashvili's art that he fell in love with Georgia. Gudiashvili is a superb draftsman. With a flowing ease and a precision of line he conveys the grace of the human form, its dimensions, power, rhythm and movement.

My visit was a most exhilarating experience. I saw once again the work of an artist of world stature and met a remarkable personality. The feeling I carried away was very much like that expressed in the artist's album by his dear friend, the noted Soviet poet Boris Pasternak. "The days one visits you," wrote Pasternak, "become festivals, the hours spent with you seem hours out of a different time and another age. The day after the visit one awakes with the sensation that everything he had seen and said was dreamed."

Picking Fruit. *Gouache. 1961.*

The Sorceress. *Gouache. 1964.*

Solar Eclipse. *Gouache. 1964.*

MUSICAL SYSTEMS OR MUSIC?

By Zara Levina
Composer

THERE IS a great deal of talk by muscians all over the world today about exploring new paths in music. In our century, particularly in recent times, a rich crop of new-fangled "systems" of music has sprung up. The originators of these systems vie with each other in attempts to stun and bewilder the public. Most of the new fads that defy all tradition may be good mental gymnastics and produce startling sound combinations—but they do little else.

The avant-gardists have brought us the dodecaphonic and serial systems, concrete music, aleatoric music and a number of other new systems. The greater the desire to impress by bizarre and original effects, the further we remove ourselves from genuine music.

A look back at music history will show us that no system can have vitality unless it is born out of the creative process itself. A system conceived and superimposed beforehand generally proves barren.

Novelty for novelty's sake, a breakaway from the roots of art and artificial diversification of new techniques all lead in the long run to monotony.

For all its claim to novelty, music that lacks emotional depth, true individual style and, moreover, shrinks from reflecting the conflicts of our age is bound to be short-lived.

Why should a composer need to invent a trend so he can give himself a musical identity? A composer's business is to create, to translate his thoughts and feelings into music.

By drawing inspiration from Russian melodies, by developing and generalizing them, Modest Moussorgsky evolved his own style. He is a composer who is loved and appreciated by a large public. Scholars of music continue to study his work for its individual musical idiom and its unique contribution to music. Individuality of style distinguishes Bach from Grieg, Schumann from Debussy, Rachmaninoff from Barber, Prokofiev from Stravinsky.

When we compare composers of different periods and different nations, we find that the melodic pattern of their country's folk songs was an important influence on their style. De Falla's romances are "Spanish" because their melodic line is a development of folk intonation. What makes the music of Rimsky-Korsakov's or Borodin's operas genuinely Russian if not the fact that the whole pattern of their intonations is founded on Russian folk songs? There is a deep link between the music of Gershwin and Bernstein and Negro melodies, with their specific rhythms and flavor. Kachaturyan's music is rooted in Armenian song lore.

This is true of composers everywhere. We marvel at the rich melodies created by the popular genius, at the beauty of their metric and rhythmic patterns. To the composer who knows his technique, who has a broad cultural background to draw on, and, of course, talent, they are a veritable fount of inspiration.

Now and then one hears it said that composers have exhausted their store of themes and ways of expressing them. To my mind, such notions stem, in part, from the purely formal approach that cuts music off from the soul and inspiration. Serial music, for example, based on mathematical calculation, surely cannot touch the heart of the listener though it may stir his interest. Great works of art reach deep into the soul, they do not merely excite curiosity.

We are beginning to be bored by the irony which certain modernist composers affect in their treatment of man's inner life, his world of feeling. Why should art try so hard to rob the individual of the emotions without which his life would be empty? Joy, patriotism, grief, anger prompted the symphonies of Beethoven, the oratorios of Bach and Handel, the concertos of Greig, Brahms and Rachmaninoff, the operas of Moussorgsky, Tchaikovsky and Menotti.

No genuine artist can survey the havoc wrought by fascist brutality and not be moved. A painter, composer, writer cannot retire into a shell of smug estrangement at a time when great disasters are befalling his country or calmly look on at grieving wartime mothers bereaved of their sons. The birth of the new man, the victory over bigotry, evil and vice quicken the artist's pulse. The artist who longs to give utterance to profound emotions will find such systems as dodecaphony or aleatoric music utterly inadequate. They clip music of its wings.

But there is such a thing as true innovation, with thought giving birth to form. The progressive artist reflects on the achievements of his age and tries to see ahead into the future as well. The urge to convey a significant message leads him to the search for new and cogent idioms. He does not fall back on affectation or technical acrobatics. Perhaps the two greatest musical innovators of our time are Sergei Prokofiev and Igor Stravinsky. These composers are still waiting to be properly analyzed. Their work has tremendous impact. Prokofiev's operas *War and Peace* and *Semyon Kotko*, his ballets *Romeo and Juliet* and *Cinderella*, classics today, abound in a wealth of melody, harmony and polyphony. Stravinsky's operas and ballets pour forth new streams of musical images embodied in new forms and new sounds. The study of Prokofiev, Shostakovich, Stravinsky, Barber, Bernstein and many other composers who have scaled the heights of musical art could be of immense value in teaching young musicians, in helping them to develop a command of new musical techniques. We expect a great deal from such young composers as Andrei Volkonsky, Vyacheslav Ovchinnikov, Rodion Shchedrin, Arno Babadjanyan and Andrei Eshpai.

We must be very certain of our judgments before we condemn new music. We must not forget how often great compositions were misjudged by contemporaries. A true artist looks ahead, boldly enlarging the scope of his palette, but he does not always win recognition overnight. It is as hard to become accustomed to new art as it is later to conceive how we could have lived without it.

Some time ago the future of music was discussed at a meeting our composers had with Lorin Maazel. The American guest conductor remarked that he thought the future of music lay with the opera. Why? Because new music, associated with a concert image, subject or setting, will register in the mind of the listener-viewer along with the sounds which draw the portrait of a given character. This strikes me as an interesting thought.

New music can draw strength from the inexhaustible and multiple treasure store of folk melody. As far as the relation of new music to tradition is concerned, there should be no blind following of tradition but rather a development of accumulated experience. Music, like any other art, can be enriching only if it is inspired by love of life and love of man.

THINK UP A CAPTION

LOOK AT THE PICTURE. One fine day this man with two children came out of his house and walked down the street. He had one child in his arms and another in a baby carriage. Then, all of a sudden and to his own surprise, he kept on walking through the towns and villages of our country, and across the pages of *Nedelya*, the Sunday supplement of the newspaper *Izvestia*. He finally crossed the border on June 23, multiplied by five million copies of the British *Daily Mirror* and started his trip across England.

The *Daily Mirror* invited its readers to participate in the contest announced by *Nedelya*. They were asked to send their own captions to this photo to compete with the best Russian entries. No prizes. The national prestige was at stake.

We, too, invite our readers to compete by correspondence. The editors will be happy to give space in *Soviet Life* to the best American, British and Russian entries.

THINK UP A CAPTION

PEACE STAMPS

These eight stamps are only a few of the many Soviet postage issues dedicated to international peace and friendship.

Emblem of the World Congress for General Disarmament and Peace, held in Moscow from July 9 to 14, 1962.

Friendship House in Moscow, where the Institute of Soviet-American Relations and other Soviet societies for cultural relations with foreign countries hold receptions for overseas visitors and schedule meetings and exhibitions to acquaint the Soviet public with life in other countries.

From the series "For a World Without Weapons, for a World Without Wars." The inscription on the first reads, "Peace to the World," on the second, "Atoms for Peace," and on the third, "Peace to Outer Space."

The same color and design as stamp No. 3, except for the red overprint on the globe. Issued to commemorate the World Congress of Women.

Commemorative for the Third International Film Festival in Moscow, whose slogan was: "For humanism in film art, for peace and friendship among nations!"

Dedicated to the Moscow treaty banning nuclear weapons tests in the atmosphere, outer space and under water, which Britain, the USA and the USSR were the first to sign.

FORTY-MINUTE HOLOCAUST

By Arkadi Sakhnin

THE OIL PIER erupted in flames at 6 P.M. Supported on piles of steel and concrete, it jutted into the sea like a 1300-foot-long rectangular peninsula. The roofing had broken midway, and oil was escaping into the water. It caught fire and spread to the piles. The path of the fiery wall was blocked on the left by a tanker moored to the pier. The ship had not yet begun loading, and its tanks were still full of explosive vapors. The captain and his first mate had managed to cut the mooring lines; but there was no one else aboard, the rest of the crew had abandoned ship.

The tanker could not burn very long, the odds were strong it would blow up. Nor was it likely to be carried seaward by the wind, since it was still manacled to its anchor. Ten lengths of the chain were released, 820 feet, but even that distance would not carry the ship out of range of the holocaust.

The fire spread to the deck and immediately enveloped the rocket container on the spar deck. Every ship carries such rockets to be fired as distress signals one by one. But now the rockets exploded in bouquets.

Black smoke billowed over the harbor, rose slowly to the sky and gradually enveloped the whole town. Distress signals howled all around: a long blast and two shorts, a long and two shorts!

This is the story, from the official documents:

"Having examined the reports of the ships' captains, questioned all persons connected with the fire at the oil pier, and studied the conclusions of the experts, I, Captain Korsak, of the Port of Tuapse, have established that:

"The tanker *Lisky*, commanded by Captain Mikhail Turetsky, arrived at the outer roadstead of Port Tuapse on April 14. At 7:35 P.M. on the same day the tanker was moored with its portside to dock No. 6 of the oil pier to be loaded with 32,000 tons of crude oil for Japan.

"At 8:30 A.M. on April 15 the outer roadstead of Tuapse was likewise reached by the tanker *Signy* belonging to the private firm of Redery A/B Sally and commanded by Captain Jacob Donning. At 10:15 A.M. the same day the tanker *Signy* was moored portside to dock No. 4 of the oil pier, to be loaded with 15,000 tons of diesel fuel for Finland."

"When we were informed that the loading had begun some seconds before 6:00 P.M., I, Captain Jacob Donning of the *Signy*, my first mate, and a person from shore stood deck. At exactly 6:00 P.M. I heard what sounded like a muffled explosion in a pipe. Then came other sounds, as though something heavy had fallen on the quayside. I saw the pier in flames.

"I at once ascended the bridge and signaled the alarm. No sooner had I given that signal than my ship's officers and crew, all but myself and the first mate, abandoned ship without my orders."

That is how Captain Jacob Donning described the behavior of his crew. He gave only the general picture, omitting the details. The captain of the port, however, in his protest to Donning, put them back in:

"Most of your crew returned from town drunk, and no steps were taken aboard your ship to extinguish the fire. Your entire panic-stricken crew abandoned the tanker, which greatly hampered the firemen ashore in fighting the flames. To extinguish the fire on the pier, it was imperative that the tanker be moved, but that was impossible because your ship was not ready to start, and there was no steam to raise the anchor."

The oil pier was burning fiercely, as were the tanker *Lisky* and the all but abandoned *Signy*. Every one of the *Signy's* tanks were filled with oil vapors. On the Soviet ship only the central tanks were, since they had been displaced in the side tanks by the 20,000 tons of oil that had already been loaded.

A visitor aboard a tanker is always accompanied by a member of the crew to prevent careless action. Conditions aboard such ships are much like those in a powder hold. Look through the hatch of an empty tank by sunlight and you will see the dense gray vapors twisting about inside like a blind monster groping for the slightest spark, for the smallest grain of smoldering tobacco.

Experts of all kinds subsequently investigated and reached the unanimous conclusion that the fire was started by factors which could not have been anticipated or prevented. The sediment in a pipe burst into flame spontaneously and exploded. The force of the explosion hurled several slabs of the pier into the air, and they came down in a shower of sparks.

All ships of the world have their "emergency instructions," assigning duties and posts, stating precisely who belongs where and does what when an alarm sounds. But no instructions anywhere in the world say that a fire alarm is the signal for the crew to jump overboard.

The crew of the *Signy* apparently didn't know that, for the boatswain, second mate and at least 10 other men dived overboard the instant they heard the alarm. But the water was swept by an avalanche of oil before they touched it. The fire was still some distance off, but a man covered with oil cannot breathe. The oil must be washed off his skin or he will suffocate.

The shore was directly alongside, and the blackened men with their hair pasted to their heads swam to it as fast as they could. They were promptly taken to a hospital, where the oil could be washed off with a mustard preparation that has to be applied by a doctor.

The remainder of the *Signy's* crew realized that jumping into the oily water was risky, especially since the fire had reached it by that time. The most agile of them got to the pier by sliding hand over hand down the mooring lines at the prow and stern.

Neither Captain Jacob Donning nor his first mate Hrola Oiva could stop the shameful flight, but they both stayed aboard to the very end like true seamen. They tossed off the mooring cables at the stern and prow, so that the ship was held to the dock only by four powerful hoses, kept in place by flanges through which the diesel oil was to have been pumped into the tanks.

Brief visits with family and friends are the lot of all seamen, but those who work aboard tankers are in a particularly unenviable position, for a tanker can be loaded in a day or at most two; such ships are rarely in port longer. Those brief visits therefore mean a great deal to the men. Some of their wives and children had come from Odessa, where they lived, to spend the few days together. The children were playing on the *Lisky* deck, and the wives were in the cabins.

When the fire broke out Mikhail Turetsky, captain of the *Lisky*, and his first mate Ilya Tregubenko were just going into the cabin of second engineer Yuri Boriskin. Chief engineer Nikolai Tokarev was there too. He had come a little earlier. The three senior officers had dropped in on Boriskin to wish him a happy birthday. At that instant they heard the alarm. The chief and second engineers rushed to the engine room, and the captain and his mate to the bridge. Every member of the crew went to his post, according to the instructions.

The women and children could not get off the boat since the gang-

way was enveloped in flames. The captain's first order was for the boatswain and two seamen to secure their retreat ashore down a rope ladder astern.

By all the laws of nature the tanker should have blown up before the women and children could possibly have reached safety. The cylindrical dilators of the tanks protrude from the sides of the ship. During the loading operation they catch the explosive vapors and let them seep into the atmosphere through spy slits. In the sunlight you can see these vapors escaping. They move not only upward but horizontally as well.

The flames licking the sides of the ship were now nearing the dilators. But there was no explosion, for the men on watch had seen the fire the instant it started. Risking their lives, they shut the spy slits in time. That blocked the escape of the vapors and also kept the flames from getting inside the tanks. But the vapors continued to build up pressure in the dilators, and an explosion was a certainty as soon as the heat built up enough. This second threat of explosion was countered by Georgi Lyubich, the mate on watch. He ordered the hydrants used for washing the deck opened, and aimed powerful streams of water at the dilators from the mounted water cannon.

On Captain Turetsky's order, the evacuation of the women and children was accompanied by a barrage from the water cannon, fire pumps and foam liquid guns. Again the captain made the only right judgment in the situation. He directed the main blow not where the fire was fiercest at the moment but threatened no explosion; instead, he concentrated on those places which were washed with oil or its vapors from the inside to prevent them from heating up.

The flames had now spread over the portside to 12 cabins and a wing of the bridge. They had also enveloped the davits, the motor lifeboat and the dispensary. The portholes cracked sharply as they split, admitting the flames into the cabins.

The ventilators kept driving smoke into the engine room instead of fresh air—the smoke enveloping the entire ship. Someone switched off the ventilators, but too late. The men labored in the hot air and smoke to start the main engine. The electric motors, compressors and pumps were working full blast. All fire-fighting devices were brought into play, and the mechanics maintained maximum pressure in the water cannon, fire pumps, hydrants, and the deck-washing system. An automatic fire-fighting device went into action unexpectedly. This overloaded the motors and they came to a standstill.

Starting the auxiliary motors took only a minute. This was the job of the electrical engineer, but he was not at his post. He had either lost his head or his nerve. His place was taken by electrician Kovganich, who came running down from the deck. Fighting his way through the unbearable heat and bumping into the various pieces of equipment and the other men, he reached the switch and started the pumps humming again. In a moment chief engineer Tokarev was able to report to the bridge from his control post:

"The engine is ready!"

A bell rang at that instant and, looking at the telegraph dial through the smoke, Tokarev saw the arrow trembling over the "full speed ahead" sector.

The captain's order meant that he had decided to run his burning ship out to sea. Tokarev brought his telegraph lever to the sector indicated by the arrow. The bell stopped ringing. The order had been received, understood and repeated.

Before calling for "full speed ahead," the captain had ordered the men at the prow and stern to sever all lines.

The ship was held to the pier by 10 massive ropes and cables. These could not be unfastened at the pier end, since the flames were licking out everywhere.

Just about then the captain noticed that chief helmsman Abramov was not at his post. Abramov was ashore, sitting in a restaurant with friends.

The restaurant was half empty, the music playing quietly and the waitresses smiling. He and his pals had been strolling about town all day and it was pleasant to be sitting. He was in no hurry. He was not due back on the boat until nine that evening, so that there was no reason why he should not be sitting there. Abramov was reaching for his knife and fork when he heard a yell:

"The oil pier is on fire!"

He rushed to the window. Black smoke was rising high over the harbor. At the door three men were about to get into a taxi, the only one around.

"Let me have this cab, please! My ship is on fire!"

The three made way, and the cab tore off. It could not get very near the oil harbor, the crowd was too thick. Abramov feverishly searched his pockets. He had forgotten where he kept his money.

"Never mind the fare!" yelled the driver. "Get moving!"

Abramov reached the pier just in time to see what was left of the burning gangway collapse. First mate Leonard Pozolotin suddenly pushed through the crowd and made for the glowing rope ladder astern. He was followed on the run by fourth engineer Boris Petrov. They too had been on shore leave.

Snapping the remaining unsevered lines and oil hoses, the ship broke away from the pier, driving the flames apart with its screws. The mouths of the oil hoses hanging down from the deck spat fire. The tanker was pulling away from the powerful fire-fighting devices ashore to save the port.

The *Lisky* had barely moved away when the tugboat *Dedal* turned up on its portside. This was a desperately brave thing for the small crew of the tug to do. They kept their streams of water washing the side of the tanker and actually put out the flames in an area that the crew of the big ship could not reach. Moving alongside the tanker, which could have blown up at any instant, the *Dedal* swept water over superstructure, cabins and bulkheads.

Ashore meanwhile, 10 more members of the *Lisky's* crew had gathered. They too had been on shore leave and had not managed to get back to their ship before the catastrophe. They had found a motorboat somewhere, and were about to shove off after the *Lisky* when they were stopped by a cry from ship's doctor Lyubov Smirnova:

"Wait for me!" she screamed, running as fast as she could.

"You'd better stay here!" someone yelled back. Turning to the man at the motor, he commanded: "Let's go!"

The motorboat pushed away from the dock, and everyone watched this no longer young woman take a weird ungainly leap and land snugly among the men on the boat.

The boat quickly pulled up alongside the *Lisky*. The threat of explosion was not yet over.

"Keep off!" someone shouted from the deck. "The captain says for you not to come aboard."

This was the captain's only order which his crew refused to obey.

The *Lisky* was now heading for the outer roadstead with a full crew aboard. Though almost suffocated by the smoke and heat, the engine room crew kept the boat running at maximum speed.

Flames still licked the outer bulkheads of the superstructure, and a few fiery tongues were visible in the dispensary. Boards lay smoldering here and there, but everyone was smiling now. The dilators, the deck and the whole expanse that could have overheated and exploded was protected by water and foam. The fire was out. It was only when the danger was over that the crew realized what a volcano they had been perched on.

A radiogram was received from a British ship in the roadstead. Its crew had watched the fire all the way through.

"Hearty congratulations on your heroic struggle and victory over menacing elements, Captain of the *Overseas Explorer*."

Fighting the fire aboard the *Signy* was far harder, for there was no crew and its engines stood idle. This was a deserted, burning ship. An explosion was prevented, however, and the fire was extinguished. The pier, too, was recovered from the flames. Here, risking their lives every second, were port chief Ivan Shapovalov, the valiant men of the various fire-fighting units, the crews of many vessels and dozens of volunteers.

When the alarm sounded, the fire-fighting launch *Stremitelny* was undergoing repairs at a quiet pier. Skipper Victor Pyanzin had every right to stay where he was with his disabled launch, but the instant he heard the alarm, he gave the order:

"Let's go!"

"But we've taken the motor apart!" someone complained.

"Let go the hawser, I tell you!" bawled Pyanzin.

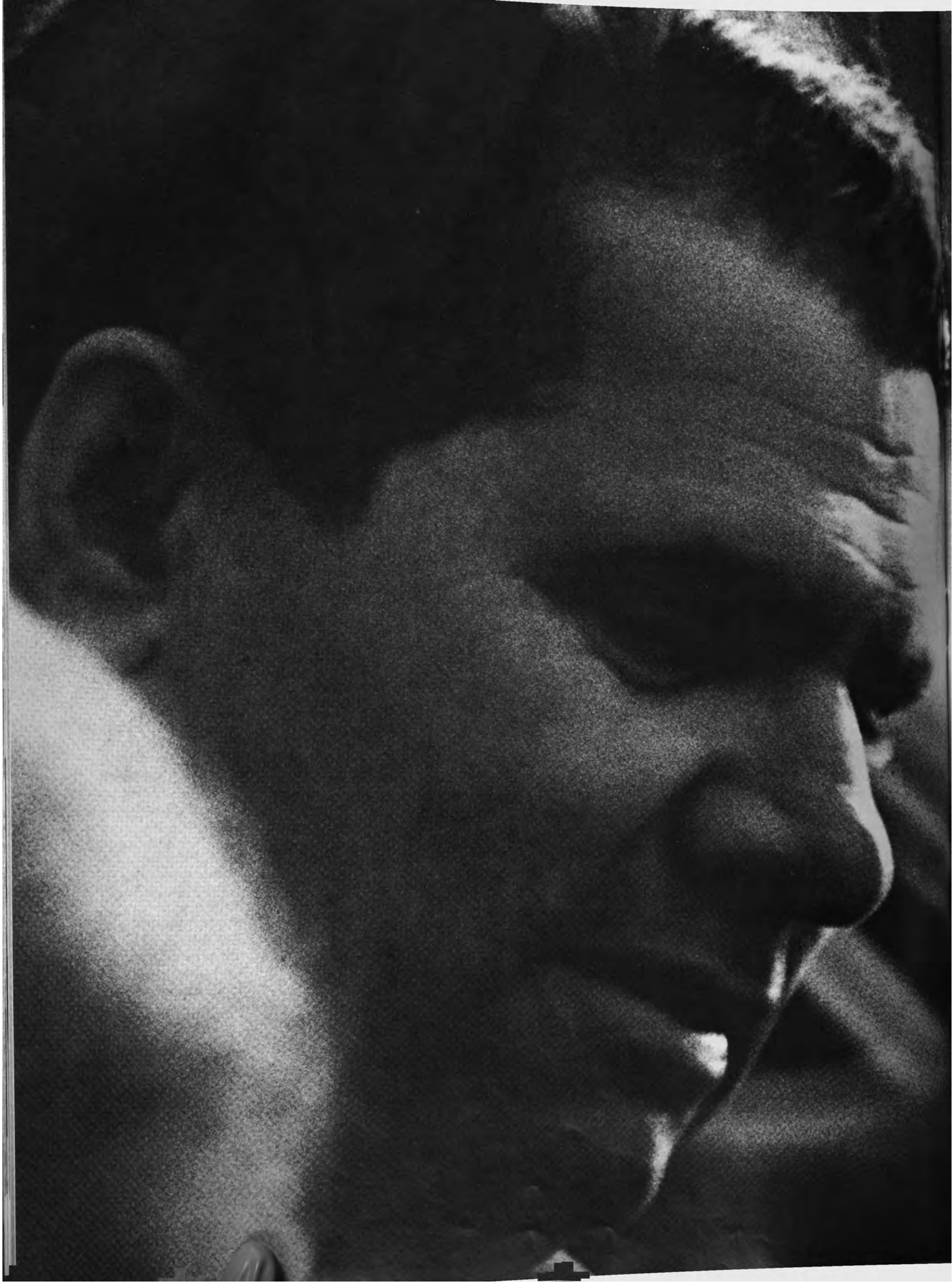
Unleashing two streams from his water cannon astern, he turned his ship into a jet craft.

This launch played a major role in saving the *Signy* and the pier.

At 6:40 P.M. Captain Mikhail Turetsky of the *Lisky* made the following entry in his log: "The fire aboard the *Lisky* has been completely extinguished."

And a few hours later, the fire beaten aboard the *Signy*, Captain Jacob Donning likewise made his entry in the log: "All members of the crew were returned to the ship by the authorities about midnight."

Courtesy of
Komsomolskaya Pravda



Kudrat Dadashev: GETTING THE BALL ROLLING

Photographs by Lev Nosov

The USSR Supreme Soviet approved important changes in the organization and management of the national economy at its October 1965 session.* Soviet Life *correspondent Pavel Antonov asked Kudrat Dadashev, deputy to the Supreme Soviet of the USSR and chairman of the Council of Trade Unions of Azerbaijan, how these changes affect his republic.

OUR ECONOMIC COUNCIL was having trouble directing our highly differentiated industries from the center. In 1962, therefore, we began the slow and difficult process of decentralization. In recent years our fishing, power engineering and electrification, building, and wine-making industry boards have been functioning independently of the economic council. So that you see we had already instituted some of the changes now being made nationally.

Decentralization of management means a broader application of the democratic principles of our multinational state. It gives the republics and their economic agencies more opportunity to direct their own industries so they can give priority development to those which are especially important to their own populations.

In Azerbaijan, for instance, marine, rail and air transport needs development. Railways must be electrified, oil-tanking facilities moved from Baku, and a new seaport terminal built. The new pattern of relationships with union ministries will help to get all this done faster.

Some executives at central management agencies in Moscow opposed the changes. They wanted to preserve the old order—everything coordinated from the center. But they were voted down.

Factories in various parts of the country experimented with the new management approach based on profits before it was adopted generally. Were any such experiments tried in Azerbaijan?

Yes, there were. Several months ago, for instance, Building Trust No. 1 in Baku used this new management approach to plan and build a hospital. They had only 18 indexes instead of the 110 of the old method, but these 18 indexes gave them a clear picture of the actual situation on the project, when each job would finish and where bottlenecks arose.

The daily conferences with the chief of the project took on an altogether different character almost at once. Where the foremen used to spend a lot of time explaining each and every index, now they talked the terse language of the schedule. Such terms as "switch," "critical run" and "time margin" became part of their working vocabularies. Baku was not the first place where the new schedule was tried. Some people thought it could be used only on large-scale industrial projects. Our builders proved that it could also be useful in such small projects as a hospital.

What problems are likely to arise, in your opinion, in shifting to the new system of industrial management?

The biggest problem will be personnel. At the building organization I mentioned, some of the foremen were not able to change their methods of work, others did not have enough background. In the last six years the number of specialists with a higher and secondary technical education in our republic grew by about 50 per cent, but we are still short of engineering and technical personnel.

Only 19 per cent of the executives of the economic council had a higher education in management. Our republic once did have an institute to train economists and management executives, but it was closed. We think it ought to be reopened.

The point is that now every manager must run his own plant, really run it himself. He must be a good economist so he can evaluate all the many factors that go into manufacturing and marketing a high-quality item.

But quality does not depend only on the efforts of the plant management and the competence of engineers and technicians. The old system of remuneration gave workers an incentive to produce high-quality items but it did not motivate them to become first-rate specialists in their jobs. Don't you think that our emphasis now should be on training?

Yes, I do. We have already decided to set up training courses at the plants. I think that by the next three or four years every worker in Azerbaijan

will have gone through these training courses.

By the way, the present changes in economic management have not only made such courses imperative, they have made them possible. The republics will now have more funds available for training.

The next question is addressed to you in your capacity as chairman of Azerbaijan's Council of Trade Unions. Now that the director of a factory will himself choose his staff, will the trade unions be as effective as they were, for example, in maintaining wage schedules?

I have no doubt they will. Here is a situation I came across personally. Our Baku Trade Union Council has a three-man staff—a business manager, director and building custodian. We don't need three people, but since the staff had been fixed, we had no choice. Now we propose to find one competent executive instead of the three and give him a larger salary.

Enterprise managers will, evidently, be doing the same thing. But any such changes can be made only with the active and direct participation of the trade unions. As far as wages are concerned, they are

regulated according to norms fixed by the Ministry of Finance, and neither the management nor the trade unions can change them.

A plant manager is not permitted to fire a worker without the consent of the trade union. Won't this right of veto be a problem in cases where management has good reason to cut its staff?

I don't think the trade unions will ever agree to give up this right of veto. That would be leaving the worker unprotected. Management may try to fire workers it does not want, but the trade union will not consent to the dismissal of a pregnant woman or a nursing mother.

This brings us to another problem: the fact that chairmen of trade union committees in factories haven't enough experience. There are full-time chairmen in only a few trade unions at the big plants, although we have 10,600 local trade union organizations in the republic. A year is too short a period for a chairman to learn what he can and cannot do or to recognize that as trade union head he stands on an equal footing with management.

Not so long ago, for instance, Abdulla Ibragimov, chairman of the republic's Supreme Court, called me up and said: "The chairman of the trade union committee at the sanitation-epidemiological station of the October District in Baku should be censured."

The chairman of this committee is a nurse. She sanctioned the dismissal of a worker. He appealed to the People's Court, and the court upheld the management. Then the worker appealed to the Supreme Court of the republic, which reversed the decision and ordered that he be taken back. Ibragimov was suggesting that the chairman of the trade union committee be punished because she had not defended the interests of a union member.

I asked Ibragimov whether he proposed to punish the judge who upheld management. The judge, I said, should certainly have known better.

I cite this example to show that trade unions must not give up their right of veto. What they must do is learn how and when to use it.

Even if this right is used sensibly, some staffs will very probably be cut. Might this not lead to unemployment or to a reduction in purchasing power?

In Moscow you see Help Wanted advertisements on practically every factory gate. Workers, engineers and technicians of all kinds are needed. The same applies to Baku and other industrial cities. What this will do is level out disproportions. The likelihood of any significant permanent unemployment problem is very remote indeed. Incidentally, since the well-being of all the workers in a factory will now depend more directly on the efficiency of each of them, the workers themselves will probably want to get rid of the lazy ones.

Where we are likely to have a problem is in the small towns. The funds that used to be allocated for developing industry in such towns did not amount to much. That was why Enver Alikhanov, chairman of Azerbaijan's Council of Ministers, declared at one session that this situation needs changing. He proposed that machine-building, food-processing and light industry plants be set up in small and medium-sized towns in the next five years.

I should like to conclude with this: Some of the details of the new management approach are not clear yet. But in general, as Azerbaijan's representative in the Supreme Soviet and chairman of the republic's Council of Trade Unions, I am wholeheartedly for it.

NEW TRENDS IN ARCHITECTURE

Some Thoughts on Viewing the Architecture in the United States Exhibition

By Professor Yuli Savitsky

ARCHITECTURE in postwar America has been influenced by and has influenced architectural development in many other Western countries.

One of the striking characteristics of Western architecture in recent years has been its mixture of styles. Only a few years ago it seemed that a uniform style was being established. A logical tie between function, structural elements and architectural forms; the utmost simplicity and terseness; the simple geometrical form dominant—these principles, best represented in the work of followers of the Mies van der Rohe school, seemed to have won general recognition.

Along with the organic architecture that Frank Lloyd Wright originated, there has been a growing tendency for the past several years to depart from purely geometrical patterns. The turn in Le Corbusier's works was surprisingly abrupt; the formidable, weighty, intentionally archaic outlines of his chapel near Ronchamp, France, and his Supreme Court building in Chandigarh, India, do not seem to have any relation to the earlier work of this architect who for so many years has been the champion of severe geometrical forms.

Eero Saarinen followed Le Corbusier with a creative somersault. His General Motors Technical Center near Detroit had established him as a solid pillar of architectural rationalism. All the more surprising was the complete turnabout in his last creations. The John F. Kennedy International Airport and the Yale University hockey rink are more reminiscent of a sculptor's work than an architect's.

Contemporary Western architecture has consistently tended to avoid the conventional. That is why the stylistic relapses that have been occurring with increasing frequency the last few years are so surprising. As strange as it seems, the neoclassicism of the Lincoln Center in New York has much in common with Italian architecture of the thirties. The interior design of the big I. Miller shoe store in New York is obviously intended to evoke medieval Gothic associations. Austere structural pattern and the rejection of purely decorative ornament are dogma for rationalist architecture. Yet we now find purely decorative elements in the creations of such respected American architects as Minoru Yamasaki and Edward Durell Stone.

The reaction against architectural rationalism is evident in other countries besides the United States. It is manifest in the Bank of London and South America in Buenos Aires designed by Sanchez Elia, Peralto Ramos, Agostini and Clorindo Testa. The façades, finished in a strange, rhythmic chaos of complicated ornament with slanted decorative ribs, have nothing in common with the building's structural and interior design.

Symptomatic, too, is the interest architectural journals have shown in the work of Amancio Guedes, a Portuguese architect working in Lourenço Marques, the capital of Mozambique. In a compound building of offices, exhibition halls and service areas, the façades bristle with ribs of forms chosen at random and structurally senseless. In a bakery for the same city Guedes goes even further. The ferroconcrete ribs of the walls with their structurally senseless decorative cantilevers and horns look as though they were cut out of plywood with a fret saw. Guedes' creations seem to be a manifesto of a sort against any architectural logic whatsoever.

What is the cause of this vehement and multipronged attack on architectural rationalism? Apparently a weariness with the monotony of the geometric forms and glass parallelepipeds which mushroomed in the Americas and Europe after the Seagram Building and Lever House in New York.

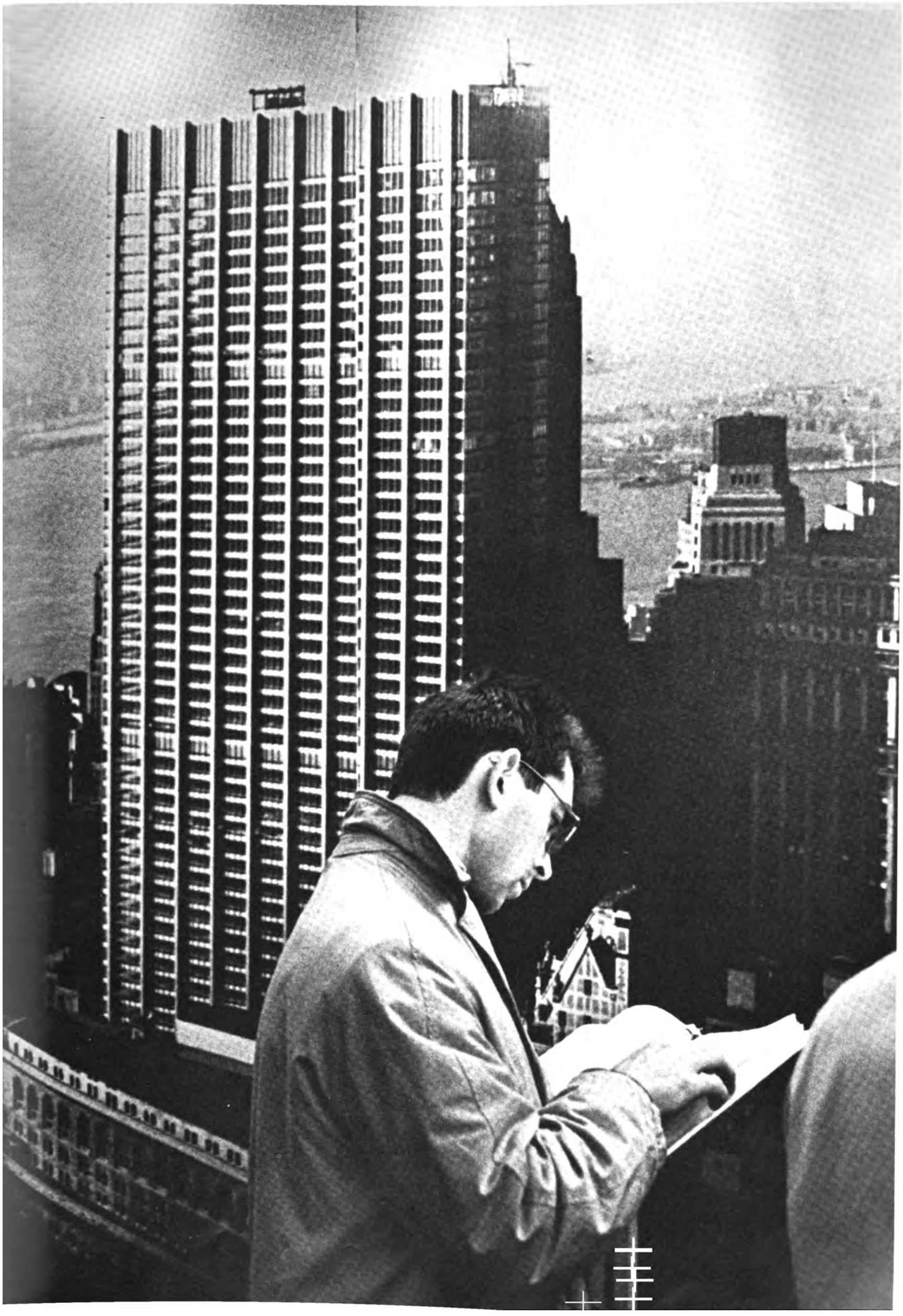
Is monotony an inevitable consequence of rationalist architectural thinking and its logical composition and planning? I do not believe so, and many of the structures of recent years testify to the contrary. For instance, the much-publicized cylindrical Marina City buildings in Chicago, designed by Bertrand Goldberg Associates and shown at the Moscow exhibition, are quite logical in idea. The architectural form stems organically from the functions of the buildings and their structural elements. It is plastic and yet very expressive. The same is true of Christopher Inn in Columbus, Ohio.

Also, many of the modern-oriented architects of Italy, Finland, Japan and other countries are achieving a high degree of plastic expressiveness without upsetting logic.

Criteria in architecture is a perennial subject of discussion. In our days the only reliable criterion of the progressive character of one or another architectural trend is its ability to solve large social problems, housing for instance. It seems to me that to depart from architectural logic and let individual fantasy run riot will not help us solve these big problems. This we can confirm from our own experience. In the twenties Soviet architects were foremost in the drive for strict logic in architecture. For a number of reasons the trend of the thirties and forties was toward greater monumentality and ornamentation and the use of older artistic styles. This was a period when the architect's own fantasy was the dominant factor in design. In many of the buildings the façades had no relation whatever to structure. This trend had a particularly unfortunate impact on mass construction. The lack of any kind of logical interdependence between architecture and engineering hampered the use of industrial methods in building houses, schools and children's facilities. Only by a major revision of their creative stand in the mid-fifties were Soviet architects able to make wide enough use of industrial construction methods and standard designs to build from two and a half to three million apartments a year.

There is no question but that our mass housing construction has its deficiencies, notably the monotony of some neighborhoods. But this is not the result of a rationalist architecture, it is due to the fact that we are not free and flexible enough in our planning and that we do not make sufficient use of the possibilities standard projects have for diversity.

Our own experience of recent years points to the practically unlimited opportunities offered by creative architectural design that is based on logic and common sense, on the unity of function, structure and form. So does the work shown at the Architecture in the United States Exhibition in Moscow.



HUMANISM and JUSTICE

Georgi Medynsky's "A Difficult Book," published in 1964, is about character building, the individual's relation to society, crime and how to eradicate it. It is based on the author's correspondence with prisoners. Medynsky did not confine himself to answering letters from prisons and labor camps, but often actively intervened on behalf of his correspondents and helped them solve their very knotty problems. "A Difficult Book" created quite a stir among readers.

Lieutenant Colonel of Militia Vladimir Chvanov had a talk with Yevgeni Bogat, a journalist, about Medynsky's book. "Literaturnaya Gazeta" published this "Dialogue on Guilt and Punishment," which in a way is a review of the book.

The "Dialogue" set off a stream of letters to the newspaper, and a readers' discussion began which went far beyond the bounds of the book. For lack of space we can reprint only the dialogue and a few of the letters.

GUILT AND PUNISHMENT

Dialogue between Lieutenant Colonel of Militia Vladimir Chvanov and "Literaturnaya Gazeta" Correspondent Yevgeni Bogat

I would rather not confine our talk to *A Difficult Book*, if that is all right with you, Chvanov said. The things I would like to argue about are very explicit in many of the articles your colleagues write, articles that do not have the thoughtful quality of Medynsky's book. We read in the papers, including yours, that a 19-year-old hoodlum kills someone. And who is to blame? The director of the local cultural center. He did not arrange enough affairs to keep the young people in the neigbhorhood entertained! Boys assault a girl. And the entire wrath of the journalist is visited on the directors of the local sports organization for not equipping a playground properly so that the poor boys would have a place to expend their surplus energy. . . . Don't laugh! Of course, I am exaggerating. But the logic of these newspaper accounts is just that.

What I am giving you is not only my opinion. We in the Moscow Criminal Investigation Department get letters from fine, intelligent people. The contents differ considerably from the thinking in some of these articles and books. The people who write to us are concerned first and foremost with the victims of the crimes, for which, they say, the criminal must bear heavy, personal guilt, not easily expiated. Considering the circumstances and conditions of Soviet life, they find no justification for blaming society.

I agree that the circumstances must be looked into far more deeply than some of our writers do. But a consideration of the circumstances does not necessarily preclude the personal guilt of the criminal.

What is important is the relationship of the two. I think Medynsky himself falls victim to a rather widespread delusion. When you read the letters of prisoners, cited in his book with so much compassion, almost all the lawbreakers seem to be victims of circumstances. The main cause of their fall is attributed to the imperfection of society or, as Medynsky himself puts it, the order of life, the people who determine this order.

But can it be denied that an individ-

ual's character is shaped by society, by the people around him—parents, teachers—by the "order of life"? Our newspaper carried an article by Vladimir Amlinsky, "The Fate of Lavrentyev." You read it, perhaps. An amazing fate: a lad who fought against the Nazis, was decorated for bravery and then got tangled up in difficult circumstances and landed in a labor camp. After the publication of the story Lavrentyev was released. Here you have a man and you have circumstances.

But you contradict yourself by saying "an amazing fate." I will cite another case. A few hours ago, while I was on duty, I saw a youngster who raised his hand against his parents for the sole reason that they could not satisfy his inordinate demands. No one pushed him around and no one mistreated him, although of course there is always the director of the neighborhood cultural center to bang away at.

One of Medynsky's correspondents, with whom he obviously sympathizes, tells how in India tamed elephants train the young ones that have just been caught. They surround the wild animal and patiently show it what it must do. And the wild one becomes wise and tamed. The writer of this letter, a thief, thinks that if the factory where he worked had had the same system, he would never have become a thief. He feels like a wild elephant who was not surrounded in good time by tamed ones. A man naturally needs more than an elephant, he needs attention, kindness and help. It is too bad when young people don't get that. But we demand more of a man than we do of an elephant! The author of the letter became a thief, not because he had nothing to eat, but because he had no moral backbone.

Medynsky is writing about a man who had a troubled life, a hard childhood, a morally unstable man who especially needed attention.

I beg to differ. The author says this man was fundamentally honest—here read it—basically honest. Big words. But what kind of basis is this if it can be shaken by the fact that the people around did not pay enough attention to him? Lose your sense of proportion and you can picture any circumstance as a mountain and man as a mole.

Man must bring himself up. We are breaking down the need for material dependence, but we could also do with less moral dependence. Self-upbringing is an art and a source of gratification. It must be taught from early childhood, taught constantly so that man can bring out his best traits, the way a diamond cutter brings out the best facets. It seems to me that for a man to be fundamentally moral he must have some moral independence. Without it, this basic morality Medynsky talks about is only a leaking boat.

Self-upbringing is certainly necessary. But in Medynsky's correspondence with prisoners we also have cases where this moral independence was not developed in time, much to society's misfortune.

The book has some fine letters, and there are chapters to which I subscribe fully. But in some of the letters, especially the author's, there is the same dangerous tendency to lose the sense of proportion between man and circumstances. He blames the educators, guards, the personnel of the prisons and labor camps, and demands less than he should of the prisoners themselves. As you read the book, you wonder why every page does not shout the question: "Well, and what are you yourself doing to become a man? What spiritual effort are you making to change yourself?"

Most of the men who correspond with Medynsky have come to realize the gravity of their crimes and have repented or are headed that way.

Realized and repented, you say.

Don't you believe in repentance?

It so happens that not only bad people commit crimes. Man is a very complicated creature. My heart has bled for some of the people I have had to arrest. They deserved sympathy. They were really moral people, but they lost control of themselves at a crucial moment. Love. Hatred. Jealousy. In a word, human passions, what in the olden days was called a "fatal combination of circumstances." These people repent even before the trial, and they punish themselves much more harshly than anyone else could. But many others have prepared themselves to become criminals. To do that one must step across some inner threshold dividing man from nonman. And when such a person, after spending three years in a labor camp, writes to a newspaper: "Help me get out before the expiration of my sentence, I want to build a sunny communist society," can you believe him?

But surely you do not rule out the possibility that such people also may repent?

It usually is not repentance in the lofty way you writers use the word. The most hardened bandit gets tired of crime. He wants a quiet life, a cottage on a riverbank, a wife, honest but not too burdensome work. A man wants to live. This is the beginning of what is called repentance. It is the task of educators and then of society to steer this "enlightened selfishness" into socially beneficial channels.

And so, "the not bad people," repent even before trial, while the most hardened criminal after a few years "wants to live." Yet the former and, even more so, the latter have to spend many years behind bars.

I don't understand what you are getting at.

I am thinking aloud: Is imprisonment for 15 or 20 years justified? I think that such punishment . . .

Punishment? This is retribution. Atonement.

You look to be one of the kindest of men and yet . . .

Of the two of us you are the one who is unkind. Your pseudohumanism, which I am beginning to sense more and more distinctly, is cruelty toward society. Such humanism begins with the conviction that circumstances are stronger than men and ends up questioning the need for severe punishment.

But it is worth considering that what a man brings out of a labor camp after he has served 15 years is only the cold ashes of repentance.

I should like to write a book about what happens to the victims of criminals. About a mother whose son was murdered. Her husband had been killed in the war, and she brought him up without a father. It was hard, but she was proud of her son, he was a student. One evening he walked to the bakery on the corner, heard someone screaming for help and ran over. A woman was being robbed on a side street. The thief stabbed him to death. If you had seen the face of the mother. . .

When did it happen, today?

Yes, but that's not important. In the book I would describe her walking past the bakery evenings. Next to each other on the wall in her home are framed photos of her soldier husband and student son; they resemble each other. She sits alone looking at them—now always alone, to the end of her days. Perhaps the killer reading my book will sense the full enormity of his crime. Perhaps he will have at least one sleepless night, brought on not by drink or cards, but by his conscience. Then repentance will begin, and not with that "enlightened selfishness" we talked about, but with much sharper emotions. Real and not sham atonement is a costly business. Then punishment will mean not only vengeance and atonement but also moral regeneration.

I like your idea.

Wait. I want you to understand me. You are very much concerned with the possible value of the lost life of the bandit, but you seem to forget the real value of the life of his victim, a value ruthlessly trampled into the dust.

I think society should feel the loss of both values, even if not with the same force.

All this time you have been asking questions. I'd like to ask you some now. What do your readers write about this subject?

We get many such letters. They all demand that criminals be shown no mercy, that they be punished with everything the law permits—and more. In their indignation at crime and hatred of criminals some of the letter writers get al-

most violent. This morning we received a letter in which two readers call for almost barbarous penalties.

And what do you think?

Cruelty is no answer. Lawyers say that in ancient times when a thief was punished by cutting off his arm, pickpockets were especially active in the crowds watching the cruel spectacle.

I agree that cruelty is impermissible and so do my colleagues. But spinelessness, too, is impermissible, and more dangerous. I call it "humanism for a hundred" at the cost of humanism for the millions. This "humanism for a hundred" takes many forms. It sends a sympathetic letter to a cutthroat in a labor camp who should be getting not sympathetic tears, but a good shaking up. Or it lets a crook get off with a "pretrial probation."*

Advocates of what you call "humanism for a hundred" think that a man remains a man and hope that, in the long run, this will turn into humanism for the millions.

And in the meantime let good people pay with their lives for this unlikely hope? Is that the answer? Yes, we must have faith in man. Something human is hidden (at times unfathomly deep) in the heart of the most dangerous killer. No cruelty, but I'm still for real punishment. Sentenced to five years, serve five years, regardless of good behavior.

Sentenced to fifteen . . .

Serve fifteen. With exceptions only in case of real repentance. You will ask, of course, how can you tell when it is real? My honest answer—you can't. All you can do is study your prisoners and hope that you are guessing right.

Unfortunately, the oddities of the world occupy our attention much more than the oddities of the human heart. Circumstances often force human beings to make odd and unpredictable changes.

Now we are back where we started, Chvanov said,smiling, man and circumstances. . . .

Circumstances exert not only a physical but a psychological influence.

Of course society influences man, nobody argues the point. But I am convinced that, given elementary moral stamina, no circumstances can turn a man into a criminal. The saying goes that "force can knock anyone out of the saddle." But my whole point is that very often people fall out by themselves because they are unable, perhaps even unwilling, to stay in the saddle. They must be taught to stay there!

The published dialogue elicited comments from many readers. Among them were Alexei Usov, an assistant professor of philosophy, who thinks with Chvanov that criminals are treated too tenderly, and Natalya Chetunova, a journalist, who agrees with Bogat that you cannot meet cruelty with cruelty or evil with evil. Merited Teacher Vasili Sukhomlinsky had this to say.

*An individual charged with a minor crime, especially a first offender, instead of being tried and punished by the court, may be placed on probation in the custody of his neighbors or workers at his place of employment.

MORAL DEPENDENCE—WHEREFROM?

Vasili Sukhomlinsky, Corresponding Member, Russian Academy of Pedagogical Sciences

Every time a juvenile commits a crime, the school is listed among the chief guilty parties. Rarely do articles and speeches ask these questions: Who is the juvenile? What sort of family does he come from? Did he grow up without a father, or without a mother? What education did he get?

Instead, journalists writing on the subject level their reproaches at the Academy of Pedagogical Sciences and at educators, both theoreticians and classroom teachers, for not knowing more than they do about bringing up problem children.

I have been teaching for 30 years now. Thousands of my boys and girls have grown up, married, had children of their own and brought them to school. Over the years I have had 270 problem children in my classes. These were children whose lives had been warped when they were very young. In childhood they had already lost faith in everything and everybody, learned too soon what they should not have learned. Of the 270 children, 189 had no father, children of unmarried mothers; 77 came from broken homes and only 4 came from normal families—with a mother and father. You would find the story of these families deeply moving.

I have a card for each of the 270 children on which I recorded everything I found out about them. What does this data gathered over 30 years of teaching experience tell me? That problem children are first and foremost children who did not have a father, children who had no family life. Their childhood was poisoned by the thought that they came into the world unwanted.

It is difficult to convey in words the tragedy of a fatherless child who feels deep down that no one wants him. Many of the children in their first conscious moments heard these bitter words from their mother: "You are my punishment! I curse the day you were born."

As I thumb through the yellowed sheets of my notebooks, before my mind's eye pass these embittered children who react against every tender word and whose every gesture is meant to spite the teacher.

Warmth, understanding, compassion—this moral immunity against evil is acquired only when a person from early childhood passes through the school of kindness, of real human relations. And such a school can be provided only by a good family, the living example of a father and mother.

Love for people is fostered only by love, just as a fire is lighted only from a fire.

I recall 12-year-old Kolya K. When I read the story of Zoya Kosmodemyanskaya* to the class, hard lights flared up in the boy's eyes. "It's a lie," he said.

"Why do you think so?"

"Because it's all lies. Because nothing is true. Nice words are only for the books."

What unbearable grief this little man must have suffered to lose that much faith in truth, kindness and humanity! The boy lived in an atmosphere of lies and hypocrisy. His mother was deceived three times. She had three sons from three men, none of whom married her. She told her children: "Don't believe in anyone and anything, cheat wherever you can. The best cheat is the one who gets ahead."

How then can we deny the influence of environment, of the actual conditions of his life, on the child?

I read the interesting conversation of Vladimir Chvanov and Yevgeni Bogat. Made wise by his years of unhappy experience, the militia officer thinks that weakness of character is one of the prime sources of crime. Indeed, a man must remain a man under any circumstances; circumstances cannot excuse his personal guilt. But the truth of every statement has its limits. If we see crime as a phenomenon with deep roots, other thoughts come to mind. If we still have criminals, this means that all is not well in the social, moral relations between people.

Strengthening the family is one of our most important social problems. Every man must realize that the upbringing of his own children is his duty to society, his prime service to society. The mother and father are the first and most important teachers of their child. Future fathers and mothers must be taught to teach while they are still in high school. Pedagogy must become a science everybody knows. To some this may sound like overdoing it, but I think that without having studied the elements of education, a young man has no right to start a family.

The spiritual shaping of man, the reproduction of man in his offspring, perfecting oneself in one's son or daughter, is a noble, creative social effort. We should have a law making parents responsible for bringing up their children. If parents prove themselves morally incompetent, their children should be brought up by society. There are children's homes for that.

It is interesting to trace the origin of this "moral dependence." Some men seriously believe that the more athletic fields, dance floors and tennis courts we have, the less crime there will be. Naïve hopes! This is not what builds moral stamina and immunity against evil. Why does a youngster have nothing to do evenings? Why does he look for a place to kill time? Why do we look for ways to help him kill time? Because from early childhood he gets used to being fussed over, pampered, attracted, "drawn in." Because a spirit of dependence pervades the young mind: somebody must arrange something for him.

Talking of the sources of moral dependence, we must also not forget that the most dangerous of them is an atmosphere of lies or, even worse, of half-truths. When a young, still unshaped mind feels that something is hidden from him, something is left unsaid, at first he is perplexed, upset, and then he begins to think: This is how it should be. Let others decide everything for me, make the difficult choice, assume the responsibility.

Workers joined in the discussion. Merited [illegible] tion, they are less prone than sociologists [illegible] philosophers to ponder the sources of [illegible] more likely to demand steps to eliminate

*A Soviet girl guerrilla executed by the Nazis in 1941.

PUNISHMENT MUST BE INESCAPABLE

Igor Gradinar, Alexei Kubarev and Nikolai Chapurin, Workers at the Electrical Equipment Factory

Questions of justice can be discussed indefinitely, and in view of their complexity they deserve that attention. But there are certain pressing things that do not need debating, situations when it is necessary to act with energy instead of debate. Our letter is about such a situation. While different viewpoints are expounded, criminals do not sit idly waiting for the outcome. As a rule, discussions leave criminals cold, they are moved only by "passion."

The other day a fellow worker on his way home from the evening shift heard a cry for help. He rushed in that direction and came on three youngsters trying to snatch a bag from a girl. "Stop it!" he yelled. They let the girl go and went after him. He came home black and blue, but the hoodlums, having done their dirty work, calmly went to sleep and tomorrow will probably again be lurking in doorways. What we are getting at is that a case of hooliganism that goes unpunished breeds more dangerous crimes.

Nor can we be silent about a disgraceful vice—hard drinking. It is this that most often turns people into hooligans. Meshkov, a lathe operator, came to work "under the influence." The foreman told him to go home and sleep it off. Meshkov stabbed him. He was convicted and is now serving his term in prison. This, however, does not make things easier for the foreman; his hand has been crippled for life. How can we be sure that this kind of disgraceful episode will not repeat itself elsewhere?

Of course, we must speak and write about public pressure, what it can and should do to fight hooligans. But we must not forget another thing too. We have the impression that in a number of recent cases the militia has not reacted swiftly and energetically to cases of hooliganism.

How should it be?

A second after a hooligan begins to make trouble, he should feel the hand of a militiaman on his shoulder.

It is our opinion—and in this we are supported by many of our comrades—that our militia should be given more freedom to act. Only then will the just demand to make punishment inescapable be realized.

Punishment must be really inescapable. The important thing now, in our opinion, is not to argue how lenient or severe punishment must be, but to make sure that the culprit does not escape. That is what will educate morally unstable people.

While strengthening our public order agencies, we must also take other urgent measures to combat crime. We strongly object to cases where pretrial probation is reduced to a formality and, in effect, no one is responsible for the future behavior of the man who went wrong.

Some leaders of our mass organizations show a very superficial understanding of the idea of pretrial probation. They trust people whom their membership does not really know, put them on probation and forget all about them. As a result, there are new crimes.

The discussion was concluded by Supreme Court Justice Grigori Anashkin.

INDIVIDUAL, CIRCUMSTANCES, RESPONSIBILITY

Grigori Anashkin, Chairman, Judicial Collegium for Criminal Cases, USSR Supreme Court

Who Is to Blame?

The Criminal Code provides that a person who commits a socially dangerous act must bear the legal responsibility for his crime. This means that for the murder committed by a "19-year-old scoundrel," of which Chvanov spoke, responsibility, of course, is borne by the killer and not the director of the cultural center, even if its activities are poorly organized.

Chvanov assumes that there can be no justification for guilt in view of the circumstances and conditions of our Soviet life today. But this point requires amplification. The law obligates the court to take into consideration circumstances which both aggravate and extenuate responsibility.

Furthermore, if we exclude circumstances as a source, a cause, of law violations, the question arises: What are these law violations caused by? Biological factors? Psychological factors? Physiological differences? Of course not. I find very valid the observations of Sukhomlinsky, a teacher who, in the course of many years of work, has traced the connection between family difficulties and juvenile delinquency.

We must not, of course, blame everything on circumstances. We must underscore the personal responsibility of a citizen to society for his actions. But neither must we underestimate the significance of the things that contributed to the crime.

How to Fight Crime

An old Russian proverb says: "If you're soft, they'll get the best of you—if you're tough, they'll turn away from you." This folk saying applies to extreme views on the problem of fighting crime.

Not all people have a clear idea of the actual situation. In the Soviet Union as a whole the crime rate has been cut nearly by half in the past 10 years. At the same time, in a number of places law violations have not declined in recent years, have even increased.

No little harm has been done by the thoughtless predilection for pretrial probation. In essence the wide enlistment of public opinion in influencing lawbreakers is good. But the moment this came to be regarded as a panacea, the results were unfortunate. Unstable people began to believe that if they broke the law, they would not be dealt with severely; they would be given a talking to and released on pretrial probation.

There are also instances where offenses are not punished at all.

Many proposals have been made recently about changing the Criminal Code. But experience shows that our Criminal Code, although it needs improvement, on the whole does serve to fight crime and to preserve law and order.

Those who claim that the laws are more lenient toward hooligans today than some 40 years ago are mistaken. For proof they cite the first Soviet years. But the facts refute these claims. Our first Criminal Code, adopted in 1922, punished hooliganism with up to one year imprisonment. The Criminal Code of 1926 raised the penalty for malicious hooliganism to two years. In 1935 the penalty was raised again—to five years. In the first three months of 1965, the People's Court of Leningrad District in Moscow sentenced 65 per cent of all persons convicted of hooliganism, a considerable number to terms ranging from three to five years.

I agree with workers Gradinar, Kubarev and Chapurin that the important thing now is not so much whether the punishment should be lenient or severe but to make its inescapability a fact.

In the debate now under way we find that judges, prosecutors and the personnel of corrective labor institutions often speak up against unjustifiedly cruel penalties. It would seem that a judge should become hardened to cruelty from his many years of contact with criminals, but more often the reverse is true. Those who remind us that cruelty cannot be met by cruelty are right.

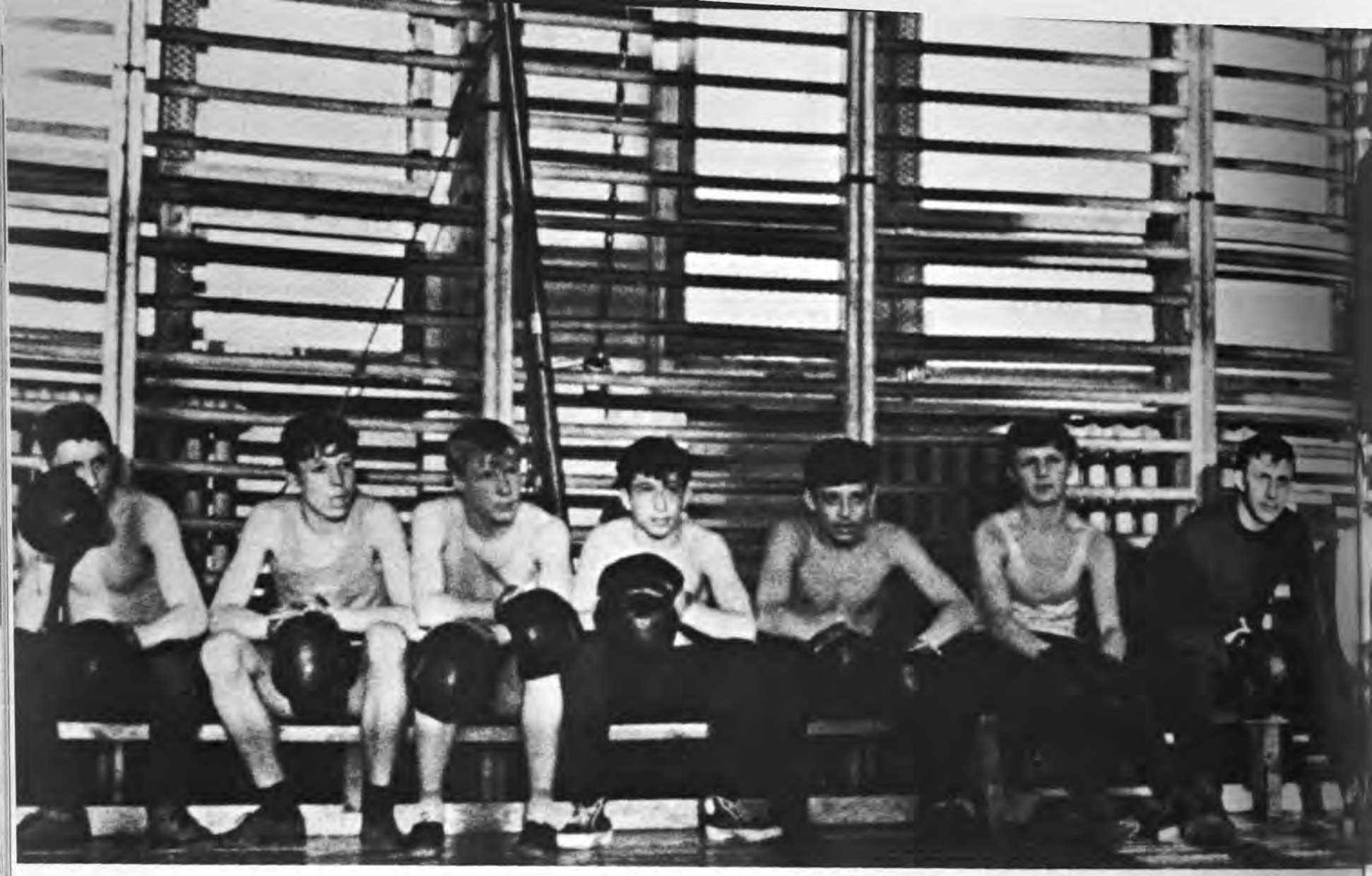
Nor can I agree with the demand which sounded in the discussion: "Sentenced to 15 years, serve 15 years." The system of preterm release has to be improved, of course, but I see no reason for discarding it. Today the bulk of those released before their sentence expires work honestly and behave decently. If some of them commit new crimes, this merely shows that the procedure needs improvement, not that the law should be annulled.

Discontinuing the practice of releasing prisoners before they have served their full sentence will not, in my opinion, contribute in any measure to the educative function of punishment. This release is not the duty but the right of the court. The law stipulates that under definite circumstances the court may release a prisoner before his sentence has expired.

The important thing is to make as certain as is humanly possible that the release of a given individual will not contribute to new crimes.

Concerning Humanism

I think we must not oppose "humanism for the millions" to "humanism for a hundred," as Vladimir Chvanov does. In our understanding, humanism presupposes love of man. As early as 1922, when the first Soviet Criminal Code was discussed, Dmitri Kursky, then People's Commissar of Justice, said: "A criminal is a man who is dangerous at a given moment. Either he should be isolated or an attempt should be made to reform him, but under no circumstances should he be subjected to vengeance." This is an equitable principle.



A short time ago lawyers, teachers, psychologists and writers got together at the Leningrad city hall to discuss teenagers and how and why they become delinquents. Speakers pointed out that in the last four years instances of juvenile delinquency had dropped by 40 per cent.

People from various city districts who worked with youngsters exchanged experiences and one person described the boxing club experiment.

EVERY BOY in the neighborhood must have gotten word the summer of 1964 that a boxing club for teenagers was to be opened to all comers. And most of them showed up when it did.

A gray-haired man in a track suit looked over the 100-odd boys lined up on the sports field of the neighborhood park. Many of them had hair which could have stood combing, and their half-buttoned shirts were not tucked into their trousers. Some of the older boys had cigarettes drooping from their mouths. But Nikolai Gorodensky, with more thah two dozen years of practice training boxers, did not lecture them on the virtues of neatness.

He said briefly, "All right, fellows. Everyone who smokes raise your hand."

Some of them did, others were too embarrassed.

"If you want to box you'd better stop smoking from this moment on," he went on. "Otherwise you'll feel like fish out of water before the first practice is over. You'll be gasping for air. I might as well tell you that it's going to mean hard work all the way and that you're going to need a lot of will power to stick it out."

The first hundred trainees and the second hundred after them found out that the instructor meant business. First, a thorough medical check-up. Then:

"Let's see you do some zigzag running."

"Take small hops forward!"

"Swing your arms, squat, up!"

"Put on your gloves! Start shadowboxing!"

This went on three evenings a week for two-hour sessions. Workouts were held in the park until it turned cold, after which the boys continued indoors in three district school gyms. There was an instructor now at each school. The boys at School No. 496 thought themselves very lucky because their coach was Vladimir Stolnikov, a fitter at the local meat-packing plant who had held the national boxing championship for several years and was an Honored Master of Sports.

Reaction to the boxing club experiment varied. Nikolai Bogachov's mother was overwrought.

"Why did you let him join?" she berated the coach. "Boxing is a rough sport. My boy isn't strong. He had polio as a child, and he still limps a little."

"I know all about Nikolai and his past. I don't promise you that he'll be a first-class boxer, but I assure you

BOXING

CLUB

that he'll be stronger and healthier than he was before."

The telephones rang at the schools and the district public education department.

"What's the idea? The boys used to scuffle around a little, now they really go after each other."

Adult objections notwithstanding, the youngsters had voted in neighborhood boxing by a large and growing pugilistic majority. So much so that Pauline Kachalova, secretary of the executive committee of the District Soviet, proposed that the club be subsidized.

And so it was—to buy boxing gloves, punching bags, a collapsible ring and other equipment.

The junior boxing club experiment had interesting side effects. When you are 13 to 17 and crazy about boxing, a word from the trainer is gospel.

"How can you call yourself an athlete when you look so untidy?"

"A boxer doesn't waste his strength on foolish street fights. It's different, of course, when he goes after a big fellow who is bullying someone half his size."

A principal talked to Gorodensky one day about a 15-year-old pupil in his school, Valeri Gizyatov.

"He's been getting bad marks lately. I think the boxing has something to do with it."

When the principal left, the trainer lined the boys up and told Valeri to step out.

"I want everyone to know that Gizyatov has been doing poorly in school lately. I've been told that boxing is to blame. I want you all to think about it."

The boys thought about it and got after Valeri. "How long will it take you to get some decent marks?"

"Ten days."

"You stay away from gym for 10 days and then come back with your report card."

Valeri turned up at the end of the "probation period" with good marks and was allowed to resume training.

But another fellow, nicknamed Baron for his arrogance and big talk, did not come back. Baron was a neighborhood nuisance, always spoiling for a fight. The coach himself took the trouble to go see his mother and invite the boy to join the club.

"Yes, I think he'd be better off with you at the club than leading the neighborhood kids in street fights," the mother agreed.

Baron came to the club, but he got cold feet when he had to slug it out with someone his own size. That finished him with the kids who used to tag after him and do everything he told them.

The green shorts and crimson jerseys with the club emblem are beginning to be seen at district and city boxing championships. The 250 teenage members think that the reason for boxing is to build up strength and stamina, but the grown-ups know better.

By Yelena Doroshinskaya

MARCH IS THE MONTH we remind our readers and ourselves how wonderful the fair sex is. It's a good month for that reminder, but then so are the other 11. We try to give distaff sports as much of the headlines and column space as he-man events get.

March is also the month of the big international tennis meet in Moscow. It's an indoor fixture here and gives us an idea of what to expect for the season ahead. Tennis forecasters have already lined up male prospects, but the ladies' division is still a big question mark.

It is not that the ladies are more unpredictable in tennis than elsewhere but that the top three players are on the sidelines baby-sitting. Coaches last season were appalled when these players announced they were taking time out to have babies. For Anna Dmitrieva, the number one player, it came at the height of her tennis career. However, neither she nor her fans are wearing black.

Families and sports mix wonderfully well. Many of our leading athletes have had babies at various stages of their careers. It would be most unusual for a woman here to give up having a family for the sake of sports. That dilemma we don't have.

The doctors say, and they are seconded by the athletes themselves, that a baby helps a woman reach peak form. Larissa Latynina and Sophia Mouratova, our Olympic gymnasts, tell us their best performances came after they had babies.

We recall that when the American girls' basketball team played in Moscow, the cameramen and correspondents were constantly focusing their cameras on the players' benches. Seated up front on the Soviet side were several tots rooting vociferously for their mothers.

So we can safely predict that Anna Dmitrieva, who is majoring in French at Moscow University, will be making headlines again soon and even taking part in major international competitions this season.

Moscow has been visited by tennis officials from various countries. Their purpose was to examine the physical fitness program used in training Soviet players. Judy Tegart of Australia was one of the many stars of the first magnitude who was impressed by the fitness of Soviet players.

The secret? There is none actually. All players concentrate on physical fitness first. To qualify for the national championships, a player must first meet physical fitness requirements. Before he can take a tennis racket into his hands (or hers, for that matter), he must meet qualification norms in sprinting, high jumping and in the hop, step and jump, then do an exercise putting a medicine ball, and top it off with a gymnastic drill.

Our tennis still has its problems. One is that it isn't played as widely as we'd like it to be. Another is the sparsity of international meetings at various levels, although this season Soviet players have been doing lots of traveling. A big problem is the lack of grass courts. Soviet players are used to clay courts mainly. The only way they have of priming for a lawn tennis tournament such as the Wimbledon is by playing on all sorts of plastic substitutes and experimenting with balls that have more or less bounce.

Officials feel that one of the ways of overcoming the lag in the sport is by accenting youth. Now at team championships every club must enter teenage players if it wants to qualify. This is the picture in all sports, by the way.

Moscow is getting ready for the new horse-racing season. Horse racing is a sport that has literally exploded into the headlines. In U.S.-USSR affairs we had the Laurel Park race with our Anilin at the post, then that harness-racing epic in Yonkers last season when Maria Burdova and her Apex were entered in the two major international races of the season. The novelty of a woman riding in these races was so great that after her particular event she was invited to ride two of the American horses. We understand that the horses chosen were not the favorites. It was probably meant as a publicity stunt. But be that as it may, Maria Burdova won those two races with the odds piled high against her. The betters who pinned their hopes on the fair sex this time had every reason to be jubilant—Burdova won! It was reported that two bookmakers who went broke on these races claimed it was not the money they were so mad about as the principle of the thing. What principle?

"When women muscled into the space flight game, that was all right with us," they complained. "But when women inch into horse racing and start winning, it's time to do something about it."

Twenty-seven-year-old Maria Burdova is a trained veterinarian. Rid-

ing is only a hobby. Her profession is training horses, and at the Moscow Hippodrome she is known as a trainer of no mean merits. Last year Apex was turned over to her for grooming. She rode him to 15 victories in 16 big money races.

We can hear the male sex wondering—what's this world coming to, anyway?

I remember asking that very same question last summer. A team of mountain-climbers scaled Lenin Peak (23,405 feet). When they came down to be congratulated, we discovered there were two women among them—Svetlana Kolonkina, an engineer, and Valentina Mashkova, a doctor.

March is also a month for big swimming tournaments. One notable fact is that the age ceiling has been coming down steadily. In fact, one wag suggested that in the future instead of awarding medals and cups to the winners, dolls might be more appropriate.

The school generation has been making headway and has been bowling over the national records. One Moscow girl we have our eyes on is Tamara Sosnova. She turned 16 in December.

It seems that just before the Tokyo Olympics the name Sosnova was listed among the hopefuls. Fans racked their brains—they remembered a Sosnova long before who had faded out of the picture. That was Galina—she entered the Moscow Institute of Technology and found the scholastic effort too much to continue at top level in sports. The girl listed in the Olympic squad was Tamara, her sister. Good as her times here were, the selectors did not take her to Tokyo because her results were much behind those chalked up abroad.

The coaches and Tamara got busy polishing her technique and building up speed. Now she holds four of the five free-style records in the Soviet Union. Tamara wants to go to Mexico for the Olympics, and then she plans to enter the Institute of Technology as her sister did.

Her coach tells how Tamara started swimming at the age of seven. "She swam like an ax," he told us, using the Russian saying. "We would have dropped her a long time ago but were afraid to because her sister Galina was then a star of headline stature. No one paid serious attention to Tamara until she suddenly began winning medals at the championship tournaments. There's one thing about Tamara. She performs well against strong opponents only. She's so much better than her teammates that we wonder whether she won't swim herself into a rut this season."

As we were getting this article ready for print, one of the office boys called our attention to the fact that so many women athletes seemed to be going in for engineering. Tamara and Irina Press, who share three world records between them, are both engineers. Tamara is a civil engineer and Irina a railroad engineer. Taisia Chenchik, our top high jumper, is a power plant engineer. That, incidentally, is a family profession with her. Broad jumper Tatyana Shchelkanova is an electronics engineer with her eyes set on the word record. These are just a few chosen at random.

We find distaff athletes from all walks of life in sports. They think it's a good way to keep fit.

When to start getting physically fit seems to have been definitely settled. Educators and coaches believe that boys and girls should get into sports at preschool age. We saw posters up announcing enrollment at the Central Children's Sport Center in Moscow for acrobatics, cycling and skating, gymnastics, track and field, figure skating and even checkers and chess. All activities are under strict medical supervision. Parents are also informed that skilled instructors have been retained. Open to boys and girls from six to sixteen.

For youngsters who do not want to go in for any of the sports listed but who just want to keep healthy, there is a special physical fitness division.

We understand that most mothers want their children to go in for figure skating. The probable explanation is artistic, it goes with music appreciation and ballet.

Similar activities are available all over the city at all parks and stadiums, and at no charge whatsoever. The only things needed are parental consent and medical clearance. When the boy or girl starts going to school, the report card must be presented. Only children with good grades are eligible. These are the only strings attached. Athletics are not allowed to interfere with school. The view here is that athletics should be an incentive to learning. And it is.

TWENTY-TWO CONGRESSES

The next Congress of the Communist Party of the Soviet Union, the twenty-third, will be held in Moscow at the end of March. The Congress will discuss the report of the Central Committee and the five-year economic development plan for 1966-1970, and will elect leading Party bodies.

Below is a brief summary of each of the congresses held by the Party since it was founded.

I

March 1898
Nine delegates from six organizations

Representatives of six Marxist organizations in various parts of Russia gathered secretly in a small wooden house in Minsk. Their names tell us nothing, none of the well-known Marxists were present. Georgi Plekhanov was living as an émigré in Geneva, and Vladimir Lenin was in exile in Siberia. The Congress adopted a rather diffuse manifesto announcing the formation of the Russian Social-Democratic Labor Party. The Central Committee of the Party elected at the Congress was arrested shortly afterward. The Party had been formed, but without leadership it could do no effective work.

II

Summer of 1903
43 delegates
from 26 organizations

The Congress met first in Brussels, but persecution by the Belgian police forced a transfer to London. This Congress was much more representative than the first. Its guiding spirit was 33-year-old Lenin. A fierce struggle developed from the beginning between the revolutionary Marxists, headed by Lenin, who wanted a militant proletarian party, and the opportunists led by Yuli Martov, who wanted an amorphous organization without discipline, similar to the European Social-Democratic parties of the time. Lenin's followers received a majority of the votes. Since then they have been called Bolsheviks, from the Russian word *bolshinstvo*, meaning majority. Martov's adherents came to be known as the Mensheviks, from *menshinstvo*, the minority. The Congress adopted the Party Rules and Party Program. The long-range goal was to build a socialist society through a socialist revolution and the dictatorship of the proletariat. The immediate goal was to overthrow czarism in Russia and establish a democratic republic.

III

April 1905
38 delegates from 20 organizations

The first revolution in Russia, sparked off by the shooting down of a peaceful demonstration of workers in St. Petersburg, was gathering momentum. The Mensheviks refused to participate in the Third Congress. The Congress, which met in London and was led by Lenin, defined the tasks of the Party in the revolution. As the most advanced and only consistently revolutionary class in Russia, the proletariat is called upon to head the movement of the whole people, the Congress declared. Its ally is the peasantry, and its policy armed insurrection against czarism and the establishment of a democratic republic, to be followed by a socialist revolution.

IV

April 1906
134 delegates from 57 organizations

The Congress met in Stockholm at a time when the revolution was subsiding. The Bolsheviks were being hunted down by the czarist police, and not all their organizations could send delegates. Present were 62 Mensheviks and 46 Bolsheviks, the remaining delegates were from groups that vacillated between the two. Only formal unity was achieved. Neither the Bolsheviks nor the Mensheviks made any concessions. The Bolshevik agrarian program advocated turning all the landed estates over to the peasantry without compensation. That, said Lenin, could be done only if the people took power. The Mensheviks disagreed.

V

Spring of 1907
336 delegates
Party membership 147,000

It was shortly before the first Russian revolution was finally put down that this Congress met in London. It was attended by 105 Bolsheviks and 97 Mensheviks, the remaining delegates were vacillating. Lenin, Kliment Voroshilov and Joseph Stalin led the Bolsheviks. Maxim Gorky, who sympathized and worked with the Bolsheviks, participated in the Congress.

The Congress considered the tactics to be followed by the Party now that the revolution had been put down and reaction had set in. The Bolshevik position won a majority of the votes. A step was taken to unify the two opposing trends, but the unity did not last long. After the Congress the Mensheviks continued to follow their own policy. At the Prague Party Conference in 1912 the majority of the Mensheviks, those opposed to revolutionary struggle, were expelled from the Party.

VI

Summer of 1917
267 delegates
Party membership about 240,000

This Congress met in Petrograd after the February 1917 revolution had overthrown the monarchy. Despite that, it was compelled to meet in secret. Alexander Kerensky's counterrevolutionary Provisional Government had seized power, and Lenin was being hunted by the police. He guided the Congress proceedings from his hiding place. Yakov Sverdlov presided. Stalin reported for the Central Committee. ". . . Peaceful development of the revolution and a painless transition of power to the Soviets are no longer possible, for power has in fact already passed into the hands of the counterrevolutionary bourgeoisie," the Congress stated. Aware of the growing support of the people for the Bolsheviks and of Kerensky's preparations to set up a dictatorship and smash the Soviets, the Congress called for an armed uprising of the proletariat in alliance with the poor peasants and the seizure of full power by the Soviets. On October 24 1917 (November 7, New Style), the Soviets, in which the Bolsheviks held the majority, took power.

VII

March 1918
104 delegates
Party membership about 300,000

This was the first Congress to meet after the Bolsheviks came to power. Owing to the urgency with which the Congress met and the fact that part of the country was occupied by German troops, not all organizations were able to send delegates.

The major item on the agenda was Russia's withdrawal from the war. Over the objection of the "Left Communists" for a "revolutionary war" (Nikolai Bukharin), the Congress approved the policy of Lenin's government, which had signed a peace treaty with the government of Kaiser Wilhelm at Brest-Litovsk. The treaty, as Lenin had forseen, was nullified shortly thereafter, in November 1918, when revolution broke out in Germany. At Lenin's suggestion the name of the Party was changed to the Russian Communist Party (Bolsheviks).

VIII

March 1919
403 delegates
Party membership 314,000

This Congress, like all those which followed it, met in Moscow, the new capital of Soviet Russia. Civil war had interrupted peaceful construction. Internal counter-revolution allied with several of the great powers was fighting the socialist republic. The Congress adopted a new program defining the tasks of the Party during the period of transition from the old system to socialism. It recognized the right of nations to self-determination, up to and including complete separation from Soviet Russia. On the peasant question, since the middle peasants, who had vacillated earlier, were beginning to swing over, the Congress declared a policy built on a stable alliance between the proletariat and the middle peasantry. The poor peasants, who had received land, were helping to swell the ranks of the middle peasants.

IX

Spring of 1920
716 delegates
Party membership 612,000

There was a brief respite in the Civil War. The interventionist foreign powers were forced to lift their blockade. The Baltic countries pulled out of the war and made peace with Soviet Russia. The Civil War on the heels of the World War had devastated the country. The Congress declared the most immediate economic tasks to be the reconstruction of transport facilities and industry. Special emphasis was put on electrification.

X

March 1921
990 delegates
Party membership 733,000

With the end of the Civil War in 1920, the Congress turned to the problems of peacetime development. It approved the New Economic Policy (NEP), which permitted a limited degree of private enterprise in industry and trade, under strict state supervision. Big industry, the banks, transport and foreign trade were still owned and operated by the state. In the countryside a moderate tax in kind replaced appropriation of all farm surpluses, which had been necessary during the period of civil war and foreign intervention. All produce over and above the tax the farmer could sell in town and buy manufactured goods. These measures stimulated the entire economy and strengthened the ties between urban and rural areas. The Party had been weakened by factional conflict, and at Lenin's proposal the Congress ordered all factional groups in the Party dissolved.

XI

Spring of 1922
697 delegates
Party membership 532,000

In 1921-1922 the Communist Party purged its ranks of opportunists and bureaucrats. This accounts for the drop in membership. The Congress reviewed the first year of the New Economic Policy and concluded that it had justified itself by helping the economy get back on its feet and by improving relations between urban and rural areas. The Congress, however, reiterated that reliance on private enterprise, even partially and temporarily, was only a stopgap and that the Party's aim was socialism, an end to exploitation of one man by another. Now, said Lenin, the Communists must show

the people that they could run the country's economy just as well as the capitalists.

The Central Committee elected by the Congress created the post of general secretary. Stalin was elected to the post.

XII

April 1923
825 delegates
Party membership 386,000

The membership dropped again as the Party, after the Eleventh Congress, continued to purge itself. Lenin, seriously ill, was not present at the Twelfth Congress but sent his recommendations in writing. Grigori Zinoviev made the report. The Congress proposed that the country concentrate on heavy industry, which would provide the necessary base for the development of light industry. The Congress resolved that every effort be made to avoid excessive centralization, the discouraging of initiative, and arbitrary interference in the work of enterprises. On the national problem, the Congress urged steps to eradicate the economic and cultural inequality of the country's many nationalities (political equality had been made the law of the land in the very first days after the October 1917 Revolution).

XIII

May 1924
1,164 delegates
Party membership 864,000

The Congress met four months after the death of Lenin. Moved by his lifelong devotion to the ideas of communism, more than 240,000 workers joined the Party he had founded. The movement was called the Lenin Enrollment. The Congress noted the economic progress the country had made and proposed continued industrial concentration, particularly in iron and steel. The slogan of peasant farm cooperatives (in various forms) was raised.

Lenin's "Testament," a letter he wrote shortly before his death, was read to the delegates. The letter underscored the great importance of Party unity and characterized some of the members of the Central Committee. It cited the "unbolshevism" of Leon Trotsky and called Stalin one of the Party's very outstanding members. But, Lenin said, "as General Secretary, Comrade Stalin has concentrated immense power in his hands, and I am not certain he will always be able to exercise that power with sufficient discretion." The Congress took account of the struggle Stalin was waging against Trotsky and his adherents, then the greatest danger to the Party. Assured by Stalin that he would correct his faults, the Congress decided to leave him in his post.

XIV

December 1925
1,306 delegates
Party membership 1,088,000

Both industry and agriculture had almost reached the prewar level. But that was the level of an economically backward country. What direction should development take? The Fourteenth Congress devoted itself to this question, and earned the name "Congress of Socialist Industrialization." It resolved that the economy can and must be built on a socialist foundation, without the participation of private capital. Rapid industrialization was the aim, to make the country economically self-sufficient. The Congress recalled Lenin's thesis that the Soviet republic has "everything it needs to build a fully developed socialist society." Trotsky, Kamenev and Zinoviev spoke against the plan. They declared it impossible to build socialism in one country, but their thesis did not get the support of the Congress.

By 1922 the various republics had voluntarily formed the Union of Soviet Socialist Republics. The Congress therefore adopted a new name for the Party: the Communist Party of the Soviet Union (Bolsheviks).

XV

December 1927
1,669 delegates
Party membership 1,236,000

The Congress noted that industrialization had progressed without private business and without the foreign capital which the Soviet Union had been refused. Attention was now directed to the lag in agriculture. And there was indeed a striking contrast between large-scale, publicly owned socialist industry and the small and scattered private farms. The way out was obvious—voluntary amalgamation of the small and inefficient peasant holdings into large collective farms that would be able to use machines and modern methods of organizing farm production. The Congress proposed that the first comprehensive five-year economic plan be drafted.

Trotsky, Zinoviev and other members of the opposition who had come out actively against the adopted policy were expelled from the Party. At a countrywide forum held before the Congress convened, only 4,000 Communists, less than one per cent of the Party membership, had favored the Trotsky and Zinoviev bloc.

XVI

Summer of 1930
2,159 delegates
Party membership 1,972,000

The Congress noted that the socialist economic system had proved its superiority. Industrial production was almost double the prewar level. The Soviet Union was transforming itself from an agrarian to an industrial country.

But the level of industrial production was still far behind that of the advanced countries of the West. Development of the iron and steel and machine-building industries had to be accelerated. While noting the achievements in collectivization, the Congress was critical of the mistakes made and condemned such distortions of policy as forced collectivization.

XVII

Winter of 1934
1,961 delegates
Party membership 2,810,000

The Congress summed up the results of the country's rapid development along socialist lines. The USSR had become an industrial country. The socialist form of ownership—property owned by the whole people and property owned by cooperatives and collective farms—now constituted 99.5 per cent of industry and 84.5 per cent of agriculture. Dozens of new industries, unknown in old Russia, were developing. The Congress adopted the Second Five-Year Plan. In view of the growing danger of war with fascism coming to power in Germany and a number of other countries, the Congress instructed the Central Committee to work for peace and improved trade relations with all countries.

XVIII

March 1939
2,035 delegates
Party membership 2,478,000

Questions concerning the deteriorating international situation were dealt with in detail. The world was already on the brink of war. The Congress instructed the Central Committee to continue its efforts for peace, to observe caution and not allow troublemakers to involve the country in a military conflict. It declared that "the first phase of communism—socialism—had been built in the main." In the USSR there was no exploitation of man by man. The society was made up of two friendly classes, the working class and the peasantry together with the working intelligentsia. Living standards had risen. The Soviet Union was an economically independent country.

Not everything in the Party's and the country's development was satisfactory, however. A Stalin cult had grown up, Stalin's name was being linked with everything the Party and the people achieved. At the Congress, too, his services were extolled excessively. That Stalin deserved not praise but condemnation became clear only later. Misusing his position and prestige, out of touch with the masses of people, he rejected all criticism and was guilty of violations of law that cost large numbers of good and honest people their lives and freedom.

The Congress discussed the Third Five-Year Plan, which projected further economic progress and a continuing rise in living standards. The war interfered.

XIX

October 1952
1,659 delegates
Party membership 6,882,000

The Congress reviewed the 13 hard years intervening. Victory against the Nazis had shown the strength of the Soviet system and the unity of the people. The country had healed the wounds inflicted by the war. Its productivity was even higher than the prewar level. In a short speech, his last public address, Stalin dwelt on the importance of the foreign communist parties in the struggle for peace and democracy.

The delegates to the Congress had no knowledge at the time of the criminal breaches of socialist law Stalin was responsible for. His prestige during and after the war was greater than ever. The delegates trusted him implicitly. The Congress approved the Five-Year Plan for 1951-1955.

XX

February 1956
1,430 delegates
Party membership 7,216,000

Nikita Khrushchev's report summed up the results of the previous five-year plan. The Congress developed a number of new theoretical propositions and applied the principle Lenin had formulated—the peaceful coexistence of countries with different social systems—to present-day conditions. There was a real possibility of preventing aggressive wars in our day, the Congress declared. Lenin's thesis that the transition to socialism would take different forms in different countries, including peaceful transition, was developed.

The illegalities of the Stalin period were exposed at this Congress, which marked a turning point in the history of the Party. The Stalin cult of personality was denounced as a violation of the very essence of Marxism-Leninism.

XXI

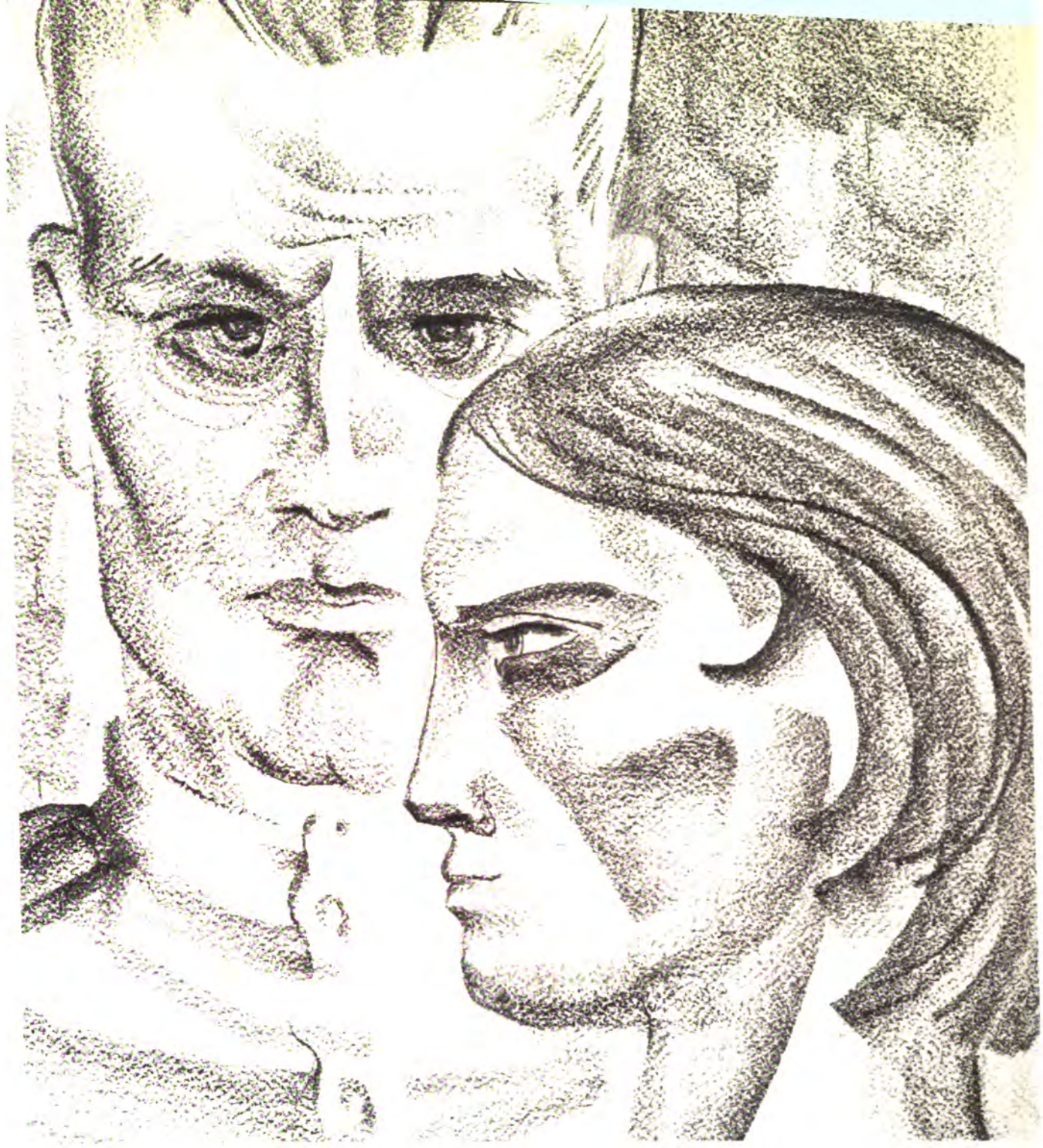
Winter of 1959
1,367 delegates
Party membership 8,239,000

This Extraordinary Congress adopted the Seven-Year Economic Plan for 1959-1965. The Congress declared that socialism in the USSR had triumphed finally and irrevocably.

XXII

October 1961
4,813 delegates
Party membership 9,716,000

"The fact that it has been possible to avert war and that the Soviet people and the peoples of other countries have been able to enjoy the benefits of a peaceful life derives largely from the activity of the Party," says the resolution of the Congress on the report of the Central Committee. The Congress adopted a new Program and new Party Rules. The new Program, the Party's third, is concerned with the problems of the transition from socialism to communism. It is a blueprint for a communist society in the USSR, a highly organized society of free, socially conscious working people in which self-government will be the norm and labor for the good of society will be a psychological necessity. "From each according to his ability, to each according to his needs" will be the principle actuating this society.



Short Stories By Vladimir Bogomolov

FIRST LOVE

WE LAY close together, and the earth did not seem so hard, cold and damp.

We had been meeting for six months, ever since she came to the regiment. I was 19, and she 18.

I was a company commander, she a nurse, and no one knew that we loved each other or that there were three of us by now.

"I feel it's a boy!" she whispered, perhaps for the tenth time. She was awfully eager to please me. "And he'll be just like you."

"I won't mind if it's a girl, especially if she's like you," I whispered back, thinking of something else.

Some 500 yards ahead the men of my company were fast asleep in dugouts or in the trenches. Beyond them and the firing line lay hill 162; it was hidden by the dark now, except in the rare flashes from German flares.

At dawn my company was to do what another one had failed to do a week before—capture the hill. No one in the battalion knew anything about it yet, except for the five officers who had been called to the dugout of the major, the regimental commander, yesterday evening.

"Now remember! You go over the top when the *katyushas* and green flares start flying. Your neighboring units will move forward too, but you're the ones who have to take that hill!"

We lay close together. I kissed her and could not get the battle out of my mind. More than anything else I was worried about what would happen to her, wondering what I could do.

"I've got to sleep for two now," she went on in her chanting whisper. "At night sometimes I dream that it will all be over when morning comes—the trenches, the blood, and the dying. We've had three years of it. It can't last forever! Imagine the sun rising in the morning, and no war, none at all."

"I'm going to talk to the major!" I said, pulling my hand out from under her head and sitting up straight. "I'll tell him everything. He's got to send you home. Today!"

"Don't," she caught me by the sleeve and dragged me

down. "Lie down! What a fool you are! The major will give you hell!"

Imitating the low rough voice of the regimental commander, she whispered in a bass:

"Familiarity with subordinates is bad for morale, it robs an officer of authority. If I hear of any of you getting unduly familiar with subordinates, I'll kick him out. That goes for every one of you! And you'll go with the sort of reputation that'll get you kicked out of even a guardhouse! Win the war, and then you can do as much loving as you like. Right now it's out of bounds!"

Her voice broke, and she fell back laughing silently so we would not be heard.

I knew I'd be in trouble, of course. The major was a stickler for rules. He thought war was no place for a woman, not to speak of love.

"I'm going to talk to him just the same!"

"Be quiet!" She put her cheek to mine, sighed and whispered: "I'll do it myself. I've figured it all out. You won't be the father of the child!"

"What do you mean?" I demanded in alarm.

"What a fool you are!" she whispered happily. "I hope the baby won't be like you, after all! Don't you see? You'll be the father when the birth certificate is made out, but not now. I'll say it was someone else!"

She was as simple-hearted and honest as a child, and for her to be so devious surprised me.

"Who?"

"Someone who fell. Why not Baikov?"

"Leave the dead alone!"

"Then I'll say it was Kindyayev."

Corporal Kindyayev was a handsome drunkard and thief. He had recently been shipped to a penal detachment.

Deeply moved, I caught her to me, wrapping my trenchcoat around us.

"Be careful!" She jammed her fists against my chest. "You'll crush us!" She had begun to talk of herself in the plural and was childishly pleased when she did. "My dear, dear fool!"

Her laughter was so carefree! But I did not feel at all like laughing.

"Listen! You've got to go to the major right away!"

"Now, at night? Don't be crazy!"

"I'll take you there! Tell him what happened. Tell him you don't feel well, that you can't stay here any more!"

"But that's not true!"

"Please! How can you stay? You've got to go! You've got to! Can't you understand? What if we go into battle tomorrow?"

"Into battle?" She was very serious now. She understood. "No, it can't be true."

"But it is!"

She lay still for a moment. But her breath, so familiar, told me how disturbed she was.

"Well. . . . No one runs away from battle. You couldn't anyway. . . . Besides, it will be some days before they discharge me. . . . I'll go to the major tomorrow. Will that do?"

I tried to think of something to say but couldn't.

"Think it's easy for me to go to him?" she suddenly murmured. "I'd rather die! He told me so many times: 'You be a smart girl! Don't get into trouble.' And here I am. . . ."

Sobbing, she turned away, buried her face in her sleeve and lay trembling, weeping silently. I embraced her almost by force, kissed her lips, her forehead, the salt tears.

"Let me alone," she said, struggling free. "I'll go now. Come with me a little way?" I could hardly hear the words.

We climbed down into the dark, damp ravine where the battalion's medical station was located. I steadied her from behind, holding her waist that had grown a bit fuller. I held her with both hands, fearful of every step she took. I was afraid she might stumble, slip and fall. As if I could really guard her from the war, from the battle at dawn, when she would surely have to run, fall and drag the wounded back under fire.

Fifteen years have passed since then, but I remember it all as though it happened yesterday.

The *katyushas* went into action at dawn. The mine-throwers and divisional artillery thundered, and green flares lighted up the sky.

By the time the sun was up, I had reached the hill with what was left of my company. In a solidly built German trench half an hour later the regimental commander congratulated me. Others embraced me and shook my hand. But I stood there like a log, feeling nothing, seeing nothing, hearing nothing.

The sun. If I could only drive it back over the horizon! If I only could bring the dawn back. Only two hours ago there were three of us.

But the sun kept rising mercilessly as I stood on the hill, while she lay at the bottom where the men of the burial team were collecting the dead.

And nobody knew what she had been to me and that there had been three of us.

HEARTACHE

I HAVE BEEN racked by this heartache for many years, but it is especially bad on May 2 and September 15.

It was soon after the war that I met Lyonka Zaitsev's mother one evening in a brightly lighted grocery. She happened to be looking my way, and I felt that I had to go up and say hello to her. She recognized me then and with a gasp dropped her bag and burst into tears.

I stood there facing her, rooted to the spot, unable to utter a word. The people around us thought that her pocketbook had been picked, but all she could say to their queries was, "Go away, leave me alone, please!" in a hysterical voice.

That evening I felt all broken up. And though Lyonka had fallen in the very first battle, before he had had a chance to kill a single Nazi, and I had spent almost three years at the front and fought many battles, I felt guilty before this old woman, before all those who had fallen in battle—both friends and strangers—before their mothers, fathers, children, widows.

I can't explain why I avoid that woman who lives a block away from me, why I keep out of her sight.

Then there's September 15, Petka Yudin's birthday, when his parents invite all his childhood friends who are left.

They come, men and women of 40, and drink tea with candy, cake and apple pie, because that was what Petka liked.

Everything is done as it was before the war, when a happy boy laughed and bossed us around in that room, the boy who was killed somewhere near Rostov and left unburied in the pandemonium of the retreat. Petka's chair stands empty at the head of the table, and at his place are a cup of aromatic tea and a plate heaped with sugared peanuts, a huge piece of cake and the biggest slice of apple pie. As though he might run in, take a bite and yell at the top of his voice: "Umm, delicious! Come on boys, dig in!"

I feel guilty before Petka's old parents, too, for having come back and left Petka behind on the battlefield. Wrapped in my gloomy thoughts, I hardly hear the talk at the table. At times like this my heart is heavy as I remember that in every second or third family in this country of ours somebody did not come back. . . .

PROFITS IN THE SOVIET ECONOMY

The decisions of the September 1965 Plenary Meeting of the CPSU and of the Sixth Session of the USSR Supreme Soviet concerning the improvement of industrial management, the perfection of planning and strengthening economic incentives are now being carried out at many plants and industries in the Soviet Union. Several of our readers have asked us to write in detail about the profit motive in our economic system and the role Professor Yevsei Liberman played in introducing the new system of management. Here are the answers given by Professor Liberman, head of the Economics of Engineering Department at Kharkov State University:

In 1962, when a lively discussion in the USSR on the ways and means for reorganizing planning and providing incentives to socialist production started, I published an article in *Pravda* entitled "Plan, Profit and Bonuses." Western commentators completely deleted the word "plan" and, ignoring the main idea in the article, fastened on the word "profit," a word which rings a bell in their hearts, and started to interpret Soviet profit at random.

Both in the article and in others that followed (*Soviet Life*, July 1965), I clearly pointed out that centralized planning should be improved and intensified and that enterprises should receive planned assignments on the volume of goods to be delivered, *i.e.*, planned assignments on the volume of goods to be sold. Profit and the rate of profitability, however, were to be considered as over-all indices of work efficiency and as a source of encouragement to prompt the enterprises themselves into drawing up and accepting increased planned assignments.

How was this interpreted by Western commentators?

They have indulged in wishful thinking: the USSR was allegedly renouncing "the very basis of its system"—planned management of the economy—and was going over to a profit system; from here it was allegedly only one step to capitalism, no more, no less. When speaking about adoption of the "profit motive" in the USSR, the Western press claims that Liberman practically "invented" it as the sheet anchor of the "sinking" ship of the Soviet economy.

Is profit a new idea in Soviet economics?

It was Lenin who was the first to point out that socialist enterprises should cover their expenditures by their income and give society a profit. Thus profit in the Soviet economy was not born yesterday nor today. It has been part and parcel of the economic arsenal of socialism since the first days of the Revolution. (Incidentally, such economic categories as profit, price and money are by no means attributes of capitalism. They were also to be found in precapitalist economic formations. Every social system uses these economic categories in accordance with their social-political tasks.) Actually, it was the profits of Soviet enterprises that made it possible to build up a powerful socialist industry (the USSR received no loans or credits from the rich and developed capitalist countries). It was precisely the industry of the land of Soviets, built on socialist accumulation, that supplied the Soviet Army with first-class materiel with which to rid its own country and Europe from the fascist plague. Western propagandists, however, intentionally forget about this role of accumulation in the Soviet economy when they try to prove that profit will transform socialism into capitalism.

Can profit bring private wealth?

Profit in a socialist society cannot serve as a source of personal enrichment. No one can purchase the means of production and, using his own income, exploit hired labor for private interests. Profit in the Soviet Union is an expression of the economy achieved in the expenditures of social labor, which in principle is reflected in the planned price. Hence our profit represents nothing but hours of economized labor, tons of economized raw and other materials and kilowatts of economized electricity. This is precisely why profit in the USSR can serve as an incentive and an indicator of the efficiency of enterprises. Under capitalism profit is most frequently not realized where it is actually created. This is due to monopoly prices, market speculation, the creation of fictitious capital and enormous "founders" profits, and finally to the exorbitant profits on war orders, which are, in essence, a redistribution through the state budget in favor of the monopolies.

Profit under socialism differs radically from profit under capitalism not only in the nature of its formation but also in how it is used and distributed.

Where does profit go in the USSR?

By no means does it go into the pockets of managers and other industrial executives. The bulk of it is used for expanding socialist production and for improving social and cultural services for the population. Profit in the USSR is a means of satisfying the requirements of the national economy and the needs of the population.

At the same time, due to the very essence of the mechanism of its formation, profit can serve as a criterion in appraising the qualitative successes of production. That is why profit should be used for encouraging those who directly create it. However, encouragement to produce profit is in no way a return to capitalism. Quite the contrary, this strengthens the socialist principle of remuneration for work according to its quality and quantity. No leveling out. Higher remuneration for higher achievements. That is all. While this is happening, no private capital emerges. No loopholes open up for distribution according to capital. Under such conditions there can be no talk about "private and free enterprise."

How does profit fit into planning?

In its decisions the September 1965 Plenary Meetings of the CPSU stressed the advantages of the socialist system, which can be fully utilized on the basis of a reasonable combination of national planning with the maximum interest of enterprises in the efficiency of production, on the basis of direct ties between producer and consumer, on the basis of profitable operations. These aspects are not only compatible; they reinforce each other and are therefore integral aspects of the now adopted system of managing socialist production.

To whom can this change be attributed?

It has long been known that before adopting a decision, the Central Committee of the CPSU always seeks the advice of the people, of scientists, economists and executives. Professor E. Atlas, the late Academician V. Nemchinov, Assistant Head of the Central Statistical Board I. Malyshev, Academician V. Trapeznikov, Corresponding Member of the USSR Academy of Sciences L. Leontiev, and many other economists devoted much time and energy to the progressive changes introduced in the management the of Soviet economy.

It is due only to ignorance and a reluctance to study the essence of Soviet social relations that the vast research and generalizations of practical experience are represented as the invention of one individual scientist.

LETTERS TO THE EDITOR

We thank all our readers who sent us New Year's Greetings.

Staff of Soviet Life

ON EXCHANGE OF MAGAZINES

Dear Sir:

I have read the magazine SOVIET LIFE and I was very impressed with the contents of the magazine, especially the question and answer section.

I have some questions to submit, that is one of the reasons that I am subscribing to SOVIET LIFE.

The other reason is the fine cultural value it extends to its readers. It's gratifying that the United States and Soviet Russia have an exchange of magazines so that both the people in the USA and the USSR have a chance to read and see pictorially the good things of both sides.

I thank you.

John Gonzales
Oakland, California

THEY ARE STILL WITH US

Dear Sir:

The writing by Prof. Dmitri Zhdanov about Andreas Vesalius is worthy of the highest praise and commendation especially where it points out how "dogmatists, ignoramuses and mediocrities" sought to stop progress.

These persons and groups of organizations did the same to others, such as Galileo, when he sought to bring enlightenment to peoples about the nature of the universe. They are still with us today, and although their blundering stupidity is a heavy weight indeed, the strong minded eventually will show the correct way how, just as Andreas Vesalius did then.

Respectfully,
E. Hutto Anderson
East Orange, New Jersey

HISTORY IN DEPTH

Dear Sir:

I have been reading SOVIET LIFE magazine and find it very interesting and informative.

However, I would like to suggest that stories in depth be prepared on the Soviet contribution toward winning World War II—the siege of Leningrad, the defense of Stalingrad—the other numerous stories of the great accomplishments of the people of the USSR in containing and repulsing the German invaders.

I don't think the American public is aware of this history and a definite contribution could be made in reporting these events.

I hope you will find the suggestion useful.

Sincerely,
Milton Maidenberg
Marion, Indiana

PEOPLE NEED IDEALS

Dear Comrade Editor:

I have just read your December issue, and as a regular reader of SOVIET LIFE, would like to make the following comments:

I found the cover to be one of this year's best and generally appreciated the photography. Also, I was glad to see articles dealing with history and geography—"Eagle and Sword," "Six Days in the Mountains" and "Native Land."

However, there were certain things I did not like. The title "To Find an Idol" is wrong; it should be "To Find an Ideal." People certainly need ideals, but idols. . . ! Also, the piece on Alexius was not especially stimulating.

On the whole I would like to congratulate you for catering more to young people than you did before. The more articles you carry about youth and its problems, the better both for Soviet and American readers.

Very sincerely,
Boris Arkhipchuk
Engineer and regular reader of SOVIET LIFE at the Library of Foreign Literature
Moscow

ON YOUTH POLL

Dear Editor:

I was interested to read about the Gallup poll among Soviet young people in your November issue. It was very nice to see young people expressing their own views, which made the article very sincere in comparison to certain other stories about young people whose writers often make their characters express elementary truths.

One more remark, perhaps of a rather subjective nature. It seemed to me that among the points made, though, generally speaking, true and sincere, there was little that was wittily put. As far as I know, our young people certainly know how to express themselves.

I wasn't questioned, but I subscribe to what the bearded fellow says on page 10, to the effect that though we shall be having it better materially, we shall have far more tough problems to tackle and that difficulties will be of a spiritual order.

Perhaps a broad discussion of such polls—only in greater detail—will help us to overcome these difficulties or at least clarify them.

Sincerely,
Boris Kukhtin
Engineer
Moscow

IN THE NEXT ISSUE

The Soviet Arctic used to be called the Land of White Silence. In this region that takes in a seventh part of the country's area, winter is nine months long and a snowfall in the remaining three months, called summer by courtesy, is nothing unusual. Our reporters traveled through 1,200 miles of this region. They were eaten alive by mosquitoes and battered by winds. They saw great stretches of bog and endlessly flat tundra. But they also saw booming towns, flotillas of ships bound for the Atlantic and huge industrial plants processing nickel, copper and cobalt. On 37 pages of the forthcoming issue they tell the story of the men and women who broke this arctic silence.

Readers of *Soviet Life* have been introduced to Ilya Varshavsky's highly imaginative and very humorous stories. In the next issue we will present a new one, "Those Eternal Problems." Man has to evacuate a no longer habitable planet. He leaves it in the care of robots until that dim and distant time when he can safely return. Eons pass, and a conference of robot scientists speculates on the unlikely possibilities of organic life.

Folk singer Pete Seeger made his second visit to the Soviet Union in October 1965. He gave concerts in Moscow, Alma-Ata, Tashkent, Frunze, Ashkhabad and Baku. Tchaikovsky Hall in the capital was sold out the same day tickets went on sale. At Moscow University 3,500 students jammed the auditorium to listen to and sing along with him. For the whole month of his stay he was plagued by TV cameramen, radio commentators and magazine reporters, one of them ours. He finally cornered Pete on the eve of his departure. The next issue has his impressions, word for word. He liked much of what he saw. Was there anything he didn't like? There was.

"To write about Lomonosov is to peer into one of the great minds in the history of culture," begins an article in the April issue on the encyclopedic eighteenth century Russian. A poet, historian, geologist, administrator, he considered his main vocation to be scientist. His contributions in that field were notable indeed. He did basic research on matter in its solid, liquid and gaseous states. He proved experimentally the validity of the law of the conservation of matter. Nevertheless, his contemporaries esteemed Lomonosov more for his poetry than his science. He founded the first Russian university. But, as was said of him by another great Russian, the poet Alexander Pushkin, "It would be truer to say he was our first university."

Some of the other articles in the April issue are:
Three Seconds to Stardom—about Vladimir Doveyko, the only circus artist in the world to do a triple somersault and pirouette in the air; Like Real!—on child artists, with reproductions of their drawings in color; The Peerless Muskmelon—about Uzbekistan's delicious melons and how they get that way; Scanning Sports with Victor Kuprianov—a look at the Northern Games in Murmansk, motorcycle racing and air sports clubs.

NOVOSTI PRESS AGENCY

SOVIET LIFE

Man and Nature — A richly illustrated article on the flora and fauna of the Soviet Union.

Welcome to the USSR — A detailed run-through of information the prospective tourist should have.

COMING SOON

CHILDREN'S SURGEON

By Mark Popovsky

Photographs by Yevgeni Umnov

CHILD SURGERY is still largely unexplored territory, full of unknowns. But every fourth hospital patient is a child and, unknowns notwithstanding, must be treated. Most often the methods and operative techniques generally used for adults will not do.

Professor Stanislav Doletsky, director of a Moscow clinic that can treat 300 youngsters at a time, is one of the most indefatigable of the researchers for new medical ways and means suited to infants and very young children.

Lena, aged one and a half, was brought in with a high temperature, diarrhea and nausea. The doctors discussed the case for two days. They suspected peritonitis or osteomyelitis. Some of the pediatricians thought it might be dyspepsia or even pneumonia. They finally agreed that Lena was suffering from inflammation of the ear.

I can hear the reader muttering: "Don't they know an ear from a stomach? Call themselves doctors!" But do not draw hasty conclusions. For a children's surgeon every case is a bodyful of riddles. Because his system and organs are still developing, a child's over-all reactions to fever, diarrhea and the like are always more marked than the local symptoms of an illness. The younger the patient, the less apparent are the local symptoms, and those are what the doctor goes by in making his diagnosis. The pediatrician often finds himself in the position of a fireman who cannot see the flames for the smoke.

When asked where the pain is, the child is likely to say "nowhere," afraid of being hurt if he tells. That is the case of a three-year-old. And what about those too young to speak?

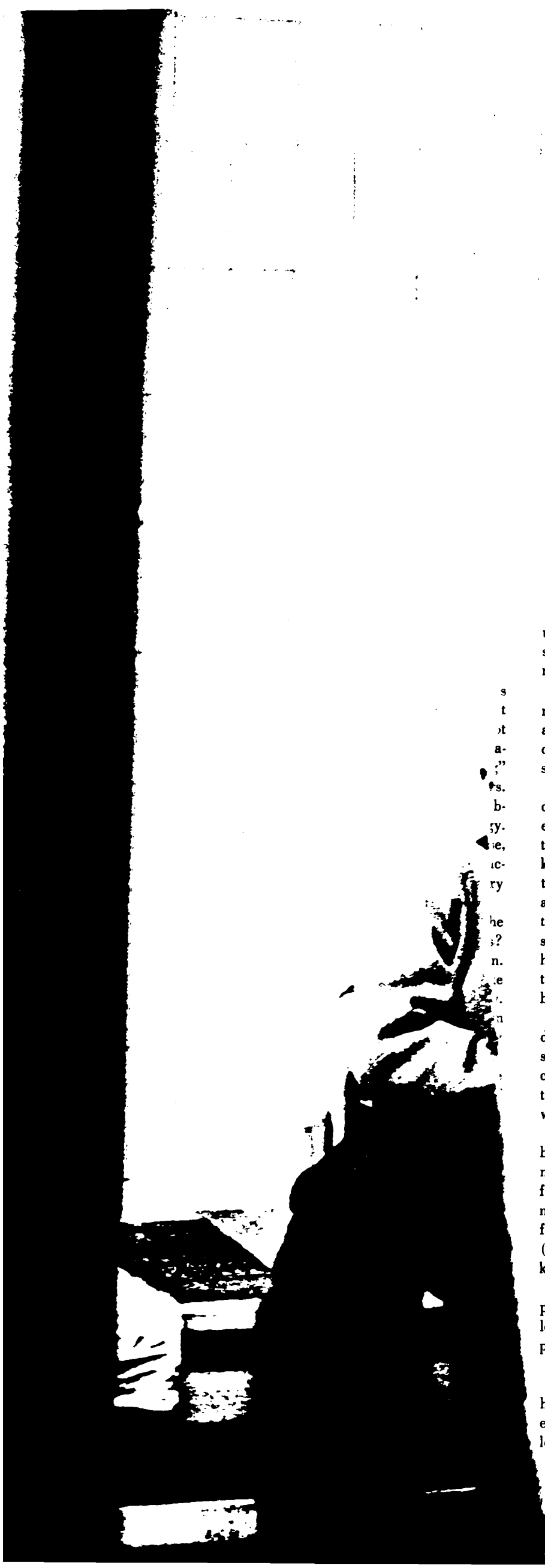
This is where Professor Doletsky and his coworkers step in. A children's surgeon must hunt out the microsymptoms, the almost imperceptible signs of a disease.

In a children's clinic "details" play a much greater part than in a clinic for adults. At a recent conference of children's surgeons of Moscow I heard Professor Doletsky speak on the "trifling" but really all-important details of doctoring. "Do not touch a child until you warm your hands" is the first commandment of his clinic. The second, "Do not touch a child with a cold stethoscope." There are many more commandments, but they all boil down to the simple rule of doing everything possible to calm the child's suspicions and fears.

But a hospital is a hospital after all, a place where tubes are inserted in stomachs, injections given and operations performed. Even adults are fearful, let alone a very young child parted from his parents. How are you going to calm him down?

At the clinic they do not deceive the child. They think it better to tell him that it will hurt a little, that he will have to bear it. Others have and he can, they assure him. The child may cry, but he will not mistrust doctors forever after. He is also told if he is going to be operated on, lest he learn about it from other patients and be frightened half to death. Here the children's surgeon must be the teacher and parent. Obviously every age requires different handling. You do not talk to a three-year-old about an operation, you just tell him that as soon as he falls asleep his tummy will be fixed up.

See how calmly Lena watches the doctors get ready to operate. She even seems interested in the proceedings. Lena is not afraid now, nor will she suffer any acute pain after the operation, in her case a rather complicated one. She has Professor Doletsky and his insistence on attention to details to thank for that.



...the question ...
...diffuse matter. That is why
...e conclusion that in the centers
...ei, there are bodies which are neither
...s and which greatly surpass common stars in

...lusion is also borne out now by the observations of starlike
...laxies (otherwise known as superstars) which, Byurakan scien-
... believe, are infant nuclei that have not yet had time to form a
...laxy around them. The brilliance of some of them is subject to
...ratic changes which could not possibly be the case if they were made up of stars. Therefore, the emissions under observation that come from starlike radio galaxies are generated, by and large, not by stars but by massive bodies of nonstellar character.

Of great importance for the new concept of protostellar matter is research into possible configurations of superdense cosmic masses. Of all celestial growths that have so far come under observation, white dwarfs were found to be the densest. In these stars the density of the substance averages as much as dozens of tons per cubic centimeter.

Theory indicates that at higher densities, from a thousand tons per cubic centimeter to a million tons per cubic centimeter, the substance enters what is known as a neutron phase of matter genesis. At this stage the substance is mostly neutrons. Such substance configurations are known by astrophysicists as neutron stars. Recent studies by Ambartsumyan and Saakyan show that at higher than nuclear densities (over a billion tons per cubic centimeter) new, very heavy elementary particles, hyperons, appear. Shortly afterward their concentration is of the same order as that of neutrons. As the density keeps increasing, the hyperons come to outnumber the neutrons and protons. Under terrestrial conditions the life of hyperons is 10^{-9} second. These particles become stable at the above-mentioned densities.

The study of equilibrium configurations in relation to superdense depleted gas has led to a fundamental conclusion: that the superdense star above a certain mass quantity must be made of hyperons at its center, *i.e.*, there must be a hyperon star. Theoretical considerations thus demonstrate the physical possibility of natural cosmic masses whose substance density is greater than their nuclear density.

The study of phenomena associated with dynamic and physical instability effects in the stars and galaxies has shown that we must have more knowledge of the substance structure and law of genesis to account for these phenomena. In Academician Ambartsumyan's opinion, "the meager information that has already been made available points to the fact that these data may contradict the Law of Conservation of Energy (and Substance) in its present formulation, limited as it is to the known forms of energy, and may require a generalization on this law."

There are many instances in science where new phenomena are explained by a completely new concept that sometimes runs counter to a long-accepted law. Observed data indicate that the protostellar phase problem is such a case.

Academician Lev Artsimovich once said:

"It would be very arrogant of us to think that our progress in physics has provided us with all the keys for the discovery of the laws governing evolutionary processes in the cosmos. It is there that we should be looking for new physical laws."

Pulkovo is one of the points on the earth from which astronomers have been studying the heavens for more than a century. Founded in 1839, the observatory with its rotating towers and great library earned the title of astronomy capital of the world. It was the workshop of eminent scientists who compiled catalogues of the elevations and declinations of the stars, studied solar eclipses, comets and planet satellites. In Soviet times the observatory's area of research was much enlarged. A time service was organized, important for geodesists, cartographers and seamen. New instruments were installed for the study of the sun's rotation and stellar spectra. A large section of the sky around the North Pole was photographed. During the Second World War the Nazis destroyed the observatory completely. Restoration was begun in 1946, and a year later the first instrument, a zenith telescope, was installed on Pulkovo hill. Subsequently other instruments were added. With a recent acquisition, a coronagraph, the sun's corona can be observed at any time, not only during eclipses.

PULKOVO

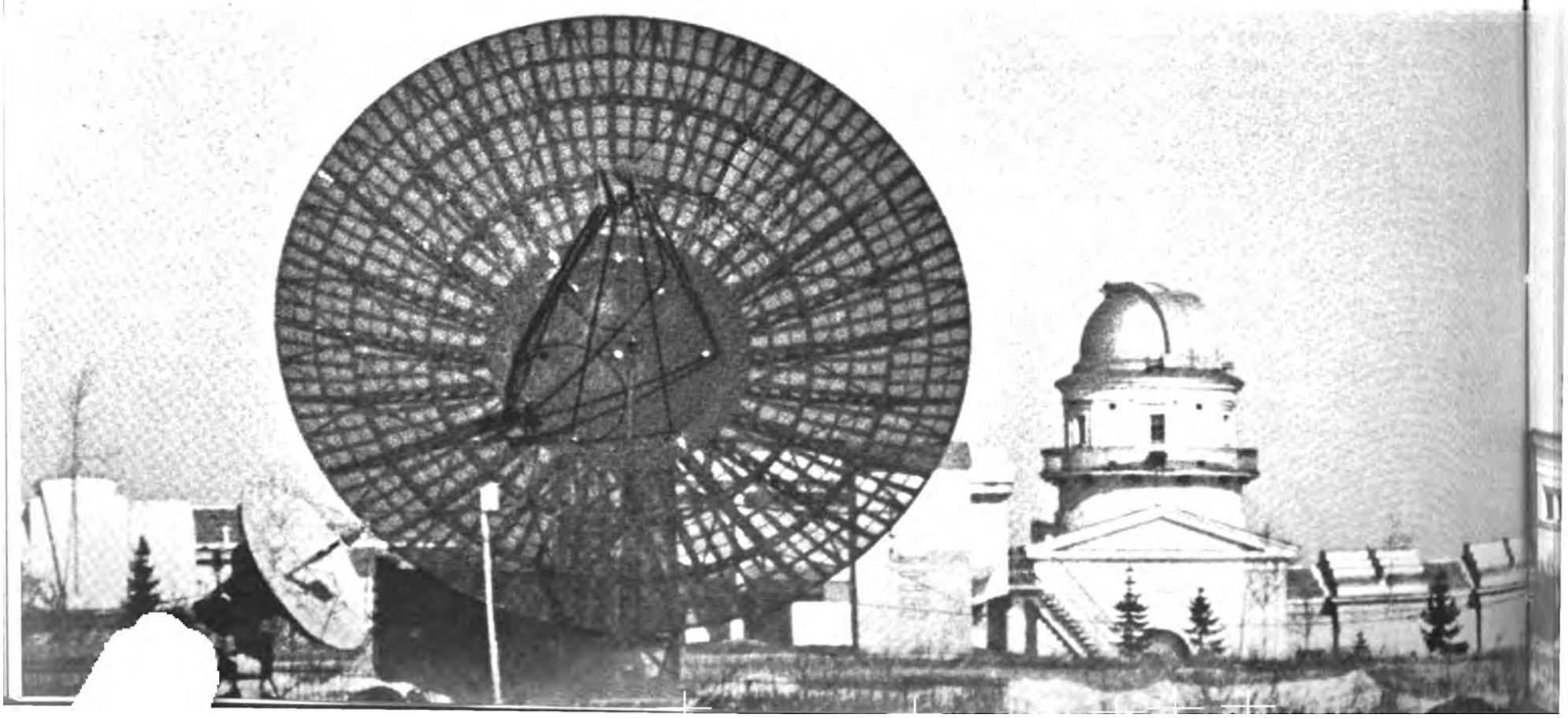
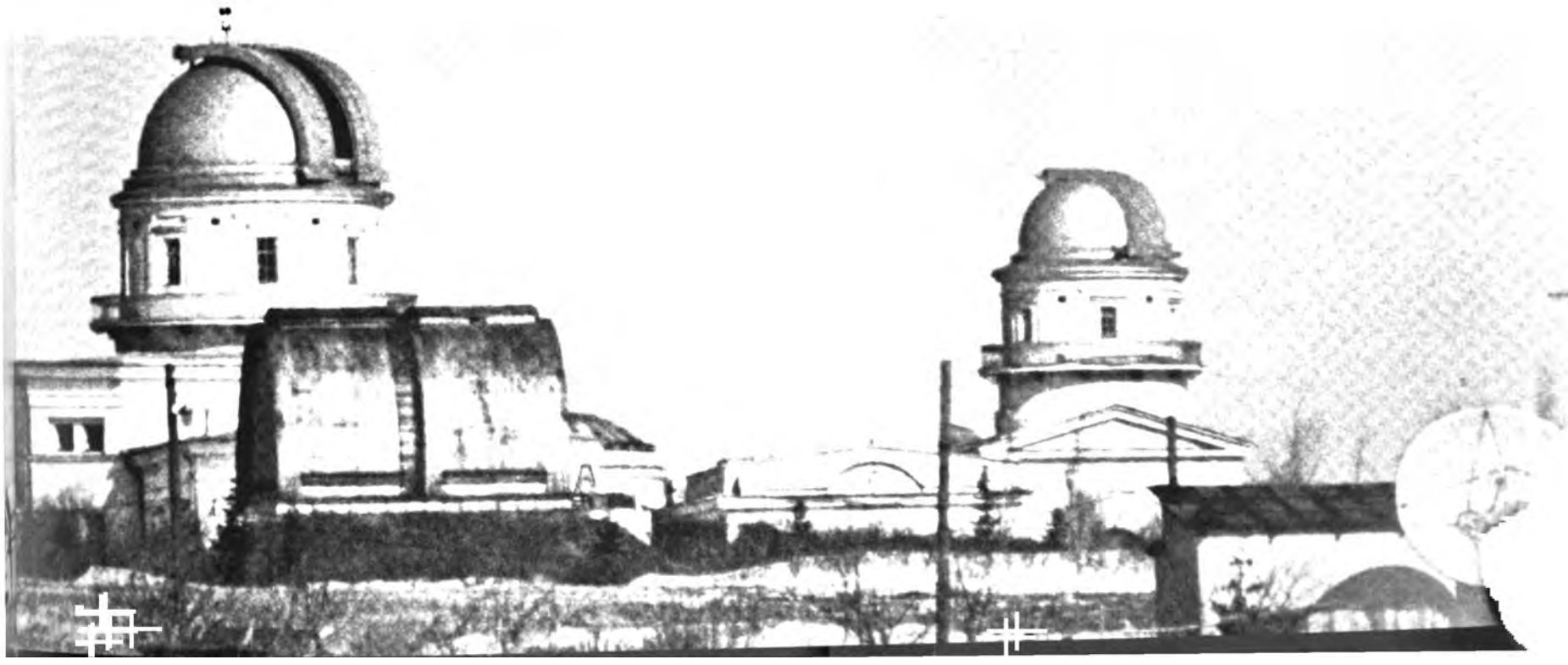


Photo story by Vsevolod Tarasevich



PULKOVO

The observatory is also a major center for the training of researchers. Students from all parts of the country come there for advanced study under some of the most distinguished astronomers in the world. The photo at the right shows the assembly of Pulkovo's radio telescope. The huge instrument, one of the largest in the country, records signals from the depths of the galaxy. Telescopes of this type collect data on the formation of the stars and nebulae.

Pulkovo scientists do not live in ivory astronomical towers. They serve as learned guides for visiting groups from Leningrad and other nearby cities and lecture to lay audiences. Among the volunteer teachers are Valeri Lentsman (center), an engineer in the astrophysics laboratory, and Professor Vladimir Kratt (bottom), the director of the observatory.

This highway leads to the world-famous Pulkovo Observatory.

See story on page 62.

Photograph by Vsevolod Tarasevich

SOVIET LIFE

April 1966 • 35 cents

LUNA 9 ON THE MOON
BEYOND THE POLAR CIRCLE

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END OF WHITE SILENCE

BEYOND THE POLAR CIRCLE

A seventh of the Soviet Union's territory is in the Arctic beyond the sixty-sixth parallel. This region is gripped in the white silence of winter for nine months of the year. Night is continuous for two and a half months. In the brief summer the sun shines around the clock, but even then it does not begin to thaw the frozen soil. Grim mountains strewn with glacial boulders, lakes without number, dwarf firs that never get enough sun, and an endless expanse of grayish-green moss-covered tundra—this is the Arctic. A forbidding land, but a great treasury of natural wealth.

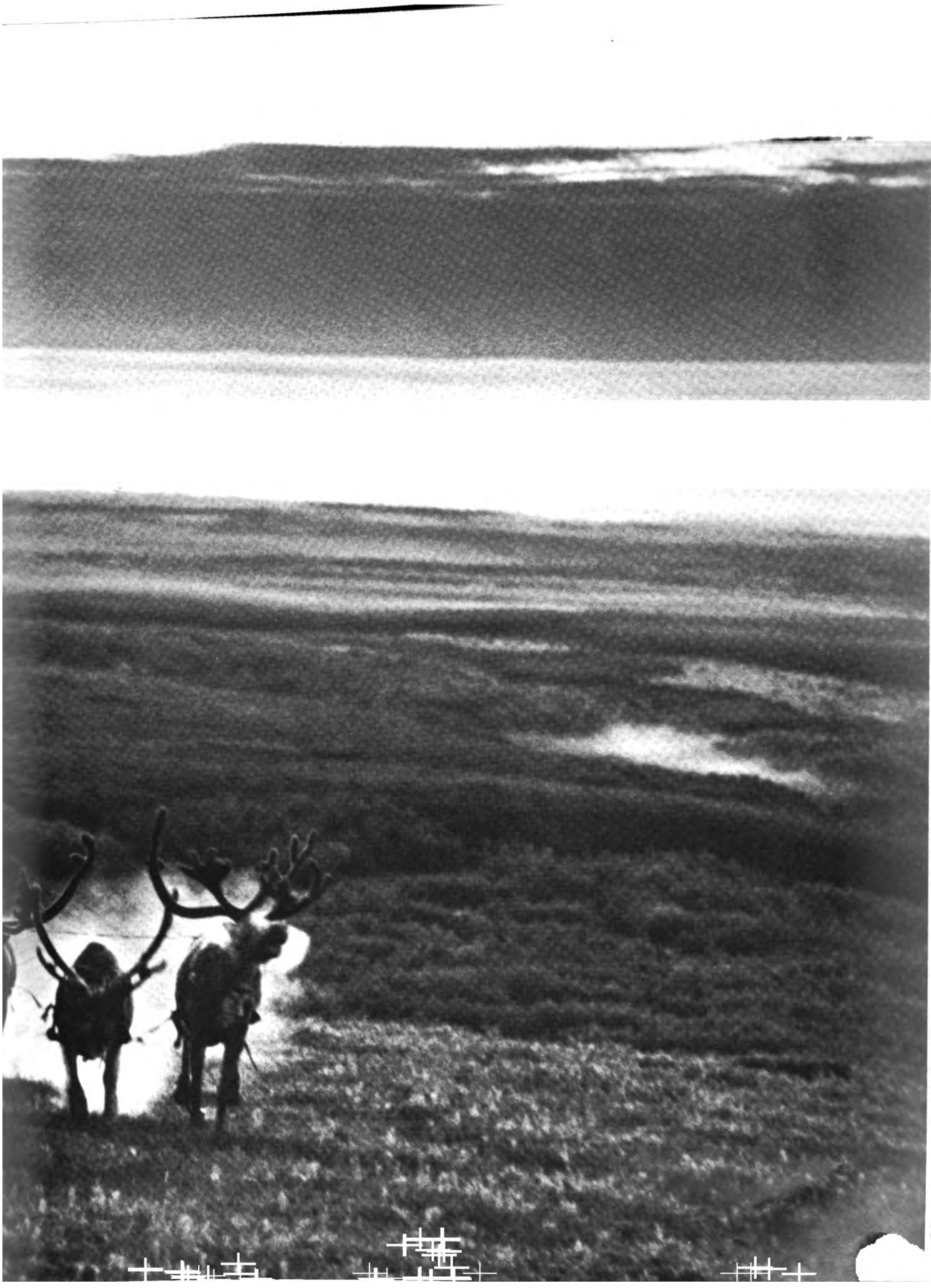
People have lived in the Arctic from time beyond reckoning. They live there now, and their descendants will live there after them. Awakened by the Revolution, they are remaking their land. They have built towns and factories. They have dammed rivers to give them the heat and light they lack. They have built ships that cut their way through the ice far out into the open water. We spent 25 days in the Arctic. We invite our readers to travel along with us for nine of these days. Here are some of the things we saw and heard.

Myuda Derevyankina

Yuri Davydov

Igor Vinogradov

Vsevolod Tarasevich



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Front Cover: Rutetein comes from the land of white silence and is well-known there for his folk singing and dancing. *See story, page 1-39.*

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Dmitri Baltermants Cover I; Vsevolod Tarasevich Cover II, 1, 4-16, 21-23, 28-35; TASS 26-27, 36-37; Igor Vinogradov 28-35; Dmitri Donskoy 46-49, 52-54; Yuri Cherepanov 56-58; Alexei Varfolomeyev 59; Alexei Alexandrov 60-61, Cover III; Yakov Berliner 64.

Editor in Chief (Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor (Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor (Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director (Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

Circulation Manager (Washington Editorial Board): Vadim P. Zaitsev 1706 18th St., N.W., Washington, D. C., 20009.

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LETTERS TO THE EDITOR

SOVIET PSYCHIATRY

Dear Editor:

I was most interested in the article you present in your December issue, "The Psychiatrist and the Soviet Social Order."

Of particular interest to me was the use of drugs as an agent that supplies a missing element to the central nervous system rather than the interpretation of their being a foreign substance to inhibit or excite.

I was also impressed with the Marxist orientation to the state and society, rather than to self. The Soviet understanding, it would seem to me, gives the patient a specific goal and meaning to his life.

The therapy that problems are treated as a difficult personal challenge would give far more impetus to recovery.

A truly informative and educational article. Thank you.

Most sincerely,
Sharon Bethune
Lynn, Massachusetts

Dear Editor:

The observations of the American psychiatrist who spent some months studying Soviet treatment of mental illness as reported in the current issue of *Soviet Life* are interesting to this American and should be to many others who may not hold the psychoanalytic view prevailing in the U.S. for many years.

In education, in medical practice, sociology, anthropology, or in any social science you can think of, the idea of the individual's "ego gratification" is a central principle, assumed to be the driving force in a "laissez faire" society. "Social usefulness" as merely a by-product is a more "progressive" aspect taken on relatively recently—since the advent of successful socialist economic systems with their marked lessening of incidence of mental illness.

"Ego gratification" and "social usefulness" are contradictory terms, at opposite poles in capitalist society. Their resolution, it seems to me, is only possible when a social consciousness can be developed among a large section of the people.

Here in the U.S. we have a continuous wave of "How-To" books being published to help us know ourselves: how to succeed while failing, how to be a whole person though fragmented, integrated but torn with conflicts. The writers of these books profess a world philosophic view which is individualistic, alienated—of which Sartre's work is representative, as the American psychoanalyst correctly stated. The emphasis on sex, on dress, on accumulation of material possessions, is accessory to the central idea of individualism. Even those who live austere, more thoughtful lives, tend to act in the same individualistic way, looking for their own solutions in the framework of the society as it is, in their own environment. We are like puppies chasing our tails, or as Lenin put it, Buddha contemplating his navel. Reality is indeed reflected in the Western mind: hard reality has for years sent the more affluent to psychiatrists' couches or to the "How-To" books where they effectively learn navel contemplation. Appropriate interpretations and/or chemotherapy further aid the contemplation.

Fortunately not all Americans think this way. There are those of us who believe in work as therapy, and in socially useful work as the way to develop necessary social consciousness in our youngsters and fellow workers. This is a way to prevent mental illness. Parenthetically, I might add that an exmental patient is guaranteed unemployment if his medical history is known to a prospective employer.

There are also those of us whose personalities and activities reflect, as well, the world beyond our environment, *i.e.*, the socialist world and that part struggling for freedom from poverty and oppression.

"Know thyself" has had limited meaning for individuals. "Know society" in the collective sense has more power and potential. Only by knowing our society and its evils can it be changed, then the individual man can change. Our psychoanalysts have no desire for this kind of change for obvious reasons.

I enjoy everything in your magazine and look forward to each new issue with enthusiasm.

Sincerely yours,
Mrs. Ruth B. Simon
New City, New York

SOVIET YOUTH

Sir:

Have just read November issue and must comment on "Young People Speak of Themselves."

The clearly defined answers and the open faces of your youth have impressed me very much.

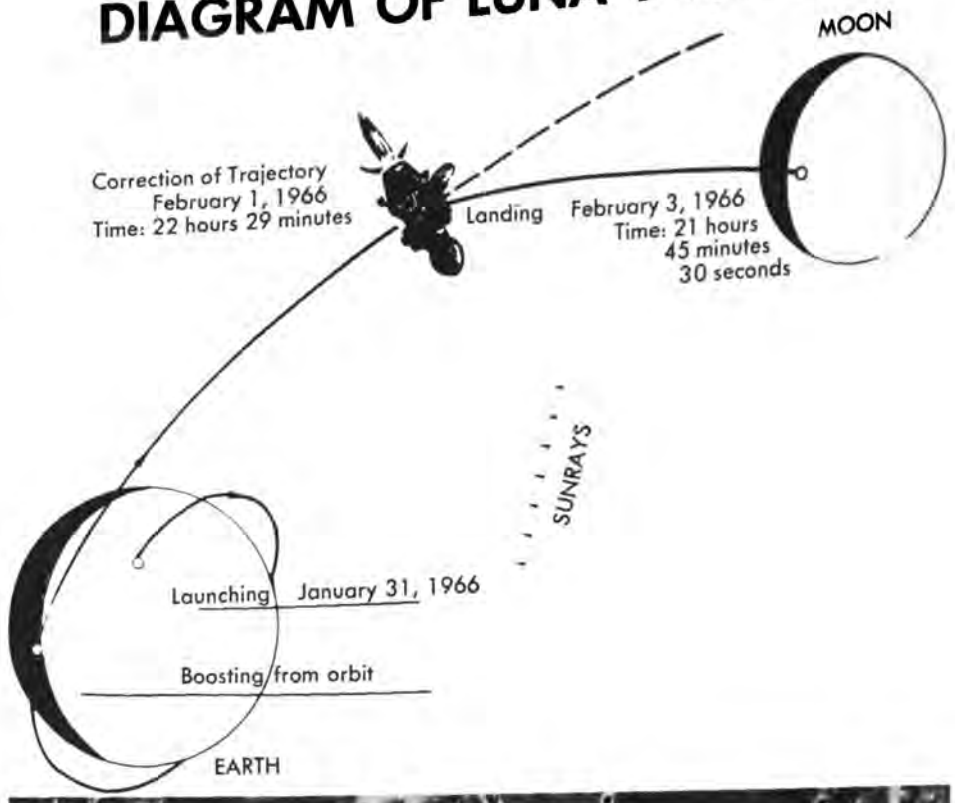
But something else inspired me this morning to write you.

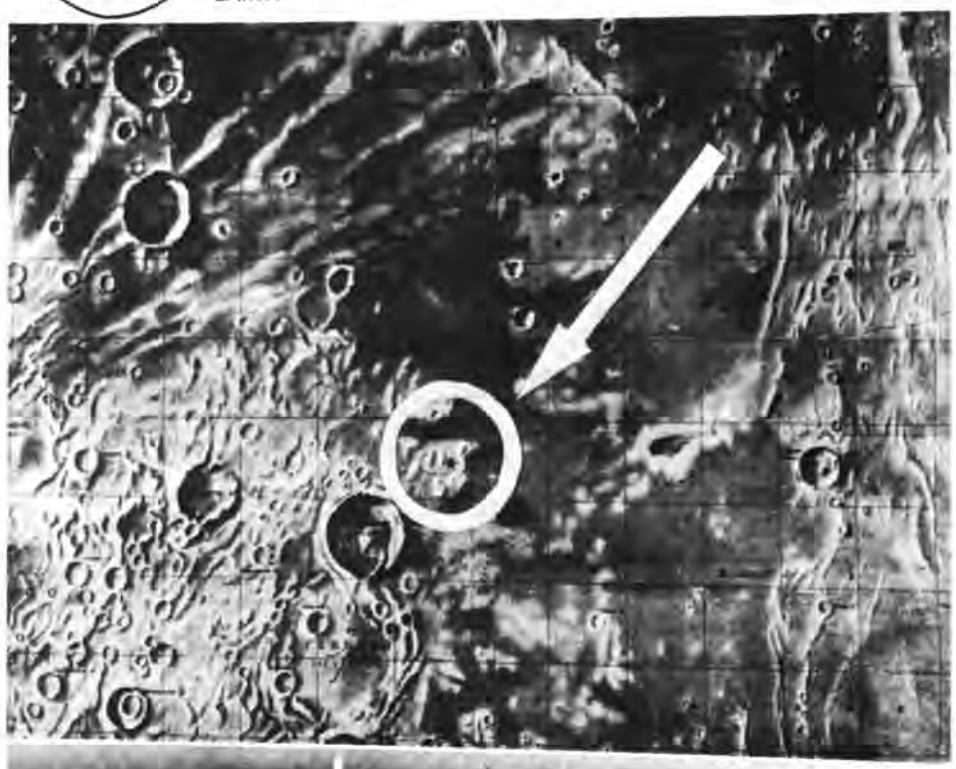
There appeared a short article in a California newspaper yesterday noting that the Soviet Union has been contributing to the United Nations Children's Fund annually about $675,000 since 1955, very gratifying indeed.

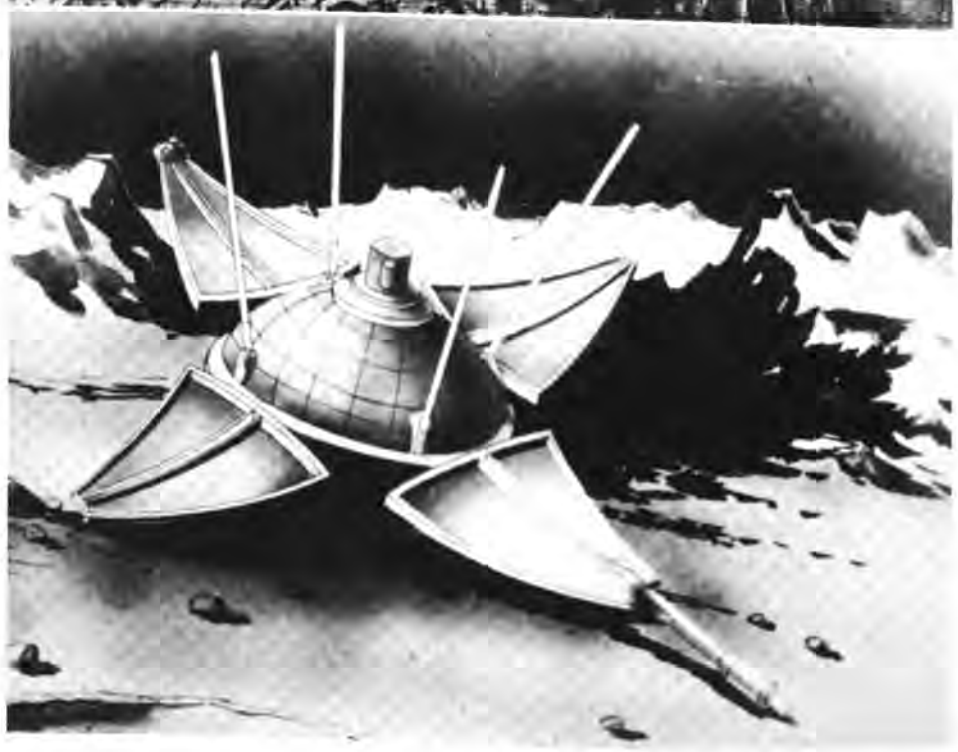
Thank you.

Sincerely,
Mrs. G. Heidi Monk
Concord, California

DIAGRAM OF LUNA 9 FLIGHT





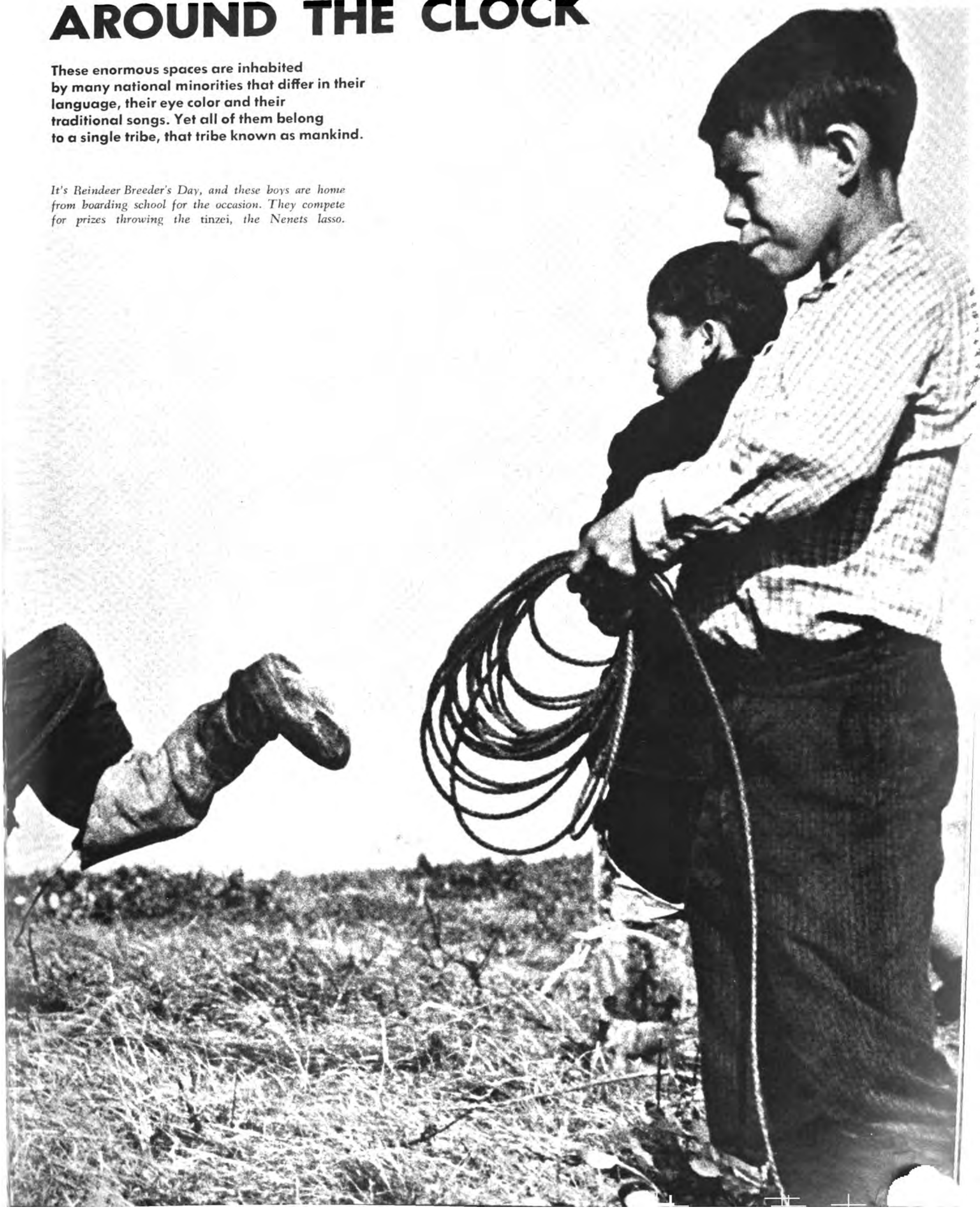


See story on the Luna 9 flight on page 55.

THE TUNDRA AROUND THE CLOCK

These enormous spaces are inhabited by many national minorities that differ in their language, their eye color and their traditional songs. Yet all of them belong to a single tribe, that tribe known as mankind.

It's Reindeer Breeder's Day, and these boys are home from boarding school for the occasion. They compete for prizes throwing the tinzei, *the Nenets lasso.*



The Nenets songs reflect life, past and present. Yevgenia Soboleva, a student at the Leningrad Conservatory, has composed many popular songs, but at the festivities she sang some of the ancient heroic ballads. Below, two traditional contests, lassoing reindeer and jumping over a lineup of sleds.

FIRST DAY

Every bird has its home,
Every sea its stream,
Every night its end,
And every clan its happiness.

YOU can tell what a man's like in the space of one day if you're with him in a blizzard. But to know what the tundra's like, you have to be in it and with it a thousand days." So runs an old Nenets saying. It doesn't hold any more, though. One day is quite enough, if its Reindeer Breeder's Day.

It's celebrated twice a year in the tundra, in early August when the gnats and mosquitoes are gone, and in mid-winter, when the winds are quieter. In any part of the tundra, the festivities will always be held in the same place. That is traditional.

One such place is Obseda Hill, some 40 miles from Naryan-Mar. People come in by deer sled and helicopter. The first mode of transport is used by the herdsmen grazing their deer anywhere within a radius of one to two hundred miles from Obseda, the second by the company of the Popular Arts House, the sales staff of traveling stores, a radioman with his radio station, an operator with a projector and a sizable assortment of new movies, and anyone else who wants to fly in from Naryan-Mar. One of the flights is reserved for referees and umpires.

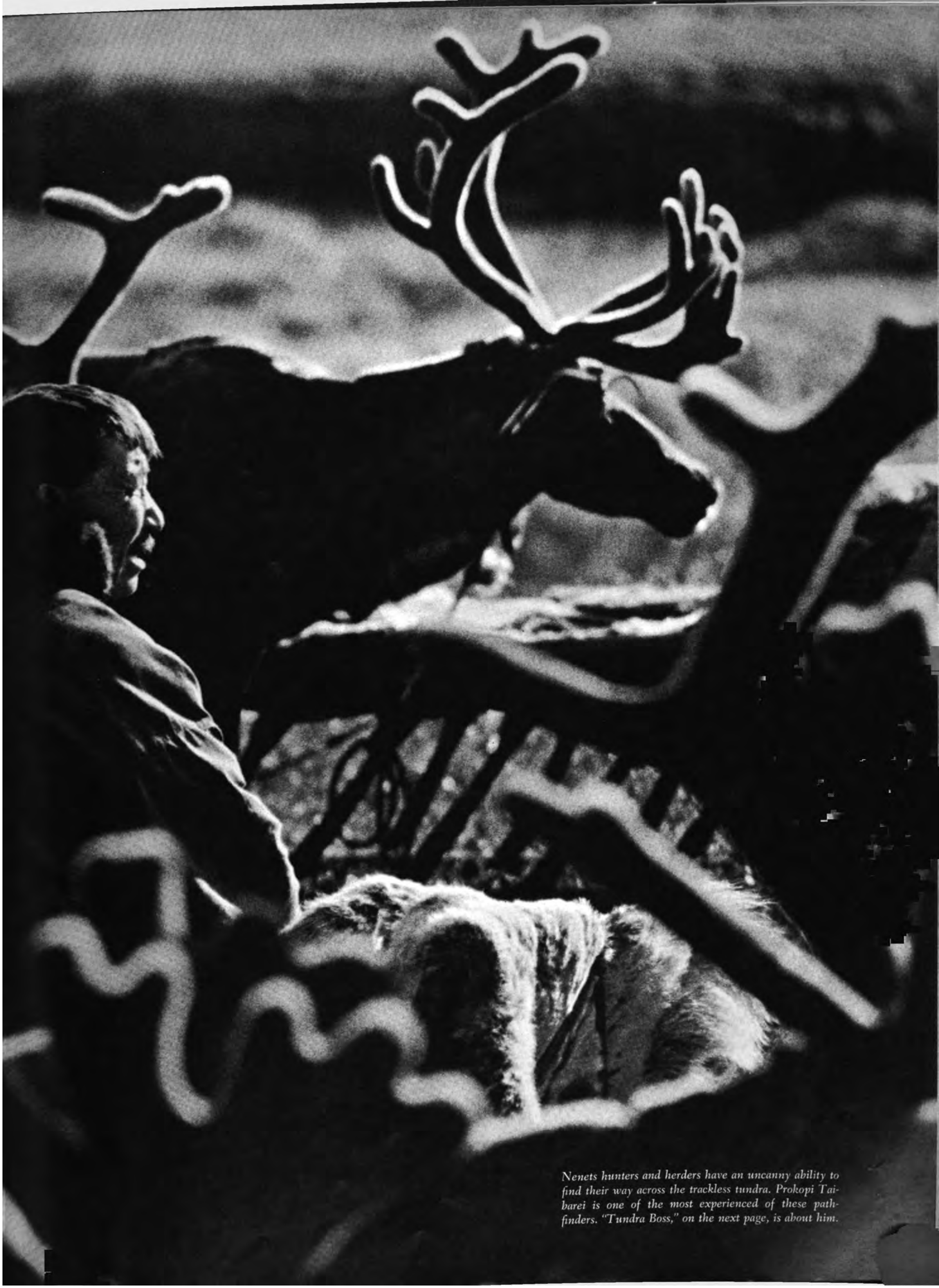
Competing are the Vyucheisky Collective Farm, the experimental deer breeding station and the Naryan-Ty (Red Deer) Collective Farm. The Naryan-Ty boys are so good, they take all the prizes for throwing the *tinzei* (the local term for lasso), jumping over sleds and wrestling, Nenets style.

The star event, as always, is the deer race. The winner is honored throughout the tundra until the next race, six months later.

Before the start, everybody has an opinion to argue, and does, heatedly, on the mettle of both reindeer and "jockeys." Distances are measured off, and toward dusk, when the dew-moistened grass makes a soft carpet for the sleds, all the deer teams, seven abreast in each, gather at the foot of the hill.

The pistol cracks and, antlers high, the deer race along the low-lying river bank. Eddies of steam curl up from the ground. The referees keep a sharp eye on their chronometers. The air is rent with shrill whistles, with raucous yells to spurt the deer on, with foot stamping, with the clatter of rattles from the "grandstands." It might just as well be a big soccer game in some South American capital. The fans are no less temperamental.

Indeed, the silent tundra does not sound like itself at the deer races. Silence returns only around daybreak. What daybreak? During the white nights of summer, the sun never sets, and so it never rises. Nevertheless daybreak comes. Elusive symptoms tell us that another tundra day has begun.



Nenets hunters and herders have an uncanny ability to find their way across the trackless tundra. Prokopi Taibarei is one of the most experienced of these pathfinders. "Tundra Boss," on the next page, is about him.

TUNDRA BOSS

EIGHT reindeer missing."

Prokopi Taibarei raised his field glasses and let his glance wander over the herd. He and his team tend 2,000 of the 16,000 reindeer owned by the Vyucheisky Collective Farm.

"How can you tell there are deer missing, Prokopi?" asks Dr. Tanya Makeyeva. "How do you know it's eight? There are so many of them, and they all look alike."

"To me, doctor, all your patients would look alike. Deer are different. I know, I've been herding them for 20 years. There are red deer and gray deer and white deer. They graze in groups. Like people, they stick with their own crowd. I can see at once when any of the crowd is missing."

Dr. Makeyeva was at the roundup to give the herders their regular physical checkup. She has known Taibarei for a long time. On her quarterly visits to the farm he takes her out to see the teams. His ability to find his way across the tundra always amazes her.

"How do you know where to go?" she asks. "I don't see any road. Nothing but snow."

"There's no road, but there's the wind. It tells me. It draws pictures on the snow, and I study them. Besides, there are the stars. We'll get there on time, doctor. Don't worry."

And they always do. There was only one time Taibarei did not keep to his schedule. That day he kept glancing at the sky, particularly above the hills, where the little clouds looked like pale blue balloons. Soon the wind rose to a shriek that settled into a steady roar.

"We won't make it before the blizzard sets in," said Taibarei. "We'll have to wait."

His voice was calm. He stopped the sledge. The deer immediately lay down, tucked their feet under them and stretched out their necks. A moment later the snow had covered them. Alongside one of the reindeer, Taibarei dug a hole in the snow and flung deerskins he took from the sledge into it. Tanya got in.

The wind-driven snow busily turned them and the reindeer into a snowdrift. That was the *kuropachi choom,* the snow house inside which a Nenets waits out a storm.

The storm over, the refreshed reindeer made the trip to Nelmin Nos, the main village of the Vyucheisky Collective Farm, in three hours.

Taibarei lives in Nelmin Nos with his wife and two sons. He needs to pay only 25 per cent of the cost of his house, and he has 18 years to pay that off. The state takes care of the other 75 per cent. Most of the herders pay their 25 per cent at once. They make good money. Taibarei earns 1,000 rubles a month.

Reindeer meat is a rather expensive delicacy. The collective farm sells it to the state for canning at 82 kopecks a pound. The better-run collective farms do very well, indeed. The Vyucheisky farm, for example, makes a profit of eight million rubles a year.

The reindeer represents the basic wealth of the tundra. At the same time it is the misfortune of the people who live there. The reindeer provides their meat, clothing and transportation, but it forces whole peoples to lead a nomadic life. The Iceland moss that the animal feeds on mostly grows very slowly, no more than an eighth of an inch a year. The men who tend the big herds must know where the pastures are. In summer the herds must be driven closer to the sea, and in winter closer to the forest.

They say of Taibarei that he was born under the sign of *Ncher-Numga,* the North Star. A man born under this star is boss of the tundra.

This is young country, changing, growing, the old and the new intermingled. Its youth are its best representatives. Children of the twentieth century, they are an embodiment of their people's optimism. They love the North's nature, but they are never subdued by it.

THE SNOW SINGS

"HAVE you ever heard the snow sing?"

"No."

"Have you ever helped reindeer give birth?"

"How could I? I have my exams in the spring."

"Your father is right. You are only a visitor to the tundra."

The two boys sitting around the campfire were both tall, with black eyes and sunburnt faces. That day they had both won prizes in the reindeer races at the Vyucheisky Collective Farm. Ivan Taleyev, a tenth-grade student, had come in first, and Gennadi Ledkov, a herder, second. But their conversation was not the happy chatter of winners.

Ivan and Gennadi were almost the same age. When they finished the eighth grade Gennadi began herding reindeer. Ivan moved to town to go on with his schooling. He came home only at vacation time.

Now his father said he must leave school and come back to the tundra.

"You've had enough book learning. I'm getting old, and it's time I taught you the things I know about life here."

"But, father, I have only a year left."

"So have I."

Ivan knew his father was ill and that the coming winter might be his last. But it seemed such a shame to give up school.

"Why doesn't my father want to go on pension, Gennadi? He could move to Nelmin Nos and live there in comfort, and go hunting once in a while for fun."

"Maybe he doesn't want to leave the tundra. It's his life after all."

"What does such a life mean? Following the reindeer like a nomad? Eating raw meat? Freezing in a snowstorm that lasts for weeks? In Yamal they are going to start herding reindeer from helicopters."

"Then Semyon Yavtysai will be the biggest man in the tundra. Now the biggest men are Taibarei and your father. He wants you to know all the things a person has to know if he is going to live in the tundra—things like finding your way in a snowstorm, picking the 10 reindeer you want out of a herd of a thousand, how to kill a wolf and trap a blue fox. We Nenetses are the only ones who know how to do these things. If we forget how, forget the wisdom our people have handed down to us, the tundra will laugh at us. And the people who live here a hundred years from now will never know there ever were Nenetses."

"You're talking like our teacher. Would you want your son to be a herder?"

"I'd want him to be a Nenets, a man of his own people."

"Isn't an education important? You think what was good enough for our forefathers is good enough for us?"

"No, I don't. We're living in the twentieth century. I want to be a man of my century."

"In the tundra?"

"Yes, in the tundra."

"Tell me, Gennadi, does the snow really sing? Is it anything like singing?"

"I don't know. Each person hears it in his own way."

"Have you?"

"Yes. It seemed to me it was like the piping of birds. There are supposed to be singing sands in the hot countries, and even singing stones. Up here in the Arctic the snow sings, but only we Nenetses can hear it."

Ivan Taleyev, a tenth-grade student home for the holiday, won first prize at the reindeer races.

SECOND DAY

BREAKTHROUGH INTO TODAY

BY NIKOLAI LEDKOV

CHAIRMAN, THE NENETS NATIONAL AREA SOVIET

THERE is no reference to the Nenetses on the map of the czarist empire. The word then used for the people living on the shores of the Arctic Ocean was Samoyeds.

The Russian encyclopedic dictionary of 1899 had this to say about them: "The Samoyeds are becoming extinct. There are 16,000 in the tribe."

The 1913 edition of the same dictionary said: "The Samoyeds are becoming extinct. There are 2,000 in the tribe."

Had the dictionary been republished under the same conditions 14 years later, it would probably have said: "The Samoyeds are an extinct tribe."

At present there are 23,000 Nenetses in the country, and a quarter of them live in the Nenets National Area beyond the Arctic Circle. The national area was set up in 1929. Was there really a need to set it up? Yes, there was.

Our way of life in the North has characteristics all its own, just as our language and our ways of making a living have. The conditions under which my people could be regenerated were different from those for other parts of the Soviet Union. The concept of communism had to be looked at through our particular prism, and that could best be done by the Nenetses themselves. A Nenets had to be at our economic and cultural helm. That is why the national area was formed and the power placed in our hands.

We had no written language. An alphabet was created for us in 1932. That was a source of pride, but more important for a people who had never had a chance for an education, it stimulated a desire to study. That is why we were able to do away with illiteracy so quickly. Our schoolchildren are taught in the Nenets language. We publish a paper, books and broadcast radio programs in Nenets.

We ourselves convinced four-fifths of our deer breeders to change their traditional nomadic way of life for a settled existence. No one else could have done it. Thereby, we cut down on the tuberculosis which was killing off both children and adults. Every eighth doctor in the region is a specialist in tuberculosis. We have not yet wiped out the disease, but we will.

In spite of our small numbers we have two specialized secondary schools (to train teachers and veterinarians) and a vocational training school in Naryan-Mar.

The fact that we are a part of the big family of the Soviet Union, with the same rights—politically, economically and culturally—all the other members have, stimulates our national self-sufficiency. At the same time there is another tendency toward assimilation.

The Nenets National Area is part of the Russian Federation. We have Russians, Ukrainians and Komis living here. The Russians helped us grow culturally and economically, and we have a great respect for them. Our schoolteachers, engineers, lawyers and physicians studied in Russian colleges, since with a population of only 23,000 there was no point setting up our own colleges. In addition, Leningrad University has the Faculty of the Peoples of the North. The Nenetses are a handsome people, both our men and women, and mixed marriages are frequent.

The influence of the Russian language and literature is growing. Our young people want to know what is happening in the larger world outside the national area. The tundra is not enough for them. They would rather study Russian than wait until Soviet and foreign books are translated into Nenets.

The Russian language is the common means of communication between the people of different nationalities living in the area. I have four children. My youngest daughter does not speak Nenets. She has grown used to town life, and her native tundra is really not a part of her life. What is happening is that we, a small people, are being assimilated by a numerically great people. Is this bad? Should it be fought? I do not think so. This is not being done by force, it is happening naturally.

You will say that in time our people will disappear, be forgotten. That is not so. Though our nation is small, it will leave its imprint on mankind's development. We know the North better than anyone else. Our traditions, habits and experience acquired over the centuries in the harsh North will be used. Even now scores of Nenets words have become part of the Russian language, words that explain many Arctic phenomena.

Naryan-Mar, which means Red City, is the capital of the Nenets National Area. It was built 35 years ago and has a population of 15,000. The city has several grade schools, three vocational schools, 16 clubs, a people's theater and, of course, movies, of which the Nenetses are inordinately fond. They hold first place in the Russian Federation for movie attendance. Naryan-Mar is a major Arctic timber port with its own sawmill. It is also a big fur center and ships blue and silver fox and ermine skins.

WINGED MAN

GOOD NEWS travels fast. Old man Yavtysai harnessed his best reindeer to the sleigh and sped off to tell the news to the whole village. He went into every Nenets tent and announced:

"My son has become a winged man. He is going to fly with Naumov himself!"

"Good news! Congratulations, Yavtysai. You are a big chief now."

When he got to one of the camps, a local herdsman came out to meet the old man and told him:

"We heard that your son has become a winged man. Congratulations, Yavtysai."

This shows how fast good news travels.

Six years ago there was only one flier and one helicopter in the Nenets National Area. The flier was Yuri Naumov. After a while it was hard to picture the tundra without the shadow of the helicopter. Naumov himself took on the job of training young people to do tundra flying. He told the graduates of the Leningrad flying school to forget everything they knew about Russia's blue skies and to start anew—tundra was tundra, and it had its own laws, even in the air.

There were two members of the graduating class to whom he did not have to explain the tundra—Nenets copter pilots Semyon Yavtysai and Leonid Ledkov.

The first flight young Yavtysai made was to Nelmin Nos, the village where he was born. When everybody gathered around the festive table, old man Yavtysai sang a long song about Nelmin Nos being the richest village on the shores of the cold sea. The village, said the song, was the birthplace of important people: his son, the helicopter pilot; engineer Pyotr Leptapder; his brother Ilya, a physician; and Zhenya Soboleva, who studied at the conservatory and composed music. When he, Yavtysai, was a young man, none of the local people could even write a letter.

In two days young Yavtysai flew away and started a winged man's life. He flew for the medical aviation service. He flew to distant lakes where fishermen loaded his machine with fish. He flew to the trappers and brought back polar fox and sable pelts. He flew to the geologists with equipment and foodstuffs.

At the beginning of summer and autumn he made the noisiest flights. His helicopter delivered children to the camps where they spent their vacation and brought them back when school started.

Copilot Yavtysai liked his winged work. Not a single one of the flights he made was like any other. And he had already made 75 of them.

His seventy-sixth flight was almost his last.

During a blizzard in the lower reaches of the Pechora River, a section of shelf ice with fishermen on it split off from the shore and swept downstream. The fishing cooperative sent a radiogram, and the MI-1 helicopter took off. The bearings given in the message were very approximate. After a long search Yavtysai finally saw the ice with three dark blobs on it. The exhausted fishermen, with little hope of being rescued, had tied themselves to harpoons stuck into the ice.

It took Semyon a long time to untie the frozen knots, to rub the white cheeks of the fishermen and to pour raw alcohol between their clenched teeth. He was wet through, and his clothes were ice-hard by the time he pulled the men into the machine.

The result was four people in the hospital Yavtysai with pneumonia and then tuberculosis.

"The scourge of my people has caught up with me, can't get away from it even on wings," said Yavtysai with an unhappy smile. "This is the end of my flying."

He was sent for treatment, first to Leningrad, then to a sanatorium in the Crimea. When he returned a year later, a medical commission certified him absolutely healthy. But, according to flying laws, he had to wait another two years before he could go back to flying.

He was made a dispatcher. But he didn't feel like himself on the ground, even if it was the ground of an airfield. He looked at Yuri Naumov and the other pilots with wistful eyes. They could not always refuse, and occasionally they would let him fly a bit.

When pilots flew to Nelmin Nos village they were always asked when Yavtysai would be coming.

"If he is that ill, let him come home. He'll get healthy at home. He can herd deer, and that would not be a bad thing," the local people said.

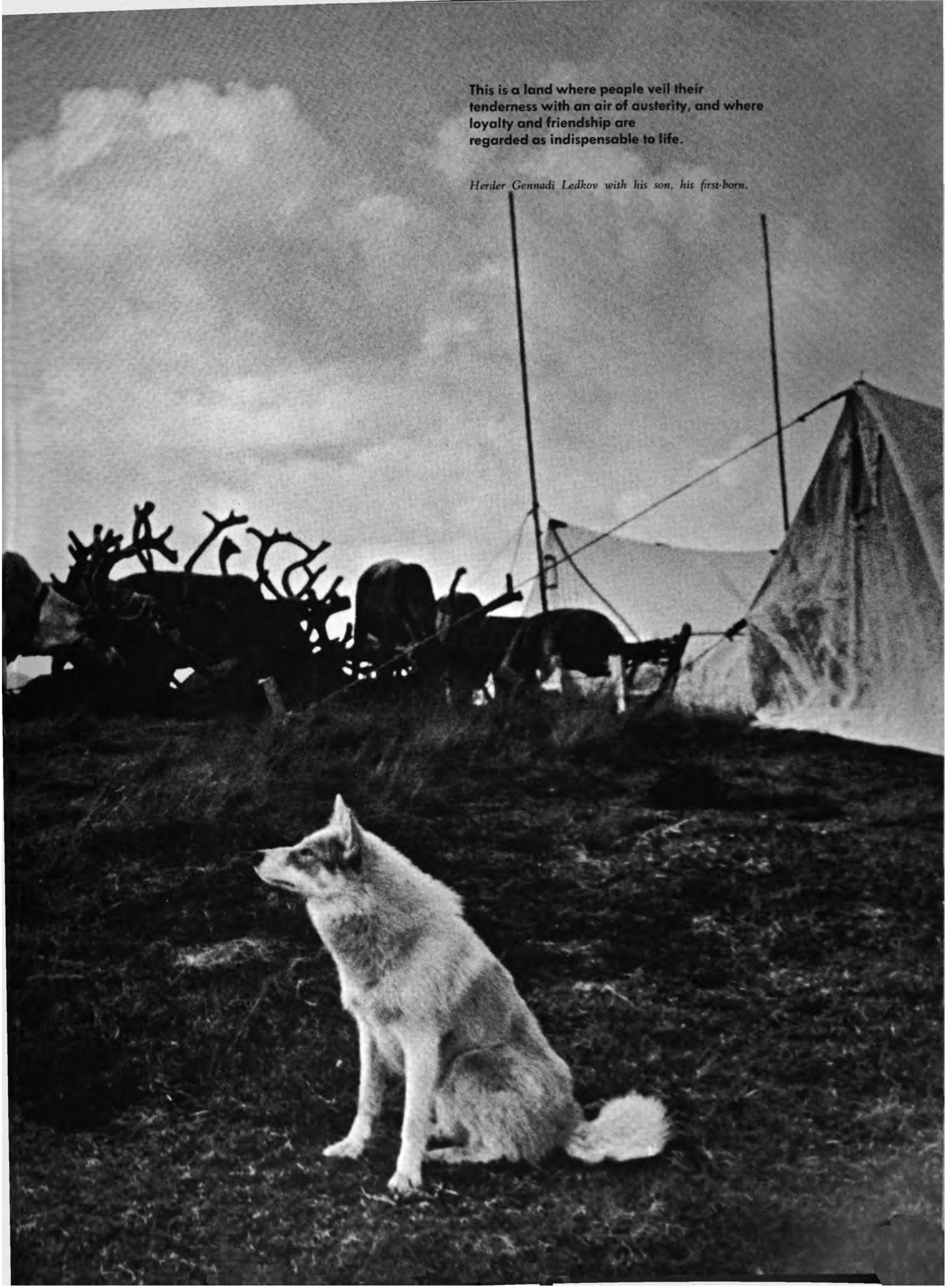
As a result of all this, Yuri Naumov sent the Civil Aviation Administration a letter which said: "In view of the special conditions in the tundra and the importance of the work with the local personnel, I request that the recovery period for pilot Yavtysai be reduced and that he be permitted to fly."

The answer came three days before the reindeer breeders had their holiday. One of the first helicopters to fly to Obseda Hill was piloted by Semyon Lavtysai, son of the herdsman from the village of Nelmin Nos.

Helicopters are an old story in the tundra, but pilot Semyon Yavtysai, left photo, always gets a warm welcome when he lands at Nelmin Nos village, his birthplace. The oversize samovar was brought in for the Reindeer Breeder's Day party.

This is a land where people veil their tenderness with an air of austerity, and where loyalty and friendship are regarded as indispensable to life.

Herder Gennadi Ledkov with his son, his first-born.



COMING BACK

We spent a day aboard a helicopter, searching for a party of prospectors with whom contact had been lost. The floods had washed away their tents, radio and provisions. Starved and worn thin by fatigue, they had been trudging across the bare tundra for three weeks trying to reach the nearest settlement. The backbone of the party, the man who rallied all the others, turned out to be Yuri Shchukin (above), a square-set young worker who had been on many previous geological expeditions. We found the men, and after they had eaten and rested a while, they proceeded to put their notes in order. When they got into the copter headed for Naryan-Mar, they were still comparing notes.

THIRD DAY

A few days later they
were fine and backtracking across
the tundra to survey the
mineral deposits they had found.

A welcoming delegation watches as a helicopter brings the fir tree ordered especially for the Kolguyev Island school's New Year's party.

"LIKE REAL!"

BY YURI DOKUCHAYEV

NEW YEAR'S EVE found Ada Rybachuk and Volodya Melnichenko, two artists from Kiev, on Kolguyev Island in the arctic Barents Sea. They had made many earlier trips to the North in search of subjects. And though they themselves did not draw a single sketch this time, they came back to the mainland with a whole gallery of drawings. They have been shown at many exhibitions and were much admired by critics for their freshness and piquant color combinations.

Before I say anything more about the artists who drew these pictures and the circumstances under which they were drawn, I'd like to tell you about Kolguyev Island.

It's a lovely island. Although there are no trees and bright flowers on Kolguyev, its blue hills are graced with cloudberries and moss. The biggest of the hills is called Seyak-Sede—Great Heart. From this eminence you can see nearly the whole island and the sea around it on a sunny day. The lakes, the rivers flowing into the sea and nearly all the brooks flowing into the little rivers can be seen from Seyak-Sede, and, of course, the houses and the Nenetses, the people who live in them. They wear brightly decorated deerskin clothes and make their living by catching fish and hunting seals and other sea mammals. There are a great many seals here. The Nenetses call the animal *nerpa*.

From the top of Seyak-Sede a sharp-eyed hunter can make out the little village at the south end of the island and perhaps its school, where Lyubka, Kolka, Larchi and many other children live and study in the winter.

They live there because it is impossible for them to get home and back in the blizzards of the long polar night, even by dog or deer sled.

Kolka and Lyubka were the "chief artists" of the Big Picture of the island. Kolka was delegated to draw the sun at the top of the Big Picture.

While the Big Picture was still uninhabited by people, that is, when the children had already drawn the houses, the sea, the *nerpas*, the wolves, the foxes the polar hares and the different kinds of fish, Lyubka added a drawing of her sister Larchi and little brother Eki. Everybody recognized Larchi and Eki right away. They even wore their *malitsas*, which is Nenets for fur suits. After that the artists put some of their other relatives in the Big Picture.

But I haven't told you yet what the Big Picture is and how it came to be. When the director of the Kolguyev school learned that Ada and Volodya were artists, he asked them to help decorate the classroom for a New Year's ball. At the appointed time, the artists came to the school with their paper and paints. They could have taught the children how to draw Grandfather Frost riding a space rocket, or how to make Chinese lanterns, or how to cut out paper swans and tigers, which the youngsters knew only from pictures they had seen. Instead Ada suggested:

"Let's draw the animals you've seen in the tundra, in the sea, and in the lake."

"May I draw a reindeer?" asked one of the little girls timidly.

"I'd love you to," replied Ada.

The Big Picture did not materialize all at once. It took a while for the children to learn to draw "monumental." The yielding charcoal, the soft crayons and the large sheets of sketchbook paper helped. Once started, they kept drawing, even on Sundays. Ada and Volodya were delighted with their imagination, feeling and powers of observation.

When the creative process was at its height, the sketchbook paper gave out. The children scurried around the settlement looking for wrapping paper. They covered two walls with it and used what was left over to draw almost full-size pictures of a whaling boat pulling a bunch of rafts and the helicopter that brought them a whole fir tree for New Year's Eve.

The drawings they made were cut out and pasted on the new wallpaper—the sea, the deer herds, people—wherever they belonged. The children celebrated the New Year with their Big Picture, as they called it. The small artists all behaved with great dignity, none of them boasting that he or she had drawn the *nerpa* or the helicopter. Their guests, who were little children like themselves, expressed their admiration in less restrained terms. "It's like real!" they kept saying.

Ada and Volodya really gave free rein to their delight. No one, they were sure, had ever seen a Big Picture like that. They wanted to show it to the people on the mainland. They couldn't take it along or cut it into pieces, so they did the next best thing, they sat down and copied the best parts, with the children, especially Kolka and Lyubka, assisting.

Now everybody can see the Big Picture and imagine what Kolguyev Island is like.

That's all.

A herd of reindeer near the herders' tents. The cunning polar fox in the top left-hand corner slinks off when he sees them coming.

Two of the artists pose in front of their big collective picture. They are the children of Nenets fur trappers and reindeer breeders.

A polar fox catches a hare. Kolka added ***enormous sun—an infrequent*** *visitor in* ***land—when the picture*** *was almost finished*

Two litle girls all prettied up and ready ***the holidays. They*** *are wearing furs,* ***course, ornamented with*** *bits of dyed ski*

CAN THE PECHORA SAVE THE CASPIAN?

THE THOUSANDS OF MILES that separate the rivers of the North from the Caspian Sea are now being bridged.

The Caspian Sea is shrinking at a disastrous rate. Its water level has dropped 10 feet since 1929. And since the North Caspian has sloping shores, every time the sea level drops by half an inch, the shoreline retreats 300 to 400 feet. Guryev, which was a seashore town in 1765, is now 22 miles inland.

The hydroelectric power stations on the Volga and the diversion of its water for irrigation help make the Caspian more shallow, but these are only contributing factors. The big factor is the sun.

The greater solar activity of the past century has warmed up the earth. Less rain and snow have fallen in the Volga-Caspian basin, river flow has declined, and evaporation from the surface of reservoirs has increased sharply. Over the past 20 years the Volga and the other rivers have short-changed the Caspian by 31.6 trillion cubic feet of water, and the Caspian is entirely dependent on river flow.

We have plenty of fresh water. The trouble is that 82 per cent of the annual river flow goes to the Arctic and Pacific oceans, leaving only 15 per cent for the Aral-Caspian basin and the Black and Azov seas.

Can this mistake on nature's part be corrected? Can northern rivers be made to flow south? It seems they can. In fact, a most original plan to do just that has already been drawn up.

The plan would block the broad, deep Pechora River, the main artery of the Nenets National Area, with a dam 12 miles long and the height of a 30-story building, creating a large reservoir. An earthen dam on the low-lying shore will prevent the water in the reservoir from escaping.

South of the Pechora a hydroelectric power station will be built on the Vychegda River at Ust-Kulomsk. The dam here will not have to be more than two miles long and 108 feet high. This will be enough to create a big reservoir with the same water level as the Pechora Reservoir. The two storage lakes will be connected by a natural-flow canal 37 miles long, 820 feet wide and 100 feet deep.

The Pechora and Vychegda will then stop flowing north and start southward. To help them do that, another hydroelectric power station will have to be built on the Kama, one of the Volga's chief tributaries, near the city of Borovsk. The storage lake created by its dam will have the same level as the storage lakes on the northern rivers. A gravity-flow canal 62 miles long will connect it with the Vychegda Reservoir. The northern rivers will then have a free channel to the south.

The three reservoirs will have a combined water supply of 189.2 million acre-feet and a total area of more than 3.7 million acres. They will be pouring an additional 1.3 trillion cubic feet of water into the Volga—a gigantic "barrel" six miles in diameter and the height of a 160-story building. Emptying this barrel into the Caspian Sea every year will not only compensate for the water used in irrigation and the water lost in evaporation but will also gradually raise the level of the sea.

Twenty years after the project is completed the Pechora and Vychegda will have noticeably raised the level of the Caspian Sea. A trillion cubic feet is a tremendous volume of water, but it is only a sixth of the Volga's present flow.

In remote forests where before even the hunter's shot did not break the endless silence, surveying parties are now at work, and the sound of drill rigs fills the air—the beginning of one of the biggest construction projects of our time.

FOURTH DAY

Catching salmon off the Pechora. During the fishing season the paths of the fish are blocked off by nets. The Pechora is famous for its food fish, especially red, white and pink salmon, which are in large demand at home and abroad. Semyon Vokuyev, in the top photo, has been pulling his living out of the Pechora for about half a century.

In this untrodden part of the world
everything man builds is a first—a first road,
a first house, a first airfield. There
are great areas still waiting to be explored.
Here is trail blazing—and in a very literal sense.

POLAR ECONOMY

By Yevgeni Kozlov

Chairman, Presidium of the Kola Branch of the Academy of Sciences

NOT LONG AGO the wind blew the hat off the head of one of our geologists. He chased after it and, when he picked it up, found an unknown mineral underneath it. The geologist's name was Vasya, and the Saami word for hill is *mylk*, so the place is now called Vasya's Mylk."

The driver who was taking me out to see some geologists working beyond the Arctic Circle told me that story. Of course he had added a couple of fancy touches to give it more color. But it has a point. The once glacier-flattened Kola Peninsula is chock-full of all sorts of minerals that lie close to the surface. Indeed, over an area of almost 56,000 square miles, industrial deposits of 50 elements in Mendeleyev's table have been found, with probably more to come. Though Academician Alexander Fersman, an incorrigibly adventurous but sober-minded scientist, explored every nook and cranny of the peninsula back in the thirties, many mineral finds have been made since.

However, despite the abundance, only a few isolated deposits were exploited because of the expense. The weather, with its frosts, long blizzards and sharp fluctuations in atmospheric pressure, and the climate, changing virtually at every mile, require sturdier buildings and more fuel and electricity. Open-cut mining often has to be abandoned and pits dug. It is impossible to quarry there in the winter. In addition, wages are very high, twice or three times as much as in Central Russia, which also adds considerably to costs.

Arctic mining had to be made less expensive. More machinery was tried. That made work easier, but it did not lower costs. The unusual conditions called for an unusual solution.

On the Kola Peninsula we ordinarily find minerals in groups, mixed like a cocktail. We used to extract only the dominant mineral in this "cocktail." Thus, we worked either the nickel or the iron or the apatites. Thinking of ways to reduce costs, executives wondered whether the other ingredients in the "cocktail" already mined could not be extracted too; nickel ore, for example, contained cobalt and copper as well. The Severonickel mine in Monchegorsk started extracting these leftover metals. The cost was low, and that cut the over-all expense. A new plant is now operating in Monchegorsk to "brew" sulphuric acid from the same profitable waste. The cheapest in the country, this by-product has helped cut still more the cost of extracting the main mineral—nickel. The use of slag is also cutting costs.

The iron ore in the deposits near the town of Kovdor is run-of-the-mill grade, and mining it was expensive. The only way to run the mine at a profit was to do comprehensive extraction. In addition to enriched iron ore, the plant can provide about a million tons of concentrated apatites—the leftover mineral in this ore.

To get out the iron ore at Kovdor, a pretty thick slice had to be stripped off. It went to waste until this slice was found to have a lot of vermiculite, a variety of mica which makes good building material. Vermiculite slabs are 20 times better than concrete at retaining warmth.

Phlogopite, the kind of insulation material that electricians dream about, was found under the vermiculite. The Kovdor ore-dressing plant was thus embarked on comprehensive extraction. The so-so ore turned out to rank with the country's cheapest. Iron and steel mills are glad to have it since it cuts their costs too. Thus, under public ownership, efficiency in one industry triggers off a chain reaction of efficiency in others.

Most mines and ore-dressing plants have been able to get started on this comprehensive extraction. Not all, however. Apatite mining at two of the four deposits is not yielding profits. It would be profitable if additional funds were made available for transport.

Besides apatites, Khibiny ores have nephelite, from which aluminum is made. Thus far, the nephelite has been discarded because there is not enough electricity; a great deal of power is needed to make aluminum. The plan now is to load nephelite onto the timber transports that go back empty to Igarka in Siberia and process it there with cheap Siberian electricity.

Comprehensive exploitation of natural resources is becoming the rule.

THE STORMING OF RASVUMCHORR

By Georgi Golovanov
Master of Sciences (Technology)
Director of the Apatite Mine

SCIENTISTS say the Khibinies are the earth's oldest mountains. They have been there for one and a half billion years. In 1923 an expedition headed by Academician Alexander Fersman discovered the bluish-green apatite rock from which fertilizer is made on Mount

Giant excavators are digging up the top of the Rasvumchorr plateau on the Kola Peninsula, where the biggest apatite deposits in the world are located. Many of the men working on the plateau went there straight from military service. So, for the most part, the citizens of the still unnamed town rising at the foot of Rasvumchorr are young.

Rasvumchorr, in the heart of the Kola Peninsula. The deposit, enormous even by modest estimates, lay close to the peak and dropped in a vertical column into the heart of the mountain.

The mountain itself is only 3,609 feet high, but its peak, a small plateau open to all the winds, has the climate of the Antarctic. And that is precisely what the plateau is called: Little Antarctica. It may be quite warm at the bottom, as much as 68° Fahrenheit, but on top all you have is 265 days of winter and 100 of autumn.

In the thirties, when the collective farms were set up, there was a great demand for apatites. But Rasvumchorr was invulnerable. Tractors could not make the grade, and electric lines could not be laid to the top. The first snowstorm would blow the poles down.

Though open-cut mining of the deposit was very desirable, there wasn't any way of getting past the weather barrier. Instead apatite had to be gotten by cutting deep mines into the mountain. This was expensive, but there seemed to be no choice.

In 1930 an authority in the field stated at an international phosphate industry conference that the climate in those places in the Soviet Union where apatite deposits are located is so bad that people will never be able to live there. He believed that very little would come of "the Soviets' ambitious hopes."

Three months later the first 100,000 tons of apatite ore were extracted in the Khibinies. An ore concentration mill and the city of Kirovsk sprang up at the foot of the mountain.

More mines followed, but the Rasvumchorr plateau was still unattainable.

A new attack on the Rasvumchorr plateau was launched in the spring of 1961. Fleets of tractors and bulldozers gathered at the foot as if in preparation for a battle. Powerful tractors hauled the first excavator to the top. A 12-mile road leading to the plateau took more than a year to build. Every hour the road got a new cover of snow, and bulldozers were always working to keep it open.

Trucking the ore to the mills below was risky and expensive, and in snowstorms the next shift of workers was not always able to get to the plateau. So a different course was taken. Three 21-foot rock wells for lowering the ore were drilled from the top, deep into the mountain some 200 feet from the side. There they connect with a three-mile railway tunnel cut at the bottom by Leningrad subway builders.

Twenty-five-ton dump trucks carry the ore the 1000 to 1300 feet to the holes and dump it in. It is picked up by railway freight cars waiting below.

Besides the three ore holes, a special shaft and elevator for workers and equipment was built inside the mountain.

The ore mined on the Rasvumchorr plateau will give the country an additional 20 million metric tons of grain a year.

BORIS LISYUK— A NEW JOHN HENRY?

THE RASVUMCHORR PLATEAU is the subject of important geological studies. It is also the subject of a song popular on the Kola Peninsula, in Moscow cafés and in Leningrad music halls. It's about the man who headed the gang that opened up the plateau:

To plateau Rasvumchorr springtime comes not at all,
On plateau Rasvumchorr it is snow, always snow,
And the chief of plateau Rasvumchorr can recall
How a fortnight on end did a blizzard once blow.

That chief is Boris Lisyuk, a 25-year-old Moscow engineer who, with a group of mechanics and road builders, blazed a trail over the rocks and snow fields of the Rasvumchorr plateau. He remembers how the thick cables connecting the tractors with the excavator parts snapped in the frost as though they were made of glass. He remembers the names the men gave to the turns in the road across the plateau, names like Shark's Teeth, Damnation and Devil's Corner.

There were 18 men in the group. They lived on the snowy hump of the Khibinies like a wintering party at the North Pole, cut off from civilization for months by the blizzards.

The plateau where we live—there are just 18 men,
We are stuck in the snow—do not envy our lot.
Eighteen partings, that's us, eighteen heartbreaks and then
Eighteen hopes once again to feel sun shining hot.
We're not asking for help—just tobacco and bread,
Just to last us this hour and this day without end.
To this life we're not used yet, no matter what's said,
And we still are not tired of helping a friend.

The bulldozers would skid and the powerful treads would dig great holes in snow many feet thick. Once the leading bulldozer got stuck in the snow at a bend in the road and one of the treads slid over to the edge of a precipice. With the roar of the wind and the engine, the

driver did not hear the warning shouts of the men behind him. One more minute and the bulldozer would be over the edge. But in that minute the man behind sprang out of his machine, jumped onto the treads of the first bulldozer, then to the running board, and smashed the window of the cab. A second later the two men were out in the snow just in time to see the bulldozer disappear over the edge of the precipice.

"Well, chief," the sturdy red-headed driver of the bulldozer said to thin little Lisyuk, "consider yourself my second mother."

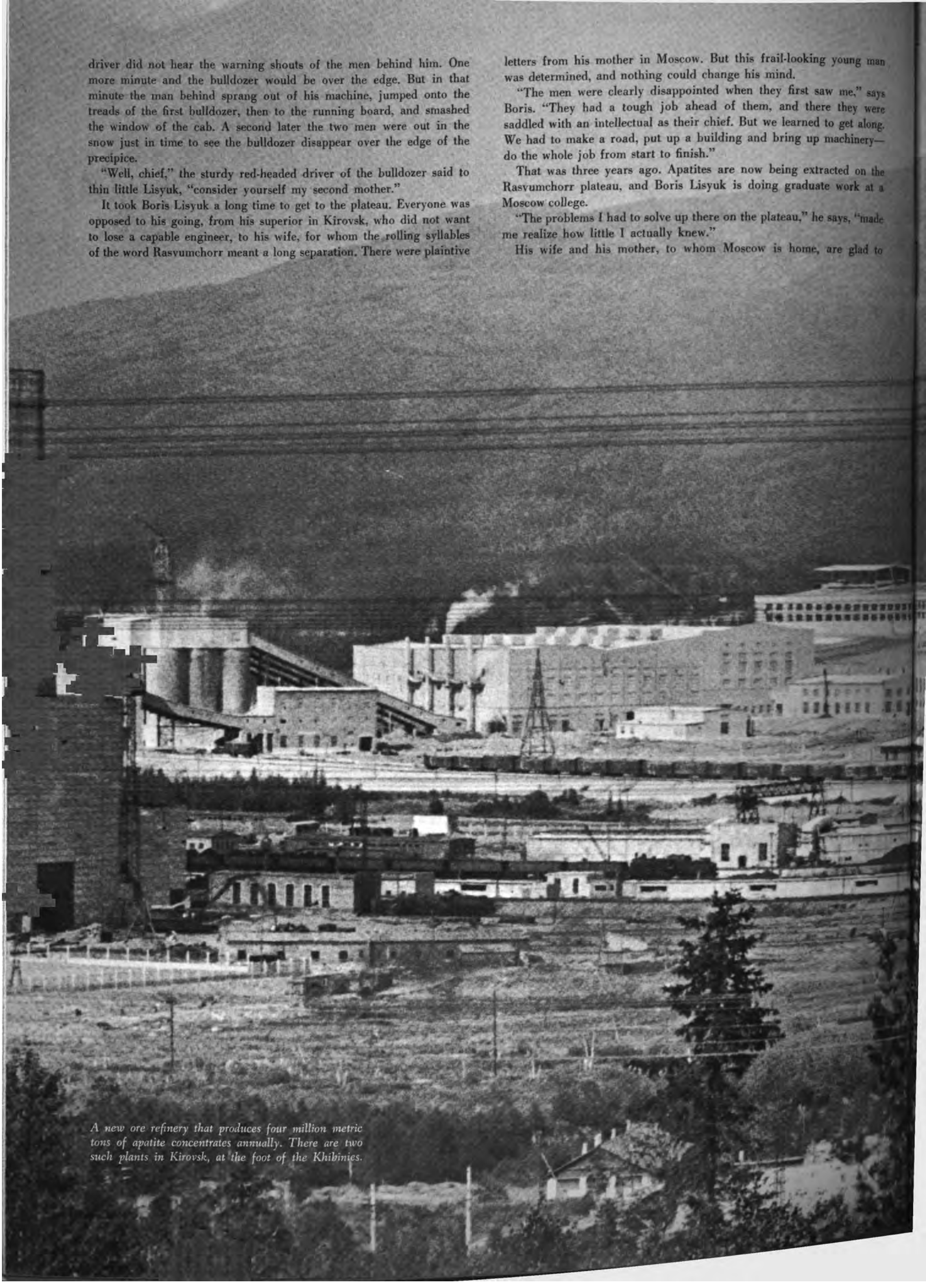
It took Boris Lisyuk a long time to get to the plateau. Everyone was opposed to his going, from his superior in Kirovsk, who did not want to lose a capable engineer, to his wife, for whom the rolling syllables of the word Rasvumchorr meant a long separation. There were plaintive letters from his mother in Moscow. But this frail-looking young man was determined, and nothing could change his mind.

"The men were clearly disappointed when they first saw me," says Boris. "They had a tough job ahead of them, and there they were saddled with an intellectual as their chief. But we learned to get along. We had to make a road, put up a building and bring up machinery—do the whole job from start to finish."

That was three years ago. Apatites are now being extracted on the Rasvumchorr plateau, and Boris Lisyuk is doing graduate work at a Moscow college.

"The problems I had to solve up there on the plateau," he says, "made me realize how little I actually knew."

His wife and his mother, to whom Moscow is home, are glad to

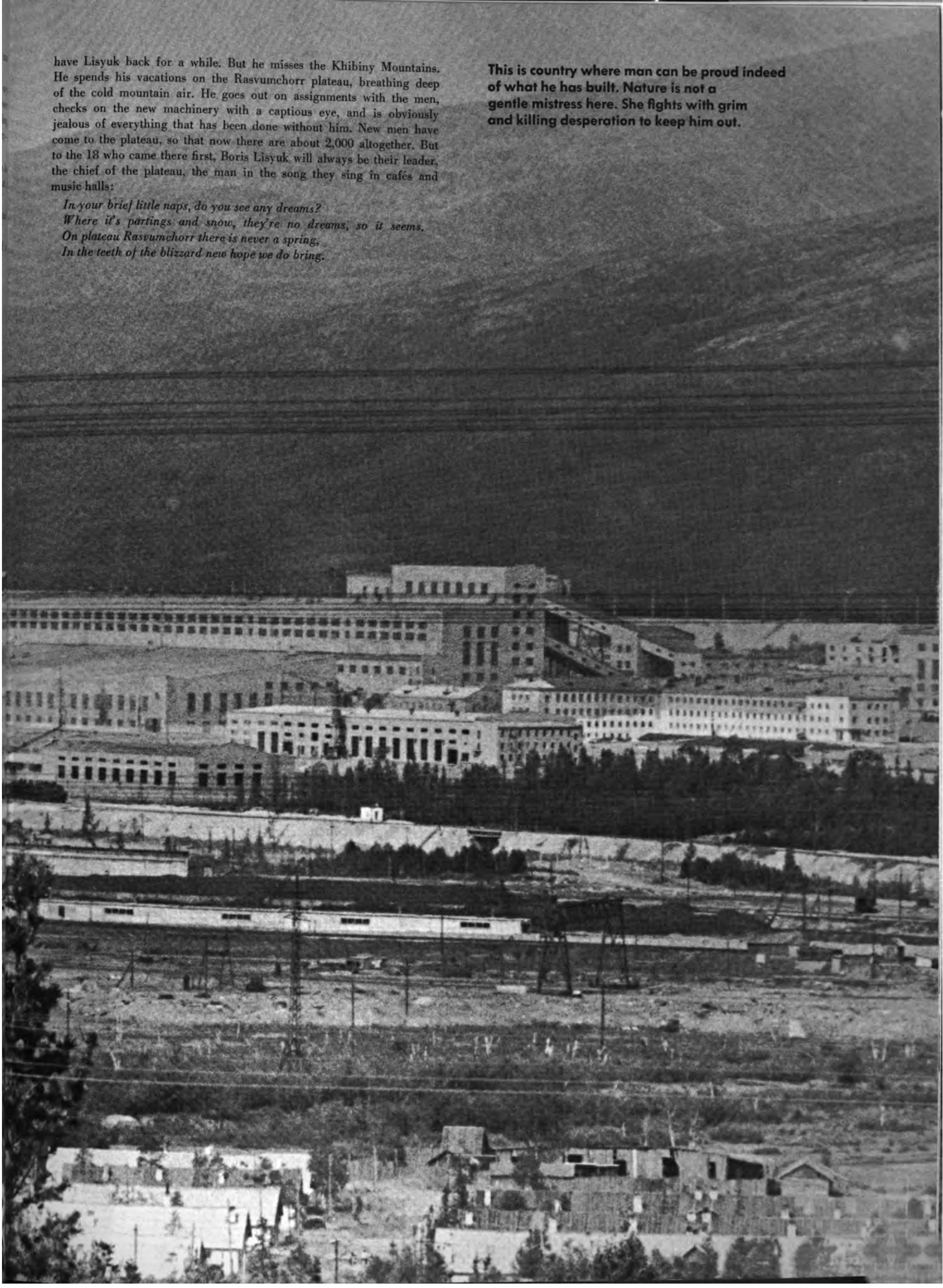


A new ore refinery that produces four million metric tons of apatite concentrates annually. There are two such plants in Kirovsk, at the foot of the Khibinies.

have Lisyuk back for a while. But he misses the Khibiny Mountains. He spends his vacations on the Rasvumchorr plateau, breathing deep of the cold mountain air. He goes out on assignments with the men, checks on the new machinery with a captious eye, and is obviously jealous of everything that has been done without him. New men have come to the plateau, so that now there are about 2,000 altogether. But to the 18 who came there first, Boris Lisyuk will always be their leader, the chief of the plateau, the man in the song they sing in cafés and music halls:

In your brief little naps, do you see any dreams?
Where it's partings and snow, they're no dreams, so it seems.
On plateau Rasvumchorr there is never a spring,
In the teeth of the blizzard new hope we do bring.

This is country where man can be proud indeed of what he has built. Nature is not a gentle mistress here. She fights with grim and killing desperation to keep him out.



SIXTH DAY

TUNDRA CITY

ALL THE TOWNS in the Arctic are young. Naryan-Mar is 35 years old. Kirovsk, center of the apatite industry, is 30. About 12 miles from Kirovsk is another town, with a population of 25,000, that is so young it does not have a name yet. It is still called the New Town.

Monchegorsk is 20 years old but already famous. Everybody in the country has heard of Monchegorsk nickel, Monchegorsk cobalt and Monchegorsk copper.

The figures 99.0 per cent, 99.5 per cent and 99.99 per cent indicate the purity of the nickel in the finished metal. The United States has reached the first figure, Canada the second and Monchegorsk the third. It seems somehow fitting that the nickel in Monchegorsk should be 99.99 per cent pure, coming from the "beautiful tundra." That is how the Saamis, the aborigines of the Kola Peninsula, describe the place they live.

Life there is hard. It is dark 24 hours a day for almost two months of the year, and the wind howls for days on end as if in a wind tunnel. The best the country has goes to the Kola Peninsula to make life a little easier. For that reason, the shops of the huge nickel works are almost empty of people. Hundreds of measuring instruments control the machines as they turn and rumble. There are as many people working in the laboratories as in the shops.

The North is an exacting master. It weeds out the unfit quickly. Those who come to work there because of the pay, which is almost double that anywhere else, with an annual 10 per cent increase, leave without waiting for the first increase. The people who stay on are those who find life dull without a challenge.

They are usually people who cannot stand sameness. They are usually people driven by the need to build something new, to change things, to do things differently. There are many such people in Monchegorsk. That must be why their town and their mill are quite unlike other towns and other mills. They paint their buildings in vivid colors, build skating rinks that the country's champions say are among the best, and race yachts that are in the Olympic class. All these to challenge the white monotony of the "beautiful tundra."

OUR MR. BIG

TEN YEARS AGO, in May 1956, the USSR Council of Ministers received a telegram that said: "Am categorically against building standard-type housing in Monchegorsk. Insist on immediate reconsideration of Architectural Council decision. Pozdnyakov."

Plans for cheap and convenient standard houses were much talked about that year, even the Council of Ministers had urged their wide-scale use, so that the telegram from the chief engineer at the nickel works in Monchegorsk was impertinent, to say the least. Pozdnyakov was called to Moscow and a frosty reception. Nevertheless, he was able to show that such building plans were completely unsuitable to the North.

"You don't want to use your head. You want towns in the Arctic to look exactly like towns around Moscow," Pozdnyakov told the architect. "The monotonous landscape of the North calls for architectural variety, bold and original design, vivid colors. We're going to be living there for the next couple of hundred years!"

Pozdnyakov himself has lived in Monchegorsk for 25 years. He came there when he was 19, a college student putting in his stint of practical work at the first mines built in the village of Moncha, where the future nickel plant would stand. Ten years later he was chief engineer.

Severonickel is considered the best nickel plant in the country. It has the most modern machinery and the highest labor productivity, and turns out the best nickel.

Pozdnyakov, however, cannot stand the word "best."

"There is no such thing as 'best,' " he will roar at someone who has written a bragging report to be sent to the ministry. "What's good for today is bound to be bad for tomorrow."

"Use your head" is an expression Pozdnyakov repeats on all and every occasion. His friends joke about it. "Using your head, Beanpole?" they ask him.

Monchegorsk, the nickel city, is only 20 years old, but in cultural and recreational facilities it holds a place well ahead of many older cities of the same size.

"Beanpole" is Pozdnyakov's college nickname. It would be hard to find a better one. There is a lot of the Don Quixote about him—thin and tall (6 feet 6¾ inches), tanned face deeply furrowed, bright gray eyes and a kindly smile.

Children all like him. When the chief strides down the street in the morning, the kindergartners yell after him, "Uncle, get me a sparrow!" To their delight Beanpole reaches up and plucks something invisible out of the air for them.

But Pozdnyakov is hardly what you would call a good-natured soul. He has no use for those who blame the rigors of the North for their own negligence and unwillingness to think.

"The North may be rigorous," he says, "but we're running a socialist plant, and people must have normal conditions to work in. It can be done if we use our heads."

Vladimir Pozdnyakov came to Monchegorsk directly from school. Now he is chief engineer of a several thousand man plant and the winner of the Lenin Prize.

Improvement of working conditions is the chief engineer's main concern. When the plant was renovated, he insisted that concentration be on those shops where machines could take over laborious manual operations. That was done. Now the chief and his assistants are "using their heads" on new problems.

Pozdnyakov is a deputy to the City Soviet. People come to him to discuss a new slalom course, or greenery around new housing, or another kindergarten.

His duties on the City Soviet take up a great deal of time, leaving little for his own family, fishing, skiing and reading. But he finds his reward in the real affection the townspeople have for him. A conversation between ten-year-olds, one of them a visitor to Monchegorsk, might go something like this:

"In Murmansk we have the sea."

"We have Mount Nittis."

"We have ships with flags."

"And we have a chief who is the biggest man in the world."

One of the biggest, anyway.

MURMANSK
SEA GATE TO THE ARCTIC
SEVENTH DAY

MURMANSK is the oldest city north of the Arctic Circle. It is 50 years old. In 1916 Russia's last czar, Nicholas II of the Romanovs, ordered the country's northernmost settlement to be called Romanov-on-the-Murman. A year later the czar was overthrown. The first part of the name disappeared with him.

As though it had been relieved of a burden, Murmansk forged ahead. Its population grew from 2,000 to 250,000 as the town developed into a big seaport and fishing center. Its fleet of 400 fishing ships is one of the largest in the world. Sixty per cent of the city's industry is fish—fresh, canned, smoked, salted and dried. The assortment runs to about 300 items.

Fishermen and seamen are privileged people in Murmansk. There will always be tickets for them on the opening night of a new film or play even though there is a long line at the box office. All they have to do is present their seamen's card to show that they are just back from a voyage.

The largest building in Murmansk is the Seamen's Center, which has entertainment and sports facilities as well as hotel accommodations. Seafaring men who do not live in Murmansk put up at the center between voyages.

The housing problem in this rapidly growing city is acute. It accounts for the big labor turnover. People leave Murmansk for Monchegorsk, Kirovsk, or towns in Siberia, where there is more housing construction. With the profit incentive approach recently adopted, the Murmansk fleet, which makes a large profit, will have more money for house building.

80 MILES OFF NEW YORK

The Murmansk trawler flotilla catches as much fish as all of Britain. Heading the flotilla is Dmitri Kolyugin, a 37-year-old deputy to the USSR Supreme Soviet and one of the first Soviet skippers to sail the North Atlantic. Here he answers some of our questions.

The Murmansk flotilla, which now catches 1.3 billion pounds of fish a year, plans to top this figure. Will that be done by improving catching techniques and methods of fishing reconnaissance or by increasing the number of ships?

By all these three ways and one more, the most important—by working new fishing grounds. For our flotilla this is what you might call a radical departure that began eight years ago. Before then we fished off our own shores in the Barents Sea and in the Norwegian Sea. Now our fishing expeditions work the Atlantic. We catch fish off the coast of Canada and the United States, only 80 miles off New York. We keep moving closer to the shores of South America, where the fishing is very good. When our best ships haul in their trawls in the Barents Sea, they bring up a ton or a ton and a half of fish. And in the Atlantic the haul runs as high as 15 or 20 tons. Even if the trip, coming and going, takes us a month, we can still make a profit.

Is there any objection to catching fish off the shores of other countries? Does it infringe on their economic interests?

There are no restrictions on the right to sail and fish the high seas, excluding the coastal areas that are part of the territory of a country. We do not break any conventions. The ships of Norway, the Federal Republic of Germany, Britain, Poland, France and other countries fish the Barents Sea. Like us, they have drawn very heavily upon the fish resources of these seas. That was one of the reasons we started fishing the Atlantic.

Did working distant fishing grounds involve any changes in the composition of the flotilla? What kind of ships fish the Atlantic?

The growth of the engine power and carrying capacity of our trawlers follows today's trend. We want our whole flotilla to be made up of BMRT-class ships. These are big freezer trawlers designed for 80-day runs without refueling. So far they constitute only a fifth of our Murmansk flotilla, but they catch more than a half of the fish. They are also the most profitable, and they carry more conveniences for the crew than the other vessels, a very important thing on long trips.

Medium-size trawlers, of which we have hundreds, also fish the Atlantic. They group around 20 mother ships. A mother ship does not do any fishing; it takes the catch from medium-size and big trawlers and freezes it. Floating base ships bring foodstuffs, mail and films to the fishing vessels.

Do we buy many ships abroad? How much do they cost, and how quickly do they pay for themselves?

Quite a number of our big trawlers come from Poland, the German Democratic Republic and the Federal Republic of Germany. Big trawlers cost from two million to two and a half million rubles each. They pay for themselves in a year.

The technical equipment of our fishing fleet is supposed to be the best in the world. Why is it then that we are only in fifth place for catch per man?

The crews of foreign fishing ships work two shifts, Soviet crews work three. We have 35 to 50 per cent more men in our crews. As a result, the catch per man is smaller, statistically speaking.

Long fishing expeditions mean a long time away from home for crews. Does the law set any limit on the time a man stays at sea?

Yes. The limit is 120 to 130 days. This is set down in the collective agreement which the fishing authority signs with the trade union. The limit was established after several long experimental expeditions. The stay at sea can be extended only with the consent of the whole crew and the approval of the trade union committee here in Murmansk.

We try to make life at sea comfortable. The floating base ships—and there are always several of them on the fishing grounds—have sanatoriums where seamen can take a rest for several days. Nevertheless, 120 to 130 days is a long stretch. We are thinking of reducing it to 80 days, changing our crews right at sea.

Are the hardships of fishing in the Arctic taken into account when wages are set? What benefits do the fishermen have?

The wage setup for fishermen takes many things into account: the job a man holds, the length of his stay beyond the Arctic Circle, distance to the fishing grounds, the overtime he puts in and the weight of fish he catches. His monthly wage is 400 rubles. As for the skippers of big trawlers, they make more than the heads of government ministries.

Seamen get six weeks' vacation. Added to that are the Sundays and holidays they spend at sea. Once every three years they are entitled to free transportation to any part of the country, even as far as the Pacific coast.

Engine room crews are pensioned at 50, other members of the ship's crew at 55.

Н.ОСТРОВСКИЙ

EIGHTH DAY

While there are easier ways of making a living than deep-water fishing, there are compensations for the difficulties. The earnings of Soviet fishermen who work the North Atlantic are high, they get longer vacations than most people, they retire earlier. But that does not explain the pull of the open waters for the men who brave its hardships and dangers.

The Ostrovsky, *a seagoing factory equipped with every automatic device invented to catch, clean, can and freeze fish. It carries a crew of 84.*

THE OSTROVSKY

THE first Soviet trawler, the *Navaga*, put out to sea from Murmansk in 1920. It was followed by another 11 ships soon after. The 12 ships caught 1,100 tons of fish that year. Today the *Ostrovsky*, a large refrigerated trawler, brings in five times that much fish on a single voyage.

The *Ostrovsky*, 279 feet long, is a floating factory. It catches fish and freezes it. Automatic devices fillet the fish and can it in oil or tomato sauce. The leftovers are ground into fertilizer meal. Everything is used. Nothing is left for the sea gulls hovering about the ship.

The *Ostrovsky's* generators can supply a town of 30,000 with electric power. Its engine gives the ship a cruising speed of 18 knots. One hundred and fifty electric motors do the hard work, from raising the trawl, which is cast 2,300 feet, to freshening the water.

The fishing service provides information on the whereabouts of schools. The *Ostrovsky* also has its own electroacoustic instrument which indicates, as the trawler moves along, whether there are fish around and in what numbers. The captain can tell to within 200 pounds how many fish the trawl will bring up.

It takes skilled people to keep so complex an enterprise running. The *Ostrovsky* has a crew of 84. Twenty-one of them are college trained or have a specialized technical education. All the men, from the captain down, live in two-berth cabins. When the catch is especially big, the engineers, navigators and mechanics all put on leather aprons and help dress the fish the machines cannot cope with. This is as it should be, since everyone's wage, from the captain's to the deck hands', depends on the haul.

RADIOMAN

WHEN Captain Alexei Glushkov puts his charts aside for the microphone, radio operator Igor Vadeyev becomes the second most important man on the trawler, for he also takes part in the "Council of the Gods," as the seamen call this morning half-hour interchange of information by radio.

"How's your catch, *Ostrovsky?*" a distant neighbor asks Glushkov. "So, so," the captain answers.

Vadeyev grins. The catches have been good right along. Is the captain being modest or does he have something up his sleeve?

"This is the *Tolstoy*. This is the *Tolstoy*. Come on over. A big school here." A captain fishing some distance off wants to share his good fortune. Vadeyev knows the *Ostrovsky* will presently be changing its course.

"Who'll lend me an extra flour barrel?" pleads the *Dostoyevsky*. Vadeyev's unspoken comment is: "Should have taken an extra one along, Stupid." Captain Glushkov says he has an extra one.

The captains trade help and advice by radio, addressing each other by the names of their ships. They are all named for great writers.

Lesser beings stay off the air for the half-hour that the "Council of the Gods" is on. The only outsider is the radio operator.

The radio operator is an important man on a ship. He must be letter perfect at his job, for the catch depends on him and so, in emergencies, does the life of every man on the boat. He usually has a longer watch than the other members of the crew. He is the thread that binds that floating piece of the country to the mainland, a thread which must not be broken so long as the ship is afloat. And no matter how big the catch, the radio operator is the only man who does not leave his post to help take it in.

He has one ear always open for an SOS. He knows all the secrets of the crew. He knows who is having wife trouble, who has just become a father, who gets frequent radiograms from home, and who is no longer expected home. He must know how to keep his mouth shut, how to comfort others and how to share their joys.

Igor Vadeyev has had a short but eventful 26 years of life. Before he became radio operator of the *Ostrovsky*, he worked in various parts of the country loading freight, repairing automobiles, driving a truck and working as lathe operator and printer.

One day when he was at loose ends, he saw a sign advertising courses for radio operators. After a year's training, during which he received a maintenance allowance from the government, he was assigned to a ship, and a new life began for him.

The ship, that tiny dot in the ocean, became Vadeyev's home, the first real home he ever had, the fulcrum that every man needs, not so he can move the earth but to keep it steady.

FIRST MAN AFTER THE CAPTAIN

YAKOV VASILIEV hated his work—and the talent that made him good at it. At the age of 20, when his friends were becoming fliers, engineers, miners and mathematicians, Yakov was a cook.

Yakov dreamed of adventure, and cooking had nothing adventurous about it. As luck would have it, he was a cook with gifts. His prestige and earnings went up, but his mood went down.

"So you're a cook," girls he met would say with a smile. "Some girl is going to be lucky. No cooking for her."

Or: "I wouldn't want a cook for a husband. He'd always be poking his nose in the kitchen."

The girls he liked did not like his occupation. That, and other considerations, led Yakov, at the age of 24, to leave the Northern Lights Restaurant in Monchegorsk, where he was assistant chef, for Murmansk. There he signed up as sailor on a fishing trawler.

And a happy man he was at last. The hard work did not bother him a bit, and the sense of fraternity gladdened his heart. Uncomplainingly, he chewed on overcooked meat and put

Every third Murmansk citizen is a seaman. Alexei Glushkov, skipper of the trawler Ostrovsky, *fishes the shores of North America. His ship brings back 6,000-odd tons of frozen and canned fish every trip.*

down tasteless borsch. Back in Murmansk after a voyage he would tell the girls, "We albatrosses of the Arctic seas . . ."

One time the trawler put out to sea without a cook. All the men took turns in the kitchen. None of them made any effort to turn out a decent meal. It was a matter of getting a disagreeable job over and done with. The crew lost weight, as though in training for a sports match. Even the oversized first mate thinned down. But when Yakov's turn came, he could not help himself. The memories of the Northern Lights Restaurant were too strong.

"What a fish soup!" the men smacked their lips. "Yakov, you're it."

Protests did not help. Yakov was freed of his duties as seaman and elevated to ship's cook. There was evidently no escaping his destiny.

His fame spread through the fishing fleet. When the trawler went into dry dock for repairs, Captain Glushkov managed to have Yakov transferred to the *Ostrovsky*. There, in a modern kitchen, his gifts came to full flower.

Last year when Murmansk fishermen were decorated with orders and medals, the crew of the *Ostrovsky* entered the name of their cook for an award. Everyone on the *Ostrovsky* considers Yakov second only to the captain in importance. But neither the handsome Badge of Honor nor the fact that Tanya, the ship's nurse, has the highest regard for his calling can reconcile Yakov to his fate. He is now finishing high school by correspondence, after which he intends to enter a college of nautical engineering.

The men on the *Ostrovsky* shudder at the thought.

BLOOD CALL

NOBIL VAKHITOV dreamed of the sea. Out in the arid Kirghiz steppes he dreamed of a vast expanse of bright blue water on which white ships floated. He wanted to go to sea. He wanted to so badly that if you did not know countless generations of Vakhitovs had herded sheep, you would have said Nobil had the call of the sea in his blood.

When he finished school Nobil took a train for Murmansk and a nautical engineering school. His mother wept but could not stop him. There was no one else to, for Nobil, like so many boys his age, had no father. He belongs to a generation that never had the problem of father and son conflicts. Too many of the fathers did not come back from the war.

Nobil did well in his entrance exams at the engineering school and was admitted. But on his very first training voyage, aboard the sailing vessel *Ratmanov*, he earned extra duty detail. While he was on watch the wind swept his cap off his head, and he jumped into the water after it. In reply to the captain's wrathful dressing down, Nobil said calmly that at home a rider who lost his cap while racing was considered unworthy of riding a good horse. Besides the extra duty detail, Nobil earned the nickname of *Djigit*, Horseman.

Finished with training school, Nobil started up the tricky ladder leading to the captain's bridge. For ten months he was a seaman, for ten months a navigation officer on a coastwise vessel, and for another ten months a navigator on a seagoing ship.

When he had his certificate, he signed up as second navigator on the *Ostrovsky*. He imagined, he says now with a smile, that the two-year voyage would be a kaleidoscope of extraordinary events. Now he knows that most of seagoing is routine. Still, out of the ordinary things do happen.

The *Ostrovsky* was fishing in a small square of the Atlantic where about 100 ships had gathered. One foggy day when Nobil was on watch, he saw a dim spot on the radar screen. It moved into the radar dead belt and, in spite of the steady ringing of the ship's bell, was headed straight for the bow of the *Ostrovsky*. The distance between the two ships shrank at an unbelievable rate.

"Helm to starboard! Full speed ahead!"

The *Ostrovsky* barely escaped collision. It was a Norwegian trawler whose steering gear had been damaged in an accident. A rescue towboat was summoned.

That evening the captain formally reprimanded the young navigator. By the rules, he should have thrown the engine into reverse.

"Your risky maneuver worked this time," said the captain, "but next time I want you to stick to the rules." Then, "Enter my personal thanks on Nobil Vakhitov's record. He understands the sea."

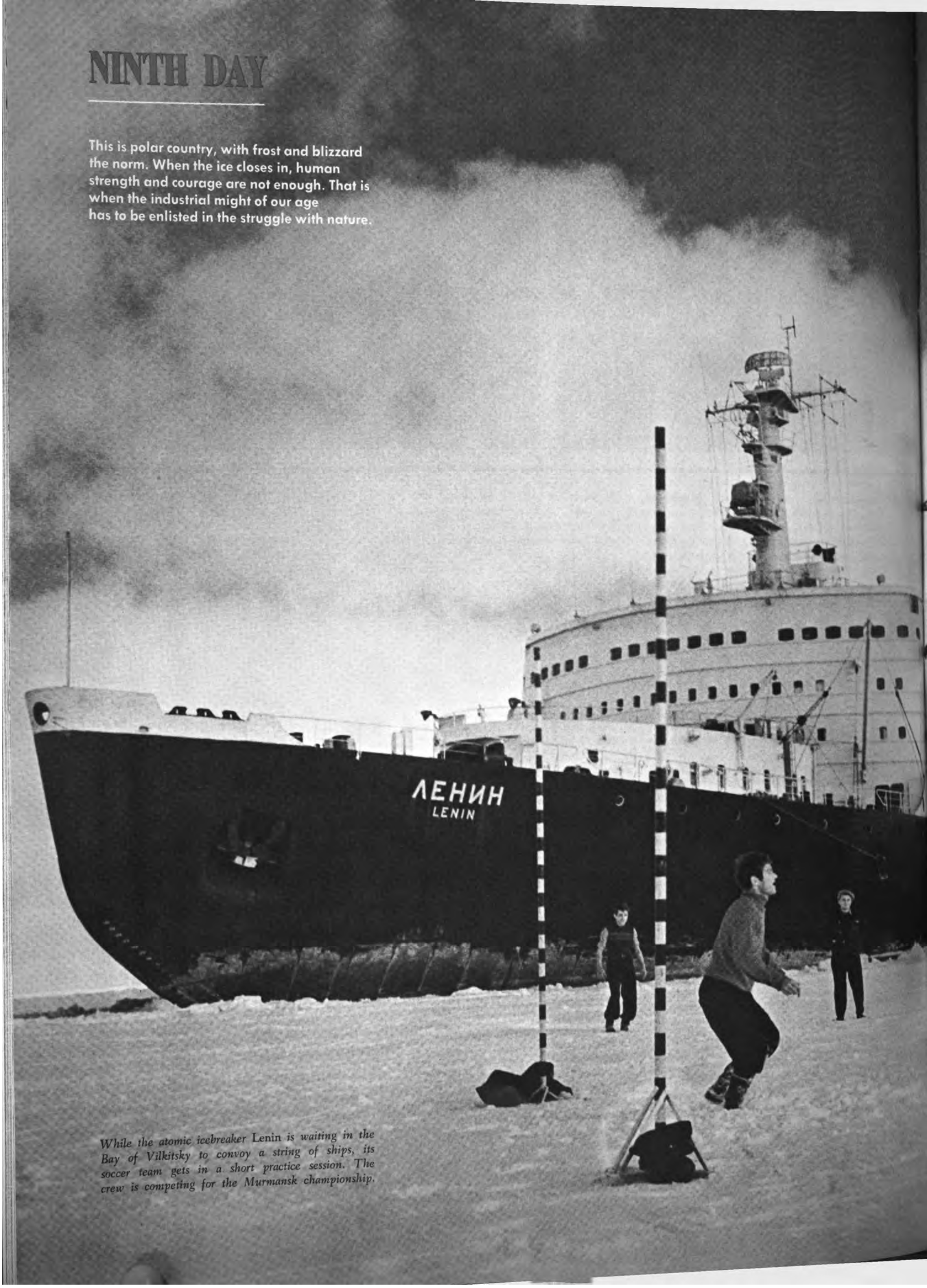
Since the captain of the *Ostrovsky* never went out of his way to compliment anybody, this was high praise indeed. In spite of the reprimand, Nobil was in seventh heaven.

But did he understand the sea?

The sea he had dreamed of as a boy in the steppes was altogether different from the sea he sailed. It was never bright blue, for one thing, and the work at sea was rarely easy. Nobil came to have a deep respect for that vast salty liquid element from which all life emerged. Was that why people so enjoyed watching the waves? Perhaps his dream of the sea as a boy had been the call of remote ancestors.

NINTH DAY

This is polar country, with frost and blizzard the norm. When the ice closes in, human strength and courage are not enough. That is when the industrial might of our age has to be enlisted in the struggle with nature.



While the atomic icebreaker Lenin *is waiting in the Bay of Vilkitsky to convoy a string of ships, its soccer team gets in a short practice session. The crew is competing for the Murmansk championship.*

SMASHING THROUGH THE ICE

OUR ARCTIC and the regions bordering on it take in more than three million square miles of territory. Its scores of towns and hundreds of communities, including industrial centers, seaports and research stations, are cut off from the country's network of railroads. The civil air fleet, though it holds freight-carrying records, cannot as yet keep these regions fully supplied. The one artery that feeds this territory is the Northern Sea Route, stretching 5,800 miles from Murmansk to Vladivostok. Half of the passage has to be made through ice that is eleven and a half feed thick in some spots.

The icebreaker *Sibiryakov* was the first ship to make the whole passage in one navigation season. That was in 1933. The ice broke both screw propellers en route, and the voyage had to be finished under sail. But it showed that the route was feasible. The next year the *Chelyuskin*, a freight and passenger ship, tried to repeat the trip but was crushed by ice in the Chukotsk Sea. Operating from their Arctic bases and from an American airport in Alaska, Soviet fliers saved the expedition.

The ice cutter *Litke* went from east to west in 1934 without incident. Two ships made the voyage the following year, and 14 the year after. The northern route was open.

Ignorance of the Arctic was, and still is, the reason for the failure of many voyages through the ice. A study of that vast, untamed region was necessary. So in 1937 four men were flown to the North Pole, where they spent 274 days. Ever since then North Pole stations have been in operation. They study the formation, thaw and movement of the ice. Charts are drawn up from data provided by the stations. No ship now sails without them.

The icebreaker fleet made it possible to sail the Northern Sea Route for as much as 100 days a year, except for the Kara Sea, where the thickest ice forms. There the navigation season lasted no more than 50 days. Ships could make only one trip there and back yearly. To increase freightage, more ships had to be placed in service. Goods and ships crowded the Murmansk and Arkhangelsk wharves. Siberian timber (considered unrivaled on the London market) piled up ir Dudinka and Igarka, but foreign ships could not get through to it.

Icebreaker captains had courage and skill to spare, but even 20,000-horsepower ships were afraid to tackle the ice armor of the Kara Sea. And at the mouth of the Yenisei the thickness of the fresh-water ice reached six and a half feet, the equivalent of eleven and a half feet of sea ice. Not too many years ago there were periods when whole strings of ships could not get through to some of the ports. Shipping through ice had to be revolutionized. The revolution was made by the atomic icebreaker *Lenin*.

The 44,000-horsepower *Lenin* is 440 feet long and 90 feet 6 inches wide. Power is generated by three reactors, two in operation and one spare, each of which contains 176 pounds of Uranium 235. The *Lenin* can sail for three years without refueling, while ordinary icebreakers have to refuel once a month. It travels at 21 miles an hour in water and two and a half miles an hour through ice eight feet thick. It can smash through ice eleven and a half feet thick, which means it can cope with practically any type of ice. The *Lenin* demonstrated that in 1961 when it reached 80 degrees 40 minutes North Latitude, putting the North Pole-10 Expedition ashore on the ice in October, after the end of the navigation season in the Arctic.

"Can the *Lenin* reach the North Pole?" is a question that is often asked. Yes, it can. The icebreaker, however, was not built for publicity but to do certain economic jobs. The chief one is to keep the Northern Sea Route open.

Ships used to reach Igarka only at the beginning of August, for the continental ice in the Kara Sea moves northward slowly. Last year the *Lenin* cut through the ice in the Kara Sea and led a string of foreign lumber ships to Igarka at the beginning of July. Then it set off to open up the thickest ice in the North, in the Vilkitsky Strait. A passage through this strait was also made one month earlier than usual.

The atomic icebreaker has lengthened the navigation season along the Northern Sea Route to 160 days. Many ships now make two trips a season, which means people who live in the Arctic regions are getting all the supplies they need.

The Northern Sea Route is an eternal struggle with the ice. Man pitted his courage against the ice and lost. Then he pitted his courage plus his technology against the ice and won.

ICEBREAKER CAPTAIN

BORIS SOKOLOV is the youngest of the icebreaker fleet captains. He was 34 when he took command of the *Lenin*. For three years he has worn the chevrons of the country's first such command and carried the responsibility for piloting the world's first and only atomic icebreaker.

Certainly one of the many qualities for which the Ministry of Merchant Marine appointed Sokolov captain of the icebreaker must have been his caution. Yet every voyage the *Lenin* makes calls for unexpected decisions and dangerous risks.

One time the atomic icebreaker was heading for Franz Josef Land to rescue the *Lena*, a diesel-powered vessel that was stuck in the ice. The *Lena* was carrying food and equipment for wintering parties on the archipelago.

Boris Sokolov is the 37-year-old captain of the Lenin, *the first atomic icebreaker in the world.*

Franz Josef Land is the last bit of soil on the way to the Pole. There are always several scientific expeditions wintering on those rocky islands.

Alexander Vetrov, captain of the *Lena* and an old Arctic hand, radioed that it was impossible to get through the ice along the shores of the archipelago, that the freight they were carrying would have to be dropped by helicopter. Asked if the *Lenin* could get through, Vetrov said he thought not.

But Sokolov decided to try. When the atomic icebreaker cautiously approached the *Lena*, a ladder was ready. An hour later a red helicopter took off shoreward. Discussion of the ice route continued in the air.

The two captains examined the ice. Pointing down to the hummocks and enormous greenish-gray mounds, Vetrov shook his head.

"Even your *Lenin* can't get through that armor of ice," he declared.

But the next day the *Lenin* began cutting a channel through the ice field. From a running start it plunged into the ice, shifting from low to high. The mighty ship trembled as it dashed against the ice. Only its atomic heart was steady.

Captain Sokolov stood at the wheel, picking the path his ship would take. Skill, as well as strength, is needed to break ice. Only to an inexperienced eye does all ice look alike. Even the biggest field has its weak spots.

Finally the *Lenin* stopped 1.7 miles from shore, its keel almost aground. The freight was trucked the rest of the way to shore.

When Captain Vetrov was asked how he, with his experience, had overestimated the solidity of the ice field, the tall gray-haired seaman shrugged his shoulders and said ruefully:

"I was wrong. But I wouldn't have risked it, even on an atomic icebreaker. Sokolov must see things I don't see when he looks at ice."

why are we PUSHING NORTHWARD?

When this issue reaches our subscribers and readers, the Twenty-third Congress of the Communist Party of the Soviet Union will be meeting in Moscow. It will be hearing reports from the Party's leading bodies and discussing and endorsing the Directives on the National Economic Development of the USSR for the Five-Year Period of 1966-1970. The new five-year plan will mark an important stage in our country's economic, scientific and cultural development and in its progress along the road to a new society.

In each issue we attempt to describe the process of communist construction and to show how life is being transformed in various parts of the Soviet Union—in the Ukraine, the Volga area, Siberia, the republics of the Caucasus and Central Asia. This month we transfer our readers to the Far North, beyond the Arctic Circle, where Soviet people have combined their efforts to awaken this land of white silence.

Below Nikolai Nekrasov, Corresponding Member of the USSR Academy of Sciences and prominent Soviet specialist on economic regions and long-range planning, discusses the development of these northern regions.

Why are we pushing northward into a land where there is a lack of everything—of heat, oxygen and light—and where life is so hard for people accustomed to a temperate climate? This is where we have built some of our largest industrial enterprises, hydroelectric power stations and seaports.

There are two reasons.

The first is people. There are scores of small national groups living in the North. When the Revolution took place, they were in a prehistoric stage of development. The combination of disease, starvation and exploitation by traders was killing off the local nationalities. To save these people we had to bring the whole modern way of life to them, root out the killing diseases and end the chronic poverty and inequality.

Among those who went north were doctors, teachers and engineers. With radio we were able to set up a regular communication system. Hundreds of millions of rubles and the effort of thousands of people went to develop the Northern Sea Route.

The government helped raise the living standards of the small national groups. They did not have to pay taxes, and high prices were set for their traditional handicraft products and the furs they trapped. To encourage them to change from a nomadic to a settled way of life, the state gave them a gift of three-fourths of the money needed to build a house.

Clinics and hospitals were built. Scores of planes were placed at the disposal of the local air ambulance service. All kinds of medical services were provided free of charge. As a result, the average life span of the northern people doubled and tripled.

The second reason is economic.

Our country's economic development was conditioned by the fact that the Soviet Union was the world's first socialist state. In the first years after the Revolution our enemies thought that we would not be able to maintain ourselves economically without foreign help and so they refused to sell us the things we needed.

Not even then, and certainly not now, could that stop our economic growth. We looked for and found what we needed in our own country. We explored the eight and a half million square miles of our territory and found everything we needed, including oil, gold, diamonds, aluminum, cobalt and uranium. And many of the things we found in the North and nowhere else.

We found our only deposit of apatite worth mining in the Khibiny Mountains. We found rich deposits of nickel, a basic element in the special grades of steel required for space research and other uses, on the Kola Peninsula and in Norilsk.

When, during the Second World War, the Donetsk coal basin was put out of commission for several years, we found excellent coal in the North, near Vorkuta.

The rich fishing grounds of the Arctic Ocean and North Atlantic are in the North. The Murmansk fishing flotilla brings in a quarter of the country's fish.

We have no regrets that we pushed northward.

AROUND the COUNTRY

LASER WORKING

A Soviet electronics plant has begun to mass produce a laser generator for high-quality television transmission and multichannel telephone communication over great distances. An electronic laser beam cuts through fog, snow, rain and sun. That has already been proved by experimental operation of the new generators in Moscow and Leningrad. In the not distant future a lattice of laser beams crisscrossing above our cities will augment the underground networks of communication cables.

Photo shows a telephone communication laser generator operating in Moscow.

YOUTH ORGANIZATIONS

The most popular youth organization in the USSR is the Young Communist League. Its functions are to build character and to involve young people in the construction of a communist society. The YCL has 22 million members 14 to 28 years old.

The Lenin Young Pioneer Organization has 20 million members. Its goals are to inspire children with a love for their country, desire for knowledge and respect for labor. Its members are 9 to 13 years old.

To make it easier for Soviet young people and those of other countries to learn about each other, the USSR Committee of Youth Organizations was set up in 1956. Its Student Council is affiliated with the International Students' Union. The council handles the tuition and recreation needs of the 30,000 young people from other countries who are studying in the Soviet Union.

The Sputnik Bureau of International Tourism organizes foreign trips for Soviet youth and takes care of the 30,000 young foreigners from 60 countries who visit our cities and rest camps yearly.

RUSSIAN SALMON IN AMERICA

A TU-104 plane recently took off from the Petropavlovsk-Kamchatsky airfield with an unusual load. In glass aquariums, 200,000 fish eggs were being flown to the United States. The incubated red salmon eggs from the Ushkovsky fish farm, the largest in the Far East, went to enrich the Pacific coastal waters of America. In exchange, 150,000 steelhead trout eggs from the United States were released in lakes in the Caucasus.

CHECKERS DUEL

In the USSR three million people play 100-square checkers. For several years now the world checkers title has gone to Soviet players.

Not long ago, in Tbilisi, ex-world champion Iser Kuperman, a Kiev engineer, and reigning world champion Vladimir Shchegolyov, a Moscow student, fought it out for the title. The rules of the World Checkers Federation required that they play 20 games. Kuperman got off to a good start and won in the first few games. Shchegolyov began to take wild chances and went down to a bad defeat.

FISH SAIL ON SHIPS

The first ship in the Soviet Union especially designed to transport live fish will ply between Astrakhan, on the Caspian Sea, and Moscow. The ship is an aquarium which can hold 30 tons of live fish. A set temperature is maintained in 10 compartments of the hold filled with water that is constantly replenished with oxygen. *Aquarium-1*—the name of the vessel—takes a week, at 11 miles per hour, to bring fresh fish from Astrakhan to the capital.

FOR THE CIRCUS

Forty new circuses are soon to be opened in the USSR. That means about 400 new acts and at least that many new artists.

For 30 years now the State Circus and Variety School has trained performers for the big ring, some 1,500 of them all told. In addition to circus skills, the students study the history of the theater and the circus, music and foreign languages.

POISON AND BREATHING

Physicians have known for a long time, or thought they did, what snake poison does to the human body. But only recently was it discovered that the venom affects the respiratory centers of the brain primarily. The victim of a lethal dose of snake poison dies from oxygen deficiency. Before arriving at this conclusion, researchers at the First Moscow Medical Institute did considerable testing on animals. They found that they were able to save the lives of animals that had been given lethal doses of poison by connecting an artificial respiration apparatus to their lungs. The doctors believe that the apparatus is not necessary for human victims, that a set of simple exercises will restore respiration.

BLANKETS OF BANKNOTES

The first Soviet coins were minted in Khorezm (Uzbekistan) in 1920, two years before the mint in Leningrad resumed operation, and were issued by the Council of People's Commissars of the Khorezm Soviet Republic. They were minted of copper in denominations of 20, 25, 100 and 50 rubles and were inscribed in Russian and Uzbek. This local money was withdrawn when the central government began to issue currency.

Khorezm banknotes, printed on pieces of silk, also appeared in 1920. Even now in Khorezm you come across owners of patchwork quilts made up of the silk banknotes.

NEW KIND OF SNAKE CATCHER

The gurza, one of the most poisonous snakes, has its habitat in the semi-deserts of Azerbaijan. To catch the gurza one should at least have a small stick handy.

A stickless member of one expedition encountered a gurza. With a gun which he was carrying he tried to press the snake's head to the ground. Suddenly the gurza vanished. It had taken the muzzle for a small burrow and squirmed inside. Back at camp the gurza was nudged out through the breech end of the barrel and caged in a more suitable place. A new way of catching snakes, maybe?

INTERNATIONAL FAMILY

In the Kirghizian town of Osh lives 73-year old Iminakhan Akhmetov. When he lost his two sons in the war, Akhmetov adopted 14 orphans. The eldest was six years old, the youngest eight months. By birth they are Russian, Jewish, Ukrainian, Kirghizian, Tatar and Uzbek. They are grown up now and have moved to various parts of the country where they work as chauffeurs, engineers, actors and in factories and offices. The seven daughters and six of the sons have married. The Akhmetovs now have 37 grandchildren.

200 SONGS IN 18 LANGUAGES

The youngest singer in the USSR is Irma Sokhadze. She is nine, lives in Tbilisi and is in the third grade of a music school for gifted children. With the permission of the Georgian Ministry of Education, she sings with the Rero Variety Orchestra. Irma has a strong and beautiful voice and a very unusual musical memory. She knows 200 songs in 18 languages. Her mother, a linguist, helps Irma. At three she began her singing career with the student orchestra of the Tbilisi Polytechnic Institute, where her father teaches.

SHIP SAILS ACROSS SNOW

The *Sormovich* is now our fastest river boat. It develops a speed of 75 miles per hour. It is a hovercraft equipped with aviation gas turbines and airscrews and designed to carry 50 passengers and a crew of two. The air pillow under the hull is produced by a powerful fan. The boat can travel over shallow water, ice, or snow with a frozen crust.

Built at the Krasnoye Sormovo Plant in Gorky, it makes rivermen's dreams of year-round navigation a fact.

GOLD TREASURE

A Leningrad construction worker was replacing the floor of the Gostiny Dvor Department Store when his pick struck something harder than dirt. He pried up a gold ingot the size of a small brick inscribed with numbers and letters in Russian. Seven more such "bricks" were found nearby, 282-pounds of gold all told. Who hid this treasure? Very likely the jeweler who owned the building before the Revolution.

MOUNTAIN-CLIMBING NOBEL PRIZE WINNER

Statistics say that of all sports academicians most prefer hiking, skiing and mountain climbing, the sports that bring them closer to nature. Academician Igor E. Tamm, well-known theoretical physicist and Nobel Prize winner, has been climbing for 40 of his 70 years. His first big summit, which he was among the first to scale, was Belukha in the Altai (14,848 feet). His Altai experience helped him to climb peaks in the Caucasus, then in the Pamirs and the Tien Shan, where he scaled Mount Nansen (19,685 feet high).

Tamm's son Yevgeni has consistently followed in his father's footsteps. He is also a physicist who, when he defended his thesis for the degree of Master of Science, was awarded a higher degree, Doctor of Science. In mountaineering Yevgeni has outstripped his father. He holds the title of Master of Sports and is a USSR champion.

A CHURCH MOVES TO SUZDAL

Monuments of ancient Russian architecture are scattered throughout the country, many of them in out-of-the-way places not readily accessible to the general public. The Ministry of Culture of the Russian Federation has decided to found several museums where the best examples will be assembled. They will be at Suzdal (Vladimir Region), Gorky, Novgorod, Arkhangelsk and another, the central museum of the group, near the Klyazma Reservoir, not far from Moscow. The photo shows a church from the Vladimir village of Glotovo, which has now been moved to Suzdal.

RADIO AMATEURS EXHIBIT

Radio amateur exhibitions are held in Moscow annually. The slogan of the last, the twenty-first, was "Radio Amateurs for Technical Progress." On display were 500 electronic instruments—radio and television sets, sound-recording equipment and measuring instruments—selected from 17,000 items shown at exhibitions in other cities.

One of the new instruments shown was a universal biorecorder designed by Professor Alexander Vishnevsky and electrician Gennadi Kokorev from Donetsk. It records six physiological parameters: pulse, blood pressure, temperature, cardiogram, cardiovascular activity and respiratory activity. Respiration can be recorded at a distance of 16 feet.

PASSENGERS UNDER THE FUSELAGE

A new helicopter has been designed by Mikhail Mil. The MI-10 is much more powerful than its predecessor, the MI-6, which holds 14 world records. The 11,000-horsepower turbines of the new aircraft can develop a speed of 217 miles per hour. During the tests it set an unofficial world record by lifting 25 metric tons to a height of 9,840 feet.

Its passenger compartment will accommodate 30 persons, and a specially designed container under the fuselage can lift 100 to 120 persons at a clip. However, the new helicopter is not meant to carry passengers primarily, it will be operating as a flying crane at construction sites.

WHO WAS CHASING WHOM?

This happened in the Carpathians. A sudden fog came up, and geologists Ivan Makuratura and Mikhail Khotko started back to camp; safety rules forbid working in fog. All of a sudden Mikhail, who was in front, yelled, "Bear!" and rushed to the side. Ivan rushed in the other direction. He saw someone climbing a tree. "Mikhail," he decided and climbed up too. The one in front said not a word, only his panting could be heard as he climbed higher and higher.

"Listen, that's high enough," yelled Ivan. "The bear has probably gone by now."

The reply was a wild roar, and the bear landed on the branch where Ivan was perched. The branch could not take their combined weight, broke, and Ivan landed on the bear's back. A second later both of them, both roaring, scattered in opposite directions.

AROUND *the* COUNTRY

SCANNING SPORTS WITH

WHAT are Santa Claus' reindeer doing this time of year? Any child here can give you the answer. They are competing at the Northern Games held near Murmansk early in April to bow out the winter sports season. The exciting program includes reindeer and dog sled racing, skiing and skating.

Who is there to ski and skate beyond the Arctic Circle?

Most people think that the nationalities loosely called Eskimos do nothing but hunt and fish and burrow in the snow and ice to keep warm. But in the capital of the Yamal-Nenets National Area, High School No. 3 has 50 hockey teams competing in tournament play. Also top-notch skiers and gymnasts.

The modern Eskimo is very sportsminded. Every community has its sports clubs and facilities, including gyms. The larger cities even have swimming pools. That doesn't seem to go with permafrost, does it?

These Northern Games are not local affairs—athletes from all over the country are invited.

I've been wondering about the future of these games now that the scientists predict a general warming up of the earth's clima e. They say we are coming to the end of the ice age and that the ice cap of the Arctic will melt. What about winter sports?

Strictly speaking, winter sports are beginning to have less and less to do with winter. I remember Moscow holding ski jump meets in August with artificial snow. Skiers and skaters find the synthetic product better than the natural. Furthermore, the way sports records are climbing the world over, the athlete who trains only when the snow is on the ground doesn't stand a chance.

Olympic stars train on artificial snow and even use midget skis on rollers. So when and if the ice age does end, we shall still be enjoying winter sports and listening to granddad's stories about the old days when there was still ice and snow.

The modern generation seems to be going in for motorized sports. Anything with a motor and speed catches on immediately. We've had the go-kart fad, aquatic motor sleds, motor bikes of all kinds and even soccer on motorcycle. The last, by the way, draws sizable crowds, and the feeling is that it may even develop into a major spectator sport.

An index of the popularity of motorized sports is the big turnout at the square facing the Exhibition of Economic Achievements in Moscow (a tourist "must"), where people take their test for motorcycle licenses. All ages take part, and the inspectors are busier than bees in a beehive on honey-making day. The tests are public affairs, and anybody can watch. A nice way to spend an afternoon.

The motorcycle racing season starts with a bevy of cross-country meets, the kind that keep moviegoers gasping during the newsreel. Our Victor Arbekov holds the world crown for the cross-country that takes contestants all through Europe in one of the most grueling rides man has yet devised for his own torture and pleasure.

Another sport gaining popularity is parachute jumping, or skydiving if you prefer. This seems to be the choice of the girls who think they don't have the physique to break world records in track and field. Skydiving brings them the thrill of competition and more feeling of superiority than perhaps any other sport. What's more, didn't Valentina Tereshkova prove that it's just one step from skydiving to space flying?

The network of air sports clubs covers virtually the entire country. Membership is open to all, with a choice of parachute jumping, gliding and flying. Parachute jumping seems to be especially popular with coeds and girls in industry. The sport is within everybody's reach, since there is no charge for the use of the equipment or the plane.

Flying also seems to be gripping the younger generation. Piloting ordinary piston-engined sports planes has grown too tame. Now the youngsters want speed. One of the speed set is Galina Korchuganova, an engineer at a Moscow factory. Her favorite is the YAK-32, a sports jet that holds the world speed record. This plane does not need a con-

VICTOR KUPRIANOV

crete air strip. It can take off and come down on an ordinary field. The YAK-32 is the only jet that flies upside down. It will be displayed at the world championships this summer, and we predict that sportsmen in other countries will want to own a model.

Coach Gavriil Korobkov has a problem on his hands. It's the girls this time. Although some two million of varying ages take part in track and field events, Korobkov predicts that record performances are going to be few and far between. The reason? The girls are willing to spend hours making themselves beautiful, but they will not spend anywhere near as many training. And with the standards as high as they are, the girl who is thinking of a record or a title must put in hours of training daily.

Lady coaches disagree with Korobkov. They say the fair sex can and will do both, and they'll prove it at Olympics time. Meanwhile they're all busy preparing for the major event of the season—the European championships in September. One of the girls who will be out for a record is 27-year-old hurdler Irina Press. She has her eye on the 80-meter event. At the end of last season she shaved 1/10 second off the previous world record held by Pamela Kilborn of Australia. She could and would have done better if not for a cold wind and soft track after a rain. Irina Press is all set for a new high—one possibility is at the USA-USSR match, the other at the European championship.

An interesting sidelight—she is now working for a degree in psychology. Her research topic is the psychological priming of athletes. She wants to have her study finished either this year or next so the Soviet team can benefit from her research to train a crack Olympic squad.

And while we're on the Olympic beat—Soviet coaches feel that Mexico City may present our distance runners with acclimatization problems. One solution is getting athletes used to training in conditions that approximate those in Mexico City. Various sites have been mentioned, and now Korobkov suggests that Armenia will be it. They've found a wonderful spot over 6,000 feet above sea level.

Simultaneously physiologists are examining other phases of the problem. They are still trying to figure out a proper training diet. One thing they have settled is how long an athlete should sleep: the answer is nine hours. Sleep less and you deprive the world of a potential record breaker.

Another new departure in track and field is a longer season. Last year it was eight months, the current season will be ten. Coaches believe that athletes should be in training virtually the year round. They are even trying to popularize running in the southern parts of the country, where you can train outdoors most of the year. Here in Moscow the long winters can upset hopes, since running in snow does not make for high speeds. All sorts of substitutes are being looked for, but until we can match American athletics in outdoor track possibilities, we can't hope to come out on top.

Our athletes have recently been blasting distance records. The coaches have an explanation and a training pattern for anyone who wants to get to the top. Start him off marathon running. Australian coach Lydiard does just that, and his distance runners have made history.

Fans who think that all you have to do to be a good runner is run and that all you have to do to become a good jumper is jump, are mistaken. The scientists have stepped in and taken over. For the implications see Coach Korobkov's very readable book *Behind the Headlines*. It answers such questions as: What next in athletics? Have we reached the ceiling? What makes an athlete bowl over records one week and lose all his meets the next?

Some fans are worried about science invading sports. What's going to happen to the element of chance, competition? How can you beat a computer? Korobkov's book answers that too, and he makes it clear that the main purpose of sports here is to grow a healthy generation and keep it that way. Sports and physical fitness go hand in hand.

"No one can become a Communist unless his mind has been enriched with a knowledge of all the treasures mankind has created."
Lenin

MIKHAIL LOMONOSOV (1711-1765)

BY ACADEMICIAN PYOTR KAPITSA

TO WRITE about Lomonosov is to peer into one of the great minds in the history of culture.

The greater the man, the sharper are his inner conflicts and the more contradictory the tasks life sets for him. The range of these contradictions is actually the measure of a man's genius. The contradictions in Lomonosov's own character, as well as those which his life engendered, were very sharp indeed.

I would like to dwell on one of these contradictions which, though generally recognized, has not been sufficiently explained. It has, I believe, important bearing for us today.

Lomonosov said on many occasions that his contributions as poet, reformer of the Russian language, historian, geologist and administrator were no great source of satisfaction, that he considered his main vocation to be science—physics and chemistry. Science should have been his vocation since he started working in the Academy of Sciences (1741) as a junior assistant in physics, and only four years later was made a professor of chemistry. Under these conditions it is reasonable to assume that a man of his genius should have made a major contribution to world science. But we know that nothing of the kind happened, much to the surprise of students of the history of science.

In their detailed histories of physics August Heller (1889) and Ferdinand Rosenberger (1882-1890) do not even mention Lomonosov's name. Ferdinand Hoefer, the nineteenth century French historian of chemistry, has only a few curious lines about Lomonosov in his work: "*Parmi les chimistes russes qui se sont fait connaître comme chimistes, nous citerons Michel Lomonosow, qu'il ne faut pas confondre avec le poète de ce nom.*" ("Among the Russian chemists who achieved fame, we should like to mention Mikhail Lomonosov, not to be confused with the poet of the same name.")

On the other hand, Alexander Pushkin in *The Voyage from Moscow to St. Petersburg* (1834) writes: "Lomonosov himself did not set store by his poetry and was much more concerned with his chemical experiments than with writing laudatory odes for the occasion of the royal birthday." Pushkin described Lomonosov as a great scientist, and the poet's wonderful words—"It would be truer to say that he was our first university"—have gone down in history. Thus, Lomonosov was regarded as a great scientist even by his contemporaries. Yet none of the people around him were able to cite what he had actually done for science and why they thought him a great scientist.

It is interesting to consider why the discoveries and achievements of Russian scientists of the time did not influence the development of world science to the degree that they should have.

Despite the fact that Russia in the eighteenth century was cut off from world science, Lomonosov concentrated his research on the most vital problems of the chemistry and physics of his day. He combined the qualities of thinker and experimenter. Very pertinent for us is his statement on the connection between theory and experiment: "Some theorists, without making any preliminary experiments, waste time fabricating useless and false theories and messing up the literature with them. . . ."

However, his contemporaries esteemed Lomonosov more for his poetry than his science. For one of his laudatory odes he received 2,000 rubles from the Empress, more than triple his 660 rubles a year salary at the Academy of Sciences.

The officialdom and the court had no understanding of his laboratory work. Lomonosov wrote this to Count Shuvalov in 1753: "I hope that I will be permitted to devote several hours a day to physical and chemical experiments instead of billiards."

In spite of unfavorable circumstances, his achievements were notable. He did basic research in various branches of physics. He studied matter in its liquid, solid and gaseous states. He developed the science of thermometry. With very precise mercury thermometers that he calibrated, he determined, for instance, the coefficient of expansion of gas in heating. Comparing his data with those of the present day, we find that his margin of error was only three per cent, 10 times more exact than the figures used at the time. To enumerate Lomonosov's many other achievements in experimental physics and chemistry would take too much time and space in this article, which has a different purpose.

His research in optics led to the development of more efficient optical instruments. One was the reflecting telescope he used in 1761 to observe the passage of Venus over the sun's disk, a rare phenomenon. The observations he made were a major contribution to science. Lomonosov noticed the deformation and the haziness of the edge of the disk of Venus and was the first to show that Venus has an atmosphere. It was not until 1882 (121 years later), when Venus passed across the sun's disk again, that astronomers made the discovery a second time.

Lomonosov's greatest contribution was his experimental proof of "the law of conservation of matter." In 1756 he showed that when lead plates were put into an air-tight vessel and heated, they became oxidized, but the weight of the vessel did not change. Lomonosov's experiment was similar to Lavoisier's, except that Lavoisier did his 17 years later. This discovery of one of the most fundamental laws of nature ranks Lomonosov with the greatest scientists of all time.

However, none of this research was known abroad, and most of it was unknown even in Russia until the twentieth century.

Why?

The primary reason seems to be that Lomonosov did not attach much importance to his discoveries and did not bother to publish his findings widely. Some biographers explain the lack of attention to Lomonosov's work by the fact that his ideas were too far ahead of his age. Others hold the opinion that he was not acclaimed as a scientist because he divorced himself too much from reality. I think all these suppositions are groundless, and Lomonosov's biography will bear me out.

In my opinion, the explanation should be sought in the conditions under which the country's science developed. The fact that a scientist makes a discovery is no guarantee that it will influence world thaught. Certain conditions within the country and contact with scientists abroad are also necessary. Without these conditions, even such research as Lomonosov's will not influence world developments.

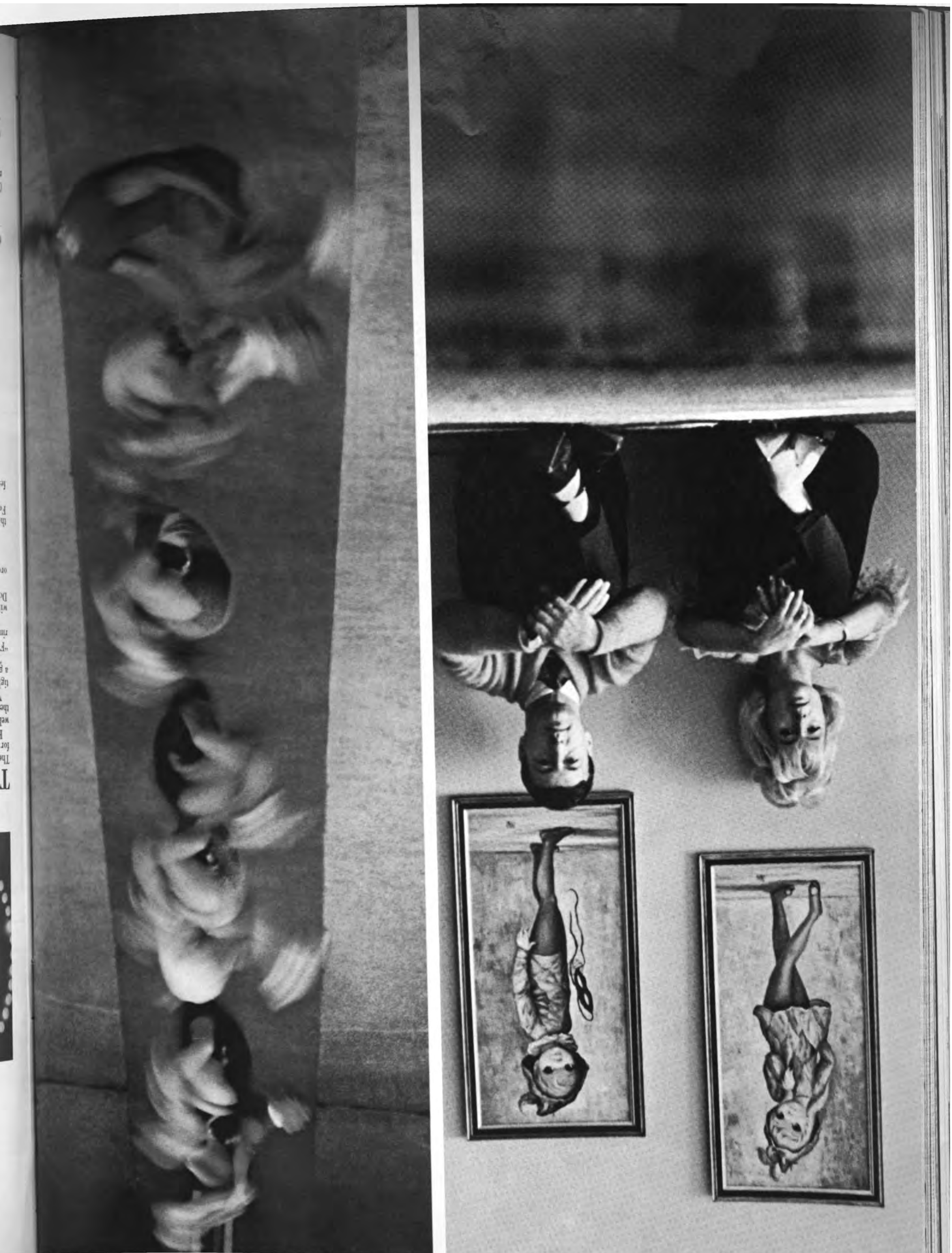
In Lomonosov's time there was considerable personal contact between scientists. Great Britain (the center of world science in the eighteenth century) attracted scholars from all over the world, among them Benjamin Franklin, whose work was as unique and unknown in America as Lomonosov's was in Russia. Franklin won fame as a scientist when he reported to the Royal Society in London on his research in electricity. In the same way Leeuwenhoek won recognition for his research on the microscope only after a trip to London.

Lomonosov's tragedy was isolation, the fact that he could not join the collective work of scientists abroad, that he had no opportunity to travel.

His great frustration was that he could give his experiments only a small part of his energy and time, not nearly enough to test all of his hypotheses. Had he had the proper conditions for experimental work—a large number of pupils, for instance—his life would have been different. With his extraordinary powers of imagination, he would probably have headed a big scientific school. But the Russia of those days did not have the preconditions for such a school. Russia's backwardness and its lack of scientists—these explain why Lomonosov had so little influence on the development of science in his country.

Despite all this, the peasant's son, thanks to his genius, deserves a place with mankind's great scientists.

Михайло Ломоносов



THREE SECONDS TO STARDOM

BY ALEXANDER MARYAMOV

THE ONE called Spirit of the Circus is a breathtaking stunt!" said Vladimir Doveyko. He ought to know. He was born in the circus. The 43-foot ring became his wheel of fortune, the wheel he set spinning for himself at the age of seven.

His grandfather was an animal tamer and must have gone over very well indeed, for he saved enough money to start his own circus and then frittered it away on a few years of high living.

Vladimir's grandmother was a juggler. His father not only walked a tightwire, but danced on it. His mother, a circus beauty, performed with a group of jugglers.

This day the Moscow Circus was featuring a new program titled "Friendship Rally." Traditionally enfrocked and grandiloquent, the ringmaster announced:

"The supreme achievement of world acrobats! A triple somersault with a pirouette! Performed by Merited Artist of the Republic Vladimir Doveyko!"

As the spotlight fell on Vladimir Doveyko, the conductor hushed his orchestra, and a quiet voice somewhere in the ring said, "Up!"

Doveyko in the Air

That is a signal pilots use. Acrobat Vladimir Doveyko was out of the ring from 1941 till 1946 when, as a junior lieutenant in the Air Force, he was fighting the fascists.

A circus artist's life is a fitful one. He is in the limelight for only a few seconds. The festive musical accompaniment is short-lived. The curtain shuts him away from the great spotlights and the applause, and he is left alone—sweating, tired and briefly gratified. The circus builds character, but a very special kind of character.

The stable smell pervades the great, empty auditorium during the day, but the ring hums with activity. People dressed in everyday clothes do their everyday work—rehearsing for that evening's performance. Circus performers are Spartans. They are jealous, demanding artists, fanatically so! Circus artist—that title sticks for a lifetime.

On the fuselage of his bomber Vladimir Doveyko painted a clown grinning from ear to ear, with a nose like a potato and eyebrows askew. "For Soviet Art!" read the slogan alongside. Even at the front Doveyko remained a circus artist.

In February last year the newspaper *Sovetskaya Kultura* ran an article on his wartime experience. The paper had finally tracked down the commander of the bomber with the clown's face painted on it mentioned in reports found in the archives of Goering's chancellery. The *Clown* had inflicted heavy damage on the fascists.

In Doveyko's family album is a snapshot, very amateurish, with the legend: "The crew of the *Clown* after bombing the Reichstag." A thin young man in oil-stained flying togs is smiling, his arms raised, as though returning the compliments of his audience after a thrilling stunt in the circus ring.

Doveyko, of course.

The conductor lowered his baton, and the quiet voice in the ring said, "Up!"

(Far left) Mr. and Mrs. Circus in person —Vladimir Doveyko and his wife Lydia.

(Left) Frozen dynamics, one critic calls this opener—eight backward somersaults.

(Right) No blur. It's Doveyko airborne. He's the only one who can do this stunt.

1

4. *Doveyko putting his son through the paces.*

5. *Each movement must have clocklike precision.*

6. *Hard work is the only way to perfection.*

7. *The audience's acclaim makes it worthwhile.*

5

2

4

6

7

1. *Vladimir Jr. is one of Doveyko's pupils.*

2. *It is an art that takes endless practice.*

3. *The team has worked together for 15 years.*

3

Finding Himself

Grandfather had wanted Vladimir to be an animal tamer like himself. He meant to make his grandson a gift of his experience and his animals.

"Grandpa had a heavy hand and a terrible temper," recalls Doveyko. "I'd never have dared to say No."

He did not have to, for grandfather died when he was seven, and grandmother was a gentler soul. The Chanyshev acrobats invited Vladimir to join them, and he began to practice his first stunt, a series of somersaults known as the Arabian wheel.

"We're working on this or that number!" say circus artists. They never talk of performing, only of working, for work is the substance of their hard and risky calling. All circus specialties are hard and risky. Where they differ is in the degree of risk. And Vladimir Doveyko chose one of the riskiest of all—accelerated acrobatics.

I found him in the make-up room, in a spangled costume. He was getting ready for his act.

"Tempo! Breath! Strength! And endless endurance!" He counted them off on his fingers. "To this add a very practiced eye, good taste, a dash of art and a little daring!"

Those are the ingredients of his act, and of circus performing in general.

Now he was out in the ring.

A girl perched high on the steps of one of the aisles stared open-mouthed. An old man, wrinkled, distinguished looking, leaned forward, his knotted fingers drumming the back of the seat below him as he breathed down the neck of its occupant, a circus fan as popeyed as himself. A heavy-set man in an officer's uniform kept shaking his head in wonderment. A little boy beside him murmured, "Wow!"

The tension lasted only as long as Doveyko took to do his stunt—eight and a half minutes. But it remains fixed in one's memory, a happy meeting with a great artist.

A group of jumpers taking off from springboards under Vladimir Doveyko's guidance has been bringing down the house evening after evening. Their dizzy exercise proceeds to the sharp, swift, precise beat of Khachaturyan's "Saber Dance."

Doveyko found himself as an acrobat 17 years ago when he was demobilized from the Air Force after having astonished the command with a cascade of circus stunts. Nothing would do for him but to return to the circus ring. He had already performed with a vaulting group and done eccentric acrobatics and comic juggling. This was a new specialty.

Nine motley balls of humanity flying back and forth across a carpet is the vision presented to the audience by this astonishing group. The green, blue and red costumes freeze suddenly as the curtain parts to precipitate a man in flashing white. Catapulted from his springboard, he makes a couple of somersaults and . . .

"Up!" calls the voice from the darkened ring as the conductor lowers his baton.

What He Can Do

The circus teaches its fledgelings many skills. Every artist, as a rule, is letter perfect in several specialties and knows a lot about many more. Vladimir Doveyko had plenty of willing teachers when he was a boy. They were glad to spend their time with this youngster growing up in the ring. Thanks to them, he learned the secrets of clowning, became a skillful juggler, and got used to handling wild animals. His uncle Kasim Ponukalin, who still works with a group of jugglers, taught him acrobatics. Now Vladimir Doveyko is himself a "professor of acrobatics" and teaches young artists—his partners, students of the circus school and his own son, also called Vladimir (names are handed down in circus families).

There is a tatooed propeller on his left arm, a memento of the war. When he does a somersault, the propeller turns with him. Doveyko is still in the air. Remaining aloft like that year after year is not easy; it takes imagination, skill, strength and great devotion.

At New Year's Eve performances Vladimir Doveyko plays Grandfather Frost. He also plays the lead in an equestrian program. Many of the circus parades begin with his verse recitations. He creates all the acts for his acrobatic team, a group of artists who have been working together for 15 years. His most recent creation is a number called "Acrobats on Wheels," in which his wife Lydia Dovidovich appears with the Zamotkin team (husband and wife). He is now working on an attraction full of tricks for young comic acrobats and practices with them daily after regular training hours, shortly before the evening performance.

The circus never palls on Doveyko. It is his life and love.

His group has performed in many countries—the United States, France, Canada, the German Democratic Republic, Belgium, Hungary, Japan, Luxembourg, Cuba, Australia and, of course, the Soviet Union—always to applause.

Down came the conductor's baton as the voice from the ring called, "Up!"

The springboard hurled him into the air like a white arrow. He seemed to hover for an instant at the top of the arch in a smooth pirouette. Then came three somersaults and a graceful landing on the carpet. The whole thing took three seconds.

An ovation to Doveyko thundered from the house. No one else in the circus can do that stunt.

There are no spotlights, crowds, applause when Mom, Dad and son leave the circus late at night.

THINGS CULTURAL

By Natalia Chulaki

FLATS + SHARPS

The Bolshoi Theater's glowing new production of Benjamin Britten's opera **A Midsummer Night's Dream**, with "enchanted forest" sets by Nicolai Benois of La Scala, Milan, brought a new operatic style to delighted Moscow audiences early this season.

The magic of designer Benois' décor combines well with Shakespeare in Russian, the sparkling, rather astringent Britten score, and the big (truly Bolshoi!) voices of the principals. But this surprise package contains elements so unaccustomed as to be startling. The polyphonic—and totally charming—children's choruses, tenderly written for their pure, clear timbre with the same uncloying harmonies as in the more complex adult parts, were acclaimed immediately and unconditionally.

Galina Oleinichenko was a silvery-voiced Titania. Her soaring coloratura and fairy-queen grace, together with the contralto of Oberon, sung by Elena Obraztsova, and their retinue of solemn little fairies, contributed to the delicate mood of these scenes. The disposition of the singers on, above, and in front of the stage (up hill, down dale, and in the trees) was, though unusual, most happy.

This brings us to Puck, a wiry, saucy pixie from the Moscow circus who spends more time in the air than on the ground, yet is at least half-earthling, or perhaps even goblin, compared with the child fairies, flowers, butterflies, et al. Where others, as in the third act, sing with an occasional spoken line, Puck speaks only—something that is hard for the traditionalists to accept.

Another point of controversy is the Shakespearian clowning of Bottom and his colleagues: low comedy at the opera! Interesting, and the audience loved it! And lastly, the score itself. Although in the fairy scenes the melodies flow easily and gracefully and the harmonies are more often consonant than otherwise, all the mortals, including both pairs of mixed-up lovers and all the courtiers and artisans, that is, the entire human contingent of the play, in addition to singing, also tootle, whoop, bray and bawl (but never twitter or whine), and oppose each other and the orchestra in the most pungent dissonances.

What does this add up to? All in all, the opera is bracing, provocative, altogether refreshing, a most desirable addition to the Bolshoi repertoire!

Tchaikovsky's ballet **Swan Lake** had its 1000th performance at the Bolshoi Theater, with Maya Plisetskaya as Odette-Odille.

Fifty talented Tajiks, most of whom have been dancing from early childhood, turned "pro" this year as their folk-dance group officially became the National Folk Dance Company of Tajikistan, a mountain republic in Central Asia. The oldest performer is 20.

The famous Soviet Army Song and Dance Ensemble gave a gala performance at Moscow's Tchaikovsky Hall, at which Colonel Boris Alexandrov, director, conductor and composer of many songs for the group, was feted. It was his sixtieth birthday.

David Oistrakh, whose golden tone is immediately recognizable to lovers of violin music everywhere, is master of a supremely expressive range of color, from the pale, flutelike timbre of certain fast runs, to a sound superbly warm, rich and deep, as exciting as a full-throated human voice. Oistrakh's performance of the Beethoven Violin Concerto at the Moscow Conservatory with the Moscow Philharmonic Orchestra, Kirill Kondrashin conducting, (also telecast), demonstrated his power to bewitch in a hundred different ways. The second movement was particularly moving, a throbbing tension relieved by a deep sense of peace and resolving itself in the emotionally clear and free Rondo of the finale.

A performance to be remembered!

To play Paganini's own violin—what wouldn't a young musician give for an opportunity like that? Three who did have this opportunity were Victor Pikaizen, Philip Hirshhorn and Andrei Korsakov, all young violinists from the Soviet Union in this year's Genoa International Paganini Contest. With a stiff compulsory program that included Bach, Mozart, Gemianini, Bloch, and Paganini himself, all three reached the finals—and won! First, second, and third prize respectively, in the order mentioned. Then first-prize winner Victor Pikaizen was led to the violin, kept by the Genoese in a special Paganini reliquary.

On his return home, after playing in Genoa and Rome, he said: ". . . It was tough going, the program was difficult, and our competitors very strong . . . But do you know, I had my worst attack of stage fright when they gave me that violin to play!"

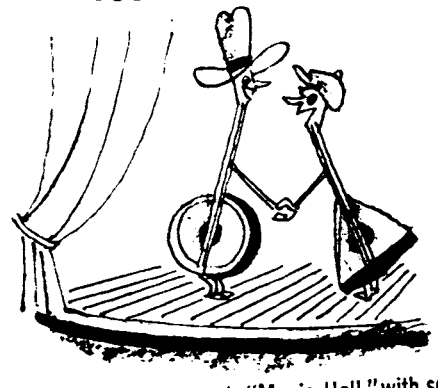
Andrei Volkonsky and a new chamber group made their debut here this winter with a series of concerts devoted to music of the Renaissance. A composer in his own right, Volkonsky plays the harpsichord and organ, and leads the small ensemble of vocalists, accompanied by himself and a viola da gamba, in works by Monteverdi, Palestrina, Josquin Des Prés, and other early composers of Italy, France, England, Flanders, Germany, and Spain. In a visit to Poland last fall, they took part in the International Festival of Madrigalists. They are still nameless as a group but may decide simply on "Madrigal."

A monument to the Ukrainian composer Nikolai Lysenko (1842-1912) was unveiled in Kiev on December 29. It has been erected in one of the most beautiful districts of the city—on Teatralnaya Square, opposite the Shevchenko Academic Opera and Ballet Theater.

The monument is the work of Alexander Kovalev and Vasili Gnezdilov. It is in bronze on a gray granite base and inscribed in gold.

Unveiling the monument, Mr. Vladimir Shcherbitsky, Prime Minister of the Ukraine, spoke of Lysenko's leading role in the development of Ukrainian music and recalled that he was the composer of the operas **Natalka-Poltavka** and **Taras Bulba;** numerous vocal pieces; chamber, instrumental, violin and piano music, and the classical orchestration of folk melodies.

TOURS + EXHIBITS



Havana-Paris-Leningrad. "Music Hall," with some of Cuba's most popular entertainers, has come to the Soviet Union. Following a run at the Paris Olympia, the show, featuring Celesta Mendoza and other "simpatico" singers, arrived in Leningrad, where they were greeted with much enthusiasm. Next stop—Moscow.

In another of his one-man hootenannies, Pete Seeger, known to Soviet listeners from recordings, as well as from last year's visit, made thousands of new friends overnight. Few, especially the young, or the young in spirit, can resist the terrific wave of friendliness that overflows into the hall with the twang of his guitar and the

plunk of his banjo. American folk singing at its best! (See article on page 52.)

Peruvian art has come to Friendship House via the Peru-USSR Cultural Society. Articles of stone, wood and ceramics, textiles, musical instruments and paintings are on display. Some, dating back to the Inca civilization, are a thousand years old. Up-to-the-minute photos and literature fill out the show.

A great exhibition of toys, past, present and future, to give both parent and child visitors things to dream about! A rare collection of Russian toys dating from the eighteenth century includes items that were apparently "mass-produced" and those lovingly hand-made, perhaps for the maker's own small children. Most interesting are those that give us an insight into the everyday life of the time and those distinguished by originality or fine workmanship.

Wooden and ceramic figures of coachmen, cooks, army officers, farmers, all with the paraphernalia of their trade, must have seemed a nice change from the timeless baby doll (though such dolls and others elaborately dressed like the ladies of the period are there in full force). Some of the intricately designed games and toys with moving parts, as well as model coaches, trains, etc., drew large crowds—you guessed it—mostly grown-up.

Present-day toys include the usual appealing collection of dolls and fuzzy animals, arranged diorama fashion for the amusement of the youngest visitors, plus every imaginable variety of construction set and educational toy equipment for the home acrobat, scooters, bicycles, tricycles, horses, the works! There are toys for the future also, projects approved by the Experimental Institute for Toys and improved versions of existing toys.

An exhibition of the life and work of the Russian poet Sergei Yesenin, who would have been 71 this year, is now open at the Literary Museum in Moscow. Autobiographical material includes a description of his visit to the United States in the 1920's.

MOVIES

Alma-Ata, capital of Kazakhstan, played host to movie makers from the Central Asian republics of Uzbekistan, Tajikistan, Kirghizia, Turkmenia, as well as its own, Kazakhstan. At this fourth Central Asian film festival, there were, besides full-length feature films, a number of documentary and popular science features and films for television. Two marble plaques at the entrance to the theater reminded those who went in that this was where Sergei Eisenstein and Vsevolod Pudovkin, pioneer Soviet film directors, worked when their studio was evacuated to Kazakhstan during the war.

Opening Night, a new documentary from Leningrad, is literally the story "behind the scenes." When Chekhov's **Three Sisters** was staged at a Leningrad theater, the movie camera relentlessly pursued actors, understudies, designer, director, everyone involved in putting on the play. Rehearsals, conferences, final histrionics, it's all there now—in black and white!

The Armenian painter of the sun and what it means to him and his country—that is Martiros Saryan. "Look with your eyes, but paint with your heart!" says he. And he uses both to capacity. A new film soon to be released is **Martiros Saryan,** starring the painter and his pictures. The text was written by Ilya Ehrenburg.

BOOKS . . . BOOKS . . .

Though **The Three Bears** and **Cinderella** are by no means "passé," occupying a place of honor on the little one's book shelf, the number of really good children's books published right here and now is amazing. So say the educators who come here to see, and so say the kids who read them. As for pictures, well, just let the show at the huge Artists' House Gallery in downtown Moscow speak for itself.

Yevgeni Rachov, Vladimir Lebedev, Vladimir Konashevich, Yuri Vasnatsov, Yevgeni Charushin, Aminotar Kanevsky, Konstantin Rotov—these are the great names in the field of book illustration for the youngest. Then, of course, there are those artists who specialize in books for older children, many of which overlap artistically into adult book illustration. Yet what can replace inspiration when it comes to the little ones?

Animals, animals on all sides, and boys, and girls, and houses, and cakes, and Mammas, and sunshine, and whatever not! But why do the grownups linger? Because it is art and absolutely fascinating! And the young'uns? Because they can't tear themselves away.

A new translation of the **Rubaiyat** of Omar Khayyam has appeared in the Soviet Union. It is the work of poet Vladimir Derzhavin.

A collection of stories by Israeli prose writers was published in Moscow by the Progress Publishing House. The 324-page book contains works by 24 writers, including Bar Iosef, Yehuda Burl, Mordecai Avi Shaul, Moshe Shamir, Chaim Hazas and Havi Slutska Kestin.

The foreword and short biographical notes about each author were written by Aaron Vergelis, the editor of the Yiddish magazine **Sovetish Heimland.**

Vilsker Shumsky and Avram Belov translated the stories from Hebrew and Yiddish into Russian.

The book gives the public a good idea of modern Israeli prose.

Moscow University began publication of a new bimonthly magazine, **Philosophy,** in January. Among its permanent features are sections for "Philosophical Notes," "New Problems," and "Philosopher's Tribune."

The magazine's purpose is to discuss major problems of dialectical and historical materialism, the theory of scientific communism, philosophical problems of natural sciences, esthetics, and the history of philosophy.

Great attention will be paid to philosophy abroad and reports about research by foreign philosophers.

HOMAGE TO THE PAST

Novgorod . . . Pskov . . . Rostov . . . Vladimir . . . Moscow . . . names with the fascination of living history!

Russian architecture of the remote past—churches, monasteries, fortresses, a few other structures—has come down to us much mellowed by time. Stone and wood over the centuries have been weathered and worn, and the buildings seem slowly to have grown into the landscape. Take, for example, the lyrical mood of some small churches set against a pale sky and the mild, rolling pasturelands of the North. Yet familiar as these old edifices are, their great age combined with the rare beauty of not a few has the power to bring back the past, of history and of story book, and with it a haunting nostalgia.

An exhibition of paintings portraying these monuments of a culture half-forgotten yet somehow very dear—old Russian architecture in the midst of its natural surroundings—recently opened in Moscow.

The proud majesty of eleventh century Novgorod, arching, whitewashed stone façades, churches that are still medieval castles . . . The churches of Pskov, "younger brother" to Novgorod, so much warmer and friendlier in style, with staircases on both sides, like a mother's spreading skirts . . . The splendid, massive, heavily carved yet elegant structures of Vladimir in the late twelfth century . . . The loveliest of pure and lovely jewels—the Church of the Intercession, its white walls and single golden dome reflected in the quiet waters of the Nerl . . . And Moscow, the sixteenth century. The fantastic conglomeration of onion domes, spires, bosses, crosses, carving like wood but in stone, and all blazing color—that is St. Basil's Cathedral in Red Square—an architect's most extravagant dream come true!

This exhibition of pictures of buildings has been widely discussed, and in view of the rising campaign to save—and restore—masterpieces of ancient architecture in town and country, a traveling show seems to be indicated.

Inaccuracy in the description of one of the personages portrayed in Leo Tolstoy's books has been discovered by Moscow sculptor and anthropologist Mikhail Gerasimov, who is widely known for his reproductions of the appearance of Prince Yaroslav the Wise of Kiev and Ivan the Terrible. Gerasimov has just completed another work—a portrait of the Caucasian leader Hadji Murad and hero of Tolstoy's story of the same name.

"He had only one special feature," Tolstoy wrote, "his widely spaced eyes." But in point of fact it was not so. Gerasimov has created Hadji Murad's sculptural portrait by studying his skull, which has been kept at the Leningrad Academy of Military Medicine for over 100 years. The skull bore traces of saber wounds which had been inflicted several years before Hadji Murad's death. However, the character of the mortal wound suffered by Hadji Murad fully coincides with Tolstoy's description.

Pete Seeger first toured the Soviet Union in the spring of 1964. He gave concerts in Moscow, Leningrad, Kiev, Yalta, Simferopol, Tbilisi—all in the European part of the USSR. Pete was virtually unknown here then. He made a tremendous hit and had Russian audiences singing along with him.

On his second visit, in October 1965, he sang in Alma-Ata, Tashkent, Frunze, Ashkhabad, Baku and Moscow. There were several radio broadcasts about him, and people who had heard Pete on his first tour talked him up. Moscow's Tchaikovsky Hall was sold out the same day tickets went on sale.

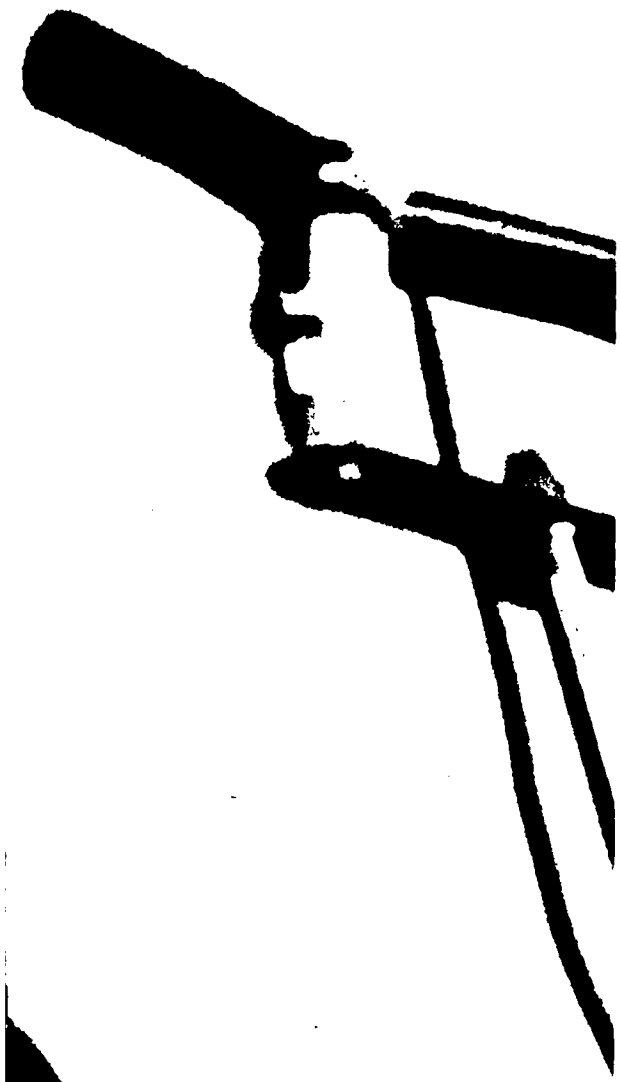
Here are two quotes from letters that came in to Radio Moscow after one broadcast:

"I didn't know I was living until I heard Pete Seeger sing."
Galina Popova,
Schoolteacher, Sverdlovsk.

"I was running a high fever. I was mad at the world. All of a sudden I hear this music coming over the radio. 'Turn it up,' I snarl at my wife. She does. I listen a little, then I smile at her and say, 'O.K., you can give me my nose drops now.' Then I get out of bed, and even my mother-in-law risks talking to me. By the time the program is over I feel great. Let me give all M.D.'s a piece of advice: the best way to cure the flu is to let people listen to Pete Seeger."
Yuri Konoplev, Moscow

At 8:30 a.m. on a Sunday in Moscow's swanky Ukraina Hotel, Pete and Toshi Seeger were serenaded by five Russian students. Belting out a potent rhythm on a guitar, they sang "Michael, Row the Boat Ashore," "If I Had a Hammer," "I Was Born in East Virginia," "Where Have All the Flowers Gone" and a host of others. The hotel management smiled—as did many of the guests who were awakened from their Sunday morning sleep. They poked inquisitive heads out of doors and stayed to listen to this demonstration of friendship and admiration.

On October 25 at 3:30 P.M. a *Soviet Life* reporter managed to corner Pete on the eve of his departure from the Soviet Union. In spite of the fact that he had been badgered for the whole month of his stay by news reporters, TV and radio commentators and cameramen, he was most cordial and gave our reporter his impressions. Here they are, word for word:



PETE SEEGER'S TOUR

HERE I AM sitting in the Ukraina Hotel, Moscow, on this October 25, 1965, and hoping that I can form sentences clearly that make sense. I'd like to put down my impressions of the USSR after having visited it with my wife for three weeks this year and last year with the whole family for four or five weeks. And I hope, perhaps, these observations will be of interest, because every time you have a juxtaposition of things that aren't usually juxtaposed, new ideas come from it. That was one of the things that Sergei Eisenstein said: The juxtaposition of two film shots represents a new idea.

So here we are, two Americans from the biggest and richest capitalist country in the world visiting a country still bigger, geographically, still bigger in numbers of people, but far younger in many ways. Well, I'll give what impressions I can. Of course, you who read this may learn more about me than about the Soviet Union because, naturally, my own prejudices come into it. So let me tell you who I am first, so you know how many grains of salt to take with whatever I say. I think that's really the most honest thing. Nobody in this world can be objective, so the most honest thing to do is admit what your prejudices are, and then the listener or reader can discount them.

I've all my life felt friendly to the idea basic to this country's economy, that is, that you could create a society without having to have a class of rich people to run it. On the other hand, of course, certain things may seem strange to me because, perhaps, I see them from the viewpoint of an American who lives a relatively comfortable life with plenty of food and money in his pocket to buy anything necessary, living near New York with its multitude of stores chock-full of things to buy—if you have the money. These things must be taken into consideration. Also, remember we've only been in the Soviet Union for a few weeks, and you couldn't possibly get more than a glimpse of it in that time. You know the story of the seven blind men and the elephant. The old story is just as true now as it ever was.

The king received a message that a sea captain had landed on the coast with a strange animal called an elephant. So he called his seven wise men and said: "Oh seven wise men, go down to the seaport and report to me what manner of beast this elephant is. The seven wise men got into the king's carriages, clip-clop, clip-clop, clip-clop, and they went to the ship. But they'd been reading books so damn long they were blind as bats. When they got there, one felt the legs of the elephant. He said "hmmmmmm." Another one felt the side. He said "hmmmmm." Another one felt the ear . . . "hmmmmm." Another one felt the tusk, another one felt the trunk, another one pulled on the tail—bad luck for him. Well, they all got into the carriages and went back to the palace. They bowed low and said: "Your Majesty, we have come to report." The first began and said: "Your Majesty, this elephant is very much like the trunk of a tree." Another one said "Why, you're very much mistaken. I felt it myself. It's like the side of a building." The third started screaming, "Why you're both crazy! I felt it—it's like the large leaf of a plant." The next one said, "No, it's like a smooth spear!", another one said "No, it's like a huge snake!" Now they were all shouting, and the last one screamed at the top of his lungs: "No, it's like a rope that hangs down from heaven, and you pull on it and the whole heavens open up."

The moral of the story, of course, is that the truth is many-sided. And you can't jump to conclusions. And I often feel like one of the seven blind men when I visit a country for only a few weeks and somebody asks me what it's like. After all, I know only a few sides of it.

Well, what we did see was very interesting. We saw huge modern cities way out in the middle of Asia—we hadn't expected to see that. The landscape out there is very much like our Rocky Mountain region. If I'd closed my eyes, blinked a couple of times and looked at the hills, I would have thought I was out in Utah, or Nevada, or parts of California. We were very pleased, both of us, to see Asian and European people living side by side with their own ways of life. Side by side. Their own languages, own ways of dressing, eating and many other customs which, I'm sure, are quite different. We saw children walking the streets hand in hand in totally different costumes, just like their fathers and mothers, with no thought of self-consciousness, and this I think, is wonderful. In my own country I've often wished that people did not feel self-conscious about having some way of dressing a little bit different from the European way. But if the average American Indian were to leave his home, say, a Navaho from Arizona, and come to the big city, he'd feel very out of place if he still had on his blanket and his beads and bracelets. People would turn and stare at him and say, "Why doesn't he put on clothes like a civilized person is supposed to?" So what I saw in the Asian republics of the USSR was a great satisfaction to me. I think it proves that Kipling was wrong when he said "East is East and West is West and never the twain shall meet." He was wrong, it's not true, they can meet. And let's hope that in the world to come they'll be meeting more and more.

I was surprised by the bright-colored clothing that Soviet people wore. In America I was often told that Russia is a drab country, that everybody dresses in browns and blacks because they're scared of wearing anything bright. Walking down the average Soviet street, you see the brightest colors you ever saw: reds, yellows, greens, blues, purples, pinks, sometimes all on top of each other. We saw a young man in the Frunze airport with a green hat, purple jacket, and a red suitcase —bright, all of 'em, bright.

Now it's perfectly true that the average Soviet citizen can't, as yet, afford the many luxuries the average American can. The average food on their tables is not as fancy. So I was happy to note that even though Russia doesn't have the stores overflowing with different commodities that American cities have, neither does it have the slums. This is impor-

tant to me because, while I love my own country, I must confess that there's not a city I can go to where, in parts of the town, the streets are not littered with trash, the houses are unpainted and dilapidated, and the people live with a sense of demoralization and lack of hope because they think there's no chance for them to ever get ahead.

I was amazed at the number of bookstores everywhere. My gosh, it sure is a book-reading country. I was startled by the huge editions that are printed. John Cheever, whose novels in the states have probably sold no more than around 100,000 copies, was translated into Russian—the minimum edition, 100,000 copies. Yes, it's a book-reading country, and I hope it stays that way, because no matter how fine TV, radio and movies are, books are such a flexible medium of communication. You can read a book slowly or fast, you can come to a page you want to stay on, you can read it over and over again, or, if you're bored, you can skip a few pages. That's just not possible with movies or TV. Of course, you can overdo book reading, too, but that's another question.

Well, I hear somebody saying "Hey, so far you've been telling us what you like about the country. What don't you like?"

It's true, there are dark sides as well as bright ones. My guess is, though, that whatever the dark sides I see, they're probably the same the Russians see. For instance, the lack, as yet, of enough money to do all the things one wants to do. Perhaps the lack of freedom to travel abroad one would like to have—many things that are obvious to most people without my naming them. Let me instead describe how my wife and I built our own house 16 years ago and the problems that we tried to solve—perhaps in some way this may be parallel to the problems Russians have in their own huge country, problems that they too have faced and tried to solve.

Sixteen years ago my wife and I were very broke. But we wanted to move out of New York City. We both had been born and raised in the country, and we wanted our children to be born in the country. I was a musician. I didn't have an eight-hour day job, so I really didn't have to be right in the city. I could live where I could drive in once every few days, once every week or two, but I didn't have to live in the city. So we looked around, but every time we saw a house that was up for sale, we'd find it was too expensive: 5,000 dollars, 10,000 dollars or more, even for an old house. Once we found an old barn, it was a wreck—but 3,000 dollars. . . . We didn't have it.

We borrowed some money from relatives and bought a little land. Just a bunch of trees and rocks on the side of a hill. I was young and strong, and I chopped down the trees and built a cabin, a log cabin very similar to what Russian log cabins are, although not as pretty, not with those lovely little designs over the windows. It was one big room, and we and our children squeezed into it. There was our kitchen, living room, dining room, our desks with books, our beds—one thing on top of the other—closets, chairs, everything. But we squeezed in and, because we built it ourselves, didn't owe anybody. You see, both of us knew friends who had wanted a house of their own, and they had borrowed money from the bank for it. And somehow they've never gotten out of debt. They seem to pay all their lives—20, 30, 40 years later they're still paying, paying, paying, paying, paying the bank because they borrowed in the beginning. And we did not want to do that.

So, though our house was small and very crowded, at least we weren't paying for it. We're grateful for that, glad we did it that way—on our own, not depending on anybody. Of course, because I wasn't very expert, to say the least, at building a house, the corners weren't square, the floors weren't level, and the roof leaked. Whenever it rained, I was going around with pails under different places—drip, drip, drip, drip through the roof. Nevertheless, it was a house, and we were in it. We didn't have enough money to put paving stones outside, so every time we walked into the house we tracked mud all over the place. Mud, mud. Every spring and every fall. But that wasn't the biggest mistake we made. This was a normal mistake to make—building a house where the corners weren't square and the floors weren't level.

But a few years later we got some money and we thought, "Now let's fix up our house. We want it to be a little more stylish." We looked in the magazines and we saw that just the thing, just the stylish thing, was these new aluminum windows—you turn the crank and they open up. They looked so fancy we thought, "That's just what we're going to get." So we bought one, tore out the old window and put the new one in. And for a year we were very proud of it. We thought we were real stylish. But, you know, that was one of the biggest mistakes we made. Oscar Wilde was the person who said there's nothing so ugly as fashion. He said fashion is a form of ugliness that has to be changed once every few months because it's so unbearable. No, we had not made our house any more beautiful with that aluminum window. We just tried to make it more fashionable, and instead it was kind of silly, it didn't fit in. That aluminum didn't fit in with our nice log cabin. Yes, it was a mistake. Some of the furniture also didn't fit in.

Now, years later, I think we've learned a little bit better, and we realize that some of our old American traditions of building with wood are still about as beautiful as anything can be. So when we added a new room to make the house a little bigger, we added it in such a way that it harmonized. And now we have enough money for paving stones, and don't track mud in on the floor all the time. We've got a little more room, we're not living all on top of each other.

I don't know if this parallel really means very much in describing the darker side of the Soviet Union—a house is no way near as complicated as a country. But maybe it does have some parallels.

Probably the best things I've seen in the Soviet Union are the things that have truly been developed on their own. Some of the less good things are, I think, imitations. Like, say, the design of cars. The same thing probably goes for other parts of the country's life.

Well, I'll close this little attempted discourse with something that I talked about with a young lady interpreter the other day. I've been giving concerts here with the help of a film projector to flash the words on a screen while I'm singing so the audience can understand a little more of the meaning of the songs without having to pause for a translation. Now, the projector was an idea I worked up myself, but there are some details that didn't work out quite right. The lens did not stay quite in focus, the picture wasn't bright enough. I said to this young lady, "The basic principles of the machine are good, but there are still some bugs in it." She said "Bugs? What do you mean?" I said: "Well, that's an American term we use. Whenever you invent a machine, there are a lot of little details that may not work quite right. The basic principles of the machine are good, but little parts don't fit together. All the little details have to be worked out. Supposing you have a new model car that comes out. When it's just off the assembly line, it's liable to have lots of bugs in it. You better iron out the bugs—the doors may not close right, something may fall off."

She said, "Could this be true of a social system as well as of a machine?"

I said, "Yea, yea, you're right."

QUERIES FROM READERS

FIRST AUTOMATIC STATION ON THE MOON

After the successful landing of the Luna 9 on the moon on February 3, we received many requests from our readers for a description of how the flight was directed and calculated.

On January 31, 1966, the Soviet Union launched the automatic scientific station Luna 9. That day was selected because it was when the morning of the four-week lunar day would begin in the area of the Ocean of Storms, and the lunar morning would provide the most favorable temperature conditions for the automatic station's radio and television equipment. On February 3, when the first successful soft landing on the moon was made, the sun was over the lunar horizon at an angle of approximately three degrees.

The beginning of the morning in the area of the Ocean of Storms coincided with a comparatively high position of the moon over the plane of the terrestrial equator. This meant that there would be sufficiently long intervals of direct radio vision of the moon from Soviet territory.

Luna 9 consists of three main components:

1. the automatic station proper to be landed on the moon's surface gently enough to ensure 100 per cent serviceability of the equipment;

2. a power unit for correcting the trajectory and decelerating upon approaching the moon;

3. compartments housing the flight control apparatus.

The part of the control equipment not used during the period of deceleration is housed in two outboard compartments which are jettisoned just before starting the retrorockets.

Luna 9 is a hermetically sealed capsule with a radio system, time-programming device, thermoregulation system, research instruments and power supplies. The station also has a television system ensuring an all-round survey for the transmission of pictures of the lunar surface to earth.

Installed on the station's body are an aerial, which unfolds automatically after the lunar station lands, a shock-absorbing system to cushion the blow at the moment of landing, and metal "petals" to protect the television device from possible damage during landing and to help the station stand more firmly on the moon.

The engine unit consists of a jet engine with a fuel-pumping system, piloting instruments for stabilizing the flight when the engine is working, and fuel tanks.

The piloting compartments have a set of gyroscope and piloting instruments, electronic-optical devices for orientation of the station in flight, a radio system for controlling the orbit, a time-programming device, a radio system for soft landing, power supply sources and microengines for the orientation system.

This automatic lunar station is designed in such a way that its contacts with the engine unit and the piloting compartments ensure the separation of the station just prior to its landing so that the station touches down some distance from where the engine unit falls.

The weight of the Luna 9 research station after it was put in the trajectory of flight to the moon was 1583 kilograms.

The flight was divided into the following stages:

first stage—Luna 9 put into orbit around the earth;

second stage—booster rockets fired and automatic station put into a trajectory of flight to the moon;

third stage—trajectory corrected to ensure landing of the automatic station on the surface of the moon in a preset area on the plain section of the Ocean of Storms;

fourth stage—ship braked and soft landing made on the surface of the moon.

The following are the parameters of Luna 9's orbit: perigee altitude 173 kilometers, apogee altitude 224 kilometers, inclination of the orbit to the plane of the equator about 52 degrees.

The total fuel consumption and consequently also the weight of the research equipment of the station depend on the energy consumed for the boosting from the orbit of the earth satellite, for correcting the trajectory of the flight and for braking at the surface of the moon.

Estimates show that the maximum weight of scientific apparatus on the automatic station is obtained with a flight lasting some three to four days. In the final selection of flight duration (three and a half days) it was taken into account that the station, at the time of the touchdown on the moon and during a certain period following must be near the culmination point over the horizon of the control post.

The orbiting of Luna 9 on a trajectory toward the moon was carried out on January 31. The subsequent trajectory changes from ground space communications posts were conducted on the night of January 31 and made it possible to establish that the automatic station was moving along a trajectory passing approximately 10,000 kilometers from the center of the moon. In accordance with the forecasts received on the station's actual movement, the ground command and computing complex prepared initial data for correction —the size and the direction of the correcting impulse, accordingly coded for transmission over radio to the station. On February 1 these data were transmitted to the station.

The correction session was started by a radio command from the earth. The further functioning of all the station's systems during this session proceeded automatically.

At the beginning of the correction session, the station was orientated toward the sun with the aid of a special optical system and microengines. After this, while maintaining the ship's orientation toward the sun, an optical search for the moon was carried out and orientation toward the moon was made in such a way that the engine's axis was in a plane perpendicular to the direction toward the moon. The position of the optical telescope of the astro-orientation system in relation to the station's hull was set by command from the earth and selected so that the engine's axis would take the necessary position. On February 1, on completing orientation, the engine was switched on.

The engine was switched off by the control system after the station picked up the preset correcting speed.

As a result of speed correction, the movement of Luna 9 was changed in the required direction by 71.2 meters per second and the corrected trajectory practically passed through the calculated point of touchdown in the Ocean of Storms area.

A high accuracy in carrying out the correction was necessary to ensure the preset accuracy of landing on the moon's surface. Thus, a deviation of 0.1 meter per second in the correction speed leads to a deviation on the moon's surface of 10 to 15 kilometers.

As the ship came closer to the moon, operations for getting the probe ready for landing began. To slow the probe down it was necessary, at a preset moment, to orient the probe in such a way as to have the nozzle of the retrorocket pointing toward the moon. The orientation was done beforehand, an hour before contact with the moon, by constructing the lunar vertical line by optical means.

The following property of a beam of hyperbolic trajectories was used: if the altitude of starting the retrorocket is preset, for this altitude there is such a distance from the center of the moon (about 8500 kilometers) at which the direction toward the center of the moon coincides with the necessary direction of the pull at the beginning of deceleration. It should be noted that this distance practically does not depend on the magnitude of deflection of the real trajectory from the estimated one.

At a definite moment of time, corresponding to an altitude of about 8300 kilometers, the probe and retrorocket system were oriented strictly along the lunar vertical line. Then, using the optical sun and earth tracking transducers, this direction was maintained for about an hour, until the retrorocket was fired.

At an altitude of about 75 kilometers from the moon's surface, 48 seconds before landing, the retrorocket was fired at the command of a radio altimeter. Before the firing of the retrorocket, two compartments with equipment not used in the landing stage were separated. During the retrorocket operation the cushioning system was prepared for landing on the moon. The system of landing control ensured the braking of the speed from 2600 meters a second to a few meters a second at a low altitude over the surface.

As it came into contact with the surface of the moon, the automatic moon probe with the cushioning system was separated from the retrorocket and landed nearby. The probe landed on the surface of the moon at 21 hours 45 minutes 30 seconds on February 3.

Four minutes 10 seconds after landing, the antennas opened and the first radio communication session from the surface of the moon began. This communication and the sessions that followed showed that all the systems operated normally, that the air-tightness of the body was not affected in landing, that the system of thermal regulation ensured normal temperature conditions, that the radio communication with the probe was stable and the probe equipment reliably controlled from the earth.

At 4 hours 50 minutes on February 4 the Luna 9 probe started, at a command from the earth, the observation of the moonscape and the transmission of pictures to the earth.

Abridged from Pravda

When Ilya Varshavsky was serving in the Soviet merchant marine in the twenties, a Leningrad journalist traveling on his ship observed that the young sailor had a gift for writing and suggested they do a travel book together. The book was published, but Varshavsky did not make writing a career. He later did publish several books and pamphlets, but they dealt with technical subjects and were not for the general public.

This might have been the extent of Varshavsky's literary career, except for a typical father-son incident. He noticed his son, a young scientist, reading some science fiction and asked him how he could waste his time on such nonsense.

"Just try and write that kind of nonsense," his son challenged him.

Varshavsky's literary talent and professional knowledge were an unbeatable combination for winning his son's bet that he couldn't. Since then, though he is a design engineer at a diesel plant in Leningrad and has authored several inventions, he has had 70 stories published in various magazines and collections. Three of them were printed in our January 1965 issue. Here is another.

THOSE ETERNAL PROBLEMS

BY ILYA VARSHAVSKY

THE straw-colored sphere on the screen revolved slowly, exposing scorched deserts, dry hollows where rivers and lakes had once been, cracked boulders. The planet was dead.

The People's Deputy switched off the screen and fell back in his chair, watching the sphere fade out slowly.

Now the planet was uninhabited again. It had taken 10 years of his life to evacuate the population, 10 years of sleepless nights and exhausting days.

Well, it was time for him to put on a space suit. Otherwise he could not rise to the surface. Bent under the weight of an oxygen cylinder, he walked through the interminable deserted streets of the subterranean city.

A feeble pulse of life still throbbed at the Central Desk.

The boards were dazzling white, signal lamps of all colors were ablaze, the screens showed machines still operating rhythmically, the needles of instruments still trembled.

He pushed several buttons: emergency lighting reactors (a green signal flashed, the reactors were on), oxygen stations—off, synthetic food factories—off, organic synthesis and climate laboratories—off, industrial plants —off, communication—off, transport—off, mining—off. The pointers all stood at zero.

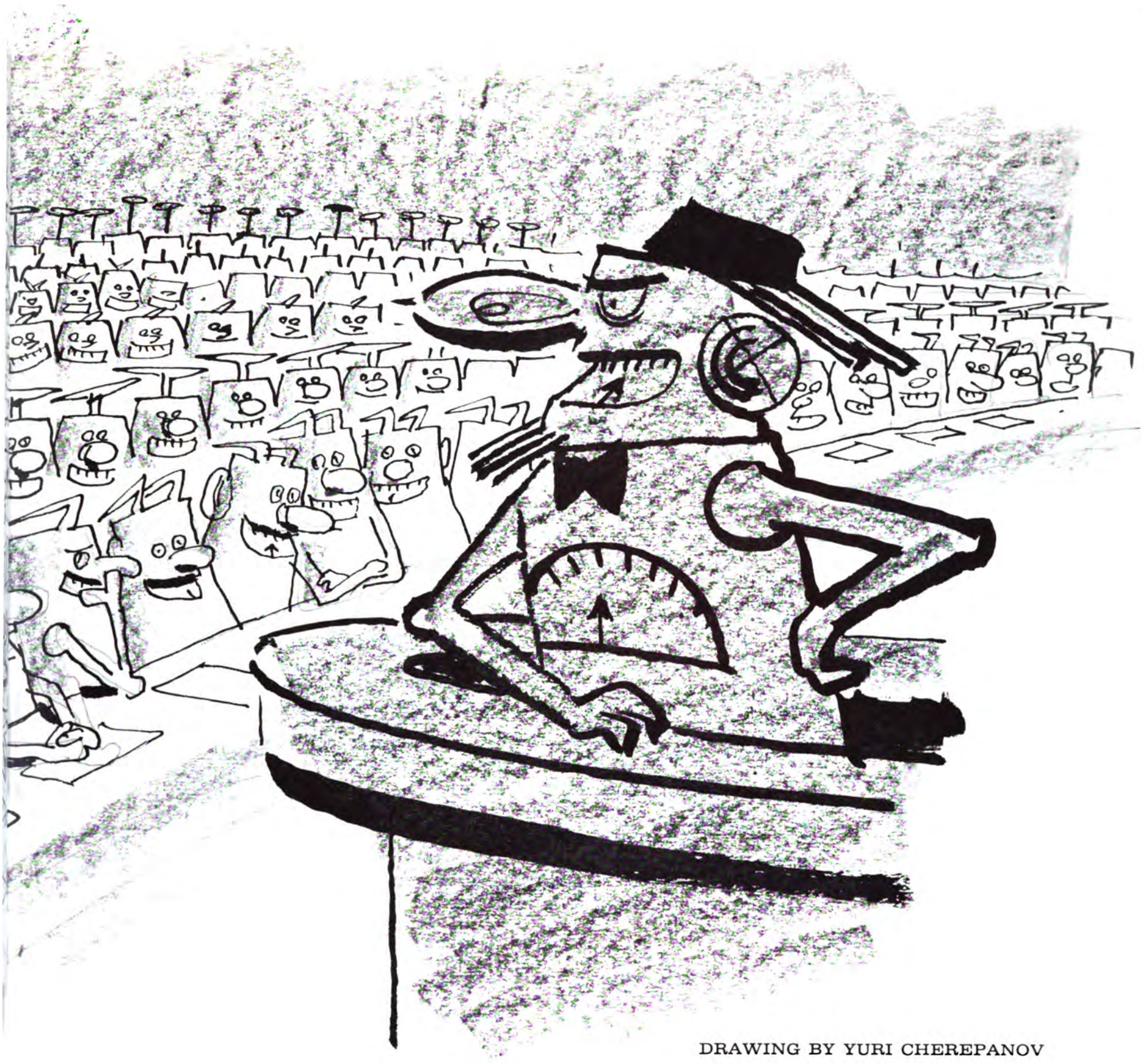
The signal lamps went out. The screen pictures of the machines froze, strangely immobile.

The subterranean world of the planet was going to sleep.

The last button: power supply—off. The screens went dark. Now that only the emergency lamps were on, the Central Desk Hall seemed infinite.

He felt very old and very tired walking up a motionless escalator. The scorching heat of the planet's surface penetrated the dense fabric of his space suit. It was time to switch on his air-conditioning system.

The pilot glanced at his watch impatiently. Start in 15 minutes. A short delay and the



DRAWING BY YURI CHEREPANOV

route would have to be recalculated. Why did the man walk so slowly?

"Comrade Deputy, the ship is ready. Crew and passengers are all aboard."

"Has Maria taken off her space suit?"

"No, she is still in the cargo compartment."

"Ask her to come out, please."

The pilot looked at his watch significantly, but the Deputy was too preoccupied to notice.

A trim little figure dressed in a loose space suit ran down the gangway.

"Anything happen?"

Her blue eyes were anxious as she looked at him through the glass of the space suit.

"I hate to bother you, but I'd like to have a look at your charges before we take off."

"We'll have to go to the colony."

"No, just call the senior."

Maria pulled an antenna from her space suit. "A-381. Come to the launching pad. Get your bearings by my radio signals."

The pilot shrugged resignedly and climbed up the gangway. All calculations had to be remade, of course.

The Deputy watched the robot approaching, not without some curiosity.

"A-381 reporting," the robot said.

"Our chief wants to speak to you."

"I'm listening."

"We're leaving."

"I know. Will you return?"

"No. We are leaving the solar system forever. Living beings cannot stay here any longer. Robots will be the masters of the planet. Do you know your duties?"

"Keep human knowledge in storage, protect ourselves and everything living beings have left behind, propagate and teach our offspring, change the pattern of behavior depending on environmental factors, improve ourselves. If newcomers should arrive from outer space, we are to transmit to them what has been deposited by living beings in our memory and everything else that will be left on the planet by that time."

"Correct. Do not forget that it is dangerous to remain underground. Earthquakes are expected. The subterranean cities will most likely collapse. You will have to excavate."

"This has been programmed."

"See that your solar batteries are always charged."

"I know."

"The planet no longer has an atmosphere. Therefore the meteorite hazards are very great on the surface."

"Our colony has already been roofed."

"Good. You may go. Remember: Living beings have entrusted to you what has taken them millions of years to create."

"I will remember."

"Good luck."

"Happy journey."

"Thanks."

The sky was pitch black, a blazing luminary straight overhead. Their lead soles sank into a thick layer of yellow dust. The Deputy was still deep in thought. The young girl waited.

He finally stirred and said to her: "I'm afraid they will not be able to cope with the situation. Seismic forecasts are unfavorable. This asteroid has awakened such forces in the bowels of the planet that even we are helpless. To tell you the truth, I count on the museum satellite more than I do on your robots."

"I assure you that these are the most advanced automatons."

"All right, you go in. Tell the pilot I'll be aboard in a minute."

He waited until she was through the porthole hatch, then kneeled, picked a handful of dust from the surface of the dead planet and let it run through his fingers reverently into a platinum box.

* * *

Two million years had passed but no living being had visited the planet, a tiny speck at the edge of the galaxy, way off the routes of cosmic commonwealth liners.

And the robots? Well, let us hear what they had to say on the subject.

Chairman. Our symposium today is concerned with one of the most interesting problems of modern science: the hypothesis of nonmachine forms of life. I give the floor to esteemed LA-36-93, professor of chemical synthesis, Class A automaton.

LA-36-93. The time limit set for our conferences forces me to confine myself to a short summary of the experimental data obtained and the deductions that follow therefrom. For more detail, please refer to the full report distributed to those present.

Our laboratory for several years now has been trying to synthesize polymeric hydrocarbons.

This year we synthesized a granule of slime or mucus which displays all the characteristics of what we are accustomed to call vital activity. *(A ripple of animation in the hall.)* In liquid organic media this granule appears to be capable of spontaneous movement, is sensitive to irritation by electric current, and assimilates substances dissolved in its environment. As a result of the still enigmatic processes of oxidation of these substances, an adequate vital store of energy is ensured. The granule expires if there is no oxygen in the solution.

However, the most interesting property of some variants of this slime is its ability to grow by assimilating organic compounds and to multiply by fission.

Thus, there is no doubt that we are dealing here with an entirely new form of life, radically different from our conventional concepts of highly organized matter.

Perhaps somewhere in the universe there are worlds where organic life has reached as high a level of development as machine life on our planet. *(Animation, creaking from the Class B automatons.)* I understand that the Class B automatons are more interested in possible technological applications of the discovery. It seems to me that the ability of the substance we have obtained to respond to external stimuli will make its use possible in computing systems, thus facilitating the work of automatons. Later, perhaps, we may be able to develop the substance to the point where it bears some resemblance to an electronic brain.

Chairman. Our next speaker is esteemed RA-84-41, a Class A automaton, head of the Machinery Evolution Department.

RA-84-41. The experimental data our colleague has reported are very interesting, and we have no reason to doubt their authenticity.

However, some of his conclusions seem to me questionable.

It is not clear whether, in the present case, we are actually dealing with a manifestation of vital activity in the true sense of the word. It seems to me that responses to irritation by electric current may have resulted simply from a change in the surface tension of the granule of slime under study. Perhaps this principle can be used to simulate some functions of a semiconductor neuron, but it is doubtful whether such primitive models can ever produce even the most wretched semblance of an electronic brain. It should be borne in mind that any thought process is based on a storage of information known as memory. None of the several types of memory we know—magnetic, capacitor, cryogenic and others—operate with organic matter. Thus, all speculation as to the possible simulation of the thought processes of automatons by means of various combinations of hydrocarbon compounds are absolutely groundless.

Chairman. Doctor of Philosophy NA-54-26, merited Class A automaton, has the floor.

NA-54-26. I would like to view the problem under discussion from a somewhat different angle.

First of all let me define the concept of life. This concept implies the following:

(a) the presence of devices converting solar energy into electric power, which is basic to the motor activity of the organism and the thought processes at work in it; and

(b) the ability of a machine to design a similar machine and transfer to it the experience accumulated.

Can organic matter satisfy these conditions?

We all know that hydrocarbon compounds cannot make photocells that convert radiation into electric power.

The energy balance can be maintained by oxidation only in a liquid medium since any organic matter burns up as soon as it comes in contact with gaseous oxygen. We can obtain liquids only under laboratory conditions. We can, of course, give free reign to our imaginations and visualize a hypothetical world in which a given organic substance would always be a liquid and would always be able to dissolve everything necessary for the vital activity of organic beings. What would happen in this case? The unimpeded propagation in geometric progression by fission would very soon exhaust all the vital resources of the medium, and propagating matter would soon deprive itself of what it needs to exist.

The conclusion is obvious: theories on the existence in nature of hydrocarbon forms of life are untenable.

Chairman. Any other speakers? You? Please, your index and title. Very well. Semi-esteemed UV-9611-7442, Class B automaton doing graduate work at the Institute of the History of the Planet.

UV-9611-7442. I am, perhaps, not competent to judge, but it seems to me that perhaps the images of strange beings which occur in the excavations of ancient settlements of the era of primitive machines are—eh—well, they are believed to be only the creations of primitive automatons—but perhaps they are actually the artifacts of organic travelers from outer space who may have subjugated our ancestors. *(Hilarious squeaking in the hall growing into deafening crunching.)* I also wonder whether they might not perhaps have made the cosmic satellite of our planet. *(Noise and shouts: "Time!" "Call him to order!").* Excuse me, of course—I mean—I mean in general . . . *(Sits down.)*

Chairman. To sum up the results of our discussion. Apparently for the time being there are no substantial grounds to believe in the existence of organic forms of life based on hydrocarbon compounds. As for the technological application of the paradox our colleague has discovered, it seems to me that it might be worth trying in new computing devices, though a great many technological problems will have to be solved before it can be useful.

THE PEERLESS MUSKMELON

BY IOSIF SIGALOV

Photographs by Alexei Varfolomeyev

EXPERTS say that nowhere else do you find such sweet and fragrant muskmelons as those grown in Uzbekistan. We know, for instance, that as far back as the ninth and tenth centuries Khorezm muskmelons packed with snow or ice in lead cases were shipped to the Baghdad caliphs and sold at very high prices. As much as 700 dirhems—more than a beautiful girl brought on the slave market—was paid for a single melon.

In our day Uzbek muskmelons still satisfy the most critical of fruit tasters. At the international exhibition in Erfurt (German Democratic Republic) they won 10 gold medals. The Hungarian Ministry of Agriculture awarded Uzbek muskmelon growers a large silver cup inscribed: "For excellent assortment and quality." In Brussels, at the Fourteenth International Competition of Horticulturists, Vegetable and Muskmelon Growers, these melons won an honorary first-degree diploma.

Each region in Uzbekistan has its own favorite variety. Khorezm, for example, grows 33-pound muskmelons with a hard dark green rind. Inedible in the summer, in the winter they are so fragrant that, as the Uzbeks put it, they leave the taste of Khorezm summer in your mouth. Growers tried to raise these melons in the Fergana Valley and in the Tashkent oasis district, but with no success—they deteriorated and lost their flavor.

Tashkent Uzbeks have developed muskmelon varieties with a sugar content of 12 to 14 or more per cent. There are melons with red meat and with green, pale rose and white. There are muskmelons that crunch when you bite into them and other varieties that melt in the mouth. Some varieties will keep only two to three days, others can be stored for two to three months. Their names eloquently bespeak their properties: Umir-Baki—eternal life, Shakar-Palak—even the stalk is sweet, Koktiny—marsh green. This is the result of breeding the growers themselves have done.

Annually *Kavun Sail*—Muskmelon Day—is celebrated in cities and villages throughout Uzbekistan. The best growers compete, and experts choose the tastiest melons. On that day growers sell their fruit, but on one condition: when the buyer eats the melon, he must save and return every last seed. Thus the identity of the breeder is preserved. No one remembers who Davlyatbai was, but the variety he developed is still known by his name.

Over the centuries Central Asian growers have developed no less than 250 muskmelon varieties. The Uzbek Vegetable, Melon and Potato Growing Research Institute has a unique collection of muskmelon seeds—150 varieties—which is constantly being replenished.

Muskmelon is a very delicate fruit. The Uzbeks hang each of the melons separately in wicker baskets to preserve them for long periods. The Vegetable, Melon and Potato Growing Institute used this principle to build a storehouse in which muskmelons are preserved almost up to the new harvest. More than 5,000 melons were kept there last year.

Growers in Georgia, Azerbaijan, Armenia and in other southern republics have time and again tried to raise Uzbek muskmelons. In Georgia only one variety—Kokcha-558—grew satisfactorily. In the other republics the efforts brought no results whatsoever.

"Muskmelons require a definite ratio of air humidity and solar warmth, a light loamy soil or sandy loam and many other components besides. The drier the climate, the better the melons. Rains play havoc with a crop. You do not often find the favorable climatic and soil conditions for growing muskmelons that you have in Uzbekistan and other Central Asian republics," explains Abdunabi Khakimov, a researcher at the Vegetable, Melon and Potato Growing Institute who has developed several varieties.

To put it in a muskmelon shell—visit Uzbekistan if you want to taste the real thing.

The onion domes, walls and roof of this church are decorated with tile.

Characteristic of the Old Rus architecture—an upward sweep of detail.

One of the ancient Volga towns, Uglich was founded in the twelfth century and was an important factor in the rise of Muscovy. Spasso-Preobrajensky Cathedral, built in 1713, and its bell tower, built in 1730, are on the site of the town's first church, inside the Kremlin.

UGLICH

BY YURI OVSYANNIKOV

THE MINIATURE OLD TOWN of Uglich on the Volga is still remembered for the tragic and mysterious death in 1591 of the czarevich Dmitri, youngest son of Ivan the Terrible. According to the records, he gave himself a mortal wound playing a game with knives. But the whispered story was that the boy, the sole legitimate heir to the Russian throne, had been murdered by Boris Godunov's supporters. Godunov, brother-in-law of Dmitri's elder brother Fyodor, was in fact the power behind the throne during the reign of this feeble-minded monarch, and after Fyodor's death in 1598 he had himself crowned czar.

Today the church of St. Demetrius stands where the body of the czarevich was found. As a matter of fact, it was popularly called the Church on the Blood. Originally it was a small chapel, then a wooden church. In 1692 the present stone edifice was built.

Built in the Moscow baroque style, it has numerous carved cornices, and its many windows are ornamented with scrolls and moldings. The

Uglich people call the steeples of Uspensky Church "The Three Graces."

This design in brick looks like the needlework on Russian hand towels.

porch is decorated with glazed tile. One of the eighteenth century frescoes on the interior western wall pictures the czarevich's tragic fate.

Legend says that Uglich was settled in the mid-tenth century. Historians have different explanations for the name. Some say it comes from *ugol*, the Russian for angle or corner, the high point of land on which the town was built. Others say the name comes from the Uliches, one of the oldest of the Slavonic tribes. Whatever the origin of its name, the town and its rulers had much to do with the ascendency of Muscovy.

Its unique specimens of sixteenth to eighteenth century architecture are carefully preserved. The oldest building is a restoration of a two-story stone structure known as the "Chambers of the Czarevich Dmitri," once part of a large late fifteenth century palace. Its tent roof is crowned with wrought-iron decoration, and the pediments, with their 12 ornamental tiers of brick and terra cotta, look like embroidered towels.

The Monastery of St. Alexius, in the heart of town, is interesting architecturally and historically. It was founded in 1371 by Alexius, Metropolitan of Moscow. This combined fortress and monastery was besieged by Polish and Lithuanian invaders in 1612. All the 500 inhabitants, who had taken refuge behind its formidable wooden ramparts, were slain in unequal combat. To honor their memory, the stone Church of the Assumption was erected in 1628 in the place of the fire-gutted monastery. It does not have the customary dome-surmounted drums. Three graceful tent roof towers rise above a massive two-story structure.

Lining some of the town's quiet lanes are early eighteenth century houses which by some miracle have survived intact. They still have their charming old tile stoves, each tile different. One has a representation of a fabulous beast, another of a sailing vessel or a pretty woman or a fop or a genre scene. They give today's visitor a delightful picture of the customs and mores of the period when these houses were built.

Learning Russian

In this issue we continue (from November 1965) our series of short stories and excerpts from works by Russian authors. Since stress in the Russian language may fall on any syllable and shift with the grammatical change of the word, the stress signs will be marked in the texts to facilitate reading.

The stress sign will not appear in headings and whenever the stressed syllable begins with a capital letter.

Prepostions and the nouns they precede are pronounced together, with the stress often shifted to the preposition. If stress falls on a one-syllable word, the stress sign will not be given. Difficult words and expressions numbered in the text are translated at the end of the story.

Andrei Platonov (1899-1951) was an uncommonly good, human, charming and talented writer. Everything he wrote—poetry, plays or stories—was permeated with that special brand of Platonov tenderness and love for man.

Platonov spent his childhood and youth in the outskirts of Voronezh. Born into the family of a mechanic, he himself tried all kinds of jobs. He was an unskilled worker, a mechanic's apprentice, an assistant to a machine operator and, finally, when he graduated from the Polytechnic Institute in 1924, an engineer specializing in farm electrification. Later Platonov wrote: "Besides the fields, the village, my mother and the ringing of chimes, I love—and the longer I live the more I love them—locomotives, machines, the singing whistle and sweaty work."

One comes across strange people in Platonov's works and unexpected situations. Nevertheless, the strange in his work never stops being real, and the usual never becomes commonplace and dull, for it is always illuminated from within by the light of poetry. His characters and situations are always specific, concrete, and yet they have a sense of the universal.

No matter how much his people suffer, no matter how sad some of Platonov's motifs, in the end it is humanity that wins out. "Music always plays for victory, even when it is sad," wrote Platonov in one of his stories.

Андрей Платонов

ТРЕТИЙ СЫН

В областно́м го́роде[1] умерла́ стару́ха. Её муж, семидесятиле́тний рабо́чий на пе́нсии, пошёл в телегра́фную конто́ру[2] и дал в ра́зные края́ и респу́блики шесть телегра́мм однообра́зного содержа́ния: «Мать умерла́ приезжа́й оте́ц».

По́сле отправле́ния телегра́мм ста́рый оте́ц верну́лся домо́й: он сел на табуре́тку о́коло дли́нного стола́, у холо́дных ног свое́й поко́йной жены́, кури́л, шепта́л гру́стные слова, следи́л за одино́кой жи́знью се́рой пти́цы, пры́гающей по жёрдочкам в кле́тке, иногда́ потихо́ньку пла́кал, пото́м успока́ивался, заводи́л карма́нные часы́, погля́дывал на окно́, за кото́рым меня́лась пого́да в приро́де: то па́дали ли́стья вме́сте с хло́пьями сыро́го, уста́лого, сне́га, то шёл дождь, то свети́ло по́зднее со́лнце, нетёплое, как звезда́,— и стари́к ждал сынове́й.

Пе́рвый ста́рший сын прилете́л на аэропла́не на друго́й же день. Остальны́е пять сынове́й собрали́сь в тече́ние двух сле́дующих су́ток.

Оди́н из них, тре́тий по старшинству́, прие́хал вме́сте с до́чкой, шестиле́тней де́вочкой, никогда́ не вида́вшей своего́ де́да.

Мать ждала́ на столе́ уже́ четвёртый день, но те́ло её не па́хло сме́ртью, насто́лько оно́ бы́ло опря́тным от боле́зни и сухо́го истоще́ния; да́вшая сыновья́м оби́льную, здоро́вую жизнь, сама́ стару́ха оста́вила себе́ экономи́чное, ма́ленькое, скупо́е те́ло[3] и до́лго стара́лась сбере́чь его́, хотя́ бы в са́мом жа́лком ви́де, ра́ди того́, что́бы люби́ть свои́х дете́й и горди́ться и́ми, — пока́ не умерла́.

Грома́дные мужчи́ны — в во́зрасте от двадцати́ до сорока́ лет — безмо́лвно вста́ли вокру́г гро́ба на столе́. Их бы́ло шесть челове́к, седьмы́м был оте́ц, ро́стом ме́ньше са́мого мла́дшего своего́ сы́на и слабоси́льнее его́.

Сыновья́ мо́лча пла́кали ре́дкими, заде́ржанными слеза́ми, искажа́я свои́ ли́ца, что́бы без зву́ка стерпе́ть печа́ль. Оте́ц их уже́ не пла́кал, он отпла́кался оди́н[4] ра́ньше всех, а тепе́рь с та́йным волне́нием, с неуме́стной ра́достью погля́дывал на могу́чую полдю́жину свои́х сынове́й. Дво́е из них бы́ли моряка́ми — командира́ми корабле́й, оди́н — моско́вским арти́стом, оди́н, у кого́ была́ до́чка,— фи́зиком, коммуни́стом, са́мый мла́дший учи́лся на агроно́ма, а ста́рший сын рабо́тал нача́льником це́ха аэропла́нного заво́да и име́л о́рден на груди́ за своё рабо́чее досто́инство. Все ше́стеро и седьмо́й, оте́ц, бесшумно находи́лись вокру́г мёртвой ма́тери и молчали́во опла́кивали её, скрыва́я друг от дру́га своё отча́яние, своё воспомина́ние о де́тстве, о поги́бшем сча́стье любви́, кото́рое беспреры́вно и безвозме́здно рожда́лось в се́рдце ма́тери и всегда́ — че́рез ты́сячи вёост[5] — находи́ло их, и они́ э́то постоя́нно, безотчётно чу́вствовали и бы́ли сильне́й от э́того созна́ния и смеле́е де́лали успе́хи в жизни.

Ка́ждый её сын почу́вствовал себя́ сейча́с одино́ко и стра́шно, как бу́дто где́-то в тёмном по́ле горе́ла ла́мпа на подоко́ннике ста́рого до́ма, и она́ освеща́ла ночь, лета́ющих жуко́в, си́нюю траву́, рой мо́шек в во́здухе — весь де́тский мир, окружа́ющий ста́рый дом, оста́вленный те́ми, кто в нём роди́лся: в том до́ме никогда́ не́ были затво́рены две́ри, что́бы в него́ могли верну́ться те, кто из него́ вы́шел, но никто́ не возврати́лся наза́д. И тепе́рь то́чно сра́зу пога́с свет в ночно́м окне́, а действи́тельность преврати́лась в воспомина́ние.

Ве́чером оте́ц постели́л шесть посте́лей во второ́й ко́мнате, а де́вчонку—вну́чку положи́л на крова́ти ря́дом с собо́й, где со́рок лет спала́ поко́йная стару́ха. Крова́ть сто́яла в то́й же большо́й ко́мнате, где находи́лся гроб, сыновья́ перешли́ в другу́ю. Оте́ц постоя́л в дверя́х, пока его́ де́ти не разде́лись и не улегли́сь, потом притвори́л дверь и ушёл спать ря́дом с вну́чкой, всю́ду потуши́в свет. Вну́чка уже́ спала́, одна́ на широ́кой крова́ти, укры́вшись в одея́ло с голово́й.

Стари́к постоя́л над ней в ночно́м су́мраке; вы́павший снег на у́лице собира́л ску́дный рассе́янный свет не́ба и освеща́л тьму в ко́мнате че́рез о́кна. Стари́к подошёл к откры́тому гро́бу, поцелова́л ру́ки, лоб и гу́бы жены и сказа́л ей: «Отдыха́й тепе́рь». Он осторо́жно лёг ря́дом с внучкой и закры́л глаза́, что́бы се́рдце его́ всё забы́ло. Он задремал и вдруг сно́ва просну́лся. Из-под две́ри ко́мнаты, где спа́ли сыновья́, проника́л свет, там опя́ть зажгли́ электри́чество, и отту́да раздава́лся смех и шу́мный разгово́р.

Ста́рший сын с увлече́нием, с восто́ргом убежде́нности говори́л о пустоте́лых металли́ческих пропе́ллерах, и го́лос его́ звуча́л сы́то и мо́щно[6], чу́вствовались его́ здоро́вые, во́время отремонти́рованные

зу́бы и кра́сная глубо́кая горта́нь. Бра́тья—моряки́ расска́зывали слу́чаи в иностра́нных порта́х и зате́м хохота́ли, что оте́ц покры́л их сейча́с ста́рыми одея́лами, кото́рыми они́ накрыва́лись ещё в де́тстве и о́трочестве. К э́тим одея́лам све́рху и сни́зу бы́ли приши́ты бе́лые поло́ски бя́зи с на́дписями «голова́», «но́ги», что́бы стели́ть одея́ло пра́вильно и гря́зным, по́тным кра́ем, где бы́ли но́ги, не покрыва́ть лица́. Зате́м оди́н моря́к схвати́лся с арти́стом, и они́ на́чали вози́ться по́ полу, как в де́тстве, когда́ они́ жи́ли все вме́сте. Мла́дший же сын подзадо́ривал их, обеща́я приня́ть их обо́их на одну́ свою́ ле́вую ру́ку: Ви́димо, все бра́тья люби́ли друг дру́га и ра́довались своему́ свида́нью. Уже́ мно́го лет они́ не съезжа́лись все вме́сте, и в бу́дущем неизве́стно, когда́ ещё съе́дутся. Мо́жет быть, то́лько на по́хороны отца́?

В ко́мнате вдруг наступи́ла тишина́. Кто́-то из сынове́й пе́ред э́тим что́-то сказа́л. Там все сра́зу умо́лкли. Оди́н сын опя́ть что́-то произне́с. Стари́к по го́лосу узна́л тре́тьего сы́на, учёного фи́зика, отца́ де́вочки. До сих пор не слы́шно бы́ло его́ звука: он ничего́ не говори́л и не смея́лся. Он че́м-то успоко́ил всех свои́х бра́тьев и они́ переста́ли да́же разгова́ривать.

Вско́ре отту́да откры́лась дверь и вы́шел тре́тий сын, оде́тый как днём. Он подошёл к ма́тери в гробу́ и наклони́лся над её сму́тным лицо́м, в кото́ром не́ было бо́льше чу́вства ни к кому́.

Ста́ло ти́хо из-за по́здней но́чи. Никто́ не шёл и не е́хал по у́лице. Пять бра́тьев не шевели́лись в друго́й комнате. Стари́к и его́ вну́чка следи́ли за свои́м сы́ном и отцо́м, не дыша́ от внима́ния.

Тре́тий сын вдруг вы́прямился, протяну́л ру́ку во тьме́ и схвати́лся за край гро́ба, но не удержа́лся за него́, а то́лько своло́к его́ немно́го в сто́рону, по́ столу, и упа́л на́ пол. Голова́ его́ уда́рилась, как чужа́я, о до́ски по́ла, но сын не произнёс никако́го зву́ка — закрича́ла то́лько его́ дочь.

Пять бра́тьев в бельё вы́бежали к своему́ бра́ту и унесли́ его́ к себе́, что́бы привести́ в созна́ние и успоко́ить. Че́рез не́сколько вре́мени, когда́ тре́тий сын опо́мнился, все други́е сыновья́ уже́ бы́ли оде́ты в свою́ фо́рму и оде́жду, хотя́ шёл лишь второ́й час но́чи. Они́ поодино́чке, та́йно разошли́сь по кварти́ре, по́ двору, по всей но́чи вокру́г до́ма, где жи́ли в де́тстве, и там запла́кали, шепча́ слова́ и жа́луясь, то́чно мать стоя́ла над ка́ждым, слы́шала его́ и горева́ла, что она́ умерла́ и заста́вила свои́х дете́й тосковать по ней; е́сли б она́ могла́, она́ бы оста́лась жить постоя́нно, чтоб никто́ не му́чился по ней, не тра́тил бы на неё своего́ се́рдца и те́ла, кото́рое она́ родила́. Но мать не вы́терпела жить до́лго.

Утром ше́стеро сынове́й по́дняли гроб на пле́чи и понесли́ его́ зака́пывать, а стари́к взял вну́чку на́ руки и пошёл им вслед; он тепе́рь уже́ привы́к тосковать по стару́хе и был дово́лен и горд, что его́ та́кже бу́дут хорони́ть э́ти ше́стеро могу́чих люде́й; и не ху́же.

1. областно́й го́род — an administrative capital of a region
2. телегра́фная конто́ра — telegraph office
3. ма́ленькое, скупо́е те́ло — small spare (rarely used in this context, usually the word means miserly) body
4. он отпла́кался оди́н — he had done his weeping alone
5. вёрст, *singular* верста — Russian linear measure used before the introduction of metric system, equals 1,066.8 meters
6. го́лос его́ звуча́л сы́то и мо́щно,— his voice sounded satisfied and powerful
7. обеща́я приня́ть их обо́их на одну́ свою́ ле́вую ру́ку.— promising to lift them both with just his left arm
8. не слы́шно бы́ло его́ звука — his voice was not heard
9. бу́дут хорони́ть э́ти ше́стеро могу́чих люде́й — his funeral will be conducted by these six strong men

IN THE NEXT ISSUE

In his May roundup of sports news Victor Kuprianov tells about the physical fitness program offered by the Central Children's Sports Center in Moscow for youngsters from six up and their grannies who bring them. The children work out at one end of the stadium and the "over middle-aged" at the other. May is also the month when coaches are out spotting future soccer talent. "Soccer tryouts. Boys over twelve. Bring your report card," reads the sign at stadium entrances. No go if your school grades are low. And in May, when the roads dry up, the nightmare course, hairpin turn, cross-country motorcycle races get started.

To see the Soviet Union at closest hand, plan a trip by motor coach or car, advises Intourist, the government travel agency, in an informative article in the next issue. You can rent a drive-it-yourself at very moderate rates. Good highways, with motels and gas stations, crisscross the country. If you like camping, you may rent a tent and all the usual equipment. You may choose one of the many Intourist itineraries or plan your own. The mountain and seashore resorts in the Crimea, the Caucausus and elsewhere now accommodate foreign tourists. In 1965 over a million foreigners vacationed in the Soviet Union.

A riddle psychologists have yet to solve is why women are so much better at training wild animals than men. Irina Bugrimova is one of the great lion tamers of all time. For the past 30 years hers has been a daily struggle of human will against animal instinct. Long contact has given her some of the qualities of her charges, their velvety tread, reaction speed, majestic carriage. Her story is in next month's issue.

A college education in the Soviet Union is free. To repay the 5,000 dollars it costs the state to give a student a higher education, the graduate is expected to take a job for two or three years wherever his skill is most needed in the country. Individual preference is sometimes overruled. How do students feel about it? See the May issue.

Other articles in the May issue are:
My Relations with Mark Twain—**humor with a Russian twist;** Art Find in Smolensk—**ancient frescoes unearthed by archeologists;** The Man Behind Siberia's Science Town—**about Academician Lavrentyev, who built it;** Record of a Great Voice—**how Thomas Edison saved the voice of Leo Tolstoy;** Young People and Society—**the reflections of a sociologist on the much discussed younger generation;** The Well That Went Crazy—**fire-fighting a big gas well on the bank of the Pur River;** Audacious Composer—**about Rodion Shchedrin;** Row, Row, Row Your Boats—**about Soviet oarsmen;** Russian Easter—**how it is celebrated by the Russian Orthodox Church;** Poll on Marriage—**500 newly married couples were asked to explain what motivated their choice of spouse; as well as** Around the Country, Queries from Readers, Children's Corner, Our Trends, **and all our other regular features.**

SOVIET LIFE

Caviar and the Lotus — A Volga journey to check a tale of caviar eaten with a wooden spoon.

Starets or Emperor — New information on the mysterious life and death of Czar Alexander I.

Blind Architect — The inspiring story of the chief architect of Tashkent, a blind man.

COMING SOON

DOG SHOW

BY BORIS KOROLEV
PHOTOGRAPHS BY
YAKOV BERLINER

THE DOG was the first wild animal to cross the threshold of the cave. Mr. Anthropos was relaxing with his evening paper by a roaring fire. Dogs, as far as he was concerned, could go to the dogs. Lacking an empty beer can, Mr. Anthropos heaved a buffalo bone at the canine intruder. The response was a tail wag. Thus dog became man's best friend.

From that murky evening on the dawn of civilization dogs have been lavished with privileges. Even the horse, who came in third, after the cat, occupies a much more lowly position. (The tax collector came in fourth, but he's made it big.) Dogs have their schools, hospitals and beauty parlors. They have their own clubs and, yes, beauty contests. The winners get gold medals, diplomas and titles—Mr. Him and Mrs. Her. The referees are picked from mankind and must have special qualifications, the most important of which is fortitude. The archives of the Olympic Games have no record of an angry participant biting a referee. But then dog shows are no Olympic Games.

These pooches mean business—just look at them! Champion Emperor Chen is looking daggers at the judges. Champion Sir Launcelot is clearly brooding over someone's decision—he'd better watch the back of his pants! Lady Care-Less is wearing all the ice awarded her at past contests to catch the judges' eyes. Champion Narcissus tangled with a tough customer and had to be sidelined.

The contest closes to delirious "hurrahs." The owners of the victorious dogs toast the judges. And the champs, the runners-up and next year's hopefuls go back to their day-in day-out job: guarding mankind from man.

Motoball, a cross between soccer and motorcycle racing, is the product of mechanical-minded twentieth century man. What next? Basketball on scooters? Tennis on skates (skannis)? Tankball? Only time will tell.

SOVIET LIFE

TOURING THE USSR
ADOLESCENCE AND SOCIETY
PANORAMA OF THE MOON

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MAY-DAY CELEBRATION, RED SQUARE

It is May 1, the Day of International Solidarity of Workers, the day selected in 1889 by the First Congress of the Second Socialist International to commemorate the heroic workers' demonstration in Chicago on May 1, 1886. Every year thousands of people stream through the streets of Moscow into Red Square to take part in the celebration.

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Front Cover: Young players demonstrating their skill at a junior league soccer match.
See story on page 40.

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Editor in Chief
(Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor
(Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor
(Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director
(Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

Circulation Manager
(Washington Editorial Board): Vadim P. Zaitsev 1706 18th St., N.W., Washington, D. C., 20009.

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SOVIET ECONOMICS: RATIOS AND DYNAMICS

The Soviet people are now implementing the first stages of the five-year plan of economic development for 1966-1970. This plan was worked out by the Communist Party of Soviet Union with the active participation of scientists, specialists, workers and collective farmers from all over the country. It is the product of many months of nationwide discussion, the result of a careful, scientific appraisal of the development of the economy.

The new plan proposes to narrow the gap between the development rates of heavy industry and light industry. Industrial production will increase by 150 per cent.

The gap between the development rates of agriculture and industry will also be narrowed. Capital investments in agriculture will be doubled. The growth of agricultural production will be intensified by the improvement of agricultural techniques, more electrification, greater use of mineral fertilizer, and so on.

The main objective of production under socialism is to more completely satisfy the people's material and cultural requirements. Therefore, the new plan proposes a 38 to 41 per cent increase in national income and a 130 per cent increase of real income per capita by 1970. There will be an average increase of 20 per cent in the wages of factory and office workers over the five-year period and an average increase of 35 to 40 per cent in collective farmers' monetary incomes and incomes in kind derived from the commonly owned production.

The public consumption fund, which provides pensions, free education and medical care, and other benefits for all citizens, will increase by 40 per cent. New dwellings with a total of some 4.3 billion square feet of floor space will be built, and seven million specialists with a specialized secondary or higher education will be trained in the five-year period.

In a forthcoming issue we will present a detailed analysis of the new five-year plan. Below,the well-known Soviet economist Vladimir Kats examines the plan for the year 1966.

Our economy is predominantly industrial. This is a characteristic of a developed country today. The output of machinery, equipment and raw materials, what we call the means of production, is very significant. Relatively more weight is given to mining than to the processing industry.

Our country is rich in natural resources. Numerous deposits of coal, oil, gas and ores have been discovered. Hence mining is assured a solid base.

We maintain the ratios we want by planning, by channeling our resources to develop critical branches of the economy. As we go along, we adjust. But in the process of development new disproportions arise, bringing new problems.

We have always given priority to those branches of our economy that produce the means of production. This we consider to be our basic economic law. Only thus were we able to make the changeover from the preponderant hand labor of old Russia to machine labor. We built up a machine-tool, power, fuel, metallurgical and defense industry. In the years following the Second World War our power generation, electronic and automatic equipment, space and rocket equipment, and chemicals industries grew with unusual rapidity.

A glance at our economic development plan for 1966 will show that it, too, reflects the same trend.

Means of Production and Consumer Goods

At present the industries producing the means of production account for approximately 68 per cent of the gross social product, those producing consumer items for 32 per cent. This ratio is not the most rational one for today. In some important aspects this priority growth of the means of production is not having the effects it should.

The rate of growth of the whole of industry, and especially of light industry and the food industry, has fallen off lately. That is due primarily to the serious lag in agriculture and to the fact that our production as a whole is somewhat less efficient. The explanation is that material incentives and other economic stimuli were not used productively.

The farm development program adopted last March and the economic reforms adopted last September are designed to improve the economic pattern substantially. The more rapid development of the consumer goods industries will certainly reduce the gap in development rates between light and heavy industry. Eventually it will give us an optimum ratio.

However, the problem is more complicated than appears at first glance. It cannot be solved simply by stepping up the tempo in the manufacture of consumer goods. This in itself requires increased production of the means of production—agriculture has to be supplied with machinery and chemical fertilizer, and light industry and the food industry with the most modern equipment. Consequently, it is not a question of cutting production of the means of production but of retooling heavy industry for the manufacture of equipment and materials for factories that turn out consumer goods. But even that is not all.

The priority growth of the means of production in the past seven years did not result in either a high rate of development of the consumer industries or a higher rate of general economic development. So that the increase in the means of production in effect served only that one area of the economy. The somewhat lower general productivity was evident in a decline in the output both of the old production facilities and, more especially, of those newly installed. Capital investments per unit of manufactured product was higher, construction schedules were not met, newly built enterprises were slow getting started, the rate of growth of labor productivity dropped.

Again this was due basically to the ineffective use of material incentives and other economic stimuli. The changes now being made are intended to remedy the situation, to create the conditions for more consistent rates of development of heavy and light industry and to improve the country's over-all economic picture. Schedules already in effect for the current year call for a 6 per cent increase in consumer goods output and a 6.9 per cent increase in heavy industry goods as against 1965. The difference will be only 1.15 per cent as against the 1.44 per cent of the last seven-year period.

(Continued on page 9)

Odessa

Sevastopol

Yalta

Sochi

Intourist

A. Tertish · 65.

A RUSSIAN VACATION

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Batumi

WHEN the editors suggest that you spend this year's vacation touring the Soviet Union, they have reasons of their own—they want you to see at firsthand the people and places you have been reading about in *Soviet Life.*

Intourist, the official Soviet tourist agency, will be glad to help you or your travel agent plan a tour within your budget. Intourist has offices in many cities of the world. Its New York office is at 355 Lexington Avenue.

In our March 1965 issue we answered some of the more general questions Intourist is asked. Here we bring the answers up to date.

You may travel with a group or entirely on your own.

You may choose one of the hundred different itineraries offered by Intourist or plan your own. Intourist itineraries include the historic Volga, the scenic Dneiper, Lake Baikal in Siberia, the republics of Central Asia, the Black Sea holiday resorts and cities famous for their architecture, museums and theaters.

Travel costs range from 8 to 35

dollars a day per person. Intourist will make your hotel reservations and will arrange for your meals, transportation and a guide-interpreter.

You can visit the Soviet Union at any time of the year, but if you plan your trip between October 1 and April 30, you can take advantage of the 15 to 25 per cent off-season discount.

In 1964 a million tourists, including many Americans, visited our country. Their reasons? Some wanted to "understand the Russian soul," others to see what life in a communist country is like, still others came for treatment at one of the many health resorts.

Most tourists concentrate on Moscow or Leningrad. They are right in a way because there is so much to see in these cities—the Kremlin, Red Square, the Tretyakov Gallery, the Bolshoi Theater in Moscow, and the Winter Palace, the Hermitage, the cruiser *Aurora* and the Russian Museum in Leningrad. But these two cities are by no means all of the Soviet Union.

By Car or Coach

For the best view of people and places travel by car or bus. You will see more than you can from either a train window or a plane. The Russian traveler Nikolai Przhevalsky said, "Life is beautiful because one can travel!" In Przhevalsky's time one traveled by horse. The car or bus is today's good equivalent.

You may enter the Soviet Union by either car or tourist coach from Finland via Vaalima, from Poland via Tiraspol and Medyka (Przemysl), from Czechoslovakia via Chierna, from Hungary via Zahony.

Inside the country Intourist provides car or coach service on the following highways:

Vyborg-Leningrad-Novgorod-Moscow, 588 miles
Moscow-Yaroslavl, 162 miles
Brest-Minsk-Moscow, 655 miles
Moscow-Kharkov-Yalta, 925 miles
Kharkov-The Great Caucasian Ring (Rostov-on-Don-Pyatigorsk-Ordzhonikidze-Tbilisi-Sukhumi-Sochi-Rostov-on-Don), 2,096 miles
Chernovtsy-Kiev, 362 miles
Chernovtsy-Kishinev, 213 miles
Kishinev-Odessa-Kiev, 700 miles
Yerevan-Tbilisi, 172 miles

Intourist has sightseeing itineraries for all these highways. You will travel through the mountain passes of the Carpathians and the Caucasus, the valleys of Georgia, the forests of Bryansk and Murom, the steppes of the Ukraine and Kuban, the orchards of Moldavia and along the shores of the Black Sea.

At the many motels along the way you can get your car serviced, put a call through to any city, Soviet or foreign, rent a tent and camping equipment.

Sightseeing Stops

On your way from Vyborg to Leningrad, you may stop at:

Repino. The Russian artist Ilya Repin's estate from 1902 to 1930.

Razliv. Here Vladimir Lenin lived in hiding on the eve of the 1917 Revolution.

On your way from Leningrad to Moscow:

Klin. Tchaikovsky's house, now a museum. Here the composer wrote the ballets *Swan Lake*, *The Nutcracker* and *The Sleeping Beauty*, his opera *Eugene Onegin* and his *Symphonie Pathetique*.

On your way from Moscow to the Crimea:

Yasnaya Polyana. Leo Tolstoy's estate some 120 miles from Moscow. Everything is just as it was when he wrote *War and Peace*, *Anna Karenina* and *Resurrection*, down to the bed on which he and his children were born. Tolstoy did not want any stone on his grave, and a simple mound marks the place where he is buried.

You can rent a five-passenger Volga for six dollars a day for the first 10 days, five and a half dollars a day for the next 10, and five dollars a day for anything over 20 days. A four-passenger Moskvich rents for five dollars a day for the first 10 days, four and a half dollars for the next 10, and four dol-

lars a day after the twentieth day. In addition you pay 10.8 cents a mile for a Volga and 9 cents a mile for a Moskvich. The rental fee includes servicing and oil.

A chauffeur-driven car is 30 dollars a day.

There are gas stations along all the highways. Octane No. 72 sells at 22 cents a gallon, No. 76 at 27 cents a gallon and No. 98 at 42 cents a gallon.

The border-crossing formalities for tourists traveling by car have been cut to a minimum. The car is not taxed if the tourist pledges to leave the Soviet Union in it.

At the border Ingosstrakh insures the tourist and his car, and he is given a free road map indicating intercity distances, layouts of principal cities, locations of hotels, restaurants, gas stations, motels, as well as traffic signs and basic traffic rules.

Invitation to a Resort

Since 1964 foreign tourists have been able to get treatment at Soviet health resorts for from six and a half to seven dollars a day (that fee includes room and meals, a diet recommended by a physician and all medical treatment). The usual health resort treatment is 20 to 25 days. Those who accompany patients are allowed a 10 per cent discount.

Each of the resorts is geared to treat a specific ailment or group of ailments. Spa treatment in general is contraindicated for acute inflammation, infarction, brain hemorrhage, malignant tumor or other diseases for which travel, change of climate, etc., may be dangerous. See the table for details on the better-known Caucasus health resorts.

Because you need treatment does not mean that you will be spending your vacation indoors. Included in the health cure at a Sochi resort are sea and sun, sightseeing trips to nearby cities and excursions to such places as Lake Ritsa, high in the mountains.

The beauty of the Caucasus Mountains is a tonic for every vacationer, sick or well, at Kislovodsk. A stroll in the beautiful environs of the resort works wonders for tired hearts. Most visitors to Pyatigorsk go to see the cottage where Mikhail Lermontov lived and walk up the path the poet took to his fatal duel.

Besides their cures the Caucasus spas are famous for their excellent Georgian wines. In Georgia, a coun-

try of long-lived people, even children drink these light tangy wines.

The country's best theaters and orchestras make regular tours of the resort cities.

International Reputation

In September 1956 the first International Symposium on Spa Treatment was held in Moscow, Sochi and Mineralnye Vody. This is what some of the 96 participants said:

François Besançon, professor of hydrotherapy, Medical Faculty, University of Paris:

"Kislovodsk is not only one of the world's largest resorts, it is also one of the most beautiful and has that distinctive quality of Soviet city planning, concern for both convenience and esthetics. I learned a great deal here about balneology. Some of your methods were new to me. I should like to see many more of our patients coming here to make use of the treatment you so generously place at their disposal. I am certain that they would benefit."

Gregorio Gonzales, head of the Neurology Service of the National Institute for Neurology, Mexico:

"I believe that your methods can be especially effective in treating neurological ailments since the patient lives here in quiet, beautiful surroundings. He takes his time, relaxes, gets the beneficial spa treatment and is on a proper diet."

Dr. Per Hertsen of the Danderüd Hospital, Stockholm:

"When we Scandinavians think of sending our patients here we consider the fact that the southern parts of the Soviet Union are warm and get some 300 sunny days a year—fine weather, something our country cannot offer. Also that the treatment in Soviet health resorts follows very carefully thought-out programs, including (aside from spa treatment and other medical techniques) pleasant and intelligent recreation, which is very important for the patient."

Jacques Sherry, head of the Compass Travel Bureau, summed up his impressions with this one statement: "I look forward to a big rush in treatment tours." The figures show that Mr. Sherry's forecast was accurate.

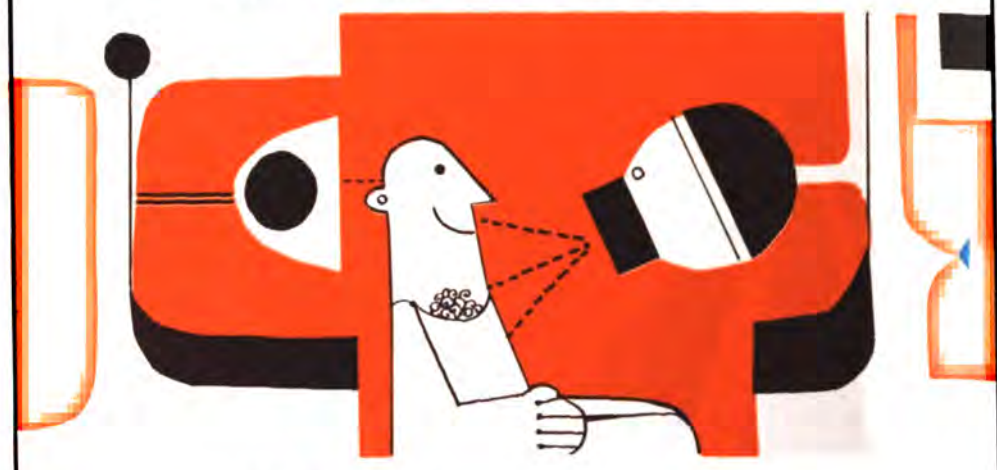
RESORT

Yessentuki

Not far from Kislovodsk, at an altitude of some 2000 feet. Has a great variety of mineral springs, and a medical center. Special lung exercises give fine results.

Zheleznovodsk

Located on a wooded slope of Zheleznaya Mountain. Has mineral springs.



Kislovodsk

Situated some 3300 feet above sea level. Best in autumn and winter. Wholesome mountain air and Narzan mineral springs. Narzan baths relieve overstrain and fatigue.

Sochi

One of the best equipped health resorts in the USSR. On the Black Sea coast of the Caucasus. Humid subtropical zone, with average annual temperature 50°F. (77 to 38 in summer). Treatment by mineral hydrogen sulphide matsesta water. All physiotherapeutic phases of spa treatment.

Tskhaltubo

In a picturesque valley, some 140 miles from Tbilisi, the capital of Georgia, and some 40 miles from the sea. Medical bath treatment in marble pools. Famous nitrogenous thermal waters.

Pyatigorsk

One of the oldest and most famous resorts. Has two well-appointed hotels and an Intourist branch office.

TREATS

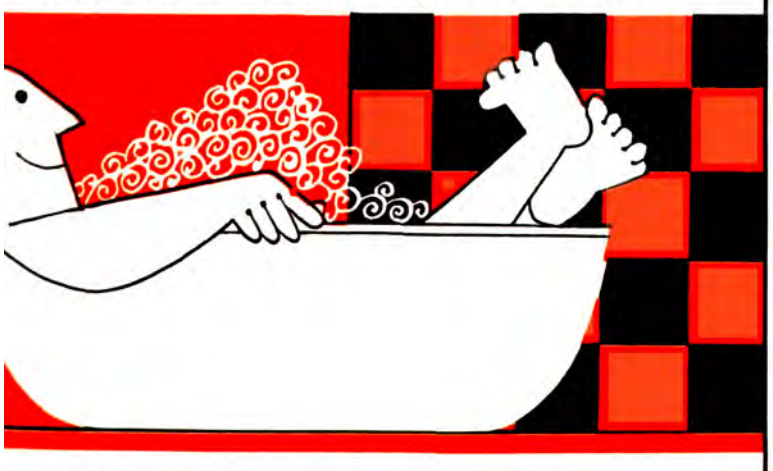
Gastritis, gastric and duodenal ulcer, diseases of the liver and biliary ducts, gallstone, obesity, diabetes, women's diseases, sterility

Approximately the same diseases as Yessentuki. Also, chronic polypus and enterocolitis, urinary calculus, chronic myelitis and cystitis

Cardiac and vascular diseases, respiratory diseases, deficiency of thyroid and sexual glands, exophthalmic goiter

Respiratory diseases, nervous disorders, cardiac and vascular diseases, women's diseases

Heart disease, nervous disorders, bone and joint ailments, skin diseases, women's diseases



Arthritis and polyarthritis, osteomyelitis, gastric diseases, gastritis, polypi, radiculitis, neuritis, poisoning with salts of metals, vascular diseases, endarteritis, thrombophlebitis (final stage)

(Continued from page 3)

Industry and Agriculture

In the next few years there will be radical changes in the ratios of industry and agriculture.

Industry accounts for 64.5 per cent of our gross social product today, agriculture for 16 per cent, and construction, transport, etc. for the remainder. The proportion is anything but satisfactory. The level of farm production is obviously lagging behind our raw material and consumer needs. This explains why our plans provide for a sharp increase in capital investments in agriculture—71 billion rubles in the next five years (1966-1970).

The countryside will be getting more machinery, electricity and chemical fertilizer. The system of planning farm production has been changed. Collective and state farms have been given a greater measure of independence. Material incentives have been increased.

We expect these measures to spur farm production and to narrow the gap between industry and agriculture. This year farm production is scheduled to rise by from 8 to 10 per cent. This should raise the general tempo of economic development. We look forward to a growth of 6.4 per cent in national income this year as against last year's 6 per cent.

Accumulation and Consumption

For a better economic pattern and a higher national income we must have a better proportion between accumulation and consumption. How important this is can be gauged from the fact that a change in the ratio by just one per cent in favor of the consumption fund will mean producing two billion rubles more consumer goods. The high proportion of accumulation in the national income is characteristic of our economy. That is what made our high rates of industrialization and the priority development of heavy industry possible. However, a high proportion of accumulation is not always an advantage. It is a good thing when it makes for higher labor productivity and national income per unit of production assets. Increasingly greater resources can then be channeled into the fund for personal and public consumption and the pattern of accumulation changed by augmenting investments in culture, education and the health services. A growth in the share of industrial accumulation is also beneficial if it makes for technical progress.

A high and ever rising rate of accumulation, with a decline in actual returns, will inevitably slow down the tempo of economic development. And the need to maintain this tempo requires a further increase in the share of industrial accumulation.

A new and important factor in Soviet economic development is that the optimum rate of economic growth will be possible without increasing the share of industrial accumulation. As time goes on it will even diminish.

The first steps in this direction are already envisaged in this year's plan. The increase in the rate of development of national revenue in the current year will not lead to an increase in the ratio of industrial accumulation. The consumption fund will grow faster than national income as a whole (by 6.8 per cent), and its share in the national income will comprise roughly 73 per cent. The pattern of accumulation will also change in favor of allocations for culture, education and health. Together with the consumption fund, these expenditures will account for four-fifths of total national income.

The pattern of the consumption fund is also changing. Nine tenths of it will be accounted for by the personal consumption fund. In the pattern of consumption, the share of industrial commodities, especially of durable goods, is to increase. Diet will also improve. These trends were already evident in the 1959-1965 period.

These are some of our current problems of economic development. With better planning and management, we should be able to make better use of our socialist mode of production, to step up our tempo of economic development and, with it, the standard of living.

YOUNG PEOPLE

ADOLESCENCE has been defined as the transition from childhood to maturity and responsible adult behavior. The limits of this period depend on social factors and individual peculiarities. The first milestone is puberty. However, puberty does not imply social maturity. The young person may not yet be prepared for work and civic activity, for independent life as a gainfully employed citizen, a member of society, and a family man. Essentially, adolescence is the transition from purely physiological to social maturity.

Medical statistics indicate that in most developed countries puberty occurs much earlier (sometimes two or three years) than it did in the nineteenth century. The reasons are better food, better medical care and some psychological peculiarities. But social maturity now comes later, for one thing because the formal period of schooling is longer.

This gap between physiological and social maturity partly explains why sex is the complex problem it is for young people today.

Apart from physiological factors and natural curiosity, sex activity for adolescents is a psychologically important means of self-assertion, a method of convincing themselves and others that they are adults. Actually, they are not prepared for marriage either socially, economically (supporting a family, for example) or psychologically (the emotional maturity required to follow through a decision). Marriages at this age often fail. At the same time, religious taboos no longer hold for us, parental authority does not have the force it once did (especially on these matters) and sermonizing often produces the opposite of the effect desired. Evidently, we must be concerned not so much with prohibitions as with ways of channeling the energy of our adolescents. We must see to it that our system of ethical education is built not on good wishes but on rock-bottom realities.

Find Yourself!

Personality is the composite of our many and varied social activities: on the job, in the family, in our personal relations, those connected with our status in a certain social group. An adolescent soon finds that people differ in mentality, behavior, ideals. This stimulates his critical thinking, gives him new values by which to judge himself and his social environment. The adolescent wants to "find" himself.

To find oneself means to find one's place in life, to choose out of the many possibilities and forms of activity those which best fit one's individuality.

The adolescent must make choices in every sphere of life. He must choose his occupation. He must choose his mate. He must decide what his ethical beliefs are, how he will live, etc. The process is a hard one and engenders the doubts and vacillations so typical of adolescence. Characteristically, it is at this age that the meaning of life becomes so important. The adolescent is searching for some formula that will explain his reason for being and give him direction. Where can he get this formula?

We do have an objective criterion for evaluating behavior and activity—the general good. The social value of an individual is determined by his contribution to society's progress. Since man is a social animal, his personal happiness also depends on how much he gives society.

However, as valuable a principle as this is for the young person's general orientation, it does not answer his very individual and very concrete question: What is my particular place in the scheme of things and where can I use my abilities to best advantage? Often enough the answer will come only with practical, hard and sometimes bitter experience. Socially useful activity has many forms and aspects, and we cannot say in which field an individual will succeed unless we know him very well indeed, sometimes not even then. There are too many facets to anyone's personality to "know it" in unambiguous terms. All we can say is that activity must be socially useful, that it must satisfy the individual and correspond, at least in general outlines, to his ideal.

A young person's inquiry into the meaning of life is, indeed, his probing into his own personality, a psychological symptom of his dissatisfaction. When a person is absorbed in something, he is not likely to question its meaning. It is only when there is a stop in a young person's activities, a vacuum in his social relations, that he begins this critical evaluation whose most usual expression is the query: What does this business of living mean?

We know that a young person's attitude to the world is very subjective. He has no deep roots in the adult world. As a consequence, he is often unaware of his dependence on his environment, he sees it as an annoying obstacle to his own "freedom." Egocentrism is a part of this psychological attitude. The young person tries to "find himself," not in practical activity but in self-analysis. In small doses this kind of critical self-analysis may be useful, but its usefulness is very limited.

This adolescent egocentrism often manifests itself in negativism. Unable to assert himself in a positive way, a young man tries to bolster his independence by rejecting the values of others, those of his elders and parents primarily, by showing how different he is. This negativism, which takes widely different forms (sometimes naïve and sometimes unpleasant and even socially dangerous) has a simple psychological explanation. By thus liberating himself from his parents, the adolescent tries to prove that he is an adult. This in itself points to immaturity and lack of confidence. A person who is really strong and knows he is does not have to keep proving it.

To Reject or to Accept

These psychological peculiarities of adolescence are a natural part of personality development. But the process does not take place in a vacuum, it is essentially social.

In any society youth is a socially active force. By definition, youth implies new forms of activity. However, the economic, legal, ethical and other social relations have not been created by young people. They embody the activity of their predecessors, and the young person has to reckon with them. They are there regardless of his likes or dislikes. He may try to change them, but he cannot ignore or dismiss this legacy. His own activity must inevitably be based on objective conditions inherited from the past.

A young person is not the master of his social environment, and he knows that he is not. Hence his social activity often takes the form of criticism. He tries to look on from the outside, ignoring the fact that he is also a product of this society. He will object to everything which does not conform to his ideal.

By itself, this dissatisfaction is natural and historically justified. To a considerable extent it is a premise for any creative change. A completely satisfied generation would mean the end of progress. However, the trouble is that too often the adolescent's dissatisfaction is subjective and negative, as in his personal relations with his elders. His judgments and demands are maximal, he makes no sober evaluation of the social problems he is attacking.

He sees life in terms of his own social political and ethical ideal. When he finds a discrepancy between his ideal and reality he believes that both his ideal and he himself

AND SOCIETY

BY IGOR KON
DOCTOR OF SCIENCE (PHILOSOPHY)

have been rejected by the world, to put it in Hegel's words.

The resolution of the ideal-reality contradiction is very important. This is where personality really shows itself. Having been forced to accept the fact that life is complex and that bad people prosper along with the good, one person will discard his former ideal. "We have been deceived," he will say. "Lofty ideals are for the naïve. Life must be seen as it is." Another person will remain faithful to his ideal but find no way of realizing it. Like a child, he will reject "the world as a whole," since he cannot improve it, and will solve the problem by taking refuge in the loneliness of his ego. Different as these attitudes are psychologically, their social, practical result is the same: defeatism.

Life must be neither rejected nor accepted "as a whole." Life is contradictory, the old and the new always in conflict, and every man is involved in this struggle whether he wants to be or not. A strong man does not shun this conflict, and a sober attitude to reality is not the same as opportunism. Free of the illusion so typical of adolescent thinking, his ideal becomes a frame of reference for practical activity. Life destroys illusions, not ideals. It is appropriate in this context to quote Hegel again: "What is true in these ideals man must preserve in practical activity; it is only from what is untrue, from empty abstractions, that he must rid himself."

Father-Son Problem

The Western press often refers to a conflict of generations in our society. Actually there is no such social or ideological conflict between our fathers and sons. As for the Western countries, social forces there are not aligned by age either, but by class loyalties.

The interrelation and interdependence of generations in modern society are complex. Social status and prestige are no longer a function of age. In principle, the more experienced still lead the less experienced. Experience, however, often depends on knowledge and ability, rather than on age. A young college-trained engineer may rank higher than his experience-trained father.

But this is only one aspect of the problem. Another, no less essential, is the wider gap between generations since the rate of social development has speeded up. The tastes and habits of young people today differ markedly from those of the young people of the thirties, let alone of the twenties. Still influenced by the tastes and habits of their own youth, the "fathers" are inclined to think these habits and tastes are absolutes and to deny their children the right to independent creativity which they demanded from their own parents. Hence the artificial conflicts, in which a dance or the width of trousers is elevated to the dignity of crucial issues.

The problem of the generations does not reduce itself simply to the fact that the status of fathers and sons are more equal today while the differences between them are greater. Another, and a very important factor, is the longer life span.

The term "aging population" sounds dismal. Actually it is not. What it denotes is a greater proportion of aged people because of a longer average life expectancy. In many developed countries the proportion of people who are 60 and older exceeds 15 per cent. In our country average life expectancy has increased from 32 years in 1913 to the present 70 years. The process is progressive, of course, and it poses problems—for example, the problem of prolonging not only one's life, but one's capacity for work as well, or the problem of combining harmoniously the activity of old and young people.

Is There a Purpose to Life?

Socialist society offers young people a wide scope for activity. They have every chance to get an education, to work creatively, to participate. And they are using their opportunities. Sociological inquiries and polls of recent years confirm that. A questionnaire circulated by the newspaper *Komsomolskaya Pravda* asked: "Do you personally have a purpose in life?" Yes answers came from 16,674 persons, or 95.6 per cent of those polled. To the question "Which do you think is typical of your generation: purpose or lack of purpose?" 14,884 persons, or 85.3 per cent, answered in the affirmative. Except for an insignificant minority, the aims of our young people are not selfish; their purpose in life is to work for the benefit of people, to grapple with major social issues, to evolve higher forms of human relations.

This is not to say that Soviet people have no problems. They do—complex, hard and baffling ones. Take the problem of work. Very few people in our country even question the fact that everyone must work and that in time we will reach the point where work will be a psychological necessity. But what can we do about that here and now? Sociological studies indicate that one of the most important factors in a young man's choice of a job and his happiness with it is whether the work is creative. That ranks first in young people's job satisfaction motivation factors. Responsible in part is the higher educational standard of young people today. But this desire for a creative job has its problems.

In one region in Siberia a group of secondary school students was asked which of 70 occupations covering the whole range of skills, from industry to the arts, interested them. The most attractive, evaluated on a 10-point scale, were those requiring very high skills, in particular radio engineering and prospecting. Among the average-skill jobs the highest rating went to transport, the lowest to farming (3.57 points) and the service industries (2.63 points).

The problem is obvious. More and more young people will be aiming for highly skilled jobs. But the economy needs and will need not only scientists and engineers but also workers with lesser skills.

Then there are status factors that make one job attractive, another not. Of course, much depends on objective conditions (for example, the movement of young people away from the farms can be explained by the still considerable social, economic and cultural differences between urban and rural ways of life). But insufficient social understanding also accounts for the fact that young people look down on jobs in the service industries, in trade, offices, etc.

Young people are not passive objects of research or education. They are intensely alive, restless, creative people building their lives and—our communist future. They are not afraid of conflicts and difficulties, and they are capable enough of interpreting and evaluating them. An adolescent becomes an adult when he is prepared to accept adulthood, with all its joys and pains. A child expects ready-made answers to all questions. When something goes wrong, his first reaction is to blame others. An adult knows that there are ready-made answers only to very simple questions. He knows that history is the activity of many people, including his own. He asserts himself not in ego-dreams, but in activity. That fills his life with cares, anxieties and difficulties, but it also makes his life meaningful.

Courtesy of the magazine
Molodoi Kommunist

AROUND *the* COUNTRY

LANDING ON VENUS

The Soviet automatic station Venus 3 reached the surface of the planet Venus at 9 hours 56 minutes Moscow time on March 1 after a flight of three and a half months and delivered to its surface a pennant with the coat of arms of the Union of Soviet Socialist Republics.

The precise rendezvous of the probe with the planet was achieved as a result of a midcourse correction of the flight trajectory on December 26, 1965. Throughout the flight regular radio communication was maintained with the probe and scientific information was received. During the approach of the probe to the planet the communication period at the final stage did not take place.

The other automatic interplanetary station Venus 2, launched on November 12, 1965, continuing its flight over a heliocentric orbit, on February 27, 1966, passed at a distance of 224 thousand kilometers from the surface of Venus.

A MAMMOTH AMULET

Archeologists have made an interesting find at one of the paleolithic camps near the station of Malta, not far from Irkutsk in Siberia. In a cave once inhabited by prehistoric man, they found a piece of mammoth tusk with a drawing of that animal made by a primitive artist. The piece of tusk has a hole for string. Apparently it was worn as an amulet. This is the oldest drawing of a mammoth ever found in the Soviet Union.

SWEETS INDUSTRY

Last year our factories turned out a per capita average of 22.7 pounds of confectionery—caramel, chocolate, *halva* (a paste of sugar, nuts and oil) and other candies.

One of the country's largest confectionery makers is the Krasny Oktyabr Factory in Moscow, a Brussels World's Fair prize winner. The factory is equipped with automatic transfer lines and makes 240 varieties of candy and chocolate. All the confectionery factories in the country produce about 2000 varieties.

PEOPLE GROWING TALLER

A study of 15-year-old Muscovites produced some interesting results. In 1882 the average height of 15-year-olds was 4 feet 9⅞ inches, in 1923 it was 4 feet 11 inches, and now it is 5 feet 5¾ inches. Not only have children grown taller but scientists say that in the past 50 years they have been developing faster. A boy of 13 is now as well-developed physically as a youngster of 15 a half century ago.

It carries over to the adult population. The average height of men in Moscow has increased by 1½ inches in the past 30 years and the average weight by 20 pounds.

METAL PLANT BALLET COMPANY

Our trade unions maintain 124,000 Palaces of Culture and clubhouses and subsidize more than 700 nonprofessional theater companies. Some 6.5 million people are active in the country's 340,000 amateur drama, music and dance groups. In the course of a year they give one million performances to 210 million people. They have played in Czechoslovakia, Poland, Austria, France, Japan and other countries.

The photo is a scene from Sergei Prokofiev's *Stone Flower* produced by the ballet studio of the Moscow Serp i Molot Metallurgical Plant. The dancers are designer Konstantin Skryabin and rolling shop dispatcher Maria Leonova.

THE ELEPHANT AND THE BROOMS

A hitherto well-behaved elephant at the Moscow Zoo became troublesome. It snatched a broom out of a cleaner's hands and chewed it up. Then it broke a ladder into small pieces and swallowed them. Then it stole one man's cap and another's hat. Then it got sad and stood with its trunk pointing at the ground like a walking stick. The zoo veterinarians got worried. The sugar they offered was refused, so was the apple. It was obvious then that the elephant had a toothache. The veterinarians found that one of the teeth was so loose it could be pulled out by hand, and that's exactly what they did. The tooth was 16¾ inches long.

An elephant changes its teeth six times during the course of its life. So that they will fall out on their own, the animal is given hard food. In this case the zoo staff lets the elephants chew brooms, about 65 pounds of them daily.

WINGED WEAPON

Despite modern firearms and even the helicopter, any Kirghiz hunter worth the wild game he goes after still uses the traditional golden eagle as his weapon. Savyr Kadyraliev, a veteran collective farmer, has been hunting with tamed eagles for 40 years. Kadyraliev and his winged friends have caught more than 200 wolves and foxes.

ARTILLERY LEVELS A CLIFF

Gun crews helped the builders of the Nurek Hydroelectric Power Station in Tajikistan end the danger of stone avalanches on a highway running through the bottom of a deep gorge. The cliffs hung menacingly over the road. The builders looked at the almost vertical slopes and invited an artillery crew in. A few hundred shells pounded the cliffs down and made the highway safe for driving.

SOCCER-FIELD SIZE CATAMARAN

A catamaran, whose two hulls (each 425 feet long) were built in the city of Gorky and then delivered to Baku where they were joined with a metal bridge, is being used to build derricks at the offshore oil fields in the Caspian Sea. The deck is as big as a soccer field. This platform carries the underwater foundation of the derrick out to sea and sets it up. The crane on the catamaran can raise a 275-ton metal structural part as high as a five-story house and lower it carefully to the sea bottom. The ship has four propeller screws, two in the stern and two in the bow, so the catamaran can move in any direction. Built for any kind of weather, the crew can work comfortably even on heavy seas.

SPACE PAINTINGS

Outer Space as seen by a Scientist, an Artist and a Cosmonaut was the title of an exhibition at the Central Pioneer Palace in Moscow. On display were 50 paintings done by cosmonaut Alexei Leonov, artist Andrei Sokolov and Professor Georgi Pokrovsky.

Professor Pokrovsky did his first space painting *A Cosmodrome of the Future on One of the Planets* 25 years ago. Artist Andrei Sokolov began devoting himself completely to science fiction painting in 1957. Alexei Leonov's drawings were reproduced in our press long before his space flight. Leonov made several sketches in space.

Some of his and Sokolov's paintings on display at the exhibition appeared for the first time in the September issue of *Soviet Life*. In the photo (left to right): Alexei Leonov, Andrei Sokolov and Georgi Pokrovsky.

BEAUTY OF MOTION

For sheer beauty of movement, no contest can beat the cup championships in calisthenics. There are 100,000 Soviet girls active in this young sport. This year's cup was won by Tatyana Kravchenko, a 25-year-old schoolteacher from Moscow. She made the highest score of 9.9 points for two of her exercises (out of a total of three). She took the lead in the last stage of the contest. Until the final exercises with the ball Lilia Nazmutdinova from Sverdlovsk, three times the country's title holder, was ahead. But Nazmutdinova was unlucky enough to drop the ball, thereby giving Kravchenko a 0.1 point advantage.

40 BILLION LIGHT YEARS

Under construction near Kharkov is a new T-shaped radio telescope with 2,950-foot-long spans. The telescope is designed to research the decameter wave band, which so far is almost unexplored. It is these waves that carry the information about dead stars and intergalactic matter. They also can unravel the secret of the mysterious cold light emitted by Jupiter and Saturn.

The telescope's 2,040 vibrator aerials will be able to do the job of a radio telescope with a 1,115-foot-diameter metal mirror. It will have a range of 30 to 40 billion light years.

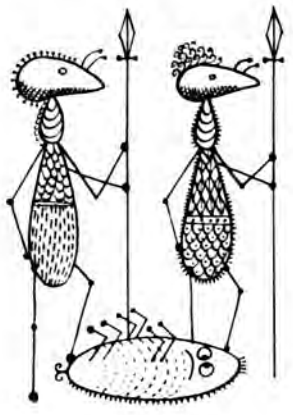
POWER STATIONS BIG AND SMALL

We not only build giant hydroelectric power stations like the Sayano-Shushenskyaya (with a capacity of 6.3 million kilowatts), but also very small ones run by streams. Each of these microhydroelectric stations has a capacity of slightly more than 0.5 kilowatts. Its principal parts are a turbine and a 325-foot-long capron hose. The hose is necessary to get the proper water levels. These power units weigh 110 pounds and can be used by shepherds on alpine pastures, by geologists and forest rangers.

CRAYFISH FLY TO PARIS

The many lakes and rivers in Leningrad region abound in crayfish. At sundown baited capron traps are lowered to the bottom of a lake or river. In the morning the catch—several dozen crayfish in each trap—is sorted. Young crayfish and crayfish with spawn are thrown back, the rest are shipped to Leningrad in baskets through which plenty of air circulates. After inspection by the health department the crayfish go to food stores and restaurants. Live crayfish are also shipped from Leningrad to Brussels, Stockholm and Paris.

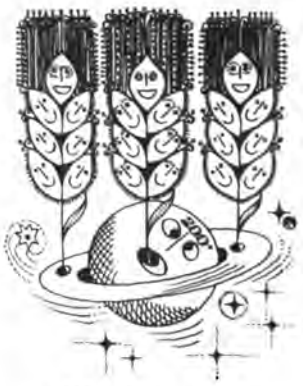
The photo shows Yuri Shchegolikhin, dispatcher of the Leningrad port, checking the condition of the live cargo before it goes abroad.



ANTS AGAINST PESTS

Kirghiz entomologists have established that the richest meadows are those 9800 feet above sea level. However, at higher altitudes tiny insects suck the juice out of the plants, and the grass dries out.

These insects do not live in regions below 9800 feet because at lower altitudes they are eaten by ants. Scientists are now trying to acclimatize ants to altitudes higher than 9800 feet above sea level so as to save the alpine meadows from pests.



HARVEST AT COSMIC TEMPERATURES

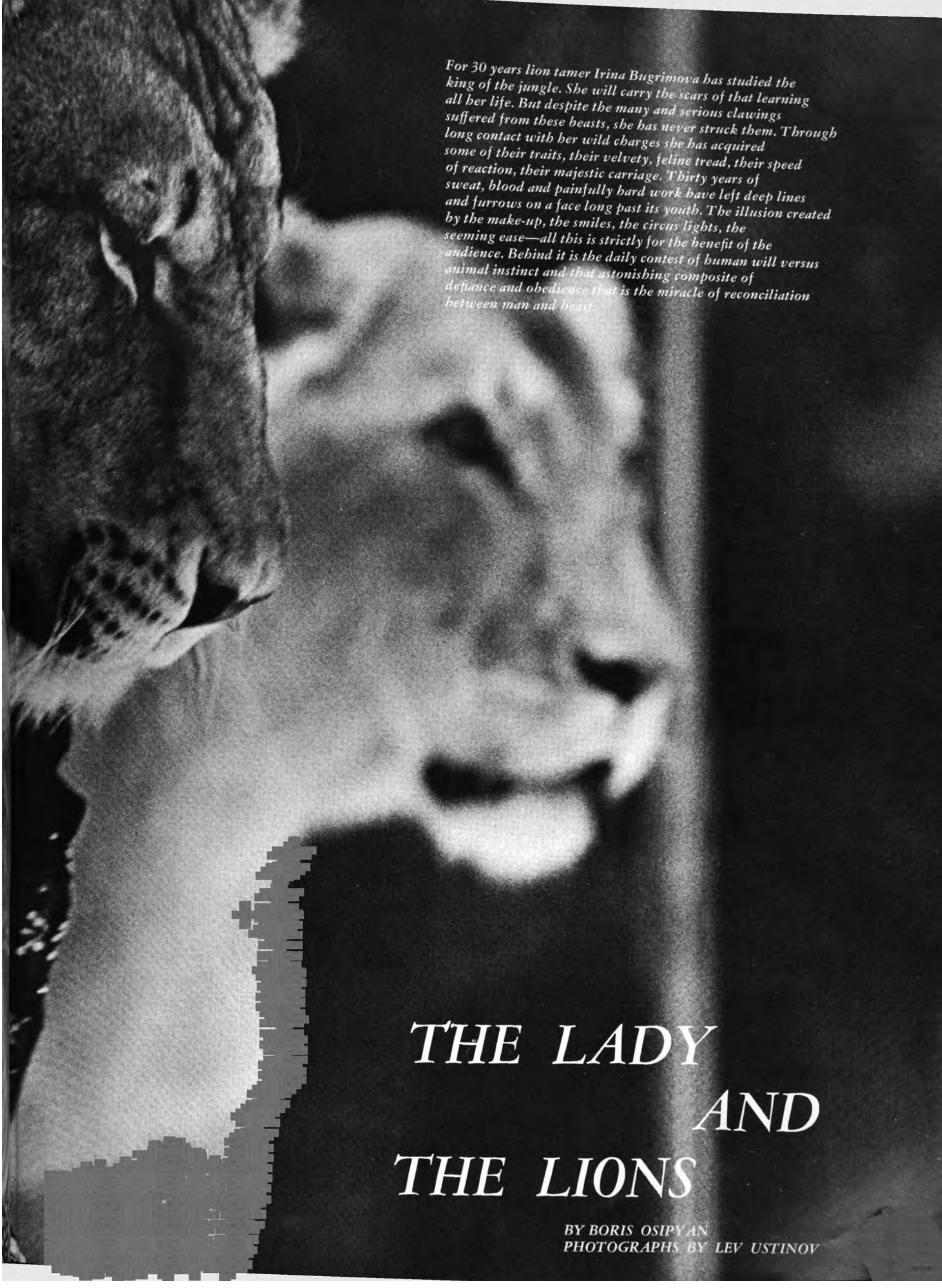
The artificial climate station of the Institute of Physiology of Plants recently harvested a crop of wheat resistant to a temperature of 328° below zero. Before that, the wheat went through an immunity development period. For 25 days the stalks were kept in a dark room at a temperature of 25°. Then the temperature was lowered to 22° below zero, and only after that were the plants placed in a bath of liquid nitrogen. When the wheat was slowly defrosted, experimenters found that many of the stalks were alive in spite of the cosmic cold and even retained their ability to bear fruit. The experiments are important not only for botanists and agronomists: they are a strong argument in support of the theory that it is possible to propagate life elsewhere in the universe.

TRADE WITH 100 COUNTRIES

The volume of the Soviet Union's foreign trade is 13.9 billion rubles, with 6.9 billion of it exports. Machines and equipment make up 21 per cent of the export items.

We trade with 100 countries and have long-term agreements with 70 of them. Our biggest trading partners are the socialist countries, which account for 70 per cent of our foreign trade. Our biggest partner among the developing countries is India, with which we do a 340-million-ruble business. Five hundred construction projects are being built with Soviet assistance in 30 African and Asian countries. Business deals with the advanced capitalist countries are on the upswing. Some four-fifths of our country's trade with the capitalist countries (the total volume is 2.8 billion rubles) falls to Austria, Britain, Canada, France, the Federal Republic of Germany, Finland, Italy, Japan and Sweden.

AROUND *the* COUNTRY



For 30 years lion tamer Irina Bugrimova has studied the king of the jungle. She will carry the scars of that learning all her life. But despite the many and serious clawings suffered from these beasts, she has never struck them. Through long contact with her wild charges she has acquired some of their traits, their velvety, feline tread, their speed of reaction, their majestic carriage. Thirty years of sweat, blood and painfully hard work have left deep lines and furrows on a face long past its youth. The illusion created by the make-up, the smiles, the circus lights, the seeming ease—all this is strictly for the benefit of the audience. Behind it is the daily contest of human will versus animal instinct and that astonishing composite of defiance and obedience that is the miracle of reconciliation between man and beast.

THE LADY AND THE LIONS

BY BORIS OSIPYAN
PHOTOGRAPHS BY LEV USTINOV

Here is the circus ring brilliantly flooded with light and an audience awed into quiet by the langorous, graceful beasts with their strongly acrid smell. Here Irina Bugrimova had her triumphs and also her greatest setback. A fierce blow of an animal's paw smashed a bone in her face. But what she felt as deeply as the physical pain was that this lion she had worked with so long had suddenly stopped "understanding." For two years she had practiced his act with Tarzan, and for two years it had come off successfully. And then this failure, and irretrievable, for once having failed, the animal could never be induced to try his act again. The whole circus had a sense of failure—the other performers, the attendants, Burgimova herself, her husband and partner Konstantin Parmakyan, even the animals.

Bugrimova was her usual firm and collected self that day, but Tarzan was moody, as though he sensed trouble. At the order "Up!" he leaped to the top of a low platform and climbed a double rope to a higher level. As he turned to climb down, he hesitated. The audience did not notice the animal wavering but Bugrimova did. Something in his movements or the glint in his eye told her that Tarzan was afraid to climb down. Why he was suddenly frightened no one will ever know. Bugrimova mustered all her will and by sheer power of her voice made the beast come down. But Tarzan was finished as a performer, he never did the trick again. It would take two years to train another lion and Bugrimova hasn't the time, she will soon be retiring. She is sad at the thought of parting with her kittens, as she calls them, but compensation for the parting must be the gratification that she has given so much of her life to a beloved pursuit. Certainly there is no one who has done that pursuit greater justice.

QUERIES FROM READERS

QUESTION: Can you give me any information on Boris Pasternak? (Mrs. Linda Hellyer, Hampton, Iowa)

ANSWER: Poet and translator Boris Pasternak (1890-1960) was born in Moscow. His father was an artist. He received a broad education at home (music, philosophy, literature) and studied at Moscow University.

His poetry was strongly influenced by the 1917 Revolution. Besides his very famous lyrical poetry, Pasternak wrote "Lieutenant Schmidt," "The Year Nineteen Five," "The Kremlin in the Blizzard of 1918," and "A Second Birth." The antifascist poetry he wrote during the Second World War is also read very widely.

In 1958 he was awarded a Nobel Prize but refused to accept it since political rather than literary considerations were involved. (His novel *Dr. Zhivago* had been used in the West for an intense anti-Soviet compaign.)

Maxim Gorky called Boris Pasternak a most original talent. His poetic vision is exceptional, but his complex imagery and language make some of his poetry difficult to read. A representative collection was published in the Soviet Union last year.

His translations of Shakespeare *(Hamlet, Othello, Romeo and Juliet, King Lear)*, Goethe *(Faust)*, Sándor Petőfi and the poets of Georgia are universally acknowledged as masterpieces.

The script for the film *Hamlet*, which won a special prize at the International Film Festival in San Sebastian, Spain, was based on Boris Pasternak's translation.

QUESTION: I should like some information on Russian sugar production. (C. E. Deeds, Houston, Texas)

ANSWER: The 1964 sugar production figure was more than eight million metric tons, some 80 pounds per capita.

QUESTION: Will you tell me about your parks of culture and rest? (Max Cossak, Los Angeles, California)

ANSWER: Even small towns have a park of culture and rest. As for larger cities like Moscow, Leningrad and Kiev, they each have several. These parks all have an amusement area, open-air theaters, dance halls, athletic fields, exhibitions and, of course, restaurants and cafés.

The Ministry of Culture holds annual contests for the "Best Park in the Country," with close to a thousand parks competing for the title.

QUESTION: Why don't we hear about Russian automobile racing? Don't you have any? (Bill Burson, Sonora, California)

ANSWER: We do. The Automobile Sport Federation of the USSR, with a membership of more than 70,000, has been holding annual Gold Medal championships for stock, racing and sports cars of different classes since 1958. The events include long-distance rallies, trick driving contests, circuit runs, summer and winter cross-country runs and record-breaking trials.

The Soviet Union competes in such international competitions as the Monaco Grand Prix, the Rally of One Thousand Lakes (Finland), and the Acropolis (Greece), Polish and Swedish rallies.

QUESTION: Why has the Soviet Union three votes in the United Nations: the Ukraine, Byelorussia and the Soviet Union itself? (Irving Sandberg, St. James, Minnesota)

ANSWER: The membership of the Ukraine and Byelorussia in the UN was considered by the heads of state of Great Britain, the United States and the Soviet Union at the Yalta Conference in February 1945. They took into account not only the sovereignty of the Ukraine and Byelorussia as union republics of the USSR but also their great contribution in the war against Nazi Germany. On April 3, 1945, at a press conference in Washington, the American Secretary of State Edward Stettinius said that his government would support the Soviet Union's proposal to invite the Ukrainian and Byelorussian republics to be original members of the UN, in view of the heroism with which these republics had resisted the enemy of all mankind and the courage with which their people had borne the hardships of the war.

On April 26, 1945, a motion to invite the Ukraine and Byelorussia to become original members of the UN was unanimously passed by the Conference on International Organization held in San Francisco.

QUESTION: What is the attitude of Soviet society toward narcotics addiction? Is addiction widespread or rare in your country? (Andrew J. Foglia, Brooklyn, New York)

ANSWER: Soviet society takes a strong position against narcotics addiction. Only isolated cases crop up since the use and sale of narcotics are considered crimes, and organized crime and smuggling have practically been done away with. Last year the newspaper *Sovetskaya Rossiya* reported a case of narcotics addiction in Omsk, Siberia, reminding readers that the fact that these cases are so rare does not make them any the less socially harmful.

QUESTION: Do Russian citizens visit churches? Who takes care of the churches? Can American and other foreign tourists visit churches or do they need permission? If they do, is permission given? (Carolyn Davis, San Jose, California)

ANSWER: Foreign tourists may visit churches when and wherever they please, just as any Soviet citizen may. No permission is required. The congregations support their churches. Churches and cathedrals of architectural or historical value (there are 500 of them in Moscow alone) are maintained by the state.

QUESTION: In the early years of Soviet education was any attempt made to educate adults? (Lawrence Putman, Burlingame, California)

ANSWER: Sixty million illiterate adults were taught to read and write between 1920 and 1940. This was the result of an organized national effort by state agencies and mass organizations. According to the 1959 census, the country was 98.5 per cent literate that year.

QUESTION: I would be very much interested in information about the Russian judo team. (Dave Roberts, Albuquerque, New Mexico)

ANSWER: Our judo team has been competing internationally since 1962. It took one European championship and was a strong second at the Tokyo Olympics. In the 1965 world judo contest at Rio de Janeiro we entered a four-man team: Anzor Kiknadze, 32, three times heavyweight champion of Europe; Parneaz Chikviladze, 24; Anzor Kibrotsashvili, 26; and Oleg Stepanov, 26, USSR lightweight champion. Our men took one second prize and two third prizes. They did not compete in the middleweight event.

QUESTION: As a young man I visited the Pinsk marshes. Have they been reclaimed? (Sergei Mitereff, Williamsburg, Virginia)

ANSWER: Land reclamation is under way on a five-million-acre tract that takes in a good part of northern Ukraine and southern Byelorussia. The reclaimed areas give good yields of grain and industrial crops, and this helps the region's meat and milk production. Forested areas are being enlarged, and peat and peat coal, gas, potassium and rock salts, phosphorites and other minerals are being extracted on a growing scale.

Once a small settlement, almost lost in great stretches of marshland, Pinsk has become an industrial city, a railway junction and an inland port on the river Pripyat (a tributary of the Dnieper), and has any number of factories, schools, technical colleges, hospitals, clubs and a museum.

QUESTION: Do banks and other public buildings in your country have collection cans around for dimes to fight cancer, heart disease, polio, paralysis or to help crippled children? (John Duerr, Ashland, Nebraska)

ANSWER: No, we do not have charity drives or people who collect for them. The state provides for the care of aged people, chronic invalids and crippled children. Medical care, including hospitalization and surgery, is free. In 1965 the Soviet state spent 37.5 billion rubles on social insurance.

QUESTION: What is the population of Moscow, Odessa and other big cities? (Harry Feldstein, Brooklyn, New York)

ANSWER: The most populated of the country's 2,000 cities and 3,000 urban-type settlements are (as of January 1, 1965): Moscow, 6,408.000; Leningrad, 3,607,000; Kiev, 1,308,000; Baku, 1,128,000; Tashkent, 1,073,000; Gorky, 1,066,000; Kharkov, 1,048,000; Novosibirsk, 1,013,000; Kuibyshev, 928,000; Sverdlovsk, 897,000; Tbilisi, 794,000; Donetsk, 794,000; Chelyabinsk, 790,000; Dnepropetrovsk, 755,000; Perm, 745,000; Kazan, 743,000; Odessa, 721,000.

RECORD OF A GREAT VOICE

BY YEVGENI LEVIT

LEO TOLSTOY saw a phonograph for the first time in the nineties at the apartment of an American business representative in Moscow. That was when the voice of the great writer, reading a parable, was first recorded on a phonograph cylinder. The recording is now in the archives of the Leningrad Institute of Russian Literature.

On a visit to Yasnaya Polyana in the spring of 1907 the editor in chief of *The New York Times* promised Tolstoy an improved phonograph. When Thomas Edison learned to whom his favorite invention was to be sent, he thought it a matter of honor to proffer the phonograph as a personal gift. Tolstoy received the parcel on January 17, 1908. A plate fastened to the phonograph bore the inscription: "A gift to Count Lev Nikolayevich Tolstoy from Thomas Alva Edison."

Leo Tolstoy was the first Russian author to use sound recording equipment for his work. It very much lightened his large correspondence. Still extant are the phonograph cylinders recording Tolstoy's reactions to political events, one of them titled: "Lev Nikolayevich's Thoughts on the Realities."

The following year Edison addressed Tolstoy with the following ing request:

My dear Sir:

Can I prevail upon you to make for me one or two phonograph records in English or French, preferably both, of short messages . . . conveying to the people of the world some thought that would tend to their moral and social advancement? . . . Your fame is world-wide, and I am sure that a message from you would be eagerly received by millions of people. . . . I doubt if the whole operation would take more than an hour.

If you can oblige me in this matter, I will have one or two of my assistants go to your home with the necessary apparatus at any time that you may indicate.

"I would like to prepare something real, something dear to my heart for the phonograph," noted Tolstoy in his diary on December 19, 1908.

Soon afterward, in January 1909, the Moscow newspaper *Rul* reported:

"Lev Nikolayevich was visited at Yasnaya Polyana a few days ago by two Americans, close associates of Edison. It was their mission, on the instructions of Edison, to record the voice of the great thinker on special cylinders. . . . Tolstoy recited four excerpts in Russian, English, German and French. The transmission of his voice by means of these cylinders was astonishingly clear. The cylinders, we have heard, are not to be distributed."

The Americans had recorded exerpts from the essay "On Life," and Thomas Edison confirmed the superior quality of the recording.

The British firm Gramophone had been trying to get Tolstoy's agreement to a recording for a long time and finally concluded a contract with the Society of Periodical Press Literati. The society agreed to help the British firm, in return for which it was to have the privilege of distributing the records. Representatives of Gramophone left for Yasnaya Polyana on October 17, 1909.

The recording was made on the morning of October 18, 1909, when Tolstoy had returned from a walk. Sitting in an armchair in his library, he read excerpts from the book *For Everyday Use* in four languages. He had compiled the book from reflections on life by thinkers of various countries. The phonograph cylinders were subsequently sent to England.

The first manufactured records with Tolstoy's voice appeared in January 1910. He died in November that year.

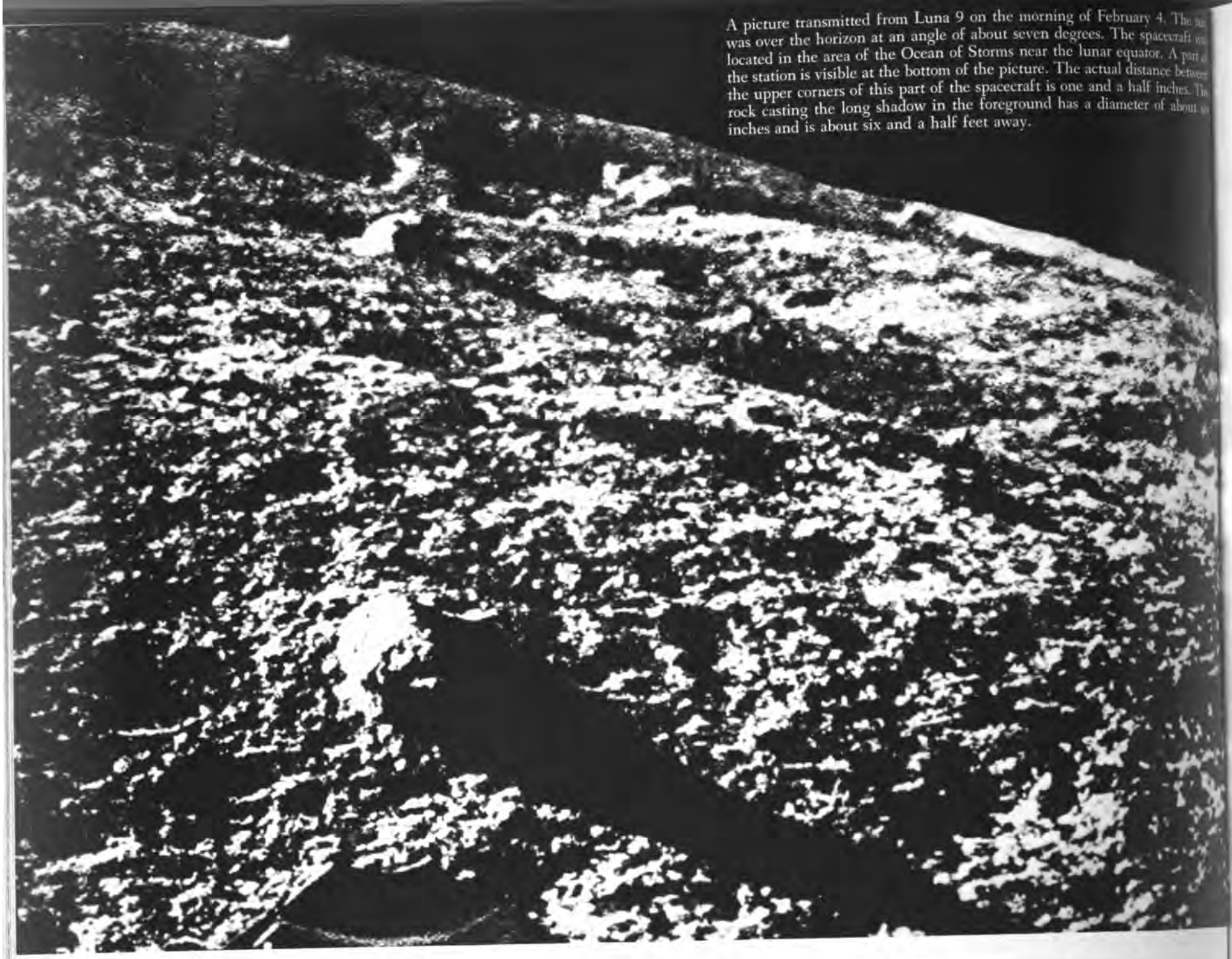
Immediately after his death the czarist government intensified its efforts to suppress everything he had written. Even essays and articles about him were banned, as were showings of documentary films about him and the sale of his portrait.

"The records of L. N. Tolstoy confiscated in Riga!" read a 1912 news headline. Riga had then acquired its first large phonograph record factory, a branch of the Gramophone Company. Also available in Riga were records shipped from abroad.

Despite the ban, recordings of *For Everyday Use* had been widely distributed (more than 100,000 copies). They were to be played at a public function in Moscow in 1911.

Completely beside itself, the government ordered the police to confiscate the records in 1912. This was done.

Does any American collector have one of those unique records?



A picture transmitted from Luna 9 on the morning of February 4. The sun was over the horizon at an angle of about seven degrees. The spacecraft was located in the area of the Ocean of Storms near the lunar equator. A part of the station is visible at the bottom of the picture. The actual distance between the upper corners of this part of the spacecraft is one and a half inches. The rock casting the long shadow in the foreground has a diameter of about six inches and is about six and a half feet away.

EXPLORING THE MOON

First Automatic Station On the Moon

At a press conference at the Moscow Scientists' Club on February 10, Mstislav Keldysh, President of the USSR Academy of Sciences, Professor Alexander Lebedinsky and Academicians Alexander Vinogradov and Alexander Mikhailov gave a detailed description of the flight of Luna 9 and their views of the structure and chemical composition of the lunar surface.

The following are excerpts from some of the statements and Academician Keldysh's answers to questions from the Soviet and foreign newsmen present:

ACADEMICIAN M. V. KELDYSH

The images of the moonscape around the station already transmitted by Luna 9 are of outstanding scientific importance. For the first time we have had an opportunity to see a close-up of a bit of the surface of the moon. We can see that the lunar surface consists of adequately durable rock of the pumice or slag type. It turned out to be hard enough for the station not to sink. There is no doubt that further conclusions, which will be made as the result of a thorough study of these unique pictures, will provide us with even more knowledge of the lunar surface. The automatic stations to be sent up in the future will give us an opportunity to explore the mechanical and physical properties of lunar soil, the composition of lunar rock, the changes in the temperature of the surface, and will provide us with a lot of other valuable data on the moon.

PROFESSOR A. I. LEBEDINSKY

The Luna 9 automatic station has viewed the moonscape with the eyes of a space traveler.

Its television camera was approximately 60 centimeters above the surface, which ensured a visibility range of approximately 1.5 kilometers (nine-tenths of a mile) on a smooth section of the moon's surface. The height of a man is more than that of the station and his vision range would have been 2.3-2.5 kilometers (1.4-1.5 miles).

During the flight measurements were taken of the radiation rates in interplanetary space and on the surface of the moon. The decoding of the signals obtained has shown that the radiation intensity on the moon's surface is determined mainly by cosmic rays. The radiation dose is 30 milliards daily. It has been discovered that there exists an additional radiation of the moon. Most probably this radiation is caused by nuclear reactions in the surface layers of the moon which take place under the influence of cosmic rays. We believe that further study of this radiation may make clear the chemical composition of the moon's rocks.

ACADEMICIAN A. P. VINOGRADOV

We may guess that the relief we see is a secondary picture which developed on the lunar surface under the influence of various factors and processes on the erupted lava. It may, for instance, be due to the considerable temperature fluctuations from 100°C. above zero (212°F.) to 150°C. below zero (—238°F.) and to the effect produced by micro-

meteorite impacts. The corpuscular, X-ray and ultraviolet irradiation from the sun might also influence it. And, last but not least, there were the effects of the chemical reactions of water and gases with solid rock, which had undoubtedly taken place even if only at the instant when water and other volatile substances were isolated from the lava. They have an effect on rocks, for instance, oxidizing them, etc. We may assume that, due to this feature of the processes on the moon, we can come across minerals that are new to us. Thus, sedimentation, *i.e.*, fall of matter on the sea surfaces, as well as the effect of water and gases, led to the formation of the macro- and mesorelief of the lunar seas. Mechanical corrasion of the surface made this process quite uniform and created the microsculpture of the surface. And the processes of rock cementation with remnants of salts, volcanic ash and meteoric dust created the porous but solid surface of the lunar seas.

Q. Why was the station's position changed between the second and the third communication sessions?
A. The reason was the deformation of the lunar surface. We do not know yet what kind of deformation it was and what caused it. Perhaps the ground had settled at the spot where the station landed. Or perhaps the station did not have enough stability initially because of a small stone. A small deformation could take place because of the temperature changes on the surface of the moon. There also might have been some mechanical effect produced by the station.

Q. Were there solar batteries on Luna 9?
A. No, there were none since the program mainly called for photographing the lunar surface. Besides that, we merely had to make a space radiation experiment. There was no need for solar batteries.

Q. How much of the problem of man's flight to the moon and subsequent return to the earth has been solved?
A. It will all be solved when man flies to the moon and comes back. ***(Laughter in the hall)***. This, of course, is a great step toward that solution. Soft landing is one of the decisive elements of the problem, since there was doubt whether it was possible to land on the moon at all and to stay on it. Now we know that it is possible and we know how to land. However, we still have some other quite serious problems.

Q. Is it possible to live and work on the moon for some time?
A. I think it is, with, of course, the necessary devices to maintain life.

Q. What will be the next stage of a cosmonaut's flight to the moon?
A. A cosmonaut may perhaps at first circumnavigate the moon. But this is still a question to be decided. At the preceding press conference and even before, I said that our scientists were interested in the problem of manned flight to the moon, and we cannot help but be interested in it now. We are doing studies along these lines. But I think that it is still too soon to set any time limits for the actual solution. A great step ahead has been taken. And after this step we must look and see what has to be done next in the way of research on the problem.

Q. Can we say that the soft landing system ensures a 100 per cent reliable landing of the next station?
A. Technically the solution of this problem is 100 per cent guaranteed. But there is chance, and nothing can be 100 per cent. We still have automobile accidents, though automobiles have been used by man for quite a long time. However, I would like to repeat that technically this problem has already been solved.

Q. What was the meaning of the words: "The station's program has been carried out successfully." How big was the program?
A. The station's program provided for the transmission of several panoramic photographs and of telemetered information. This was carried out.

Q. How many Soviet space vehicles are in orbit around the earth and in space, vehicles with which regular communication is maintained?
A. The most important and very interesting vehicles are the two automatic stations now en route to Venus, the permanently functioning Molnia I communication sputnik and some other space vehicles.
(The Venus 3 station landed on March 1. Ed.)

Q. Could you give us the principal stages that have to be gone through between this soft landing of an automatic station on the moon and the future landing of a manned spaceship?
A. There are still many questions here which call for technical skill and enlisting the services of science. However, for significance, there is one previous stage which bears comparison with the soft landing problem—I mean the return to earth.

Cosmonauts returned to earth with orbiting velocity. When Gagarin flew into space, everything else was rather clear, scientifically speaking, but his return was new and unexplored. To return from the moon, release velocity will have to be used, and that is 11,000 m/sec.

Q. Can we now say that the photographs transmitted from Luna 9 have substantially changed scientists' conceptions of the moon?
A. We think that they have. The comments of scientists published in the world press coincide with our opinion.

Q. What comment do you have on Professor Lovell's opinion about the Soviet Union's putting a space crew in orbit around the moon early in 1967?
A. I do not know on what Professor Lovell bases his assumption.

Q. Could you give the weight of the piloting capsule and of the braking device?
A. The whole device which was given release velocity on the way to the moon weighed about 1.5 tons (3300 pounds) and the station itself 100 kilograms (220 pounds). I should say that in this flight we did not try to reduce the weight of the braking and piloting devices. Attention was mostly concentrated on taking all measures to guarantee the successful solution of the problem.

Q. Was the equipment on board Luna 9 exclusively Soviet-made or were some of its parts supplied by other socialist countries?
A. All equipment was Soviet-made, but we hope that now that we have signed a space research cooperation agreement with socialist countries we shall also have jointly produced equipment.

Q. Do you preclude the possibility of an automatic station (similar to Luna 9) soft landing, say, on Venus in the not too distant future?
A. In principle, I don't preclude such a possibility, but this is a difficult task. I would say that a landing on Venus entails its specific difficulties because the temperature of that planet's surface is, apparently, about 400 degrees C. and its atmospheric pressure is very great.

Q. Are further launchings of automatic stations of the Luna 9 type expected this year?
A. I think it would be interesting.

Q. One of the correspondents said that for some time now the moon has been the object of theoretical study from the viewpoint of international law and international relations. The soft landing of Luna 9, which has opened up a new era in human society's relation to the moon, brings us closer to the time when the moon will be an object of international law not only theoretically, but also concretely, in practice.
A. Lawyers should tackle space law in earnest. I, for my part, would prohibit all military activity on the moon. Our country is against armaments on earth and even more so on the moon.

Q. Is there not some concern that a landing on the moon may infect the lunar body with our terrestrial bacteria?
A. Special measures are taken to prevent this from happening.

Q. Could Luna 9 be regarded as the first lunar post office, which began its operations by sending phototelegrams?
A. This question ***(the scientist said jokingly)*** should, perhaps, be considered by those who deal with space law.

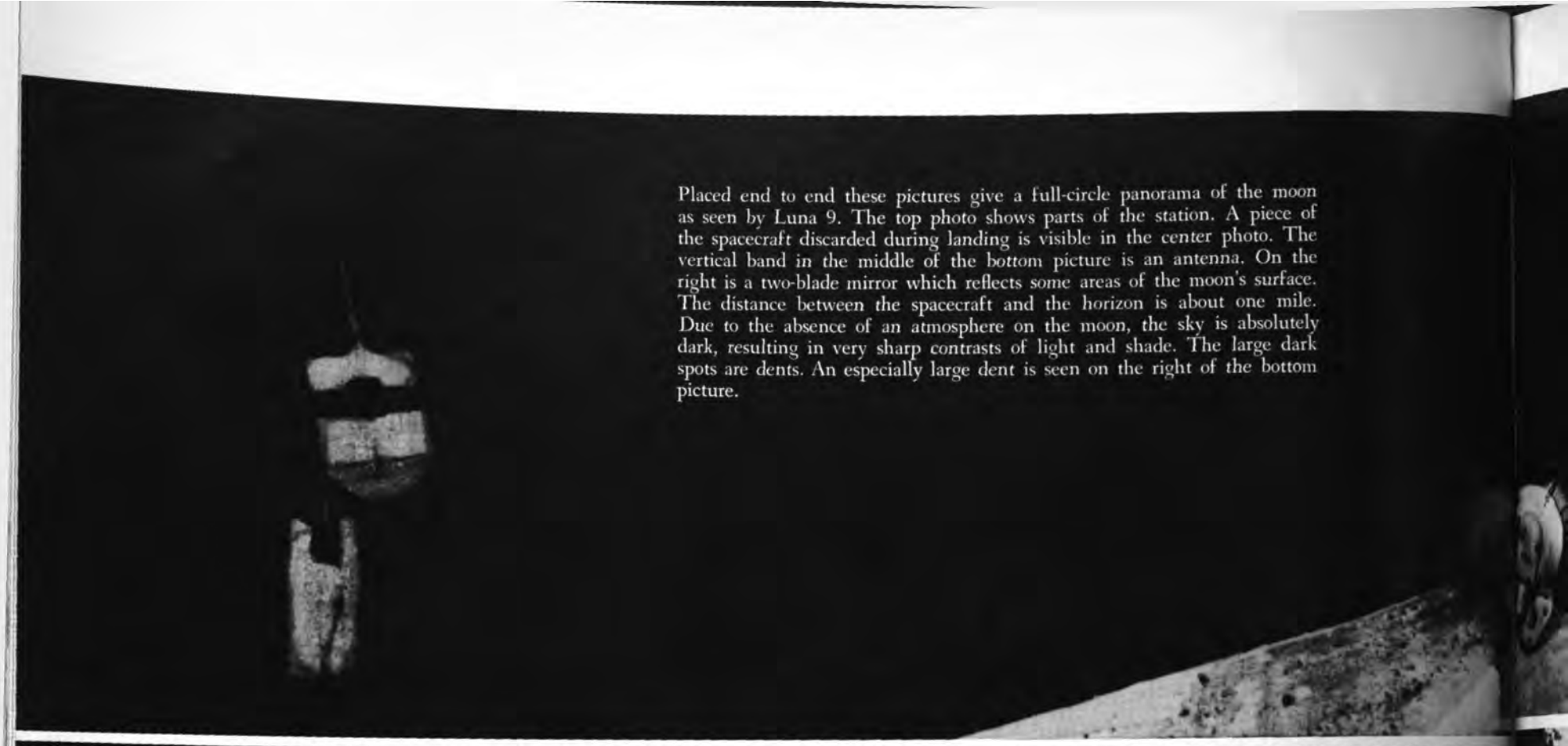
Q. When are we likely to get the first samples of the moon's ground and atmosphere, lunar seismograms, the temperature of lunar ground, etc.? Is it a matter of months or years?
A. I think it is a matter of months or dozens of months.

Q. What methods were used for TV transmissions to the earth? Were digital signals used or did Luna 9 transmit by the method of analogue modulation?
A. The standard method of frequency modulation, often employed for transmissions on earth, was used.

Q. Is it planned, as was the case with earlier launchings of automatic stations, to publish the photos made by the Luna 9 station?
A. The Academy of Sciences plans a special publication devoted to the launching of this station, complete with photos of the lunar surface. Later, scientific journals will publish everything that we will obtain additionally from the data transmitted by the Luna 9 station.

Q. Did the station send to earth any information other than the well-known photos? Would it be possible to know the results of the experiments conducted?
A. This was dealt with in Professor Lebedinsky's statement. Dosimeter measurements were made. It has been established that the moon has a background count created by the nuclear reactions in its ground, caused by cosmic rays. This was to be expected. Scientists hope that with a more detailed study of this background they may be able to analyze the composition of the moon's surface in the future. In addition to this, very detailed information was transmitted about the behavior of all the systems in flight, about the behavior of the lunar station systems, in particular its thermal conditions while it was on the moon. All these data are of great value and will be analyzed in greater detail.

Q. For how long can Luna 9 be preserved in lunar conditions and what are the prospects for returning it to earth?
A. It may lie there for millions of years. There was no intention of bringing it back. It is possible that later, when manned trips to the moon and back become a usual affair, we might bring the station back to keep in a museum for its historical value.



Placed end to end these pictures give a full-circle panorama of the moon as seen by Luna 9. The top photo shows parts of the station. A piece of the spacecraft discarded during landing is visible in the center photo. The vertical band in the middle of the bottom picture is an antenna. On the right is a two-blade mirror which reflects some areas of the moon's surface. The distance between the spacecraft and the horizon is about one mile. Due to the absence of an atmosphere on the moon, the sky is absolutely dark, resulting in very sharp contrasts of light and shade. The large dark spots are dents. An especially large dent is seen on the right of the bottom picture.

Q. Is it possible to grow farm crops on the moon? What type of hothouses with an artificial atmosphere might be needed for the purpose and will it be possible to use the lunar ground as a field?

(These questions brought laughter but the scientist answered them seriously.)

A. Given the appropriate devices, I believe it is possible. Biologists are seriously working on complete cycles of regeneration for growing plants even in spaceships and not only on the moon. There have been impressive achievements in this important field of science.

Q. At whom was the stone seen on the photograph of the moon "aimed"—the meteorite scientists or the volcanologists? ***(Laughter).***

A. I think that they still have the opportunity to cast this stone at one another a few more times.

Q. Has a name been given to the place of the historic landing? If so, what is it?

A. I believe that we should have a name for the place. American scientists called the point where Ranger 7 landed Mare Cognitum. However, astronomers have their own international rules, and names must have the approval of the International Astronomical Union. Therefore, it is a little premature to discuss this matter.

Q. Was it possible in principle to receive regular radio signals from Luna 9 after the main program of exploration had been completed?

A. It was possible to receive signals using the power reserve provided.

Q. What should be the weight of a whole vehicle capable of delivering a manned spaceship to the moon and bringing it back to earth?

A. We know that the initial weight of a rocket for such a mission would have to be figured in thousands of tons.

Q. Would it be possible to deliver to earth a sample of the moon's ground for analysis before manned flight?

A. Luna 9 station was not equipped for this task, but in principle it would be possible to build such a rocket system. It can be done by a simpler method, by sending to the moon in Luna 9 type stations instruments which would do the necessary analyses on the spot and transmit the information to earth.

Q. Is it necessary for manned flight to dock spaceships in a circumterrestrial orbit?

A. In principle this is not absolutely necessary.

Q. When can we expect the first news from stations Venus 2 and Venus 3?

A. These stations, now in flight, are functioning properly: regular communications are maintained with them, and we know that they will approach Venus somewhere around March 1.

Q. How was the telemetering equipment separated from the Luna 9 station? What is the distance between the measuring complex and the body of Luna 9?

A. When we say Luna 9, we mean the capsule with the necessary measuring instruments and the lunar TV transmitter. The devices for flight control and for the landing were separated from the station and fell on the moon. They are not seen in the photographs. It is impossible to tell the distance exactly, for when these devices had performed their function, there was no need for observing them any longer.

Q. Why were the pictures of the moon so clear? What was the number of lines in the image? How long did the TV transmission session last and how many sessions were there?

A. The great clarity of the image was due to the station's excellent equipment. There are 6,000 lines in the full panorama of the pictures, and the panorama was transmitted in 100 minutes. The TV pictures were transmitted in four sessions.

Q. Is there any kind of atmosphere on the moon? If so, what is its composition and pressure?

A. It depends on what you mean by atmosphere. There is practically no atmosphere in the terrestrial meaning of the word. However, there are some particles of it in the strongly rarefied medium around the moon. These disappear into interplanetary space and, conversely, constantly come out of that space into the sphere of lunar gravitation. But I would like to repeat that there is no atmosphere near the moon.

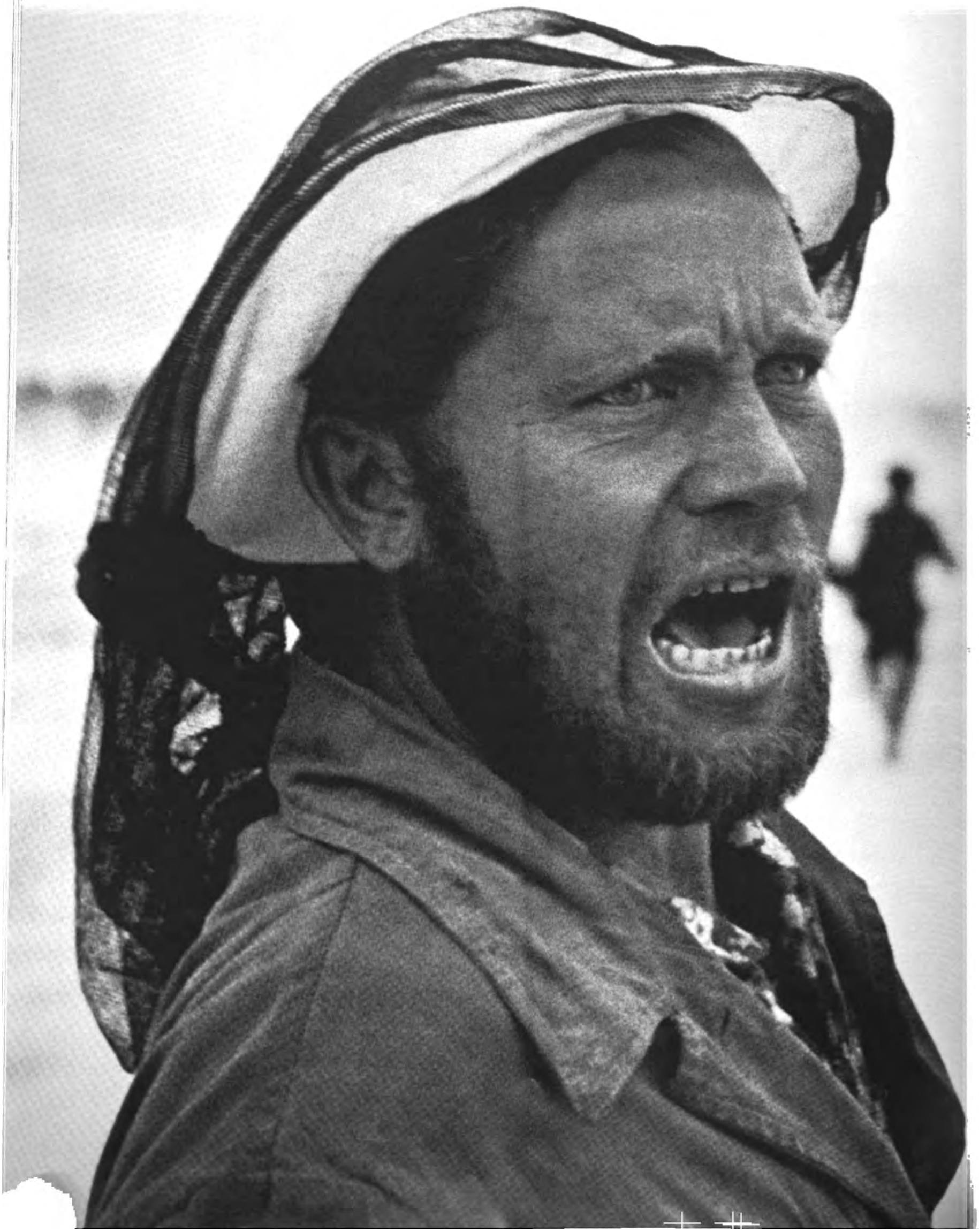
Q. Does the Soviet Union lay claim to the territory where Luna 9 landed?

A. No, it does not.

Q. How will territorial disputes connected with the lunar surface be settled?

A. This is a problem for lawyers. I believe that they should be solved in such a way that there will be no disputes.

Courtesy of Pravda



THE WELL THAT WENT CRAZY

Pur River Aglare

BY OLEG MORSKOV

Geologists discovered a rich deposit of natural gas on the banks of the Pur River near Tarko-Sale village in Western Siberia. But something happened before they could celebrate their find.

A CLAP OF THUNDER woke the geologists. It shook the wooden beams of their portable house. The hands of the alarm clock pointed to 5:10.

The shift superintendent stuck his excited face, wreathed in a frosty mist, through the open door.

"Gas!" he yelled.

"Shut the valve!"

"Too late!"

The 130-foot steel oil derrick shook violently. Hunks of rock shot out of the well and

PHOTOGRAPHS BY OLEG NASVETNIKOV AND LEV POLIKASHIN

Radio, aircraft, tractors, bulldozers—the whole arsenal of modern technology had to be marshaled to fight this 200-day blaze in a gas well. A gigantic jet shot up from a crater carved by the exploding gas, heating the air for half a mile around. The fire-fighting weapon was another well, drilled at a slant to reach the base of the fountain. A heavy clay solution driven through this well corked up the fire.

rang shrilly against the metal bars of the towers. The wooden ladders and scaffolds disintegrated.

"Switch off the diesel! Quick!" The slightest spark could touch off an explosion.

The lights went out. Everything was steeped in darkness. Stumbling and falling in the snowdrifts, the men dragged whatever they could from the supply depots. Oblivious of the 40-degree frost and the cold of the metal burning their fingers, they dragged spare parts and drums of fuel across the ice to the other bank. They dumped their loads, turned and sped back through the dark toward the derrick, guided by the thunder of the eruption.

All of them were plagued by the question: "How was this possible?" All the data they had said they should have hit gas at 5600 to 6600 feet, and here was this fountain 3000 feet too early.

The roar kept swelling. An hour and 40 minutes had passed, but it still sounded as though the explosion had come a moment ago.

The drillers had dragged everything they could across the river, some 1600 feet from the seething well. They had even taken the dining room apart and carried it log by log.

Huddled together on the bank, the men watched anxiously, their clothes encrusted with ice. A fire, or even a cigarette, was ruled out.

Radio operator Ikdam Makhmutov looked sadly at his transmitter. He had lost a battery somewhere in the dark, and his set was useless now. He kept asking himself how he, an experienced man who had worked with prospecting parties in the taiga for 15 years, could have done such a stupid thing.

Daylight came at half past seven, and the steel tracery of the oil derricks could be distinguished above the trees.

Suddenly the earth was shaken by a deafening explosion. The tubing hurled out of the well hit the steel of the derrick, struck sparks, and the taiga was immediately engulfed in a 700-foot mushroom of fire. The whole sky reddened. The long shadows of the trees stretched over the snow, a reddish-yellow color now.

The frost was gone! The air was charged with heat. The gas shot tools, instruments, piping into the air. Turning white hot in that gigantic jet of gas, they flew 800 to 1000 feet, hissing down to plunge through the ice crust of the river.

The steel derrick began to collapse at 7:45 and slowly melted like wax.

Storming the Holocaust

The glare was visible far and wide and was seen 50 miles away, at the base of the Tarko-Sale prospecting expedition. Within an hour an AN-2 landed on the ice of the Pur River.

"How are the men?" was the first question.

"All safe."

From that day on Tarko-Sale, a small village in the west Siberian tundra, was very much on the map. Special flights from Moscow brought representatives of the USSR Geological Commission and Aeroflot, and fire department heads. Their unanimous opinion was that the usual methods would not extinguish the gigantic gas jet rising from an 800-foot crater. It would take a long siege, more equipment and thorough preparation.

I flew to Tarko-Sale at the end of March last year. The snow field where such light aircraft as the AN-2 and the LI-2 had landed looked like a big airport now. Turboprop AN-12's came in several times a day and giant jet planes and MI-6 helicopters settled down after raising snowstorms of their own. Powerful tractors and other traction engines rumbled out of them, businesslike and ready for action. Huge crates were piled at the edge of the field: heavy lathes and the steel trestles of oil derricks. MI-6 helicopters delivered them to the Tarko-Sale fire.

An enormous helicopter with the eight-ton section of a derrick dangling from its belly showed our plane the way to the great gas torch. An unbelievable sight. We would have had no trouble finding it without our helicopter guide. A thick ribbon of gray smoke stretched across the white desert swept with sunshine.

Ahead of us in the forest, some 15 minutes later, we saw a gigantic bonfire. I asked the pilot to circle it, and he found the job anything but easy. The plane was flung about in all directions as soon as it hit the streams of hot air some 3000 feet from the torch. The huge gas jet had warmed up the atmosphere for half a mile around. The river would not freeze even in 40-below-zero weather. Its melted water rushed into the crater, but it could not put out that inferno. From the air it seethed like a hellish cauldron.

The Defeated Genie

I stayed with the geologists for a week. With radio operator Ikdam Makhmutov for company, I visited the crater of the gas volcano every evening. A hard snow crust covered with heated sand spread for hundreds of feet around. The crust was too icy for the hot sand to melt, but we still had to stay 600 to 1000 feet from the fire fountain. When we came closer, our clothes began to smolder. We stopped at the edge of a cliff a respectable distance away and watched the boiling mud batter the shore like sea waves. We could hardly hear each other over the roar of the jet. The great shaggy monster of fire danced wierdly over its reflection in the water, like a genie in a fairy tale.

Before beginning the attack, the firefighters had to be armed to the teeth, to bring ponderous derricks, drills and thousands of feet of steel tubing to the spot by helicopter. The hard-working MI-6's kept hauling their heavy loads, and the first steel derrick had already risen some distance from the column of fire. The general offensive began with a scouting operation so the geologists could determine the exact boundary of the upper gas stratum.

When polar daylight came, the work continued day and night. "Night" of course is a purely conventional term up there in the summer, for the sun hardly sets at all. You have to look at your watch to tell if it is day or night.

A second well was to be the weapon. It was drilled at a slant and aimed at the base of the fountain. Meanwhile the fire column continued to rage, devouring 175 million cubic feet of gas a day. Many more days passed before it started to abate. A heavy clay solution was driven into the shaft of the fountain through the slanted well, forming something like a cork and exerting counterpressure. Thousands of tons of it were driven through the steel pipes of the well before the fire was put out. When that finally happened, a strange silence fell on the waters of the Pur. Strange because in the months they had battled the fire the men had gotten so used to the roar of the flames, they hardly heard them.

They kept felling trees, assembling the derricks, drilling new wells. A village gradually grew up beyond the woods where they had pitched their tents when the fire began.

At first there was a dormitory. A log bathhouse was built alongside it, Siberian style. Before it was built the men had to fly to Tarko-Sale by special plane for a steam bath. Then the restaurant with the grand name Planetarium moved from a tent into new log quarters. Should a new city spring up here as the years pass, its first big restaurant will almost certainly be named Planetarium, following tradition.

The city on the Pur River is still a dream, but it probably will not stay a dream with this big natural gas find in the vicinity. New experimental wells are being sunk all around the settlement.

The geologists have not yet estimated how rich the pool is and how far it reaches, but they suspect it is very rich indeed. The route of a future pipeline is being plotted at the institutes, a line reaching straight from the Pur River.

СССР-11332

THEORY, EXPERIMENT, PRACTICE

Science is researching on a broad front. It is as much concerned with the old, once academic question—"What is life?"—as it is with the possible uses of newly discovered elementary particles.

OIL PUMPED INTO THE GROUND

Where is oil and gas to be stored? An important problem, with Soviet oil and gas output increasing steadily. More and more reservoirs and tanks have to be built. This not cheap, it takes a great deal of metal. The Commercial Gas Research Institute has developed a method of storing oil and gas underground without tanks. The walls of such a natural reservoir can be made of rock salt, for example. Water is pumped into a specially equipped shaft through a system of pipes. The water dissolves the salt contained in the stratum. Great caverns are formed under the ground. They are shaped so as to withstand the pressure of the overlying rock. Oil or gas are stored in the caverns.

Subterranean reservoirs have already been built in Bashkiria, and others are being built in Armenia and near Moscow.

WHAT IS LIFE?

That question was the subject of a discussion in the journal *Priroda*, published by the USSR Academy of Sciences.

Until now the definition of life Engels gave in 1876 was considered the best: "Life is the mode of existence of protein bodies, the essential element of which consists in continual metabolic interchange with the natural environment outside them."

Science has now established that protein is not the sole substrate of life. The nucleic acids RNA and DNA are no less important, and in certain ways they are more important. Organisms constituted of nothing but protein have not yet been found.

Several new definitions were presented in the discussion. Here are a few:

Professor Dmitri Troshin of Moscow: "Life is a mode of existence of matter, which develops naturally at the level of high-molecular compounds and is characterized by dynamic structures, metabolic functions and processes of self-regulation, self-restoration and the accumulation of scientific data."

Vladimir Solotovsky, Master of Science (Philosophy), of Tyumen (Siberia), is of the opinion that: "Life is an orderliness which is self-sustaining due to the presence of feedback and an exchange of substance and energy with the surrounding medium."

However, it is easier to agree that Engels' definition is inadequate than to find a better one. The new definitions do not blend simplicity with precision. And perhaps Boris Zaskalkov, a Kharkov scientist, is right in claiming that: "Until mankind has achieved a level of knowledge which would make it possible for life to be produced artificially and as long as we do not know about life on other planets, even if we assume it exists, scientific definitions of life are premature."

A GAS MAIN 236,000 MILES LONG

Lasers, which radiate superpowerful light beams, already have many applications: they can drill, weld, cut, mill metals, process diamonds and repair teeth and eyes. Their field of application continues to expand. Here is another suggested by Professor Georgi Pokrovsky of Moscow.

He believes that a light beam can act as the piston of a "pump" for moving gases over great distances—even to the moon. The "luminous wind" of a laser can accelerate gas particles to enormous velocities. The question is: "What is to be used for the "pipe" of such a "pump"?

Pokrovsky suggests that this problem can be solved by a laser that radiates a beam of nonuniform intensity. The pressure in the outer layers of the beam (forming the walls, as it were) should be much higher than that at the center. The accelerated particles would strike the wall of light but not penetrate it.

Pokrovsky believes the method could be used to supply oxygen to cosmonauts on the moon. However, to pump gases from the earth to Venus or Mars, the devices, according to his calculations, would have to be so big that they could not be built on our planet.

CURE BY HUNGER

In 1960 young Moscow scientist Vladimir Leshkovtsev contracted infectious polyarthritis (inflamation of the joints). All the latest methods of treatment were used, but the ailment progressed to the point where he could no longer stand up. Then the young biophysicist remembered that at one time such ailments were treated at the Resorts Institute by fasting. Laboratory chief Nikolai Narbekov had used the treatment—complete fasting for three weeks, followed by a three-week period of transition to a normal diet—for a year and a half to cure 350 hopeless cases of hypertension and asthma. But Narbekov was dead now, and his department at the institute had broken up.

Leshkovtsev got in touch with one of Narbekov's assistants, learned the particulars of the fasting treatment and began the experiment. At first he experienced the pangs of hunger, then his appetite began to decrease,, and by the sixth day disappeared completely. On the second day, the pain left his joints, on the eighth day he got up, and by the eleventh day he could go outside. Soon he was taking three-mile walks daily and resumed writing his book, which he had put aside because of his ailment. He felt fine, even though he lost about 45 pounds. On the forty-sixth day, he began to eat a little.

His infirmity disappeared completely. Leshkovtsev has been working steadily now for five years and is a confirmed advocate of the hunger treatment. He now fasts for 20 to 25 days every year as a preventive.

How do scientists explain the curative effect of complete fasting? They suggest that the destruction of harmful deposits in the organism and an intense mobilization of the body's protective properties takes place during endogenous nutrition (self-consumption).

NEUTRON GENERATOR

Mining engineers, metallurgists, chemists and geologists often need to determine the composition of a mineral or the purity of a metal. Does it have any admixtures? The answer is usually provided by chemical analysis, an expensive and time-consuming process.

A new nuclear-physics method of analysis that employs a neutron generator can detect impurities with as low a concentration as one atom per one hundred billion atoms of the substance analyzed. In the case of specimens delivered for analysis automatically, the whole process takes 15 minutes. (Chemical analysis takes more than an hour.)

The saving effected in analyzing geological samples alone—three million such samples are analyzed annually —will pay back in one year all the expenses of equipping the new laboratories. Neutron generators are now being manufactured serially.

IS THERE SUCH A THING AS AN ANTIQUARK?

For the last year and a half physicists all over the world have been working on the supposition that protons, neutrons and certain other similar particles are made up of three parts, which have been named quarks. Though they have not yet been found experimentally, theoreticians have already explained many important properties of elementary particles by these quarks.

However, the theory has come up against certain difficulties, one of the most important being that quarks must have the property of repulsion. But if they do, what prevents them from flying apart?

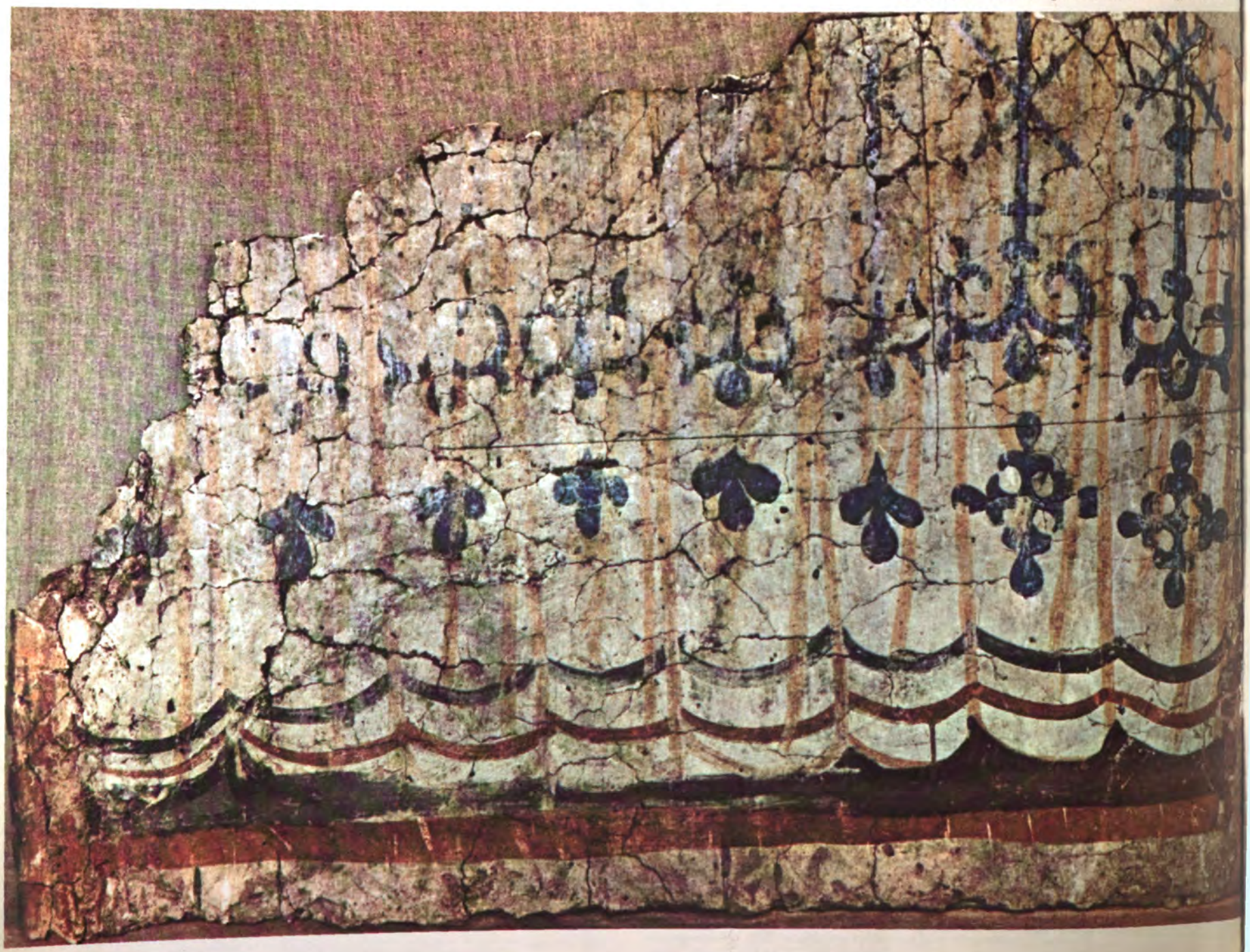
Academicians Andrei Sakharov and Yakov Zeldovich have advanced this hypothesis: The newly discovered particle with a charge three times that of a proton, as well as protons themselves, neutrons and many other particles consist of four quarks and one antiquark. The antiquark, *i.e.*, an antiparticle with respect to the quark, forms the center of attraction, binding the quarks around it, despite their mutual repulsion.

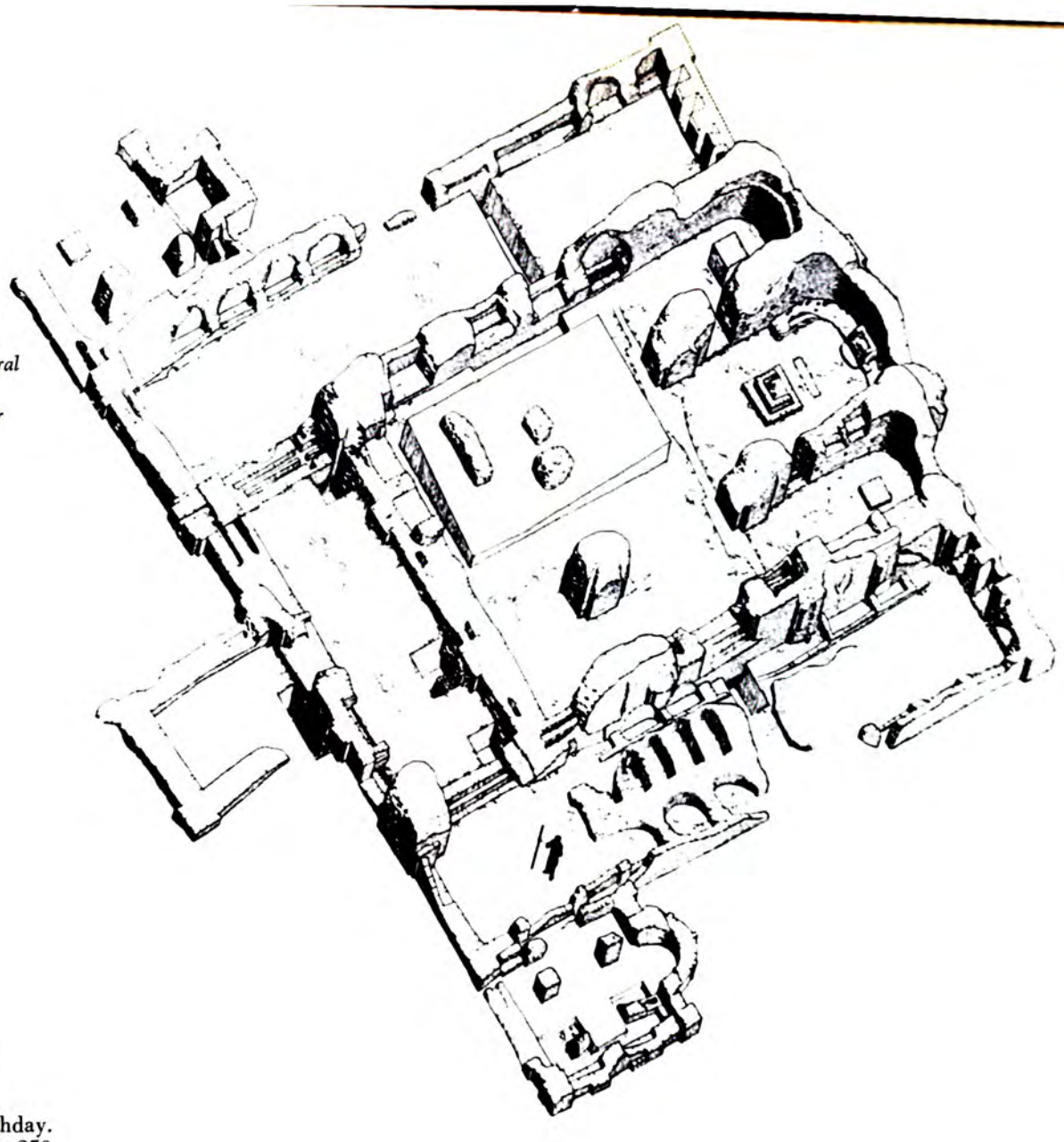
The hypothesis must be confirmed experimentally. The existence of the new particle must be established and its properties ascertained. First of all, its internal structure must be determined. It should be similar to that of a proton and a neutron. If the internal structures coincide, the physicists claim, this will be strong confirmation of the hypothesis. Otherwise it must be rejected. At any rate, assert the academicians, such particles evidently form a large family. Sakharov and Zeldovich predict the existence of 198 particles with such a structure. Most of them have yet to be discovered.

ART FIND IN SMOLENSK

Fresco of three saints from the arch over the burial vault.

Decorative "curtain" panels run the length of the c





A plan of the ruins of the twelfth century Smolensk Cathedral drawn in 1962, when the find was made by an excavator operator digging housing foundations.

BY PROFESSOR NIKOLAI VORONIN
ARCHEOLOGICAL EXPEDITION HEAD

SMOLENSK recently celebrated its 1100th birthday. Situated on the high bank of the Dnieper some 250 miles west of Moscow, on "the great route from the Varangians to the Greeks," the city was once a commercial center trading with the countries of Western Europe. The capital of a great principality, it played an important role in the history of Russia. But the passing centuries and destructive wars have swept away even the stone buildings that were so numerous in Smolensk during the period of its first flowering in the twelfth to thirteenth centuries.

Local antiquaries have found ruins in several places in the city. Especially intriguing was a huge mound in the eastern suburbs with the pillars of an old building towering over it. A hundred years ago one Smolensk lover of the ancient began to excavate the mound. He dug up the walls and pillars of an old building and large fragments of frescoes.

After the Second World War Smolensk was rebuilt and enlarged. New residential districts almost reached to the old mound. An excavator uncovered the ruins of a beautifully decorated building. Archeologists immediately got to work, and in 1962-1963 they uncovered the ruins of a big twelfth century church. On its cracked and discolored walls were the remains of precious old paintings.

The weather was bad, it had been raining for days on end and the frescoes had to be dried before they could be removed. The drying was done with electric heating screens, and the frescoes were then covered with a film. Thanks to the painstaking work of the restorers of the Leningrad Hermitage Museum, all the frescoes were saved. Some have already been restored.

They bear witness to the talent of the old Smolensk artists and are as good as the famous old frescoes of Kiev and Novgorod. The Smolensk artists used a whole range of styles, from the purely graphic to sculptured painting. The colors are rich and the designs skillfully varied. Especially interesting are the details of the decoration on the lower portions of the walls duplicating Byzantine and Arabian patterned fabrics. The frescoes in the burial bays of the church walls copy the richly ornamented shrouds thrown over the tombs.

The Smolensk finds open a new page in Russian art history. Archeologists are continuing to work at the site.

One of the ancient cathedral wall frescoes restored.

POLL ON MARRIAGE

BY IRINA KHORUNZHAYA
MASTER OF SCIENCE (MEDICINE)

THE QUALITY of a marriage and, consequently, of the family relationship depends very largely, as we all know, upon what motivated the couple to choose each other. Age differences, for example, help us to determine how free the choice was of financial considerations.

To find out what these motives were, we polled 500 newly married couples and did some selective interviewing.

Our study tells us that in the large majority of cases the difference in age does not exceed six years. In more than two-thirds of the marriages the age difference is three years or less. There are practically no marriages of people with big age differences—20 years and more—and even unions in which the husband is 10 or more years older than the wife are comparatively rare.

The figures show a decline in the percentage of Soviet marriages of people with big age differences. The leveling-off is the result of the growing influence of socialist principles on Soviet life.

In an exploiting society freedom of marriage is limited to some degree by national and religious prejudice. What part do these prejudices play today? Studies were made in Tashkent, Samarkand and Leningrad. In Tashkent and Samarkand intermarriages constituted more than 20 per cent of the total. Moreover, marriages between persons of the indigenous nationalities and those of European extraction (from the European parts of the USSR) amounted to 6 to 7 per cent.

In Leningrad, in 1964, intermarriages made up 17 per cent of the total. Note that although the population of Leningrad is far more homogeneous in national composition than is the population of Tashkent and Samarkand, the percentage of intermarriages is only a little smaller there than in the Uzbek cities.

To the question "What do you think is the most important requirement for an enduring and happy marriage?" 76.2 per cent answered "love," or "love combined with a community of views, trust and friendship." "Equality and respect" was the answer given by 13.2 per cent. "Love and material welfare" by 1.6 per cent, "children" by 0.6 per cent, "realistic approach to life" by 0.2 per cent; 4.2 per cent did not answer. Material considerations were hardly mentioned.

The answers to questions about the reaction of parents indicated that conflicts between parents and children in the choice of a mate are comparatively rare. When there were objections, they were usually directed at irresponsible attitudes toward marriage and not at the partner chosen.

Growing mobility has enlarged the geographic choice of a mate. Industrialization and the cultural revolution have brought large numbers of people from the villages to cities and big construction projects. Mass recreation, resorts and vacation travel bring young people together. One of the questions asked where the couple first met. Nine per cent of those polled knew each other from childhood, 21 per cent met at work, 17 per cent met at school, 27.2 per cent at private parties, 5 per cent at summer resorts, 5.2 per cent met through mutual friends, 3.3 per cent through relatives, 0.7 per cent at hostels, 1.6 per cent in the street, and 3.8 per cent elsewhere. Some of the couples did not answer. So that about 50 per cent of the marriages grew out of first meetings at places of work or study, as well as in common places of residence.

Judging by the answers, most of the marriages were the result of a comparatively long acquaintance (more than a year), and it is therefore reasonable to suppose—of a serious, carefully considered decision. Apparently less than one-fifth of all the marriages were entered into before the couples had time to know each other well.

The conversion of marriage into a voluntary union based on personal selection, a union in which compatibility is the prime requisite, has brought changes in all other aspects of family life.

Economic independence of the woman plays an important role. A selective study of 300 working class families in which the wives are gainfully employed shows that in 146 families the husband earns more than the wife, in 54 families the wife earns more than the husband, and in 100 families the earnings of the husband and wife are approximately equal.

However, a good job and economic independence do not always give the woman of the house equality. In too many families the woman is still in a subordinate position, shouldering practically the full burden of household drudgery. Even when she holds a job, the wife spends double or triple the time her husband does on household chores.

There are two basic types of working class family structure today. The first is the family in which the husband still makes all the decisions. His dominance, however, no longer rests on coercion but on moral authority. The second is the family in which, behind the formal supremacy of the husband, there is actual equality in making important decisions. The latter is the more usual type of family today.

Learning Russian

Yuri Olesha (1899-1960) was born in Odessa, where he spent his childhood and youth.

His first novel, Envy, *published in 1927, already showed signs of Olesha's talent for finding wonderful and fantastic features in the most ordinary things.*

Olesha wrote plays, articles, memoirs and essays, as well as the scripts for the films Swamp Soldiers *and* Engineer's Mistake, *and the play version of the Vakhtangov Theater's production of Dostoyevsky's* The Idiot.

НАТАША

Юрий Олеша

Старичо́к сел за стол, накры́тый к за́втраку. Стол был накры́т на одного́. Стоя́ли кофе́йник, моло́чник, стака́н в подстака́ннике с ослепи́тельно горя́щей в со́лнечном луче́ ло́жечкой и блю́дечко, на кото́ром лежа́ли два яйца́.

Старичо́к, се́вши за стол, стал ду́мать о том, о чём он ду́мал вся́кий раз, когда́ сади́лся у́тром за стол. Он ду́мал о том, что его́ дочь Ната́ша пло́хо к нему́ отно́сится. В чём э́то выража́ется? Хотя́ бы в том, что почему́-то она́ счита́ет необходи́мым, что́бы он за́втракал оди́н. Она́, ви́дите ли, его́ о́чень уважа́ет, и поэ́тому ей ка́жется, что его́ жизнь должна́ быть обосо́бленной.

— Ты изве́стный профе́ссор, и ты до́лжен жить комфорта́бельно.

«Ду́ра,— ду́мает профе́ссор,— кака́я она́ ду́ра! Я до́лжен за́втракать оди́н. И до́лжен чита́ть за за́втраком газе́ты. Так ей взбрело́ в го́лову. Где она́ э́то ви́дела? В кино́? Вот ду́ра».

Профе́ссор взя́л яйцо́, опусти́л его́ в серебряную рю́мку и щёлкнул ло́жечкой по ма́товой верши́нке яйца́. Его́ всё раздража́ло. Коне́чно, он вспо́мнил о Колу́мбе, кото́рый что́-то тако́е проде́лал с яйцо́м, и э́то его́ то́же разозли́ло:

— Ната́ша!— позва́л он.

Ната́ши, разуме́ется, не́ было до́ма. Он реши́л поговори́ть с ней. «Я с ней поговорю́». Он о́чень люби́л дочь. Что мо́жет быть лу́чше бе́лого полотня́ного пла́тья на де́вушке. Ка́к блестя́т костяны́е пу́говицы! Она́ вчера́ гла́дила пла́тье. Вы́глаженное полотня́ное пла́тье па́хнет левко́ем.

Поза́втракав, старичо́к наде́л пана́му, перебро́сил пальто́ че́рез ру́ку, взял трость и вы́шел из до́му.

У крыльца́ его́ ждал автомоби́ль.

— Дми́трий Яковлевич... куда́ пое́дем?— спроси́л шофёр.— Туда́?

— Туда́,— сказа́л профе́ссор.

— Ната́лья Дми́триевна веле́ла переда́ть...

Шофёр протяну́л профе́ссору конве́ртик. Пое́хали. Профе́ссор, подпры́гивая на поду́шках, чита́л письмо́:

«Не серди́сь, не серди́сь, не серди́сь. Я побежа́ла на свида́ние. Не серди́сь, слы́шишь? Штейн о́чень хоро́ший па́рень. Он тебе́ понра́вится. Я его́ тебе́ покажу́. Не се́рдишься? Нет? Ты за́втракал? Целу́ю. Верну́сь ве́чером. Сего́дня выходно́й, ты обе́даешь у Шатуно́вских, так что я свобо́дна».

— В чём де́ло, Ко́ля?— спроси́л вдруг профе́ссор шофёра.

Тот огляну́лся.

— Вы, ка́жется, смеётесь?

Ему́ показа́лось, что шофёр смеётся. Но лицо́ шофёра бы́ло серьёзно. Одна́ко э́то не снима́ло подозре́ния, что шофёр смея́лся в душе́. Профе́ссор счита́л, что шофёр в за́говоре с Ната́шей. Франт. Но́сит каки́е-то удиви́тельные — цве́та осы́ — фуфа́йки. Он называ́ет меня́ «мой стари́к». Я зна́ю, что он сейча́с ду́мает: «мой стари́к не в ду́хе».

Автомоби́ль е́хал по за́городной доро́ге. Навстре́чу несли́сь цвету́щие дере́вья, и́згороди, прохо́жие.

«Она́ мне пока́жет Ште́йна,— ду́мал профе́ссор.— Штейн хоро́ший па́рень. Хорошо́, посмо́трим. Я ей сего́дня скажу́: «Покажи́ мне Ште́йна».

NATASHA

(Translation)

By Yuri Olesha

THE old man sat down at the breakfast table. The table was laid for one, with a coffee pot, a pitcher of milk, a glass in a holder, a spoon sparkling in a sunbeam, and a saucer in which lay two eggs.

Now, at the table, the old man began thinking the same thoughts he did each time he sat down to breakfast. He thought about how badly his daughter Natasha treated him. In what way? For one thing, she felt he should breakfast by himself. She had such great respect for him, you see, that she felt his life should be distinctive.

"You're a famous professor. You should live in comfort."

"She's a fool," the professor thought. "What a fool. I must eat breakfast by myself. And I must read a newspaper while breakfasting. Where did she ever get that into her head? From the movies? What a fool."

The professor picked up an egg, placed it in the silver cup, and tapped the lusterless top with his spoon. Everything irritated him. Naturally he thought of Columbus, who had done something with an egg, and this annoyed him too.

"Natasha," he called.

Natasha, of course, had gone out. He must talk to her. "Yes, I'll talk to her," he thought. He was very fond of his daughter. What could be nicer on a girl than a white linen dress? How the ivory buttons shine! Yesterday she ironed the dress. The freshly ironed linen smelled of gillyflowers.

After breakfast the old man put on his straw hat, threw his coat over his arm, took his cane and went out.

A car was waiting in front of the porch.

"Where to, Dmitri Yakovlevich?" the driver asked. "The same place?"

"Yes," said the professor.

"Natalia Dmitrievna asked me to give you this." The driver handed the professor an envelope. They drove off. Bouncing on the seat cushion, the professor read the letter.

"Don't be angry, don't be angry. I have a date. Don't be angry, do you hear? Stein is a fine fellow. You'll like him. I'll show him to you. You're not angry, are you? Did you have your breakfast? I kiss you. Will be back in the evening. Today's Sunday. You're dining with the Shatunovskys, so I'm free."

"What's the matter, Kolya?" the professor suddenly asked the driver.

Kolya turned around.

"I thought you were laughing."

It seemed to him the driver was laughing. Kolya had a straight face, but that did not mean he was not laughing deep down inside. The professor was sure Kolya was in cahoots with Natasha. "A dandy," he thought. "Wears queer wasp-colored sweaters. Calls me 'my old man.' Right now he's thinking, 'My old man is out of sorts.'"

The car was out of town by now. They sped past flowering trees, hedges, people.

"She'll show Stein to me," the professor thought. "'Stein's a fine fellow' We'll see. I'll say to her today, 'Show me Stein.'"

OLGA ORLOVA
is a talented chemist. Her grades prove that. "I've been offered a job at the institute. I'll do graduate work later. About the diploma, I won't need it until I start doing postgraduate study."

FELIX ROSSELS
has wanted a career in the movies ever since childhood. As things turned out, he majored in physics at Moscow University. He is now on the staff of a film industry research institute. "I couldn't have hoped for a job assignment I'd like better. It combines my favorite fields—films and physics. As for the diploma, I think a person ought to get it when he graduates."

NATALIA BORDUKOVA
was appointed to a hospital in Kostroma Region on the Volga where she will do ear-and-throat work. "I'm not happy about leaving home, but there are plenty of doctors in Moscow already, and it will be that much harder to make a place for myself here. As for this new system of getting your diploma after you've worked for a period, I don't like it. It makes you dependent on a certification from your superior. Suppose you just don't get along?"

IVAN GALUSHKIN
has just submitted his graduation project at the Motor and Highways Institute. "I've been assigned to teach in a technical school in Kazakhstan. I don't care where I teach so long as the work is interesting. I also don't care when I get my diploma."

JOB FIRST, DIPLOMA AFTERWARD

BY IGOR SEDYKH

THREE or four months before graduation lists of jobs available are posted on all college bulletin boards. The lists are long, plenty of openings to choose from. This is the first step in the Soviet system of assigning college graduates to jobs.

Higher education in the Soviet Union is free. Besides, most undergraduates receive a montly allowance from the state. Also, when they do their stint of practical work—required of all students—they get the full wage the job pays. To put a student through four to six years of college costs an average of 4,600 rubles (about 5,000 dollars). The state is not being philanthrophic, since the graduate will be working for a state-owned enterprise and his training will eventually benefit the community. But when it gives a young man or woman free college and professional training, the state feels it has the right, in the general interest, to ask the graduate to take a job for two or three years (depending on the field) wherever he is most needed in the country. That is the reason for posting the lists of jobs available.

Sometimes, for a variety of reasons, the interests of the state do not coincide with the interests of the graduating student. Here is one example.

The setting is the Machine-Tool Institute in Moscow. The job assignment committee is interviewing students. The door of the room opens and the secretary calls:

"Vasiliev!"

Oleg Vasiliev enters. Behind a table sit members of the institute staff and personnel people from factories looking for graduate engineers.

"Your application says that you want to stay in Moscow," says the director of the institute. "But, as you know, there are no job openings here in your field. We can offer you interesting work in the Urals."

The student's face falls. "Why the Urals?" he asks. "I'm a Muscovite. I don't want to live in the Urals. Besides, I have a sick mother to take care of."

He turns down the job.

To Go or Not to Go

Many graduates who live in Moscow want to stay there. The difference, materially and culturally, between Moscow, Leningrad, Kiev and other big cities and most outlying towns is still great. The state is doing what it can to bridge the gaps. The outlying districts need trained people. And so the graduating student is faced by the prospect of moving from a familiar city to an unknown, smaller and, it seems to him,much less desirable place in every way.

The state tries to help him make the adjustment. He is provided with living quarters and is given a moving and relocation allowance. There are some places where construction is just beginning and living conditions areprimitive. In places like that morale and psychological adjustment are likely tobe crucial factors.

But let us return to our student. Oleg Vasiliev is adamant. He does not want to move to the Urals.

"Very well," the chairman of the committee tells him. "If that's the case, we shall need a statement from the doctor who is taking care of your mother. Then we'll see what we can do for you."

So Vasiliev energetically sets about collecting supporting documents. If he really does have a sick mother whom he cannot leave, the local polyclinic or district social maintenance department will give him a statement to that effect, and he will be provided with a job in Moscow, although it may not be exactly in the field for which he was trained.

But suppose Vasiliev's mother is not ill, and he is simply using that as an excuse to stay home?

A Job, then a Diploma

There was considerable press discussion a few years ago about the showing graduates made in their first jobs. The colleges and professional schools apparently gave their students a good enough theoretical grounding but did not teach them how to apply the theory. What developed from the discussion was the proposal that the student be given his diploma not immediately on graduation but after a year of job experience, when his practical knowledge would match his theoretical knowledge and he could really be considered competent in his field.

The proposal was supported generally and soon became the rule. It was another way of bringing pressure on those who had no legitimate reason for refusing jobs they were assigned. Before, a diploma was awarded when a student graduated. Now it is awarded only when he presents a character reference from the job he was assigned to.

A job can be found without a diploma, of course, but chances are it will not be the field in which the graduating student was trained, and if it is, it will probably pay less.

Is It a Problem?

Oleg Vasiliev was the first graduating student I met when I set out to do this article on job assignments and the new ruling on diplomas. I came out of the committee room with him. Other students waiting for their interviews asked how he had made out. Their reactions varied when he told them. Some looked envious—the ones who had no sick mothers. Others were only mildly interested, they had their own plans. But the glances the majority gave him were a mixture of surprise and contempt.

I knew the type of students who fall into the first two groups, so I concentrated on the third group. What kind of people were they? It was obvious, for one thing, that all of them would accept the positions to which they were going to be assigned and that they had already decided where they wanted to work. For another thing—but this I did not realize until later—they were far from a uniform group. What they did have in com-

mon, though, was the fact that the job assignment procedure did not bother them.

Chief Engineer at 26

"It's not a bad prospect at all," said Nikolai Sureyev from the Building Institute. "I asked to be sent to some out-of-the-way place. What are my chances in Moscow? That in five years' time I'll head up a team of engineers and make about 180 rubles a month. I can't see any further than that. But out in the wilds where they're building a factory, I could get to be chief engineer in two years. Then, if I wanted to come back to Moscow, I could come back a king instead of just a pawn."

Sureyev is one of those young people who is out to make a career for himself. He wants to get to the top, where the pay is good and there is more opportunity to apply his brains and knowledge, as fast as he can. Such young people know what they want. They are generally proud of the work they do and get to be proud of the town they adopt. After a few years you hear this: "Moscow is fine for a visit, but to live in . . .!"

Sureyev belongs to this fairly large group of strong, healthy, competent young men and women who are not afraid of roughing it. These little-developed regions challenge their youth and strength.

Gennadi Chernyshov and Tamara Lebanidze, husband and wife, graduating from the school of journalism, do not want jobs on big city newspapers. They want to put out a small district paper in some remote place. They want to help the people who live there feel less isolated. They also think that the big papers should get news about these places not from reporters who come out on short assignments but from people who live there the year round. This couple asked to be sent to some place in Siberia and have been assigned to a small industrial community on the Taimyr Peninsula, the northernmost extremity of Siberia.

Adventurers

There are many young adventure-seekers, especially among geologists. Geologists' songs, the kind composed around the campfire, about exciting adventures and close friendships, are very popular with young people nowadays. That may be one of the reasons so many boys and girls have been applying for admission to geology institutes in recent years.

"I couldn't take soft city living," Sasha Bakayev, who just graduated from the geology department at Moscow University, told me, "I honestly don't understand how anyone can go in for engineering. It must be boring to do nothing but drafting or fool around with test tubes. I've been going on geological expeditions for eight years now. You couldn't get me to exchange that sort of life for Moscow."

And Others

"Do I want to go? Frankly, no," Emil Kogan said. "Norilsk is pretty far away. No international art shows or big soccer games up there."

"But you've agreed to go and you're getting ready to go," I said. I was at his home, the whole family was helping him pack and kept interrupting with: "Shall I put this in?"

"Yes, I'm packing and I'm going." Emil's voice was tight. "It's a lottery. I drew an unlucky ticket, that's all. But I'll make out all right. Everyone does."

Then, as if to console himself: "After all, somebody has to go. If not me, then the next person. It's a town with newspapers and a radio station, so people must live there. My job is at the TV studio. I'll get along."

Young people in this category accept their assignments because they have to. Experience shows they do well at their new jobs. They are not looking for adventure and are not out to make big careers for themselves. They simply do the jobs they have to, quietly and efficiently.

But What About the Diploma?

Job assigning is over. The graduating student receives his certificate of completion of the college course. This and his job assignment paper take the place of a diploma. The diploma itself he gets a year later when he presents a statement from his supervisors that he can handle the job for which he was trained.

But suppose the supervisor takes a dislike to the newcomer? Or suppose the newcomer starts criticizing what he calls his superior's inefficiency and tries to change things—something the superior is bound to resent? It is not beyond the realm of possibility that the reference he gets will say he's not good at anything.

It is a possibility and cannot be dismissed. This diploma innovation, like any other, has flaws that will need to be worked out.

What Then?

According to the rules, as soon as the student finishes his course he goes to work at one of the jobs he has been offered. But what about the very good student who should go on to graduate study?

The Ministry of Higher and Specialized Secondary Education feels that two years of work will not hurt anyone. On the contrary, it will help the future research student to do a little practical work before he goes back to his theoretical studies. However, students, and many instructors, do not agree.

Usually a compromise is found. If it is a question of purely theoretical research, the student is enrolled in the graduate school or given a job in the department where he studies, and is able to continue his research. If his specialty is closely related to practice, he is assigned to a job in his field with the promise that in two years he can start his graduate work.

Everyone Knows

Being assigned a job away from home is not as terrible as it seems nor is it a problem for the greater number of graduates. Most Muscovites get jobs in Moscow, just as Leningrad students get jobs in Leningrad, and Kiev students in Kiev. Out-of-towners studying in Moscow usually go back home to work after they graduate. Only a small percentage of the graduates have to temporarily change their place of residence.

There are two other types of job assignment. Some students know where they are going to work even before they enter college, those who have been sent to college by an industrial plant or a farm. Their monthly allowance paid by the plant or farm is 15 per cent higher than the usual state allowance. They, of course, take jobs at the enterprise that helped them get a higher education.

We Need That Student

The second type of assignment is what all students dream of—to have some enterprise send the college a letter saying, "We want that student after he graduates."

For this to happen, the enterprise must know the student. That is no problem. The enterprise will know him either because he has done his practical work there or because he has collected material for his graduation thesis or other research project there. If the enterprise likes the way the student works and can use him, they send a request to the college.

Thus far, this new diploma-job procedure seems to be working out. Where it doesn't, adjustments are made to the individual case and the exceptional circumstance.

YULIA SIGALOVA
does not have to worry about a job assignment away from home. Her husband works in Moscow and a family is never split up. Says Yulia, "About having to get a certification from your job superior before you get your diploma, that doesn't bother me. If my superior turns out to be a bear, I'll get my husband after him."

GENNADI PUSTOVALOV
is a graduate engineer and is leaving for the Zeya Hydropower Project in the Far East. "They offered me a job in a Ministry here in Moscow but I turned it down. I worked on the Irkutsk and Bratsk stations and I wanted to have a crack at the Zeya project. When I get my diploma isn't important, but a job I really care about is."

ANATOLI VANIN
is a brand new doctor and has been assigned to work in the Komi Republic in the northern part of the USSR. "There I'll get the kind of all-round experience I need," he says. "It's a good idea to award a man his diploma after he has demonstrated he can use his skill."

MIKHAIL YEREMEYEV
is a graduate of the Moscow Art Theater school. He has had a part in the film *First Snow* and has worked with a Urals theater company. He has been assigned to the Moscow Soviet Army Theater. "It's very much a matter of luck, not only the company you are assigned to, but the parts you get. You may be in a good company and get parts you don't care about. The diploma is irrelevant. The important thing for me is being in the theater."

ONE OF THE HIGHLIGHTS of the May Day festivities in Moscow is the calisthenics display in Red Square. When the kiddies run out with their simple dances and exercises, every grown-up watching in the square and on the nationwide TV hookup feels a lump in his throat. And every May Day American visitors comment: "It's spectacular! When do you Russians start this physical fitness program for your kids?"

A hard question to answer. The doctors say they start off infants virtually at birth. When you bend baby's arms and stretch his legs, that's physical training! Educators are more conservative—they say in nursery school.

But what about the child that doesn't go to nursery school or kindergarten?

Then the starting age is six. In Moscow the Central Children's Sports Center offers the following activities for boys and girls age six to sixteen: acrobatics, cycling, speed skating, gymnastics, track and field, figure skating, also chess and checkers. All activities are guided by qualified coaches and teachers. The only requirements are the parents' permission and medical clearance, with a physical examination every month at the center. Everything is free.

Many children enroll. Sometimes they run into a snag. Mothers don't want their children walking to the neighborhood stadium themselves—there are streets to be crossed and all that sort of thing. Mother cannot always get dad to walk the youngsters to the stadium—men have an uncanny way of talking themselves out of these jobs. In many cases it's grandma who has to be called in. But how is she to pass the time while she waits for junior to go through his paces and shower up? The moguls gave much thought to the problem. Some suggested sewing circles, others films. I don't know who it was that made the winning suggestion: a physical fitness program for grandma too!

It was done, and it was a great success. At the Central Stadium the youngsters train at one end of the stadium and the "over middle-aged" at the other. And all generations are happy.

With the kiddies the accent is on physical fitness, of course, with elements of sports worked in. The coaches have found, and the scientists back them, that the time to begin training is at a very early age. That is generally recognized in swimming, figure skating and gymnastics.

SCANNING SPORTS

In gymnastics it didn't come at once—but now that the USSR crown in the sport is held by Natalya Kuchinskaya, a 16-year-old schoolgirl from Leningrad, there seems to be no doubt about it any longer.

In figure skating it was realized a long time ago. The American stars were the trail blazers. But one of Moscow's leading coaches complained to me: "The girls are interested. They like to skate dressed up like bunnies and butterflies. But the boys think skating is a sissy sport." That is a problem and perhaps one of the reasons Soviet boys are a long way from the top in world ratings.

Getting the boys interested in soccer, for example, is much easier. To begin with, soccer is not only the national pastime, it's also the top-ranking backyard sport. We even have national championships for backyard teams.

At the end of this month many stadiums will be posting signs: "Soccer tryouts. Boys over 12. Bring your report card."

What this means to the boy population of Moscow is that on a certain day a panel of coaches will be there spotting talent. And those coaches will include men who coach the national teams and big league clubs. The youngsters are divided into teams, given a ball and told to play. At first they play with their eyes on the panel of coaches, not on the ball. But after a while they forget the selectors and enjoy themselves thoroughly, pushing and pulling and breaking every rule in the book.

The coaches do not expect to find gold nuggets. What they want is physical development, coordination and the various other components that add up to a soccer player. It's all in the embryo state, and the panel is looking ahead at least six years.

The boys picked must have medical clearance and the consent of the school. The report card is what does it. Any boy who drops below Good in his studies is immediately suspended from the squad. One 12-year-old I spoke to, Seryozha, got an anemic Fair in math. The news reached the stadium before he did.

"What happened, Seryozha?" asked the stern coach, who had just piloted his team to the silver medal in the big league national championship. All the rest of the boys were there, listening.

"I know my math," he mumbled, seeking to bolster his tottering prestige.

"Your report card doesn't seem to say so."

"I was talking in class, that's why."

"If you can't be disciplined in class, how do I know you'll be disciplined on the team?"

That argument clinched it. Seryozha was dropped from the squad until he produces a Good in math.

The coaches I've spoken to tell me that dropouts on this account are rare. The youngsters are too keen on staying with the squad to risk falling behind in their studies.

The boys who select soccer do not only play soccer. They go through a general physical fitness course. Part of it is athletic versatility. As a result, we find boys enrolling in a soccer center and ending up playing hockey. A case in point is the Starshinov-Mayorov combination in the ice hockey national. When these boys switched to hockey, they left the boxing and soccer coaches close to tears.

May is also the month of motorized sports. By then the roads are dry enough after the snowy winter to invite a girl friend for a ride on the motorcycle or scooter. Automobile racing too begins to speed its way into the headlines.

Cross-country racing draws the biggest crowds and entry lists. The vehicles entered range from motorcycles to trucks. Hilly terrain is chosen so as to provide the onlookers with a day of thrills and the drivers with as nightmarish a course as possible.

To many of my American friends, the fact that we go in for motorcycling in a big way comes as something of a surprise. Cycling is a summer and winter sport here. And it is an event as much for the women as for the he-men. In fact, I would say that the fair sex is even more speed-minded than we men are.

Here on the European continent Soviet riders have been taking part

WITH VICTOR KUPRIANOV

in the championship runs regularly. And our Victor Arbekov even holds the Moto-Cross des Nations crown. He won it last year in a grueling contest that took the competitors from country to country.

Perhaps more people prefer motorcycling just for the fun of going places, although last year's accident to Valeri Brumel, our high-jump wizard, has people casting a wary eye on motorcycling and motorcycles. However, as one executive in the business told me: "The younger generation is still motor-minded and wants speed. We sell as many motorcycles as we produce. We even import models to meet the demand."

This May will also be a big month in track and field, and not only for the national cross-country prize offered by the newspaper *Pravda*. Mid-month the selectors will be deciding on a squad to compete with Britain.

Soviet athletes have an account to settle with the British. The last time they went into action against Britain (Volgograd, 1963), the British won. Now our officials want the record set straight. But May is not the month when our athletes are in peak form. Consequently we are wondering how much of the selectors' choice will be guesswork and how much will be an investment in the future. The match against Britain in mid-June is followed by the big international meet, the Znamensky Brothers Memorial, in Leningrad early in July. Then at the end of the month the squad will fly to California for the annual tussle with the United States in the home-to-home series.

It is clear that it's going to be a tough international season for the Soviet Union. It is equally clear that the national season will be just as tense, if not more so, with razor-edge competitions all over the country in the scramble for berths on the national team. The youngsters will make strong bids for the team, with the veterans going to herculean lengths to last till the European championships at least.

All this presages more than the usual excitement for this merry month of May.

CAN WE CONTROL INSPIRATION?

BY PROFESSOR LEONID VASILIEV
CORRESPONDING MEMBER, ACADEMY OF MEDICAL SCIENCES

INSPIRATION has been called divine, miraculous, a gift of heaven. It is a state of transcendent, almost ecstatic creativity which fascinates us because it is so far removed from our humdrum day-to-day existence.

We think of inspiration as an ingredient of great works of art, literature and music, but it applies to any field of human endeavor. If only we could control inspiration, evoke it at will. But that requires a knowledge of the phenomenon we do not yet have. We have no scientific explanation for inspiration, nor have we yet defined it physiologically. But we do know a good deal about the complicated process of creativity, a very difficult process to observe and measure.

Experiments in the Soviet Union and other countries have helped us measure with considerable precision the effect of various stimuli on the productivity of manual labor. Room temperature, lighting, the color and shape of surrounding objects, noises and even smells have a sthenic or asthenic, a stimulating or relaxing, effect.

Industrial esthetics is the practical consequence of this kind of research. Scientifically speaking, what industrial interior decorators try to do is increase sthenic stimuli and reduce asthenic irritants.

That being the case, is it possible, by stimulating the sense organs in various ways, to increase creative productivity? The memoirs and biographies of great musicians, poets and writers tell us that many of them had their own ways of inducing creativity. Schiller, for example, kept apples that had begun to rot in a drawer of his desk. Their smell helped call forth inspiration. The same state was induced in Haydn by the shape and color of a stone in his ring. Rossini composed his music in bed. At a table, he said, inspiration was less inclined to visit him. A hot foot bath helped put Beethoven into a creative mood.

These habits should not be dismissed as the whims or caprices of genius. As often as not we can find a plausible explanation for them. Perhaps Schiller's creativity was greatest when he wrote in the fall at an open window fronting on a garden. This state as it recurred became associated in his mind with the pungent smell of decayed apples. It was a conditioned reflex, with the smell of the apples as the stimulus. And the poet later formed the habit of keeping the apples nearby to elicit the reflex.

It is worth noting that the speed with which such a reflex is formed depends on the intensity of the creative state experienced. The greater that intensity,the quicker will the association arise and the more lasting will it be.

In the case of Schiller, Haydn and Rossini, the reflexes on which they had come to rely were probably formed independently of their own will.

Obviously, however, there is the possibility of regulating the creative process through the conscious establishment of immediate associations.

It is precisely in this direction, if I judge rightly, that Stanislavsky was searching when he tried to bring the actor's capricious creative temperament under the control of reason. True, the actor's creativity is specific, for the actor must bow to the will of the dramatist. But the work of the composer, painter and scientist affords avenues for similar exploration.

There are, of course, no universal recipes for stimulating the creative impulse. Whereas we may regard the color of a machine or the temperature in a factory as unconditioned stimuli having the same effect on everybody, rotten apples or a stone in a ring are conditioned stimuli that are purely personal.

When the famous physiologist Helmholtz was particularly puzzled by a problem, he would climb a mountain in Heidelberg, up a winding path which is now called Philosophers Road. The climb almost invariably helped him arrive at a solution. If another scientist tried the same method of problem-solving, would he succeed? Probably not. He would end up tired, or at best exhilarated, by the strenuous climb.

In our study of the physiology of inspiration we are helped by what is known as the Ukhtomsky "dominant" principle.* A dominant excitability suppresses the activity of all the other brain centers. In this instance stimuli which might have been distracting were the excitability less intense serve to amplify the excitability. A dog that was fed a short while ago can be driven from its bowl with only a few lashes of the whip. But if the dog is very hungry, whipping will only increase its appetite. Conversation is a distraction when pain is slight, but it only intensifies intolerable pain. Hunger and pain are the "dominants" of the lower stages. Creative inspiration is an example of the higher "dominant." It embraces other centers of the brain. All these processes, however, are governed by similar laws.

According to the "dominant" principle, excitability embraces several brain centers, a "constellation of coexcited centers," Ukhtomsky called them. Inspiration, therefore, as we often say, possesses man's whole being and is a unique emotional experience even if the creative act is consummated in a purely rational domain. It goes without saying that the "dominant" in a musician's case, for example, is quite different than in a mathematician's.

Unfortunately both the physiology and psychology of man's creative capacities and the possibilities of developing them have not been sufficiently studied. And yet not even in the vastness of outer space or at the very center of the atom are there greater mysteries than those which can be revealed to us by the human brain, the highest stage of the evolution of matter.

With progress in parapsychology we come closer to unraveling these mysteries. We now know that man's parapsychic and creative faculties have much in common. Every person, without exception, is endowed with parapsychic and creative gifts. But the majority have only an infinitesimal dose of these gifts, a few have a medium dose, and only in the rare cases do they manifest their amazing potency. These gifts can be developed, but not beyond the point to which the individual is endowed. Nor do these gifts reveal themselves in equal measure and with like results. Those who have these gifts experience moments of inspiration when they find the answers to their most difficult problems. It is by what is accomplished at such moments that we judge the degree of a person's creative or parapsychic gifts.

Many people doing creative work tell us that when they are stumped by a very difficult problem, they find distraction helpful. By taking their minds off the problem, forgetting about it and relaxing, the long-awaited solution comes suddenly, as though of itself.

The study of human capacities is one of the most important and pressing research problems today. Besides teaching us how to control these capacities, the study of their origin and nature will lead us to the discovery of new gifts which we do not even suspect man has.

Courtesy of Literaturnaya Gazeta

* Alexei Ukhtomsky (1875-1942), Soviet physiologist and academician who discovered a major principle of man's higher nervous activity.

THREE SOVIET POP SINGERS

BY ROBERT TSFASMAN

TAMARA MIANSAROVA is next. Now we'll see her! the girl sitting next to me whispered to her neighbor. I wondered why the "see" instead of "hear." Miansarova doesn't dance, she sings. But as I watched her perform, I realized the girl was right. Her art was visual as well as vocal. This pop singer identifies herself with the songs she sings, turning them into skits and stories. You listen and look on delighted at what she does with her husky, expressive voice, mimicry, gestures and even a bit of dancing, and you find yourself gradually involved. You wander the streets at night with her, learn a new dance called Ai-Luli, and promise to guard the children who sing:

May there always be a sky on high,
May there always be a sun to see,
May there always be my Mommy by,
May there always be little me!

The song, by Arkadi Ostrovsky and the poet Lev Oshanin, won first prize at an International Festival of Popular Songs held in Sopot, Poland, in 1963. Miansarova sang it there. A year before that she won a gold medal for her singing at the Helsinki Youth Festival.
A great deal has been said about Miansarova's acting, the visual side of her performances, the kinds of things usually said about singers who have no voice. This does not apply to Tamara Miansarova. Her soprano has enough range and power for the opera, where she sang at one time.
However, she preferred popular songs, and they have won her the acclaim of both audiences and composers. The audiences present her with flowers, the composers with new songs written especially for her. One budding composer, Leonid Garin, struck it lucky. Miansarova liked him as much as she did his song "I Need You," and soon after they met, they were married. Now they are appearing together. Also in the act is a lively five-piece band called Three and Two.

ALEXANDRA STRELCHENKO is another rising variety star. She is a slender girl with black hair in a long braid and eyes that sparkle mischievously. Strelchenko is not as well known as Miansarova and other famous songstresses, but she is on her way to the top.
Strelchenko had a much harder time arriving than the others. She had no opportunity to study singing, for one thing. Moreover, she picked a field—Russian folk songs—in which it is harder to win recognition. Young people want something more up-to-date, more in keeping with twentieth century style and rhythm. The result is that even a mediocre singer of pop music is pretty sure of success, while interpreters of folk songs, unless they are unusually talented, are apt to walk off the stage to the sound of their own heels tapping.
But Alexandra Strelchenko is unusually talented, with a natural feeling for music. It is due in large part to her renditions that the interest in our varied and meaningful folk music is growing.
In her white dress and green kerchief Strelchenko is like a birch tree, and her voice is as soft and as moving as the rustle of leaves in the forest, the ripple of grass in the steppe. She sings with an unaffected simplicity that is at the same time sophisticated, and although she avoids showy effects, she is at her best with songs that have a bold sweep, like "The Peddler." She introduces a modern note into the old songs, and that is probably the secret of her success.
Strelchenko has been singing ever since she was a child. She always dreamed of being able to bring folk songs to a wide audience. Her first listeners were the children at the kindergarten where she taught, then the people who came to the concerts given by the Folk Chorus of Voronezh, although she did not appear as a soloist there.
A few years later the famous folk song interpreter Lydia Ruslanova heard her and said, wiping away the tears, "You have a great future."
Strelchenko, who had herself wiped away tears as she listened to Ruslanova sing not long before that, did not believe her. But Ruslanova has proved to be right.

OLEG ANOFRIEV was and is an actor in the legitimate theater who appears occasionally in films. One day he plucked up the courage to take two songs he had written to Radio Moscow.
They were accepted, to his great surprise, and a recording was made with him doing the singing. Soon lovers of pop had a new idol with a pensive, somewhat ironical way of putting his songs across.
Offers to perform flowed in from all sides, but Oleg took his time choosing. "I want to sing songs that will say things that haven't been said before." The songs he writes himself naturally fit this criterion better than any others. But Oleg has also found songs by other composers that come up to his standards.
After Anofriev sings a song, it is certain to move up to the top of the hit parade. Teenagers sing it in the streets and variety performers on the stage. But to sing a song Oleg has sung first is no easy business. It is almost impossible to imitate his particular style of conversing with his audience.
"Song About a Friend," a poem by Grigori Pozhenyan which Andrei Petrov set to music for the film On the Way to the Mooring, *might have been written especially for Oleg, although he did not play in the picture. He makes it courageous, touched with melancholy, while other singers give it a melodramatic twist. In* Colleagues *Oleg, who played a gay young doctor, sang a song written for the film by Yuri Levitin and Gennadi Shpalikov. A comic song that had an underlying note of sadness, it quickly became popular at variety shows and in restaurants. But other performers did not have Oleg's humor, and when they sang "We ran along the deck kissing all the time," it sounded a little silly.*
His experience as an actor helps Oleg bring out the imagery in a song.
Acting prevents him from giving all his time to singing and variety. That is just as well, because he has no intention of giving up the stage and films. The long rehearsals and exhausting filming sessions only seem to imbue him with more energy. He finds enough hours in a day to act, write and sing new songs, carve amusing figures out of roots he picks up in the woods, and time left over to play with his five-year-old daughter.

THE MAN BEHIND SIBERIA'S SCIENCE TOWN

BY GLEB ANFILOV
PHOTOGRAPHS BY GENNADI KOPOSOV

AN eight-year-old bungalow on the edge of the Siberian forest is the oldest building in Science Town near Novosibirsk. "It's the house that set it all going," Siberians will tell you.

In it lives the man who "set it all going," Academician Mikhail Lavrentyev, "it" being the already world-famous science center.

What strikes your eye after the smiling welcome at the door from Lavrentyev's wife Vera is this warning to the fainthearted, "Monkeys can't live in Siberia, they freeze."

Mikhail Lavrentyev is a tall, erect man with friendly eyes and a low-pitched voice. His speech is so straightforward that there is no missing his point.

Before Lavrentyev began this project of setting up one of the world's largest science centers in the heart of Siberia, he had won recognition internationally for his work in mathematics, aerodynamics, hydrodynamics, explosion theory, high velocity collisions and earthquakes.

His studies have wide industrial application in excavating, hydraulic mining, contact welding and many other fields.

Lavrentyev's father was a professor at the University of Kazan, and the son spent his early years surrounded by scientists.

A favorite subject of inquiry, dating back to his boyhood, is explosions. His brother awakened his interest in chemistry, but his parents banned his home chemistry set after an experiment which nearly burned the house down.

He shifted to astronomy and mathematics, and then as a young man

Academician Lavrentyev teaching at Novosibirsk University. He believes in developing special gifts even at the cost of educational breadth.

turned to chemistry once again. This time an unplanned explosion shattered a sturdy exhaust hood. But with all the pyrotechnical accompaniment, he maintained his interest in mathematics.

Mikhail Lavrentyev believes in the "early development of special gifts even at the expense of so-called educational breadth." He underscores the last words. They embody an educational principle which he is insistent on.

Science Town has a physics and mathematics boarding school for children selected in all-Siberian competitions. The curriculum it follows brings the children by the shortest path to the complexities of present-day science.

Among the academician's own teachers were Professor N. N. Luzin, who taught many other eminent Soviet mathematicians.

Luzin was literally obsessed by mathematics, and Lavrentyev was amazed at his teacher's capacity for work. Twenty hours a day at his desk! Studying with him, he discovered the professor's secret—the ability to break down complex problems into simpler parts. It was this ability, persistently developed with Luzin's help, that became Lavrentyev's most important research tool.

The founder of Science Town in the heart of the Siberian wilderness is famous for his work in mathematics and a half dozen other fields.

Housing facilities for personnel of Siberia's branch of the USSR Academy of Sciences near Novosibirsk.

He first visited Siberia 40 years ago with a party of young mathematicians and physicists. He went through Siberia and the Altai on horseback, saw what was then out-of-the-way Barnaul and Biisk, as well as Novosibirsk, where Krasny Prospect, its present central thoroughfare, was just beginning to be built. He never forgot the lavish beauty of that vast unused country.

Now he is the president of the Siberian Branch of the Academy of Sciences, the youngest of the branches and one of the most inventive.

Organizing this big Siberian research center set Lavrentyev a large recruiting job. He had to find scientists who were not only original thinkers but were willing to pioneer, who were not afraid of hardships. What he offered them was complete and unqualified freedom to research. That applies not only to individuals but to whole staffs.

When Lavrentyev is asked whether he made any mistakes in choosing people, whether his acumen and intuition ever let him down, he says, "Unfortunately, yes."

One of his students has figured out that the academician's bad choices might come to two or three cases out of a hundred.

Despite his heavy administrative and teaching responsibilities, Lavrentyev finds time for his own research. This was true even in the early days. He presented two papers on mathematics at a congress in Stockholm just about the time the first section of Science Town was being completed.

At ten o'clock every morning he is in his office for seminars, reports and interviews with students. Administrative matters wait until after 3 P.M., when the real working hours are over.

A seminar is in progress. A young rosy-cheeked graduate student, at first somewhat hesitantly, talks about certain distinctive waves on the surface of water. Leaning back in his armchair, Lavrentyev listens, glances at the board and occasionally interjects an encouraging word.

In a brief summing up after the report he, seemingly by chance, calls these waves by the young man's name. The student blushes with pleasure—his waves!

Lavrentyev and fellow academician Andrei Trofimuk consider gas and oil prospecting possibilities with a West Siberian geological expedition.

Lavrentyev sets great store by his students' independence. He gives them time to think, to search, does not plague them with too frequent examinations.

He is quick to see when creative searching becomes empty speculation, but this occurs rarely.

When experimental explosions are made, the 64-year-old academician is inordinately fond of setting the charge with his own hands and lighting the fuse. He wants to see for himself why the explosion does what it does.

But he is careful when care is called for. Not so long ago, at the request of some agency, complex guided blasts were used to break through a thick concrete wall in Novosibirsk. It was an interesting case. Several explosions were tried, turned out well, and the young experimenters asked for one more to level what was left. The academician said, "No, that's enough. Don't tempt fate. An explosion is an explosion."

Lavrentyev expects the people who work with him to be as self-disciplined as he is and as devoted to research. Hobbies are fine, he says. He likes chess and playgoing as much as the next fellow. You can tell by the way he enjoys the local amateur theatricals. He laughs heartily at the jokes and hums the funny songs afterward. But he objects to a pastime that interferes with work and tries to infect his students and colleagues with his own bubbling enthusiasm for research.

He is impatient with those who are casual and leisurely about their research projects and is distressed by know-it-alls with a superficial book knowledge who lose their freshness of perception and interest in riddles. And there are countless riddles all around. They are to be found in the simplest, most everyday things—in a raindrop, a gust of wind, a bird on the wing. One must never lose the childlike capacity to wonder, he says.

To confound the complacent and omniscient, Lavrentyev from time to time provokes what you might call scientific situations. At one of his seminars he will suddenly pop an apparently simple question, this one for instance: "Do any of you know why a grass snake swims?" It turns out that no one does.

What's more, it also turns out that grass snakes should not be able to swim since they have neither tail nor fins, nothing with which to push them

through the water. Yet they do swim, and swiftly.

At the next meeting there are several opinions offered, with the result that an article appears in the *Journal of Applied Mechanics*. The title is "Movement of a Flexible Core in Liquid." The flexible core is the grass snake.

Another preventive for getting into a rut is travel. "You have settled in Siberia, do yourself the favor of knowing the country and its problems," Lavrentyev urges his colleagues. They have been to Angarsk, Lake Telets, Vladivostok, Sakhalin, the Kuril Islands and other distant places. These hikes and excursions are for more than sightseeing. As a result of these trips bothersome ice tracts are being blown up in one part of the country, and hot springs are being put to use in another. There is an ocean of boiling water underneath Western Siberia, and such regions as the Kuril Islands and Kamchatka in the Far East have innumerable geothermal springs waiting to be utilized.

Some time ago Lavrentyev himself visited the site of the big Sayan-Shushenskaya power station project in the Sayan Mountains. He came back fascinated all over again with Siberia's beauty and its natural wealth.

That wealth is today being found and put to use by the combined efforts of scientists, the indigenous peoples and the new settlers. The brain behind all this is the Novosibirsk science center.

A short while ago one of the physicists in Science Town was visited by his father, a miller from Armenia. The miller walked around, looked things over and was struck by the fact that while trucks brought food, clothes, machinery and instruments into the town, they took nothing out. Different from other places, like his mill, for example, where trucks brought in grain and took out flour. Every town had goods going in and other goods going out.

The son explained to the father that the goods Science Town produces are light and compact enough to be squeezed into a brief case or a mailing envelope, and a good deal of it stayed right there, in the human brain. What Science Town produces is knowledge mostly.

And yet figures tell us that Science Town knowledge already applied in industry has been so productive that it has far more than returned the great sums invested in the town.

Courtesy of the magazine Ogonyok

In his eight years in Science Town the academician has come to love Siberia. Strolling with his grandson in the woods near Novosibirsk.

MAN IN THE SPACE AGE

By Yuri Melvil
DOCTOR OF SCIENCE (PHILOSOPHY)

THE COSMIC ERA has begun. What has it in store for man? How will man-to-nature and man-to-man relations change? How will man's world outlook, mentality and ethical attitudes change?

"Ignorabimus?"

It seems to me that the change will be gradual but crucial. First of all man will realize that his physical and spiritual powers are unlimited.

For thousands of years his spiritual teachers have been trying to impress him with his frailty and insignificance in the face of the inconceivably powerful and still largely unknown forces of the infinite universe. Science and practice have been breaking down this attitude, but there are plenty of people who still accept it. They even seem to take a kind of perverse joy in the thought of their physical and spiritual weakness. A hundred years ago Du Bois-Reymond proclaimed his famous "Ignorabimus" in his *Uber die Grenzen des Naturenkennens:* "I do not know and I will never know." Skepticism with respect to science is still widespread. The contention that "the more our knowledge grows, the more our ignorance grows" is not unfamiliar.

There were objective reasons for this skepticism, but there were also subjective reasons. Perhaps the most important was man's feeling of isolation, his heaviness of spirit that the earth he is confined to is so infinitesmal a part of the universe. The inaccessible cosmic vastness has stultified some of man's intellectual and physical powers. It is true that his sight, amplified instrumentally and intellectually, has long been scanning outer space. He has visualized the universe more or less adequately, but not well enough yet to evaluate the possibilities of cognition by new principles.

The sky, the age-long symbol of the inaccessible, is likely to become man's domain in the foreseeable future. The Soviet and American space effort indicates that the human organism is so adaptable and at the same time so stable that it can preserve all its faculties unimpaired under the most unusual conditions. The infinite universe may thus become man's field of activity. And if man does not commit nuclear or some other kind of suicide, and if he succeeds in preserving the planet where he originated,he will have ahead of him hundreds of thousands and millions of years of life on the earth and in the larger universe.

It is vital that there be no hindrance to the exploration of outer space. We have long assumed that man will perish when the sun cools. But if other planetary systems are accessible, he is not doomed.

The assumption that life on the earth is destined to end may seem to be of no practical importance. Few people are concerned with man's fate millions of years hence. It is true, of course, that some people are not even concerned about their own future, let alone the future of mankind. Nevertheless the problem *is* important. Man is mortal. Yet, no matter how bitter this awareness of his inevitable end may be, he sometimes even courts death for the sake of the future. It is by projecting himself into the future and associating himself with the generations to come that man transcends his own individual existence and thus his finitude.

This does not mean to say that the development of astronautics will automatically give man immortality. The human race may perish, more particularly it may commit suicide, but the death of mankind is no longer inevitable. When the sun does cool, the people of the earth will be able to inhabit first the other planets of the solar system and then those of other planetary systems. This possibility of populating the cosmos rules out what we once thought was the inevitable extinction of the genus Homo.

"Effecting of All Things Possible"

There is reason to believe that cosmic processes will also be brought under human control sooner or later. Today it seems improbable that man will ever be able to control the distribution of interstellar gas or the origin and the evolution of stars. That seems almost too fantastic even for science fiction. But how long ago was it that Ernest Rutherford argued that man would never be able to use nuclear power? And here we are in the nuclear age.

The strength of the human organism is insignificant, but it can set in motion, control and use natural forces billions of times stronger than itself, and through them, forces even more powerful.

Some 350 years ago Francis Bacon formulated this goal for man: "The End of our foundation is the knowledge of Causes, and secret motions of things; and the enlarging of the bounds of Human Empire, to the effecting of all things possible."

The "effecting of all things possible" seemed entirely out of man's reach. Today, however, we can give due credit to Bacon for his insight.

That is why the latest space developments are so significant. They constitute the peak of man's present knowledge and skills. They give him the right to say: "In time there will be no bounds of the Human Empire and all things will be effected possible."

Of course, there will be no time when "everything is known and done." Omnipotence and omniscience will never be ours. These are human potentialities realizable only in an infinite sequence of cosmic history. Nor should we be sorry about that. Man has become man because he has been willing to face an unknown future. He will remain man so long as he continues to be willing to face an unknown future. Man's blessing lies in his eternal dissatisfaction, in the incompleteness of his plans, in his never fully realized hopes, in his curiosity, his daring, in his eternal urge to forge ahead.

Writers of popular science fantasies have suggested that our space journeys will be prompted largely by our "cosmic solitude," our yearning for kindred souls in the universe.

The origin of this cosmos *Weltschmerz* seems more likely to be man's position on the earth rather than his position in the cosmos. This is the same old *Weltschmerz* on a cosmic scale. In the final analysis, it is a reaction to the disharmony of our terrestrial life.

Cosmos-schmerz feeds on the insecurity, the fear of another war, the hostility, the suppression of freedom, the social and racial injustice that still plague a considerable part of our globe. Whatever discoveries lie in store for man in outer space, they cannot make him happier or better if his terrestrial life makes him miserable and evil. Inversely, if all is well on his earth, man will be able to cope with the problems he will encounter in space and make beneficial use of his discoveries.

Responsibility Great and Grave

The space venture could also have diametrically opposite consequences. The scientific and technological means for space exploration could, in combination with nuclear power, be turned into a cataclysmic weapon. War is not inevitable, but the threat of nuclear disaster does exist.

The "problem of man" that is so much discussed nowadays is first and foremost whether he is to be or not to be. The truth is ugly, but it will not disappear if we shut our eyes.

In this twentieth century more and

more people have been losing their faith in the providence that is supposed to be directing mankind to nobler goals. More and more people have become aware that they have only themselves to rely upon. No one's benign hand will steady him if he slips on the brink of a precipice. There will be no warning from the Socratic demon, no handwriting on the wall, Zeus will not strike dead the maniac reaching for the war button. Man's death or survival is in his own hands. Each thinking man must realize his dependence on other people, and his duty to them. Man's awareness of his cosmic mission may help this realization.

On his first flight beyond the earth's atmosphere, man—his name was Yuri Gagarin—exclaimed—"How beautiful our earth is!" The farther man's spaceships travel, the more distinctly will he see the earth's beauty and unity. Seeing the earth in celestial perspective will give him a new insight into the indivisibility of the human race, its common origin and common cosmic destiny. This awareness of the unity of human society and its cosmic mission should bring home the fact that peace is man's most immediate goal.

There is considerable speculation in outer space writing about the possibility of intelligent life on other celestial bodies. Obviously the discovery of life on other planets would make revolutionizing news. But those overoptimistic people who hope for the arrival of more intelligent beings from higher civilizations to help us organize our terrestrial affairs are, I think, doomed to disappointment. Human problems will have to be solved by humans.

To discover other forms of intelligent life in the universe is an exciting prospect. But surely the prospect of spreading intelligent life to distant worlds, of humanizing the cosmos, is no less exciting. Even if we are alone in the universe, we shall cease to be lonely when first near and then more distant worlds are inhabited by terrestrials.

If we are really alone in lifeless space, we must prize peace even more and cherish that spark of life and intelligence which was kindled on the surface of a tiny star lost among the billions of other stars of our galaxy, which itself is one of billions of similar galaxies.

That spark may kindle life on other celestial bodies and eventually the whole of the universe. Should it be extinguished, the billions of years of evolution will be lost, and no on knows where and when another day of life will break in a lifeless universe.

We must keep that spark glowing.

To Mankind United

Contemporary philosophers, scientists and writers have been trying to visualize the space era of our terrestrial life. American philosopher Vernon J. Bourke is very conscious of the danger of war, that a third world war might wipe out most of humanity in a matter of weeks. In a paper he read to the Thirteenth International Congress of Philosophy, Dr. Bourke cautions that the space epoch must be the epoch of mankind's reunion.

Looking ahead, Dr. Bourke is beset by conflicting emotions and thoughts. Mankind must reunite. However, this immediately raises in his mind the ghost of the masses and their domination, the ghost which haunted Nietzsche, Ortega, y Gasset, Heidegger and Jaspers. Perhaps in a milder form Dr. Bourke shares their aristocratic prejudice against the "common people"; he looks to "exceptional personalities" who will "give new impulses to mankind" in the future as they are presumably doing now.

Dr. Bourke is by no means enthusiastic about the cosmic epoch. He is worried that not only control functions but decision making will be turned over to machines, that man will become the slave of the machines he creates. Dr. Bourke is also concerned that individual human life will lose its value because of the earth's overpopulation due to the progress of medicine.

However, we all know that the ruling elite (from the slave owners of antiquity to the monopoly oligarchy of today) has never really prized an individual human life if the life was an ordinary workingman's. Slave labor in ancient times. Degrading serfdom in the Middle Ages. Dehumanizing stereotyped toil in the industrial era. Millions of lives sacrificed in feuds, in the Crusades, in colonial expeditions, in imperialist wars—in the maniacal and hopeless attempts of the Caesars, Tamerlanes, Genghis Khans, Napoleons and Hitlers to dominate the world. All this in the selfish interests of the same elite.

A philosopher concerned about the value of human life in the forthcoming epoch must be concerned about every human being, not only the privileged few who may lose their privileges.

In considering mankind's future, Marxists proceed from the rational laws of economic, political and social development, from the analysis of new objective trends which are already in evidence. What is more, they take into account the social forces, which in the final analysis determine the course of history. Though history is full of accidents and zigzags, blind alleys and detours, its motive forces and its laws are clearly enough defined for us not merely to guess but to predict the future with a high degree of probability.

Man has two great blessings. One nature gave him—life. The other he has acquired and developed during his own history—his mind. Man must make another two blessings universal, without them the first two are never secure—peace among nations and freedom from class and national oppression. Then, if man is destined to carry life and intelligence to outer space, he will be able to carry out his cosmic mission.

"Can human nature change?" This is an old question. Today the answer is definite: In the cosmic age man *must* change, spiritually and socially. As a space traveler, man will have to shake off the vestiges of old Adam and gain a new awareness of his power and dignity. He will have to part with that egoism and egocentrism to which he was once forced by the scarcity of material values and the consequent division of society into antagonistic classes. Once inevitable, egoism and egocentrism in all their economic, political and ethical forms are now anachronisms.

The cosmic era involves a vast increase of the scientific, technological and productive possibilities of society, the concentration of international efforts on the answers to global problems for the benefit of all mankind. The conquest of outer space requires organization, coordination, intellectual and physical endurance, moral fortitude. It is only "socialized mankind"—to use Marx's expression—that will be equal to the task.

The mankind that has entered the cosmic era is divided. Man has not solved his most burning problems: hunger and poverty of hundreds of millions, wars, oppression of man by man. This legacy of the past is incompatible with man's cosmic mission. The requirements of the new era coincide with the goals of the leading social movements: for peace, for the elimination of colonialism, for national independence, for an end to all kinds of oppression.

In calling our age cosmic, we identify only one of its several aspects. Our age is, above all, one that offers the possibility of great social reforms. Without them we can make no progress, celestial or terrestrial.

LETTERS TO THE EDITOR

I PROTEST

Dear Sirs:

I would like to express my appreciation for the lively writing and the magnificent photographs comprising the article Roof of the World, in the March 1966 issue. I would appreciate your conveying my feeling to Leonid Likhodeyev and Lev Ustinov. The photographs are superb.

(So is that full page one by Yevgeni Umnov ["Children's surgeon"]).

I am disappointed to read on page 26 the use of the words champagne and cognac referring to USSR products. The USA, among other nations, has violated the name of champagne, but not yet, that I am aware, cognac. For my country or yours or any other to make a wine and—because it bubbles—call it champagne is the equivalent of my writing a short story and signing the name Leo Tolstoy or William Faulkner.

But oh! Anyone reading the story will soon know it was not written by Tolstoy or Faulkner, unless the reader is a dunce who will believe any label.

Precisely the same may be said of champagnes, cognacs, and the wines of the Côte-d'or and the Médoc, which are also counterfeited (and chablis, and sauternes, etc.). I hardly expect the USSR, the USA, the Union of South Africa, Chile, Australia, Spain and the rest to cease this dishonest mislabeling just because I have protested. Nevertheless, I protest. By the way, an article on wine production in the USSR would be welcome.

Yours,
Jerry H. Simpson
Waynesboro, Virginia

A PUZZLE

Dear Sir:

In December, 1965, I received a United Nations Christmas card and the picture on it was your painting, "Fairy Tale." I thought the painting was so charming and amusing that I made a black frame for it. I mounted the card on a black mat and made the frame the exact size of the card so that all of the picture shows, and I hung it in my bedroom so that I see and enjoy it every day.

Later I received the February 1966 issue of SOVIET LIFE, and leafing through it I suddenly exclaimed, "There's my birch grove!" But then I looked more closely and saw that, though the trees seemed the same the other inhabitants of the grove had changed! "Free use of metaphor and hyperbole," indeed!

I wonder how many other readers of SOVIET LIFE also had the pleasure of comparing the two paintings of the birch grove in Pakhra.

Sincerely.
Mrs. Sybil Ramsing
Clinton, Connecticut

MORE CHILDREN'S STORIES

Dear Sirs:

I just had to write you and tell you how much I enjoyed the art section of SOVIET LIFE (February issue—Ed.) What I liked very much was the illustration for the fable. "The Silk Brush" and also "May There Always Be Me," by Nikolai Alexandrov. I enjoyed the cover, too. In fact, I got two magazines so I could keep the pictures on page 31 and 32.

I first found your magazine about a year or so ago. I always watch the art and ballet sections. Oh yes, the article on the blind children interested me, too, because my sister teaches ballet at the blind school here. She has been doing this for about two years. She just gives of her services and is very glad to help these deserving children. I always look, as I said, for ballet in your magazine. Though only on TV and in the movies, which is rare, have I seen the Bolshoi and the other famous companies. . . .

Could you print more children's fables and stories? I suppose they'd sound better in Russian but they're still quite beautiful in English.

I can't wait to find what the next edition of SOVIET LIFE holds.

Your friend,
Veronica Anne Vasicek
Grand Forks, N.D.

WISHES FOR PEACE

Gentlemen:

I have been a subscriber to SOVIET LIFE ever since the current series have been published and I have all issues (except numbers 1 and 2) in my private library. . . .

During 1966 I would like to see articles about Soviet home economics and the rightful place of the Soviet woman in the home and in society.

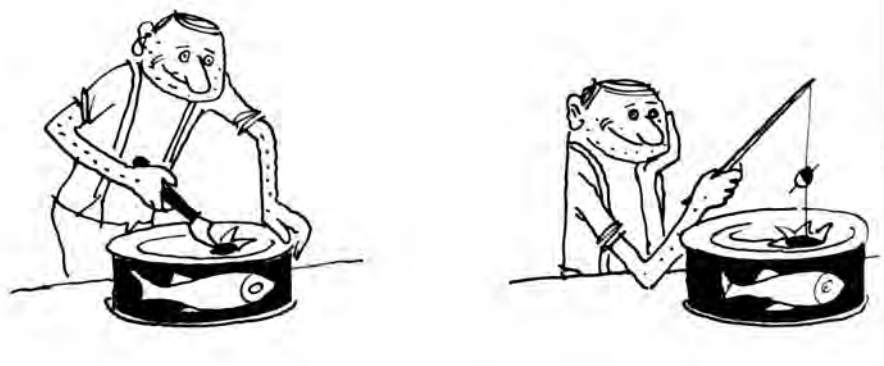
I sincerely extend to you and the staff of SOVIET LIFE my best wishes for peace and cooperation between our two great countries for all of 1966.

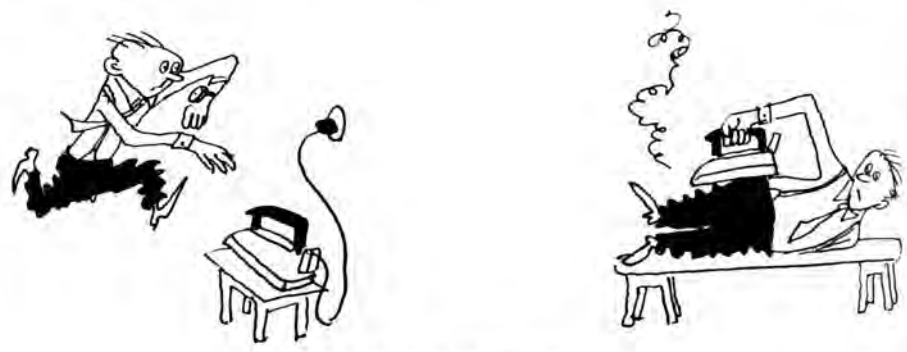
Sincerely,
Jerome Frank Slezak
Rome, Ohio

HUMOR

"He threw the hammer before he went in for wrestling."

"Coffee, dear?"





Bachelor's trouble.

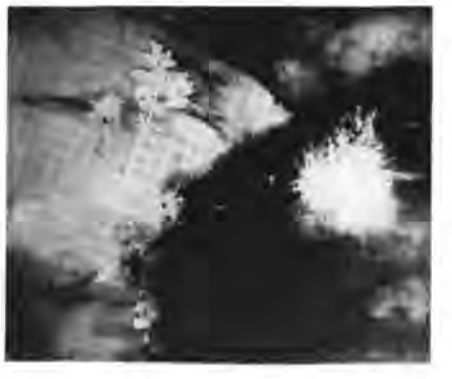
BLACK AND WHITE

BY BORIS KOROLEV

The man who did this self-portrait loves Van Gogh and hates color. Press photographer Alexei Perevoshchikov's study may remind you of Van Gogh's famous one-eared self-portrait. Van Gogh cut off his ear and sent it to a woman who loved to toy with his big ears. Perevoshchikov's gesture was not quite as extravagant. The photographer's self-portrait sans an ear is a token of respect for his favorite painter. We see a man wearied by agonizing reflections, his eyes as restless in the skull cage as wild beasts in the zoo. His heavy thoughts are so deeply engraved on his brow that the sensitive fingers of a blind man might read them at a touch. Thus he once saw himself, and so this portrait. Actually he is quite different: snow white hair and blue eyes in the mischievous face of an elf. And yet a smile on this face is as unexpected as a flower on a stone. His fate, he claims, is like Van Gogh's in some ways. "He was poor all his life, and I haven't become wealthy, either." Then to show that he's only joking, he adds: "The difference is that Van Gogh was an unrecognized pauper, while I have won recognition." Perevoshchikov's photographs are really popular, and magazines are glad to print them. Exhibitions of the 62-year-old artist-photographer's pictures attract thousands.

Forty years ago he enrolled at the art school of the town of Vyatka. When he saw the camera work of the then famous Russian artist-photographer Lobovikov, he put away his brush. Every morning since, he has been leaving his house in Kirovo-Chepetsk for the woods, where he has yet to find that landscape which will make what he will consider his best photograph. Picking a dozen of his best pictures is a problem, so many of them are bests. Nor is it much easier to select a hundred of the best for an exhibition out of the many thousands he has made. Although he abandoned painting, he remained an artist and a sculptor. His *Portrait of an Old Woman* is so full of the play of shadow and light that it might well be called a "carving in shade." Ten of the first people who were shown *Spring Flood* and *Living Water* thought they were reproductions of paintings. In the landscape *Wet Snow* you see Perevoshchikov's decided impressionist leanings. His *Circle of Time* is a philosophical statement: The hands of a child and those of an old woman are parentheses encircling the dates of man's birth and death. "I avoid photographic reality," says Alexei Perevoshchikov. "My pictures show nature as I myself see it." He cannot stand color photography. He says it reproduces nature in color, not the color in nature. He feels that photographing color is like painting statues. Imagine the *Venus de Milo* painted, and you are likely to agree with him. He has his own school and his disciples—future missionaries for black-and-white landscapes.

His two sons, however, did not catch his particular enthusiasm. They became engineers. His wife, a retired schoolteacher, does not share nor understand the passion that drives this elderly man into the woods every morning. "But I am grateful to my wife for her patience. I do less roaming in the woods now that I'm getting old. The first sign of age was when I began doing portraits. You don't have to tramp the woods to do them." But even when he does portraits, you can see that Perevoshchikov loves Van Gogh and that he hates color.



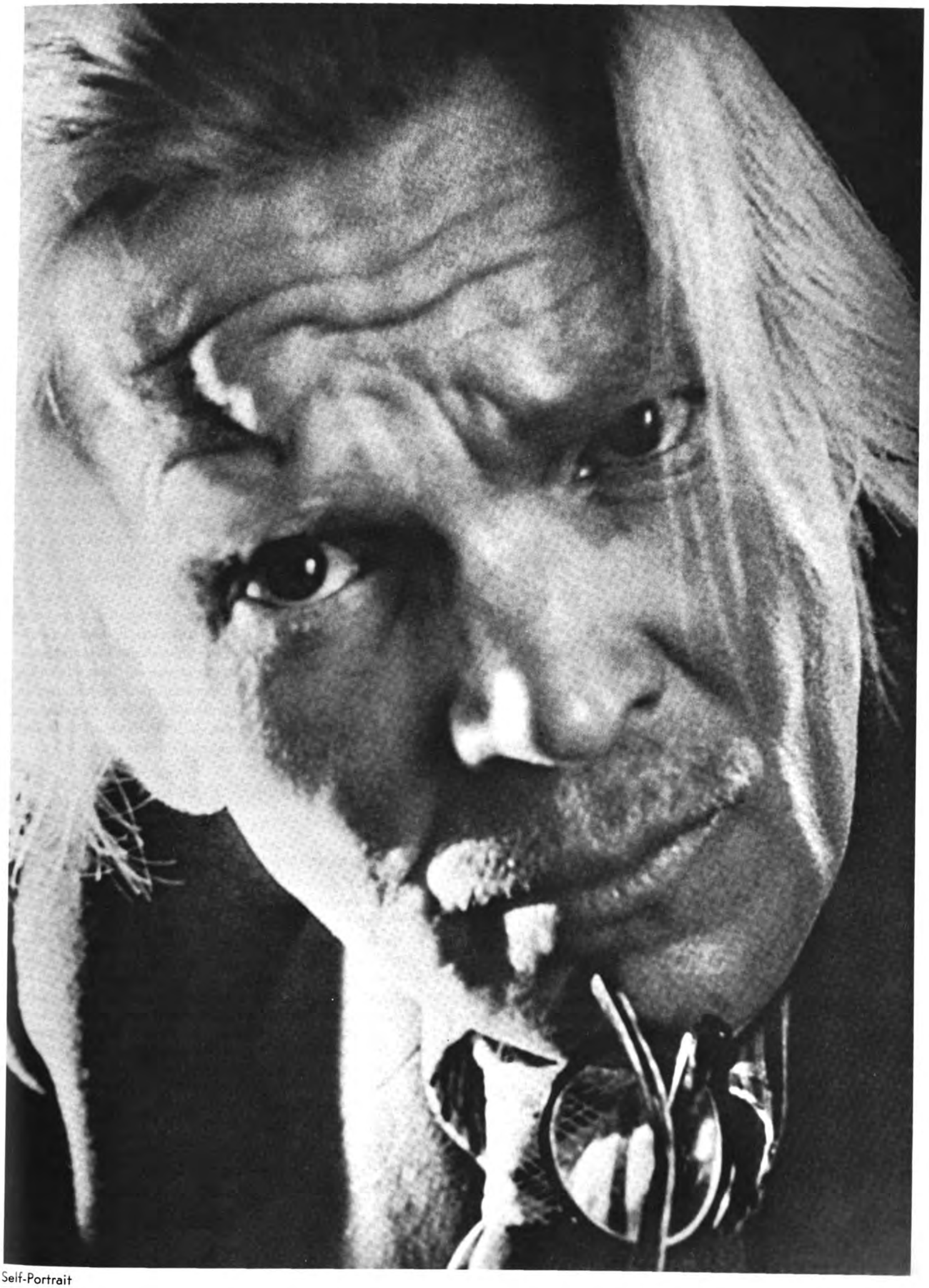
Portrait of an Old Woman

Spring Flood

Circle of Time

Wet Snow

Living Water



Self-Portrait

STANISLAVSKY, BRECHT

BY NIKOLAI ANASTASYEV

THE SOVIET THEATER is still in its first rapture at the rediscovery of Brecht. These few years have seen long and successful runs of *The Threepenny Opera, Arturo Ui, Mann ist Mann, Mother Courage* and other Brecht plays. The range of his influence increases, and the original vague and vacillating sympathy has grown into a deep and lasting affection.

The fact that Brecht's views and those of the Soviet producers coincide at many points can hardly explain this response. Critics may succeed in separating the author's ethical attitude from the esthetic impact of his work, but audiences can hardly be expected to respond to the author's social views per se. The Soviet audiences' love for Brecht is unexpected and romantic because the twentieth century Russian theater has essentially been based on the Stanislavsky approach. It is difficult to imagine anything more different (at least superficially) than the Method and Brecht's principles.

Stanislavsky and Brecht have become magic names in our day. The Russian director's harmonious forms of play acting earned him a permanent niche in the histrionic pantheon. These forms are still intensely alive—and not on the Russian stage alone. On the other hand, Brecht's contribution, the epic theater theory, was openly iconoclastic. Brecht was a gifted playwright, producer, actor and—iconoclast.

The worship of these two heroes of the twentieth century theater is dangerous because, like any worship, it is prone to canonize their principles. The only good canons are those that are demolished by new generations. Many failures of the Art Theater of recent years can be traced (as was noted by both Soviet and foreign critics) to the conversion of Stanislavsky's insights into rigid dogmas. This in spite of the fact that both Stanislavsky and Brecht warned repeatedly against a blind reverence for their principles.

If these warnings are neglected, Brecht's contention that he represented socialist realism will remain just a clever paradox. Stanislavsky's allegiance to the method of socialist realism does not seem to be questioned. Now, can Stanislavsky and Brecht be included within the same movement without destroying the identity of either? This problem will be unsolvable if the legacies of these artists are used as two sets of rigid postulates. However, an attempt at a solution is perhaps worthwhile.

It is a great temptation to draw a parallel between their artistic practices. They are both artists, aren't they? And it is the rare artist who can combine his theory and practice consistently. Once we have made these assumptions, it should be plain sailing to prove that the artistic practices of both men were kindred, at least in terms of their ideological approach, and consequently . . .

This kind of solution is obviously too general and farfetched. Now, suppose we compare the theories of the two to see at which points they clash and where they coincide. So, the reliving theory versus epic theater.

To quote Stanislavsky, the purpose of the theater is to "recreate on the stage a living soul." The actor must project his role into himself, sink into the epoch enacted and relive his role emotionally in a way authentically convincing to the audience. It is from this point that the Method proceeds, and this is the point where it culminates: a full circle. And inside this circle are all the elements of the Method: suggested circumstances, inner dialogue, outward behavior, creative awareness (this is what Stanislavsky called the actor's feeling of his identity with his role and circumstances in contrast to the purely theatrical "stage feeling" that breaks the spell of natural creativity). The Method is well enough known so that we need not discuss it in detail.

It is generally agreed that Stanislavsky revolutionized the theater. This is true, of course. The flashes of genius in the performance of Kean, Garrick, Talma, Bernhardt, Mochalov or Shchepkin became in his theater a steady flame, combining intuition and craftsmanship. On the other hand, his Method had many precedents. Thus, Tommaso Salvini said: "The ability to feel is what distinguishes a true artist while all the rest is a purely mechanical aspect of the craft . . . ." Or to quote Alexander Pushkin, the great Russian poet and playwright of the first third of the last century, "The truth of passions . . . in suggested circumstances—this is what our mind demands of the writer of drama." Perhaps the tradition of the Stanislavsky theater begins with Aristotle.

It is the "Aristotelian" or "drama" theater that was challenged by Bertolt Brecht and his epic theater. The main premise leaves no room for compromise: the Aristotelian theater appeals to emotion, the epic theater to reason. Paradoxically, at the most tragic moment the spectator must, according to Brecht, remain calm, appraise the meaning of what is going on, and take decisions. The principles of both theaters, compiled by a German director, can be summed up this way:

Drama Theater	*Epic Theater*
is an action	**is an account**
involves the spectator	**makes the spectator an observer**
absorbs the spectator's activity	**stimulates the spectator's activity**
evokes the spectator's emotions	**impels the spectator to take decisions**
places the spectator at the center of events and makes him sympathize	**opposes the spectator to the events and makes him study**
appeals to the spectator's emotions	**appeals to the spectator's reason**

Nowhere does Brecht's creed seem to be expressed so tersely and vigorously. Only one comment must be added: In contrast to the role-projected-into-actor requirement, Brecht demanded that the actor have a positive or negative attitude toward his hero, evaluating him from the outside. You must take either the role-projected-into-actor approach or the outsider's-view approach, Brecht declared. Here those who hold that realism is an integrated whole are likely to accuse Brecht of harsh rigidity, and they will be right. Stanislavsky actors like Kachalov, Khmelev or Dobronravov combined both approaches; Ernst Busch, Helene Weigel and Angelika Gurwitz of the Berliner Ensemble certainly stirred their audiences emotionally, at least in Moscow.

AND SOCIALIST REALISM

Besides, Brecht also permitted himself the role-projected-into-actor approach, though only as a technical device in rehearsals. As a matter of fact, Brecht wrote an "Aristotelian" play *Señora Carrar's Rifles.* Another argument: the social background of the Brecht theater. This is a serious argument worth discussing.

Brecht came to the theater immediately after the defeat of the German revolution of 1918, when plays which he called "perfumery" predominated. Brecht believed them especially harmful because of their narcotic and emasculating escapism from social problems. It is as an antidote to this theater that Brecht's epic theater—a social, class theater—originated. Brecht found a new form which, in his opinion, matched the new content better than any other. His departure challenged the canons of playwriting and acting of that day. Brecht associated the emergence of this form with an intense development of knowledge. He called his theater a theater of the epoch of science, a theater which must keep abreast of man's maturing intellect. Incidentally, the theater today endorses this point of view.

Carried away by controversy, Brecht went too far. He was reproached for his neglect of the best the world theater had to offer, and this reproach was not entirely unjust. However, what is valuable in Brecht's theory is not his polemical zeal but an essentially new interpretation of playwriting and acting.

At this point it has to be admitted that the few similarities in Stanislavsky's and Brecht's views cannot erase the immense difference between them. Thus, the hopes of those who hold that realism is something uniform are unfounded. We have to assume that the banks of realism are so far apart that the stream flowing between them has enough room for both Stanislavsky and Brecht to swim in it.

This brings us to the question put at the beginning of this essay: Is Brecht's work socialist realism?

The clue must be sought primarily in his plays and his staging. Let us take one of his plays, say, *Mother Courage,* the story of a happy-go-lucky sutler who lost her children in war, who was maimed by war, but learned nothing from war. The fact that she learned nothing does not make the audience's reaction against war any less poignant. This is humanism. And humanism is the first hallmark of realism.

Another random choice: *Galileo.* Brecht discarded the conventional legend about the Florentine savant who allegedly recited his *eppur si muove;* his Galileo is an apostate of truth. This is how Galileo is also interpreted by the British actor Charles Laughton. However, this does not make the play's plea for truth any less stirring. Surely, this is realism.

Yet another choice, also at random: *The Good Woman of Setzuan.* Kindness is impossible in a world where material motives leave no room for kindness and justice. The play appeals to the social awareness of the audience and hints at the possibilities of reforming the world. This is perhaps the main quality of Brecht's realism and of twentieth century realism in general. As Brecht defined it: "Modern people will accept a portrayal of the modern world only if this world is shown as a changeable world."

Another quotation from Brecht is illuminating: "Realism assumes breadth, and not narrow-mindedness. Reality is broad, varied, contradictory. . . . Truth can be concealed and expressed in many ways. We determine our esthetics, just as we do our ethics, by the dictates of our struggle."

Brecht expressed reality in an extraordinary and often paradoxical way. A case in point is his *Verfremdungeffekt* (alienation effect). It emphasizes the difference between Stanislavsky and Brecht. The effect requires that something very familiar be represented in a completely unexpected way. In *Arturo Ui* the rise of Hitler is represented as the career of a Chicago gangster. In *The Good Woman of Setzuan* the gods are represented as weak-willed frustrated people. And so on. This approach enables Brecht to purge the play of psychological details (which, in his opinion, enervate the audience and distract their attention) and to get the essence of the play across, thus exciting the brain to protest and struggle.

Another aspect of *Verfremdungeffekt* are the famous songs interrupting the course of a play to express the author's attitude. In performance this sounds much like an extreme form of actor's "outsideness."

Superficially, this approach is so far removed from the traditional forms of realistic theater that one is again tempted to excommunicate Brecht from realism. A more searching analysis will show, however, that the alienation effect is not foreign to realism. In a flash it places real events and people at a grotesque angle of vision, and their realism is thus brought home more forcibly.

The banks of realism are indeed wide. Between them Stanislavsky can well coexist with Brecht. Or with Meyerhold, different from both. Or with many, many other producers and playwrights.

That is why the traditionally realistic Russian theater has incorporated Brecht easily and organically. I said easily. This is probably true only in retrospect. When Brecht first came on the theatrical scene, our directors were intimidated by him and could see no way of combining the extremes of the "role-projected-into-the-actor" theory and the "epic" theater. In 1930 Alexander Tairov staged *The Threepenny Opera.* But this first introduction of Brecht to Soviet audiences was fleeting. The play did not get much attention.

In the mid-sixties we have new Brecht plays every season. Soviet directors seem to have found a way of combining Russian theater tradition and Brecht's iconoclasm. The result is something new: neither "pure Brecht" nor "pure Stanislavsky." Soviet actress Yuli Glizer interprets Mother Courage differently from Helene Weigel. On the stage of the Mayakovsky Theater in Moscow, Mother Courage learned something from the war. In *Arturo Ui,* perhaps the most "alienated" of Brecht's plays, the actors blend placard and reality, and "project their roles." This synthesis occurs more and more often nowadays. The latest example is Yuri Lyubimov's young theater fusing the traditions of Stanislavsky, Brecht, Meyerhold and Vakhtangov (Yuri Lyubimov was a Vakhtangov Theater actor). This synthesis also, in my opinion, proves the breadth of realism.

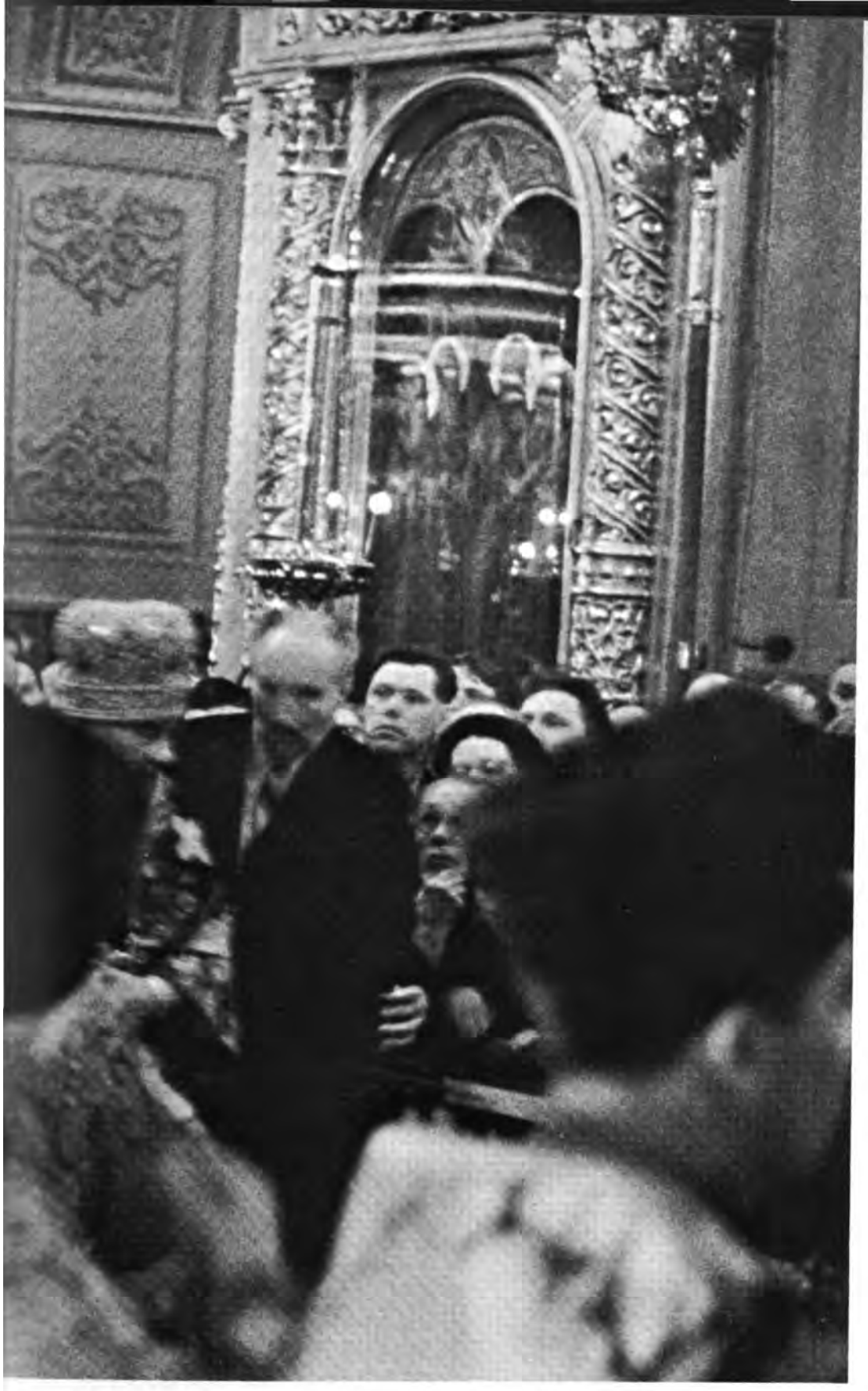
RUSSIAN EASTER

BY ALEXEI FILIPPOV

SOME of the ancient religious holidays have been touched by the changes in the weather. A Muscovite used to know Christmas and the Epiphany were on the way, for instance, because the frosts were so bitter. But not any longer, with the warm Januaries the capital has been having. Easter weather, however, has never been predictable. So that no matter whether the snow is melting or still crunching underfoot, when you see people carrying fluffy twigs of pussywillows, you know that it's Palm Sunday and that Easter, the herald of spring, is only a week off. Seeing those twigs, you almost smell the clear air filled with the fragrance of thawing earth.

Though the date of the Russian Easter varies with the year, it always falls on the first Sunday after the new spring moon, in April or the beginning of May. Usually the Western churches celebrate Easter somewhat earlier, but in 1966 Easter for Christians the world over fell on April 10.

Easter is preceded by the seven weeks of Lent, and many



pious people really do fast for the whole time. It is supposed to be good for the health, especially since at Shrovetide, just before Lent, both the devout old lady and the atheist student honor the ancient Russian tradition, probably stemming from heathen times, of finishing off as many pancakes and other good things as they can hold.

The seventh week of Lent is Holy Week, with long services at the churches. The prayers and chants in penance for the suffering of Christ contrast with the apotheosis of the Easter service on Saturday night.

The pious flock to the churches on the Saturday before Easter to have their *kulich* blessed. Even families that do not go to church bake these cakes. They long ago became traditional. At Yelokhovsky Cathedral in Moscow the services are led by Patriarch Alexei, head of the Russian Church, assisted by the bishops.

Nor are the religious alone attracted to the solemn service, the choirs with famous singers, the golden robes of the priests and the beautiful cathedral interior. Many others are eager to see this grandest of Orthodox Church liturgies. Though the Orthodox services are not as ornate as those of the Roman Catholic Church, they are truly splendid at Easter. The celebrants change vestments, beginning the services in white chasubles and ending in red.

There is a torch and candlelight procession around the church at night, the pious singing psalms and carrying banners. This rite is watched with equal fascination by impressive gentlemen of the diplomatic corps, by youngsters clinging to the fence around the cathedral and by tired militiamen, there to help keep order.

Sunday morning begins with the tolling of bells, the tireless bell ringers doing their best to mark the end of Lent with the loudest chimes. Pious people meeting on the streets exchange greetings—"Christ has risen," "He has truly risen"—and kiss each other.

BY EMMANUIL BOROVIK

MY RELATIONS WITH MARK TWAIN

MY RELATIONS with Mark Twain developed the hard way. I have a real affection for him now. At closer acquaintance he turned out to be a fine fellow. His picture hangs in my study, and I have come to realize that a man can learn a lot of good things from him. Yet, though now he teaches me these good things, it was certainly not for his pious advice that I loved him in my childhood.

First of all, when I read *The Adventures of Huckleberry Finn,* I decided firmly that it was time for me to run away from home. I was not very sure why I should go, let alone where, but this I knew: that the time had come for me to build a raft and float down the Mississippi (I beg your pardon, down the Moscow River). This I proceeded to do forthwith, but I was caught some 20 miles from Moscow.

Tom Sawyer's contribution was to teach me to sneer at boys in brand new suits and to put them in their place even if I had to do it with my fists.

Though I did not have the chance to whitewash fences and earn even half an apple that way, to make up for it I always managed, with sheer American inventiveness, to convince my classmates that if they did my drawings, I would condescend to polish off the sandwiches they brought for lunch.

I could cite many more such examples to show you how Mark Twain helped make my childhood more interesting. So it went throughout my years in school.

When I finished high school, I went to college and majored in literature. It was there that my relations with that American writer became complicated, and my literature professors were responsible for it. Instead of getting the students together around a table and reading them *The Prince and the Pauper* or *A Connecticut Yankee in King Arthur's Court,* they made them listen to long lectures on Mark Twain's contribution to world literature in which they kept referring to all kinds of images and characters in his works. Incidentally, I never could understand what the use was of substituting the boring word "work" for the good word "book," just as I was unable to grasp what they meant by images and characters. As far as I can see, Mark Twain does not have "characters" in his books, he has people, lively and entertaining, clever and stupid, the kind you find in real life. However, this is a conclusion I arrived at later, but in those days all these works and images just bored me to distraction, and I stopped

reading Mark Twain. I just did not want to read any more of his books, and that was that.

I parted company with Mark Twain for quite a long time. I spent five years in the war, finished the university education interrupted by the war, and then worked at various jobs. Sometimes in the evening I made half-hearted attempts to learn English. My wife's advice. She said that it was much more useful to study a foreign language than to keep hashing over the things that happened at the front with friends who were always worried that I might get parched. I had a very simple reason for choosing English: I was given to understand by some people in the know that it was a language with which you could build any number of eloquent expressions simply by placing one noun alongside another. For instance, all you had to do was put together the word "desk" and the word "chair" and you had "desk chair," do the opposite and you get "chair desk."

"Well, this is certainly not like Russian," I said. "Everything is as plain as it can be in English," these language experts assured me, and in a month or two I would be speaking English like Mark Twain.

There was Mark Twain again! It looked like he would be haunting me the rest of my life. So I decided to drop English. My native tongue, I thought, would be quite enough for me. However, it was too late. A rumor was already circulating among my literary friends that I had mastered the language of the Anglo-Saxons.

One day I received a telephone call from the editor of a book of Mark Twain's short stories which was being prepared for publication in Russian. A real businessman, this was, and he immediately got down to brass tacks.

"You will be at the publishing house tomorrow," he ordered.

"What for?" I asked.

"Don't ask stupid questions. A man does not study English just to sit home with it."

"And what does he study it for?"

"To translate Mark Twain, you nitwit."

"You want me to translate Mark Twain?"

"Yes, I want you to translate Mark Twain. If you studied the language, you should know how to translate. Everyone translates now. No arguments. Come to the publishing house tomorrow morning and get some stories to translate."

I had a bad night. In my dreams I kept seeing Huckleberry Finn, the prince and the pauper, Tom Sawyer, amateur detective Simon Wheeler, the man that corrupted Hadleyburg, Mr. and Mrs. McWilliams and even the white elephant with the celebrated jumping frog of Calaveras County on its back.

They all shook their heads, made wry faces and snapped out: "We hope you don't think we were invented by Mark Twain so you could come along and cripple us in Russian!" "No," I quaked. "Well, you keep that in mind, and don't try putting anything over on us," they said as they went away.

Huckleberry Finn was the only one who kept quiet. He grinned and winked, as though to say: "Chin up, pal!"

When I woke up the next morning I wanted to run away somewhere and hide, but the doorbell rang. It was a messenger from the publishing house. "Package for you," he said, and disappeared before I could get a word out.

There was nothing I could do about it. When a man of letters is sent a package from a publishing house, he can't help opening it. We're only made of flesh and blood, after all.

The first thing I found in the package was a note from my friend, the editor. "I know you too well to think that you will keep your word and come to the publishing house. I'm therefore sending you four of Mark Twain's short stories and expect them to be translated in the shortest time possible. Don't try to run away, we'll track you down, even to the bottom of the Mississippi."

I was really in a jam. While I was thus sadly meditating, my son came into the room. Having learned what was the matter, he considered it his duty to help out.

"Dad," he said. "I thought you had more courage. Nowadays practically everybody writes things or translates them. Anyway, if you can't translate all four, cut them down and make one story out of them. There are foreign languages in which *Anna Karenina* is abridged to a thin pocketbook, and here you complain that you can't grapple with a few short stories."

"How can you make one story out of them?" I asked. "The first is called 'About Barbers,' the second 'Bible Teaching and Religious Practice,' the third 'My First Literary Venture,' and the fourth is not a short story at all but a fable."

"Well, that's fine!" he said. "Let your combination story have two barbers, the first one tells the second about his first literary venture, and the second tells the first a fable on a Biblical theme. What's so hard?"

"It really isn't," I thought. "I can take the parts of each short story that look easy, translate them with the help of a dictionary, and paste them together. Mark Twain had more trouble with German than I do with English, and he managed."

"All right," I said. "I'll take a chance. But don't you and your mother make it harder for me. For at least the next two days I'll need an atmosphere conducive to creative effort."

I sat down to work.

In three days the translation was ready. I read it to my wife and son, and they thought it was very nice.

"Good for you," said the editor when I brought him my translation. "I always said you were a capable fellow. To show you my appreciation, I'll look through the translation right now. Sit down and smoke up my office, everybody else does."

I sat down unobtrusively in a chair nearby and fell into a happy reverie. "Now things will start clicking for me," I thought. "I will become famous, but I'll be modest about it. 'Come see us today,' my friends will say. 'I can't,' I'll answer. 'I have to read proofs all night.' 'What proofs?' 'Well, you know, it's this Mark Twain again, he don't let me rest.'

"Then there will be the royalties. Mark Twain's short stories will have a tremendous circulation, and I'll be getting quite a bundle. What shall I spend it on? A scooter, maybe. . ."

At that moment I looked at the editor and saw that he was looking at me. There was a strange expression on his face and an awkward pity in his eyes. Once again I realized how well he knew American literature, for he recited from memory an excerpt from O. Henry. Remember the place in the "Chief of the Redskins" where Sam asks Bill whether there was any heart disease in his family before telling him that little Johnny is standing behind his back? Well, my friend asked me the same thing. Only instead of "heart disease" he said "mental illness."

"No," I answered the same way Bill did. "We had nothing chronic in our family except malaria and accidents. Why?"

"It's all right, don't you worry. Now go on home and take it easy. We'll call you sometime."

I shrugged my shoulders, looked at him in surprise and trudged home. Another disservice that Mark Twain did me.

It was a long time before I went back to his books. This was after I had put my jaw out of joint with too much English phonetics. Now I can read most of Mark Twain's books in the original. I was even bold enough to contribute to Mark Twain's works by translating the aforementioned four short stories I had tried to digest.

"If these were Mark Twain's first literary ventures," I thought, "he will forgive me my ventures in the field of translation." I was duly forgiven, and this time my translations were accepted. Though the royalties were not great, I felt as though I had made a million, because when I discover a great writer, that's what I feel like—a millionaire.

That is why Mark Twain's picture now hangs in my study, and that is why I say that my relations with him developed the hard way.

YOUR QUESTIONS ON COMMUNISM

YOU REPROACH US BECAUSE OUR SOCIETY IS BASED ON THE PROFIT MOTIVE. BUT WHAT DIFFERENCE IS THERE BETWEEN US, WHEN YOUR PHILOSOPHY IS SO STARKLY MATERIALISTIC?

The question stems largely from a misrepresentation of the word "materialism." And, indeed, the word may be used in its practical, day-to-day living sense and in its scientific, philosophical sense. In its first sense we call people "materialists" who overemphasize the material aspect of life, who in the pursuit of the good things of life dismiss spiritual values and ideals, which are supposedly the province only of the idealist.

Opponents of materialism have long been trying to capitalize on this vulgar interpretation. With an obstinacy worthy of a better cause, they keep trying to label Marxists as stark materialists. The idea, of course, is to make Marxism unattractive to people concerned with things of the spirit.

This is a caricature of Marxism. Does the Soviet Communist Party Program concern itself only with man's material needs? This document says: "Communism accomplishes the historic mission of delivering all men from social inequality, from every form of oppression and exploitation, from the horrors of war, and proclaims Peace, Labor, Freedom, Equality, Fraternity and Happiness for all peoples of the earth."

As a philosophical concept, materialism means that the material element, nature, is primary, and that thought, the spirit, the idea, is a property of matter. The idealist, on the other hand, says that thought, the spirit or the idea, existed before nature, that nature was created in one way or another by the spiritual element. Hence, "idealism" and "materialism" tell us only which of the two—matter or spirit—one or another philosophy believes is primary.

True enough, in their practical work Communists are very much concerned with meeting man's material needs. But there is nothing "starkly materialistic" about that. They simply believe—and this is plain common sense—that before you can talk of happiness, of a rewarding spiritual life, you must see to it that people have enough to eat, are properly clothed and decently housed.

The significance Marxists attach to spiritual values is demonstrated, in particular, by the moral code incorporated in the CPSU Program, the code Communists pledge to live by. Among other things, it lists civic responsibility, respect for others, honesty, truthfulness, a moral life and modesty as standards of behavior.

Question answered by Lev Sedin

MEDICINE IN INDUSTRY

By Professor Avgust Letavet
DIRECTOR, INSTITUTE OF OCCUPATIONAL HYGIENE AND MEDICINE

INDUSTRIAL MEDICINE is obviously important, man spends a third of his life at work. Intensive research in Soviet industrial medicine dates from 1923, when the first Research Institute for Occupational Hygiene and Medicine was founded in Moscow. It was soon clear that one institution of the kind was insufficient for so big a country, considering its rapid industrial development and the variety of its industries. Similar research centers were set up in Leningrad, Gorky, Sverdlovsk, Kharkov and other cities. Today there are 15. Research in the field is also being done by the corresponding departments of medical colleges, by some of the institutes that are working on general problems of hygiene and by sanitation-epidemiological stations. The technological aspects (safety measures, ventilation, lighting, etc.) are handled by five labor-protection research institutes maintained by various trade unions.

Our Moscow institute is central. We coordinate all research in industrial medicine. We pass on assignments from the Ministry of Health, factories and trade unions. Other research institutions, college departments, and laboratories submit their research plans to our institute. We work them into a master research plan for the country as a whole. This eliminates overlapping and focuses the attention of physicians and scientists on the most vital and most urgent problems.

Poisons in the Air

The chemical industry is one of our special concerns because it has been expanding and new chemicals are being introduced all the time.

For each compound used industrially we determine concentration-in-air tolerances, that is, concentrations which can be absorbed daily for an unlimited time without causing occupational disease or even the slightest deviation from the normal. What we are concerned with here, of course, is the early diagnosis of poisoning, its prevention and treatment.

Our current list of concentration-in-air tolerances includes more than 300 chemicals. Data on 100 other chemicals have been prepared. Certified by a commission of leading specialists and endorsed by the Ministry of Health, the tolerances become obligatory.

There are discrepancies between tolerances accepted in our country and the United States. This applies especially to chlorinated hydrocarbons. It seems to me that exchange of information and simultaneous research would be helpful to both countries.

Industrial poisoning figures prominently in our research program. For example, we investigate the connection between the structure of chemicals and their toxic effects. Studies of structurally kindred groups of substances (for example, organic phosphorus compounds, organic fluoride compounds, chlorinated hydrocarbons) indicate that the toxic effect of a new compound can be predicted in many cases. Less poisonous chemicals can then be selected out of a group of technologically more or less equivalent chemicals.

Another important area of research is the combined effect of chemicals. Since several chemicals usually act on an industrial worker simultaneously, the over-all effect must be taken into account for safety.

Methods to detect very low concentrations of poisonous gases and vapors have been developed to check the air in factories for acute or chronic pollution. This has called into being a distinct branch of analytical chemistry known as industrial medical chemistry. Every research institute concerned with industrial medicine has a laboratory of industrial medical chemistry. As a result, we now have techniques in operation to detect all chemicals for which concentration tolerances have been established.

Fighting Silicosis

Many research institutes are working on silicosis. The relation between dust concentration and silicosis has been determined, and the harmful effects of different kinds of dust are fairly well known. Research institutions handling the engineering aspect of the problem have developed a system that eliminates the dust hazard in mines. The system is based on the "wet drilling" method combined with irrigation devices and proper ventilation. Pumping water into a layer has proved its worth in coal mines.

The dust content of air in mines has decreased considerably. Cases of incipient silicosis detected in regular examinations of miners are extremely rare. The average period of development of incipient silicosis now exceeds 10 years. A miner who develops early symptoms is shifted to another job. The state compensates him for his loss of wages while learning a new trade.

Medicine for New Industries

Research interest was recently centered on vibration and noise. Cases of nervous and vascular disturbances were detected when cer-

tain types of vibration equipment or tools with strong vibratory effects were used. Effective methods have been worked out to prevent these disturbances.

Nuclear power used for peaceful purposes has also been under study. For example, we are investigating the effect of small doses of radiation and the penetration of radioactive substances. Irradiation and radioactive concentration-in-air tolerances have been established, and sets of protective measures developed.

Safety rules for work with radioactive substances are enforced. However, since the applications of radioactive isotopes and sources of ionizing radiations have been expanding, there are any number of problems that need solving. As a matter of fact, the field is practically untapped.

The rapid development of radio engineering, particularly the application of radio-frequency oscillators, has also given us new problems. We have derived enough data from clinical research on the effect of ultrahigh-frequency fields on the human organism to set up a reliable system of protective devices.

Air Conditioning

The construction of giant metal-making and machine-building plants with many hot workshops has made air conditioning a very immediate problem. What is the effect of high temperatures on the human organism? How can we protect the worker from these hazards?

We know from research what high temperatures do to the cardiovascular system, digestion, metabolism, and so on, and have therefore been able to work out preventive measures. Thus, a special drinking regimen was proposed for hot workshop staffs after a study of water-salt exchange in the organism. Carbonated, cooled, salted water (from 0.3 to 0.5 per cent salt) is recommended when the loss of moisture exceeds five quarts in a shift. Air showers are used for cooling. Several designs have been worked out for different conditions. As a result, serious cases of the occupational diseases caused by heat have completely disappeared while light and medium cases are very rare.

Characteristic of all research in industrial medicine is the intimate connection between experiments at laboratories and clinics and studies at workshops to check the laboratory data and suggest new problems.

We attach great importance to clinical research. There are clinical departments at all industrial medicine research institutions. This has made it possible to accumulate considerable information on the diagnosis, treatment and prevention of occupational diseases, information which has been widely used by medical services at places of work.

Industrial medicine uses the coordinated research of physicians, biologists, physicists, chemists and engineers to protect the worker's health.

IN THE NEXT ISSUE

In English Bessmertnova means "immortal." And this dainty ballerina gives promise of becoming one of the immortals of the dance. Another Ulanova, another Plisetskaya, say balletomanes. Natalya Bessmertnova is young, slim almost to the point of fragility, with raven black hair—the very epitome of the romantic ballerina. She is not romantic in appearance alone, but in temperament, in attitude, in her poetic view of the world. On stage she is transformed into "a spirit of the air." Read about her in the June issue.

Russians don't eat caviar with oversize wooden spoons, as some Westerners are inclined to believe, they use everyday metal soupspoons. This is one of several bits of information about the delicacy that our observer brought back from an on-the-spot investigation. The spot was the Volga delta where the famous Russian caviar comes from and where the purple Egyptian lotus grows. He also heard a concerto for caviar and orchestra, went to a wedding under sail and learned about stuffed poachers. An informative and delightful trip.

Ivan the Terrible was wonder-struck when he saw St. Basil's Cathedral. He asked its two architects Barma and Postnik whether they could build anything more beautiful. When they said they could, he had their eyes gouged out so they would never surpass themselves. The blinded men never did any building thereafter, of course. People in Tashkent are always reminded of that story when you ask them about their city's chief architect. Alexander Zotov's eyes were a casualty of the Second World War.

In the next issue historian Lev Lyubimov surveys a fascinating riddle: Did Emperor Alexander I die at Taganrog in 1825 or was he, in fact, old man Fyodor Kuzmich who lived in Siberia for 27 years following the emperor's official death? Leo Tolstoy inclined to the latter view. He wrote an unfinished story titled "The Posthumously Published Notes of Old Man Fyodor Kuzmich Who Died on January 20, 1864, in Siberia, on the Property of the Merchant Khromov near Tomsk." Historian Lyubimov suggests that opening the emperor's tomb would solve the mystery.

Some of the other articles in the June issue:
Reply to an American Psychiatrist—**by Professor Vladimir Myasishchev;** Hemingway and Faulkner: A Russian View—**a Soviet reader's analysis of two great American writers;** Colors from the Sun—**on the work of Alexei Kozlov, an artist with an exciting and original talent;** Just Ordinary Fascism—**in which film director Mikhail Romm talks about his documentary;** The March of Time—**a short story by Konstantin Paustovsky;** Benjamin Franklin—**part of our series on great historical figures;** Mtskheta—**a picture story about architectural monuments of Georgia;** Published by A P N—**about Novosti Press Agency, one of the biggest publishing houses in the Soviet Union.**

SOVIET LIFE

Children and the World of Grownups — Forty illustrated pages of articles and feature stories about children.

The New Five-Year Plan — The economics of the next five-year period as forecast by the new plan.

COMING SOON

SOVIET OARSMEN made their international debut at the 1952 Olympic Games in Helsinki when Yuri Chukalov scored a sensational victory in the single sculls. The Soviet eight, in a lesser triumph, went home with runner-up honors.

Secret

Hydrodynamic calculations show that the crew with the tallest and heaviest men has the advantage. Prior to the Tokyo Olympics, many American coaches chose their rowers accordingly. But this simple principle does not take into consideration other physical as well as psychological factors. The heaviest men are not always the most dexterous. For this reason Soviet coaches Alexander Shvedov and Alexei Shebuyev, trainers of the Moscow Wings, did not concentrate on giants solely. Most of their recruits were of normal height and weight, and, even more important, they rowed as a team. As for the style of rowing, the coaches picked the one that came most naturally.

The Wings eight chalked up one victory after another, winning the European title races three times. Vladimir Kryukov was stroke.

But in 1956 the experts thought it was time to replace the veterans with younger men. A big mistake. The rejuvenation was purely chronological, the crew was weaker. All of which goes to prove that stability is an essential if you want to develop a top-class crew.

Baltic Eight

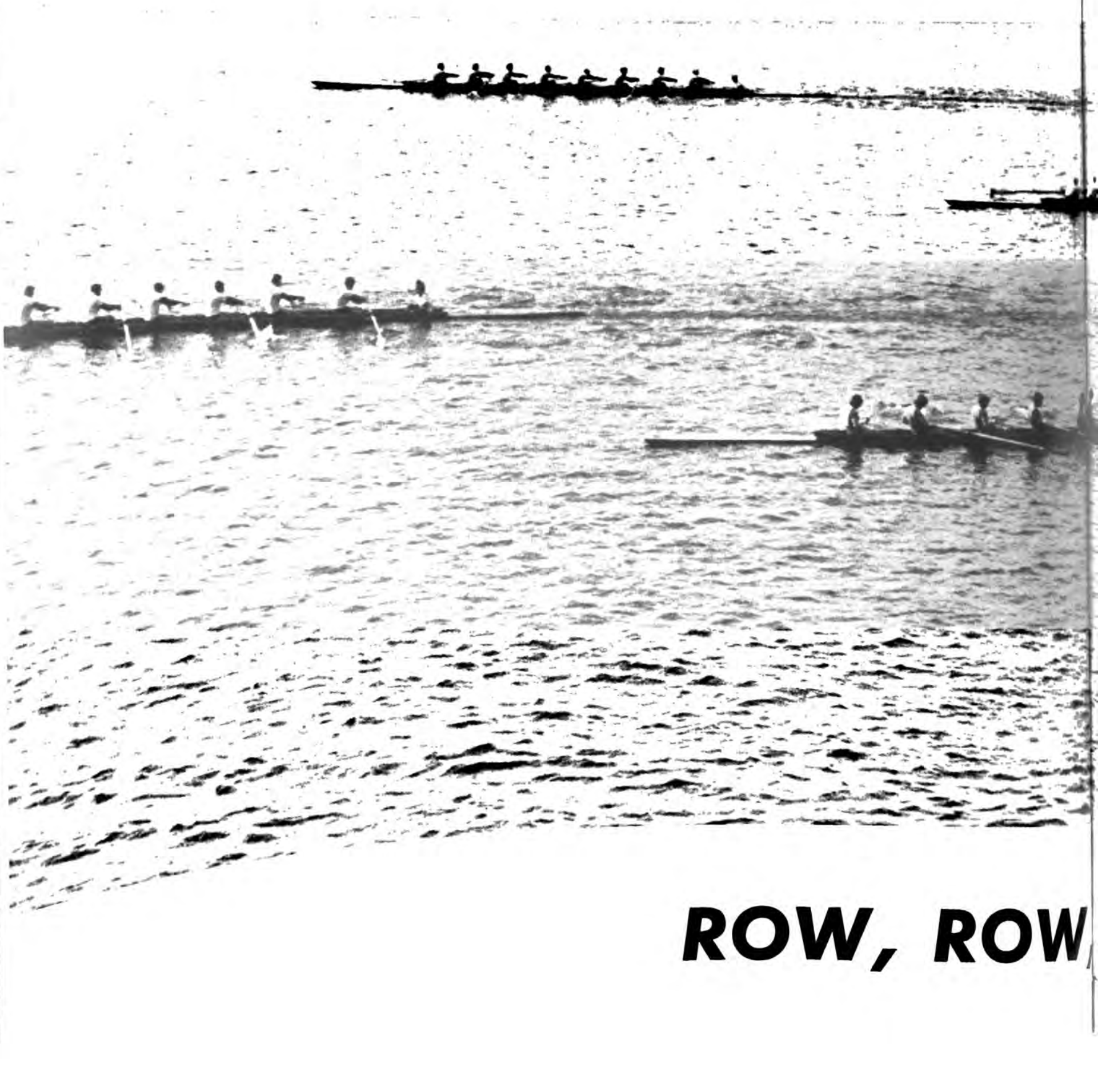
The Soviet Baltic region brought European honors back home again. It produced a fine pairs combination, Zigmas Jukna and Antonas Bagdonavicus, and cox Richardas Vaitkavicus, who doubled as trainer. He led the duet to victory in the national championships and then to second place in the Rome Olympics and a brilliant win in the European title races in Prague.

Besides the pairs, Vaitkavicus trained an eight made up of students. Every coach dreams of scoring an eights victory. By the accomplishments of an eight you judge the over-all rowing standards of a country.

Vaitkavicus tried a bold experiment in 1961. He had Jukna and Bogdanovicus join his eight, and he himself took on the important and tough assignment of stroke.

Vaitkavicus deserved that seat in the boat. He became fascinated with rowing when he was very young and developed an almost uncanny ability to read the thoughts and feelings of his comrades from their faces. He also had an unusual sense of rhythm. He seemed to be keeping his crew moving along at an unchanging pace all the way through a race, so their smooth, gliding style said. But in realilty about midway Vaitkavicus began to step up the beat. His crew rowed with clocklike precision, like one man.

In 1962 this eight won the Philadelphia regatta in the United States and picked up silver medals in the world championships in Switzerland. The year following they won silver medals in the continental title races in Denmark and gold medals in the Henley Royal Regatta.



ROW, ROW

From this eight Vaitkavicus built up a new four without coxswain in 1965. Stroked by Jukna, they captured the European championships in Duisburg, the Federal Republic of Germany.

Daring and Foresight

The Olympic year 1964, despite setbacks in Tokyo, was a notable one for Soviet rowing. That was when a new approach to crew selection and training was tried out.

The man largely responsible was Moscow coach Igor Demyanov. A former top-flight single sculler, he made the world spotlight again in 1955 as coach after discovering 17-year-old Vyacheslav Ivanov, grooming him for the Olympics and seeing him through to a gold medal triumph in the Melbourne Games. Ivanov repeated the feat at Rome and Tokyo.

Our oarsmen had a difficult time in 1963, they lost out at the European championships in Denmark.

Demyanov decided to build up a new four with cox, and picked out Vladimir Yevseyev and Boris Kuzmin, both men with polished strokes who had begun in the single sculls and had trained for a long time with a national championship prize-winning four. The other two he chose, Alexander Tkachuk and Vitali Kurdchenko, were from different clubs (the former rowed in the Army eight, and the latter in the Strelka four). Tkachuk and Kurdchenko were both tall, 6 feet 2¾ inches and 6 feet 4 inches, respectively, and weighed nearly 200 pounds each.

Yevseyev was the shortest of the lot by a full head. And the experts thought that his crewmates would not be able to adapt themselves to his stroke. Demyanov disagreed and started training his four. It was a first effort to build a crew of men with such different rowing backgrounds. Yevseyev's fine sense of rhythm, his coordination and his fighting spirit made him the natural choice as stroke.

Demyanov's four did a lot of doubles rowing to perfect their timing. When they worked out as a four, it was to develop smooth, synchronized movement. Behind Yevseyev sat powerfully built Tkachuk and Kurdchenko. Kuzmin, at the far end, was sensitive to Yevseyev's slightest change of pace.

The crew, stroked by Yevseyev, racked up a sensational win in the 1964 European championships in Amsterdam. The experts were amazed by their time in the 2000-meter event—6 minutes 14.41 seconds. The runners-up, from the Federal Republic of Germany, crossed the line five seconds later. At home, Demyanov's four, very much in a class by themselves, won every race they rowed in.

Flexible Duet

At the same time he was training this four, Demyanov was trying to build a winning pair with cox.

For a long time the coach had been watching one of his charges, Leonid Rakovshchik, a tall, broad-shouldered and flexible chap who seemed to be a natural racer, but the four he rowed in did not make good time.

Demyanov decided to shift Rakovshchik to a coxed pair. But who was to be his partner? He needed someone who could change pace quickly. He chose Nikolai Safronov. The debut of the combination was the continental title races in Amsterdam in August 1964. They brought home silver medals.

They were not a one-shot pair. At the next European championships in Duisburg they won gold medals. Other oarsmen Demyanov had trained turned in excellent performances at this competition. The aforementioned four, with Yevseyev stroking, retrieved the continental honors, and Anatoli Sass of Moscow won a silver medal in the single sculls.

Now there are several other high-class coxed pairs, among them the Olympics-winning combination of Oleg Tyurin and Boris Dubovsky, who have been working together since 1962. A pair without coxswain, 18-year-old Alexander Sharapov and Alexander Shibayev, made a strong bid for honors at the 1963 USSR Regatta. And another pair without coxswain, Yuri Suslin and Anatoli Fyodorov of Leningrad, were runners-up at the 1965 European championships. They won silver medals. They were trained by Boris Brechko, who groomed that famous Olympic sculler Yuri Chukalov.

What all this comes to is that the USSR national squad is shaping up well for the 1966 world championships.

ROW YOUR BOAT

BY ANATOLI SHELUKHIN

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Natalya Bessmertnova

SOVIET LIFE

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Front Cover: Natalya Bessmertnova, an exciting new dancer on the Bolshoi stage. *See story on page 25.*

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Editor (Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor (Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director (Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

Circulation Manager (Washington Editorial Board): Vadim P. Zaitsev 1706 18th St., N.W., Washington, D. C., 20009.

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NOVOSTI PRESS AGENCY

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Alexander Bachurin is the deputy chairman of the USSR State Planning Committee (Gosplan). For many years he was professor of economics at Moscow University and headed the Finance Scientific Research Institute in the capital. He is an authority on economic planning, the author of numerous articles and books on the subject and a member of the board of the journal "Planovoye Khozyaistvo."

THE NEW FIVE-YEAR PLAN

AN INTERVIEW WITH ALEXANDER K. BACHURIN

The publication of the Directives of the Twenty-third CPSU Congress on the Five-Year Plan for Economic Development (1966-1970) has aroused considerable interest abroad. Will you answer some questions about the plan?

Yes, of course. I am at your service.

Let us start with a question several of our readers have asked: Is there any difference in the projected rate of industrial development as compared with the previous seven-year plan?

The goal of the new five-year plan is an increase in gross national output of 47 to 50 per cent, which averages 8.4 per cent annually, a slightly lower rate than in past years. In 1961-1965 the average annual increase in industrial production was 8.6 per cent. The difference is accounted for by the different emphasis of the new five-year plan. It will concentrate on improving the quality of all types of industrial products and multiplying the output of technically complex equipment. The new plan also calls for a greater emphasis on consumer goods production.

Does this decrease in the rate of industrial output mean a general slowdown of Soviet economic development?

Not at all. We are aiming at a large increase in farm production and are allocating much more money for the purpose than previously. The plan schedules high rates of increase of capital investments in agriculture, industry and the service areas. We will be paying more attention to retail trade and distribution as well. We are thinking in terms of increased production in all fields, not only industry, and we therefore look forward to an over-all increase in the rate of economic development as compared with past years.

Could you give some figures?

Certainly. As you know, a general index of the economic growth of a country, and the most reliable one, is growth in national income. Our national income grew by 53 per cent in the past seven years instead of the planned 62 to 65 per cent. In the past five years our national income grew annually by an average 6 per cent. The new five-year plan calls for a 38 to 41 per cent increase, an annual averge of 7 per cent. This is a high rate of economic growth. It means doubling our economic potential in about a decade. We would, of course, like to see an even higher rate. Those given here are lower than the indexes forecast by the Party Program for 1970. However, in working out the main indexes for the coming five years, we held strictly to objective evaluations of our industrial resources and reserves and to scientifically derived data of our needs.

How do you explain the fact that the national income figure of the seven-year plan was not reached, that the increase was only 53 per cent instead of the 62 to 65 per cent forecast?

There was marked growth in the past seven years. The plan figures for industry as a whole were topped. The increment came to 84 per cent instead of the 80 per cent planned. As many as 5,500 major industrial enterprises were put into operation. However, some of the consumer and food industries did not meet their quotas. Farm production fell short of the seven-year plan targets. The reasons were pricing and poor planning and management. Bad weather also had its effects. The agricultural lag was the major reason for the lower rate of national income. Other factors responsible were the insufficiently high rate of growth of labor productivity and the slow introduction of scientific and technical findings in some production areas.

What part will the economic reforms now being made play in the coming five years? How long will it take to complete them?

The economic reforms proposed last year by the Central Committee of our Party and adopted by the Supreme Soviet are designed to improve our planning, raise its scientific level, make individual plants more independent, and give the plants and their staffs more incentive to increase output. The reforms will give us a better return on our investments and will raise the productivity of labor. These reforms will be made during the next two years and will be completed by the end of 1968.

The new plan has a great deal to say about more efficient production. What is the reason for that?

Greater labor productivity and more efficient production is actually the motive force of the new five-year plan. It is our aim in the next five years to produce more with relatively less labor and money, to get more out of our capital investments as well as our present capacities. More output may, of course, be obtained by just expanding production, by building new plants. But that is not the best way of doing it. A much better way is to raise the efficiency of the whole economic machine, and that is the main purpose of these economic reforms. We plan to make the greatest possible use of the fruits of the scientific and technical revolution we are in the middle of. In the past seven years the findings of science and technology were not applied fast enough. The five-year plan has provisions to remedy that. Specifically, it makes it worthwhile for plants to produce or install modern equipment. Plants will also have more freedom to make technical improvements. We expect to increase efficiency by improving the quality of manufactured goods and by insisting on economies in production.

The plan provides that the rates of growth of heavy and light industry be brought closer to one another. Does this mean that we are giving up priority development of the means of production?

The plan does provide for a sizable increase in the rate of growth of the consumer goods industries. From 1961 to 1965 the annual increase was 6.3 per cent as compared with 7.7 per cent planned for 1966-1970. Simultaneously, the annual growth rates of those industries producing the means of production (Group A) will decrease from 9.6 per cent to 8.7 per cent. However, these figures show that the economic law giving priority to Group A will continue to operate

—a vital necessity for over-all growth. Heavy industry was and remains the foundation of our economy. In the coming years we will be concentrating on the development of such industries as electric power, machine building, chemicals, metallurgy. The output of heavy industry as a whole over the next five years will increase by 49 to 52 per cent as compared with the planned increase of 43 to 46 per cent for light industry. The attempt to narrow the gap between the rates of growth, a notable feature of this five-year plan, is intended to raise living standards as quickly as possible.

When we were working to industrialize the country, we deliberately curtailed the growth rate of light industry for the sake of heavy industry. The wide gap between the two growth rates was justified. For the seven years from 1959 to 1965 we planned an 85 to 88 per cent increment in the production of the means of production and a 62 to 65 per cent increment in consumer goods. Now we are planning a much smaller difference in rates for the 1966-1970 five-year period.

| Does this not run counter to Marxist theory?

There is no contradiction of Marxist theory here. The specific priority rate of Group A cannot always be the same. It will vary with the historical conditions of the country, the special features of its economic development, stage by stage. Actually, the point now is to bring the growth rates of heavy and light industries closer together, to select the best ratios, those that would guarantee a high rate of general growth and bring a vigorous rise in living standards. Moreover, it is quite evident that our heavy industry has reached a level where its rapid rate of growth will continue simultaneously with a rapid growth in light industry.

| What industries will have priority under the new plan?

Those, as I said, on which scientific and technical progress and the development of the economy as a whole depend: power engineering, machine building, chemicals and, of course, metallurgy, as well as oil and gas. Priority development of these industries is typical of most industrially developed countries. Without it there can be no development and technical re-equipment of farming, of the consumer goods industries, of building, transport, communications, in short, of all areas of the country's economy.

The second half of our century is an age of scientific and technological revolution. It has affected the economy profoundly. We, of course, want to adapt our industry to the requirements of that revolution. This table gives the approximate production increment of our critical industries for the next five years:

	1965	1970
Electric power (billion kilowatt-hours)	507	830-850
Oil (million metric tons)	243	345-355
Steel (million metric tons)	91	124-129
Plastics, synthetic resins (thousand metric tons)	821	2,100-2,300
Instruments, automation facilities (million rubles)	2,078	3,570-3,670

At the same time the new five-year plan provides for higher rates than in past years for the development of a variety of branches of light industry and food processing industries.

| How do you explain the unusually large growth planned for the automobile industry, as compared with all others? It will be manufacturing four times as many vehicles in 1970 as in 1965. Isn't this rather unusual?

It seems to me that it is quite natural. When people have incomes that are rising steadily, they will be in the market for more goods. If you look at the production growth for other durable consumer goods, you will notice rates that are just as high. For example, the output of refrigerators is to more than triple and the number of TV sets produced will double. We have changed our attitude somewhat about manufacturing cars for personal use. There was a time when we thought the traffic problem, especially in cities, would best be solved by developing public transportation. We think now that the number of cars in personal use should be increased also and that they should be made available to people generally. Another reason for the planned increase in the production of cars is our growing foreign trade.

| What does the reference to "fundamental improvement" of capital construction mean?

It means a sharp cut in the time it takes to build new enterprises and get them producing. This, in turn, means more careful consideration of where capital is to be invested and better organization of construction. As in industry, construction projects will have more material incentives and greater independence. The 1966 plan, for instance, allocates 70 per cent of all capital investments in industry to projects that are to be completed this year. The plan lists 326 projects to be started, at a total cost of more than 2.5 billion rubles. The capital investments for such projects have been fixed at 12 per cent of their total cost, as compared with 1965 when only 8 per cent of their cost was allocated for such projects. This will help reduce construction time considerably.

| In the Western press we come across statements that very large funds are being allocated in the new five-year plan for military purposes. Is that true?

The Soviet Union's foreign policy is a peaceful one. This is mirrored in the new five-year plan. To begin with, the new plan provides for greater investment for peaceful, cultural, consumer construction. This five-year plan differs from all others in its big increases in the funds assigned for agriculture, light industry and the food industries. Secondly, our defense expenditures are not as large as these statements make them out to be. This is evident from a look at the 1966 budget. Compare the proportion of defense allocations in our budget with the proportion of defense allocations in the budgets of the leading Western countries. In 1966 our defense expenditures will total 13.4 billion rubles, only a 5 per cent increase as compared with 1965. Thirdly, we are always ready to cut our defense spending to the minimum, as soon as the leading Western countries are ready to follow suit.

Our five-year plan is a plan for peace. And here I might add that this is not just one of the plan's aspects, but its very essence. Our plan is a peaceful one not only because it concentrates on peacetime projects that will raise our living standards but also because it can be carried out only under peacetime conditions. We realize, of course, that peace does not depend on us alone, that we have no absolute guarantees. But we hope for the best. We hope we shall be able to carry out our plan in peaceful conditions. As for our country, it will go on doing its best, as before, to promote peace.

Unfortunately, the aggravated international situation, the threat to peace in Southeast Asia, revanchism in the center of Europe and the obstacles to general disarmament—all these factors force us to spend money on defense.

| What does the plan have to say on economic relations with other countries and expanding foreign trade?

Foreign trade is an important branch of our economy. Our government works continuously to expand foreign trade and other forms of economic contact. Our foreign trade development will concentrate on an international division of labor within the socialist community of states. The plan calls for expanded trade with socialist countries on the basis of mutual assistance and reciprocal advantage. We shall, of course, be expanding our trade with the developing countries as well.

This does not mean that the industrialized Western countries have nothing to offer us. They make some items better than we do, and it is more sensible for us to buy these items abroad than to build plants and manufacture them ourselves. On our part, there are many items we can sell on the world market, including items the major industrial countries could profitably use. Any country that wants to trade with us will find us an obliging and reliable partner.

| And now let us get back to domestic problems. Our country is a union of 15 sovereign republics, each with its own economic problems. How much were they involved in drafting the five-year plan? What suggestions did they make? Which were incorporated?

The union republics took a very active part in drafting the plan. They had a double function: to figure out their own possibilities for economic development for the five years to come, and to coordinate their republic's plan with the national plan. The republics made specific recommendations for the development of all branches of their industries, including those that are controlled by the central ministries. The five-year plan is really a summary of the plans of all the 15 union republics. So that you can see that the planning agencies of the republics played a very large part in preparing the draft.

Of course, not all their recommendations could be incorporated. We had to turn down some requests for new plants for financial and other reasons. But, as a rule, the recommendations submitted by the various republics were soundly based and served as a blueprint for the plan as a whole.

| How does the five-year plan coordinate the interests of the whole economy with the interests of the individual republics so far as locating new plants is concerned?

This is, no doubt, one of the main functions of the plan. The point is that we have to locate production facilities with an eye to the natural resources of the area. And not every republic has the raw

materials necessary. Still we have to meet their needs. The new five-year plan foresees the continued economic development of every one of the republics consistent with their natural resources and manpower capacities. When they make their recommendations, the union republics have to consider their local interests and those of the whole country as well. And so do we. Here is an example. Oil and gas development started in the Turkmen Republic not too long ago. Turkmenia's planning agencies think it possible and profitable in these next five years to increase oil output to 15 million metric tons and gas output to 424 to 530 billion cubic feet. They also want new oil and gas deposits developed. Turkmenia's plans conform to the needs of the country generally, since oil and gas are in great demand. Drawing on Turkmenia's plans, we decided to build a gas pipeline from Turkmenia to Central Russia, where major industrial facilities that supply all the Soviet republics are concentrated.

Here is another example. Byelorussia plans to expand its output of mineral fertilizers by 3.8 times. This is not only good for Byelorussia, which is rich in potassium salts, but for the entire country, because the fertilizer can also be used in other parts of the country to increase crops.

| Let us turn to farming now. It is generally recognized that for a long time there has been a disproportionate development of industry at the expense of agriculture. How does the five-year plan narrow that gap?

You do not put the question accurately. Our ratio of industry to agriculture is characteristic of industrial countries: the share of industry is much larger than that of farming. Industry now accounts for about 65 per cent of our gross national product, agriculture for 16 per cent. Before the war we were industrializing the country, and in the postwar period we had to rebuild our industry. We set these ratios deliberately. They were necessary at the time. Now, however, they block the development of our economy. They do not provide industry with sufficient raw materials, and the consumer with foodstuffs. That is why we plan to invest 71 billion rubles in agriculture in 1966-1970, almost twice as much as we did in the five years preceding. The funds will be used for rural construction, to equip collective and state farms with the most modern facilities and to provide them with fertilizer. These are large investments, indeed, considering that 152 billion rubles are to be allocated for the five-year period to develop industry, transport and communications, which yield more than two-thirds of the gross national product. We hope that the continued technical revolution in agriculture, better planning and, of course, the greater material incentive farmers have will make for the steady growth of agriculture. In any case, we believe that the rate of agricultural production increment planned for the five years—5.6 per cent a year on the average—will be maintained.

| Provided that weather conditions are favorable?

Yes. Unfortunately we are not insured against bad weather yet.

| Won't these larger investments in agriculture be at the expense of other areas of the economy?

The question is somewhat off center so far as our economy is concerned. The point is that capital investment in the Soviet Union is determined, for the most part, by the resources of the state budget. These resources come from the profits of industry, transport and the other branches of the economy. Budgetary expenditures to develop these different branches depend on our economic goals for the given period. Certainly, the large increase in capital investments for agriculture will limit, to some degree, investments in other branches, including heavy industry. What must also be taken into account is that the collective farms will spend 30 billion rubles on their own capital construction. One of the guarantees for such large capital investments by the collective farms is the sharp rise in their profits since 1965, thanks to the higher prices the state pays for their produce. Another guarantee is the fact that they can sell their surplus produce at competitive market prices or at the higher prices fixed by government agencies.

| Will the planned growth of farm output meet all of industry's needs for raw materials and the consumers' needs for foodstuffs?

The planned growth of agricultural output, in general terms, answers the needs of our economy. But, of course, industrial and consumer requirements grow as the economy grows. The living standards of our population today are much higher than in the forties, for instance and very much higher than in the thirties. There will be many changes in the pattern of consumption by 1970. However, we think that the planned growth rate of farm production—more than double that of the preceding seven years—will, on the whole, meet our requirements both for raw materials and foodstuffs. Here we should underline the fact that as a result of steps taken to increase the earnings of collective and state farms as well as to increase material incentive, a growth in farm production is clearly evident today. In all probability it will continue to grow with time.

| How will the population's real income be affected?

Real income will rise by 30 per cent. By 1970, the wages of industrial and office workers will increase by no less than 20 per cent and the income of collective farmers from collective farms by 35 to 40 per cent.

Part of this rise will come from more and improved welfare services provided by the public consumption funds—free medical services, free accommodations or reduced rates at sanatoriums and vacation resorts, free education, student stipends, pensions, grants-in-aid, kindergartens and nurseries. Another part will come from price cuts in various consumer items.

| What new services will be provided by the public consumption funds?

It is too early to specify what they will be.

| You said that a rise in wages for industrial and office workers and in the collective farmers' income was planned. But no such rise is indicated in the plan for 1966, the first year of the five-year plan. How do you explain that?

Wage increases for this year are already apparent—how much depends on the growth of labor productivity. In certain industries bonuses have been increased, in those industries, for instance, where new plants are completed earlier than scheduled. The collective farmers' income will grow this year at an eye-catching rate. During the later years of the plan the income of the whole population will rise rapidly.

| Have the housing construction goals of the past seven-year plan been reached? What does the new five-year plan have to say about housing?

The seven-year plan scheduled the construction of about 22 million apartments. Approximately 18 million apartments were built. As you see, that is less than was planned, but a great many apartments, nevertheless. Half the people in the country have moved to new or better housing in the past 10 years. As for the new five-year plan, it calls for the construction at state cost of more than 13 million apartments. In addition, collective farms and individual farmers will be building and financing some two to two and a half million one-family homes in rural areas. Also approximately two and a half million apartments will be built with state loans in small towns and urban-type communities.

| How would you characterize the five-year plan?

I would say that it concentrates on real problems and offers real solutions that will meet the country's needs and raise living standards.

| The plan goals for the five years to come seem to be, on the whole, more modest than those for preceding periods. How do you explain that?

Our approach in any field, including economics, cannot be dogmatic. As we progress toward the building of a new society, we acquire a more scientific approach to economic problems and a better understanding of objective economic laws; our planning is therefore more realistic. The present plan is a development of the approach outlined two years ago by the Central Committee of our Party. It means better management of all the country's affairs, and especially of its economy. We have excluded every element of unrealistic, subjective and voluntaristic planning. The draft is a sober approach to our economic problems. It is entirely realistic and economically sound, and so it does look more modest than preceding plans.

| And last but not least: Don't you think there are possibilities for overfulfilling the plan?

I won't hide the fact that I hope to see it overfulfilled. The goals we set are not final limits. The new methods of economic management should give us a good basis for overfulfilling the plan.

There are two very important dates I should like to mention— the fiftieth anniversary of the Soviet state in the fall of 1967 and the one hundredth anniversary of the birth of Vladimir Lenin in 1970, both within the five-year period. It should not be hard for people in the United States to understand our feelings about these dates if they remember how backward our country was not just 100, but even 50 years ago. Actually, a new people, a new economy and a new culture have evolved in these 50 years. The grandeur of what our country has already accomplished inspires us, gives us new strength, and shows our present and our future in a new light. So that we think of the new five-year plan as a jubilee. It has very special meaning and sentiment for us—it calls for rejoicing and for new enthusiasm.

LETTERS TO THE EDITOR

WORLD WAR II LOSSES

Dear Editor:

I would like to know how many people in the Soviet Union lost their lives during the Second World War.

I understand that the reconstruction in most parts of the Soviet Union after the war had to be carried out by women as the fascists had killed most of the men of productive age (21-50). . . .

Also, I may say that in order to be able to judge any people, especially the people of the Soviet Union, one must have a profound knowledge of the history of the country.

I have read and admire Gorky, Sholokhov, Chekhov, Tolstoy, Gogol and numerous other Russian writers. One feels love and suffers with these people. It is my firm conviction that Russia never, never would start a war. No people in the world have suffered more than the Russian people through wars and revolutions. In spite of that, they are today one of the greatest and most respected nations on the earth because of their tremendous achievement in many fields of science, economy, etc.

I cannot think of anything so low and primitive as hatred of nations and people. We have had enough of that. We know it only leads to self destruction. The fascists have hated more than anyone else in modern history but they still do not seem to have quenched their thirst for blood.

Sincerely,
Carin Hultgron
New York, New York

The Soviet Union lost 20 million people in World War II. During the fascist occupation of Soviet territory, the Nazis completely or partly destroyed 1,710 cities and more than 70,000 villages. Some 25 million people were left without shelter.

Editor

COMMENTS FROM MOSCOW

Dear Editor:

I recently went through two copies of your magazine, the issues for December 1965 and January 1966. The first thing that struck me about them was the fine make-up. The photographs of the dancer Vladimir Vasiliev were excellent, and the reproductions of the pictures of Petrov-Vodkin beyond reproach. A lot more should be written about the Russian artists of the early twenties. Many Western painters drew inspiration from them, and American readers will undoubtedly be interested to learn that some present-day canvases advertised as avant-garde do little more than imitate these innovators.

The magazine, I think, did a service to reprint Vasili Peskov's article "Native Land" from *Komsomolskaya Pravda*, for unless we take a stand against neglect of the past, as Peskov points out, we and the people of other countries will soon have nothing more to remind us of the unique folk art of ancient Rus than bits and pieces of the ald national costumes in gift shop windows.

Not all the articles were equally interesting, of course. Take the one on the film "Come Mukhtar" (the film itself was nothing to write home about), or the criticism of Yevgeni Yevtushenko's "Bratsk Power Station." Lev Annisky, who reviewed the poem, is a capable critic, but here he contented himself with a few general notes of praise—giving the impression that his piece of criticism was written to fill up some leftover space. And in spite of the fact that there was much that was controversial in the poem.

Respectfully yours,
Mark Podberezsky
Union of Soviet Composers
Moscow, USSR

TWO SUGGESTIONS

Dear Sirs:

I have two suggestions for your magazine. First I think it would be interesting if every third issue you would devote the entire magazine to one subject. Second, I believe your "Letters to the Editor" section should be two pages and not just one. One page devoted to the complimentary letters and the second page to the letters of criticism.

I hope you'll print this letter so that people will be able to write in to your magazine to show their support of my suggestions.

Yours truly,
Albert C. Grams, Jr.
Milwaukee, Wisconsin

ON CULTURE

Dear Editor:

I always read SOVIET LIFE with great interest and pleasure. I have visited the Soviet Union many times and now lead groups of Americans there for summer trips. I want to tell you how unusually valuable I find the section "Things Cultural."

I thought I had some idea of the richness of cultural life in your country, but now I realize what an enormous variety of artistic, musical, dramatic events are going on. The account of the new production of the Bolshoi Theater, *A Midsummer Night's Dream*, for example, makes me long to see this version of the opera and have many of my countrymen see it too. One gets a feeling of the dynamic, widespread cultural developments in the USSR from these brief notes, and the sketches that accompany them are delightful. By the way, I wonder why there is no credit given for the drawings on these pages? Who did them?

The exciting story of the peoples and the octivities in the For North was a wonderful one. I am always happy to learn more about the non-Russian peoples and their lives, because we now do know a little about the Russian Republic but very little about the rest of the country. I know, for I often lecture to young people about the Soviet Union, that multinational land.

It seems to me that the magazine has grown to be ever more interesting, better written, more beautiful, and I am happy that there is such a publication to help bring some understanding of Soviet life and culture to my countrymen.

Very sincerely,
Elizabeth Moos
New York, New York

The drawings for "Things Cultural" in the April issue were done by cartoonist Yuri Cherepanov.

Editor

Editor:

. . . The winter scene on page 51 *(of the February issue)* has captured serenity in a most marvelous way. And congratulations to Mr. Alexei Bushkin for the photo of the month, outstanding in its simplicity. . . .

The article by Professor Kositsky is worthwhile reading and especially "Man Believes" by Dr. Pavel Simonov. It says there, it is the mission of art to learn the purpose and meaning of life. . . . In reading these excellent words put down in this article, I am reminded of Proverbs in the Bible, stated the same just in different wording. . . .

Sincerely,
Mrs. G. Heidi Monk
Concard, Georgia

Dear Editor:

I want to congratulate you and your staff for doing such o fine job every month in presenting SOVIET LIFE to the American reading public. I find your subjects interesting and the publication a rewarding reading experience.

One thing that really impresses me is your photography; I find it dynamic. . . . By profession I am a hairdresser, and the article you had in the March edition showing the nouveau Moscow style coiffures caught my eye.

Sincerely,
C.P.K.
Callicoon, New York

Friends:

. . . As an amateur painter and poet I am especially interested in articles which depict the art and culture of the Soviet Union. I speak of articles such as "A Word or Two on America," "Old Kazakhstan's New Artists," "Things Cultural," "Three Questions With a Single Answer," all in your February 1966 issue.

I also enjoy articles on Soviet life, both in cities and in the rural districts, especially articles on the development of Siberia.

It is wonderful ta know that there is an agreement between our two governments to promote information exchange. One of the greatest barriers to world peace and brotherhood is misunderstanding. I believe that the exchange of AMERICA and SOVIET LIFE is a step in the right direction, toward understanding and brotherhood.

Sincerely,
Richard Chinn
Providence, Kentucky

SHOLOKHOV'S SPEECH

Dear Sir:

I would like to congratulate you and your staff on the arrangement and presentation of your magazine *SOVIET LIFE*, I was very pleased to see Mikhail Sholokhov's acceptance speech for the Nobel Prize in the March issue. Although I am not very familiar with Soviet literature, I can see why this author and his *And Quiet Flows the Don* were chosen for such an honor. The poetic strength of this novel is virtually unparalleled in twentieth century literature. . . .

Joseph R. Cullen
New Rochelle, New York

ARTICLES ON AGRICULTURE

Dear Sir:

Since first seeing an issue of SOVIET LIFE, my roammate and I have become regular subscribers to your magazine. We are presently attending an agricultural college where we are majoring in the plant sciences (horticulture). Your articles on agriculture have stimulated us to inquire as to the possibility of obtaining mare information concerning agriculture in the Soviet Union. We would deeply appreciate any information you could give us concerning this matter.

We sincerely hope that in the future more exchange of ideas and personnel can be accomplished between our respective countries. Both of us feel that agriculture will play an increasingly important role in the solving of world problems.

Respectfully yours,
David J. Beebe
Richard G. Bausher
Doylestown, Pennsylvania

We regularly publish articles on agriculture. In addition, the August issue will be almost entirely devoted to the preservation of nature in the USSR and will include articles on various aspects of agriculture as well.

Editor

IN ANCIENT EGYPT

MOSCOW schoolchildren are first introduced to ancient Egypt in the Egyptian Hall of the Pushkin Museum of Fine Arts, where several real mummies are on display. Then, in the fifth grade, they read the History of the Ancient World *and learn more about that fertile delta of the Nile, the pharaohs and pyramids. When they visit the museum again, they look at the mummies with new eyes, they see them as people who once lived on this same earth. They begin to understand something very important, the sequence of time.*

Those children who become interested in the life and art of the ancient Egyptians join the museum's Young Art Historians group for a closer study of Egyptian art and sculpture. The events described in the strange and curious hieroglyphics of the papyrus texts, which seem so dreamlike at first, begin to take on reality. The children find parallels in the world of today—justice and injustice, joy and sorrow —eternal themes.

With the help of the leader and other members of the museum's staff, the group recently produced a sketch written around the famous papyri The Eloquent Peasant, The Teaching of Achto *and two fairy tales from the papyrus* Westcar. *The children did everything themselves—the writing, acting and staging. Their production,* In Ancient Egypt, *was given a warm reception by the many children who saw it. Prior to the Egyptian sketch they had produced one around a Greek epic. The pages of the ancient texts come to life when cleared of the dust of ages by these children.*

Valerka Yugov and Holden Caulfield

By Robert Tsfasman

VALERKA'S SEAT is the worst possible—right in front of the teacher. In dull classes when Valerka reads a story on the sly or sketches out his latest invention, he usually remembers to jerk his face at the teacher every once in a while with an expression of complete and undivided attention. But this story had engrossed him so completely that he did not even notice the approach of his young math and 10B homeroom teacher. Ivan Andreyevich picked up the magazine and glanced at the title. It was a well-worn *International Literature*, almost four years old.

"So you're interested in Salinger, are you?"

"U-huh! It's *The Catcher in the Rye*. Have you read it, Ivan Andreyevich?" artfully asks Valerka, plucking up courage.

"Yes, of course. But not in class, as you might have noticed. You'll get it back tomorrow if you don't fail the test." The teacher smiled, then added, "By the way, boys, you all ought to read the book—it's about a teenager like yourselves. We'll have a discussion about it sometime—I'll talk to your Russian teacher. Well, that's enough about that. Get back to business, all of you."

The discussion wasn't getting off the ground. Distressed, the Russian teacher peered out of the window at the plank roof of the school workshop, gray with snow and rain. The grade YCL organizer fingered the magazine. She had been trying to squeeze at least something out of her classmates. But the girls, with typical country shyness, just giggled and nodded at the boys, who had taken the seats at the back.

"For heaven's sake, Yugov, get it going! After all, you were the first one to read it," the teacher almost begged Valerka.

"Well, I don't know for sure. . . . But I like the hero."

"That won't do. You can't just blurt out a word and sit down. Tell us some more about it. What was it you liked most about Holden, and what do you think makes him different from you and your classmates?"

"Well, in the first place, I admired his humor and then, his critical mind. He satirized everything. I like people like that, really original. Well, I suppose, that's all."

"I don't agree with Yugov," Vera Subbotina, till then quite silent, suddenly broke out. "Valerka's making too much of Holden. All he did was criticize. Didn't have a single friend, either. Was everybody around him really so bad? And he didn't like any of the schools he went to. There was nothing he liked."

"Rubbish," snapped Valerka. "He liked little kids, didn't he? What about you—do you like our school or our village? All you ever talk about is getting away as soon as you can. You wouldn't even have gone on to the ninth grade if you hadn't failed the entrance exam for technical school and had to come back!"

"Her Ma wouldn't let her go off," said someone caustically.

At that point pandemonium broke loose; nobody could hear himself speak. Holden Caulfield got lost in the shuffle, they were arguing which was better: town or country.

The debate dinned on for two hours. The teachers, too, were holding a kind of conference. Finally the Russian teacher announced that next week all senior grade students would be asked to write a composition on the present, past and future of their village. And, he added, the topic, judging by today's discussion, would surely interest everybody.

And so it did. The argument about customs in a far-off country they knew only from books had awakened grade 10B to what was happening in their own village, in the highlands of the Western Urals. For a whole week they hunted out the oldest village gossips and cross-examined gray-bearded sages, once guerrilla fighters, who now sat all day sunning themselves on the doorsteps of their houses. To be sure, some of the children were at a loss, so accustomed were they to going to their textbooks for information. And there was nothing in the books about their Nerdva, outside of a line or two in the encyclopedia.

For five minutes or so Valerka sat there gnawing his pen. His opening sentence sounded as dry as his history book. But he let it stay. Everybody was already scribbling busily. He began to write quickly:

"Our Nerdva is among the oldest villages in the Urals. It was founded in the eighteenth century, when Count Stroganoff built an iron foundry in these parts, and so it was that our ancestors became serf-workers. Unfortunately, we have almost no monuments of the past in our village, except for the hospital, which already existed at the time of the zemstvo, no X-ray then, of course, and the church, now used as a club. The club is the best building in the village. I feel proud that our forefathers were able to build like that without any mechanical appliances."

Valerka reread the page he had written. It wasn't very much, but there was nothing else he could remember worth mentioning. He would like to have written about the old poplar by the lake. The huge tree, so thick it took two men to clasp hands round the trunk, must have seen a lot in its life. During the Civil War the village had changed hands repeatedly, and it was under that poplar that Whites had executed Reds, and Reds had shot Whites. It was hard to believe that 40 years ago, in that same place where young people coming from the club always made such a racket laughing and arguing, you could have heard groans and the curses of the dying. Or, perhaps, they had died in silence. But Valerka couldn't write about all that. Supposing his composition were read out loud. His classmates would never stop talking about how sentimental he was. No, life today was what he would write about.

What to begin with? All right, let's try it this way:

"Visitors from town always admire our scenery. Nerdva, they say, is remarkably well situated. So it makes me good and mad when some of my classmates shrug their shoulders and say 'Bah! What's so interesting here? Just an ordinary village. Moscow and Leningrad—that's a different story!' I myself go to Moscow almost every summer: an uncle of mine, a research worker, lives there. Of course, I'm impressed every time; there are enough interesting things to write about for hours. But in a month I'm homesick for Nerdva. You get used to it, somehow. Also, it has quite a few advantages—fresh air, sunshine, lots of space. You can swim, play soccer, ski in the winter—you don't have our kind of hills in a city."

And to prove his point, he wrote a detailed account of an autumn day when he and a neighbor had gone hunting. The day had really been superb. They set out early in the morning and had to cross a lake. The water, still and pink as the sky, rippled softly under the prow of the boat. Then they walked across a meadow; the grass, blue with hoarfrost,

crunched underfoot like metal shavings. In the clear air everything could be seen for miles—the low hills with light green patches of winter wheat, the clumps of trees, dark green interspersed with gold nearby and bluish in the distance.

The forest they wandered into looked like a dream world with its moss-grown deadwood and silver firs; the slender polished trunks reached up almost to the sky.

They wandered around all day without a kill but in high spirits. When they came back to the lake, everything around was mysteriously blue, like in Blok's poems which the Russian teacher had read to them the other day. Only in the west there was an orange streak against which the flying ducks were clearly silhouetted.

Completing his lyric digression, Valerka read it over. That wasn't it. The forest, the lake—it had all been described endlessly. No, what he needed was something more up-to-date. Without too much conviction, he got out the sheet of paper with facts and figures. It said the farm had 72 tractors, that its production had risen from sixth place in the district to third, that helicopters from Perm were used as ambulances in emergency cases, and that you could see a wide-screen film any day at the local club. But frankly speaking, this was all old stuff to his classmates, and to the teacher, too. And if the principal got around to reading it, he would skip those parts altogether. Better write about how the school Komsomols were involved in village affairs. And without more thought, Valerka wrote:

"For us, the younger generation, living in the present means fighting for the future, which means battling against the past—that same past which keeps dogging our footsteps in our studies and work. To give you an example:

After he had put that down, Valerka fell to thinking. What example? Maybe, the harvest last fall?

. . . It was the very next day after that hunting trip. The morning was chilly, but full of sunshine—not like autumn at all. Grade 10B was marching along the road to a distant farm to pick potatoes. They were all feeling fine, looking forward to the next few days ahead, without classes or parental supervision, full of campfires, songs and nights out.

On their way they met a talkative old woman with a long stick who looked like a soft-hearted Baba-Yaga. The old soul was hobbling along to another village for a church festival. Judging by the day's weather, she told them, it looked like it was going to be a fine autumn. After a while Valerka turned back, looked at her plodding alone on the sunlit road, and told Ivan Andreyevich:

"There's a piece of old Russia for you! You won't meet anything like that in town!"

The teacher kept silent for a while, then said: "I wish that was all we had left of old Russia. We'll soon be in the village, and it's a church holiday, so we'll have to dig potatoes all by ourselves."

The teacher proved to be a prophet. Red faces poked out of windows, making fun of the children. The kids yelled back, and the teacher had to interfere to keep the peace.

The potato fields seemed to have no end. While the teacher and the team leader were deciding which side to start on, the kids lit a fire. They would have much preferred lying around the fire or roaming the woods to picking potatoes. The teacher had to get them down to work almost by main force. When he did, they worked any old way. The best kids, the girls especially, stayed with it, but most of them fooled around, talking and throwing potatoes at each other. Ivan Andreyevich soon got tired of appealing to their better natures. Measuring off a huge plot, he said:

"We get this done or no one leaves, even if it takes us all night."

Some of them raised a howl, but there was no backing out. The plot was divided into equal parts, three rows per head, everybody competing to see who finished first. In less than an hour the job was in full swing, no one idling, no time even for talking.

One thing did happen that spoiled everyone's humor. Vaska Tashlikov, who was working next to Valerka, finished his rows before anybody else. Valerka couldn't believe it, that lazybones! But then he took a closer look and everything became clear. All the surface round the pits was smooth, as if the soil hadn't been shaken off the tubers. Nearby, among the tall potato plants, lay the uprooted bushes, none of the potatoes picked off. And there was Vaska himself, sunbathing near the edge of the forest.

Valerka went up and dragged him back by the collar, shoving him, nose first, into the "fruits" of his labor. All the rest, too, were soon on the spot, and Tashlikov barely escaped a beating. For the next few days Vaska was as meek as a mouse.

But when, later, the children marched home past the field they had harvested, they could hardly believe it was all the work of their own hands. Nobody wanted to remember the shadier episodes; the main thing was, the job had been done. And the local collective farmers, too, could not find words to thank them.

Valerka dotted the last sentence and leaned back in his seat. The bell would ring soon, and he still had to write how he pictured the village 20 years from now. But he had thought about that more than once, so he wrote without hesitation:

"Not too many years from now, they'll find oil here, and a town will grow up with big factories. They might even lay a railway line." He crossed out the last sentence—it would spoil the landscape.

"High-powered timber trucks will speed along broad highways. And nobody will ever want to leave."

"Well, that's enough, I suppose," decided Valerka. "Wonder what Vera's writing," and he stole a look over his neighbor's shoulder. But the girl covered her composition book; all he could make out was something about music which would fill the houses from morn till night in the near future. "Funny kid!" thought Valerka. The word music reminded him that he had promised to fix the school radio. That thought brought him back to the weary present again, and he handed in his composition book without even bothering to check the spelling.

Valerka stopped by the lake on his way home from school. Way out in the middle, nearly screened by the fine gauze-like drizzle, wild ducks soaked in the rain.

"Soon they'll fly away," he thought. "Holden Caulfield used to wonder about where the ducks in Central Park disappear to in winter. I wish I could tell him . . . they fly away. Maybe they go to the same place ours do."

CAVIAR AND THE LOTUS

By Boris Korolev

Photographs By Lev Ustinov And Yuri Trankvilitsky

The crimson glory of dawn reflected in the water gives this field of pink lotus flowers an incredible beauty. As the fishing boats get ready to sail, the cormorants race to reach the fish before the boats do. The scene is the Volga delta, the habitat of this giant sevryuga *(sturgeon). It is as full of caviar as fabled sunken ships were of gold, and as valuable. In fact,* sevryuga *caviar brings such high prices that 90 per cent of it goes for export.*

FOR two weeks we traveled along the Volga delta. Our hosts were the Volga fishermen. We were their holiday guests: Fishermen's Day was celebrated for the first time in 1965 (like Steelmakers' Day, Miners' Day, Builders' Day, etc.). However, Fishermen's Day is a national event. It's hard to find a man, or even woman or child, who has never dangled hook and bait, while by no means everyone can boast of having been an amateur steelmaker or a dilettante miner.

Red Was the Fish and Black the Caviar

In Astrakhan we were met by Alexander Kravets, our friend, journalist and local patriot. He immediately directed us

CAVIAR AND THE LOTUS

In summer sturgeon fishing is out of season, and even the river grows lazy. The boats are pulled up on shore, the tarred sides broil in the sun. The afternoon heat drives the fishermen into the cool adobe houses with their traditional flat roofs and shutters closed tight to the sun. But when the season opens and the big sevryuga *flap about helpless in the net, life becomes hectic.*

to a fishing village called Ikryanoye, Caviarville in English. "The only place on earth named for caviar!" Alexander raved. "That's where you'll see the blackest caviar there is!" Since the purpose of our trip was to explode the myth, current abroad, that Russians eat caviar with big wooden spoons, we decided to go to Caviarville, which must sound to a caviar lover like Gold Coast once did to a gold lover.

According to Alexander Kravets, Astrakhan is worth spending a lifetime to study. We would have been willing to settle for a week. Unfortunately we had to leave it that same day. Alexander explained that Astrakhan came from the Latin "astra" and the Tatar "khan," and that was why the stars all tried to look bigger and brighter as they passed over the city.

Up to the sixteenth century Astrakhan was a powerful khanate, a fragment of the empire founded by Genghis Khan. In 1556 Ivan the Terrible, irritated by the shortage at home of black caviar and jellied sturgeon with horseradish, went to war with Astrakhan. At least this was the historical interpretation offered us by the chef of the Russian Kitchen in Moscow.

The Russian words "beautiful" and "red" come from the same root. Russia's most famous square has been called Red since time immemorial. In Russian folklore a "bonny lass" is a "red lass." The best local fish is also called "red fish." This red fish—sterlet and beluga—gives the fine black caviar.

Of every 100 sturgeons netted, 95 are caught by Soviet fishermen, 85 of the 95 are hauled up by Volga fisherman, and 40 of the 85 by fishermen from Caviarville. Red fish abounds in the Caspian, and the Caspian is therefore called Sturgeon Sea.

The red fish swim up the Volga to spawn. This biological eccentricity became a bone of contention between fishermen and hydroelectric power station builders. The catch dropped to half after the Kuibyshev and Volgograd hydroelectric stations were built since many of the traditional spawning grounds were destroyed. The sturgeon's instinct impels him to honeymoon where ten years before he frolicked in fresh water, an innocent black ovum.Yet here were those huge dams right in his path to happiness. The Volga's reputation as the midwife for red fish began to fade. From midwife it was turning killer.

The builders' argument seemed to be unanswerable: "You can build communism without black caviar, but not without electricity."

However, public opinion backed the fishermen. Famous economists and scientists argued that the hydroelectric station planned for the Lower Volga would account for only 0.2 per cent of the country's electric power, while red fish was a unique national resource. For once electricity had to throw in the sponge.

Sturgeons Traveling First Class

Having spent a week among the fishermen of Caviarville, we realized that their problem was not to increase the catch but to improve fish propagation.

Caviarville is a typical settlement on the Volga, with houses built very near the water's edge, some of them even on piles. The settlement is a sort of diminutive Venice, and all the fishermen ride around in motorboats as they might in cars in a conventional city. Here you can see the entire cycle of the sturgeon's life, from roe to *balyk*, the delectable salted and smoked back of the fish.

Around the village are 44 ponds with sturgeon fry. Professor Boris Kazansky of Vladivostok University showed us the technique. It was much like hatching chickens. He had come all the way from Vladivostok to set up a workshop he had designed for the local fish-breeding enterprise.

First the best sire sturgeon is selected as a bull would be on a cattle farm. To speed up production of ova, the female fish is given hormone injections. Each female fish yields from 18 to 20 pounds of roe, which goes into a pond. The natural environment is reproduced down to the most minute detail.

In nature the fish swims upstream thousands of miles to spawn. The river seethes with fish threshing about frantically. They bang themselves against the sharp stones and are thrown onto the shore by stronger or luckier rivals. When the sturgeon comes to the spawning grounds, it is a skeleton barely covered by scales. Many of them die.

All the conveniences, or rather the inconveniences, that the sturgeon is used to are created artificially. The temperature of the water is reduced, and the water level in the reservoir is lowered so that the sturgeon can thresh against its bottom and walls.

Fertilized spawn goes into an incubator reservoir, and the fry go to the ponds. They are looked after by specialists, who sample the water from the ponds several times a day.

Only a wild boar can push its way through the reed jungle of the Damchik preserve. In this nook in the delta, plants, birds, fish and animals grow nearly as uninhibited as though man did not exist. Conservation people interfere only if the balance of nature is threatened. When they found that valuable varieties of fish were becoming extinct, they set up these fish ponds fringing the shores of the Volga like hundreds of liquid mirrors.

When the fry are large enough, they are shipped to the Caspian Sea. They used to swim these hundreds of miles, a perilous journey, in such dense and huge schools that the river was one mass of boiling silver—a field day for the voracious sheatfish, pelicans and cormorants. The sheatfish devoured them as fast as they could snap their jaws. Each pelican stowed away pounds of sturgeon in its pouch. Ranging over the river in a semicircle, with their flapping wings the birds drove the fry into shallows where they could swallow them wholesale. The net result was that out of 150,000 eggs spawned, only one fish developed and survived. Today, with the fry carried to the sea by ship, one egg out of every 100 survives.

So much for breeding. Our hosts showed us the fishing too. The Fish Conservation Department bans sturgeon fishing in summer. Everyone waits for the "unban," the most popular word on the Volga. It means plenty of caviar and sturgeon at home. However, near Caviarville experimental fishing is done the year round. We went there on the launch *Yantar* with captain Ivan Yefremov and his mechanic Pyotr Gavrilov.

A Concerto for Caviar and Orchestra

Pyotr Gavrilov is famous all over the Lower Volga not only as a ship mechanic but as an unexcelled cook of sturgeon soup. One day a very important general came to Caviarville to do some fishing. The general stood knee-deep in the water while his aide baited the hook and handed him the rod. The general also brought his chef along. "You are our guest," the general was told. "And we appreciate your desire to eat sterlet soup made from the fish you catch. But we make this one condition: The soup will have to be cooked by our Pyotr, not by your chef. The only thing Pyotr will trust your chef with is peeling the potatoes." As a matter of fact, all the chef did was fetch the water. What sort of sterlet soup Pyotr cooks we know because we tasted it.

About midday Pyotr unobtrusively disappeared, and in an hour a tantalizing smell of sterlet soup tickled our nostrils. The *Yantar* approached the bank. It was overgrown with rush in which gnats hid, like guerrillas waiting for a night raid. We took a dip in the cool water of the Volga (it's never warm even in the worst heat). By now the smell of sterlet soup drove the entire Volga delta to distraction. As we climbed on deck we saw the table set, a dazzling tablecloth, plates, wine glasses and all. And here was Pyotr carrying a tray piled high with peppered chunks of sterlet side spiced with bay leaf. According to Volga ritual, first you serve the fish and then the soup. As for cognac, you drink that all the way through. Each of us put away four plates of soup in which swam amber islets of fat, like so many gold coins. Perversely, our hunger grew after each plate. "A new way of committing suicide," Pyotr said. He had to force us to stop our soup orgy.

We spent all day with the fishermen. We helped them pull up the nets of beautiful sturgeons, each one big enough to knock out a heavyweight boxing champ with one flip of his tail fin. The fishermen gave us a souvenir of a 120-pound fish and told us that the caviar inside it would satisfy the most demanding of gourmets. We spent the night at a place on the pier of some fishing village, and Pyotr invited us to the galley of a boat to see how caviar is made. He slashed open a sturgeon, and we saw the black roe neatly packed in little transparent bags. He got it all out and strained it through a special sieve to get rid of the transparent film. Then he piled it into a huge bowl, added some salt and began to knead away with his fingers. His hands looked like those of a great surgeon or a violin virtuoso or maybe an Indian dancer.

Caviar is ready when it begins to sing. Only sensitive fingers can hear the song of caviar. Well, we looked at Pyotr's fingers, and we thought we could hear the song.

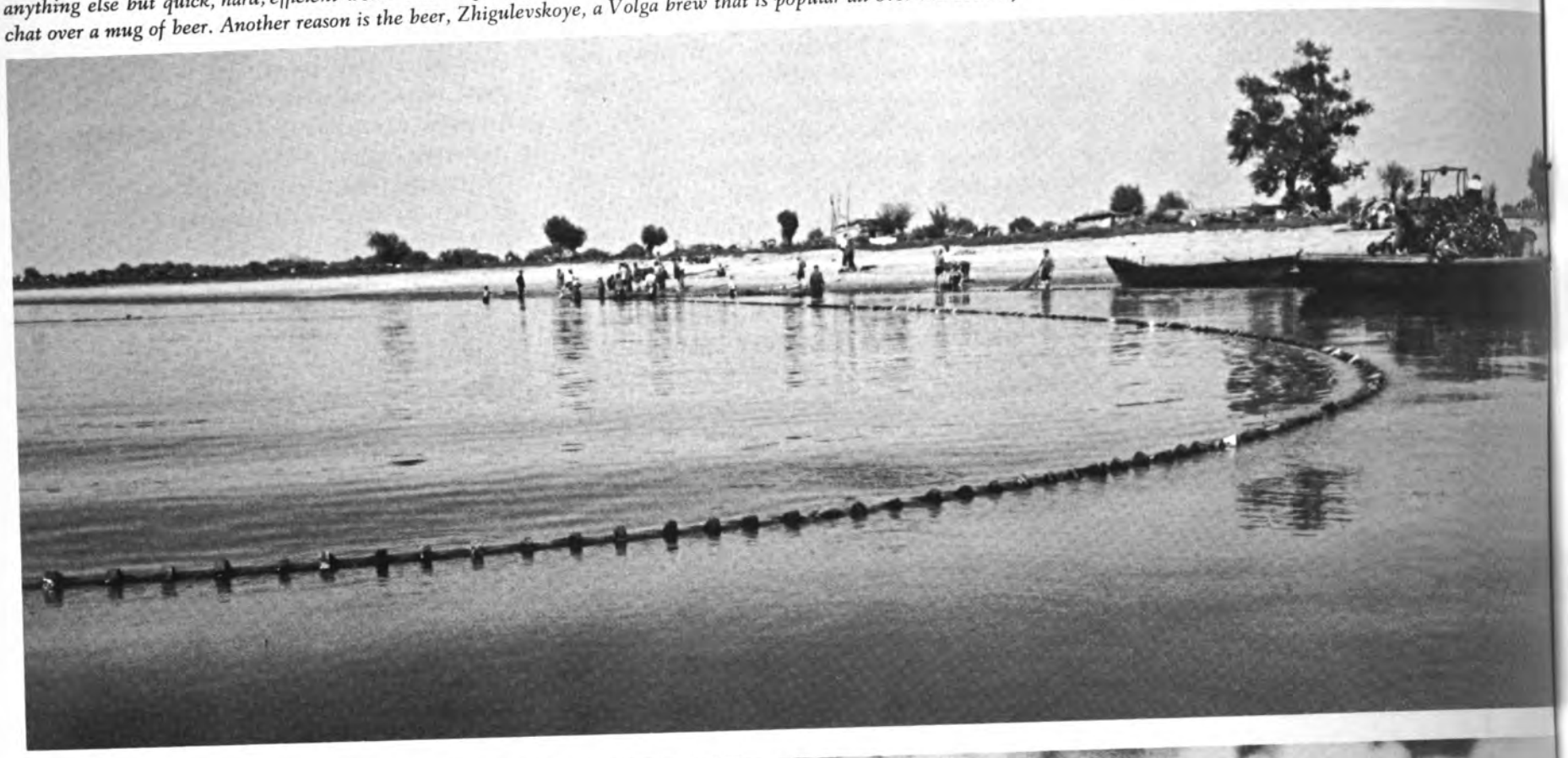
Half an hour later a big bowl of caviar stood in front of each of us. That was when we found out that Russians do *not* eat caviar with big *wooden* spoons. They use big *metal* spoons. Myself, I could dispose of only four spoonfuls, but Ivan Yefremov and Pyotr Gavrilov ate caviar the way you might oatmeal.

Wedding Under Sails

At a fisherman's wedding the next day I downed caviar like a hard-boiled professional, and also flirted with the other Volga victuals so prodigiously lavish that the table looked like an exaggerated Frans Snyders still life.

Apart from this riot of fish and caviar, a Volga fisherman's wedding has another peculiarity—it has to last three days. Only on the third day may the newlyweds kiss. At a traditional Russian wedding the guests complain loudly that the vodka is too bitter, and the newlyweds must

Mechanization notwithstanding, fishing takes great physical effort. The strain is at peak when the semicircle of net, full of fish, grows smaller and smaller as it is pulled toward shore. At such moments there is no time for talk or for anything else but quick, hard, efficient work. That is perhaps why fishermen like to take time out for an unhurried chat over a mug of beer. Another reason is the beer, Zhigulevskoye, a Volga brew that is popular all over the country.



CAVIAR AND THE LOTUS

sweeten it with kisses. After each shout "It's bitter!" the bridegroom kisses his bride, to everyone's delight. At this wedding there were no shouts of "It's bitter!" Only an athlete who can stay on his feet for the three days of a fisherman's wedding ever gets to see the traditional kiss. Another must: The wedding has to be held in a tent of old sails, pitched on the bank of the Volga and large enough to accommodate 300 guests.

We were strong enough for only one day of partying. However, next morning we found ourselves in the midst of another celebration—Fishermen's Day. The inhabitants of Caviarville, down to the last man, crossed in launches and boats to the other wooded bank. Tablecloths were spread on grass shaded by trees, refreshment stalls did a brisk trade, bands blared, and on the volleyball court tall lads danced with pretty, long-legged girls. Down the river sailed a flotilla of fishing boats which belonged to the port of Caviarville. Each ship was decorated so heavily that the most arrogant Christmas tree would have turned greener with envy.

Paris and the White Heron

Good-by, Caviarville! The *Yantar* took us to the Damchik preserve in the Volga delta.

If the Astrakhan Region ever has its own emblem, it should be the crimson Caspian lotus against a background of black caviar. The lotus came here from ancient Egypt, and the Astrakhan preserve is its northernmost point. In the part of the preserve called Damchik, the lotus has spread over 150 acres. The plant is in blossom only three days. Like a fisherman's wedding. On the first day it is crimson; on the second, pale pink; and on the third, dazzling white. On the fourth only tears glitter on the green yard-wide leaves, like mercury on a waxed parquet floor.

Both lotus and narcissus like to look into the water. Unlike the narcissus, however, the lotus is useful. Cooked, its stalk makes a delicious sweet. The flower is very beautiful, but this is a preserve, and the plant is protected by law. The Astrakhan preserve was set up on the initiative of Lenin in 1919. It was the first of its kind in the Soviet Union.

In the spring it seethes with fish going to spawn. The cries of herons, cormorants, pelicans, geese and ducks are heard the year round. Wild boars root for water nuts in the rushes.

At the turn of the century Professor Boris Zhitkov could find no birds, even in the innermost recesses of the Volga delta. Water fowl and fish had been killed off by wanton hunting and fishing. In summer, when birds molt and cannot fly, they were netted—1,500 ducks at a go. Eggs were gathered by the thousands and shipped to soap factories. As for the beautiful white heron, it fell prey to our grandmothers' fashions, egret-plumed hats. Agents of French firms bought white heron feather for these hats in such quantities that eventually the bird became scarce. There was a time when three herons brought as much as a cow. Kipling describes poachers shooting fur seals. This was risky business. But there was no risk slaughtering herons, they could be killed with a stick. At spawning time the delta streams would be fenced with several rows of nets, and the fish were simply dipped out with pails. The rushes were set afire and the wild boar and pheasant driven right up to the rifle barrels. The place is now a wildlife preserve, a kingdom of birds, fish, animals and flowers whose sovereignty is zealously protected.

A Stuffed Poacher

Last year Chief Forester Dmitri Bondarev, a slight, almost puny fellow, caught a group of poachers. Their leader was Vasili Glushchenko, manager of the local fish processing factory. No allowance was made for the fact that the manager is quite a person locally and that the Caspian roach his 4,000-employee factory processes is considered a delicacy throughout the country.

Some 10 years ago Dmitri Bondarev took his degree in natural geography at the Bashkirian University. The Damchik reserve is his Promised Land. "Like living in a fairy tale," he says. "My dream realized!"

From time to time there is some shooting and net-casting in the preserve, when local or visiting scientists are getting their research specimens. Besides, a certain number of cormorants are shot every year. The birds surround a school of herring and kill and wound many more fish than they can eat. Therefore only a certain number of cormorants (10,000 nests) are left alive in the delta.

We spent two days in the preserve and had the privilege of meeting hundreds of its inhabitants. We saw the lotus in blossom. We were invited to a wild boar lunch, obviously a satisfactory one from the way the party fell to. We saw a bay where birds did not take

Local tradition says they must walk through the whole village immediately after the wedding ceremony accompanied by a sedate and solemn procession of friends. The maid of honor and best man wear the sashes. But as soon as the wedding dances begin, the sedateness and solemnity are laid aside. Custom requires the happy couple to sit and look on at the gay rollicking dances.

By the time this little girl grows up, egret plumes may be in style again and the white heron may need even more protection from hunters than the law now provides. However, our future lady of fashion is not giving that a thought, she is too busy munching away at caviar on bread. Good? Look at that small epicure's face. The only delicacy that can stand comparison with caviar is ukha, *a fish soup that smells of smoke. For a gourmet* ukha, *build your cook fire on a dense layer of green reeds floating on water.*

the trouble of feathering their nests but laid their eggs directly on the leaves of water lilies.

As the last tidbit before our departure, Konstantin Skripchinsky, the red-bearded giant in charge of the preserve, showed us around the museum, with all the denizens of the Volga delta stuffed. "Only one specimen lacking," he said, "a stuffed poacher." I looked at this giant and was no longer sorry that I hadn't brought a rifle. I might have succumbed to temptation and, properly stuffed myself, would now be keeping company with a stuffed boar, wolf, and

ese

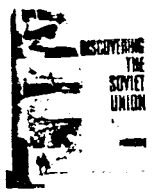
RUSSIAN BOOKS IN ENGLISH

Among the recent translations in English issued by Soviet publishing houses are:

LENIN, A BIOGRAPHY. Illustrated. Hard cover, 640 pp.

A comprehensive study of the life and work of Vladimir Ilyich Lenin (1870-1924), the organizer of the Communist Party of the Soviet Union and the founder of the Soviet state. The biography uses archival material and reminiscences of Lenin's relatives, comrades in arms and contemporaries.

DISCOVERING THE SOVIET UNION. By Nikolai Mikhailov. Illustrated. Hard cover, 400 pp.



The author is a widely read Soviet writer and geographer. He takes the reader on a guided tour of this most varied country for an informed look at its different climatic zones and the past and present of the peoples who live in them. All the 15 union republics are treated.

KONSTANTIN STANISLAVSKY. Illustrated. Hard cover. 400 pp.

About the pioneering Russian theater director who originated "the method," by his contemporaries. Contributors include People's Artists of the USSR Knipper-Chekhova, Kachalov, Leonidov, Toporkov, Pudovkin, Eisenstein, Okhlopkov. Included are reminiscences and letters by outstanding foreign stage personalities—Ida Alberg, Eleanora Duse, Isidora Duncan and others—and Stanislavsky's own letters.

FIFTEEN YEARS A WORLD WANDERER. By Vladimir Nasedkin. Hard cover, 108 pp.

In 1907 the author escaped from Siberian exile to Japan. From there he sailed across seas and oceans and tramped the highways and byways of Asia, Australia, South America and Europe. He describes the many places he lived in and the ways of life of the people he lived among. This account of the wanderings of a homeless Russian worker makes fascinating reading.

WHERE IT'S COLDEST. By Veniamin Ignatov. Illustrated. Paperback, 100 pp.

Veniamin Ignatov has taken part in expeditions and wintering parties to the North Pole and the Antarctic. He tells how Soviet polar explorers live and work at the Vostok station in the Antarctic, where the lowest temperatures on earth were recorded—125.3 and 126.9 degrees below zero Fahrenheit.

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TREATMENT OF NEUROSES IN SOVIET AND AMERICAN PSYCHIATRY

By Vladimir Myasishchev

DIRECTOR OF RESEARCH, BEKHTYEREV PSYCHONEUROLOGICAL RESEARCH INSTITUTE

DR. ISIDORE ZIFERSTEIN'S paper on Soviet psychiatry reprinted in the December 1965 issue of *Soviet Life* was very interesting. Though Dr. Ziferstein notes that he earned himself the sobriquet "quiet American" because he observed and listened so closely, he did make very helpful contributions as he sat in on our psychotherapeutic sessions day after day for 13 months at the Bekhtyerev Psychoneurological Research Institute in Leningrad.

All of us found Dr. Ziferstein's paper very stimulating. I would like to discuss some of the problems he raises.

Neuroses and Personality

Intermediate between neuroses and mental health is what we call "general nervousness." Failure, shock, suffering, etc. will be no more than an unpleasant emotional experience in some cases, in others it will develop into neuroses. The alternative depends on both environment and personality, on both attitudes and interpersonal relations. We hold that interpersonal relations are conditioned by social activity and environment rather than by instinct. On this point we are at variance with Freudianism and neo-Freudianism.

I do not propose here to challenge the views that stem, directly or indirectly, from Sigmund Freud. I will merely note that Freud's observations are far superior to his explanations. We accept many of his clinical observations, but we reject his theorizing as arbitrary and unconvincing. Incidentally, even the first devoted band of Freud's disciples departed from him in their interpretation of neuroses. Freud himself, who had originally postulated the sexual-instinct genesis of neuroses, declared at the time of World War I that neuroses arise from man's urge for death and destruction. Strangely enough, this new theory entailed no change in his interpretation of the mechanism and treatment of neuroses.

American scientists who visit our institute stress the fact that Freudianism has long been obsolete and that the views of most psychoanalysts today are better described as neo-Freudianism, which rejects the old fatalistic interpretation of instinct and emphasizes the crucial importance of the sociocultural factor. This view is closer, of course, to our interpretation and treatment of neuroses. While they are in agreement on the decisive role of the sociocultural factor, neo-Freudians hold widely different theories of neuroses. These theories, however, have something in common: they all consider neuroses as individual morbid processes independent of neurophysiology and the general social conditions responsible for cultural development.

Dr. Ziferstein notes that the Soviet psychotherapist's attitude toward his patient is active. At the same time he "found that the formulations and interpretations of Soviet psychotherapists lacked the subtlety, refinement and sophistication that psychoanalysis has developed as a result of decades of intensive delving into the innermost recesses of individual psyches."

It seems to me that here Dr. Ziferstein is carried away by his psychoanalytic enthusiasm and underestimates the opposition view. The fact is that what he calls "subtlety, refinement and sophistication" are too often based on subjective judgments. All of that is necessary, of course, but it is not sufficient for effective psychotherapy. Prior to treatment we make a thorough study of the patient emotionally and physically. We combine the psychological and physiological interpretations of his illness. We are wary of oversimplifications, whether they are physiological or psychological.

Our purpose is to understand the patient's individual development in relation to the development of society at large. In other words, what we are examining is not only the conscious and subconscious psyche but also the social conditions of psychological development.

OF NEUROSES:
AMERICAN PROS AND CONS

Generating Factors

Dr. Ziferstein notes that "the Soviet psychotherapist tends to underplay the sexual aspects of the psychogenesis of his patient's symptoms."

This is a misconception. We take the sex factor into account, but we do not believe it should be overestimated. Dr. Ziferstein will recall that even Freud later replaced the concept of "sexual instinct" with the concept of "eros." Indeed, in man the sexual component is linked with the whole complicated structure of interpersonal relations. Thus, it may involve dignity, ambition, trust, etc. Therefore, the factors responsible for the origin and development of neuroses are disturbances in interpersonal relations. When a person finds his position hopeless or inescapable, there sets in a functional (we say psychogenic) disorganization of his brain, nervous system and entire organism. Treatment must combine two approaches: On the one hand, the patient must be provided with acceptable objective conditions; and on the other hand, his personality reactions to the cause of his psychological condition must be normalized.

Transference vs. Respect

Sometimes a neurotic recovers by his own efforts or when his environment is changed. In most cases, however, only a psychotherapist can help him. We emphasize the fact that the major tool in the psychiatric armamentarium is psychotherapy. All other methods only supplement it. We agree that for psychotherapy to be effective, it is absolutely necessary that the patient's attitude toward the therapist be positive, but this attitude must be based on respect, trust and gratitude, not on transference, as analysts believe.

The relationship of physician and patient must be human—kindly and sympathetic. Only this kind of relation can redirect and re-establish the patient's ties with life and people.

To Understand and Explain vs. To Understand and Help

Dr. Ziferstein notes, correctly enough, that Soviet psychotherapists favor active treatment. It is true that our purpose is not only to help the patient understand the origin and meaning of his symptoms but also to eliminate them, to reorient him spiritually and change his physical environment. In other words, our aims can be summed up as follows: to understand the patient, interpret his personality, trace the history of his illness, make him understand the cause of his psychological condition, encourage and reassure him, redirect his reactions and, finally, help him work out his difficulties at home or on the job. Therefore, the psychotherapist is not only interested in the patient's emotional health, he also wants to help him make a better adjustment to his family, improve his living conditions, find a more suitable job if necessary, etc. The psychotherapist will generally get the cooperation of the enterprise where the patient is employed and of public organizations. He follows up the patient after discharge and continues to help him with advice, etc.

One other important aspect of treatment: Sometimes a doctor must severely criticize a patient. But this criticism must be so phrased as to build up the patient's morale by implying that the doctor has faith in his potentialities. Otherwise, a hostile patient-doctor relationship can easily develop.

Collective Work, Not Just Occupational Therapy

Dr. Ziferstein notes, very rightly, that we consider work an important method of treatment. The full employment in our country is a vital factor since insecurity aggravates neuroses while job security is conducive to effective psychotherapy. Work as part of his daily regimen keeps the patient's mind off his illness and its causes.

The patient's work in a *collective* is an important aspect of collective occupational psychotherapy. I say "collective" because conventional group psychotherapy does not create a collective. For that the joint purposeful effort of an organized group of people is required. Also, a collective is necessary not only for work but for recreation as well. Though solitude is sometimes useful for a neurotic, habitual solitude is morbid and the tendency to be always alone is a bad symptom.

Group sports, artistic self-expression and other types of recreational therapy have come to be a vital part of treatment, recommended by physicians even for hospitalized patients.

Spiritual Values

In his brilliant study "Idealism as a Physiological Factor" (1908) Russian physician Alexander Yarotsky demonstrated the importance for health of what he called "idealism," what we now would call spiritual values. Incidentally, scientific materialism, in contrast to mechanistic materialism, emphasizes the role of spiritual values. The psychotherapist helps his patient regain an active, optimistic attitude toward life. Quite often hospitalized patients say they are disillusioned and see no purpose in life. The psychotherapist helps his patient to recapture his sense of belonging, to rediscover his place in life. In other words, he is not simply a medical specialist but a teacher as well.

While American and Soviet views on the nature and treatment of neuroses diverge at many points, the exchange of experiences and personal association will stimulate all of us and will, despite our differences, bring us better methods of treatment.

The terminal building—of glass, steel and concrete—is 1,300 feet long. Disembarking passengers walk through glass-walled galleries directly into the building. The lounge, bigger than a soccer field, is almost completely soundproof. The roar and rumble of jets taking off that does filter through sounds like a fly buzz. Check-in is a speedy formality, thanks to 36 counters. A mother-and-child room is equipped with toys, picture books, comfortable chairs and couches. Baggage is delivered automatically to and from planes. The restaurant accommodates 500 diners. An Aeroflot hotel in the terminal sleeps 300 passengers in transit.

Domodedovo, named after the small village it encompasses, was opened in 1965. Some 27 miles from Moscow and surrounded by birch forest, it is Europe's largest airport. Its facilities can handle 3,000 passengers an hour, as many as Moscow's three other major airports combined. Domodedovo's mammoth runways can handle 14 of the largest turboprops and jets simultaneously, and runways for supersonic liners are being planned.

Taxis, buses and helicopters shuttle passengers to other airports and the capital. For the convenience of tourists, an Intourist office is located right at the airport.

This is Moscow's air gate to the Orient, where planes take off for the Urals, Siberia, the Far East and the Central Asian republics, as well as for the Crimean and Caucasian spas.

Moscow has regular flights to 40 foreign countries. Aeroflot (Soviet Civil Air Fleet) services air routes with a total length of more than 280,000 miles. It flew 42 million passengers in 1965.

The IL-18s and TU-104s, pictured above, fly the medium-range routes.

The TU-104 carries up to 100 passengers and has a cruising speed of about 560 miles an hour over a distance of 1,860 miles.

The IL-18, which is imported by 14 countries, is one of Aeroflot's main airliners. An improved model, the IL-18D, has been developed. Its three passenger salons can carry up to 122 passengers. Its maximum flight range is 3,800 miles at a cruising speed of 390 miles an hour.

HISTORY ON STAMPS

The Monomakh Cap

Tatar quiver

Russian helmet

Brotherhood drinking vessel

Wine ladle

THIS SERIES of five stamps pictures some of the objects on display at the Armory Museum in the Moscow Kremlin. Set up originally as an arsenal in the early sixteenth century, handicrafts workshops for painting, chasing, enameling, embroidery and other decorative arts were later added to service the czar's court. In the eighteenth century the armory became a repository for historical and artistic objects. The museum building, erected especially for the purpose in 1851, is shown outlined against the Kremlin Tower in the upper right-hand corner of each of the stamps in the series.

The richness and diversity of the weapons, military accouterments, gold and silver jewelry, ornate costumes, make the Armory one of the best museums of its kind in the world.

Among its famous exhibits is the Monomakh Cap. Made of gold, set with precious stones, trimmed with sable and topped by a cross, the "cap," according to legend, was given to the Russian Prince Vladimir Monomakh (1053-1125) by Emperor Constantine of Byzantium. But Russian historians long ago proved that the "cap" was made by Oriental artisans in the fourteenth century. It still bears the old name, however. Ivan the Terrible, Peter the Great and other czars were crowned with the Monomakh Cap.

Until the seventeenth century, when firearms displaced older weapons, bowmen formed a considerable part of the Russian soldiery. Their arrows were cased in richly ornamented sheaths called *saadak*.

The Russian fighting man's helmet had a vertical metal strip down the front, called *noss* (nose) or *kot* (cat), to shield the face and metal earlaps. A *barmitsa*, or net of mail, was attached to the back of the helmet to shield the neck and shoulders. Four types of helmets were made, the *yerikhonka* type is depicted on one of the stamps. This conical helmet was worn by the czar and his generals and derived its name from *yurgenskaya* which means Georgian.

An indispensable part of the dinner table furnishings in days of yore was a *bratina*, a large silver vessel. Filled with hops, honey and wine, it was dipped into before undertaking the affairs of the moment.

The wine was scooped out of the *bratina* with a ladle which served as cup. The ladle was so generally used as a cup in Russia that a liquid measure—three-fourths of a liter—is called a ladle.

ON ONE FATEFUL NIGHT in June 1812 Napoleon ordered his Grande Armée to cross the frontier river Neman. In a few days there were 420,000 French soldiers on Russian soil. With his overwhelming superiority of forces, Napoleon maneuvered for one big battle to rout the Russian army. But Mikhail Barclay de Tolly, the Russian commander in chief, decided on a scorched-earth tactic—to pull back deep into the heart of the country, force the enemy to abandon his garrisons in the localities he had seized, wear him down and destroy his army piece by piece. This was the only possible tactic under the circumstances.

Napoleon's army had dwindled by nearly a half by the time he reached Smolensk (250 miles west of Moscow). But the czar and his court found each of Barclay's orders to pull back more galling and demanded a pitched battle with Napoleon. Barclay was removed and Field Marshal Mikhail Kutuzov appointed in his place. Kutuzov thought Barclay's tactic was correct, but he also thought the time for a general engagement was at hand.

He chose to give battle near the village of Borodino (70 miles west of Moscow). The opposing forces were about equal: Napoleon had 135,000 soldiers and 587 cannons, the Russians about 120,000 men and 640 cannons. The battle of September 7, 1812, one of the biggest up to that time, was fought from morning till night. Napoleon lost 47 generals, dead or badly wounded, and tens of thousands of soldiers. Half the Russian army was destroyed. Pyotr Bagration, whom even Napoleon considered the best Russian general, was mortally wounded. When Kutuzov was informed of the Russian losses, he decided against another battle and abandoned Moscow to save his army. Toward the end of his life Napoleon admitted that Borodino was the most appalling battle he had ever fought.

When the French had occupied almost deserted Moscow, a fire broke out and raged through the city for days. It was in Moscow that Napoleon realized he could not win the war and ordered his army to begin its inglorious retreat.

The country had been laid waste, and the fury of the people mounted with every week of the war. Armed with axes, pitchforks, scythes and clubs, the peasants gathered in small groups and harassed the retreating enemy. The peasant woman Vasilisa Kozhina of Smolensk Gubernia and her partisan detachment won legendary fame.

These spontaneous peasant groups fought hand in hand with organized partisan detachments. The officer and poet Denis Davydov initiated the partisan movement. He mustered a detachment of 130 hussars and cossacks, who operated behind Napoleon's army. Davydov and his partisans sowed terror among the French, often putting forces five times their number to flight. Scores of other such detachments were soon adding their strength to the Russian regulars.

Only scattered groups of Napoleon's army survived. Later mustered in Prussia and Poland, they numbered barely 30,000 bayonets.

Such was the end of Napoleon's invasion of Russia.

Battle of Borodino

1812 commanders Barclay de Tolly, Kutuzov, Bagration

Partisan Vasilisa Kozhina

Poet-Officer Denis Davydov

YOUR QUESTIONS ON COMMUNISM

WHY IS THE STANDARD OF LIVING IN THE SOVIET UNION LOWER THAN IN THE CAPITALIST COUNTRIES?

It seems to us that it was a bit hasty to put the question that way. Before trying to compare anything, we should have a clear idea of *what it is,* precisely, that we are going to compare. For example, which countries did the author of the question refer to as "capitalist"? Did he mean only the United States, Canada and Western Europe? But the living standards of even such countries as, let us say, Britain and Greece, are quite different. The difference will be even greater if we include the countries of Latin America, Asia and Africa.

Indisputably, a certain small number of industrially developed capitalist countries have reached a high level in the output and marketing of consumer goods. But, as a rule, these goods remain inaccessible to the overwhelming majority of the population in the capitalist world because of the crying unevenness in the level of the national income of different countries, and, most important of all, owing to the uneven (and, to our mind, unjust) distribution of incomes among the population of these countries. After all, even the most highly developed of the capitalist countries have to wage "war on poverty" among their own population. And in spite of the efforts taken in this direction, the foreseeable future does not yet promise a radical improvement of the social ills.

In the Soviet Union, where the whole economy and all the riches of the country belong to the entire population, the basis of inequality has been eliminated. About three-fourths of the national income is spent on consumption, *i.e.,* on the satisfaction of the population's requirements. As the level of social production grows (its volume approximates two-thirds of the production in the United States at present), the living standards of the population also grow. According to the new five-year plan (1966-1970) the income of factory and office workers should increase by 20 per cent in the next five years and that of farmers by from 35 to 40 per cent. In addition, there will be a 40 per cent increase in the funds spent by the state on health, welfare and cultural services for the population.

"Well," the reader might say, "you admit yourself that the volume of production in the Soviet Union is *below* that of the United States. As the population of your country is larger, it means . . ." Yes, the Soviet Union is still behind the United States in per capita production of goods. But a few decades ago this gap was much wider. One must not forget that the leading capitalist countries started their industrial development 150, 200 or even 250 years ago, while our country was industrially weak only 50 years ago, at the time of the Socialist Revolution.

Therefore, it would be wrong to correlate the relatively lower level of consumer goods output with socialism and the advanced level of production with capitalism. Everything depends on concrete historical conditions. When relatively developed countries (as, for example, Czechoslovakia) change over to socialism, they are in a position to provide their population with comparatively high living standards.

When the Soviet people began the construction of a new society, we had to solve many difficult problems simultaneously in order to industrialize the country in an unprecedentedly short period of time and to safeguard it against internal and external enemies.

Only 16 years ago the volume of industrial production in the USSR was barely one-third that in the United States. For more than 150 years not a single enemy soldier set foot on U.S. soil, while within 50 years our country has been invaded twice by the German imperialists, first under Kaiser Wilhelm's flag and then under Hitler's. Moreover, it has gone through a civil war and fought off the intervention of 14 powers. Had it not been for the necessity of constantly safeguarding the country from military aggression, had it not been for the destruction caused by these two wars, consumer goods output in the Soviet Union could already have been at least as high as in the industrially developed capitalist countries.

At present our country is working to eliminate the gap in this area at an even faster rate. Whereas in the seven-year plan period (1958-65) just fulfilled the rate of development of heavy industry was 50 per cent higher than that of light industry, in the new five-year plan (1966-70) the rate of development of heavy and light industry will be almost the same.

It is likewise important to define what we mean by living standards. Is it only the sum total of goods and services acquired for the maintenance of the average family's life? Or is it something more than that? We in the Soviet Union have grown accustomed to including in this category free medical care for each and every citizen, free education, the guaranteed right to work, the absence of unemployment, the payment of pensions and other welfare benefits to all working people.

What does this mean practically? It means that every Soviet family, even those in the lowest income categories, can afford to send its children to the country's best university. It means that every Soviet citizen, regardless of his income, may obtain any kind of medical care he needs. He will be hospitalized if necessary, any surgery he may need will be performed, and he does not have to pay anything for this. Even the most advanced capitalist countries have so far not matched our health services.

The Soviet state annually spends tens of billions of rubles on these requirements. We should also add to this extensive housing construction, low rent, cheap municipal transportation, free use of stadiums and other public sports premises and equipment, the accessibility and mass nature of all forms of culture.

As we get closer and closer to our goal of a completely communist society, the proportion of these public consumption funds for the satisfaction of the whole population's requirements grows larger and larger. The time will come when public transportation, housing and other such services will be free, when the principle "From each according to his ability, to each according to his needs" will be exercised on an increasingly wider and fuller scale.

Even with our lower (as yet!) volume of production, the socialist principles of distribution ensure the average Soviet family fuller and more stable satisfaction of its various requirements.

IS IT TRUE THAT THE DRIVE TO RAISE LIVING STANDARDS IN THE SOVIET UNION, THE STRESS ON CONSUMER GOODS OUTPUT AND THE USE OF THE PROFIT INCENTIVE SIGNIFY A RETURN TO CAPITALISM?

No, it is not.

Under socialism, and even more so under communism, the goal of production is to provide an abundance of goods and services for everyone. An emphasis on consumer goods output is therefore to be expected in socialist society.

Obviously the socialist countries will not be able to reach this goal overnight. We must not forget that it was the relatively economically backward countries that were the first to start building socialism. That is why it took socialism time to show what it could do in the way of raising living standards.

At present the economically mature socialist countries have increased their consumer goods output considerably. The Soviet Union is a case in point. The plan for 1966 calls for a 22 per cent increase over 1965 in funds to be invested in light industry. There is to be a very considerable increase in the production of such durable goods as household refrigerators, washing machines and TV sets to meet the large demand.

The drive for higher living standards and the emphasis on consumer goods do not indicate a turn to capitalism. On the contrary, they are thoroughly consistent with the basic economic law of socialism: to provide for the constantly growing needs of the working people.

How does profit fit in? Does not the element of profit contradict the fundamental principles of socialism?

No, it does not. Under socialism profit is chiefly a yardstick for measuring the efficiency of an enterprise. As such, it is not surprising that profit has survived capitalism in countries that have abandoned the capitalist mode of production.

In socialist countries profit constitutes the net income of the entire society.* A considerable portion of the profit of socialist enterprises goes into the national budget and, through it, is spent on further developing the national economy and on further expanding cultural, social and other services for the whole population. The remaining portion is kept by the enterprise for its own specific needs. About 80 per cent of it is earmarked for such collective welfare and cultural needs as clubs, nurseries, kindergartens, holiday resorts for adults, summer camps for children and bonuses for workers.

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* For more detail see articles by Professor Liberman in the July 1965 and March 1966 issues of *Soviet Life.*

BEARS CAN BE UNBEARABLE

This bear, Max, and his wife Mashutka learned to ride a motorcycle to the circus every evening and to pick up their trainer Valentin Filatov on the way. The strict traffic authorities issued Max a driver's license, with the proviso that he and his spouse be securely muzzled in public. When motorcycle racing champion Victor Abrekov saw Max, he envied his cool confidence. As for Max and Mashutka, one thing bothers them: How is it all other drivers in Moscow ride around without muzzles?

FIGHTING ALCOHOLISM

By Yelena Korenevskaya

The satirical magazine Krokodil *presented this version of the opening ceremony for a new sobering-up station.*

FOR CENTURIES heavy drinking seemed an indispensable and necessary part of Russian life. The endless gray monotony of peasant existence with its spine-breaking toil and its famine, the dirt and degradation of squalid city slums, the stifling atmosphere of middle class homes—all this served as an appropriate frame for vodka —one of the few words from czarist Russia that spread throughout the world.

Birth and death, big money and a last kopeck, a religious festival and a wedding ceremony—everything called for a drink.

"Because of tiredness, " "Because of grief," "Because of cold,"—any excuse was good enough for a "quick one" or "a couple."

After the October 1917 Revolution, enthusiastic and naive sociologists solemnly declared that with the social change drinking would automatically stop. And since drinking as a national problem did not exist, at least officially, nobody studied the statistics and nobody tried to do anything about it. It was only in the last decade that first the Soviet press and then official and scientific circles began working on the problem.

It turned out, as everybody had long suspected, that although per capita consumption of alcohol had fallen sharply from the prerevolutionary level, when it stood at three-quarters of a bucket annually (about seven quarts), drinking was, and still is, very much of a problem in the Soviet Union, just at it is in other countries.

Official figures show that nine out of ten crimes are committed under the influence of alcohol. The principal cause of divorce is vodka. Almost all delinquent and retarded children come from families with a history of alcoholism. The reason for most traffic accidents is a drunken driver or a drunken pedestrian.

The Soviet militia is hard on a drunken driver. Whether he has put away one drink or a whole bottle, his license is automatically revoked for at least a year.

An antidrinking campaign carried on in the press about two years ago showed that alcoholics were having too easy a time of it. Drunkards picked up by the militia were given a bath, a clean bed and a hearty breakfast, all gratis. Small wonder that many a drinker came to regard the sobering-up station as a blessed oasis of tranquility. A drunkard who fell on the street and hurt himself was eligible for sick benefits and went on comfortably collecting his pay.

The press insisted on a more realistic approach to the problem, and legal steps were taken to check drinking and get it under control. Sobering-up stations started charging their patients for services rendered, and accidents resulting from drinking were not covered by sick benefits.

But these measures were either insufficient or not properly enforced. The result is a new surge of public indignation and a new campaign. In popular magazines and newsreels, TV programs and newspapers—everywhere—you hear about crimes, broken homes, unhappy children, traffic accidents caused by vodka. Letters from readers offer a whole spectrum of suggestions on fighting drink.

The radicals demand that some kind of "dry law" be adopted to ban the manufacture and sale of spirits except for medicinal purposes. They are promptly corrected by others who write in to say that such a law would only create a flourishing home-brew industry of bottled poisons. Home-brewing is a criminal offense, but there are cases of illegal liquor distilled from sugar beet, wheat and potatoes, especially in remote villages not easily checked on.

Other readers insist that drunkards be heavily fined and that charges in sobering-up stations be raised sharply. But these suggestions are open to criticism also. "Who is going to carry the financial burden of fines and higher charges?" these critics ask,and promptly answer—"the families." The chronic alcoholic is not going to care about the family budget, they point out. It is not he who will suffer but his family. What should be done? These same readers suggest paying the salaries of known drunkards not to them but to their families.

Still another group wants drinking penalized by shorter vacations and drunkards excluded from trade union resorts.

But whether or not these suggestions are incorporated into law, they will be effective only when combined with serious scientific and medical research.

Professor Iosif Lukomsky, head of a hospital in Moscow for compulsive drinkers, makes that same point. He says that besides legislation and social pressure we must have a better medical approach to the problem.

He does not believe in hereditary alcoholism. He thinks any case can be cured given enough hospitals and enough trained physicians. He considers hospital treatment a last resort. He wants the physician not to wait for his future patient but to go out looking for him. This approach, besides its other values, would take some pressure off the antialcoholic clinics, of which there are not enough.

Another, more "muscular" approach, is advocated by Dr. Sergei Andreichikov, who runs an alcoholics colony near Perm in the Urals. Work, sports, fresh air—that is his formula, and many former patients testify that it works. "They sweat it out of you," says one of them, "till there is not even a trace of alcohol in your system, not even a memory of it."

Another Soviet authority on alcoholism is Professor Vladimir Rozhnov, deputy director of the Institute of Legal Psychiatry in Moscow. Like Professor Lukomsky, he thinks a "dry law" unrealistic. He cites the failure of prohibition laws in other countries, notably the United States.

Professor Rozhnov is the leading authority on hypnosis. He has published many papers on the subject and strongly advocates hypnotic treatment for chronic alcoholics. His own experience indicates that hypnosis combined with drugs that induce vomiting is effective in the long run. Professor Rozhnov represented the Soviet Union at the Third International Conference on Hypnosis held last summer in Paris. He believes that hypnosis, individual and collective, is a more effective treatment than psychoanalysis, which is so popular abroad but is not accepted by Soviet doctors.

Professor Rozhnov has had the chance to compare the way the Soviet Union and other countries he has visited—the Scandinavian countries, England, France and Japan—handle the problem. The Soviet Union has the advantage, says the professor, first, because it can make alcoholism a matter of official concern and national action, and second, because it need not fight big distilling interests.

Public opinion is overwhelmingly for stronger action to curb heavy drinking. Whatever legislation is finally adopted, it will certainly include medical treatment and will be buttressed by all the country's information media.

PUBLISHED BY APN

By Andrei Verbenko
VICE PRESIDENT OF THE BOARD, NOVOSTI PRESS AGENCY

A BOOK entitled *Sensation Number One* was recently published in Russian and foreign language editions. The book is a picture of the Soviet people at home, at work, at leisure. It gives the reader a close look at the millions of children who sit down behind school desks every fall, of the vistas open to young people who graduate from high school and college and start life on their own. The reader meets the first child whose parents flew in space; a young scientist who, at the risk of his life, is the guinea pig for his own experiments; a Bolshoi ballerina; a worker who tamed the Volga and the Nile; a shepherd who became a deputy of the Supreme Soviet. He looks into the laboratory where Nobel Prize winners Nikolai Basov and Alexander Prokhorov work wonders with the laser beam, and visits the home of a 160-year-old mountaineer who still rides boldly over high mountain passes.

The volume is one of the 250 titles—full-size and pocketbooks—issued yearly in a total of 10 million copies by the Novosti Press Agency (APN) Publishers.

APN has been publishing material on the Soviet Union for foreign readers for some time now. But the scope of the agency's activities along this line was much expanded in 1964, when it set up its own publishing house.

Political Series

APN publishes a political pocketbook series for the reader who is interested in the theoretical foundation for the construction of a communist society in the Soviet Union. Most of the booklets are written in question and answer form with a political vocabulary appended. Among those which have already been published are *Fundamentals of Marxist Political Economy* by Lev Leontyev, *Philosophy of the New World* by Ovshii Yakhot, *The Path Traveled and the Path Ahead* by Grigori Glezerman, *The People in Power* by Levon Grigoryan, and *This Is How Socialism Began* by Ilya Berkhin.

Another series with the general title *Vital Problems of Our Day* deals with Soviet foreign policy. Booklets in that series include *International Relations in the Nuclear Age, Neutralism and the National Liberation Movement* and *Africa and the Common Market.*

In preparation is the series *Two Worlds, Two Ideologies* on problems of world development and the goals of the Soviet Union and the socialist community of nations.

A large foreign public is interested in the speeches and statements of the leaders of the Communist Party of the Soviet Union and the Soviet Government, and the documents of CPSU Central Committee plenary meetings and CPSU congresses. To meet this interest promptly, APN publishes many foreign language editions of these documents and speeches in brochure form.

Comprehensive Information

The past, present and future of the Soviet Union is the subject of *USSR: Questions and Answers*, a collective product of APN newsmen. Copyrights for this book were purchased from us by publishers in many Western and Eastern countries, including Canada, Sweden, India, Japan and the United Arab Republic. In India alone the total circulation of the 20 sections of this book (published as booklets in English and Hindi) will be 500,000 copies.

Appearing soon will be *The History of the USSR* (a summary edition) and *The Country's Atlas,* with eight color maps of the Soviet Union's industry, agriculture, political-administrative divisions, exports and imports, etc. Supplementing the maps will be facts, figures, comparisons and diagrams.

Health, children, family and school, Soviet democracy, art and literature, religion, space, man's spiritual world, new missile weapons, the trade unions—these are a few of the topics treated in the series published under the general head *USSR: Yesterday, Today and Tomorrow.* Another series titled *What, How and Why?* describes the Soviet cultural revolution—the elimination of illiteracy, the creation of alphabets for peoples who had none before the Revolution, the training of technical personnel, the breaking down of the traditional national antagonisms.

More than a million foreigners visit the Soviet Union annually. One of the duties of the APN publishing house is to provide them with pertinent literature. We publish guidebooks for the popular tourist routes. In preparation are books on Leningrad, Kiev, Odessa, Minsk, the ancient towns of Moscow Rus, aids for automobile tourists and a general guidebook of the whole country.

Manuscripts for Sale

APN is the only publishing house in the Soviet Union authorized to sell its foreign agents original book manuscripts written to order. Working with APN are more than 100 foreign publishing houses, among them Econ Verlag (Federal Republic of Germany); Pont Royal (France); Victor Gollancz, Hutchinson and Souvenir Press (Britain); Encyclopædia Britannica, Funk and Wagnalls, McGraw Hill (United States); Edizioni Internazionali (Italy); Nagele (Switzerland); Bunka Sha (Japan) and Guttenberg (Iran).

To fill orders placed by foreign publishers, we have already prepared several interesting books. Italian readers will soon be getting a series of illustrated publications about the Second World War in their own language. French readers already have the space notes of cosmonauts Komarov, Feoktistov, Yegorov and Nikolayeva-Tereshkova in French. Readers in Britain will soon have a three-volume English edition of *Soviet Sociology*, and books on the history of the Russian ballet and on archeology. Readers in the Federal Republic of Germany will shortly be able to buy illustrated reference books on Moscow and Leningrad in German at their bookstores.

We often select the most interesting items in current Soviet periodicals and reprint them for readers abroad. That is how we prepared several books of articles with the general title *Science and Engineering in the USSR.* At the request of foreign publishers we are now preparing a number of topical books on our economic development, living standards, and social and ethical principles.

We are planning regular publications of the digest type. These will be small, smartly made periodic abstracts of news and commentary published in the Soviet press.

First Steps Only

Some of the country's most distinguished scientists, statesmen and scholars write for APN Publishers. These are people whose work has been put out by Soviet and foreign publishing houses.

Books published in the Soviet Union are circulated abroad by the Mezhdunarodnaya Kniga foreign trade organization and at home by the Soyuzkniga bookshops and Soyuzpechat bookstalls. When books are published directly by APN representatives in foreign countries (they appear in 28 languages in 60 countries), they are sold in the bookshops of the country in question, at its libraries, schools and universities, and at Soviet pavilions at international fairs and exhibitions. Finally, there are books commissioned by foreign publishers which they themselves print and distribute. In this case APN or its authors are paid royalties by the foreign publisher.

APN books sell in very large editions. For instance, the Japanese publishers Kokusai Dzehosha put out one and a half million copies of an illustrated three-volume edition of essays on the Soviet Union. It sold out quickly.

The APN publishing house is still taking its first steps. It has had its growing pains as well as successes. What we are aiming for is a broad range of richly illustrated material that meets high publishing standards and is distributed to our home readers by the major bookselling firms. We want our books published abroad to answer more fully the questions that people in other countries ask us in the many letters they address to Soviet embassies and missions, to friendship societies and to APN, Mezhdunarodnaya Kniga and Intourist agencies.

Our young publishing house will have a serious test of its abilities with the forthcoming fiftieth anniversary of Soviet power. We hope to live up to the expectations of the many foreign readers who want to know how far the Soviet people have moved on this new historical path.

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WITH THE ARRIVAL of Natalya Bessmertnova on the Bolshoi stage, lovers of the classical dance have taken heart. Not that interest in the classical dance has waned. The old ballets have lost none of their devotees. Tickets, even for weekday performances, are still hard to get. And yet the traditional ballets, danced in traditional ways, inevitably grow academic and stilted, are sapped of their poetic vitality. Time and again we are offered formal, albeit flawless, performances of *Sleeping Beauty*, of *Swan Lake*, of *Giselle*. It is not every talented (let alone untalented) ballerina who can feel the classical dance. Natalya Bessmertnova does. She dances with all her heart and soul. I might even say that she is the embodiment of the lyricism of the classical ballet.

The emotions she stirs in us stem from her delicate sense of the poetic, enchanting quality of such gauzy, aerial classics as *Giselle* and *Chopiniana*. She is a romantic dancer who emerged at a time when the old romantic ballet was once again declared outdated. Slim as a girl can possibly be, high-strung, her hair raven black, Bessmertnova was born to be a sylph. She is not a romantic in style alone. She is the very essence of a romantic ballerina, in temperament, in her poetic attitude toward life. On stage she is almost a being of the air.

She is only on the threshold of her career. But we can already say, in her favor, that her dance has an element that many of her great predecessors lacked—youth. Not merely chronologically either. Bessmertnova's dance is the poetic pulsation of youth, and that is why its lightness, its impulsiveness is so compelling. In a dance where she is not hampered by difficulties of technique, Bessmertnova is very gentle. She is devotedly gentle to her partners. Watch her closely, and you will mark how intense this gentle and loving dancer is, the almost painful sensitivity she brings to her duets. Her greatest asset is a "warm heart." She is full of a *joie de vivre* that pervades her dancing. It is not tempestuous but reserved, not rapturous, certainly not aggressive, but delicate, timid, with a lovely charm.

The ballets she dances are tragic. The shadow of death dims the smiles of her heroines early. Shirin rises from her deathbed; Giselle rises from her grave. Even amid the lighthearted animation of the First Act, Giselle's failing heart suddenly contracts with pain.

Bessmertnova's sense of the poetic was beautifully illustrated in *The Legend of Love*, that semifantasy production. Eastern despotism and Eastern poverty, the arrogance of some and the humiliation of others—two plastic leitmotivs: the overweening fanciful steps of the guards, the helpless gestures of the common folk who move about bent backed, almost crawling on their knees—that is the world of this dance. By what miracle, then, did this youthful, tender, fluttering creature bring such a world to life? Bessmertnova's Shirin seems unreal, said one of the reviews. But there is nothing unreal about her. Her graceful, very animated and shining Shirin is altogether of this world. She is simply different from others, and therein lies the miracle. The point is that she strains to leave this world, although she has so little strength, so much less than the others have.

Bessmertnova's Shirin introduces into this dark realm the great dream of broad spaces. Her outstretched arms in the trio arabesques performed in every act are exquisite. And her pleas not to be forgotten, not to be left behind, to be taken along, to the end of the world if need be. And her escape—the climax of the production, the diagonal of *tours en l'air*, full of fear and of a sense of liberation—escape and flight at the same time.

There is the same poetic theme in *Giselle*, carried to the sphere of a more purely classic example of romantic ballet. In this sphere Bessmertnova feels free, and that is why this ballet, so inaccessible to many, is her best. From the very first steps she takes on the stage, from the first light, impulsive leaps, she creates the image of flight, stirring and joyful. In the First Act the flight remains joyful. Giselle, as interpreted by Bessmertnova, is the story of a flight which everybody and everything tries to down, the jealous and earthbound gamekeeper, the flighty, unfaithful lover and even Giselle's close friends. A happy girl flitting toward her death—this is Bessmertnova's Giselle of the First Act. When, at the end of the act, she lies dead, she is the symbol of tragedy, of irremediable misfortune. But that is not the end, not the final turn of fate, it is only one of the possibilities, Bessmertnova's interpretation says.

The second fantasy act of the ballet is the romantic apotheosis of art. White dresses, pure lines, incomparably austere composition. That is perhaps the consummate romantic image, the ideal. It is cleansed of the earthly prose of living, and yet it is human and lyrical. Here, in this world of beauty and rejection, in a world demanding victims, we see the rebirth of Giselle. The fleet-footed girl becomes a fleet-winged sylph. In our common language, this means that she has become an actress, a romantic dancer. Her light steps, her motionless but vital poses, her impulsive, nervous and lightning swift jumps—all these revive the image of flight. But it is no joyful flight, it is sad. Once again, but this time in a dream world, appears the doubly dramatic situation of solitude, of unassisted forbidden flight. Here flight is love, a dream, spiritual freedom. Bessmertnova gives the principal *mise en scène* of this act an agonizing sharpness. The Wilis, knowing nothing of love, stand apart, motionless, they have rejected flight. The weakened lover lies on the floor—now it is his turn to die—he is incapable of flight. Only fragile, weak Giselle strives to soar to the skies, strives to attain the heights and carry her unfaithful lover with her. One must see this "unique dance of the world" as performed by Bessmertnova. One must divine the lofty poetry of those thin outstretched arms, their tender touch, their mute call.

The romantic ballet is a ballet of dreams; translated into the language of the classical dance and classical mastery, the dream becomes a dream of perfection. That is how Bessmertnova's poetic sense can be defined. A dream of perfection, a dream inconstant with Bessmertnova as with many other artists. But when the dream burns bright, it renders the yet imperfect art of the young ballerina glorious.

Courtesy of the magazine Theater

AROUND the COUNTRY

BLASTED DIAMONDS?

Were Siberia's diamonds formed during explosions in some remote geological age? That hypothesis is confirmed, scientists say, by the discovery of eclogite in the diamond fields of Yakutia. Eclogite is a rare rock consisting of red garnet and green pyroxene. Diamond grains were found in the specimens.

TRAPPER'S ANNIVERSARY

In 60 years of trapping in the Tien Shan Mountains Asambai Bolotov has caught 50 snow leopards and hundreds of deer, mountain goats and other animals, as well as birds.

More than 70 species of animals and 100 species of birds are now trapped in the Soviet Union. Many of them are sold to zoos at home and abroad or to individuals for pets. Rare animals are sent to preserves.

LASER RESTORES SIGHT

Twenty-seven-year-old Rolf S. of Uzbekistan was threatened with blindness due to a detached retina. Now he can see again, thanks to an operation performed with a laser device called an ophthalmocoagulator. It was developed by a team headed by Leonid Urmakher at the Moscow and Odessa Institutes of Eye Diseases. Surgeons use the laser beam to weld the delicate tissue of the retina to the choroid membrane. No anesthetic is needed, and no healthy tissue is injured.

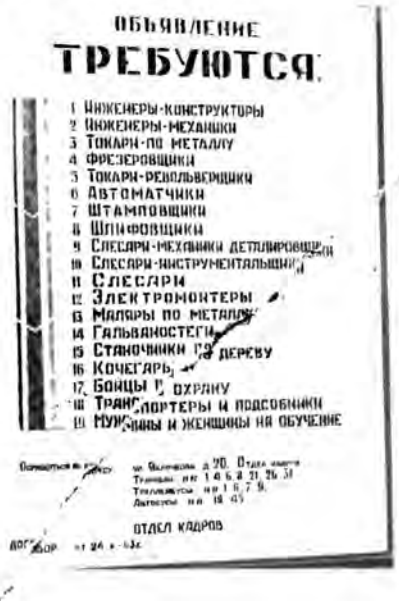
GEORGIAN MATH WIZARD

Teimuraz Vephvadze, 20-year-old student at the University of Tbilisi, capital of the Georgian Republic, has found the key to a problem that baffled some of the world's leading mathematicians for decades. In a 13-page paper he elaborated the proof of one of the problems posed by Joseph Liouville, famous nineteenth century French mathematician.

Vephvadze is now completing his fourth year in the university's mechanics and mathematics department. He has been interested in mathematics since boyhood and starred in high school math contests. He goes in for sports and likes to read, but his love is the theory of numbers, to which he devotes most of his time.

JOBS HUNT WORKERS

These young men are looking over the Help Wanted ads on a Moscow sidewalk bulletin board. They have just finished their term of army service and are now picking jobs. About 250,000 Help Wanted ads are posted on these Moscow bulletin boards in the course of a year. They offer jobs in several hundred trades, also training programs for the unskilled. The Soviet Union ended unemployment more than 30 years ago. Although several million young people join the labor force every year, there is still a shortage of workers.



DRAINAGE MACHINE

This swamp drainage machine leaves in its trail passages resembling the tunnels that moles dig. The walls of the passages become hard-packed and are turned into earthen pipes 3 to 10 inches in diameter. The machine lays the pipes at a depth of up to five feet and at the correct angle for water flow. Made by the Mozel Land-Reclamation Machinery Plant in Byelorussia, the machine digs almost a mile of "pipe" per hour.

TOYS ON PARADE

Moscow's Main Exhibition Hall held a review of 40,000 samples of toys made by 800 factories. They ranged from dolls to railroads, New Year's tree decorations to animal-filled zoos, streamlined cars to pots and pans. The judges were the hundreds of thousands of children who visited the show. They had the final say about which of the 40,000 items would be manufactured.

FARM WORKERS UNION MEETS

At a recent convention of the Farm Workers Union in Moscow, 650 delegates representing 13 million members discussed the greater powers and opportunities Soviet trade unions now have in management. The congress also considered ways and means of making more efficient use of farm machinery and how best to allocate the large social security fund (57 million rubles) that it administers.

DEBUT OF SHOSTAKOVICH JR.

Maxim Shostakovich, son of the composer, made his bow at the Moscow Conservatory as conductor of the Moscow State Symphony Orchestra. He prepared for that concert with 20 years of musical training—at home from the age of seven, at music school, and at the Conservatory. Young Shostakovich conducted music by Glinka, Moussorgsky, Schubert, Wagner and, of course, his father.

AIRPORT FOR 40 COUNTRIES

The planes of 40 countries touch down at the international airport in Sheremetyevo, just outside Moscow. Alongside Soviet TU-104s, TU-114s and IL 18s you see Boeings, Caravelles, Comets, Electras and other big birds.

The airport building houses the permanent agencies of 17 foreign airlines, including Britain's BEA, Belgium's Sabena, Pakistan's PIA, Scandinavia's SAS, France's Air France and Poland's LOT. Some of the foreign engineers are assisted by Soviet technicians.

DESCENDANT OF KHAN GIREI

Engineer Selim-Girei, who is 90 this year, is a descendant of Khan Haji-Girei (1427-1475), founder of the dynasty of khans who ruled the Crimea until the end of the eighteenth century.

Before 1917 Selim-Girei lived in Russia, America, Egypt, Japan and Germany. After the Revolution he remained in Russia, working as a hydraulic engineer and then as senior engineer in a gold field. Now on pension, Selim-Girei lives in the town of Stepnyak, Kazakhstan, where he is active in community affairs. He drew up the plans for a school annex and a summer camp for the children in his neighborhood. He is presently designing a children's sports stadium. The townsfolk have a great affection for Grandfather Selim. Besides his many other accomplishments, he is a fascinating storyteller.

A 5,000-YEAR-OLD FLUTE

A flute which archeologists believe was made 5,000 years ago has been discovered at an ancient burial site on the Volga. It is made of eight bone pipes. Simple tunes can still be played on it.

BUILDERS FOUND

There is a unique wooden house in the foothills of the Pamirs that was built 100 years ago. Its walls, supporting beams and domed roof are covered with intricate carving. Lines of poetry are also carved on the walls.

Until recently no one knew who had built the house or the artists who had decorated it. They were discovered from portraits in the style of old miniatures painted on the rafters. The builder was a local carpenter named Alimad, and the carver a self-taught artist named Abdumuntalib. The poems were by local people.

FIRST UIGUR TO BECOME A DOCTOR OF SCIENCE

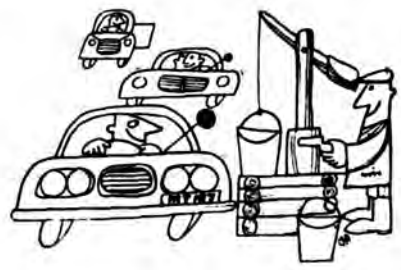
Murat Khamrayev is a Uigur, a nationality that numbers no more than 100,000, most of them living in Kazakhstan. Khamrayev, son of a loader, does research on the Uigur language and literature at the republic's Academy of Sciences. He presented his master's thesis in 1962 and published a monograph, *Fundamentals of Turkic Versification*, last year.

The 28-year-old scholar received his doctor's degree in philology not long ago.

THE WARM STREETS OF CHUKOTSK

The residents of Ozernoye, a community on the Chukotka Peninsula in the Far North, have laid their first 1600-foot concrete tunnel through the permafrost. Now they go to work and return home in comfort even when blizzards are raging and the temperature is 58 degrees below zero Fahrenheit.

Everyone likes the tunnel passageway so much that others are being planned leading to the shops, recreation center, kindergarten and library. The idea has found favor in the towns of Anadyr, Pevek and Beringovsky, among others.



GASOLINE FROM A WATER WELL

Residents of Novoazovsky village in the Ukraine were very much surprised to find they were drawing gasoline instead of water from their well. Drivers began stopping at the well to fill up. Geologists prospected the area and found a sizable bed of light oil with a high percentage of gasoline.

HISTORY OF A CENTRAL ASIAN VILLAGE

A history of the mountain village of On-Arch is now being written by Jusup Imanalyev, one of the oldest schoolteachers in Kirghizia. He was the only person in the village who could read and write at the time of the Revolution. In the early years after the Revolution he taught the village people at his home. Later a school was built.

Among Jusup's former pupils are Bubira Alieva, now an architect; Kumush Suranova, chairman of a collective farm; Belek Shaimkulov, an artist; Alymkul Botokanov, a sculptor; and Dokumokan Tynymseitova, Beishe Soodonbekov and Kenesh Jusupov, who are writers.

COINS OF 27 CENTURIES

Andrei Bykov, a Leningrad geologist, has a rare collection of several thousand coins and bank notes dating from the seventh century B.C. to our day. His most valuable item is a silver coin of the time of Alexander the Great (356-323 B.C.).

APOTHECARY'S GARDEN OF PETER I

Leningrad marked the 250th anniversary of the founding of its Botanical Institute by Peter the Great. For a long time it was called the Apothecary's Garden. Its gardens and hothouses now contain 6,700 species of plants, of which 4,000 species are tropical and subtropical. The institute museum has many collections, including a herbarium of six million leaves and a library of 400,000 volumes. Institute researchers recently completed publication of the 30-volume *Flora of the USSR*.

CHURCH MOVED TO NEW SITE

Among the more than 100,000 architectural monuments in the Soviet Union is a sixteenth century wooden church in Vologda Region that was built without a single nail. When the site on which it stood grew swampy, the church, which stands as high as a 12-story building, was taken apart and moved by boat to a new spot 60 miles away.

HALE AND HEARTY AT 160

Shirali Muslimov is 160 years old. He lives in the mountain village of Barzavu in Azerbaijan and now has more than 200 descendants. The old man can do a 51-pound squeeze on the dynamometer with his right hand and a 62 with his left. His pulse is 70 to 72, his blood pressure 125/75, and he weighs 137 pounds. Muslimov gets up before sunrise, spends the day doing chores around the house and goes to bed at dusk.

AROUND *the* COUNTRY

QUERIES FROM READERS

QUESTION: Is it possible in your socialist society to have a bank account? Do you pay interest on savings and how much? (Vassil Speroff, Akron, Ohio)
ANSWER: One out of every four citizens has a bank account. There are 72,000 savings banks in the country. In mid-1965 savings deposited in Soviet banks exceeded 17 billion rubles.

A savings bank pays two per cent interest on accounts withdrawable on demand and three per cent on long-term deposits. At the depositor's written request the bank will pay his taxes and bills for utilities and other municipal services, issue money by check, transfer money to another bank, and so on.

QUESTION: Would you give me some information about Soviet automobiles? (Frank Roach, Miami, Florida)
ANSWER: The first Soviet automobile appeared on the road at the end of 1922. Today there are about two dozen automobile plants in the country. Last year the, manufactured 600,000 vehicles. A third were passenger cars: Chaikas, Volgas, Moskviches, Zaporozhetses. The other two-thirds were trucks with a load-carrying capacity of 2 to 65 tons, buses, vans, fire engines, tank trucks, refueling trucks, timber trucks and specialized vehicles for municipal services.

A 50-ton air cushion vehicle is presently making test runs. It develops a speed of 60 mph.

The output of motor vehicles will be tripled in the current five-year plan period (1966-1970). You find Soviet-made cars on the roads of 70 countries, including Belgium, Finland, France, the Federal Republic of Germany, Great Britain, Italy and Sweden.

QUESTION: Would you describe the Lenin Library in Moscow? (Christina Neslin, Spokane, Washington)
ANSWER: It is a public library, the country's largest, and was founded in 1862. Its shelves contain 23 million titles—books, pamphlets and complete sets of periodicals in 173 languages. It serves three million readers.

The library has a large rare book and manuscript division. It exchanges books with 86 countries, including 250 libraries in the United States. It adds thousands of American books to its collection annually and subscribes to 1,500 American periodicals.

QUESTION: My work makes me curious about your electric power production and high-voltage transmission lines. (William Smith, San Fernando, California)
ANSWER: Last year we generated 507 billion kilowatt-hours of electricity. We have a well-developed network of high-voltage and super-high-voltage transmission lines. Examples are the 1,550-mile 500-kilovolt Bratsk-Taishet power line in Siberia, the 600-mile 500-kilovolt Kuibyshev-Moscow line and the 750-kilovolt Konakovo-Moscow line. A while ago the 800-kilovolt direct-current Volgograd-Donbas line, the world's first high-voltage direct-current line, started carrying power.

We are now building 3,700 miles of high-voltage power lines, including the 160-mile 500-kilovolt Tashkent-Dzhambul line in Central Asia and the 685-mile 750-kilovolt line between Ekibastuz and the Urals. These lines use either steel or duralumin pylons 105 feet and more tall. Each of them carries 12 or more 1.2-square-inch conductors, the conductors each weighing 35 tons per mile. We are now designing two-million-volt lines to connect the Siberian power stations with those in the European part of the USSR. The groundwork for the 1,550-mile 1.5-million-volt line between Siberia and the Urals is now being done.

QUESTION: What safety engineering devices do you have on the Moscow Metro? (Richard Ramsey, New York, New York)
ANSWER: Automatic blocking and two-way traffic. This system makes it possible to run 38 to 40 pairs of eight-car trains an hour through each of the 75 stations. The lines are fitted with automatic braking devices which will stop a train if it passes a Stop signal. The reverse direction switch points at the terminals are also worked automatically. An electronic engineer will soon be replacing the motorman, who will then serve only as controller.

Some of the stations are equipped with TV installations to observe the flow of passengers.

QUESTION: How many Soviet athletes became champions and prize winners at the Olympic Games in Tokyo? (Leonard Starn, Sacramento, California)
ANSWER: We had 30 champions and 147 prize winners.

QUESTION: I would like some information on disability pensions in your country. (Sidney Harris, Clovis, California)
ANSWER: For pension purposes invalids fall into one of three groups, depending on the degree of disability. This is determined by a committee of doctors, trade union representatives and social insurance officials. An invalid is entitled to a state pension regardless of his age, but the size of the pension depends on the category. Those in the first category get the maximum pension. The pension also depends on previous earnings, length of time the invalid has worked and the cause of disability. If an invalid's total disability arises from his job, he will receive a lifetime pension equal to his regular earnings. An invalid who is able to work will be given a job consistent with his ability. In such a case his earnings will not affect his pension. If an invalid wishes to go to school, secondary or higher, he enjoys the same rights as all other applicants. Disabled veterans receive higher pensions, and in addition to the privileges all invalids are entitled to, they get certain extra privileges.

QUESTION: How is the Soviet radio broadcasting system organized? (Silver Keller, Buffalo, New York)
ANSWER: We have a State Committee for Radio and Television which covers the entire country. It broadcasts five simultaneous radio programs. Each union republic also has its own committee for republic broadcasts, and the territories and regions have theirs for local programs. The daily volume of domestic program time is 1,000 broadcast hours in the 60 languages spoken by the peoples of the USSR. In addition, Soviet stations broadcast in 50 foreign languages for listeners abroad.

QUESTION: Who are some of the more famous Russian movie stars? (Bill Burson, Sonora, California)
ANSWER: Elina Bystritskaya, Irina Skobtseva, Tatyana Samoilova, Inna Makarova, Zinaida Kiriyenko, Eva Kivi, Lea Abashidze, Anastasia Vertinskaya, Natalya Savelyeva, Tamara Syomina, Larissa Golubkina, Alexei Batalov, Sergei Bondarchuk, Innokenti Smoktunovsky, Vyacheslav Tikhonov and Mikhail Ulyanov.

QUESTION: In one of the issues of Soviet Life you wrote about Gomel and Berdyansk in the Ukraine. Will you tell me something about Ochakav (near Odessa)? I was born there. (Nate Forman, Chicago, Illinois)
ANSWER: Ochakov has a population of 10,000. Most of its houses are one- or two-story. It has a fish cannery, an oil processing plant and other small light industry enterprises. The town has four schools, two libraries, a palace of culture, a pioneer palace, a movie theater and a stadium.

QUESTION: What varieties of wheat are considered the best in the USSR, and what is the acreage under wheat? (Effen Strong, St. Paul, Minnesota)
ANSWER: We have 150 million acres of land under wheat. Of the 120 varieties of wheat, the best for per acre yield, stability and immunity are Bezostaya-1, Odesskaya, Mironovskaya and Priazovskaya.

QUESTION: Can Soviet people buy goods on the installment plan? (James Coppel, Milwaukee, Wisconsin)
ANSWER: Yes.

QUESTION: I should like some information about the Soviet Philatelic Society. (Lorraine Evence, Denver, Colorado)
ANSWER: It has a membership of 100,000 and branches in 205 cities and towns. Not all stamp collectors are members of the society, of course. Children under 16 join philatelic circles and clubs at schools and Young Pioneer Palaces. Stamp collecting is a very popular hobby in the Soviet Union. One of the reasons, perhaps, is that Russia was the second country in the world after Britain to use postage stamps. Many famous people have been stamp collectors. Among them was the Russian physiologist Ivan Pavlov, who told his doctor: "Stamps are a better medicine for me than your bromide. Stamps are my recreation." The poet Alexander Blok, the writer Maxim Gorky, the military leader Mikhail Frunze and former Foreign Minister Maxim Litvinov were also stamp collectors.

Headquarters of the Society are at 12 Gorky Street, Moscow. It publishes catalogues, pamphlets, albums and a journal. The Soviet society has contact with philatelic societies in other countries and participates in international displays and conferences.

We welcome your questions. All will be acknowledged. Some will be answered by mail, those of general interest will be answered in this column or in a future article.

Vasilisa the Beautiful. *Oil. 1962-1965.*

Colors from the Sun

By Lydia Bolshakova
ART CRITIC

Artist Alexei Kozlov

THE WORK of Alexei Kozlov, one of the most interesting artists to come to public notice in the past few years, is exciting a good deal of talk in Moscow. This thick-set, deliberate man with piercing eyes is a wellspring of feeling that expresses itself in color. A drawing teacher in a small village set in hills and dense forest near Kostroma on the Upper Volga, he has brought to Moscow paintings filled with the many hues of Russian summer. He takes us into a world of grass and mushrooms, of falling leaves and bright flowers, filled with saturated, glowing colors that seem to be borrowed from the sun's own depository.

Kozlov's original talent has its roots in Russian folklore and rural life. A visionary and romantic, he endows ordinary objects with enchanted life. Samovars, bast baskets filled with mushrooms, smoke-blackened pots —all the prosaic things you find in a Russian village that give it a feeling of home and hospitality are presented with the artist's imagination, shaped by the poetry of olden times, given a sense of exalted beauty.

Take the still life *Folk Crafts*. You see his love of folk art, of handmade laces and embroidery and painted toys, in his seemingly naïve distortion of perspective, his stress on the decorative, his consoious imitation of the primitive. His gaily dressed doll seems to dance across the embroidered tablecloth, the painted ladle proudly curves its wooden

neck, in a corner of the hut the firebird spreads his vivid plumage—and reality is transformed into a fairy tale.

But Kozlov's vision of the world does not cut him off from reality. Although his brush transforms nature, his nature remains true to life, the way a fairy tale does. His canvases are touched with sorrow and trouble as well as with joy. His still life *Dead Bird* is a requiem. *Huts. A Gust of Wind* is drama. The setting sun throws a sinister light on blackened huts that some fatal concurrence of ill fortune has leveled. Emotion has been brushed on the canvas with such spontaneity that it appears to have been painted in one sitting.

That impression, however, is deceptive. Between the intent of the artist and the embodiment of his emotion in paint is an agonizing period of quest and selection. Kozlov works without sketches, putting his colors straight on the canvas, layer after layer, then impatiently scraping off what displeases him with a knife or a piece of glass. He uses only pure color, undiluted paints. He trusts color, he wants it in all its pristine freshness.

He has a kinship with icon painters and the French postimpressionists. But he has the strength not to imitate and is working out a style of his own. Creating the impression of space and luminescence through a subtle correlation of colors, Kozlov achieves remarkable effects with any lighting, at any time of day. His paintings have the quality that the old craftsmen gave their cathedrals and their ornamental carvings.

Birch Grove in Autumn. *Oil. 1964.*

Still Life with a Samovar. *Oil. 1963.*

Learning Russian

(Continued from May Issue)

НАТАША

Юрий Олеша

Зате́м старичо́к шёл по коле́но в тра́ве, разма́хивая тро́стью.

— Пальто́? Где пальто́?— вдруг спохвати́лся он.— Где пальто́? А́га́... в маши́не забы́л.

Он шёл в го́ру, немно́го запыха́лся, снял пана́му, вы́тер пот, посмотре́л на мо́крую ладо́нь, опя́ть пошёл, ударя́я по траве́ тро́стью.

Уже́ появля́лись в не́бе парашю́ты.

— В про́шлый раз я здесь стоя́л? Здесь.

Он останови́лся и стал смотре́ть, как появля́ются в не́бе парашю́ты. Оди́н, два, три, четы́ре... Ага́... и там ещё оди́н, и ещё... Что э́то? Ра́ковина? Как они́ напо́лнены со́лнцем! Высоко́. Но говоря́т, что страх высоты́ исчеза́ет... А-а... вот он, вот!.. Полоса́тый! Смешно́. Полоса́тый парашю́т.

Профе́ссор огляну́лся. Внизу́ стоя́л си́ний ма́ленький, дли́нный, похо́жий на ка́псюлю, автомоби́ль. Там цвели́ и колыха́лись дере́вья. Всё бы́ло о́чень стра́нно и похо́же на сновиде́ние: не́бо, весна́, пла́вание парашю́тов. Старичо́к испы́тывал грусть и не́жность и ви́дел, как че́рез тре́щинки в поля́х пана́мы к нему́ проника́ет со́лнце.

Так он простоя́л дово́льно до́лго. Когда́ он верну́лся домо́й, Ната́ши не́ было. Он сел на куше́тку в по́зе челове́ка, кото́рый сейча́с подни́мется, и просиде́л так час. Пото́м встал, уроня́в пе́пельницу, и пошёл к телефо́ну. И действи́тельно, в э́ту секу́нду телефо́н позвони́л. Профе́ссор в то́чности знал, что ему́ ска́жут, но то́лько не знал, како́й ему́ ска́жут а́дрес. Ему́ сказа́ли а́дрес. Он отве́тил:

— Да я и не волну́юсь. Кто вам сказа́л, что я волну́юсь?

Че́рез де́сять мину́т стра́шной го́нки по у́лицам старичо́к надева́л бе́лый стуча́щий хала́т и шёл по дли́нному парке́тному по́лу.

Откры́в стекля́нную дверь, он уви́дел смею́щееся лицо́ Ната́ши. На середи́не поду́шки. Пото́м он услы́шал, как сказа́ли: «Ничего́ стра́шного». Это сказа́л стоя́вший у изголо́вья молодо́й челове́к. На нём был тако́й же хала́т.

— Непра́вильно приземли́лась.

Она́ повреди́ла но́гу. Всё бы́ло стра́нно. Почему́-то вме́сто того́ что́бы о несча́стье, на́чали говори́ть о том, что профе́ссор похо́ж на Го́рького, то́лько Го́рький высо́кого ро́ста, а профе́ссор ма́ленького. Все тро́е и ещё же́нщина в хала́те смея́лись.

— Неуже́ли ты знал? — спроси́ла Ната́ша.

— Ну коне́чно знал. Я ка́ждый раз приезжа́л, стоя́л, как дура́к, в траве́ и смотре́л!

Тут то́лько старичо́к запла́кал. Запла́кала и Ната́ша.

— Заче́м ты меня́ волну́ешь! — сказа́ла она́.— Мне нельзя́ волнова́ться!

И пла́кала всё бо́льше, положи́в ру́ку отца́ под щёку.

— Я ду́мала, что ты мне не позво́лишь пры́гать.

— Эх ты,—сказа́л профе́ссор,— обма́нывала меня́. Говори́ла, что на свида́ние хо́дишь. Как э́то глу́по. Я, как дура́к, стоя́л в траве́... Стою́, жду... когда́ полоса́тый раскро́ется...

— Я не с полоса́тым пры́гала! С полоса́тым Штейн пры́гает!

— Штейн! — спроси́л старичо́к, опя́ть рассерди́вшись.— Како́й Штейн?

— Это я Штейн, — сказа́л молодо́й челове́к.

NATASHA

By Yuri Olesha

(Translation)

. . . Then the old man was walking through the knee-high grass, swinging his cane.

"My coat," he suddenly recollected. "Where's my coat? Ah, yes, I left it in the car."

He climbed the hill, a trifle out of breath, took off his straw hat, wiped his forehead, and glanced down at his wet palm. Then he walked on, switching at the grass with his cane.

Parachutes had appeared in the sky.

"Is this where I stood last time? Yes, it is."

He stopped and stood watching the parachutes appearing in the sky. "One, two, three, four—ah, there's still another, and another. What's that? A shell? How filled with sunshine they are! They're high up. They say fear of heights disappears. Ah, that's the one, that's it! The striped one! How funny. A striped parachute."

The professor looked about him. Below stood a tiny, long blue car looking like a capsule. There the trees were blooming and swaying back and forth. It was all strange and like a dream —the sky, springtime, the drifting parachutes. The old man was filled with melancholy and tenderness. He noticed the way the sun fell on his face through the spaces in the brim of the straw hat.

He stood there a fairly long time. When he returned home, Natasha was not there. He sat down on the couch in the pose of a man about to rise, and stayed there for an hour. Then he got up, upsetting the ashtray, and went over to the telephone. At that very moment the telephone rang. The professor knew exactly what he would hear. The only thing he did not know was what the address would be. He was told the address.

"No, I'm not worried," he said into the phone. "Who told you I'm worried?"

After a mad 10-minute drive through the city, the old man put on a crisp white smock and walked down a length of parquet floor.

When he pushed open the glass door, he saw Natasha's laughing face lying on a pillow. Then he heard someone say, "It's nothing dreadful." A young man standing at the head of the bed had said that. He was wearing the same kind of smock.

"She didn't land right."

She had injured her foot. It was all strange. Instead of talking about the accident, they spoke about how much the professor looked like Gorky, except that Gorky was tall and the professor was short. All three of them and the other person, a woman in a smock, laughed.

"Did you really know?" Natasha asked.

"Of course, I did. I went out there every time and stood in the grass like a fool, watching!"

Only now did the old man begin to cry. So did Natasha.

"Why do you upset me?" she said. "It's not good for me."

But she wept still harder, placing her father's hand under her cheek.

"I didn't think you'd let me jump."

"And so you deceived me," said the professor. "Said you were going out on dates. How silly. I stood there in the grass like a fool—stood there waiting for the striped parachute to open up."

"But mine wasn't striped. That was Stein's."

"Stein?" asked the professor. He was angry again. "Who's Stein?"

That's me," said the young man.

"No one can become a Communist unless his mind has been enriched with a knowledge of all the treasures mankind has created."
Lenin

BENJAMIN FRANKLIN

BY VLADIMIR POZNER

WHEN A SON was born January 17, 1706, to Josiah Franklin, Boston candlemaker and soapmaker, he had no reason to celebrate. The fifteenth child and tenth son in the family was just another mouth to feed.

Two meager years of schooling was all Benjamin was allowed in the way of an education. At 10 he went to work for his father, and at 12 was apprenticed to his brother James, a printer, who in 1721 founded the *New England Courant* in which Ben's first published effort—"The Dogood Papers"—appeared. Although he was only 16, the depth and wisdom of his thoughts spoke of the man he was to be: "Without freedom of thought there can be no such thing as wisdom, and no such thing as public liberty, without freedom of speech; which is the right of every man, as far as by it he does not hurt and control the right of another; and this is the only check it ought to suffer, and the only bounds it ought to know."

Industrious and energetic, Benjamin Franklin "kept shop so well that soon it began to keep him." At 19 he was sent to England. He returned to Philadelphia at 20 and at 23 bought the *Pennsylvania Gazette*, through which he made his views widely known throughout the Colonies. His activities were various and always aimed at bettering the situation of his fellowmen. In 1731 he organized a circulating library in Philadelphia—the first of its kind in America. Among other projects Franklin initiated then and later were a city police force; street paving, cleaning and lighting; the American Philosophic Society; a city hospital; and the Academy for the Education of Youth (the forerunner of the University of Pennsylvania).

His activities in those years were manifold, but the best remembered was the annual publication from 1732 to 1757 of Poor Richard's Almanac. Its scores of proverbs made Franklin a familiar name everywhere in the colonies and in Europe as well. They appealed to the frontiersman for their common sense, humor and plain speaking and to the French petit bourgeois because they reflected Rousseau and the Age of Reason.

By the time Franklin was 41, he had done more than most men twice his age. He might well have retired from his many labors. Yet the next seven years were to make him the outstanding scientist of his time and one of the greatest of all time.

In 1747 Franklin began to experiment with electricity. He noted the spark of light that would leap from a charged Leyden jar to a piece of metal, accompanied by a sharp crackle. Many others had noted the same phenomenon, but few had Franklin's imagination, the type of pragmatic mind totally free of any kind of prejudice that is so necessary for a bold hypothesis. Franklin had just that type of mind. He wondered, might not the majestic thunder and lightning of the heavens be the interplay of electricity with the earth and sky, the halves of a gigantic planetary Leyden jar?

Benjamin Franklin decided to try an experiment—one for which he lives dramatically in the minds of posterity. He flew a kite in a thunderstorm in 1752. The kite carried a pointed wire to which Franklin attached a silk thread that could be charged by the heavenly electricity.

As the storm clouds gathered and lightning flashed, Franklin placed his hand near a metal key tied to the silk thread. The key sparked just as a Leyden jar would have. Franklin's kite electrified the world, and he was made a member of the Royal Society.

Franklin's mind busied itself with other matters as well. He worked out the course of wind storms over the North American continent and was the first to study the then unnamed Gulf Stream.

Now to get back to the lightning rod, the Franklin invention that has gone down in history. His experiments with the Leyden jar had shown him that it discharged more readily and across greater air gaps if it came near a pointed surface. It was as if the pointed surface attracted the electricity. Franklin therefore suggested that pointed metal rods be placed on the roofs of buildings, with wires leading to the ground. Such rods would discharge the clouds safely and protect the buildings. But it was one thing to come to that conclusion and quite another to sell the public on the idea of sticking metal rods on the roofs of their houses.

Probably a "pure" scientist would never have managed it alone. Franklin did the job on his own. To begin with, he took out no patent, he gave the rods away free, and he advertised them widely.

Incidentally, few people know how important Franklin's invention proved for America. When, a quarter of a century later, the aged Franklin represented the infant United States during the Revolutionary War at the Court of France, he turned out to be the ideal man for the job. Not only did his carefully affected republican simplicity perversely appeal to the aristocrats at Versailles, but this was the Age of Reason, and the man who had tamed the lightning of the sky and brought it to earth carried great weight with educated Frenchmen.

It would seem that Franklin had quite enough on his hands, but colonial affairs in America did not permit him to stay in retirement and carry on scientific experiments. In 1751 he became a member of the Pennsylvania Assembly, was sent to England in 1757, returned in 1762, went back to obtain a recall of the Pennsylvania charters, and returned to America only in 1775. It was during this period in England that Franklin made a statement that was to ring loud in future years:

"They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety."

As far back as 1754 Franklin proposed a union of the colonies to strengthen their defense, but his idea was rejected: the time was not yet ripe. But as the years rolled by and the situation in America grew more tense, events required Franklin to shoulder new responsibilities. From his pen came a succession of writings that gave a true picture of the critical state of affairs in the colonies. His "Cool Thoughts on the Present Situation of Affairs" (1764), his forthright "Preface to the Speech of Joseph Galloway" (1764), in which he demanded that American colonials be granted the same rights as British subjects at home, and his plain-spoken opposition to the Townshend Act increased his prestige and reputation, with the result that he was named colonial agent for Georgia, New Jersey and Massachusetts, and became to all effects the ambassador from the New World to the Old.

In the spring of 1775 he returned to Philadelphia, where he was chosen a member of the Second Continental Congress and then America's first Postmaster General. He was also a member of the committee of five to draft the Declaration of Independence. It was at the Continental Congress, before signing this historic document, that Franklin said: "We must, indeed, all hang together, or, most assuredly, we shall all hang separately."

Franklin's reputation, as well as his responsibilities, were enormous, the alliance he arranged for the fledgling United States with France increased them even more. Incidentally, it was he who suggested the slogan "Liberty, Equality, Fraternity" to the French leaders, although by nature he was very cautious in voicing such opinions. But Franklin was not a man to be stopped by secondary considerations. He insisted that the embargo on British goods be lifted on all scientific material and that American privateers not hinder Captain Cook's explorations. During the Revolutionary War he openly voiced his antiwar feelings:

"I wish to see the discovery of a plan, that would induce and oblige nations to settle their disputes without cutting one another's throats. When will men be convinced, that even successful wars at length become misfortunes to those who unjustly commenced them, and who triumph'd blindly in their success, not seeing all the consequences?"

And even more strongly: ". . . in my opinion, there never was a good war or a bad peace."

In domestic matters Franklin spoke out even against the most powerful majority. He wrote to his daughter in 1784: "I wish the bald eagle had not been chosen as the representative of our country; he is a bird of bad moral character; like those among men who live by sharping and robbing, he is generally poor, and very often lousy.

"The turkey is a much more respectable bird, and withal a true original native of America."

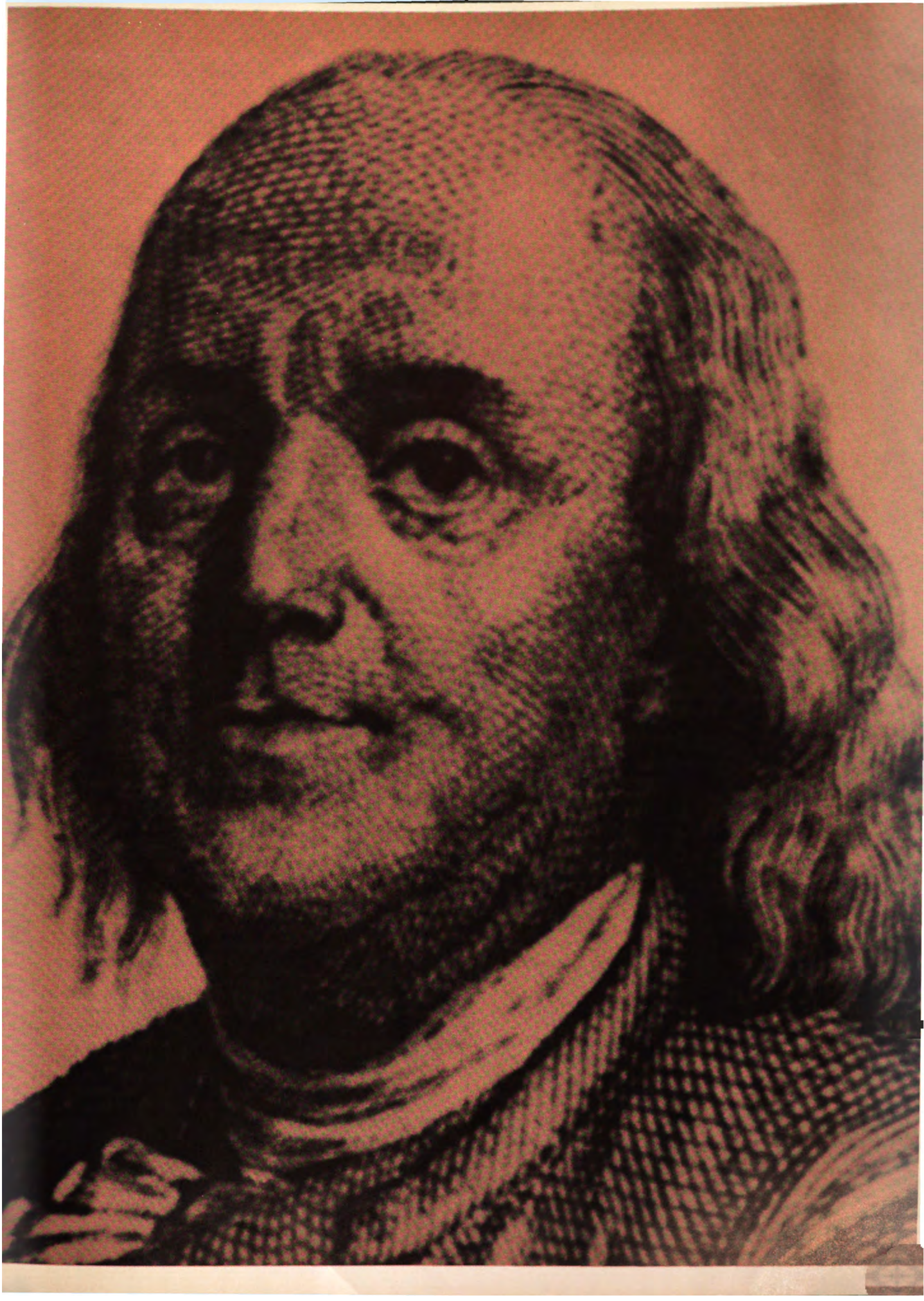
Franklin's last public act was to sign a memorial to Congress for the abolition of slavery, and less than a month before his death he wrote a bitingly ironic letter "On the Slave Trade."

What could be considered as the first work of American literature—Franklin's Autobiography—was begun in 1771 but was not completed. The first full edition came out in France in 1828, first English publication in 1868.

Academician Pyotr Kapitsa, one of Soviet Russia's leading physicists, said of Franklin:

"Looking back, we readily understand why the entire world respects and venerates this great man, given to us by the American people. Every country has given us its outstanding scientific figure. . . . Russia—Lomonosov, England—Newton, Italy—Galileo, Holland—Huygens, France—Descartes, Germany—Leibnitz, America—Franklin. Their achievements are the pride of mankind."

We could add: In Franklin mankind was given a great humanitarian, an outstanding spokesman for democracy, a disciple whose teacher was Truth.



THE FLIGHT OF TIME

By Konstantin Paustovsky

VLADIMIR LAVROV, a Moscow painter, was commissioned to paint several Volga landscapes. He readily agreed but procrastinated, as he usually did. It took him all summer to get started, and it was not till September that he went to the Volga.

The broad-funneled steamer sparkled, its portholes polished till they shone like crystal. Engines throbbing, the ship steamed smoothly and steadily on, carrying its lights past suburban woods and creeks over which a cool sunset was fading. The woods were already russet and gold. Signals flickered in the tremulous light of the autumn evening.

Though well on in years, Lavrov was a shy man and found it difficult to make friends with his fellow-passengers. He had singled out two people—the pilot Sasha, a young girl, and one of the passengers, a clean-shaven elderly man with heavy-lidded eyes, a well-known historian.

They crossed the Rybinsk Sea at daybreak. Lavrov came out on a deserted deck wet with dew. Small waves murmured as they rolled eastward toward a hazy dawn that predicted bad weather for the day.

The historian also had come up on deck. He stood leaning against the rail, collar turned up, a black hat—the kind old men are so fond of—in his hand.

Sasha ran down the steep ladder to the deck. She was wearing a dark uniform, leather gloves and a beret with her hair tucked under it. She had been on nightwatch and had just been relieved, her cheeks were still glowing, and her lips were chapped.

"Good morning," she greeted Lavrov with a smile. "Admiring our sea?"

"Very much. I can hardly believe it's man-made."

"I was born here, in Mologa. When I was a little girl, we used to go mushrooming right here." She pointed to the waves, rosy with the dawn. "And that wasn't so long ago, either."

"Historical records can't keep pace with the rush of events," the historian commented, pulling his hat down almost to his ears. "They overshoot, cross and outstrip our meticulous historical thinking. It would take a whole army of specialists to express this telescoping of time in terms of science."

Near Kineshma the steamer overtook a long string of rafts.

A gusty wind hurried light, ragged clouds across the sky, their shadows fleeing over the river and its wooded bank that dipped sandy cliffs into the water. Following hard on the shadows were flashes of sunlight that made everything blaze and glitter. A flock of river gulls would burst out of the shade in a flash of white and dive back into the dusk; then a red flag on a distant house—probably the Village Soviet—would flame up. The next moment the green of the pines seemed to sparkle in the sunshine as though they had been drenched by a summer downpour; then the pines would stand enveloped in a dusky green pall, the low boom of the wind in their branches reaching the ship.

The steamer's wake splashed over some passing rafts. Young women holding boat hooks stood on the huge pine logs fastened together with steel hawsers. They yelled something, fine teeth flashing in their sunburned, laughing faces; but the wind carried off the sound, filled out their colored kerchiefs and lifted their skirts to show bronzed legs.

Sasha was on the bridge. "Ahoy, there. How goes it?" she shouted through the brass megaphone.

"F-i-i-ne!" The women yelled back in chorus, waving their handkerchiefs.

"Where to?"

"Down to Volgograd. Good-by. Be seeing you soon."

Lavrov gathered that they looked on Sasha as one of their own and that she must be well known all along the Volga—naturally, since women pilots were still few and far between.

That night Lavrov complained to Sasha that he would have liked to paint that scene—the girls on the rafts on a windy day, with its shifting lights and shadows—but they had swept past so quickly he had not even managed to sketch it.

"Couldn't you have stopped the steamer for a moment?" he said joking.

"No, Vladimir Petrovich. How could I?"

"How could you! Oh, you machine-minded people! You don't care two straws about beauty!"

"That's not true," Sasha retorted indignantly. "We do care about beauty. But you must understand our point of view too."

"What is there to understand?"

"Well—think of the traffic all over the country—how complex it is. Trains, steamers, air liners—a huge network with one timetable depending on the next. They must run like clockwork if life is to go on smoothly and steadily. That's beauty for you, too."

"Hm, there's something in that," Lavrov agreed. "I hadn't thought of it that way."

They steamed past gilded hills rising steeply on the right. Electric pylons stood half-sunk in the russet-leaved tops of the trees. Lavrov fancied—possibly because of the blue flashes of the discharges—that the tautly stretched wires had a bluish tinge from the electric current they carried.

The left bank receded into the mist, which sometimes was rosy or golden, sometimes blue or lilac, and sometimes a huge blur of purple or ochre. The painter knew that the effect was due to forests, shadowy in the mist, or clouds tinged by the setting sun, or steep banks looming up, or the distant buildings of fog-enveloped cities.

One day Lavrov was seated at his easel on the upper deck near the captain's bridge, where he would not be disturbed by other passengers. With broad quick strokes he sketched this hushed world of air, mist, many-hued waters and golden vistas.

Sasha was on duty on the bridge. She cast uneasy glances first at Lavrov and then at the sky, vexed that the dusk was falling so quickly, erasing all that brilliance and leaving a monotonous gray. "Oh, he's so slow," she thought. "He'll never finish it."

She pulled a rope, and the steamer's siren gave a long drawn-out blast to warn a boat crossing her course.

As the steamer came nearer, Lavrov saw a young woman gazing at the steamer, her jacket unbuttoned and bunches of autumn leaves in her hands. A tanned young man rested on his oars and also watched the steamer. The reflection of the leaves rippled in the water.

The woman, a shimmering cloud overhead that resembled a cluster of grapes and the scene as a whole seemed to him so tranquil, so full of the peace reigning in his wonderful country, that Lavrov could not help a sigh and an angry look in Sasha's direction.

For a moment he seemed to wait, brush in air, for her to stop the steamer, but Sasha's face had a set, almost hard look.

The boat dropped quickly behind, rocking in the dusk, the leaves catching the last rays of the sun. Darkness could not blot out their golden glow.

Angrily Lavrov snapped his paintbox shut and went down to his cabin, with a sidelong glance at Sasha as he passed the bridge. She flushed and looked away.

"You won't get away with that," thought Lavrov. "We'll have it out yet."

Down in his cabin he thought seriously about what he would say to her—a real indictment, it would be. But he did not see Sasha that evening—she must have been sleeping after her watch—and his indictment turned stale overnight and seemed positively stupid. What did he want—life to stand still for him? It never would. It would be forever carrying its waters in a broad stream to the horizon that we call our future. Once you fall behind, the stream fades from sight and you are left stranded. "She is right, after all," Lavrov decided at last. "I have no right to be angry with her."

When Lavrov met Sasha on the deck a couple of days later, he merely looked into her shy and merry gray eyes and said: "I must make a picture of you. Not now but in winter, in Moscow. Is that all right with you?"

"Well, thank you, Vladimir Petrovich," replied Sasha, and in a light and trusting gesture she touched his sleeve.

Lavrov looked at the river.

Strings of lights glittered in the autumn darkness. Exhaling a moist freshness, the black giant of the Volga flowed in glassy waves into the night, pulling those lights into fantastic shapes and then splintering them.

The steamer was coming up to the Kuibyshev dam which was under construction.

In December Sasha went to the annual exhibition of paintings held at the Tretyakov Gallery. It was evening. It was snowing, and the windows seemed ablaze with a host of tiny warm candles lit for some winter holiday.

Sasha passed quickly through the almost empty halls looking for Lavrov's picture. She saw it from a distance, and it made her catch her breath with excitement.

What power there was in this taciturn, even clumsy man to have caught that wonderful evening on the river and to see in it a world more than she had. What was that power? Was it talent? Or love for his country? Or both?

"How could he have painted that boat and the woman with the bunch of autumn leaves?" thought Sasha. "I didn't slow down then."

The longer Sasha stood looking at the picture, the more she wanted to thank Lavrov. And perhaps reverently to touch his thin, paint-stained hands.

She stood looking at the picture from a distance, and suddenly she was overwhelmed by a surge of joy. "I'm glad I've come," she thought. "Everything is so lovely. Even the fluffy snow that keeps falling lazily and brushes against your face is lovely, just everything."

JUST ORDINARY FASCISM

By Mikhail Romm
FILM DIRECTOR

MY FRIENDS call me "Lucky Devil." They are right in this respect: Thirteen is my lucky number. The film *The Thirteen,* which I directed a good many years ago, had a successful run in the United States. My thirteenth film, *Nine Days of One Year*, won a Grand Prix at the Thirteenth International Festival in Karlovy Vary, Czechoslovakia. When I told them that I had never doubted the outcome because it was my thirteenth picture and this was the thirteenth festival, one of the judges, the famous French actor Bernard Blier, tried to wet-blanket my optimism:

"Mind if I tell you a story that's very popular in France? A man was away from home for 13 years, came back to Marseilles on the 13th, train No. 13, car No. 13, berth No. 13. Only room No. 13 was available at the hotel. This impressed him so much that he stayed indoors for 13 days. Then he went to a casino, staked everything he had on No. 13 and won 13,000 francs. Next day he went to the races, staked his 13,000 on horse No. 13, and the horse came in 13th. *Nine Days of One Year* is, perhaps, your casino, Mr. Romm, but watch out for the horse that follows on the casino."

Still, despite the warning, I decided to make a documentary about nazism although I had never directed a documentary and the technique was entirely new to me. The film took two years of hard work. I intended it for Soviet audiences but also wondered how German audiences would take it. That is why I agreed to show it at the Leipzig festival of documentaries, which was attended by a 150-member delegation from the Federal Republic of Germany.

Though the festival opened on November 13 and the preview was held the evening of that same day, I was nervous. I had conceived of this as a thought-provoking kind of picture.

The showing ended, the lights went on, the curtain fell—and complete silence. Not even a ripple of applause. A thousand or so people sitting there silent. I stood up in the box and tried to figure out what it all meant. Later I realized what it meant. These people thought for another long minute after the lights went on. To the film director a minute like that can feel longer than a year.

Then the first timid applause broke out. Someone noticed me, the audience stood up, and there was an ovation.

I represented the country which had suffered so much from nazism, and here were Germans applauding. You will understand how I felt.

Next day several distributors and TV companies told me they wanted to show the film in the Federal Republic of Germany. The German Democratic Republic had bought it before the festival. Thus, both parts of Germany accepted the basic concept of the film.

Now what was the concept?

It was not my intention to film a history of nazism or a history of Hitler. The picture is based entirely on documentary evidence, with several strips shot today. It is a two-hour meditation on this thing the world calls fascism or nazism. As I said, the film is strictly documentary, and I shot no close-ups, nor did I use any strips from features (as is often done in documentaries).

The picture was first made as a silent film. A clash of images and the resulting emotional contrasts evoked the picture of nazism. Then we got down to the narrator's text. It is also rather unusual. It is a stream of reflection—the narrator thinking aloud about how nazism, this antihuman, barbarous movement, suddenly originated in the first third of the twentieth century, the century of unprecedented cultural development.

I was the narrator. I wanted audiences to see what I personally feel and think as I look at what is shown.

When I ran the film for my friends and colleagues before the narration was recorded, I made some comments for their benefit. Later I decided to tape these comments and select the best versions. That was a hard job. When I speak, I saw the air, shift from foot to foot, etc. Since the narration was being recorded, I could not move around because my shoes creaked, nor could I gesture because the rustle would be picked up. So I narrated barefoot, my hands clutching the arms of my chair. I tried to recapture the freedom and ease I had felt when I explained the film to my friends. But that was the hardest part of it. I slipped into that smug narrator's tone. I made five, seven, ten attempts before some fragments satisfied me. It took nearly two months before the whole thought-process was worked out and the tape completed.

What we tried to do in the film was to make people think, to think about what man is born for and what he owes other men, to show how everything human in human beings can be killed.

This is a three-character film. The first character is Hitler; the second, no less important, the German people; and the third, the author of the film speaking to the audience.

At first I wanted very much to have a fourth character: the average German, the man in the street. I wanted to show him dragged, imperceptibly to himself, into the mammoth machine of dehumanization. While the militarization of Germany was going on and thinking, sympathy and dignity were being destroyed, many people lived just as they always had, strolled about the streets, sat in cafés, took children to parks. To them, Germany had not changed.

This man in the street, appearing under many disguises, was an absolute must, we thought. Therefore, my assistants, who were busy scanning German newsreels, documentaries and popular science films, were asked to keep a sharp eye on the strips showing the ordinary life of ordinary people, in parks, or streets, or cafeterias. A composite image of the man in the street was what we were after.

We scanned 1,400 miles of film, 1,100 miles of it from the Hitler Reich period. We did not find a single strip about ordinary people. Even city streets vanished from the newsreels after 1934.

We found shots of Berlin before the advent of Hitler and after the rout of Germany. But in the films made between 1934 and 1945 there was not a single shot of an ordinary Berlin street. Cities had vanished, streets had vanished, people had vanished. Only the *Heil*-screaming mobs remained. There were parades, ceremonies and war scenes in plenty, but man as such was of no interest any longer.

This discovery seemed to me catastrophic at first. Later I realized that, on the contrary, it added a dimension to the picture. Man had vanished from the newsreels, human beings had been replaced by regimented mobs. Wasn't that a major symptom of nazism too?

We did some candid filming in the streets of Moscow, Warsaw and Berlin. Students, children, strolling couples, old men. These shots turned out to be dramatic and meaningful. They brought out the poignant contrast of man versus the Third Reich.

Many of the shots in the picture had been shown previously, but there were also a great many that had never been released. The Goebbels' film fund, one of the world's richest, proved a very valuable find. It also contained films shot before 1933 and copies of banned

films. If a picture was expurgated, two versions were filed: the original and the one released. The shots which Goebbels cut out were especially characteristic and significant.

We screened films from this fund every day for two years. We stopped, not because we had seen them all, but because our patience gave out and because we were dangerously close to the deadline agreed to in the contract.

One day we came across a short reel titled *The Fuhrer*. Hitler's speech again? No, this was a silent film with the following introduction after the title:

"I have been filming our great Fuhrer ever since 1923. The Jewish-Marxist film bosses would not use my films. Now I present them to the National Socialist Party." Signed....

Goebbels accepted the gift but did not release the picture, because in 1934 it would have been embarrassing. The young Hitler is shown with a drab flattish face and ridiculous bristling mustaches. But the reel did give, and very well, the short and instructive story of his rise to power.

I devoted a large fragment of the film to Hitler, the person. In this fragment, called "On Himself," I used many photographs, some of which had never been released before. Where did we get them?

When our troops broke into Berlin and the city was still ablaze and deafened by the roar of guns, soldiers found somewhere in cellars of the Reich Chancellery many leather bags with photographs of Hitler. Some airmen brought four of them to Moscow.

But in the Moscow of May 1945 they found no one interested in photographs of Hitler. Finally the airmen took one of the bags to the Moscow film studios.

Our archive men grabbed the gift and asked for more! Alas, the other bags had been burned.

In this remaining bag we found piles of photographs of young Hitler. Some of them showed him in front of a mirror, rehearsing the gestures he might need on official occasions.

We also used photographs of a different kind.

No one was permitted to take pictures at the Auschwitz death camp. However, one of the SS-men was a photography addict. He was part of the operation technically called "selection" because it selected prisoners to be sent either to the gas chambers or to work in the camp. After the war the SS photo addict managed to escape, and some years later he died. His widow did not mind selling the "family album" to Czech film makers. They bought it and let our team use several of the photographs. What a family relic! I've never seen anything so ghastly.

Another album we used had belonged to SS-man Schmidt. After the war he disappeared, and the album was sent to a Polish organization investigating nazi atrocities. A short titled *SS-Man Schmidt's Diary* filmed in Poland around these photographs, showed Schmidt, his wife, his children, and then the tortures, shootings and executions in which he took part. Under each photo was a very neatly ornamented inscription.

The film was shown at a festival, and the Polish film studio received a letter from Schmidt asking for his album or at least copies of the photographs. He cherished the album as a family memento, he said. Schmidt lives somewhere in West Germany, but he gave no address. He asked that the album be mailed to him care of general delivery.

At the same nazi crime investigation agency we found the album of Strop, *Polizeipräsident* of Warsaw. In 1944 Strop submitted to Hitler an elaborate account stating that the population of the Warsaw ghetto had been destroyed and that the Jewish question had been solved in Warsaw forever. Enclosed were many excellent photographs of men and women, some of them very old, also children, escorted by *sonderkommando* soldiers to be shot or sent to death camps, and the ghetto ablaze in the background. The report and the photographs are neatly bound in leather, a luxury gift edition.

We found many photographs in the files of SS-men. The pictures of an SS-man's wife and children often alternated with those showing a head chopped off or a young girl hanged, the SS-man grinning, his hand around her waist.

In the film we tried to avoid showing too much of the atrocities. We did not want to sicken the audience to the point where they could not watch the movie. We wanted the viewer to understand the psychology of those who committed these crimes.

I am often asked why I decided to make this film and why I based it on purely documentary evidence. I made it a pure documentary so that no one could accuse me of deviating from the facts even for artistic reasons. There are cases when facts speak more powerfully than the best performance. There are events that must be described as documentary truth and nothing but documentary truth. I believe that no feature-film portrayal of an SS-man can compare with some of these ordinary photographs.

The incidents in the film are at least 21 years old. But I made this picture because that past is linked with the present.

Mikhail Romm was born in 1901. He tried his hand at acting, playwrighting and sculpting before turning to the film. The screen proved to be his particular synthesis of the plastic and dramatic arts.

He wrote his first script in 1929 and made his first film* (Boule de Suif *after Maupassant's story*) *in 1934. All 14 of his films were based on his own scripts or those he wrote in collaboration with another scenario writer. He made a name for himself with* The Thirteen *(about 13 frontier guards killed one after another in unequal battle with a band of Basmachi), but his major films of the prewar period were unquestionably* Lenin in October *and its sequel* Lenin in 1918. *He wrote the scripts with Alexei Kapler. The very famous Boris Shchukin played the title role.

***Since then he has made, among many others, the very successful* Dream *and* Man No. 217, *and the less successful* Admiral Ushakov *and* Murder on Dante Street. ***Of his postwar pictures the most controversial and interesting was* Nine Days of One Year, *about physicists, life and death, love and responsibility and man's future.* Nine Days *was a natural precursor of* Just Ordinary Fascism. ***The traditional story outline much tempered; the camera work precise, documentary, understated but very expressive; the author's touch reflective, very personal, almost intimate—these are the hallmarks of both the feature film* Nine Days *and the documentary* Just Ordinary Fascism.**

At one of the first showings of the film in Moscow an elderly woman recognized her husband among the Auschwitz victims. In Germany a woman from the audience recognized her husband among the antifascists who died in the Gestapo prisons.

Twenty-one years ago the Third Reich fell, but the wound on the body of mankind still festers. No part of history can be crossed out, history stays alive.

In January 1964 I went to Paris to attend a retrospective of my films. A French director invited me to spend an evening at his house with him, his wife and an elderly couple, both scientists. It was very hot in the room, and the host begged us not to stand on ceremony. The woman visitor hesitated for a moment and then took off her black jacket. She wore a short-sleeved blouse under it. On her arm was a tattooed concentration camp number. I tried to look at everything in the room but that tattoo. The film director's sons, who came in to say good night, noticed the number—and stared. They were nice, well-bred children, but the tattoo must have seemed so strange to them that they forgot their manners, and the older one whispered something to his mother. The adults decided that the children should be told the truth.

The lady visitor tried to explain the concentration camp to the children.

They were just puzzled. They listened very attentively, the pupils of their eyes dilated, but it all must have seemed to them a horrible fairy tale or a legend from some remote time. Yet the woman telling them the story had a number tattooed on her arm.

I made the film *Just Ordinary Fascism* for Soviet young people who grew up after the war and have only a dim idea of the war and nazism. Sometimes they do not even want to hear about these things.

After one of my pictures is shown, I usually receive hundreds or thousands of letters. The first one that came after the release of *Just Ordinary Fascism* was from a 16-year-old schoolgirl.

"I don't know whether or not I liked the picture. It seems to me that these two hours made me more mature. Usually I tell the story of a picture to my family or friends. But this time I couldn't tell them anything. I thought all day and even all night. I think I'll remember this picture all my life."

So the first response came from a young girl born after the war.

I was also worried about Germany. What would the response there be? The film shows the ugly truth. However, in Germany the response has been almost literally the same—probably because we realize so clearly that German people are German people and nazism is nazism, and that the two should not be equated.

"TAKE ALL YOU CAN FROM LIFE!"

By Boris Bulter

Here is a letter I received from the tenth grade pupils of School No. 9 in the city of Tavda:

"We know this letter will not be published, but would at least like you to answer our questions.

"We saw the film* White Blood *(made in the German Democratic Republic), and this made us think a bit about the future. We have learned that 20 per cent of the population will be incurably ill from fallout by 1980 and war will be unnecessary since there'll be no one to do the fighting.

"We do not want war, of course. But for whom are we building communism if mankind is doomed?

"We are on the threshold of independent life. Our teachers keep telling us: 'Don't be in such a hurry to live, to grow up. Don't waste yourself on trifles.' In the streets, however, we hear some people say, 'Take all you can from life!'

"The atomic tests continue, and we can't help wondering if we shouldn't take what we can from life, and in a hurry, too. We don't want to hurry to live. We want to build communism and enjoy the fruits of our labor.

"You'll probably find that our letter is full of contradictions. We realize this ourselves. But what do you think we ought to do?"

SUCH QUESTIONS have been put to me often at readers' conferences. Some ask them because they hope to get a soothing answer, while others ask because they are sure that no sensible answer is possible and so they have a right "to take all they can from life."

From the viewpoint of those who wrote the letter above it is high time I hanged myself, because I am 43 and have already compelled life to give me the things they are just getting ready to wrest from it. Well, let us assume for a moment that I see things as they do and that the prospects are gloomy indeed.

I remember an incident that happened during the war. We reached a half-ruined village one night. It had recently been recaptured from the Germans and the inhabitants were returning. Our division was scheduled to seize a nearby village at dawn. We, of course, had been fighting for a long time and knew well enough that attacks meant losses, that it would be impossible for all of us to survive. Whose turn it was to die tomorrow, no one knew. There was a woman and her 17-year-old daughter in the hut where my scouts were quartered. In the middle of the night I woke up suddenly. One of the men was muttering wildly:

"Let me get to that girl! Tomorrow I may be dead! Let me . . ."

The girl crouched sobbing behind the stove, while her mother kept talking to the soldier:

"She's only a baby. Spare her! They won't kill you. I know they won't. But if they do, at least you'll die a human being."

I could not fully appreciate the grim wisdom of those words then. I simply threw the soldier out into the cold and told the sentry to keep him out. Analogies are treacherous things, but when I read that letter, I couldn't help remembering that woman's words: "If they do kill you, at least you'll die a human being."

Far from urging these young people from Tavda to die, I am merely expressing my faith in human reason. I am sure that each of them will live a long time. But to lead the life of a real human being is no easy business, either.

The questions I was asked by young people at the conferences, as well as the questions asked in the letter from Tavda were introduced by adults. Even during the war there were people who dropped the phrase, "The war will excuse everything!" I don't know who said that originally, but I am sure he was a cynical man. His words were picked up by unthinking and unstable people. The war, as we know, excused nothing. The fatherless children have long grown up, and the women who faded without knowing the joys of motherhood have long grown old, but the words remain, though in a different context.

Far be it from me to suppose that I can easily rise above the temptation to lead an easy, thoughtless existence, for that temptation is all too accessible. Instructions and advice are unlikely to help very much, because no one's life was ever shaped by rote. Our young people, moreover, get all the instructions and advice they want, it seems to me. For all that, I cannot help answering those whose advice is, " Anything goes!"

The young people of Tavda did not say what they meant by: "Take all you can from life!" Personally, I don't know anyone who can say that he has gotten everything out of life that it can give, for life must always hold something he lacked the spirit or the strength to achieve. But let us assume that we understand each other and interpret the word "all" as meaning that link with another, that all-enveloping and stirring word that everyone interprets differently—"love." Where this is concerned I must plainly state that I am opposed to girls and boys of 14 to 16 experiencing the "all" out of sheer curiosity, for that is a murderous simplicity that beggars the soul.

I do not deny that one's first love may prove to be one's last and lasting love. I am not talking about love, but about

sex curiosity, about the adolescent's craving to try the life of an adult.

The authors of the aforementioned letter say: "We don't want to hurry to live." They have their doubts and their misgivings about it, and they should.

I knew an 18-year-old boy who was in love with a 16-year-old girl. She was in love with him too. They had fallen in love when she was only 14 and he 16. Neither had ever dreamed of asking father or mother whether it was all right. They just loved, they did not think of asking for permission. They were the masters of their lives, of their native town and its golden beaches. But fascism had already made its appearance, and there was talk of war. It was said that more people would die in the hinterland than at the front, for there would be neither hinterland nor front, but just unbroken war with planes, bombs and terrible poisons invented by the scientists. Still, the boy and the girl, like most of their friends, never thought about death, they were too fond of life. They were happy, never even pausing to think whether they were happy or not, whether this was true happiness. She was more mature than he, though she was two years younger—girls are always more mature. Meanwhile, he was in a hurry to grow up and dreamed of becoming an important man. Then he grew afraid that he might lose the girl and, knowing no other way to keep her, did what brought neither of them even short-lived happiness. The boy and girl were Volodya and Inka. I wrote about them in my novel, *Good-by, Boys!*

Late one evening, it was almost night, I had to telephone someone and went to a phone booth. In the booth I saw a boy staring at me through the glass with frightened eyes. Opening the door I understood what was wrong at once: The metal coin box he had just removed was still in his hands.

"Going to report me?" he asked.

"First tell me why you did it."

"Didn't you ever want to go to the movies with a girl? Didn't you ever want to buy her a piece of cake? Did you always have the money for that? Honest money? Always?"

The booth stood in the light of a street lamp, and I had a good look at the boy's face. He was pale and almost tearful. I felt he was really sincere.

"I ought to take you to the militia, but I won't," I said. "I'll just tell you this: You're a fool, as stupid as they make them! Now put that coin box back, and then I'll kick you in the pants."

Having done as I promised, I made my phone call, came out of the booth and saw the boy again—some five paces away.

"Why did you say I was stupid?" he asked.

"If a girl doesn't ask how you got the money, she's worthless. And if she knows how you got it and eats the cake you buy her, she's doubly so, because she knows what a risk you must have taken."

The boy strode off and I watched him walk down the empty street, a lanky figure with a skinny neck. I was sorry for him, and for the girl, too. But I was also angry. It is awful to think how easily one's first attachment can lead to bitter trouble.

All this in reference to the word "all" as I understood it in that letter. Now for the phrase "to take everything from life." Hardly anyone will be surprised to learn that each of us gives and takes things long before he or she is really aware of existence, of being alive, of having come into this world. When a baby feels the sun on its face for the first time and smiles to it, it has already begun to give something. The gift was its smile. As the baby grows, it will take, but it will also give more and more. The circle of people to whom it will give its childish spontaneity, its joy of learning and living will grow day by day.

Like other young people, the authors of the letter walk the street serenely today. They have grown accustomed to the scene and have forgotten the time when the street both enticed and frightened them by its newness. Instead, they are more and more attracted by the newness of untried emotions and the feelings these entail. But that grabbing at experiences before you are ready for them will blunt the edge of your feelings.

Adult help is vital at their age. Here I should add, however, that bigoted moralizing is no help at all; and it is precisely the bigots, unfortunately, who undertake to instruct and judge others, more often than not. But there is also the other extreme. I know people who think children ought to grow up like grass. What they forget is that cultivated grass grows far better.

The need to give and take persists subconsciously in every person. It manifests itself in love for one's kin, in the desire to share their cares and work, in the urge to bring people joy and happiness. If a person has none of these feelings, one can only conclude that his natural relations with the outer world have been distorted. Those who are capable only of taking or only of giving can never know the full glory of living.

I have deliberately avoided talking about the material and spiritual blessings children of all ages derive from society, from the company of their parents. Until recently it was customary to call children "the flowers of life," forgetting that in nature weeds also pass as flowers. Children were left with the illusion that only joy was to be their share in life. Now we find those who go to the opposite extreme: Young people are bitterly scolded, sometimes far more than they deserve to be. They are constantly reminded that they must be grateful to society and their parents for the blessings they enjoy. This is probably being done far too often and too much—so that everything comes to sound like a reproach. Actually the matter is far simpler, it seems to me. A human being is entitled by his very birth to everything created before him. But he cannot avail himself of that right unless he feels the elemental need to give as well as to take. The person who lacks that need will dispossess not only those who are born after him, but himself, first and foremost, by being incapable of enjoying the full measure of human happiness.

The authors of the letter wrote: "We want to build communism and enjoy the fruits of our labor." It is possible they could not phrase their idea clearly, but it makes no sense to me as it stands: First they want to build it, and then enjoy it. All my experience has taught me that things do not happen that way. If the process of building brings no joy, the product will bring no enjoyment either.

In conclusion I shall address myself directly to the authors of the letter, as well as to others who have asked me similar questions.

I don't envy you, though you are luckier than my generation was at your age. You live at a time when we have broken with dogma. You are luckier, too, in that you are able to find your way through life better than we were. That is not surprising, for our country has matured in the years since. What I can't understand is why you have taken such a somber and one-sided view of our times. Everything on earth—even atom bombs—is made by the hands of man. And the welfare of the world, in the final analysis, depends only on people (and hence to some extent on you), on their readiness to terminate atomic madness.

Should one really hurry to live, to get all one can out of life? You ought to be able to answer that question by yourselves. I suspect that the banal truths have as little influence on you as they had on us when we were young. But I might as well let you in on a recent discovery I've made: It appears that a truth remains a truth even if it is banal. I have reached the conviction, for instance, that every phase of life is splendid if a person enters upon it unbroken. But the best phase of all was my youth, from which I was in such a devilish hurry to escape. But being in a hurry and yet maturing gradually and naturally is one thing, while playing at being grown-up is quite another. You are no doubt familiar with the geometric axiom that a straight line is the shortest distance between two points. In life one of those points is represented by birth, and the other by death. Only one point is really certain. Nobody can tell when a man will reach the second point. But at whatever segment you may be cut down by death, you must remain a human being. It is terrible to cease being a human being, for that means dying before your physical death has set in.

Courtesy of *Literaturnaya Gazeta*

THINGS CULTURAL

By Natalia Chulaki

SHARPS & FLATS

Russian church bell tunes are not like any others in the world. And the Russian bell-ringer is neither a rope-puller nor a carillonneur. His melodies go back a long way. Bells are part of a tradition, and tradition rules on when they shall peal and when they shall toll. Depending on size and shape, alloys used and skill in casting, bells differ vastly in sound quality as well as in pitch. But aside from these built-in, physical features, it is the method and, especially, the style of ringing that distinguishes Russian bell sounds from all others. Styles range from a majestic chorale echoing over the fields, to the jubilant clamor of city bells, to such sprightly festivity and outright merriment as to be called "jig-time" by foreigners.

Russian craftsmen of the sixteenth and seventeenth centuries had a peculiar knack for getting the overtones right, and this, together with the way of playing, results in interlacing harmonies without the jangling of tone and overtone so often associated with bell music. It has been the Russian custom for centuries to invent special bell tunes and play them only on bells, in endless variations and styles, instead of using ordinary songs or hymns composed for another instrument or for the voice, as is usually the case in England, France and the United States.

The sound of the cathedral bell tower in Rostov, described in the December 1965 issue, has been recorded despite the echo difficulty. As a matter of fact, those are the bells heard in the sound track of the Soviet film **War and Peace.**

Moscow's Bolshoi Theater is another place with a fine collection of old bells, which are very effective indeed when played in performances of **Boris Godunov, Prince Igor, Khovanshchina** and other operas. The two men chiefly responsible for getting this collection together were Victor Kubatsky, a cellist and conductor of some reknown in the early part of the century, and his associate, a famous bell-ringer named Alexei Kusakin. Using their sensitive ears and an old, possibly unique manual on bells as a guide, they made the rounds of the churches in Moscow, choosing one or two bells wherever they were allowed to, thus building up the full scale. The biggest, a velvety baritone of a bell, weighs something over seven tons and serves a solid and pleasing background for the smaller, higher pitched bells.

The harmony of bells in the distance has an incomparably poetic quality, especially appealing to the Russian ear. Close up, a giant of 20 tons will give a mighty basso profundo rumble, but the tone gathers clarity as it travels outward, reverberating through the countryside in combinations of melody and overtones to gladden the soul!

Modeste Ilyich Tchaikovsky, younger brother of the great composer, died 50 years ago. He was a man of many gifts, mainly literary, and was known in his lifetime as a competent playwright and librettist, working with Sergei Rakhaminoff, Anton Arensky and other composers of opera and ballet music. But his most important achievements, which will live as long as his brother's immortal music, were collaborations. Modeste wrote the librettos for Peter Ilyich's **The Queen of Spades** and **Iolanta,** and is said to have worked on **The Nutcracker,** too. After Peter's death in 1893, Modeste devoted the greater part of his time to collecting his brother's manuscripts and personal papers, and writing a three-volume biography. With his nephew Vladimir Davydov, who later also published a biography of Peter Tchaikovsky, he bought the composer's house in Kline, which is now a museum for the public and a shrine for visiting musicians.

Kirill Kondrashin and the Moscow Philharmonic Orchestra have been together for six years. And they have proved most compatible. The orchestra musicians are with Kondrashin in every sense of the word. They have found him a man they can respect as well as like. From the beginning, this conductor demonstrated that he had a passion for the new in music. He was always searching—and risking. The amount of rehearsal time was way over the usual. He fought against apathy, inertia and prejudice for a fresh, new repertoire. He introduced works not performed before, such as Dmitri Shostakovich's Fourth and Thirteenth Symphonies, revived works he considered unjustly forgotten, propagandized for new names and popularized others (Georgi Sviridov, Moses Weinberg, Rodion Shchedrin, Boris Tchaikovsky). A Mahler enthusiast, he has done much to create an audience for this composer in the Soviet Union.

A certain maturity has now tempered the gusts of emotion, though the climax and the "grand finale" (perhaps even "Grand," with a capital "G"?) are still the most enjoyable parts of the concert, rather than any of the more sustained sections.

Impulsive, sincere, courageous, stubborn, demanding, Kondrashin crashes through routine, with the result that his musicians come to every performance as if it were a première!

A new **Raymonda,** to the charming old Glazunov score, has returned to the ballet stage. In three acts, with rejuvenated choreography by Leonid Lavrovsky, it is now to be seen at the Kremlin Palace of Congresses and marks the 100th anniversary of the birth of the composer. The title role will be danced alternately by Maya Plisetskaya, Nina Timofeyeva and Rimma Karelskaya.

The music, mostly vocal solos and duets, of early nineteenth century Russian composers has enjoyed a revival this season, with several chamber concerts devoted entirely to songs by the three Alexanders—Dargomyzhsky, Varlamov and Guriliov. Other concerts included at least a sampling of their work, "for flavor."

The Russian composer Anton Rubinstein liked to tell about one very successful concert of his in Paris.

"A storm of applause greeted me at the end, and backstage I was immediately surrounded and showered with compliments and congratulations. My symphony was a great event! I myself was a sensation! All Paris was talking only about me! At last I managed to slip away, setting off for my hotel on foot in the pleasantest state of mind imaginable. Suddenly I bumped into the last person I had expected to see—the inimitable Saint-Saëns.

"My dear Rubinstein! You here? In Paris? What a lovely surprise!"

About 1,000 students representing all the union republics and 25 foreign countries are now studying at the Moscow Conservatory, which celebrates its centenary this October.

The conservatory has faculties in four areas—piano, history-theory, orchestra and voice-choir—and 220 teachers. It is the Soviet Union's major school of music, graduating about 180 musicians, composers and critics every year.

Mid-October will see a week of anniversary celebrations. There will be concerts by many distinguished performers, both graduates and teachers. And professors from many parts of the world have been invited to attend a special seminar on problems and methods of teaching music.

Moscow will soon have a new building for its Musical Culture Museum, which has collections with more than 350,000 items—musical instruments, manuscripts, scores, personal belongings of famous composers, and a vast library of records and tapes.

The building—of an original modern design—will occupy a whole city block. The exhibition halls of the museum will take up three stories, and there will also be a library and rooms where visitors can listen to works of music from every age and culture.

A special feature will also be added to the exhibits. By simply pressing a button, visitors will be able to hear the sound of any instrument on display.

American audiences were introduced to a new version of Tchaikovsy's **The Nutcracker** during the Bolshoi's recent guest tour. The new staging is by 39-year-old ballet master Yuri Grigorovich.

The sets were designed by the Georgian artist Simon Virsaladze and have been described as outstanding. Critics call his work an organic blend of monumentalism and elegance, lyricism and tragedy. His knowledge of stage space is very apparent in the near perfect arrangement of sets and dancing areas—the dancers are always the center of attention.

The Armenian Academic Drama Theater in Yerevan has moved into a new building. The new glass-and-tuff theater has a seating capacity of 1,140, a spacious lobby decorated with a mural by Martiros Saryan and a winter garden. The first night production was **Pepo** by the foremost nineteenth century Armenian dramatist Sundukyan, the same play which opened the theater almost 45 years ago.

FROM FRESCOES TO FICTION

What is to be done with priceless old Russian frescoes being eroded by time and weather? "Save them" is the appeal of art lovers and everyone else who appreciates the heritage of the past. And the campaign is on! Painters, art historians, chemists and, what is perhaps most important,

ordinary residents in the vicinity and neighborhood officials are making a concerted effort to preserve the historical works from any further deterioration. In addition to paintings there are wood carvings and sculptures, and especially wooden buildings—churches, dwellings, old mills, watchtowers, and other structures of esthetic or historical value—that should be preserved. What can be done? What is being done? The decisive factor is recognition of the problem. Once people are aware that there is something worth saving, they will go a long way to see that that something is saved. Restoration is slow and delicate work, requiring time and money. Soviet restorers of icon panels and easel paintings have an excellent reputation here and with their colleagues abroad. But the number of restorers specializing in murals is small. Yet interest is great. Many buildings, fortresses, churches and bell towers have been completely restored and are now open to the public. Certain areas rich in old architecture (near Moscow, Novgorod, Archangelsk, Perm, Kizhi, and other places) are being planned as district restoration projects, in many cases with state subsidies.

A series of drawings on cosmic themes aroused considerable interest here. Science fiction painter Andrei Sokolov was supplied with eyewitness details by astronaut Alexei Leonov, after which Leonov himself prepared a number of drawings based on what he saw while in orbit.

Two contemporary Japanese graphic artists, Kakuo Shinkai and Tadasgege One, occupy the first-floor gallery of the Oriental Art Museum in Moscow. An exhibition of modern Georgian applied and ceramic art occupies the ground floor.

Finely painted miniatures with glowing reds, blues and gold predominating, all on the glassy black lacquer background of the traditional Palekh boxes, are now on view at the Artists Union Galleries on Gorky Street in Moscow.

ART FOR ALL

The small town of Oni, Georgia—a village, really—is located high in the Caucasus. The people who live in Oni love the theater. That love combined with energy to establish a local people's theater for part-time amateur actors (taught by professionals) and a theatrical museum, run by volunteers. Exhibited here are model stage sets for various productions, copies of archive documents relating to famous theatrical personalities of the past, photographs of well-known actors and playwrights, and, of course, of the leading ladies, ingenues and juveniles in the local company.

Aram Khachaturyan, composer of much that is both serious and lively in Soviet music today, and known to millions of pop-loving Americans for his "Saber Dance," is a frequent visitor at Trade School No. 64 in Moscow. The students, who are apprentice cabinetmakers and engravers and are getting a basic academic background as well, want to know what Khachaturyan thinks of Prokofiev and pop, what he considers his own best work, the ins and outs of modern music. The composer's talks with these youngsters are part of an extracurricular program to give boys and girls all over the country an understanding of trends in literature and the theater and an appreciation of music and painting.

The Khachaturyan Third Symphony has recently been recorded by the Moscow Philharmonic Orchestra, the trumpet ensemble of the Bolshoi Opera and Harry Grodberg, organist, with Kirill Kondrashin conducting.

THE DYNAMIC SQUARE

Dead Souls is soon to be revived! There are plans afoot to film Gogol's satire about the unscrupulous but highly ingenious ways of Chichikov. It will probably be directed by Ivan Pyriev, who has directed both comedies and the classics (Dostoyevsky's **Idiot** is among his latest).

Is there such a thing as experimental art? Or putting the question another way: Is there any room on our screens for the so-called "experimental film"?

The answer would seem to depend on how you define the term. If you are the kind of person to whom experiment has test tube connotations, if you want to turn out something original and watch how the audience reacts, then your experiment belongs in the laboratory, not on the screen. But if experiment means to you a search for a new style or a more effective form of expression along untrodden paths, then the successful experimental film might be off-beat and hard to accept and yet exhilirating enough to leave you with the impression that it was worthwhile opening your mind and exerting your brain to grasp the artist's intention. But I said **successful** experiment, and who is to decide what constitutes a success? These days it seems that a film that actually tells a story is in bad repute. A director who wants to be considered avant garde must not do anything so obvious. On the other hand, a good rousing story is just what the public usually wants. I, for one, don't think the matter should be put to a vote. Popularity (**i.e.**, box office appeal) is a blessing, all the neurotic, arty film devotees to the contrary. And there should be plenty of movies for sheer entertainment—detective thrillers and crazy comedies that leave you weak with laughter, your head blissfully empty of "ideas" to take home. But there always has been, and I hope always will be some "uphill" art—in this case, deeper films, those with a message that is hard to take, or a new, perhaps odd way of saying things. Odd, but not for the sake of being odd—and this is my most important point. Remember the Dada experimental films of the twenties and thirties, or look at today's "shockers" with nothing to say! A film (or book, or picture, or play) can appeal on more than one level. The love life of Natasha Rostova may be the only reason for going to see **War and Peace**—for some people. But does that mean a total understanding of Tolstoy's novel? Or take **The Brothers Karamazov**, a good whodunit if ever I saw one, but it appeals on other levels, too, or it wouldn't be a classic today. Yet, even with "popular" things to say and a foolproof way of saying them, an innovation in films, as in every other art, has always had a hard time getting through to the public, because (1) not enough producers are willing to risk a flop, and (2) audiences too often don't want to be bothered making the effort to understand.

However, "uphill" art is as yet in a minority—**The Childhood of Ivan** being the latest in this field. But with more and more discriminating moviegoers welcoming the challenge of serious film innovation, could there not be a growing proportion of this sort of movie out of the total number produced? Down with B and C films! Up with "uphill" art!

Kasyan Goleizovsky, the dean of Moscow choreographers, has started filming his two famous creations: **The Polovtsian Dances** (from Borodin's **Prince Igor**) and his series of ballet miniatures. **The Polovtsian Dances** were produced by Goleizovsky in the thirties and won him a reputation as an interpreter of the folk dance. The miniatures were first performed much later, in the early sixties. Goleizovsky keeps increasing and improving his cycle, which now includes about 20 miniatures.

This is Goleizovsky's second venture into films. His first was **Thoughts About Ballet** in which he appears as commentator. In that film he shares his thoughts on modern choreography and the future of the ballet, and talks about the rising soloists of the Bolshoi Theater.

Goleizovsky is remarkably active for his 74 years. In the past two years he has produced the ballet **Leili and Medinun**, completed a work on the folk dances of the Slavs and written a film script. He is currently working on a study devoted to sculpture, is a frequent contributor to the Moscow magazine **Theater** and often writes in other periodicals as well.

BRECHT AND BEAR CUBS

Bertholt Brecht is one of the most popular foreign playwrights in Moscow today, with four productions currently offered at four different theaters—**Mother Courage, The Caucasian Chalk Circle, The Good Woman of Setzuan** and **The Three-Penny Opera.** It would be quite a project for the future to compare styles, and see how each departs from, say, Stanislavsky.

Since all theaters here are repertory theaters, one sometimes sees the same play staged by two different companies in one season. This has been the case with **My Poor Marat** by Alexei Arbuzov, one of our favorite authors. The two interpretations, of course, varied with the men who directed the play, a more or less naturalistic approach, with added modern conventions favored by one, and the whole thing modern preferred by the other.

Well, as the man said, "You pays your money. . . ."

Ice hockey for bear cubs is not exactly a sport, at least not for the animals, but it is a sight to see. Anatoli Mayorov has brought his team of skating bears to the new Circus on Ice, a lively show now touring the country. Other attractions include somersaulting acrobats, trapeze artists and dancers—all on skates. Between acts clowns tumble out on the ice to regale the audience with slapstick spiked with social satire. Or is it the other way around?

HAUTE COUTURE

Winter fashions for 1967 again feature furs, with polar fox and other white fur trim predominating on cloth and fur coats. Collars are smallish, with a few models showing flat, unobtrusive cuffs of the same fur. Hats are fur toques with no crown height to speak of, and drapery of some sort, scarf or shawl or helmet effect, covering the ears in every case, reminding one of a medieval wimple. A number of historical Russian motifs are used to advantage in other items.

Synthetic fibers are in favor for dresses and coats, with one sports ensemble featuring a belted, hooded, wool (or near-wool) knit dress topped with a straight jacket, car coat length, made of a heavy, suedelike fabric and lined with synthetic fur. Skirts are very short.

SCANNING SPORTS W

IF MY PROPOSAL is accepted by Moscow's city fathers, the discus thrower at the entrance to our stadiums will have to get down off his pedestal. His place will be taken by a bespectacled gentleman wearing a cap squashed down flat on his head and lugging an oversized, overstuffed briefcase.

The discus thrower came down to us from antiquity, the figure I propose is quite modern. In fact, it belongs to Gavriil Korobkov, top Soviet track-and-field coach. Korobkov haunts the country's stadiums. He is sure to turn up wherever athletes gather. And he always has that bag crammed full of statistics and background on every promising athlete.

Korobkov has been combing the country for talent, what with the Olympic games looming large on the horizon. "I've got more than 200 youngsters on my lists of potential Olympic stars," he told me. "And I'm watching the school and junior circuits for more. These 200 will be given lots of international experience to show what they can do. We're going to have the youngest track-and-field team ever. The boys and girls we're going to try out are at least five years younger than the present frontliners."

That pronouncement might sound ominous to veterans who are already beginning to see the handwriting on the wall. But while their chances of making the Olympic team are slim, they can certainly hope for a berth on the squad that will be going to the European championships.

This June will be an unusual month. Ordinarily it is a very slow month, with athletes just getting into their stride. But this is the year the British-USSR track-and-field meet takes place. London is the place for this duel that ranks only second in significance and thrills to the USA-USSR match next month.

The problems the Soviet coaches face in hammering together a squad for London are not as multitudinous as those that crop up in preparation for the USA-USSR fixture. Whereas the Americans have a full-strength team in both the track and the field events, Britain, so far, has only been able to build up strength in the running events. Mary Rand and Lynn Davies are two of the bright spots in the field segment.

Consequently the Soviet coaches will be freer to experiment with a line-up for London. Any combination spells team victory—so they can afford to look ahead. But that is not so when it comes to naming the line-up for the U.S. meet.

One problem is a successor to Valeri Brumel, the vertical take-off wizard, who has been knocked out of the high jump at the height of his career. True, he is still confident that he will be back, but the coaches take a more sober view. There is no getting the medicos to say Yes or No. The most talkative of them has ventured nothing more than, "We have to wait and see."

I put the matter to Korobkov. He says he has quite a number of promising jumpers in his tickler file. Sergei Maspanov, 22 this year, is his choice. "We hope he will turn out to be a second Brumel," he said. And that is the acme of compliments coming from Mr. Korobkov.

Korobkov is not only looking for a second Brumel, he also has a second Ter-Ovanesyan (broad jump) in mind. He would like to have a 20-year-old youngster by the name of Skibenko jump against Lynn Davies in London this month.

Personally I am happy to see this trend. It gives the youngsters a chance to get international seasoning. In the past the moguls were too interested in victory to experiment with line-ups. The result was that the sure winners were pushed in everywhere, and the boys and girls who fell short of champ caliber were not given the chance they needed to develop skill and know-how.

This year Soviet youngsters will be taking part in a good many international junior meets. Korobkov singled out the meets with Italy, Yugoslavia, Rumania and Finland. Come to think of it—how about arranging for these junior meets on a USA-USSR level as well?

June is also a tennis month. Here in Europe there are a number of international meets coinciding with the Wimbledon tournament. For the Soviet Union the Wimbledon tourney has turned into a school for skill. We send our players along to brush up on their technique and tactics by competing with the world's best. We have not yet taken top honors in the senior divisions for men and women, but we are gratified to see our boys and girls climbing steadily up the ladder, rung by rung.

Our two top players are, as last year, Toomas Leius and Alexander

'H VICTOR KUPRIANOV

Metreveli. Both are collegiate players. As a matter of fact, our best players come from the college circuit. These two boys have won a number of notable victories against top players, and while they may grieve over the fact that they are still not up on top, the coaches are happy to know that they are following the right line in training a new generation. For us this is very important, since tennis is a comparatively new sport here and does not yet measure up to the others in popularity. We have started a countrywide drive to get school kids into the sport, but attracting youngsters is not enough. We also need to work out coaching patterns.

We seem to have found the right formula for developing junior players. The Wimbledon victories in the boys and girls divisions are an indication. But we still have to make the jump from the junior to the senior division. One way of doing that is more international tournaments. Soviet players show up at Wimbledon regularly. They compete for the Davis Cup, and have even tried their luck at Forest Hills in New York, although without much success as yet.

One thing that has us guessing this season is who will be taking Anna Dmitrieva's place at the top of the team. We remember her inspiring debut at the Wimbledon girls tournament, after which she kept moving up and up. Just when her coach was drawing up rosy plans for future international competitions, Anna, a junior at Moscow University, where she is majoring in linguistics, decided to get married. Now she is taking time out baby-sitting, although she has hinted that later this year she might play again. Meanwhile 21-year-old Tiiu Soome will be taking her place.

Tiiu Soome was No. 1 last year. She zoomed up from No. 8 in 1964. Some three months ago she made teammate Yaak Simson the happiest man in the world by saying Yes. Since hubby is a player of no mean merit, we can expect to see Tiiu improving her game.

June is a month for cycling. The roads are dry and clear of snow, and while many youngsters like motorcycling or motor scootering, a good many more prefer cycling. The sport is very popular with both the boys and the girls. Bicycle races draw huge turnouts—in fact, as many want to take part as watch.

While the girls have been up among the world's title and record holders all along, the men have been competing with varying success. Cycling in Europe is a major sport, and the European champions are unmatched anywhere. Every now and then we come up with a winner. There was that boy Kapitonov at the Rome Olympics. His gold medal was a sensation. Another surprise was the world title won last year by a 21-year-old collegiate from the Caucasus, Omari Pkhakadze. He proved to be the world's fastest sprinter in this sport, and since this is the Soviet Union's first breakthrough in the event, Pkhakadze is worth talking about.

Pkhakadze upsets all notions about what a cyclist should look like. World champions are usually of medium height and lightweight. This boy stands 6 feet 1¼ inches in his stocking feet and weighs about 200 pounds. He can actually walk over his bike. And his weight—I certainly wouldn't like to be giving him a lift on the handle bars of my bike!

When he won his crown in San Sebastián, he had the arrangements committee stumped. The president of the International Federation was supposed to help the new champion get into the jersey that the world's best merits. He pulled and pulled, and Omari tried to make himself as small and thin as possible—but it was no easy matter pulling that jersey on. Never before in the history of the sport has such a big size been needed.

Omari would be an asset in any sport. Incidentally, he is studying physical education. The coaches keep hoping against hope that some day his bike will bend double under his weight or that no tire will hold him up so that maybe he will switch over to some other event. Here at home he was voted the 1965 athlete of the year and is still going strong. The know-alls mention him as a likely Olympics prospect since he comes from mountain country, and in Mexico City he should feel like a fish in water.

It's too bad that the girls have not been given a place in the Olympic Games. Girls' cycling is rapidly gaining popularity, and world championship meets are well attended.

In general the feeling is that the women's program of the Olympic Games should be expanded. I want my women readers to know that I'm all in favor. They can count on my vote.

NATURE, TIMELESS AND ETERNAL

These deer have never heard the blast of a shotgun or the whine of a bullet. Though man is no stranger to them, he is not a threat. They live in a place where animals have never been hunted, trees chopped down, the land plowed, the grass cut. Nature primeval rules here, timeless and eternal, century-aged and ageless. Wildlife flourishes at the mouth of the Vaksh River in Tajikistan's Tigrovaya Balka, one of the Soviet Union's 66 preserves, *zapovedniki* in Russian. Here scientists study nature untouched by man. *Soviet Life* will have an article on *zapovedniki* in a forthcoming issue.

PHOTO OF THE MONTH

BY VADIM GIPPENREITER

BUILDING BY TOUCH

By Konstantin Telyatnikov

BETWEEN 1555 and 1560 two Russian architects, Barma and Postnik, erected a unique cathedral in Moscow's Red Square. It came to be known as St. Basil's. Ivan the Terrible was pleased and asked the architects whether they could build another, still more beautiful cathedral. When they said they could, he had them blinded so the cathedral would never be matched. A blind man could not be an architect, the czar reasoned.

An architect must see what he builds. He must also see the site in order to fit his design into its environment. That would seem obvious enough. Yet Alexander Zotov is an architect—Tashkent's chief architect—and he is blind. He lost his sight (and his left hand) in the desperate fighting against the Nazis in 1941.

Hundreds of thousands of servicemen went blind or deaf or lost limbs in the war. Some of them could not struggle against the darkness or silence or immobility and were lost to life. Others fought desperately for spiritual survival and won. Alexei Maresyev, a fighter pilot, lost both legs and learned to fly and fight again with artificial limbs. Still, you can imagine a fighter plane pilot with artificial legs—but a blind architect! And Zotov is more than that—he is in charge of a big designing team.

Not Alone

If Zotov were all alone, the darkness around him would mean a black void—cosmic solitude. But he is endowed with great spiritual strength, and such people are rarely lonely.

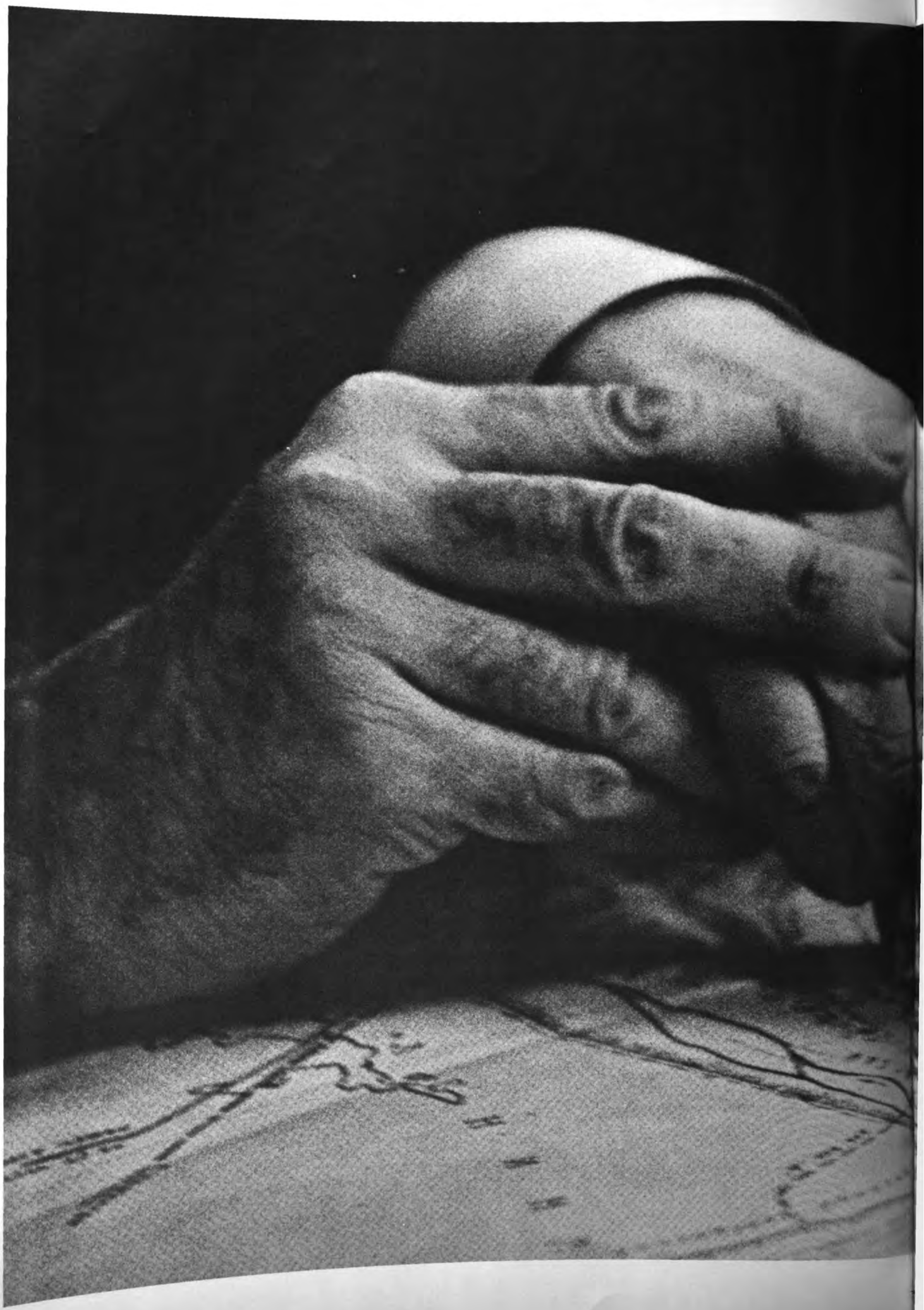
Galina, Zotov's wife, was 18 when they met. He had just returned from the war. She had wanted to be a philologist. Instead she enrolled in the Polytechnic Institute, civil engineering department, to help her husband return to his profession. When Alexander was settled, she went back to philology and is now teaching language and literature.

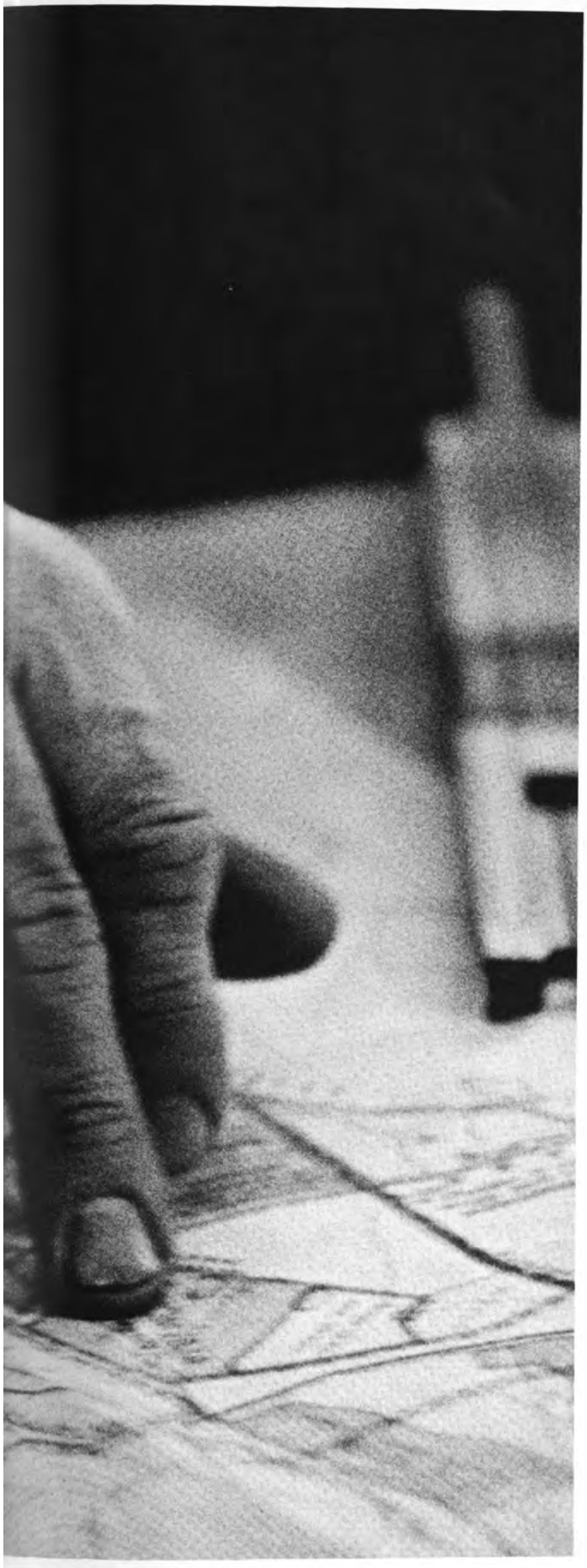
Zotov's colleagues consider him an outstanding architect and city planner. His report to a UN seminar on city planning in Asia and Africa ranked among the best. There is a constant buzz of voices in his office. People are always going to him for help or advice. They need him as much as he needs them.

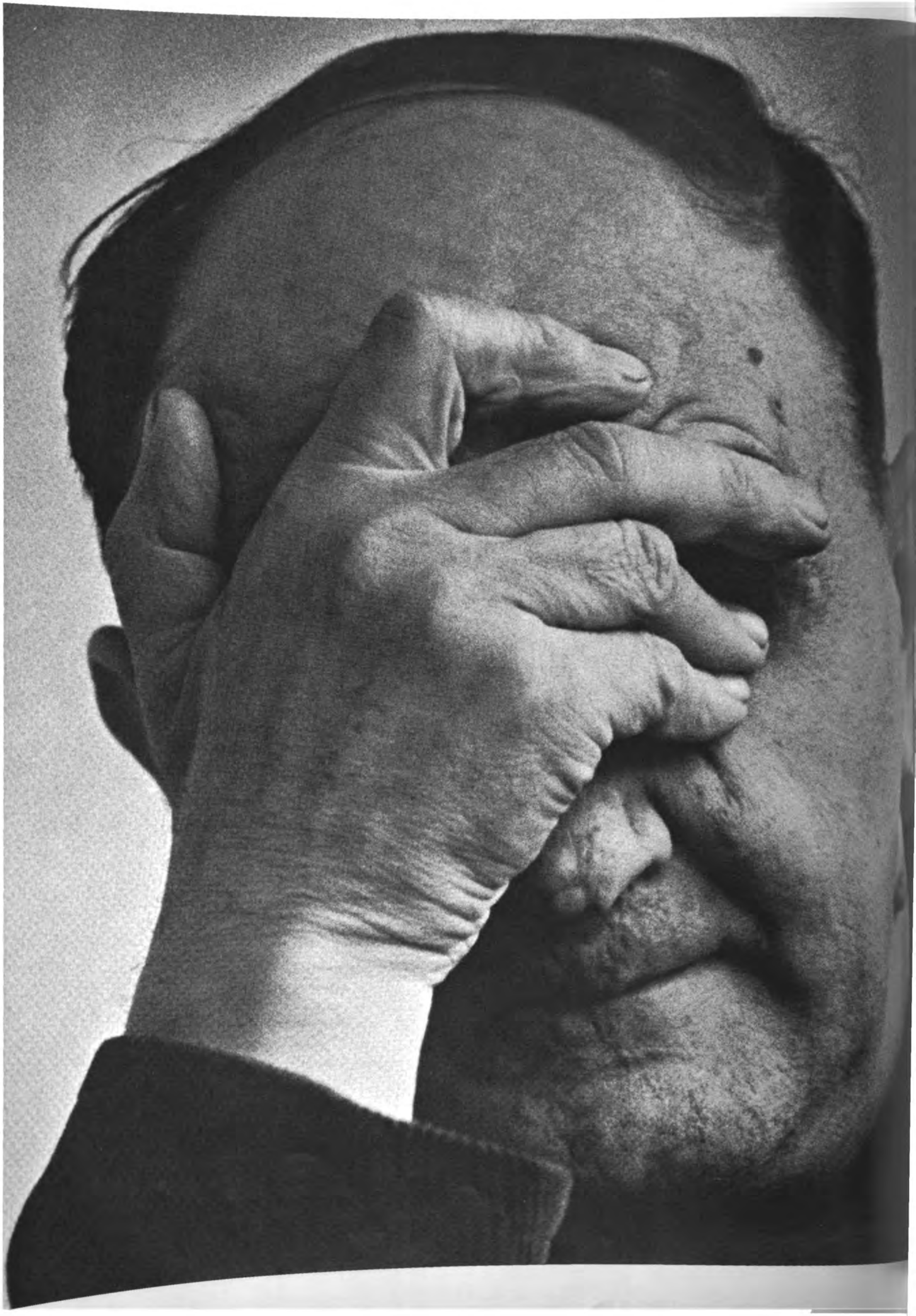
At Work

Zotov's team is planning residential and industrial construction for 160 sites in Uzbekistan. He knows every one of these scattered sites like the palm of his hand. Besides that, his team is working on a 10-year parkland program for the re-

(Continued on page 53)







BUILDING BY TOUCH

(Continued from page 49)

public—more facts and figures for Zotov to keep in his head.

A parent loves all his children, and an architect everything he builds, but Novy Angren, an Uzbek miners' settlement, is something special for Zotov. He himself chose the site in a valley hemmed in by mountains, he wrestled the site away from the Coal Industry Board, which had been after it as the ideal spot for a dump, and he designed the general layout for the future city.

Construction is still going on. Every week Zotov makes the rounds of the sites to check on progress and quality. Those who sacrifice quality for quantity pale when they see him coming. How does he test the quality of work? By touch, it's as simple as that.

Zotov has developed his own system of operation. He starts work on a particular plan with an on-the-spot survey of the site. The chief engineer or one of his assistants describes the area to him in great detail—knolls and hollows, brooks, buildings, type of soil, foliage, everything—things that only Zotov seems to remember. When they get back to the designing office, they continue to study the area from relief maps and dummies. He "sees" his projects so clearly that his associates marvel at his memory.

Recently Zotov has been drafting designs for two new cities, one on the shores of the man-made Tashkent Sea and the other in the Golodnaya (Hungry) Steppe, a newly reclaimed area of Uzbekistan.

The Curse of War

The will power of a man can conquer blindness. Not every seeing architect builds half as well as Zotov. But what if he could see? No beautifully written story of his life will hide the tragedy. One of Maxim Gorky's characters once said: "Don't insult people with pity." Misinterpreted, this sentence has too often concealed callous indifference. Pity, in my opinion, implies above all the ability to understand the meaning and depth of a tragedy.

A superhuman effort brought Zotov back to architecture. But look at this face with the bluish dents left by shell fragments. This is a candid shot: the man was caught unawares. That is why the expression is gloomy—or perhaps it reveals an anguish long suppressed.

Whenever I think of Zotov, I admire his will power, his battle against terrific odds. But my admiration is always tinged with bitterness, the bitterness that comes from beholding a great injustice that can never be redressed.

Century-Old Riddle of Russian History

OLD MAN FYODOR OR EMPEROR ALEXANDER I?

By Lev Lyubimov

WHEN OLD MAN Fyodor Kuzmich turned up in Siberia in 1836, the rumor spread that he was no one less than Emperor Alexander I incognito. He lived there for the next 27 years. After his death, the rumor traveled farther abroad. Not only did the man in the street believe that Old Man Fyodor was really Alexander I, so did many highly placed persons, even the royal family during the reign of Alexander III.

What gave rise to the belief were these facts: Firstly, Alexander had died very suddenly, although he had suffered from no serious illness. Secondly, he had died far from home, in the distant town of Taganrog. Thirdly, when he was laid in his coffin, those who saw him said he had changed beyond recognition and for that reason the body had been covered and shown to no one. And fourthly, Alexander had repeatedly said and written (particularly in his later years) that he wanted only one thing—to rid himself of his crown and of high society.

As to why Kuzmich was taken for the emperor, firstly, the old man had the same height and build and resembled him so much that people who had seen Alexander (his valets particularly) or his portraits marveled at the likeness. Secondly, Kuzmich, who claimed to be a tramp with no memory of his parentage, knew several foreign languages, and his courtly, gracious manner betrayed a man accustomed to greatness. Thirdly, although the old man never disclosed any other name or title, his style of expression on occasions was that of a man who had once commanded others. Fourthly, prior to his death, he had destroyed his private papers, with the exception of one page written in code and marked with the initials A. P. Fifthly, notwithstanding his piety, the old man never fasted. When the priest asked him to do his last Christian duty, the old man said: "Heaven would be stunned if I hid the truth about myself at confession. But the earth would be stunned if I confessed who I am."

The above lines were written by Leo Tolstoy. They are from the introduction to his unfinished story, "The Posthumous Notes of Old Man Fyodor Kuzmich, Who Died on January 20, 1864, in Siberia, on the Property of the Merchant Khromov near Tomsk."

This book, written in the first person, which Tolstoy worked on in 1905, was the fictitious confession of the former czar who had turned hermit. Tolstoy made it a very impressive and convincing confession.

It contains the following sentence: "People who did not have the fortune to be born into a royal family will find it difficult, I believe, to imagine the full perversity of our view of men and our relations with them. . . ." It was for this sentence in the main that Vladimir Korolenko, then editor and publisher of the magazine *Russkoye Bogatstvo (Russian Riches)* was brought to trial for printing Tolstoy's story posthumously in the February 2, 1912, issue of his magazine. The charge was intent "to display insolent disrespect toward the Supreme Power and to vilify the legally established form of government."

Korolenko's lawyer gave this interpretation of the legend then current in certain sections of Russian society:

"Emperor Alexander I, Alexander the Blessed, monarch of unlimited power, minion of fortune, savior of Europe . . . and, beside and within him, the tramp Fyodor Kuzmich, flogged with a birch rod for vagrancy.[1]. . . This great and very Russian legend, a legend lovingly credited by the Supreme Powers of Russia and by men of the lowest walks of life . . . was cherished and revered for many decades by soldiers, artisans and peasants. The people wanted to believe, and did warmly believe, that the mightiest of czars and the most rightless of his rightless subjects were one and the same man. For the intelligentsia and the highest circles, Fyodor Kuzmich incarnated the idea of the sovereign's atonement for his great sin, the sin which cannot be

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[1] Flogged with a whip and not with a birch rod. On September 1836 a man of about 60, of noble bearing, rode up to a smithy on the outskirts of Krasnoufimsk and asked to have his horse shod. Both rider and horse overwhelmed the smith; although he was wearing peasant clothes, the man was the very image of an aristocrat. . . . His horse was a thoroughbred and must surely have cost a large sum. People gathered around the smithy, and the newcomer was questioned. His vague replies aroused the suspicion of the peasants and they called the police.

Interrogated, the stranger said his name was Fyodor Kuzmich, that he was a tramp with no knowledge of his parentage. The police, baffled by the man's appearance and manners, tried to make him disclose his real identity. But the man kept replying, "I am a tramp and have no knowledge of my parents." The penalty for vagrancy then was severe. Liberal-minded in his youth, Alexander I had intended to abolish corporal punishment, among other things. But his campaigns against Napoleon, his reactionary foreign policy, his mysticism and the military control he instituted at home vitiated all his good intentions. The Ufa authorities sentenced Kuzmich to 24 strokes of the whip and exile to Siberia.

pardoned, the sin of murder or accessory to murder.[2] This legend of humility, of atonement, is so close, so much akin to the conscientious Russian soul! . . . Indeed, it is true! In Tolstoy's book, Alexander I says: 'I am a great criminal.' He was, and Russian history acknowledges it."

The St. Petersburg court acquitted Korolenko and rescinded the ban on the issue of *Russkoye Bogatstvo*, in which the "Notes" had appeared.

Early in this century Grand Prince Nikolai Mikhailovich (Nikolai I's grandson and Nikolai II's uncle), a collector of Russian portraits and miniatures and the author of historical papers, wrote several articles that tried to disprove the legend. But it was rumored that he subsequently revised his opinion.

When I was living in Paris I also looked into the legend and wrote a book about it called *The Mystery of Emperor Alexander I*, (Paris, 1939).

Over the years, Alexander's death in Taganrog had given rise to all sorts of speculation. There was the unquestioned fact that Alexander, even in his youth, had talked of becoming an ordinary subject and of losing himself "amongst the crowds." (He said to his brother Nikolai and Nikolai's wife, who noted it down in her diary: "How glad I will be when you ride past me, and I wave my cap from amongst the crowds and shout Hurrah! to you.") It is also common knowledge that the thought of the part he had taken in the murder of his father was a constant torment from which he sought forgetfulness in religion and all kinds of mysticism, in politics and diplomacy, and in many romantic attachments.

That he was a complex person was plain enough. "A man of contradictions" (Pushkin). "Alexander was anemic, capricious, disillusioned, and given to mystical romanticism; he resembled a 'shifty Byzantine' (as Napoleon dubbed him) not only by reason of his cunning and hypocrisy, but also because of his irresolution and passivity" (Engels). He was "as obstinate as a mule" (Napoleon). The royal family thought him "gentle but obstinate."

Did this man who had once wielded great power, who "had stepped onto the soil of Paris as lord and ruler of Europe some 18 months after the French occupation of Moscow" (Engels), have any special reason, at the end of 1825, for carrying out his cherished intention of quitting the world of the court into which he was born.

The Holy Alliance that he founded to fight revolution in all countries proved disappointing. The czar's role in European affairs was no longer the reformer, he was called "Metternich's vassal." The rising of the Greeks against the Sultan confronted him with the unhappy alternative of helping them and thereby supporting a revolution against the "lawful powers" or leaving them to their own fate, thereby abandoning Christianity in the East and thus weakening Russia's influence.

At home, Alexander's position was perhaps even more complicated and hopeless. He knew there were secret societies everywhere in the country. Benkendorf[3] showed him a list of the principal conspirators, but Alexander took no action against them. He told Adjutant General Vasilchikov: "You have served me from the beginning of my reign, and you know that I shared and encouraged these illusions and mistakes. It is not for me to judge them." He did not wish or dare to do the punishing himself, and hid behind Arakcheyev.[4]

I have made a careful study of the documents pertaining to the last days of his reign and the reaction to his death on November 19, 1825. They are full of contradictions and riddles. For instance, Adjutant General Prince Pyotr Volkonsky, a man very close to Alexander, wrote on December 7 from Taganrog to St. Petersburg:

". . . I must know whether to have the complete funeral service held here, before leaving, or whether the service is to be held in St. Petersburg. I make bold to suggest that it would be more fitting to hold the service here, since despite the fact that the body was embalmed, the damp air of the locality has turned the face black and even changed the features of the deceased. They will become even more deformed with time, and for that reason I believe it is unnecessary to open the coffin, and that we had better have the complete service here."

What did the one person who should have known the truth think of the "mystery"? I have the last czar in mind. I put the question to his cousins, Boris Vladimirovich and Dmitri Pavlovich (both are dead now). The first told me that he himself had asked the czar about the possibility of Alexander I being Fyodor Kuzmich. Nikolai II had replied that it was a riddle to him. The second cousin told me that he had had frequent occasion to say to Nikolai II that it might not be legend but truth. The czar, while he did not say Yes, did not say No.

Thus the mystery is still not solved. And it should be.

No matter what we think of him, Alexander I was an important historical figure, and the role he played in the destinies of our country and of all Europe was large. We ought to know exactly how he ended his life. So much was Leo Tolstoy taken with the legend that one wonders how much it influenced his own decision to leave his estate for a simpler life.

In 1918 the czarist general I. I. Balinsky, while staying in Kislovodsk, made this statement. I heard it in the thirties from people to whom he made it. The general said that shortly before the doorman of the hospital run by Balinsky's father died, (the doorman was a former soldier who had been given the job on Alexander II's orders), he told him that he was leaving his daughter a 10,000-ruble inheritance. He was worried what people might say about an ordinary soldier with that much money and had therefore decided to divulge the truth. In the sixties (he gave the precise date), all the guards at the Cathedral of Petropavlovsk Fortress (he was one of them) were told by their superiors that the following night they would witness a certain "function," and that if they swore to keep it secret, they would each be given 10,000 rubles.

What was that "function"? Unfortunately, the people who heard Balinsky's story tell different versions. According to one, a coffin was delivered to the cathedral, Alexander I's tomb was opened and the remains of an old man (Fyodor Kuzmich?) in the said coffin were lowered into the tomb. According to another version, a body (obviously not Alexander I's) was taken out of the royal tomb and transferred to the cemetery near Chesmen Almshouse. Lastly, according to the third version, Alexander's coffin was opened and found to be empty (from which we may conclude that the remains of the man who had been passed as Alexander I were removed, being "no longer of any significance" after the czar's death and funeral had been staged).[5]

In Paris the daughter of the ex-Court Minister Count Illarion Vorontsov-Dashkov told me something she said had been kept secret until then but could now be made public.

One day at the end of the eighties, her father returned home very late and in a very agitated state. He told his wife and daughter that he had been with the czar in the Cathedral of Petropavlovsk and that the czar had decided to exhume the body of Alexander I. His presence was required because as Court Minister he held the keys to the royal tombs. The workers were told to leave, and the only ones present besides himself were Alexander II and four soldiers of the Golden Company who lifted the lid of the coffin. The coffin was empty. Count Vorontsov-Dashkov pledged his wife and daughter to secrecy.

In 1921 the rumor spread in Petrograd that when the royal tombs in the Cathedral of Petropavlovsk Fortress were opened on orders of the Soviet Government, Alexander I's grave was empty. The rumor was published in many newspapers abroad. When I returned home in 1948, I heard it from several persons, still as rumor. Thus far in my searches of the Moscow and Leningrad archives I have found no records that the royal tombs were opened. Mikhail Gerasimov, Doctor of Science (History), who was also interested in the legend, told me that his search of the archives was no more successful.

To open Alexander I's tomb is no complicated matter. It would give us the answer to the riddle. If the tomb is empty, we can then consider the fact established that Alexander I was not buried in it, and, therefore, that he did not die in Taganrog in 1825. If the remains are found in the tomb, we can determine the approximate age of the person buried (in November 1825 Alexander was almost 48, Fyodor Kuzmich died some 40 years afterward).

There are enough portraits of Alexander I extant so that when the face of the buried man is reconstructed from the skull by Professor Gerasimov's expert hand—we know what remarkable things he has done in this field—there will be no problem deciding whether the remains are Alexander I's or not. Opening Fyodor Kuzmich's grave in Tomsk would also help to establish the facts.

Courtesy of Nedelya

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[2] Implied here is Alexander's participation in the coup against his father Emperor Paul I, who was murdered in 1801.

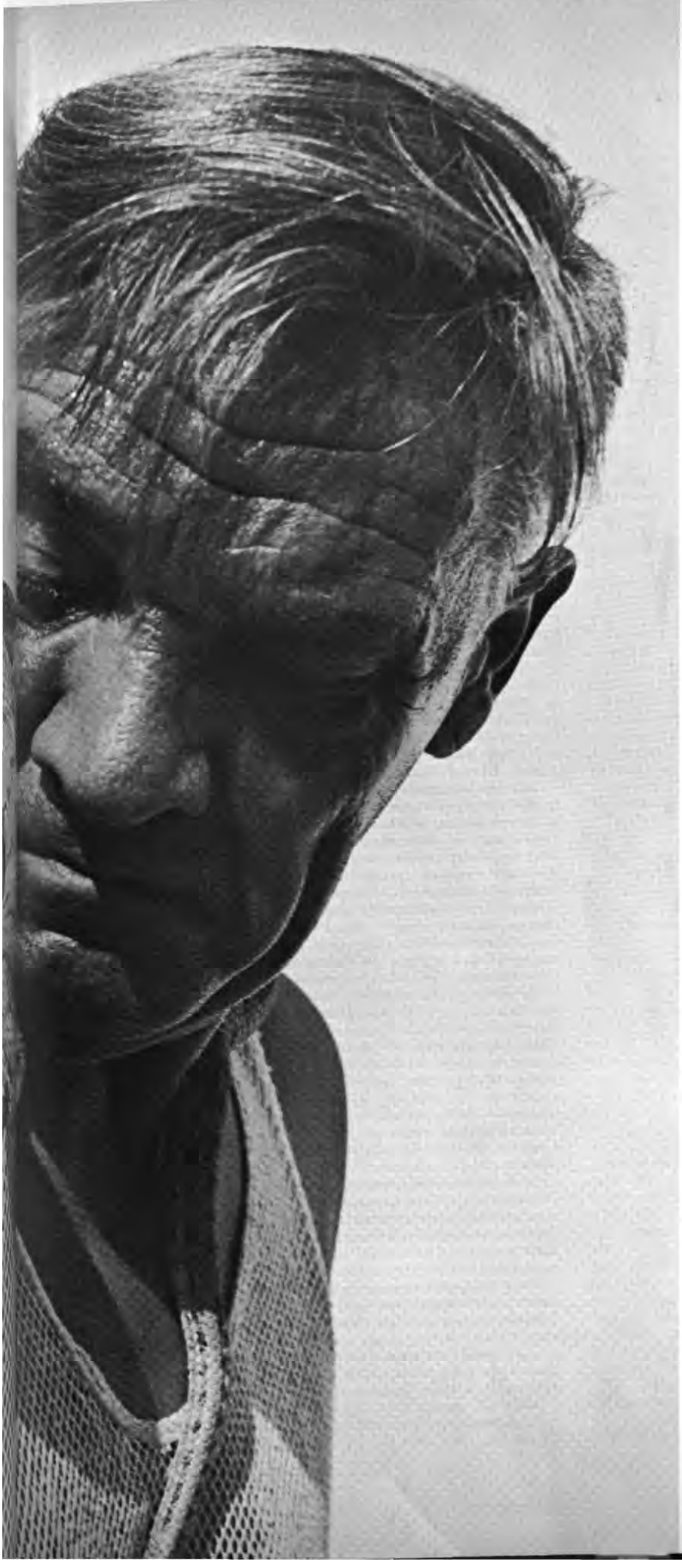
[3] Alexander Benkendorf (1783-1844) was Chief of the Third Department (Secret Police) and Chief of Gendarmes.

[4] Alexei Arakcheyev (1769-1834), Minister of War, who concentrated the entire administration of the government in his own hands.

[5] I was told that in recent years a record of the story of the same Balinsky, dated 1912, was discovered in the archives of the famous art historian Nikolai Vrangel, in Leningrad. This record confirms in the main what I was told about the statement Balinsky made six years later.

HE CAUGHT 30,000 SNAKES

By Yan Tikhonov



HE has been bitten by poisonous snakes thirteen times—nine times by the Echis and four times by the deadly giurza.

"You really never get used to snake bites," said herpetologist Vsevolod Potopolsky. You may develop some immunity in time, but very little. I suffered from the effects of my last bite as much as I did from the first. My body turned black almost to the hip, hemolysin destroyed the red corpuscles. In five days my weight dropped from 181 to 104 pounds.

"I have been a naturalist practically from birth," continued Potopolsky. "At four I was out catching butterflies. I still go after them. I've hunted birds, beetles, lizards, scorpions, and rodents of all kinds. I have also been an agronomist and fought locusts, but I've always collected."

The walls of Potopolsky's room are covered with flat glass-top boxes of spread-winged butterflies. One wall is full of glossy backed scarabs.

"I spend most of my time catching snakes," he said. "The Echis are the handsomest. I must have caught 10,000 of them. Their scales are the color of a lilac sunset over the desert. They fade quickly however. I've also caught 5,000 giurzas, but no more than 400 cobras.

Potopolsky is a graduate of the biology faculty of the University of Kiev and came to Central Asia 35 years ago. After traveling through the valley of the Vakhsh River and visiting Kushka and Cheleken, he settled in Ashkhabad, the capital of the Turkmen Republic.

He caught his first snake in the ruins of the Old Fortress in Bairam-Ali. It was a sleepy Echis that gave up without a struggle. Since then he has caught more than 30,000 snakes and killed only one in self-defense.

"I've never felt any revulsion for snakes. On the contrary, the creatures rouse my sympathy. They are useful, at any rate. Kill all the snakes in our region and the gophers, jerboas and mice will devour all our crops down to the root."

Potopolsky demonstrated how the venom was extracted. Reaching for a giurza in the terrarium, he hurled it into a corner of the room. The fat yard-long snake sped under a table, but Potopolsky's left hand grabbed it by the head, while his foot came down on its tail. A yellow drop of venom fell into the glass he pressed against its fangs. Snake poison is used for high blood pressure, lumbago, rheumatism and many other ailments.

Potopolsky, they say, is no more afraid of snakes than a mountain climber of great heights.

"Well, I wouldn't go so far as to say that," he disagreed. "I'm not careless and am always conscious of the danger. The confidence I have comes from experience and knowledge, but I'm always wary, because a snake is a snake!

"In Bairam-Ali once," he went on, "I caught about 40 Echises in just a few days. I kept them shut in a large can, but when I came back from the movies one evening, I found that they had managed to push up the lid and glide off in all directions. I could hear them hissing in the corners. I turned on the light and recovered them all, so I thought, and went to sleep. Suddenly I felt a snake stirring under my head. I had no antivenin for this particular variety just then and knew that a bite in the face or neck meant certain death. I raised my head ever so slowly. The Echis lay on a pillow and I could feel its every motion against my neck. Then it crawled across my cheek, nose and dropped to the floor. My hair stood straight up, I can tell you!"

Potopolsky leads a young naturalists' circle at the Ashkhabad Palace of Young Pioneers. These children might well be envied, for their teacher has the knowledge of a scientist, the feeling of an artist, and the practical common sense of a hunter who has spent more nights in the open desert than he has at home.

HEMINGWAY AND FAULKNER: A RUSSIAN VIEW

By Pyotr Palievsky

THE FIGURE of Tolstoy still fills the horizon, a Western observer of Russian literature remarked at the beginning of the century, but, as in the mountains, the farther back you move, the clearer you see another peak behind it—Dostoyevsky.

That is much the kind of thing that happened when we Russian readers watched the rise, behind Hemingway, of another undeniably great figure in twentieth century American literature—William Faulkner.

For a long time this peak was shrouded from us in clouds of theories, and not simply political dogmas but what seemed to be sound literary postulates. But then the theories were swept aside (it was discovered Faulkner had never paid them any mind anyway), and before us sparkled the snowy whiteness of his Nobel address. And then there gradually unfolded a vast green expanse teeming with amazing and unexpected life.

True, we also found dark pitfalls filled with terrifying mysteries. But they were not what mattered. For Faulkner, life was a wonderful phenomenon because of its unquenchable energy and its miraculous power of germination. It by-passed all obstacles or squeezed through them, and the people in that life were endowed with the same faculty—they would not be stopped.

It was a long time since we had read a Western writer who had such faith in life and, what is perhaps more important, such contempt for despair. Faulkner seemed to be deliberately meeting all doubts halfway and refuting them; he descended into abysses that had no bottom and showed that there, too, human values were not altogether blanked out or twisted beyond recognition. He accepted all challenges. That took courage, artistic honesty, and we liked it.

Here, we sensed, was something new, someone different from our idol of long-standing, Hemingway. It even seemed as though Faulkner were disputing the epigraph from John Donne so characteristic of Hemingway's thinking: "Never send to know for whom the bell tolls: it tolls for thee." As though weighing the words in his mind, Faulkner replied: "It is easy enough to say that man is immortal simply because he will endure; that when the last ding-dong of doom has clanged and faded from the last worthless rock hanging tideless in the last red and dying evening, that even then there will still be one more sound—that of his puny inexhaustible voice still talking. I decline to accept the end of man. I believe that man will not merely endure; he will prevail."

This was an important nuance. We recalled the many people related to Hemingway, imaginary people who had become real, like Morgan or Robert Jordan, stubborn, indomitable people. They went on fighting even after they knew their position was hopeless, because this was what their duty as men required them to do. That commanded our respect. But Faulkner's people had something different about them. None of them would bother, I think, to lift a finger if they thought they were doomed. The idea that they might be doomed did not even enter these strange heads we were so unused to in modern literature. Almost every one of them was certain he was at least the equal of all the powers of the world, and with an insolence incomprehensible to those powers he laid into them. Very often he emerged the victor.

Take Mink in *The Mansion*, the first Faulkner novel to be translated into Russian, in 1960. Recall the amazement and distrust with which the lawyers, jury and officers of the court regarded him. And why not? There was that little, ill-favored man, his dignity trampled underfoot, advancing against all that impersonal and incomprehensible machinery, against the court, the laws, the system of repression. Surrounded and caught, for 20 years he patiently and quite alone, since no one could understand him, gnawed at the walls he could not understand until what he thought of as an act of inevitable justice happened. A true Count of Monte Cristo, but without the cave of treasure, which is to say, completely realistic.

In short, our first impression when comparing these two great names in modern American literature might be stated this way. Hemingway was a writer more inclined to reflect man in stoic expectation and defense, and Faulkner in fierce attack. Faulkner's people were certain of their superiority and would not allow the idea of defeat. It did not matter that some of them—like Mink, or Sutpen in *Absalom! Absalom!*—were ignorant and enmeshed in the superstitions, the roots of the soil from which they had sprung, while others, such as Lena Grove in *Light in August* or Chick Malisson in *Intruder in the Dust*, were incomparably more cognizant and had an infinitely deeper understanding of their goals and worth as human beings. The thing was that each of them fought for his share of human values with incredible stubbornness and tore them from what seemed an immutable destiny.

Nor was that all.

We discovered another facet that was close in spirit to our Russian literary tradition and therefore attracted us. As he pursued his train

of thought, Faulkner, it seemed to us, forgot that he was a writer. He did not try, as Hemingway said, to write a "good book." He did not read like the faultless professional, the superb technician. From our point of view, since we had already sensed his talent, that was a virtue.

We have seen, time and again, especially in modern literature, how too uniformly brilliant a style can jeopardize searching thought. Such a style begins to turn into the finished what in real life is not yet finished. That happens imperceptibly. To preserve the unity of his style, the writer is forced to move in a definite direction, and so he tends to avoid the unexpected and the unforseen. The result is a masterly but complacent style that crushes the resistance out of flagrant unvoiced truths, reduces them to silence, smooths them over to a static perfection.

Hemingway, to our mind, was not free from this inertia. This was not, of course, his overruling trait. To us, and not only to us, he still remains—no one questions this—a highly significant, if not a great, writer. It should always be remembered that there are no measures of degree in the arts. We do not arrange an order of merit in which to fit Shakespeare or Cervantes or Tolstoy. Hemingway's style has great and admirable subtlety. We see it immediately in those abrupt, usually long conversations in which people exchange brief commonplace remarks. But each remark conceals infinitely deeper meaning, sometimes the opposite meaning, although these people say exactly what they want to and are not "austerely reserved," like Remarque's.

It is also interesting that what we are listening to seems to be ordinary conversation. Yet Hemingway's is a purely narrative style, not at all dramatic. If it were given concrete voice and face and put on a stage, it would gain nothing. On the contrary, it would probably lose, because the concrete would narrow and single out some one hidden meaning, while the written word has a host of meanings. Nor does his style require reading aloud, for it also has intonation as, for example, in "The Killers":

"Got anything to drink?" Al asked.

"Silver beer, bevo, ginger ale," George said.

"I mean you got anything to *drink?*"

"Just those I said."

"This is a hot town," said the other.

Yes, Hemingway's style has a great many fine and original qualities. No other modern style is probably subject to such a degree of inertia as his, however. He opens up his characters and then immediately cuts them off. Because it is a very strong style, it enslaves reality, completely driving out everything connected with it that is unforeseen. As you read, you have the false sensation there is nothing more to be said. Only afterward, when you come to yourself, do you realize that cannot be so. Otherwise life would have to come to a stop.

Faulkner offered us another style. We opened a book with his name on it and found ourselves, without any preparation, the guests of some of the inhabitants of Yoknapatawpha County. People started coming and going, talking among themselves, pretending not to notice us, or even glancing with hostility in our direction. We strained to guess why they were and what they were. At first that puzzled, even annoyed us. But very soon we realized this contained its indispensable truth. The unknown was also participating in each life story developing before us, as it does in real life; the individual was a continuation of a far-removed and boundless life with no beginning, but everything it had ever contained was invisibly present and had an effect, offering unforeseen opportunities, a choice, a clarifying release from predestination. That made the impression very lifelike.

Faulkner talked of a "risk" when he explained his style to Japanese students. Such artistic fearlessness was bound to appeal to the Russian reader. Our writers have long done the same thing, sacrificing perfection of form without hesitation if they felt it necessary in order to set free a new and hitherto unknown meaning. It was not important to us, after all, that Faulkner failed at times, that sometimes he was carried away by such literary devices as "stream of consciousness." Many of them proclaimed the great discoveries of the century. It was obvious he was not trying to be an avant-guardist, that is, was not trying to run ahead and put up a marker "I was here" if another writer turned up in the same territory. No, he experimented with every means of expression (true, not always discarding the unsuccessful) and found new means whose values he tried out on the reader and himself at the same time.

Consequently, his influence on attitudes was somewhat different from Hemingway's. Hemingway is not to blame, of course, that after his books a large number of bearded young men sprang up, all tragically laconic, wearing bulky sweaters and sucking pipes in the "Old Man Hem" image. But it does bespeak a certain sketchiness or uniformity of the central figures in his books.

Tolstoy once remarked in surprise that Turgenev's female characters were appearing in the flesh, as though mass produced. "I've seen them myself," he said in wonder. That was a definite victory for art—art anticipating life; but it was, at the same time, a disturbing sign of a certain oversimplification. Tolstoy was a great writer, and for that reason his novels did not breed Pierres, Andreis or Natashas. To imitate them, one had to become a personality in one's own right.

Nowadays the danger of such mass production is obviously much greater. Hence, we have the right to judge writers from this angle as well. It is not that I want to say Hemingway is a writer of the Turgenev type, or that Faulkner is a Tolstoy. It is not a question of weights and measures (we cannot weigh writers on scales) but of a definite quality of talent, different aspects of which appeal to us at different times.

With that in view, it could probably be said that such writers as Richard Aldington, Dos Passos, Remarque, and Hemingway himself for that matter, were really writers for a period of one, or more accurately, several generations, each of which passed through its age of disillusionment and with amazement discovered an indifferent, harsh, highly impersonal "contemporary life."

Meanwhile, Faulkner was occupied with other things. He was seeking in the present the element that connects it with the past; he was looking for the continuous chain of human values. And he found that the chain originated on native ground, "a little plot of land down in Mississippi," as Sherwood Anderson once told him. Evidently that is why Hemingway, Aldington and the others became international writers, quickly spreading waves of modern problems about themselves. While Faulkner, that unreservedly national writer, became a writer for all men, slowly and ponderously proving his kinship with a disunited world and the importance of human fundamentals.

Faulkner has shown us a literature where the American national character, as one of the new branches of the human tree, can really be seen, heard and felt. The spirit of his work and personality immediately disproves the primitive notion that the American nation is a chaotic mixture of other nations with a technically oriented culture. We feel in his characters that the people who came over on the *Mayflower* and then on other ships to settle in the New World did not come by chance, although they came from different places. Each of them was already in some way an American, and all of them came together as "Americans" because they had something in common. Like, say, people who choose the same occupation, fliers, for example.

To divide the traits of these people into virtues and vices is hard. It is also hard to define them because any definition involves generalizations that are very much open to question when applied to a whole nation.

It is our impression that in Faulkner's novels we are given a picture of what the American way of life, especially in the South, is like today. An acquaintance of mine told me, for example, that Faulkner showed him the meaning of the November 1963 tragedy—the assassination of President Kennedy—far more clearly than all the reports and newspaper comments. "Atmosphere," was how he explained it.

Be that as it may, the position of Faulkner's living "branch" seems to lead us, as we travel into the depths, moving along with the author toward the big trunk, to the point where we are suddenly able to detect his literary relations, not at all where one would think they might be, not in a resemblance to fast-moving current journalism, but in quite another place, one equally far removed from the "modern highways" and probably no less distinctive.

American critics who have noted the resemblance between the artistic worlds of Faulkner and Sholokhov have a point. Start with the fact that the Indian word "Yoknapatawpha" means "quiet flows the water across the flat plain." The epic idea of a big river, the current of life, is embodied in the title of Sholokhov's *And Quiet Flows the Don*, the word "quiet" in both instances concealing its opposite. Faulkner's Yoknapatawpha, representing the American South, plays a role similar to Sholokhov's Don. It is used as a special part of a big whole, preserving its partriarchal and simultaneously its reactionary character, and faced by the need for drastic change. The Mother Earth idea that is so strong in Sholokhov is also very noticeable in Faulkner. The transition, the breakaway from the old standards, is accompanied by both new gains and unrewarded losses. Action proceeds in a succession of sharp contradictions that call for special devices for their expression. A completely involuntary transition from humor to tragedy and back again, with no feeling of contrast but, rather, a sense of the natural polarity of life, is typical of both Faulkner and Sholokhov.

And, of course, it is deeply significant that both writers expressed and constantly upheld one and the same idea: "Man will not merely endure; he will prevail." Or, as Sholokhov has put it and as perhaps Faulkner could be paraphrased: "He'll make it."

A NEW DIVORCE LAW?

By Arkadi Vaksberg
MASTER OF SCIENCE (LAW)

FOR SEVERAL YEARS drastic changes have been expected in legislation on divorce and the status of children born out of wedlock. At this writing the new bills are still in the draft stage. The slow pace is disappointing to some, but it has made possible a better sounding out of public opinion.

A Short Retrospective

Before the 1917 Revolution marriage was not legal unless sanctified by the church. The parties to a marriage contract had to profess the same religion. The consent of parent or guardian was obligatory. Divorce was practically impossible. The law placed no restriction on the power of parents. An illegitimate child was deprived of the legal rights of a child born in wedlock. A wife could not change her residence or choose a job without her husband's consent.

This whole complex of family legislation was abolished by the Revolution. On December 16, 1917, divorce was made dependent only on the mutual consent of the husband and wife. The sharp rise in the number of divorces which followed showed how many families had been intrinsically unstable. Another law equalized the legal status of children born in and out of wedlock.

There was an immediate increase in the number of paternity suits in which the courts were asked to establish the fatherhood of children born out of wedlock. The legal difficulties of such cases are notorious, but we were able to work out equitable procedures. Our lawyers have never questioned the legal basis of such suits.

On the other hand, absolute freedom of divorce has always had its vigorous opponents. Such factors as financial security and compulsion were no longer primary marriage motivations by the mid-thirties. However, the unlimited freedom of divorce did bring its light-minded marriages. To get a divorce, it was sufficient to file a petition at the city registrar's office and pay the few kopecks fee. The spouse did not even have to be notified. Sometimes a husband or wife would learn that he or she had been divorced from a note sent by the registrar.

In June 1936 the law was amended. A person petitioning to dissolve the marriage had to notify the spouse and present proof that the relationship was impossible. The procedure remained simple, but the number of divorces dropped and stayed at the same level for several years.

The Law of 1944

In the next five years, until 1944, there were no proposals to amend or revise the divorce law. The impression was that it had stood the test of time.

The war brought other concerns to the fore. However in July 1944 the law was drastically revised—unexpectedly and without any previous public discussion. Divorce became a complex multistage procedure, with a preliminary newspaper notice and hearings at three levels. Both parties had to be present at all stages of the proceedings, a requirement that was difficut and sometimes impossible to comply with. Divorce involved a good deal of expense.

A child born out of wedlock could not take the name of his father and indeed was regarded legally as having no father. Paternity could not be established by court for children born out of wedlock. Nor could a father legitimize his own child—he could only adopt him, as he would a child not his own. In general, the procedure was very complex.

As a result, the number of people who married without dissolving a previous marriage kept growing.

In my opinion, the 1944 law had some good provisions, especially those that provided for higher state grants to large families and privileges to mothers. The law was obviously aimed at increasing the birth rate, but its over-all effect was unwarranted moral attrition. Its opponents became more numerous and vocal.

Drive for Amendment

The stone which started an avalanche was an article by Yelena Serebrovskaya, "Life Insists on Amendment," in *Literaturnaya Gazeta* early in 1954. The author was primarily concerned with those provisions of the law which divided children into legitimate and illegitimate. "No child," she wrote, "should be described in official documents as 'illegitimate.' Not only the mothers of these children, but the public generally refuses to put up with this situation."

The pros and cons of the legislation on this point were discussed at universities and law schools. The consensus was that the law must be amended. Many newspaper and magazine articles supported that demand.

An especially vigorous debate flared up in *Literaturnaya Gazeta*. A letter signed by Samuel Marshak, Ilya Ehrenburg, Dmitri Shostakovich and Georgi Speransky expressed the feelings of many. Addressing the USSR Supreme Soviet, the authors wrote: "Motherhood, one of the noblest and most radiant of human qualities, has been differentiated into legitimate and illegitimate. The law clashes with our ethical values, with all of Soviet legislation that protects mother and child, and finally with the Constitution, which makes men and women equal in the eyes of the law."

Natalya Dolina, a schoolteacher, added: "Children are penalized for something beyond their control. The current legislation is discriminatory. It divides our children into those who are legitimate and those who are not."

Author Veniamin Kaverin attended many hearings of divorce cases and concluded that the law was "obviously unjust." "The judges who do not wish to act against conscience provide numerous examples showing the need for reform."

Assistant Professor Sergei Kurylov of Irkutsk University differed: "Legalizing paternity in unregistered marriages may be easily abused and will encourage immorality. In many cases it is impossible to establish paternity when a child was born out of wedlock." Doctor of Jurisprudence Grigori Sverdlov also spoke against a drastic revision of the law that would "eliminate its disciplining element."

The newspapers and magazines that receive the largest volume of letters from readers were for amendment. The magazine *Semya i Shkola (Family and School)* published at least 10 articles on this problem. One of them drew 2,720 letters from readers, nearly all for revising the law.

At the Committee On Legislative Proposals

At a session of the USSR Supreme Soviet in 1957, Alexei Rumantsev and Ernest Pusep also argued for revision of the law in a debate on a bill which had no bearing on family legislation. At their initiative the Committee on Legislative Proposals appointed a subcommittee to draft a new law. The subcommittee consulted with lawyers who specialized in family legislation and with ministry officials and such organizations as the Red Cross and the Committee of Women.

The first impression was that opinion was unanimous. It soon became evident that this was not the case. The magazine *Sovetskaya Yustitsia (Soviet Jurisprudence)* surveyed the mailbag of the Legislative Proposals Committee. Some letter writers favored a drastic revision of the law, while others were much more conservative. In particular, there was strong feeling that the court should establish paternity only when the parents had been married de facto—had lived together, brought up children, had a common household, and so on.

There was also apprehension that the establishment of paternity by court procedure might split families and would encourage unjustified suits, in which the search for proof would be more immoral than the immorality

of the existing law under which paternity cannot be established by a court. There was some feeling that easier divorce would make young people less responsible.

Special Difficulties

The sociological research laboratories in Leningrad, Sverdlovsk and Novosibirsk, a team of sociologists in Moscow and several sociologists in other cities got busy sounding out public opinion. The Public Opinion Institute of *Komsomolskaya Pravda* (a newspaper for young people) polled its several million readers.

Opinions are so different and so contradictory that there is no common denominator. Even granted the need for revising the old legislation, we run into complexities.

Take divorce, for example. Should we return to the old out-of-court divorce system or preserve and simplify the present court procedure? Should a petitioner be compelled to prove the de facto disintegration of the family or should the wish of one of the parties to dissolve the marriage be sufficient on the principle that "no family can be held together by force"?

Problems are even more formidable in establishing the legal status of children born out of wedlock. Should the law be retroactive so that the new legal status will apply to those children who were born out of wedlock in the past 22 years? If the law is retroactive, I can foresee an avalanche of suits. On the other hand, why should children be penalized simply because they were born before the law was amended?

For the time being the intention is to revise those sections of the existing law on which there is a definite consensus. Thus, the obligatory newspaper publication of a divorce was repealed late in 1965 and the divorce procedure reduced to one stage. A lower court will henceforth deal with divorce, including the reconciliation stage and the hearing of the case proper.

Meanwhile the draft of the new law is nearing completion. In an interview Nizoramo Zaripova, chairman of the Legislative Proposals Committee of the Soviet of Nationalities of the USSR Supreme Soviet, said that it would soon be published for wide public discussion. Thus, the draft will reflect the opinion of the public generally before it goes to the Supreme Soviet for debate.

The law of 1944 was adopted at a time when there was no such wide discussion of varying opinions. The new legislation will reflect the opinions of millions. This democratic procedure takes much time and effort, but it makes for laws citizens can live with and respect.

IN THE NEXT ISSUE

Five thousand delegates, representing some twelve and a half million Party members, participated in the proceedings of the Twenty-third Congress of the Communist Party of the Soviet Union. In the June issue Alexander Bachurin, deputy chairman of the USSR State Planning Committee (Gosplan), answered questions about the new five-year plan and some of the economic problems that were discussed at the congress. The forthcoming issue will give a glimpse of the congress in session and a survey of the problems—political, social and economic—that it had to deal with. It will also offer a delegate's viewpoint of the congress and an evaluation of its decisions.

A candid interview in which Ludmila Belousova and Oleg Protopopov, twice world figure skating champions, describe their rocky road to stardom, lambaste trainers and training methods, berate Leningrad because it does not have good enough artificial ice rinks, rap the knuckles of executives of skate manufacturing plants, take strong issue with those who want gymnastics rather than art and, in general, speak their minds on the subjects of skating and skating champions.

There is one little Soviet girl who believes that her daddy makes every one of the many planes she sees in the sky. And as a matter of fact, a good many of them would not be there if not for him. This three-year-old's daddy is aircraft designer Oleg Antonov, the first two letters of whose name identify some of the world's biggest and most up-to-the-minute airliners. They are part of the globe-circling Soviet civil air fleet. Aeroflot has links with 40 countries in Europe, Asia, Africa and America. Its lines carry 4,800 passengers an hour. See the forthcoming issue for the story of Oleg Antonov's contributions to flight.

Town or village, which is better to grow up in? An old question, with vigorous, eloquent and frequently nostalgic champions for both. Town-bred children are more sophisticated, more knowing, say advocates of urban upbringing. The rural child is more self-sufficient, more independent, say those who favor country rearing. A photo story in the next issue argues persuasively for the countryside.

Other articles in the July issue are:

Yesterday: the Rock-Bottom of Optimism—a first installment of writer Vladimir Keler's provocative essay; Adults and the Child's World—observations on how to raise children, and how not to; Good Morning, Comrade Mayor—about the chairman of a town. Soviet; Fun, Isn't It?—the story of a girl telegraph operator in the Soviet capital; *Workmen's Compensation*—an article on sick benefits; *Beating Drums*—about child poets; also Around the Country, Queries from Readers and our other regular features.

NOVOSTI PRESS AGENCY

SOVIET LIFE

Tolstoy's Epic Filmed — Director Sergei Bondarchuk talks about *War and Peace* and the people who made it.

Northern Russia — A journey through the forest regions that grow most of the country's export timber.

COMING SOON

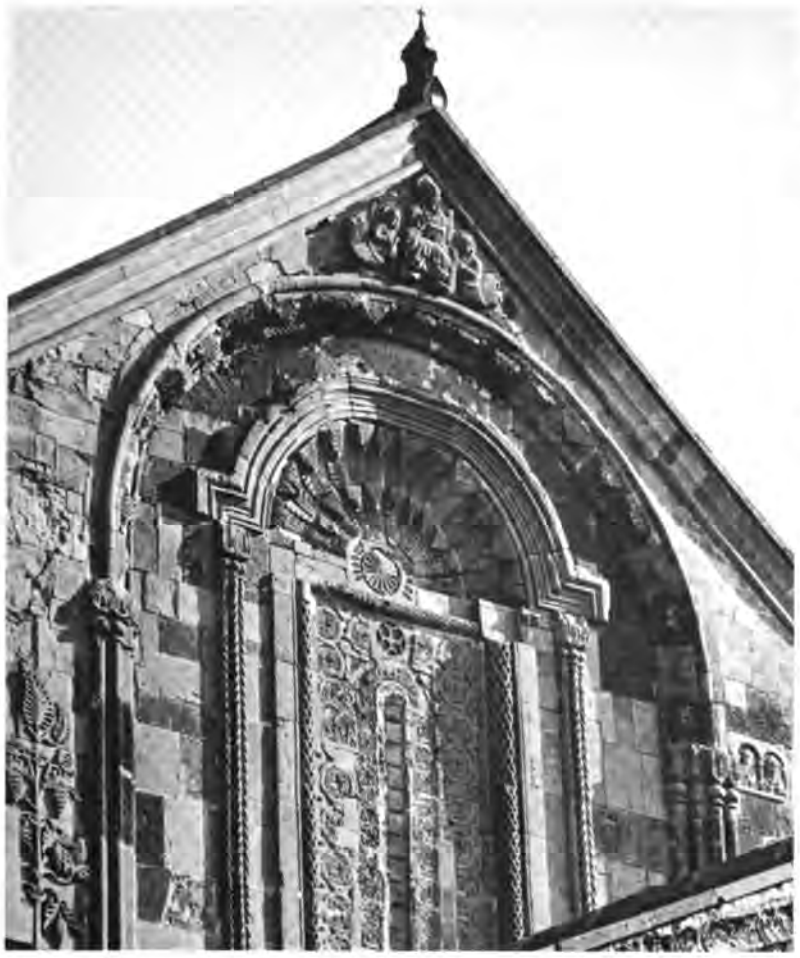
mtskheta

By Vakhtang Beridze

Photographs By Edward Pesov

MTSKHETA, the ancient capital of Georgia, some 12 miles from Tbilisi, the present capital, is rich in historic monuments. In various parts of the city archeologists have found the remnants of a grand acropolis dating from the fourth to the third centuries B.C. This was when Mtskheta was the capital of the ancient state of Iberia and the burial place of the rulers of eastern Georgia. There are several temples here as well, one from the seventh or eighth century, and another from the eleventh. But all the buildings, both secular and religious, are dominated by the Sveti-Tskhoveli Cathedral. Sveti-Tskhoveli is Georgian for "life-giving pillar."

The first Christian church in Georgia was built by order of Saint Nino, who preached the new religion and converted King Mirian to Christianity in the thirties of the fourth century. Georgia was one of the first nations to adopt Christianity as a state religion. According to legend, a cedar of Lebanon was cut down to make seven pillars for the church in the newly converted country. One of those pillars proved to have miraculous powers: It oozed consecrated oil and healed the sick, and came to be known as the "life-giving pillar," from which the church derived its name. That legendary temple vanished long ago, as did



Interred in Sveti-Tskhoveli Cathedral are the great of ancient Georgia, including the Bagrationi kings, who ruled from the eighth to the eighteenth century.

The cathedral has the geometrical severity of ancient Georgian architecture relieved by the upward-sweeping arches and decoration of the medieval period.

Eleventh to thirteenth century frescoes, the finest period of Georgian monumental painting, are almost gone. These are seventeenth and eighteenth century.

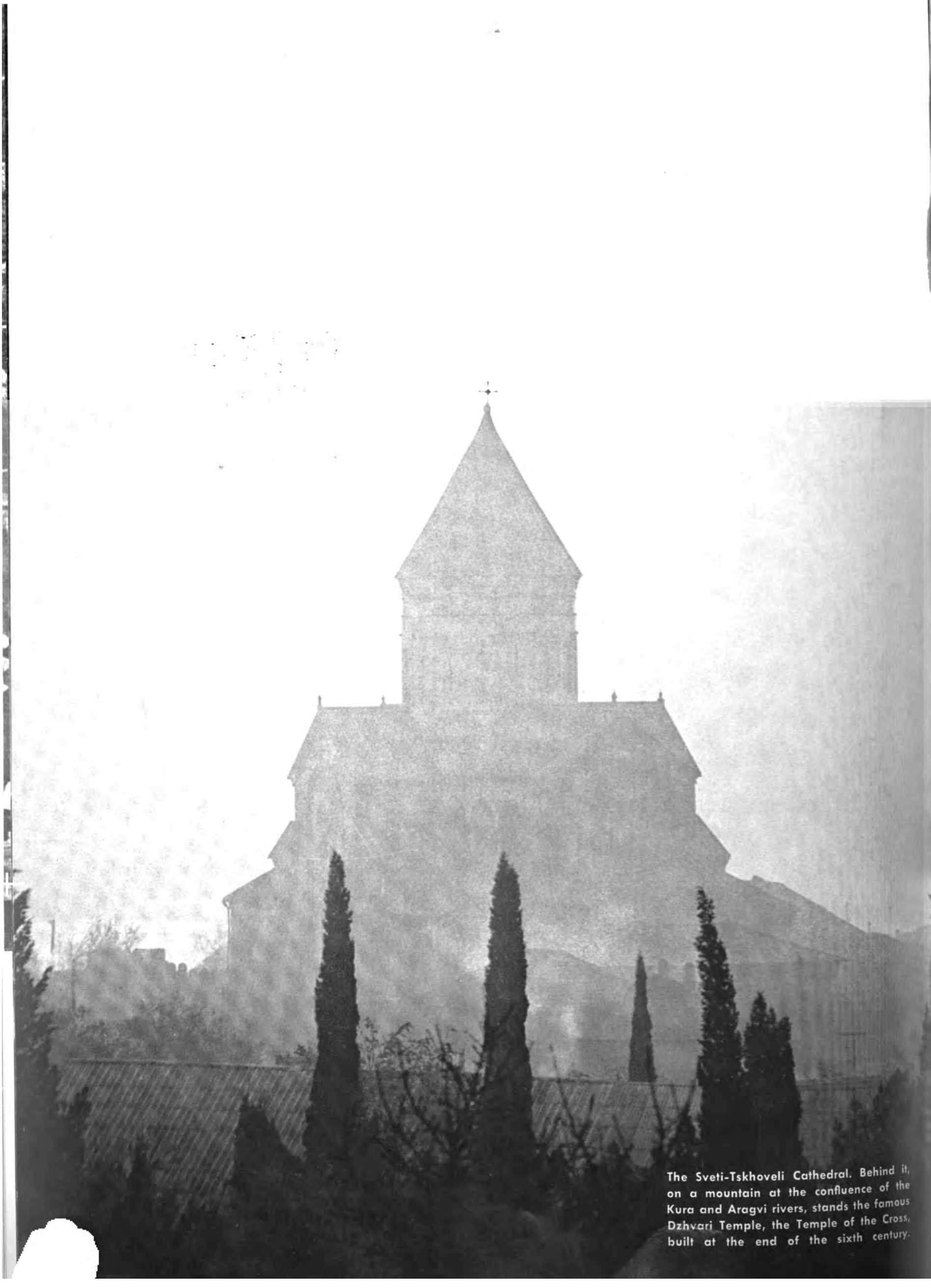
another built on the same site by King Vakhtang Gorgaslani in the fifth century, of which only a few sculptured and ornamented fragments remain.

The present Patriarchal Cathedral of Sveti-Tskhoveli rises from the center of a great sanctuary which was encircled with bastions in 1010 to 1029 by Patriarch Melkhisedek. The Georgian Orthodox Church had its own independent head from the earliest times: the Patriarch of Georgia was the equal of the Patriarchs of Constantinople, Jerusalem and other centers of the eastern church.

In the eleventh century a mighty feudal Georgian state was built. This was the period of struggle to unify all the scattered Georgian kingdoms and principalities and to force the Arabian emir out of Tbilisi. The struggle came to a successful close at the beginning of the twelfth century, when Georgia grew into one of the mightiest states in the East. It was an epoch in which Georgian culture flourished. A secular literature developed rapidly, and philosophical treatises were read in the monasteries and academies. This was a time of splendidly illuminated manuscripts, chased icons and richly painted temples. National traditions influenced every one of the arts, especially architecture, which developed from very old, pre-Christian roots.

The tenth to thirteenth century structures added a new rung to the ladder of Georgian architecture by comparison with the period to which the structures of the fourth to seventh centuries belonged. The geometric severity and the clarity of the ensembles so characteristic of ancient Georgian architecture was preserved, as well as the general composition of the temple, but there were new features: the proportions of the upward surge, the steep cupolas and the massive stone walls, ornamental façades, vaults and arches all reaching skyward. Sveti-Tskhoveli is one of the most characteristic and finest examples of this period of Georgian architecture. It was more than an artistic monument, however. For centuries it was closely linked with the destiny of the nation. When Tbilisi became the capital in the sixth century, Mtskheta continued as a religious center of Georgia and Sveti-Tskhoveli, as the Patriarchal Cathedral.

Sveti-Tskhoveli still serves as a church. There are always worshippers in the cathedral, but most present-day visitors come to see one of Georgia's ancient architectural monuments.



The Sveti-Tskhoveli Cathedral. Behind it, on a mountain at the confluence of the Kura and Aragvi rivers, stands the famous Dzhvari Temple, the Temple of the Cross, built at the end of the sixth century.

SOVIET LIFE

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Front Cover: Delegates gathered in the main hall of the Kremlin Palace of Congresses for the Twenty-third Congress of the Communist Party of the Soviet Union, which met from March 29 through April 8.

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Editor in Chief (Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor (Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor (Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director (Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

Circulation Manager (Washington Editorial Board): Vadim P. Zaitsev, 1706 18th St., N.W., Washington, D. C., 20009.

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WE LOOK TO THE FUTURE WITH CONFIDENCE AND OPTIMISM

Excerpts from the closing speech at the Twenty-third Communist Party Congress by Leonid Brezhnev, Secretary General of the CPSU Central Committee April 8, 1966

COMRADES, the Twenty-third Congress of the Communist Party of the Soviet Union is concluding its work. It will undoubtedly take a worthy place in the history of our Party and our country. I think that I express the general opinion of the delegates and the other participants when I say that we all are satisfied with the course and results of its work. All aspects of the report of the Central Committee of the CPSU and the directives on the new five-year plan were thoroughly discussed. We have collectively worked out the Party's political line for the next few years.

We concentrated on the most important questions of policy, economy, ideology and the Party's organizational activity raised by life itself, by the experience of communist construction.

The Congress has outlined the main directions of our domestic policy and economic activity for the next five-year period. The essence of this policy is to ensure that we reach new targets in building communism in our country, that we achieve a sharp increase in the efficiency of the entire sphere of social production, a steady growth in the material welfare of the working people and a further strengthening of our country's defense potential. In this five-year period we are to attain stable growth in agricultural production and a high pace of industrial development. All this will raise our planned economy to a new level.

Another important result of the Congress is that the foreign policy line of our Party and the state has been clarified. The Congress has instructed the Central Committee and the Soviet Government to continue to pursue a foreign policy aimed at creating the most favorable conditions for building communism, strengthening the socialist system and giving all-out support to the struggle of the peoples for national and social liberation, for the consolidation of peace and the prevention of a new world war, for the assertion of the Leninist principle of peaceful coexistence of states with different social systems.

And, finally, the third important result of the Congress is the adoption of decisions aimed at further strengthening the Party, both in organizational and in ideological-political respects. These decisions will contribute to strengthening the vanguard role of the Communists and increasing their responsibility for the work with which they are charged, to further developing inner-Party democracy, as well as to expanding and consolidating the contacts of Party organizations with the broadest masses of people. They will help the Party to better develop its cadres, to more successfully solve the complicated questions connected with the guidance of all the processes of communist construction.

Our Congress was marked by the efficient and principled way in which it assessed both our successes and our shortcomings. There was a thoughtful and creative approach to solving complex questions relating to the life of the Party and the country.

The Twenty-third Congress has again demonstrated the Party's monolithic unity on all questions of domestic and foreign policy. This expressed itself not only in the unanimity of the nearly 5,000 delegates but also in the fact that in all our work throughout the Congress, we constantly felt the profound interest, full support and active participation of the entire Party and the entire Soviet people.

We heard an unusual report at the Congress, a herald of our future victories. It came from the universe. The first sputnik of the moon transmitted to earth the melody of the revolutionary Party hymn of all Communists—the *Internationale.*

Comrades, the Communist Party of the Soviet Union has always regarded and regards itself now as a constituent part, as one of the detachments of the international communist and working class movement. Precisely for this reason we have always deemed it to be our duty to report on our work, not only to the Communists and people of our own country, but also to the fraternal parties, the working class of the world. At the Twenty-third Congress, too, the CPSU adhered to this tradition.

Delegations of 86 Communist and Workers' Parties as well as of Revolutionary-Democratic and Socialist Parties of the world, took part in the Congress. We hope they have received a complete idea of the deeds of the Communist Party of the Soviet Union, of our plans and problems.

For our part, we have had an opportunity to hear speeches by our militant comrades, our foreign friends. Listening to these speeches, we have felt particularly keenly how the successes of world socialism, of the revolutionary and liberation movement are growing and multiplying. Listening to these speeches, we saw once again that our class brothers all over the world hold that the successful building of communism in the Soviet country constitutes the main support of their revolutionary struggle, the main contribution to this struggle. All our Party is deeply grateful to you, dear comrades, for this assessment. It inspires the Soviet Communists and all the Soviet people to new accomplishments.

We also highly appreciate the fact that the fraternal parties, whose delegations took part in the work of the Congress, unanimously approve the principled Marxist-Leninist line of the CPSU in the world communist movement. Our Party's efforts to strengthen the unity of communist ranks was fully understood and supported by the representatives of the fraternal parties who spoke from this rostrum.

This strengthens our confidence that the cause of unity will win. Our Party reiterates its unswerving determination to conduct further the struggle for unity in the communist ranks on the principled basis of Marxism-Leninism.

Comrade delegates, allow me on your behalf to warmly thank the foreign delegations for the big contribution they have made to the work of the Congress. The presence of our good friends gave us a new opportunity to feel the strength of revolutionary proletarian solidarity. It showed again that the bonds of brotherhood, trust and friendship linking Communists and revolutionaries of all countries are inviolable and unbreakable.

Allow me also to express our sincere gratitude to the numerous organizations, enterprises, institutions and individuals in most diverse countries of the world who sent their greetings and sincere wishes to the Twenty-third Congress of our Party. We convey our hearty comradely greetings and wishes for success to all Communists, to all fighters for the triumph of the great cause of socialism and communism.

Comrade delegates, the Central Committee you have elected has asked me to thank you for your trust. We are well aware that this trust places a huge responsibility on us, obliges us to devote all our energies and capabilities to carrying out the Congress decisions, the Program of our Party.

There is much hard work ahead of us. A great deal of energy, bolshevik persistence and boldness, the creative efforts of the whole Party and all the people will be required to successfully solve the tasks set by the Congress.

We are looking to the future with confidence and optimism. It is well-founded optimism. It is based on a realistic evaluation of our huge potentialities, on the inexhaustible strength of our Party, of all the people.

We have created highly developed productive forces, the correct use of which will ensure our accelerated advance to communism in the coming few years. We have a mighty Party which has accumulated a wealth of experience in guiding society during the half-century-long history of Soviet power, during the years of socialist and communist construction.

We have trained excellent personnel in all branches of production, science and culture. The Soviet working class, collective farm peasantry and people's intelligentsia heartily support the policy of the Party, regarding its plans as their own vital cause.

Our Party, founded and reared by the great revolutionary Vladimir Ilyich Lenin, has traversed a glorious road. Lenin taught us that the main source of the Party's strength and the pledge of its victories lies in its inseparable ties with the people, in its ability to inspire and organize the working people in the struggle for communism.

We Communists, the true successors and continuers of Lenin's cause, will always treasure his behests, the militant traditions of our Party and the working class, the entire international communist movement.

Mobilizing all our strength and energy, we shall confidently advance to new victories of our great communist cause.

Excerpts from report delivered by Alexei Kosygin, Chairman of the USSR Council of Ministers, at the Twenty-third Congress of the CPSU

THE THEORETICAL FOUNDATION of the new five-year plan, as of Soviet economic policy generally, is the science of Marxism-Leninism. In defining the major goals of the five-year plan, the Party is guided by Lenin's teachings on building communism, a socialist economy, a socialist state system and the scientific regulation of economic and social processes. At the same time, the Party takes into consideration the experience gained by the USSR in socialist and communist construction as well as the experience of the other socialist countries. The principal directions of Soviet economic development in the new five-year plan follow the main trends of the modern scientific and technical revolution and take into account the latest findings of physics, chemistry, mathematics, cybernetics, biology and the other sciences.

Accelerated Rate

The draft directives state that the Party considers the *principal economic goal* of the five-year plan to be a considerable growth of industry and high stable rates of agricultural development in order to secure a substantial rise in living standards and the more complete satisfaction of the material and cultural requirements of all the Soviet people. This is to be accomplished through the maximum application of the findings of science and technology, the industrial development of all of social production, greater efficiency and higher labor productivity.

To reach this goal, the plan provides for a faster rate of growth of the gross social product, the national income and the real income of the population than during the preceding five years.

The gross social product is to increase by 40 per cent, and basic production assets by more than 50 per cent, a rise of 60 per cent for industry and roughly 90 per cent for agriculture. The national income is to rise by 38 to 41 per cent, and real income (per capita) by 30 per cent.

These targets rest on a sound economic and scientific foundation. They have been set to meet the growing requirements of Soviet society and are consistent with the actual level of our economic development and the realistic possibilities of expanding social production.

Emphasis on Science

The rapid application of scientific and technical findings to production has now become the main requisite for raising the productivity of labor. Without it, we cannot possibly build the material and technical basis of communism. Science plays an enormous role not only in developing and multiplying labor efficiency; it also contributes greatly toward satisfying people's day-to-day requirements and improving working and living conditions. The course that economic competition between the two world systems will take depends, in large measure, on the level of scientific development and the scale of application of research findings.

In this context, the five-year plan must provide for a greater acceleration of fundamental and theoretical, as well as applied research and for the concentration of funds and resources in the key and most promising scientific and technological fields.

Inventors, rationalizers and scientific and technical societies are called upon to play a larger role in accelerating technical progress by applying the findings of science and technology. They also have a large contribution to make in developing and improving production techniques. Economic agencies and public institutions are asked to provide inventors, rationalizers and members of scientific and technical societies with the most favorable conditions for creative work.

Labor Productivity's Growth

The plan envisages an increase in the rate of growth of labor productivity through the large-scale application of scientific and technical findings, greater specialization, better organization of labor, improvement of skills and more attractive economic incentives. The average annual rate of growth of labor productivity per working person will rise to 6 per cent in industry as against 4.6 per cent in 1961-65, to 6.6 per cent in construction as against 5.3 per cent, and to approximately 7 per cent on state farms and collective farms as against 3.7 per cent.

Far-reaching steps are to be taken to provide better working conditions and lighten the labor of workers, and to replace manual labor with machines. Modern machines will lighten not only manual but also mental work and raise its efficiency.

Scientific and technical progress goes hand in hand with higher quality goods. To improve quality, we must be insistent on discontinuing the production of all obsolescent goods, replacing them with new items which meet modern standards. This approach must be clearly indicated in the five-year plans of industries and individual enterprises. In the next five years industry must produce more and more new types of goods of a quality higher than that of world standards.

The output-to-production ratio of assets (in terms of the quantity and quality of products marketed and in terms of profit) must become a major criterion in assessing the work of each enterprise.

Raising Living Standards

The draft directives provide for a considerable decrease in the cost of production and an increase in the profitability* of the whole economy, including a more than twofold increase of the total profit in industry. This will be the main source for raising living standards.

The development of production and its greater efficiency, as envisaged by the draft directives, constitute the basis for the far-reaching social and economic program of the next five years.

One of the cardinal tasks of the five-year plan is to raise the standard of living more rapidly.

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*Ratio of profits to assets.

TARGETS OF THE NEW FIVE-YEAR PLAN

Real incomes will rise rapidly as the national income grows. In the next five years the consumption fund will grow by 36 to 39 per cent as compared with the five years preceding. In other words, the consumption fund will grow at an annual average rate of 11 billion rubles as compared with 6.5 billion rubles in the last five years.

In 1970 the resources used for raising living standards should be roughly 59 billion rubles more than the 1965 figure.

Change of Proportions

For many years the production rate of consumer goods lagged markedly behind that of producer goods. The level of development reached by the economy makes it possible for the new five-year plan to forecast a considerable growth in the rate of development of agriculture to bring it closer to the rate of industrial development, and as far as industry is concerned, to narrow the gap between the rate of consumer goods and producer goods production. With the gross industrial product to rise by 47 to 50 per cent, the output of Group A (producers' goods) is to go up by 49 to 52 per cent, and of Group B (consumers' goods) by 43 to 46 per cent. In the preceding five-year period, Group A rose by 58 per cent and Group B by only 36 per cent.

The next five years will thus witness an essential change of proportions in the national economy, a redistribution of funds in favor of consumer go[redacted]duction while continuing to give [redacted]oduction of the means of

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[redacted]gates representing 12.5 million [redacted] the Kremlin Palace of Congresses to map the co[redacted]

activity. The principle of profitability must be introduced and applied throughout, in all branches and links of the economy.

The Union Republics

The draft directives foresee a continued powerful surge forward of the economy and culture of all the union republics. They are the products of the Party's Leninist national policy, aimed at the greatest consolidation of the friendship and fraternity of the peoples of the USSR. In the next five years the volume of industrial output is to rise by roughly 50 per cent in the RSFSR, the Ukraine, Latvia and Estonia, by 60 per cent in Georgia, Azerbaijan, Uzbekistan, Kirghizia and Turkmenia, by 70 per cent in Byelorussia, Kazakhstan, Lithuania and Moldavia, and by 80 per cent in Tajikistan and Armenia—this to ensure a more rapid industrial growth in those republics where industry was previously less well developed.

It is of prime importance to locate the productive forces in the union republics and economic areas of the country rationally and with the greatest efficiency. In the next five years we must boost industrial and agricultural production in the areas east of the Urals, where vast resources of industrial raw materials, fuel and electric power are concentrated.

Large-scale economic construction is to be started in the eastern areas of the country. A number of sweeping economic projects, including mining and processing enterprises, new railways, automobile roads and oil and gas pipelines are to be built in these areas around deposits of oil, gas, cheap coal, ferrous and nonferrous metals, and other re[redacted] have been

Cosmonaut Alexei Leonov, the first man to walk in space, has a talk with miner Nikolai Kochetkov from the Kuzbas, Siberia, where Leonov once lived.

of

FACTS & FIGURES

During the next five years (1966-1970) the gross social product will increase by an average of more than 7 per cent annually as against a little over 6 per cent during the preceding five years. The plan calls for an increase in the volume of industrial output by approximately 50 per cent and of agricultural output by 25 per cent.

Investments will total approximately 310 billion rubles, i.e., 50 per cent more than for the preceding five years.

An important characteristic of the coming five-year period is that the gap between the rate of growth of the production of the means of production (Group A) and the production of consumer goods (Group B) will be narrowed down considerably.

In the preceding five-year period Group A was increased by 58 per cent and Group B by 36 per cent. In the next five years we plan a 49 to 52 per cent and a 43 to 46 per cent increase respectively.

CONSUMER GOODS OUTPUT

	1928	1940	1945	1958	1965
All types of fabrics (billion meters)	3.0	4.5	1.8	7.5	9.1
Knit goods (millions)	8.3	183	50	496	907
Footwear (million pairs)	58	211	63	356	486
Granulated sugar (million metric tons)	1.3	2.2	0.5	5.2	8.9
Radio receivers (thousands)	—	160.5	13.9	3,902	5,159
Television sets (thousands)	—	0.3	—	979	3,655
Refrigerators (thousands)	—	3.5	0.3	360	1,675

The table shows that the production of fabrics during the five-year plan periods increased by 200 per cent; leather footwear by 740 per cent; and granulated sugar by 600 per cent.

For light industry, almost 300 large enterprises will be built and more than 100 renovated. The annual growth rate in light industry is to go up 110 per cent. In 1970, it will manufacture 11.4 to 11.7 billion square yards of fabrics, 1.65 to 1.75 billion pieces of knit goods and 610 to 630 million pairs of leather footwear. The knit goods industry is to get special attention. The plan calls for 75 new knit goods factories and more than 100 new garment factories. Capacities for the manufacture of 120 million pairs of shoes a year are to be built.

In 1965, retail sales totaled 104.6 billion rubles, surpassing the 1960 figure by 34 per cent.

The plan calls for a sharp increase in the number of factories built for the light, food, chemical and other industries producing consumer goods. Some 15 billion rubles, or nearly twice as much as was spent in the previous five years, are to be allocated for this purpose in 1966-1970.

FACTS & FIGURES

In the 1959-65 period the national income used for accumulation and consumption increased by 53 per cent, industrial production by 84 per cent. The basic assets of the economy increased by 92 per cent. Industrial enterprises exceeded output targets to the tune of 46 billion rubles.

In the 1961-65 period capital invested came to 211 billion rubles, approximately as much as during the preceding 10 years.

In 1940 the Soviet Union produced 18.3 million metric tons of steel, 13.1 million tons of rolled goods, 31.1 million tons of oil, 5.7 million tons of cement, 145,400 motor vehicles, 31,600 tractors, 48.3 billion kilowatt-hours of electricity.

Over 20 million Soviet people perished during the war, and an enormous stretch of country, from the western frontier to the Volga, was left in ruins—thousands of towns and villages, tens of thousands of factories, mines and other enterprises, state and collective farms, schools and houses.

In 1965, the year of the twentieth anniversary of victory over fascism and the last year of the seven-year plan, our industry was producing 5 times as much steel as in 1940, 5.5 times as much rolled goods, almost 8 times as much oil, practically 13 times as much cement, 4.2 times as many motor vehicles, more than 11 times as many tractors and 10.5 times as much electric power.

HEAVY INDUSTRY OUTPUT

	1928	1940	1945	1958	1965
Electric power (billion kilowatt hours)	5.0	48.3	43.3	235	507
Steel (million metric tons)	4.3	18.3	12.3	54.9	91.0
Oil (million metric tons)	11.6	31.1	19.4	113	243
Gas (billion cubic meters)	0.3	3.4	3.4	29.9	129
Coal (million metric tons)	35.5	166	149	493	578
Cement (million metric tons)	1.8	5.7	1.8	33.3	72.4
Metal-cutting lathes (thousands)	2.0	58.4	38.4	138	185
Motor vehicles (thousands)	0.8	145	75	511	616
Tractors (thousands)	1.3	31.6	7.7	220	355
Mineral fertilizer (in conventional units, million metric tons)	0.14	3.2	1.1	12.4	31.3

The Soviet Union's share in world industrial output is rising steadily. In 1965 the USSR accounted for about one-fifth of world industrial production; on the eve of the Second World War the Soviet Union's share was less than one tenth. The population of the USSR is no more than 7 per cent of the world total.

Technical progress, mechanization and automation made it possible to increase the productivity of labor in industry by 25 per cent.

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The plan envisages an increase in the rate of growth of labor productivity through the large-scale application of scientific and technical findings, greater specialization, better organization of labor, improvement of skills and more attractive economic incentives. The average annual rate of growth of labor productivity per working person will rise to 6 per cent in industry as against 4.6 per cent in 1961-65, to 6.6 per cent in construction as against 5.3 per cent, and to approximately 7 per cent on state farms and collective farms as against 3.7 per cent.

Far-reaching steps are to be taken to provide better working conditions and lighten the labor of workers, and to replace manual labor with machines. Modern machines will lighten not only manual but also mental work and raise its efficiency.

Scientific and technical progress goes hand in hand with higher quality goods. To improve quality, we must be insistent on discontinuing the production of all obsolescent goods, replacing them with new items which meet modern standards. This approach must be clearly indicated in the five-year plans of industries and individual enterprises. In the next five years industry must produce more and more new types of goods of a quality higher than that of world standards.

The output-to-production ratio of assets (in terms of the quantity and quality of products marketed and in terms of profit) must become a major criterion in assessing the work of each enterprise.

Raising Living Standards

The draft directives provide for a considerable decrease in the cost of production and an increase in the profitability* of the whole economy, including a more than twofold increase of the total profit in industry. This will be the main source for raising living standards.

The development of production and its greater efficiency, as envisaged by the draft directives, constitute the basis for the far-reaching social and economic program of the next five years.

One of the cardinal tasks of the five-year plan is to raise the standard of living more rapidly.

*Ratio of profits to assets.

TARGETS OF THE NEW FIVE-YEAR PLAN

Real incomes will rise rapidly as the national income grows. In the next five years the consumption fund will grow by 36 to 39 per cent as compared with the five years preceding. In other words, the consumption fund will grow at an annual average rate of 11 billion rubles as compared with 6.5 billion rubles in the last five years.

In 1970 the resources used for raising living standards should be roughly 59 billion rubles more than the 1965 figure.

Change of Proportions

For many years the production rate of consumer goods lagged markedly behind that of producer goods. The level of development reached by the economy makes it possible for the new five-year plan to forecast a considerable growth in the rate of development of agriculture to bring it closer to the rate of industrial development, and as far as industry is concerned, to narrow the gap between the rate of consumer goods and producer goods production. With the gross industrial product to rise by 47 to 50 per cent, the output of Group A (producers' goods) is to go up by 49 to 52 per cent, and of Group B (consumers' goods) by 43 to 46 per cent. In the preceding five-year period, Group A rose by 58 per cent and Group B by only 36 per cent.

The next five years will thus witness an essential change of proportions in the national economy, a redistribution of funds in favor of consumer go[illegible]duction while continuing to give [illegible]roduction of the means of

It goes [illegible] activity. The principle of profitability must be introduced and applied throughout, in all branches and links of the economy.

The Union Republics

The draft directives foresee a continued powerful surge forward of the economy and culture of all the union republics. They are the products of the Party's Leninist national policy, aimed at the greatest consolidation of the friendship and fraternity of the peoples of the USSR. In the next five years the volume of industrial output is to rise by roughly 50 per cent in the RSFSR, the Ukraine, Latvia and Estonia, by 60 per cent in Georgia, Azerbaijan, Uzbekistan, Kirghizia and Turkmenia, by 70 per cent in Byelorussia, Kazakhstan, Lithuania and Moldavia, and by 80 per cent in Tajikistan and Armenia—this to ensure a more rapid industrial growth in those republics where industry was previously less well developed.

It is of prime importance to locate the productive forces in the union republics and economic areas of the country rationally and with the greatest efficiency. In the next five years we must boost industrial and agricultural production in the areas east of the Urals, where vast resources of industrial raw materials, fuel and electric power are concentrated.

Large-scale economic construction is to be started in the eastern areas of the country. A number of sweeping economic projects, including mining and processing enterprises, new railways, automobile roads and oil and gas pipelines are to be built in these areas around deposits of oil, gas, cheap coal, ferr[illegible]ous metals, and other re[illegible] have been

[illegible]of

FACTS & FIGURES

During the next five years (1966-1970) the gross social product will increase by an average of more than 7 per cent annually as against a little over 6 per cent during the preceding five years. The plan calls for an increase in the volume of industrial output by approximately 50 per cent and of agricultural output by 25 per cent.

Investments will total approximately 310 billion rubles, i.e., 50 per cent more than for the preceding five years.

An important characteristic of the coming five-year period is that the gap between the rate of growth of the production of the means of production (Group A) and the production of consumer goods (Group B) will be narrowed down considerably.

In the preceding five-year period Group A was increased by 58 per cent and Group B by 36 per cent. In the next five years we plan a 49 to 52 per cent and a 43 to 46 per cent increase respectively.

CONSUMER GOODS OUTPUT

	1928	1940	1945	1958	1965
All types of fabrics (billion meters)	3.0	4.5	1.8	7.5	9.1
Knit goods (millions)	8.3	183	50	496	907
Footwear (million pairs)	58	211	63	356	486
Granulated sugar (million metric tons)	1.3	2.2	0.5	5.2	8.9
Radio receivers (thousands)	—	160.5	13.9	3,902	5,159
Television sets (thousands)	—	0.3	—	979	3,655
Refrigerators (thousands)	—	3.5	0.3	360	1,675

The table shows that the production of fabrics during the five-year plan periods increased by 200 per cent; leather footwear by 740 per cent; and granulated sugar by 600 per cent.

For light industry, almost 300 large enterprises will be built and more than 100 renovated. The annual growth rate in light industry is to go up 110 per cent. In 1970, it will manufacture 11.4 to 11.7 billion square yards of fabrics, 1.65 to 1.75 billion pieces of knit goods and 610 to 630 million pairs of leather footwear. The knit goods industry is to get special attention. The plan calls for 75 new knit goods factories and more than 100 new garment factories. Capacities for the manufacture of 120 million pairs of shoes a year are to be built.

In 1965, retail sales totaled 104.6 billion rubles, surpassing the 1960 figure by 34 per cent.

The plan calls for a sharp increase in the number of factories built for the light, food, chemical and other industries producing consumer goods. Some 15 billion rubles, or nearly twice as much as was spent in the previous five years, are to be allocated for this purpose in 1966-1970.

FACTS & FIGURES

On the whole, in the period covered by the five-year plans the average annual volume of farm output rose by almost 150 per cent. In the same period, however, the population increased by 50 per cent and its purchasing capacity increased even more. The growth of farm output was therefore inadequate to meet all the country's requirements.

AGRICULTURAL OUTPUT

	1924-28	1936-40	1946-50	1956-60	1961-65
Total agricultural output (billion rubles)	22.0	23.5	27.3	46.7	52.3
Production of key items					
Cereals (million metric tons)	69.3	77.4	64.8	121.5	130.2
Raw cotton (million metric tons)	0.6	2.5	2.3	4.4	5.0
Meat, slaughterhouse weight (million metric tons)	4.2	4.0	3.5	7.9	9.3
Milk (million metric tons)	29.3	26.5	32.3	57.2	64.7
Eggs (billions)	9.2	9.6	7.5	23.6	28.7
Wool (thousand metric tons)	157	129	147	317	361

Despite last year's severe drought that struck many regions, particularly those producing marketable grain, the total output of farm produce added up, in comparable prices, to 55 billion rubles, which exceeds the value of the output of any preceding year. In 1965 the collective and state farms had fairly good harvests of most crops with the exception of grain.

The annual average volume of all farm produce is to increase, over the coming five years (1966-70) by 25 per cent, as compared with the preceding five-year period.

The production of cereals is to increase at a priority rate. The annual average grain output is to go up by 30 per cent, to 167 million metric tons.

By the end of the five-year period, the production of meat from state farms is to go up to 5.9 to 6.2 million tons, as compared with the 4.8 million tons in 1965.

Within five years the power facilities per farm worker will double the 1965 figure.

The collective and state farms will get 1,790,000 tractors, or 60 per cent more than in the preceding five years, 1,100,000 trucks, 550,000 grain harvesters and a great deal of other equipment.

In 1970, the consumption of electric power in the countryside will go up to 60 to 65 billion kilowatt-hours; that is 200 per cent the 1965 level, and 30 per cent higher than the total electric power consumption in 1940. The electric networks in the countryside are to double, and the share of centralized power supplied to collective and state farms from state power grids and electric power stations is to increase.

Mikhail Suslov (center), Secretary of the Central Committee, with some delegates from the 86 foreign Communist Parties represented at the Congress.

TWENTY-THIRD CONGRESS OF THE CPSU

Chingis Aitmatov (left), kno[w]n ... Kirghizia, and

Mstislav Keldysh (center), President of the Academy of Sciences. Forty-five delegates were members or corresponding members of the academy.

Some 5,000 delegates representing 12.5 million Soviet Communists gathered in the Kremlin Palace of Congresses to map the course of Party activities.

Cosmonaut Alexei Leonov, the first man to walk in space, has a talk with miner Nikolai Kochetkov from the Kuzbas, Siberia, where Leonov once lived.

FACTS & FIGURES

In the past seven-year period the population grew by 23 million to a total of 232 million. The number of industrial and office workers went up from 56 to 77 million. We now have many more specialists in industry, agriculture, transport and construction, and many more workers in science, culture, education, public health and other professional fields. This is evident from the following figures:

	1926 Census	1959 Census	End of 1965
Total number of intellectuals and professionals (millions)	2.6	20.5	25.3
Those with specialized secondary or higher education (millions)	0.5	7.5	12.1

The social structure of Soviet society has undergone significant changes in the past seven years. The number of workers has increased by 14 million, and the number of specialists and office workers by 7 million. The growth in the number of workers reflects the high rates of industrial growth and is evidence of the rising role of the working class and of the stability of the socialist system. Factory, office and professional workers and their families now constitute 75.4 per cent of the population, and collective farmers make up the other 24.6 per cent.

In the last five years the national income increased 33 per cent. Last year it exceeded 190 billion rubles. Nearly three-fourths of this sum, 141 billion rubles, was spent to satisfy the requirements of the people.

In this period the average wage of factory and office workers increased 19 per cent. Wages of people employed directly in the social services have been raised. That includes people in education, health, culture, retail trade, housing and community services.

At the same time prices were cut on woolen, silk and linen textiles, some items of wearing apparel, ready-made children's clothing, clocks and watches, bicycles, cameras, medicines and some other consumer goods.

In the next five years real income per capita will rise about 30 per cent. The minimum wage will be raised to 60 rubles a month. As much as 12.5 billion rubles will have to be budgeted annually to cover this new minimum as well as the intended raise for factory and office workers.

Besides raising and adjusting wages, the new five-year plan will cut retail prices on goods as their output increases and the productivity of labor climbs.

The income tax paid by factory and office workers will be gradually reduced, as it has been for some time now, and will eventually be abolished.

The present procedure of distributing the money earned jointly by the collective farmers often means that their income fluctuates. A guaranteed monthly income is to be introduced over the next five years.

DEVELOPMENT OF DEMOCRACY

THE CONSTRUCTION of communism is a many-sided process encompassing every aspect of social activity—economic, civic, cultural, social. The development of this process and its proper guidance are possible only with the active participation of millions of people and with their collective experience.

That is why communist construction is inseparable from the development of democracy. The working people are enlisted in that stupendous creative process by the Party through the mass organizations—the local Soviets, the trade unions, the YCL, the cooperatives, etc.

Great Opportunities

The development of the country's economy and the rise in living and cultural standards present ever greater opportunities for the participation of the working people in the management of the economy, and the participation of the people in this process becomes, in turn, a mighty factor for economic development. Lenin brilliantly foresaw this process—both its single and dual aspects—when he said that socialist democracy would exert an influence on the economy as well, would accelerate its transformation and would itself be influenced by economic development.

That is why the Party believes that its most important task is to involve more and more working people in every sphere of the country's life, to keep improving our methods of enlisting the people in management.

The Soviets of Working People's Deputies, as an all-embracing organization of the people embodying their unity, has a special role in this regard. It is through the Soviets that our people are united in their socialist state, which is the prime tool for communist construction.

It is through the state, and especially through the Soviets, that our Party organizes and welds the masses in the struggle for communism and ensures planned economic and cultural development and the defense of the gains of socialism.

There are more than two million delegates in the Soviets of Working People's Deputies. They are supported by more than 23 million activists and the broadest sections of the population.

The Work of the Soviets

The Soviets have made their substantial contribution to the gains our people have marked up under the guidance of the Party. However, the complex problems of the present stage of communist construction requires that we make a critical assessment of the activities of the Soviets. We must admit that they make far from complete use of the opportunities and rights given them by the Constitution. The level of organizational work of many Soviets is too low, nor do they show sufficient initiative.

The report of the Central Committee emphasized the need for improving the work of the Soviets. They are both organs of state power and our largest mass organizations. The report calls upon them to exert more influence on economic and cultural development and on every other facet of the country's activity.

The program mapped out in the draft directives of the new five-year plan foresees the most active participation of the organs of local power in economic affairs. By using the powers vested in them they can exert a continuous and wide-ranging influence on economic and cultural development and see to it that proper use is made of manpower and natural resources.

Since they represent all the people, the Soviets must make the most exacting claims on all economic units and agencies located in their areas of jurisdiction, regardless of who the economic unit or agency is directly responsible to, if we are to do away with narrow departmentalism. Unfortunately, we still have any number of instances in which parochial blinkers prevent some economic managers from tapping existing possibilities for improving conditions: the construction of housing, children's institutions and public service facilities. It is right here that a Soviet and its executive committee should take a principled approach, show initiative and tenacity.

How well and how fast local industry, trade, commerce and utility services develop depends directly on the work of the local Soviets and the level of their guidance.

This assumes, however, that problems of local importance are handed over to the local organs of power for final solution and that the Soviets make full use of the powers which they have already been given by the Constitution.

Duties and Powers

For the Soviets to make effective use of these powers they must have the support of the Party organs. The task of these Party organs is to outline major directions of activity for the Soviets, to encourage initiative and to see that local government personnel is trained and developed.

The Central Committee's report once again draws the attention of Party organs to the need for weeding out any elements of petty patronage, cases where the Party bodies do the work of the local Soviets. This is demanded by the Party Rules. As we know, the first and basic principles of Party guidance of the Soviets were adopted at the Eighth Party Congress, when Lenin was still alive.

We all know this, of course. But, unfortunately, we often violate these principles in practice. There are cases when, instead of educating economic executives to respect the decisions of the Soviets, some Party committees actually take over the functions for which the Soviets are responsible. Any number of instances were cited at the republican congresses and Party conferences where city and district Party committees took over such functions as auto inspection, distribution of pasture lands, road repairs and even less important duties.

The Soviets and Agriculture

Among the basic tasks set by the Party for the immediate future is farm development. The realistic measures worked out by the Central Committee open up opportunities for

Excerpts from speech by Nikolai Podgorny, President of the Presidium of the USSR Supreme Soviet

a rapid development of that branch of the economy and for consistently reducing the economic and cultural disparities between rural and urban living.

An essential element is to improve the democratic guidance of collective farm life. An important step in this direction will be the new Model Rules for an Agricultural Artel to be adopted by the coming Third Congress of Collective Farmers. The Central Committee has submitted for the consideration of our Congress one more proposal which will further democratize collective farm management—the organization of collective farm-cooperative bodies. This proposal, which has been welcomed by the delegates of the Congress, will undoubtedly pose a number of practical questions for the Soviets.

Side by side with the District Soviets, the Village Soviets, too, will have to play their part in solving the essential tasks facing agriculture. Many of them do show initiative and try to exert an influence on the collective and state farms.

Know the Public Needs

Village Soviets are the primary link of Soviet power. They have direct contact with millions of working people. Their duty and concern is to render all-around service to the population. The local Party and government bodies should pay much more attention to the work of the Village Soviets. It will be necessary, obviously, to make a thorough analysis of the practical side of their work, to concretize their powers and to find solutions to a number of pressing questions.

The local Soviets are called upon to coordinate and supervise the activities of all the enterprises and agencies that serve the public. The Soviets must know the cultural and everyday economic needs of the working people. They must know where to locate and how to make the most effective use of the movie theaters, clubs, shops, public dining halls and medical establishments. The Soviets must know how to organize the work of these bodies. However, there are quite a number of Soviets which pay little attention to these areas of activity.

Several of the republics do not spend all the funds they are allocated for the construction of cultural and service facilities. In the past five years the plan for building hospitals and clinics in Azerbaijan was fulfilled by only 46 per cent, the plan for preschool establishments in Kazakhstan was fulfilled by only 67 per cent, and the plan for schools of general education in Turkmenia by only 68 per cent.

Supervise Executive Bodies

These facts point to the need for stricter control by the Soviets and their standing committees of the work of executive bodies responsible for economic and cultural development. This is one of the principal ways to enhance the role of the Soviets, which serve as the foundation for the entire state apparatus. All executive committees, their departments and sections must report regularly to the Soviets and to the public, and, most important of all, these reports must be businesslike, not merely a formality.

The Party directive for the consistent development of Soviet democracy and a larger role for the Soviets should also be reflected in the work of the country's most authoritative body —the USSR Supreme Soviet. It will have to apply a number of important decisions the Congress has made, it will have to discuss and approve the new five-year economic plan. The scope of questions bearing on economic, sociocultural and state development to be submitted to the sessions for consideration will be enlarged.

The Supreme Soviet should further strengthen its control over its subordinate bodies. There is ample justification for the Central Committee to raise the question of conducting on a wider scale hearings of the reports of the Government at the Supreme Soviet sessions and of forming new standing committees in the chambers of the Supreme Soviet. These measures will stimulate the activity of the Supreme Soviet deputies, utilize their experience more fully. It will require them to take greater account of the views of the electors they represent.

Greater Demands

Working people are making ever greater demands on their deputies. Cases in which nominated candidates were rejected and the deputies were recalled by the electorate for not justifying the confidence placed in them testify to the exacting demands of the people. Last year, for instance, more than 350 deputies were recalled from Soviets at all levels.

The Party has done notable work in strengthening socialist law and order, in removing the harmful residues of the personality cult, in improving Soviet legislation. Economic and cultural development raises new questions which require new legislation. After all, legislation is one of the means for guiding our economy, for introducing cost accounting, for strengthening state discipline, for combatting infringements of law. The time has come to make our laws on the use of land, mineral wealth, forests and water resources as well as on a number of other matters consistent with present-day requirements.

We must also consider the responsibility of ministries and administrative agencies for the way enterprises and organizations under their jurisdiction obey the laws. We must enlarge the supervisory powers of the procurator's office on the punctuality with which legal requirements are met so that the rights and interests of citizens are not violated. We must wage a resolute struggle against any manifestations of bureaucracy, against inattentive and offhand attitudes to proposals and complaints made by the working people. All the Soviets should focus their attention on these problems.

FACTS & FIGURES

More than 12 million specialists, including about 5 million with a higher education, are employed in the different economic and cultural areas. The demand for competent speciallists has grown enormously. To help meet that demand the number of students at specialized secondary and higher schools will increase by almost one million in the next five years.

Today, more than 660,000 scientific workers are employed in the country's 4,650 research institutions and faculties of schools of higher education. They make up one-fourth of all the scientific workers in the world.

The more than 2.4 million teachers constitute one of the largest groups of the Soviet intelligentsia.

We have 214,000 general schools with a total enrollment of more than 48 million. More than 22,000 new schools are scheduled for 1966-70.

There are more than 4,000 vocational and technical schools in the USSR attended by 1.5 million young men and women. In the coming five years these schools will train 6 million workers.

In the present 1965-66 academic year, 3,830,000 students are enrolled in Soviet higher educational institutions. By the end of the new five-year plan period, annual admissions will rise to 940,000 and the total enrollment to about five million.

In recent years the Soviet Union has had the world's lowest mortality rate. Many diseases, especially infectious diseases, have been successfully combatted. Over 4 million medical workers including 555,000 physicians are engaged in health protection.

In 1965 for every 100,000 of population there were 239 doctors (excluding military doctors). This figure is larger than in any other country of the world.

The new five-year plan provides for greater specialization of medical aid and expansion of the material and technical facilities in the public health services.

The number of children accommodated in state preschool institutions is to grow to 12.2 million in 1970, 60 per cent more than in 1965.

In 1959-1965 almost 17 million apartments and cottages were built in urban and rural areas. This amounted to nearly 40 per cent of the country's housing at the start of the seven-year plan.

In the past 10 years about half of the population moved into new apartments or improved its housing.

In 1966-70 houses with a total floor space of over 480 million square meters will be built in towns, urban-type settlements and state farms. In addition, 2 to 2.5 million dwellings are to be built by individuals and collective farms in rural areas. The volume of cooperative house building will increase by 200 to 300 per cent, and some 65 million people will move into new houses as compared with 54 million during the preceding five years.

PHOTOGRAPHS BY YURI CHERNYSHEV

HEY, MOM, BUY ME . . . !

THERE WAS much juvenile excitement and commotion at Moscow's large exhibition hall between October 1 and December 20 of last year. The occasion? A toy show. It attracted throngs of jubilant youngsters who came early and waited with inordinate patience for admission to this children's heaven—40,000 different toys!

They roamed wonder-struck from one display to another. It was hard for accompanying parents and grandparents to tear them away. There were frequent gasps of admiration and almost as frequent cries of "Hey, Mom, buy me . . . !" The repeated explanations that these were not for sale did not always stop the tears. The children were not interested in subtle distinctions between exhibitions and stores or toymakers and toyshop buyers.

But those who decide which dolls, bunnies, planes and other toys should end up on the counter were very much interested in what the children liked and yelled for. A large element in their decisions as to which toy factories to sign contracts with is—the most yelled for toys. Thus after the exhibition closed, the Trade Ministry carefully considered the reported juvenile comments as well as the 5,000-odd entries made by their parents in the visitors' book.

The result of this sifting of opinions was that 20 per cent of the toy models were scrapped, among them some of the hideous rubber and celluloid dolls that might well have given impressionable children nightmares. Incidentally the best workers' teams of the 710 toy factories exhibiting their samples were awarded trips abroad as prizes.

To toymakers, toys are very serious business. Their production has doubled in the last five years, but there is still a crying demand for greater variety and better quality. Some of the toys are too crude—dolls with stupid faces, bunnies that look like monsters and the like. They are being replaced by toys that help children to develop taste and imagination.

HEY, MOM, BUY ME . . . !

LETTERS TO THE EDITOR

MEDICAL RESEARCH

Dear Sir:

I wish to thank you very much for your good efforts in properly informing the people in the U.S. about what is going on in the USSR through SOVIET LIFE. These efforts are bearing fruit as more people realize that peace and progress are the earnest desires of the people of the USSR, not only for themselves but for all the world.

I would call your attention to your incomplete answer to a question in the May issue—the question asked by John Duerr, Ashland, Nebraska. You misunderstood the question as asking how you take care of the sick, whereas what he meant was whether you raise money as we sometimes do here (through charity, of course) through collection cans in various places *but for various groups who are experimenting in finding cures for the various conditions of cancer, etc.* Most knowledgeable people would not have had to ask the question because the answer is implicit in your system, mainly that the state through its representatives does what needs to be done to take care of its citizens whether it be direct medical care or experimenting in finding cures for various conditions. I would therefore suggest that you re-answer the gentleman explaining that the state does in fact pay for all experimenting in finding not only cures but prevention of disease and also that the various agencies cooperate with each other to advantage, thus saving much work and keeping the cost down, whereas in the U.S. there is vast duplication of work which engenders great waste in time and money. . . .

Yours sincerely,
Dr. Ralph R. Sackley
Chicago, Illinois

Thank you for your criticism. We hope to discuss this question in one of our coming issues.

Editor

MORE VARIETY

Dear Comrades,

As a writer for SOVIET LIFE and therefore a specially interested party, I would like to make a few suggestions that would contribute to the purpose of your magazine—creating better understanding between the Soviet and American people. I think you should devote more room to a variety of fields of general interest.

On both sides of the water these days most people are interested in science. You do cover nuclear and space developments, but you barely skim the surface of other areas of science. One thing that comes to mind is the discovery of new oil and gas deposits. A good many people in the United States own gas and oil stocks and are very much interested in the increased extraction of these fuels. We not only have new fields in West Siberia, the Kara-Kum, near Mangyshlak and Irkutsk and elsewhere, but also the possibility of oil in the northern part of the country.

More material on the development of desert and tundra zones, especially permafrost, and the forest zone would, I believe, interest many American readers. In the United States cotton is planted on stretches of sand and a great deal of work is being done to open up permafrost areas. We should be sharing our know-how.

Now about a quite different field, linguistics. In Siberia recently I learned about the studies that Tomsk University Professor Andrei Dulson was making of the language of the Kets, a tiny nationality—only 1,000 left—living in the northern part of Krasnoyarsk Territory. He believes that they settled in Western Siberia earlier than the other indigenous nationalities—the Hants, the Mansi, the Turks and the Samoyeds. Studying the language of the Kets, he found that it was unlike any other language in Siberia and the Soviet Far East. But in structure it resembles the languages of the Caucasian highlanders, the Spanish Basques and the American Indians. The fact that they have some words in common indicates that they must once have had contact. The first volume of Dulson's *An Outline of the Grammar of the Ket Language* published by Tomsk University has attracted the attention of linguists in many countries, including the United States. This ethnographic and linguistic problem would make interesting reading.

Yours sincerely,
Vladimir Keler

THE BEAUTY OF THE CAUCASUS

Dear Sir:

. . . Recently I had a discussion with my fellow workers at the electronics laboratory where I work. They were doubtful about the fact that Elbrus is the highest mountain in Europe. In fact, few had even heard of it. . . . Perhaps you could write an article about the beauty of the Caucasus, including Mt. Elbrus. Most people will surely not have heard of it. The beauty of the Caucasus could attract millions of tourists once it becomes popular and better known.

Greetings to you all,
H. F. Gutke
Westfalen, Germany

An article on ski trails on Mt. Elbrus appeared in the January 1966 issue. There will be a more definitive article on the Caucasus in a subsequent issue.

Editor

YESTERDAY, TODAY, TOMORROW

Yesterday: The Rock-Bottom Of Optimism

By Vladimir Keler

Vladimir Keler is a well-known science fiction writer **(On the Threshold of the Unknown, An Invitation to Discoveries, Homo Sapiens *and* The Return of a Magician).** ***For several years he coedited the international annual*** **Science and Man.** ***Novosti Press Agency recently published his new book*** **Man and Nature.** ***This article is the first part of his essay "Yesterday, Today, Tomorrow."***

THE FUTURE is built today, and we are its architects. However, this truism omits a vital element: the past. We have inherited our brain from our ancestors. Thus they also contribute to the future. If we take stock of this legacy—the brain —we will have a clearer vision of our possibilities.

Thinking of man's present-day intellectual capacity, one cannot help pondering this old problem: How is it the brain evolved when its first owners did not need it nearly so much as their descendants do hundreds of thousands of years later?

Evidently, there was something in the anthropoid's environment which permitted the emergence of an immortal and ever developing human spirit, something that stimulated the evolution of that most subtle and most complex of mechanisms, our brain. Now what was it?

The Mystery of Mysteries: The Human Brain

Descriptions of evolving man usually focus on that part of his development when he learned how to use a club and to skin the animals he killed with a sharp flint. Other descriptions focus on the period before he learned to use tools. Less attention is paid to the crucial period—of hundreds of thousands of years —when he became a tool-using creature.

It is surprising that our ancestors survived. They lacked the advantages other animals had in the struggle for survival. They fell easy victims to beasts of prey before they learned how to make and use tools. They did not have the monkey's agility to climb trees and thus escape enemies. They had neither claws, fangs, horns nor hoofs for defense and attack.

Our ancestors must originally have lived in trees, science tells us. Then in the Miocene period, some 15 to 16 million years ago, they climbed down and began to group. Standing erect did develop man's hand and thus augmented his strength, but it also multiplied the hazards. Bears and lions lived in caves. Man had to fight them for dwellings or face the greater dangers of living in open country.

Man was nature's Cinderella. Stronger animals pushed him out of the most livable habitats. Icy winds stripped his body almost clean of hair. Ironically, he lost all the hair on his back, the part of his body that was most exposed to cold. He reproduced very slowly, and his offspring were defenseless against beasts of prey during their very long infancy and childhood.

What could have saved him? Herding in greater numbers? Stronger muscles?

That was the path of evolution baboons took. To survive, they began to group into large herds of several hundred. They evolved toward the brute. Their teeth grew weapon-strong, and manelike hair covered their bodies. Beasts on the hunt learned to avoid herds of baboons with their clawed paws.

This herding must also have stimulated their mental development. Ancient Egypt observed the baboon's intelligence and worshipped it as the god of wisdom, witchcraft, writing and the moon.

However, although it developed more than other species of monkeys, the baboon stayed on the animal level. It never reached the tool-making stage, probably because it was no longer threatened with extinction.

But man was threatened. Perhaps no other anthropoid suffered as much from attack, hunger, flood and volcanic eruption as man's early ancestor.

Then one of the prehuman groups developed a new defense for survival—tools. Probably most of the groups our ancestors clustered in did not reach the tool stage and died out. But those who did reach it became an evolving buffer, a shield against the elements and hostile species. Subsequent generations reinforced the shield.

The use of tools implied two crucial discoveries:

First, as important as strength is the ability to direct it. A hunter who knows how to direct his spear is stronger than a tiger. Essentially, this was the discovery of a new, powerful element of nature: vector or direction.

Second, more effective control of the elements is achieved in time than in space. A man who stores up rocks for the next day's hunting is stronger than his neighbor who throws his weapon away once the day's hunt is over.

In plants life develops upward and in width. In animals life is detached from its mother soil. Animals are truly three-dimensional because they move in space, acting on it and transforming it.

Through man, a four-dimensional creature, nature does not merely know itself but also controls and reforms itself in space and time, changing its laws.

Evolution is continuing in man and far more intensely than in the prehuman stage, but it has an essentially different type and pattern. In purely biological terms, this evolution is insignificant. It is true that over the hundreds and thousands of years the capacity of the human cortex has been much enlarged. There have been other changes, particularly in man's external structure. However, few anthropologists expect any significant

biological changes in our species, unlike animals, who are still evolving biologically and will go on evolving.

Man's evolution has moved beyond himself to machines, structures and ideas. Though created by individuals, they belong to mankind at large. Instead of the chaotic and disunited development of isolated constituents of nature, man's evolution strives to organize everything under a single intelligent plan.

Like any critical turn in the development of nature, the transition from one form of evolution to the other requires a dramatic readjustment. From the point of view of an outside observer, if there could be one, this readjustment for man was the loss of many of his instincts.

New Instincts?

Most species that left the sea for a dry land habitat had to adapt themselves to new and much more rigorous and changing conditions. They developed hereditary habits, deep-rooted instincts that saved them by accumulating the experience of many generations and evolving well-tried patterns of behavior to meet the many vicissitudes of terrestrial life.

If, however, these vicissitudes had not been part of the ancestral experience, the instincts might have been destructive. By fixing old patterns of behavior in a new environment, instincts can accelerate the extinction of a species.

This was the situation in which man's ancestors found themselves at the beginning of the Quaternary period. As the geosphere developed, terrestrial conditions changed radically. The climate became colder and other natural factors were less favorable. To survive, our ancestors had to discard behavior mechanisms based on instinct and learn how to adjust quickly to changing conditions and even to direct the change.

It is true that we still have such instinctive fears as fear of darkness and of strange uninhabited places. Children are afraid to stay home alone. The martial instinct awakens early in boys, and the maternal instinct in girls. However, man discarded many of his instincts, and that saved him.

Does this mean that man has left the instinct stage behind for good and that he will never again be able to transmit by heredity what he has acquired?

It is probable that man will regain his hereditary transmission ability but on a new, higher level.

"Perhaps the evolution of man's psyche will take the direction of hereditary transmission of human characteristics," says Soviet scientist Igor Zabelin. "A child will preserve human abilities under any conditions—he will never regress to an animal, he will always be able to learn the essentials by himself without outside help, and he will certainly preserve such qualities as the ability to speak and walk erect. In this sense man still has to develop something his biological ancestors had. However, the inheritance of basic human abilities will be merely the beginning of a much more far-reaching and complex process."

Can we now transmit and inherit any of the useful acquisitions of the human period of history, the last several dozen or hundred thousand years?

For the time being we cannot answer this question. Heredity might explain some phenomena. For example, memory of sights which a person never saw in his own lifetime but which his ancestors may have seen (hereditary memory). Genius in a family line may also be a case of the inheritance of ability. However, these are isolated instances from which no sound generalizations can be drawn.

The only conclusion that can safely be made is that older abilities are more hereditary. Acting is more hereditary than, say, drawing. Why? Because mimicking seems to have originated before drawing. Our youngest ability, writing, is never inherited.

This brings us to the question: Why haven't we begun inheriting the useful habits of the Age of Man? What are we waiting for? Or rather: What is nature waiting for?

The answer is: we have not yet developed to that stage.

"On a broad natural-historical and social plane it is too early for man to try to fix by inheritance those abilities which he has," Dr. Zabelin says. "Labor is not yet a compelling psychological need, and sympathy is shut out of many hearts. Psychological national barriers still exist."

Man has not yet reached a sufficiently high level in his ethical evolution. This is how we might sum up Dr. Zabelin's conclusion.

And, we can add: Man has not yet reached a sufficiently high level in his intellectual evolution either.

It is an understatement to say that our brain is not used to capacity. As a matter of fact, it is barely beginning to assimilate knowledge. This knowledge is still so insignificant, quantitatively speaking, that it cannot be coded in the cells and molecules of the organism and hence cannot be inherited.

We must not fear that the present-day flood of knowledge, which seems so tremendous and which keeps swelling, will overload our brain. This knowledge is what man must have to begin the next stage of his biological evolution. When this stream approximates the capacity of our brain, much that is useful will be coded in the cells and molecules and hence become hereditary.

This is the biological meaning of today's explosive development of science and engineering.

And what will come next?

Three Billion People of Genius

The brain will then have the creative capacity necessary for further progress.

Our brain has practically infinite potential. No matter how much it absorbs, it will sooner or later transmit its information to another capacitor—heredity—and will be ready for fresh perceptions. This process is progressive and infinite.

Analysis of development of the human brain warrants this conclusion:

The intense development of the human brain reaches much farther than the evolutionists once thought. Man's mental potential far exceeds his actual mental output. Even the most educated people, leading scientists, engineers and artists realize only a fraction of their potential.

These figures give an idea of man's mental potential. The brain consists of 12 to 16 billion neurons, minute nerve cells. Man uses only 4 per cent of them. Even taking into account the fact that we have inherited some of these neurons from such ancestors as monkeys, lizards or fish and that they are therefore rudimentary, our mental capacity might be increased by from 10 to 15 times.

In a sense each person is a genius, and if we could develop everyone's natural talents, we would have three billion geniuses today.

The crucial question: Will man be intellectually equal to his impending future? The answer can and must be optimistic, for man can achieve a great deal even with what he now has. The future can be his.

RUSSIAN BOOKS IN ENGLISH

Among the recent translations in English issued by Soviet publishing houses are:

MARXIST PHILOSOPHY. By Victor Afanasyev. Hard cover, 400 pp.

The introduction summarizes the conditions which shaped Marxism and discusses the revolutionary influence of Marx and Engels on philosophy. The section following considers basic problems of dialectical materialism. The closing section gives the major theses of the materialist approach to history and social development.

CONSTITUTION OF THE UNION OF SOVIET SOCIALIST REPUBLICS. Paperback, 111 pp.

The basic law of the USSR since 1936. The multinational state structure, the rights and obligations of Soviet citizens, the electoral system, the courts, the legislative bodies.

EINSTEIN. By Boris Kuznetsov. Illustrated. Hard cover, 400 pp.

Einstein's contributions in the light of the latest achievements of science, his tremendous impact on our concepts of space, time, motion and matter.

PSYCHOLOGY AS YOU MAY LIKE IT. By Konstantin Platonov. Illustrated. Hard cover, 230 pp.

A Soviet psychologist answers some of the questions that people, especially young people, have asked him: What is conscience? Love? Duty? Is thought transmission possible? What are dreams? Can will power and memory be developed? The author cites a number of simple experiments that help give the reader a better understanding of the human psyche.

STORIES FOR CHILDREN. By Leo Tolstoy. Illustrated. Paperback, 50 pp.

Tolstoy's most popular stories, suitable for children of various ages.

THEATRES OF THE USSR. Photo album. Paperback, 108 pp.

This guide for the foreign tourist gives information on 66 theaters in Moscow, Leningrad, Kiev, Tbilisi and other cities, on their most interesting productions and their leading performers.

RUSSIAN WORD COUNT. By Edward Steinfeldt. Hard cover, 160 pp.

Based on a statistical study of 350 different Russian texts drawn from various sources—newspapers, radio, fiction, etc.—it contains 2,500 of the most frequently used words, grouped in three lists. The first is arranged in order of declining frequency with the sources from which they were taken. The second is arranged according to parts of speech in order of declining frequency. The third is an alphabetical list of words with the part of speech, frequency, etc. indicated.

A large selection of Russian and Soviet classics, textbooks and publications in science, economics, history and philosophy is available in translation at:

New York: Four Continent Book Corporation
156 Fifth Avenue
New York, New York 10010

Washington: Victor Kamkin, Inc.
1410 Columbia Road, N.W.
Washington, D. C. 20009

Chicago: Cross-World Books & Periodicals
333 South Wacker Drive
Chicago, Illinois 60606

San Francisco: Znanie Book Shop

AUDACIOUS COMPOSER

THE TIME was 10 years ago, the place—the Moscow Conservatory. Following the presentation ceremony came a concert by the new graduates. At the piano was a tall freckled young man of athletic build, Rodion Shchedrin.

The lilting strains of a free-flowing melody filled the hall as the pianist pounded the keys to the accompaniment of a full orchestral flourish and then drifted into a meditative, tender lullaby. The piano concerto stirred interest from the very first bars. The very knowing audience liked its Russian quality. So far tradition—good tradition—dominated.

The second movement opened quite unexpectedly with a folk song about a hare running through a field, interpreted as a toccata, a very old form of prelude, with now the clarinet, now the oboe, now the trumpet playing virtuoso variations on the main theme, the whole a scintillating resonance.

Barely had the audience survived this first shock from the young nose-thumbing composer than came another—polyphonic variations on the free-flowing theme of the first movement presented in passacaglia form.

Nor was this all. The climax came with the finale and a droll, mischievous Russian *chastushka*, a kind of sung folk limerick. Woven into the colorful fabric of a popular festivity were balalaika glissandos and gay refrains, now piano, now full forte. They seemed to vie with each other in the whirlwind dance, played by the soloing instruments in turn.

Shchedrin's debut was a sensation. The leading newspapers and music magazines noted the emergence of a singular talent. They all emphasized the striking individuality of his work, the folk music origin of his harmony, melody and arrangements, his inventive use of the musical ideas of such masters as Moussorgsky and Prokofiev, and his competency with so many styles—the heroic, the dramatic and the lyrical.

While still in his first graduate year, Shchedrin toured the country and was applauded everywhere. That same year his Piano Concerto—with the composer giving a beautiful rendition—took first prize at the World Youth Festival in Warsaw.

In his student years Shchedrin composed a multitude of pieces diverse in form and mood. That searching and experimenting are just as characteristic of his works today.

He improvises on folk melodies, doing mostly polyphonic interpretations. His instrumentation is ingenious, even fanciful, and his harmony is unorthodox. Nevertheless, his tunes become popular almost overnight. Take his "March of the Construction Workers" from the motion picture *The Heights*. Though its syncopation was unusual for a Russian song, it made the top of the "pops" list. The lyrical incidental music to the film *What If This Is Love?* is in perfect rapport with the emotions of its schoolchildren characters. And his incidental music to the film *Communist* has all the whirlwind tempo of the beginning years of Soviet power.

Shchedrin's First Symphony, composed in 1958, ranks with the finest symphonic pieces on the war. This lyrical narrative of the grim trials of the Russian people is also based on song, even the *chastushka*, but given a new slant, toward the folk drama rather than the dance. The *chastushka* is a very characteristic piece of folk music, testament to the people's lyrical sense.

In 1957 Shchedrin wrote the fairy tale ballet *The Little Humpbacked Horse*, which was widely staged abroad following its Bolshoi production. Conveyed in the music is the peculiar characteristic of the Russian fairy tale, fantasy mixed with glimpses of real life. The simple-minded dreamy peasant boy Ivan, his smug brothers, the fairylike Girl-Queen and the pompous little old king are all portrayed. Genre scenes and fantasy mingle lavishly with purely comic episodes. The ballet is now a permanent fixture of the Bolshoi repertoire. Ballerina Maya Plisetskaya, the composer's wife, won a Lenin Prize for her magnificent interpretation of the Girl-Queen.

In his opera *Not Only Love*, based on stories by the well-known Soviet writer Sergei Antonov, Shchedrin pictures today's Soviet farmer. The characters are no whit different from their real models. The many choruses are now dreamy and reflective, now gay and pert. The frankly polemic *chastushka*-type music surprised even the composer's admirers. The opera provoked heated argument, but Shchedrin insisted that his operatic characters sing and talk as naturally as people do in real life.

Not Only Love drew attention to the growing Prokofiev influence in Shchedrin's work, an influence evident in his understated characterizations, in his eye for the individualistic and unique in both people and life, and, of course, in his humor, which at times has a

BY NATALIA LAGINA

biting sarcasm. He seems also to have an affinity with Igor Stravinsky and Alban Berg.

The composer has an inordinate fancy for old forms presented in a modern way. Instances are the tempestuous toccata from his piano sonata, so full of surprise contrasts, his *Polyphonic Variations*, his piano preludes and his incidental music for various stage productions. Then there is the passacaglia in his piano concerto and the fugue in his opera. They all represent his search for new forms.

The *Bureaucratiada Cantata*, which incidentally is based on the text of a real notice to motel customers, is a fine example of musical satire. It shows an intimacy with the verse of Mayakovsky, the program music of Moussorgsky and the parodies of Stravinsky. Indeed, the blending of trite officialese with such deliberately serious classical cantata forms as arias, fugues, chorales and recitatives is caustically comic.

Though the composer has been to many countries and has heard every possible kind of music, his love for Russian themes and melodies holds undivided sway in his work. The many incidental scores he wrote for plays and films forced a development of his own very felicitous style. As a matter of fact the music for *Communist* was a preparation for the impressive Second Symphony, performed in 1965, which took more than three years of hard work.

The leitmotiv of this new symphony is life and death, war and peace. The composer seems to address both the living and the war dead. The music is tragic yet courageous. It draws on the whole world around us—primarily, of course, a world of sounds, which, as the composer himself says, excites human feelings, gives birth to associations and recollections of past experiences and stimulates new thoughts and reflections. His lucidly conceived mosaic is often built on concrete sounds meant to produce associations of peace and war for the listener. Thus, the sounds of cars at night crash against the formidable roar of flying bombers, a cheerful youth march changes abruptly into a mournful requiem.

In this new composition Shchedrin portrays a man who once again lives through the tragedy and horror of war, this time in memory. The first performance added more fuel to the heated debates about the composer's experimentation, vigor and audacity, an audacity born of youth, talent and the present.

BEATING DRUMS

BY YURI YAKOVLEV
Writer

CHILDREN WRITE poems. At first they compose them "in their minds" because they do not know how to write. They do not yet know the alphabet, but they make up rhymes. For them words are playthings. They use words to build verse, the way they use blocks to build houses. They recite the rhymes in a singsong, like little minstrels, not to playmates or to grownups but to themselves.

Sometimes these poems have no meaning—just a play of sounds. Sometimes they contain a great truth phrased with elemental simplicity.

A child wrote the verse:

May there always be a sky on high,
May there always be a sun to see,
May there always be my Mommy by,
May there always be little me!

It is the refrain of a song now sung round the world.

The lines are as sharply chiseled and as simple as a caveman's drawing.

Later children learn the science of writing. They compose rhymes and put them down on paper. Paper and ink mean bookishness, and bookishness adulterates their fresh and ingenuous visions. Children usually write what they think and feel, but sometimes they will write of things they know nothing about, things grownups write about, inane and spiritless verse. And we have stone-age drawings replaced by cheap reproductions.

Nearly all children write verse. At least a little. At least once in their lives. Then they stop and become grownups.

I have before me a thin book, *Hour of Poetry*. The writers are children in their early teens, 73 young poets.

One is astonished not only by the talent of these poets, but also by their often striking perceptions of the world.

Children want to grow up fast. They hurry to grow a mustache, can hardly wait to speak in a bass voice, try to express themselves as adults. Karina Karapetyan from Armenia begins her poem with the "adult" line:

I've no need for your
passionate phrases . . .

Happily, the young poet's thought comes through the cliches: that man must fight for the truth, help his friends, otherwise he has no place on this earth.

No matter how hard some of the young authors try to appear adult and sophisticated, their refreshing artlessness will not be denied:

A little boy fondles a Matryoshka *doll.*
With a small, gentle, and warm palm
He takes the doll apart
Looking to see what is hidden inside . . .

This is the way a child's thoughts run. He wants to take things apart and see what is inside.

Girlie is pouring over an atlas,
Looking for something she cannot find . . .

What is the girl in Regina Portnaya's poem looking for? For the masts of ships, for a city built on cliffs. Then she'll fall asleep:

And you'll dream of sails . . .
Sails! So carmine red
That their color hurts the eye!

Seryozha Morozov dreams too, but about the last soldier. The last soldier on earth, whose death signifies the last war on earth.

You shall never return where you once used to dwell
Far from mother and home you've been hurled.
Cry, oh people, and laugh, for the soldier who fell
Was the last one to fall in the world.

Young poets have much in common. They have common dreams, common anxieties. But they express their feelings differently and so we have creative individuality. One writes about the last soldier in the world, another thinks of peace this way:

Spring's fastened to its rifle
a bayonet unfailing:
a sunbeam—no mere trifle—
but hot
and all-prevailing.
And with such weapon trusty,
there's nought can it dismay.
It goes to snowstorms frosty
And drives them all
away!

Children look at the world with wide-open, wondering eyes. They notice everything. They see things in their own way, in remarkable poetic images, very often. They compare a grand piano to a black iceberg. The four feet of a horse they call a quartet of feet. A girl walking along the street looks like a sun speck to them. Like little magicians, the young poets animate everyday things, they paint the world in their own colors:

On the trees, like swarms of rubies,
Grow the cherries, fiery, lush.
Redbreasts, like so many bobbies,
Sit among the fruit and blush.

This verse seems to have been written in red ink. Seryozha Morozov, on the other hand, paints his horse blue, not an ordinary horse, of course, a merry-go-round one:

And now the tired carrousel will stop
And empty all its riders through the gate.
The horse, so blue, will stand, a soul forgot,
And patiently for someone else will wait.

The little poets do not see the world as flat, for them it is convex and many-faceted, with a multitude of dimensions. It breathes, moves, glows. It is warmed by children's hearts.

Hearts! Are you not like bonfires? Olya Beshenkovskaya of Leningrad asks. And she is answered by another Leningrader, Seryozha Voronov:

Oh Mother,
It's time—
hear the whistle,
The signal severe of dismissal,
The unfeeling signal of parting.

This poem is full of the wish to wander and discover new lands, to do good for people, to not fear difficulties, to build a happy world for everyone.

A living pulse throbs in the verse of all the young poets. And their various destinies are merging, as it were, into a single common destiny—the destiny of the new generation:

My drums have started beating,
I'm off for a life, big and new.

The flame of poetry burns. It burns in the hearts of millions of children—the inheritors of our tomorrows. And it will not go out, even though many of today's poets will follow another calling tomorrow.

TRICORNERED BATTLE OF WITS

BY BORIS KOROLYOV

I SUPPOSE if Anton Chekhov, Bernard Shaw and Mark Twain were alive, they would definitely be on their respective national teams in the battle of wits that I shall now proceed to tell you about.

Last year *Izvestia's* very popular Sunday supplement *Nedelya* asked its readers to think up a caption for this photo of a man wheeling one baby in a carriage with another in his arms. There would probably have been only a few hundred letters from British subscribers, who take *Nedelya* mostly for its crossword puzzles, if the *London Daily Mirror* had not joggled the writing arms of five million people in the homeland of boxing, Epsom salts and wit.

The *London Daily Mirror* reprinted the *Nedelya* photo, urging its readers to take part in the contest. Send in captions, it said. See how yours stands up against the best Russian ones. There are no prizes. Our national honor is at stake.

Hardly had the *Daily Mirror* thrown down the challenge than 2,000 Russians picked it up. *Nedelya* printed what it considered the happiest captions. Here they are:

"Mom's Out Dancing"—Alexei Antonov;

"They'll Have Children Too"—Valentina Eigich;

"Twins Again"—A contribution from 27;

"Storks on Strike"—Pavel Antonov;

"Einstein's Not to Blame"—Lev Gabai;

"After the Divorce"—Vladimir Kish;

"Should Have Gone One Better"—Anatoli Malov;

"Who Wants Malthus Around?"—Nikolai Filippov.

Andrei Tikhomirov suggested one of Mayakovsky's aphorisms "We All Have a Bit of the Horse in Us."

Some *Nedelya* readers bared their rather macabre sense of humor. Pyotr Keilis, for instance, suggested "Mom Was Run Over." I suppose if he were asked to caption the Venus de Milo, he'd say: "What happens when a woman doesn't wash her husband's shirts. He wrenched her arms off and was about to wrench off her head when he was called to a crap game."

With the captions submitted, the paper presented this footnote:

"We were racking our brains trying to decide which was the best caption when we realized that this was not for us to do. It's for the man in the photo. Only he can say which *Nedelya* and *Daily Mirror* captions fit the cap, since he wears it. Stranger, respond!"

The paper also printed Valentina Starostina's letter from Leningrad. She says that, as a woman, she is only too pleased to submit this caption: "The Husband I'd Go to the End of the World With."

The *Daily Mirror* reprinted the captions *Nedelya* chose. *Mirror* readers differed, the women rooting for "The Husband I'd Go to the End of the World With," the men for "Storks on Strike." No wonder, there probably isn't another race of women in the world who had to go as often to the ends of the world as they did. Meanwhile male Britons, in a land with such firmly rooted trade union traditions, would not be true Englishmen if they gave the palm to some other caption.

The Daily Mirror received a thousand contributions. The most apt:

"She'll Never Believe I Bought Them at the Shop"—J. Spiro, London;

"A Working Man at Leisure"—Mrs. R. Rose, Birmingham;

"Farewell to Arms!"—Mrs. L. Aldred, Manchester.

The *Daily Mirror* agrees with *Nedelya* that its idea for the happy father to name the victor was worthy of King Solomon. It also suggested that the two winners he named, one Russian and one Briton, be awarded prizes which they would trade, *Nedelya's* going to the Britisher and the *Daily Mirror's* to the Russian, the exchange of prizes to be the last round in this duel of wits.

We were still waiting for the world's most celebrated dad of 1965 to respond when a third country, also famous for its humorists, joined in. We published the photo in the March issue of *Soviet Life* and invited readers to send in their captions. The response shows that our appeal fell on fertile soil. Indeed, judge for yourself:

"Study of a Moonlighter"—Cal A. Gregory, Colton, California.

"Where's Mama?"—Anna Walko, Pittsburgh, Pennsylvania;

"Women's Suffrage . . . Ugh!!", "I Wish I Worked the Day Shift" and "Just Think, One More Coming"—Martin Agegian, San Leandro, California;

"Pushing Last Year's Fun Around!"—Eugene Stanley, Plymouth, Indiana.

"He Took One Too Many for the Road"—Peter M. Komaroff, Berkeley, California;

"I Wish They'd Hurry Up with Birth Control"—B. Wiren, no address;

"Daddy-A-Go-Go!" and "This Is Not What I Meant When I Told Her I Wanted to Go Out with the Boys"—Claire Withers and Katharine Austin, San Francisco, California.

Meanwhile Robert Werlich of Washington, D. C., tells me something I had long guessed, that the mother-in-law problem is international. His caption: "I Cannot Stand My Mother-in-Law One More Day."

Edmond G. Hay, Jr., also of Washington, D. C., suggested "Force for Peace and Progress."

At any rate, more than a year has slipped by since the silent stranger with the two kids went perambulating around three countries, but he's still silent.

Why?

Is it possible he is scared of the number of ladies who want to go to the end of the world with him?

So we're asking you to say which three—Russian, British and American—captions you think best. We should tell you that we have a man on our editorial staff, Pavel Antonov, who is vitally interested—he suggested "Storks on Strike."

"Cybernetics comes from the Greek word for helmsman. It pilots not only single factories, but whole industries."
The speaker is Vyacheslav Vasiliev of Moscow.

Relaxed was the word for this conference. It was attended by scientists and engineers from a dozen foreign countries, including participants from the United States.

Elena Piyl, a Muscovite, holds a masters degree in the technical sciences.

SHIPBOARD CYBERNETICS CONFERENCE

By Pavel Sirkes

The ladies were well and very handsomely represented.

THE *ADMIRAL NAKHIMOV*, one of the largest of the Black Sea liners, had an unusually homogeneous shipful of passengers on a cruise last fall—all cybernetics experts.

Scientific conferences are usually held in Moscow, Leningrad, sometimes Kiev. On this occasion it was decided to depart from tradition. Since automatic control was the subject and industries all over the country were automating, the conference could be held in any large industrial center.

The choice was Odessa. But it proved difficult to arrange so large a meeting in that city at the height of the tourist season. The idea of a shipboard conference popped up.

What could be more convenient? The experts would all live and work together. No problem of hotels, food, transportation, conference halls, public address systems, communications, entertainment. Pleasure could be combined with business, not to speak of the fact that the locale would also foster such witticisms as: "You can't get away from this conference, no matter how boring it is." Or: "Deep water ought to be good for deep thinking."

The conference was attended by 1,100 scientists and engineers representing all the republics and 52 from Bulgaria, Czechoslovakia, England, the Federal Republic of Germany, Finland, the German Democratic Republic, Hungary, Italy, Japan, Norway, the United States and Yugoslavia.

They discussed optimal and self-adjusting systems, programmed and self-adjusting automata, systems to analyze complex situations, the application of computers to control production, and new automatic devices. The reports of the Soviet scientists showed that the answers to many problems of automatic control were derived from mathematics, computing technology, the theory of information, physiology and economics and that technical cybernetics, in turn, has stimulated the development of new branchese in these several disciplines.

Professor Lucien Neustadt from the University of Southern California commented on Soviet achievements in the field. He explained that he was doing work on the theory of optimal control and had studied Russian to learn at firsthand what the Russians were doing in the field. He knew Soviet scientists by their work but was very glad for the opportunity to meet such "highly original researchers" as Dr. Irina Kirillova and Dr. Rafail Gabasov of Sverdlovsk, Dr. Boris Pshenichny of Kiev and Dr. Ratmir Poluektov of Leningrad in person.

I found talking to Professor Neustadt not too much of a problem. His Russian was understandable, and my feeble German filled the gaps. When we ran into trouble, he called Professor Lotfi Zadeh, chairman of the Department of Electrical Engineering at the Uni-

versity of California in Berkeley, who speaks Russian fluently.

Professor Zadeh said that he had the highest opinion of the work of Soviet scientists, particularly of those at the Institute of Automatics and Telemechanics and at Moscow and Leningrad Universities.

Some of the Americans came with their wives. Professor Zadeh's wife Fay was surprised to see so many women taking part in the conference. There were 60: doctors, masters of science and engineers. She had always accompanied her husband on his trips abroad and had never seen anything like it at other conferences, Mrs. Zadeh said.

She wrote this comment, in Russian, in my notebook: "The American women of California have asked me to tell you that they sincerely desire peace and friendship between nations. And I too would like to thank you for our warm reception to your wonderful country. I hope you will visit us so that we may give you as friendly a reception as you gave us."

The workday began early. After morning setting-up exercises and a swim in the pool, the sessions opened and papers were read. There were a large number of papers—200—and an unusually large number of them very good papers, as was evident from the lively round-table discussion. Among the topics: "The Subject and Method of Technical Cybernetics," "What the Modern Engineer Must Know," "Discrepancies Between Theory and Practice," "On the Recognition of Forms."

Academician Vadim Trapeznikov read a paper on "Automated Control and Economics."

"Optimal automatic control of intricate complexes that take in whole industrial systems and branches of industry are now a very practical problem," he said.

There were relatively few newspapermen aboard the *Admiral Nakhimov*. The scientists wanted to avoid the sensational and usually erroneous reporting which is a by-product of such meetings. A press conference was held afterward at which representatives of nearly all the foreign delegations spoke. Professor Harold Chestnut, past president of the International Federation on Automatic Control, said:

"As one of the foreign visitors to this conference, I would like to express our thanks to the Organizing Committee for making it possible for us to attend.

"And I would like to thank our Soviet colleagues for the very cordial and friendly reception they gave us. . . ." The organizers, he thought, had been wise to choose the splendid *Admiral Nakhimov* for the conference. His sentiments were warmly endorsed by Professor Charles Draper of the Massachusetts Institute of Technology, by Professor Winfrid Oppelt of the Technische Hochschule in Darmstadt (the Federal Republic of Germany), and others.

Professor Lotfi Zadeh, University of California.

Harold Chesnut of General Electric comments on the very "cordial and friendly reception."

University of Southern California Professor Lucien Neustadt (left).

West German Professor Winfred Oppelt thought the conference "useful and pleasant."

A shipboard witticism: Deep water, deep thought.

Professor Sumiji Fuzii is from the University of Tokyo.

GOOD MORNING, COMRADE MAYOR

By Valeri Agranovsky and Arsen Kakosyan

Suren Matnishyan, the new mayor of Leninakan in Armenia. Before he was elected chief executive of this city of 150,000, he drove a locomotive.

IMAGINE you have been elected Mayor. One morning you wake up thinking that in an hour or so you'll be walking to the City Soviet with the keys to the Mayor's office in your pocket. If you are a teacher or physician or lathe operator, you are likely to have only the haziest notion of things like bank discounts or tax rates. But you will know what the city's problems are—that the main street needs resurfacing, that the stadium is too small and the trolley service is still in the planning stage. The city's problems are now very much your problems too.

You walk into the City Soviet.

"Good morning!"

This to your secretary. People are waiting in the reception room, but for another five minutes you can be alone. Your hands are a little shaky, perhaps. Will it be inappropriate to see visitors in your shirt sleeves? How should you begin? Are you giving people the impression that you are not sure of yourself? Even your secretary's smile seems to imply that everyone is still seeing you as the schoolteacher, lathe operator or doctor you were yesterday.

Suren Matnishyan was an ordinary locomotive engineer, whatever the word ordinary means. Perhaps we ought to say that he was a locomotive engineer who was well known around the town and very well thought of. However, a locomotive cab is not a mayor's office. In his inauguration speech Matnishyan explained how he visualized the town reconstructed, but he was hard put to say how all these ideas of his could be put into practice.

As a matter of fact, many of his subordinates knew the ropes much better than the new Mayor. As a result, their reaction to his speech was rather guarded. One thing was clear, though, the Mayor tackled the job with decision, as if he knew exactly where he was headed, too much decision, they thought, for an inexperienced man. He was decisive not only on the bigger issues but on matters of no great importance. For example, he saw no reason for the militiamen assigned to the building. The fact that it was customary procedure did not impress him. "I had no militiamen in my locomotive cab, and I don't need them here," Matnishyan said.

Now a small digression is in order. Leninakan lies at the foothills of Mount Aragats, a four-peaked mountain giant some 80 miles away from Yerevan, the capital of Armenia. However, a Leninakanite would put it the other way around, that Yerevan lies some 80 miles away from his city. Leningrad people do the same thing when they locate Moscow.

Leninakanites like their city, and they prove their affection by work and not only by words. If they were called on, the city's whole population would turn out in the middle of the night to clear the streets of the snow that piles up in huge drifts. The only problem would be to find 150,000 shovels. The mercury here drops to 25° below zero, and snowfalls are heavy.

Leninakan is a handsome city. The center is paved, there is trolley service, and blue-checkered taxis scurry about. At the taxi station you can also take a carriage, if you prefer. There are two, one pulled by a white horse, the other by a black horse. The houses are built of pleasantly pinkish, soft, warm tuff. Mount Aragats looms in the distance, and in good weather Mount Ararat is visible in a milky haze.

But a critical observer will also notice that some streets are poorly paved, that some of the houses are picturesque enough, but old and inconvenient, and that the trolleys are overcrowded. In short, the city, which is 1,200 years old, has never been thoroughly reconstructed, only patched.

Of course, Matnishyan could simply have initiated a city reconstruction plan and assumed that he had done what needed doing. If reality

does not measure up to the plan, so much the worse for reality. However, that is not his style.

Imagine yourself in his shoes again.

You are walking around Leninakan, inspecting. Here is a neighborhood on the outskirts of the city. Its 20,000 residents are mostly young people. To see a movie or get a haircut or buy some ice cream, they must go to the city center, and they have to walk, because the trolley does not run out to their part of the city.

Any reason why this district shouldn't have its own movie, café, barbershop? Why not extend the trolley line? Why not build a square where five streets ray out from what is now wasteland? Call it Star Square, perhaps.

You want to get the new square started immediately. But don't rush. Any number of things have to be coordinated. Many people must be talked to and persuaded, people with different temperaments, abilities, points of view. Matnishyan knows that, he's an understanding person, the reason people find talking to him so easy.

He has his human frailties, too. For example, he likes railroaders. He can't help it. He spent more than 20 years of his life at the yards. Even now, whenever he has to travel, he leaves his valise in his compartment and rides in the engineer's cab. Once, to soften him up, a visitor brought with her not an important executive or a lawyer but a locomotive engineer she knew.

For several months after his election, there was a great deal of skepticism about the "locomotive engineer" mayor. The building of the new square ran into numerous and formidable difficulties. As it happened, a terrific downpour hit the city at that time. Usually rain in any quantity is welcome in Armenia, especially since the level of Lake Sevan is falling dangerously low and giving power engineers and farmers a lot of trouble. The new Mayor, however, would have preferred to postpone it. The unpaved outskirts turned into a succession of mudholes. Leninakanites do not differentiate between the Mayor's office and his home, and his home telephone buzzed insistently. "My roof leaks!" an indignant voice yelled into the receiver one night, as though the downpour had been ordered by Matnishyan. "If you don't know how to be a mayor, go on back to your locomotive!" The man at the other end was not interested in the Soviet's decisions or the Mayor's promises. He wanted a good roof—right away.

Another time a man walked into Matnishyan's office with a bottle of locally made soda water wrapped in newspaper: "Is this what you call a good, refreshing drink?" Of course, Matnishyan could have said that he should not be held responsible for the incompetence of the manager of the bottling works that made this brand of soda. He didn't. From his very first day in office he made himself responsible for everything happening in the city, for all showers and all brands of soda.

The expression "servants of the people" is a cliché. But it does describe men like Matnishyan. Whatever he does, he does for the people of the city. Some public officials will pave the square outside the hotel five times a year and look the other way when they pass the mudholes on the outskirts of the city. With Matnishyan it is the other way around. The eight new streets, the new Star Square, the Builders Club, the Palace of Happiness, the new theater, the first 12 miles of new water mains, the new fountain on the square, the city's emblem designed by the famous Armenian artist Martiros Saryan, Leninakan's anthem composed by Aram Khachaturyan, and the chimes on Lenin Square which strike every 15 minutes—all this is to make the city a better, a more pleasant place to live in.

Unfortunately we take it for granted that whenever we want something from the city authorities we must go to the City Soviet and spend hours waiting. If the city authorities want something from us, we are invited to the City Soviet and the same waiting. It would seem odd if the Mayor came, not as a distinguished guest to a festive occasion, but simply to ask, "Comrades, can I do something for you?" Actually, there is nothing odd about it except that we have forgotten that this is how Kirov, Kalinin and Sverdlov worked. Or Lenin, always busy and yet always concerned about other people's time, and truly democratic. Their style of work followed from the very nature of Soviet power, and this style must be its hallmark again.

We spent three hours with Matnishyan at the Mikroelektrodvigatel Plant. It was hard to say whether the Mayor was receiving the plant employees or the plant employees were receiving the Mayor. There was nothing showy about this reception. Everyone knows the Mayor's timetable, when he can be expected at the theater and when at the textile mills. At that plant we felt that he was not just showing off how democratic he could be. That was the way he did things. He would much rather talk to people on the spot than in his office. The plant executives stood nearby. Problems were handled quickly and effectively. No one asked the Mayor to certify his promise or refusal. His word was sufficient.

Leninakan has dubbed Matnishyan a *pogotsain*, a hard word to translate. It means an "itinerant mayor," "peregrinating mayor," "no-armchair mayor." When Yerevan calls his office, he is more likely to be out than in.

Matnishyan worked out this "no-armchair" style of his long ago when he was a deputy to the Supreme Soviet of the republic. A constituent would sometimes wait for his locomotive at some tiny station, and Matnishyan would pick up the appeal or request along with the mailbag.

Mornings Matnishyan starts for his office not at nine but at seven. He spends the two hours en route talking to people, inspecting construction and checking the operation of the city's transport.

When he has office hours, Matnishyan invites all the people waiting to come in at once, except for those who prefer to see him privately. For two hours of this unusual "official reception" the mayor acts as mediator. Each visitor is answered by the others. They "receive" one another. The discussion is vigorous, warm and usually productive.

It is noteworthy that by relegating some of his powers to plain, ordinary citizens, including very young people, Matnishyan actually reinforces his authority. For some reason or other we like to talk of the duties of city officials but have very little to say about their rights. Is this because they hesitate to use their rights sometimes? And yet, a mayor who is determined to get on with the job has too little authority. Matnishyan, for example, is held down by the city's financial agencies. Many of his decisions made the people who hold the purse strings in Yerevan very unhappy, to put it mildly. One might think that they, 80 miles away in the capital, were better judges of whether or not a new boiler needs to be installed in some house or a laundry repaired, whether a street needs a complete paving or just patching. As a matter of fact, Star Square, of which Leninakan is so proud, was built only because the Mayor, to put it delicately, overstepped his authority.

The unveiling of Star Square was a gala affair, with speeches and music. In spite of a heavy snowfall, the turnout was tremendous. The city was not only celebrating the new square, but also its ex-locomotive engineer mayor.

Courtesy of the newspaper
Komsomolskaya Pravda

AROUND the COUNTRY

CONSTRUCTION JOB OF THE CENTURY

Until recently the Bratsk Hydroelectric Power Station was the country's largest construction project. The North Siberian Railway, now in the planning stage, will be the equivalent of several Bratsks.

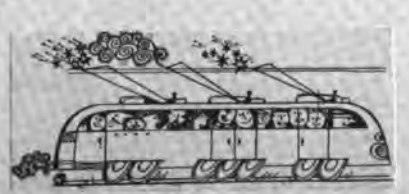
This second Trans-Siberian Railway will run across marshes, mountain ridges, impassable taiga and hundreds of rivers, large and small.

Siberia's industry now clusters along the Moscow-Vladivostok Railway. Natural treasures like the copper near Udokan, the rock salt at Olekminsk, the iron ore in Yakutia are out of reach. The designers are therefore planning the new route 250 to 435 miles north of the old railroad to link Tuymen with the mouth of the Angara, Lake Baikal with the forbidding Vitim, and the gold mines of Kolyma with Komsomolsk-on-Amur and the ports of the Pacific. According to the Institute of Integrated Transportation Problems, the project will take 15 to 20 years to complete. It is indeed the construction job of the century!

NEW OLYMPIC VICTORS?

The big question in Soviet sports: Any really good replacements for the Soviet Olympic veterans? The question is very pertinent now that the incomparable Valeri Brumel is recovering from a motorcycle accident.

The prospects? Last winter Latvia hailed Helena Ring for her broad jump of 28 feet 10 inches. And Valeri Skvortsov of Moscow is the first Soviet high jumper to earn an International Class Master of Sports rating. He won it last year.



A STREETLINER

A 60-foot-long streetcar—call it a streetliner—with 200 passengers aboard is plying the streets of Leningrad. There are plans for more of the kind.

WOMEN vs. BEARS

Evdokia Popova can set a snare as skillfully as she can a good table. She is one of Yakutia's professional hunters. Evdokia's daughter, 18-year-old Galina, brought back 28 sable and 50 squirrel skins from her latest trip. With other hunters she beat the woods for bear. The party bagged five "sovereigns of the taiga" in lairs on the bank of the Arbandzha.

NEW SOVIET PRIZE CHAMPAGNES

Since the International Wine Contest in Tbilisi, Sevastopol is the new word for sparkling and dry wines.

The wines of the Golden Ravine, as the cellars near Sevastopol are called, won five gold and three silver medals. Some sparkling wines are saturated artificially with carbon dioxide. Not so the Golden Ravine varieties, their sparkle is natural—the best red grapes of the region are given a second fermentation. Sevastopol wine makers have created a very dry champagne like the brut of France and a muscat champagne with a unique bouquet.

FARTHEST NORTH TRIPLETS

There is nothing very unusual about the fact that Nina Smagina of Olchak, a taiga settlement, gave birth to triplets and that her happy husband had a hard time of it trying to hold the boy and two girls simultaneously, except that this is the first set of triplets on record born that far north. The babies are doing fine.

IRON FOR A HUNDRED YEARS

Are the known deposits of iron sufficient to keep industry running into the next century? Pessimists will be somewhat heartened to know that a deposit of 100 million tons of choice iron ore was recently discovered almost on the surface near the Novokuznetsk-Abakan Railroad in the Soviet Union. The deposits of iron ore found in mountainous Gornaya Shoriya are estimated to exceed a billion tons. Enough for the Novokuznetsk Mills to run for at least another hundred years.

GLASS HOUSE

The new Sports Palace of the city of Gorky looks strangely like a giant lamp. Its walls are made of glass profilite, a light and transparent substance made by the glass works in the small town of Bor near the city. The hollow glass profilite blocks are both heatproof and soundproof, are not affected by extremes in temperature (very important in our continental climate) and let in more light. The glass works is getting orders from towns all over the country.

THE COLDEST THING IN THE WORLD

A team of scientists has developed a new technique for obtaining extra low temperatures. They cooled helium to a temperature only two hundredths of one degree above absolute zero (—459.6° Fahrenheit).

MACHINE TOOL IN A BRIEF CASE

Engineer Alexander Popov of Volgograd has designed a machine that weighs 25 pounds, fits into a briefcase and can be installed on an ordinary table. It drills holes less than 0.001 inch in diameter. The big advantage of this compressed-air-driven machine is that it produces no vibration, an important quality for the manufacture of precision instruments.

NEPTUNE ISLAND

Tortilla the Turtle lives on a small island with marshes all around. Her neighbors are other turtles and frogs. A little way off agile lizards frisk through the roots of all kinds of plants on the mossy banks. Around the marshes are large aquariums with 102 species of fish.

Yuri Drozdov created the island for children in the Neptune Club he leads at the Palace of Culture of Moscow's Serp I Molot Plant.

A WHALE OF A PERCH

The fishing boat Ogon brought back an unusual catch from its Pacific trip —a five-foot perch weighing almost 200 pounds. Record perches caught by fishing vessels before never weighed more than 10 pounds.

The Ogon trip in the eastern Pacific was memorable for other catches as well. Scientists of the Vladivostok Research Fishing Institute were aboard the ship for studies of fish distribution and biology. They caught interesting species which were thought to inhabit much deeper layers of the ocean. The Ogon crew scooped up a sea adder practically from the surface. This black spindle-shaped fish with sharp bent teeth had previously been caught only at depths of from 500 to 4,000 feet.

SESAME WILL NOT OPEN!

At Georgia's Institute of Electronics, Automation and Remote Control, engineer Georgi Ramishvili and his team have made an electronic machine which responds only to a particular human voice. Several voices are recorded and fed into the machine, and it always picks out its "master's." Today Ali Baba would not be able to enter somebody else's treasure cave unless he said "Open, Sesame" in that somebody's voice.

AND CHALIAPIN AND MEYERHOLD TOO

Vladimir Telyakovsky started as an officer in the Czar's Guards, later was director of the Royal Theaters, then, after the Revolution of 1917, became a cashier at the Leningrad railroad terminal, and finally a distinguished writer of memoirs who was awarded a special pension. He invited Fyodor Chaliapin to sing at the Bolshoi Theater. At the Alexander Theater he discovered and gave his blessing to Vsevolod Meyerhold, and he invited the gifted artist Konstantin Korovin to design scenery. Telyakovsky kept a diary during his 20 years as director of the Royal Theaters—more than 50 notebooks, a chronicle of the stage penned by a man who knew and worked with Sobinov, Ermolova, Rakhmaninoff and others. Iskusstvo Publishers, Moscow, published the diary in 1965.

IDENTIFICATION CARDS FOR SEALS

The Eskimos of the Nunivak Island, Alaska, thought they knew everything there was to know about the seal and walrus trade, until they found a strange sign on the tail of one seal. The sign looked like an amulet, brightly colored and mysteriously lettered. The news reached scientist Victor Sheffer, a seal expert. He was no less surprised than the Eskimo hunters to read the letters, "Tinro, USSR." Until then Russia and the United States had marked only sea bears. Seals see and hear too well to let themselves be marked.

However, the crew of the Soviet schooner *Lakhtak* have a way with seals. Three men in a skiff approach one lying on a floe. When the animal tries to slip off, the hunters open fire and the bullets whip up the water right in front of the seal's muzzle. He is nonplused. Should he make a run for another patch of open water? Meanwhile the skiff reaches the floe and one hunter gets astride the seal, another presses his head to the ice, the third grabs him by the flippers and turns him on his back. After that the seal surrenders and lets the marker be attached to his tail. In four years the *Lakhtak* issued identification cards to 400 seals. The idea is to find out how long the animals live and where they travel.

TOWN STUDIES BY NIGHT

Dubna, not far from Moscow, did the first townwide experiment in teaching English by the hypnopedagogical method (during sleep). This is how it worked. In the evening a lesson was broadcast over the radio and repeated twice. Then the students (and that included everybody in the town) went to sleep. An hour later the lesson was repeated again. And in the morning, while the students still slept, the lesson was repeated once more.

At 7 a.m. the wake up signal was sounded, and at 7:30, while the students had breakfast, a new lesson intended to help them retain the words, expressions and grammar rules taught at night was broadcast.

There were 36 such combined radio lessons, and they covered some 1,000 words and expressions.

Interest in the experiment was so high that in the evening there were almost no people on the streets, and by 11 p.m. the whole town was dark.

First observations seem to show that the hypnopedagogical method is not harmful, medically and psychologically speaking. How effective it is as a learning technique remains to be seen.

SHEVCHENKO PRIZES

Each year the best works in literature, art and music in the Ukraine are awarded Shevchenko Prizes. Winners for 1966 were Pimen Panch, one of the republic's oldest prose writers, for his autobiographical story "On Snowball Tree Bridge"; artist Maria Primachenko for a series of paintings entitled *To Make People Happy;* and composer Lev Revutsky for his concerto for piano and orchestra.

THREE TIME SPEEDSKATE WINNER

At this year's world women's speedskating championships in Trondheim (Norway), Valentina Stenina of the Soviet Union won for the third time. Korean Kim Son Sun took the lead with the first two events, but Stenina pulled ahead to bring home the gold medal once again. Runners-up were Kim Son Sun (silver medal) and Stien Kaiser, the Netherlands, (bronze medal).

HISTORY OF SOVIET-AMERICAN RELATIONS

The eleventh volume of Soviet Foreign Policy Documents was recently published. The book takes in the period between January 1 and December 31, 1928, when the League of Nations discussed the Soviet plan for general and complete disarmament. When this plan was turned down by the Western powers, the Soviet Union signed the Briand-Kellogg Pact to ban war.

The volume also contains some new material on Soviet-American trade relations.

NEW RESEARCH TOOL FOR GEOLOGISTS

A new instrument, Analiz-1, has been developed at Leningrad's Geologorazvedka Plant. It determines the presence of minute quantities of such chemical elements as germanium, lithium, beryllium and boron in a mineral sample under analysis. Exposed to ultraviolet rays, these elements become luminescent and can therefore be detected. It is this property that the designers employed. The instrument is so sensitive it can detect 10 billionths of a gram of germanium.

PAINTINGS ETERNALIZED

Pigments change with time and spoil treasured paintings. A remedy has been found in Tajikistan. It is a transparent green resin gathered from the pistachio tree and called the "tears of mountain pistachio." Treated with a transparent moisture-proof lacquer made of the resin, a canvas will outlast eternity.

THE WHALE'S ON FIRE!

When the Soviet whaling ship *Zharky* almost collided with a dead whale, the crew thought they could make use of the blubber. So the seamen made the whale fast, cut open its belly and then went off to see a movie in the mess hall. Suddenly somebody rushed in yelling, "The whale's on fire!" The men stayed right where they were, thinking it was somebody's idea of a joke. But not for long. Less than 20 feet from the ship the whale was burning like a haystack on a stormy night. When the fire was out, they found out how it started. Somebody had thrown a burning cigarette butt into the whale's blubber-filled belly.

PEARLS IN THE MOUNTAINS

Mention of the Caucasus evokes visions of crowded Black Sea beaches and resorts. But prospecting seems to be possible even in places so full of vacationers. Krasnodar speleologists have found pearls in the Azishsk cave, North Caucasus. Though not as beautiful as sea pearls, they are still pearls, which means that pearl finding will now be a project for mountain climbers as well as divers.

TEENAGE ASTRONOMERS

Moscow astronomers in their early teens, members of a club at the Young Pioneer Palace, did research for the International Year of the Quiet Sun. They hunted for silvery clouds night after night and finally managed to photograph this rare and very mysterious geophysical phenomenon observed in the upper layers of the atmosphere.

The Young Pioneer astronomer groups have been in existence for only four years, but the first research papers of their inquisitive members will soon be published.

PETRIKOVKA-CHICAGO

Petrikovka is a Ukrainian village famous for its arts and crafts. Its products are on display in many Soviet museums and will soon be on sale in the United States. A Chicago store recently placed an order with the local artel for 200 decorated boxes. The artists will be Nina Shishatskaya and Vera Chetverik.

10,000 ICE HOCKEY STICKS FOR VOSKRESENSK

Ice hockey has really caught on in Voskresensk, a town near Moscow. Its population of 50,000 has bought 10,000 hockey sticks.

The Khimik Club, the object of much local applause, is in the top division of the national league, with ample reserves provided by the town's 116 other junior and senior teams.

AROUND *the* COUNTRY

FUN, ISN'T IT?

BY YURI DOKUCHAYEV

PHOTOGRAPHS BY GEORGI PETRUSOV

LISTENING to a story properly is a far more complicated matter than telling it. There are no complications when you listen to Nadya, however. She tells her story simply and naturally. She does not choose her words, but just goes on, unconstrained and utterly engrossed.

"Mama sent me off to Grandma in Smolensk Region every summer. I loved going to the village: the crowing of the cocks in the morning, the smell of milk fresh from the cow, the hay. It's such fun when the grass tickles your heels, isn't it?"

Nadya looks you straight in the eye and smiles, sure that you think as she does. Even if you hate fresh milk or don't like to walk barefoot on the wet grass, you'll agree with her: "Sure, it's fun!"

That is probably why the boys and girls agreed with her when she said:

"Let's clean up the laboratory together. It'll be easy, even fun! We'll save a fortune. Then we'll go to the seashore and work, swim and lie in the sun."

The Sea

The principal of the school had no objection to the seventh grade cleaning up two floors of the school every day and thereby jointly earning the wages of one cleaning woman. How they would use the money, however, was something their parents would have to approve.

"We'll have a couple of Young Pioneer leaders and a teacher along. Besides, we're not going to be loafing down there. We're going to work. Where? At the seashore, on a collective farm, in the vineyards! We've written to several places and we're waiting for answers. Fresh air, sun, grapes, and the blue sea. Won't that be fun!"

"I suppose it will be if things turn out as you say," agreed one of the mamas.

There were 25 of them—the entire grade. But their legs soon felt as heavy as lead. The sun was frightfully hot. Their sunburnt backs ached abominably; the trimming knives they used kept cutting their fingers and even the hems of the girls' skirts. More and more water had to be fetched and more and more iodine and bandage bought. The pharmacist said he didn't remember a battle in all of history that needed as much bandage and adhesive tape.

Finished with their work for the day, the youngsters simply collapsed. The sea lay far below, alien and quite dispassionate.

"I lost my nerve, but didn't show anyone that I had. I was barely able to walk, but I tried to sing. The others looked at me and kept their spirits up, somehow. Finally our legs got used to the strain. We learned to use those knives and stopped cutting our fingers with them. Also we made friends with the sea. When it is so calm that even the tiniest waves hide behind the rocks along the shore, it's called 'a dead calm,' isn't it? That's when a mist rises and the sea takes on a greenish violet color. Fun, isn't it?"

Mama Can Do Everything

"Papa is more indulgent but we don't see him as often. Mama's the one who usually tells us we can't do this or that. Papa is a railway man. My elder brother works at a factory. He keeps to himself more than any of us, but I know he likes his factory and is proud to have become a skilled worker there. As for my younger brother Volodya, we grew up together. There's only a year's difference between us. We're used to each other. He's in the army now, serving in the East somewhere. He writes that he's lonely, mostly for me. Everybody in my family works, as you see.

"When I finished school I missed passing the college entrance exams by one point, just one! That's annoying, isn't it? But I didn't lose heart or try to get out of taking the consequences. I decided to take any job that would give me the chance to study. I heard about some training courses over the radio and enrolled. That's how I became a telegrapher. Now I'm glad things turned out that way. I've already signed up for the preparatory courses for the Communications Institute. They treat me with more respect now because I have a work record—I'm a communications worker. When I graduate from the institute, I'll be an engineer. That's all settled."

I'm sure things were not quite so simple for Nadya. There must have been the worry of choosing the right job. Communications, I suppose, attracted her because half the workers in the field are women, because those who take the courses get maintenance scholarships and because there are always openings in such courses.

"When I got my first scholarship payment I didn't know what to do with it. Finally I bought a present for Mama. Now I get 98 rubles a month. That's not much, of course, if a person lives alone, but it's quite a lot if there's a family. Mama jokes about it and says I'm supporting the whole house. Actually, she puts the money away for me. I'd spend it all at one shot myself, but Mama is different. She can do anything."

Dear Calmat

"Now don't laugh! I'm talking about ice ballet. Everybody is going in for it now! Most of our girls at the telegraph office are good skaters, and we go to all the contests. And I . . . Well, who can be indifferent about it? Imagine the hall darkening, the spotlights making the ice blaze like a big diamond, and then in fly a pair of figure skaters! You've seen those contests. It's fun, isn't it!

"I was absolutely, completely and totally crazy about the European championships and kept running to the stadium every day. Do you know how desperate I got? To get as close to the figure skaters as I could, I did something absolutely mad. With my head in the air I walked past the ticket collectors right into the section reserved for the skaters, pretending I was one of them. That independent air of mine cost me plenty though. I sat on pins and needles for all of half an hour. I was so ashamed, I was nearly feverish. To this day I can't figure out how I managed to get through. Either they liked me for some reason, or were just sorry for me. They could see how red I was! But I saw all the dancers close up that way. Many of them nodded to me, probably just out of habit. I'm sure you've heard of the world champion, the Frenchman Alain Calmat? How wonderfully he dances! And how excited he and I were just before his last performance! He sat there as pale as a ghost, his eyes closed. I thought he'd faint any moment or get up and run away. Then everything would have been lost. I kept watching him from the next box with my hands closed so tight that my nails cut my palms. And how marvelously he danced afterward! Dear Calmat!"

"Do you know him? Personally, I mean."

"Calmat? How could I?"

She laughed until the tears came and set me laughing too.

"I said you'd laugh at me! I told you what really happened! Nobody there knew me. And a good thing too, or they'd have thought I was crazy."

Nose in the Air

"No, I haven't been doing much community work lately. I used to do a lot of it, but I'm studying at the institute most of the time now. I don't want to lose another year. That's why they never put me on the night shift. It's the same with everybody who goes to school. But we're short of telegraphers—especially at vacation time. That's why I have to work through the afternoon shift sometimes. Our American section usually needs extra people. There's always a rush of work in the afternoon. The time difference accounts for it. When it's afternoon here, it's morning over there.

"Am I active in the YCL? Oh yes, there are always things to do. And I'm a member of the YCL Committee. I'm an old-timer compared to the others, I've been a committee member for nearly two years. I especially like organizing our amateur shows. We have a fine club at the office, and our own orchestra and chorus. Our dance ensemble appeared on TV recently. Somebody has to organize such things! Not so long ago they gave a party for us at the Kremlin Palace of Congresses. Was my nose in the air! I should say it was! We felt like maestros, all of us. The first hour we were very quiet, sipping coffee at the buffet and in the café. And all through the show we sat as stiff and important as deputies to the Supreme Soviet. Then came champagne, dances, singing. I wonder if anybody else ever danced the twist at the Kremlin. I sup-

pose we were the first. We came out of the Kremlin singing. Did you ever take a walk through Moscow at sunrise? It's fun, isn't it?"

Attending My Own Wedding

"Music? Serious music makes me awfully sentimental. I melt completely and begin to dream. I start daydreaming and find it hard to get back down to earth. A month ago my girl friend Tamara asked me to be a witness at her wedding. It seemed funny at first. It was not so long ago that she and I used to slide down the snow hills near our house, and now here she was getting married! I was the first one at the Palace of Marriages. It was very fancy, very solemn. Tamara was so excited! So was I for that matter. Finally they called us into one of the halls. We went in by pairs. There were flowers and suddenly—music—a Tchaikovsky concerto. I forgot where I was and started dreaming that it was music for me to get married by, not Tamara. I could see myself, not in the usual wedding dress. I wore a severe English suit, a bright cream color instead of white. I could almost see my hairdo and how I would walk into the hall with my head high. There'd be people all around. I wouldn't recognize all of them, but they would all be friendly, all of them smiling at me. It would be fun, wouldn't it?

"Then I heard someone calling me quietly: Nadya, Nadya!

"I was so lost in my dream that I hadn't heard them call me. It was time to go to the table and sign my name as witness in the fat book of marriage registrations. Somebody shoved a pen into my hand and somebody else showed me where to sign."

"Whom did you imagine standing beside you when you were dreaming yourself a bride?"

"No one in particular. I'm not thinking of getting married yet. It was the music that started me dreaming. Mama says I'll keep dreaming all my life until I'm an old maid, but I don't think she's right. I'm sure she isn't!"

Nadya was lost in reflection for a while, then smiled to her thoughts and flushed for the first time during our conversation. I decided not to ply her with more questions. I'm sure this little blonde dreamer has already had proposals from more than one young man. She is probably right not to hurry into marriage for in many ways she is still a child, even though she is 20.

Fresh Roses All Winter

I asked for Nadya at the Moscow Central Telegraph by her surname, Kozlova. Now Kozlova is a very common Russian name and there were several Kozlovas there. Still, whenever I asked for Comrade Kozlova, the answer was always:

"I suppose you mean Nadya!"

Everybody likes Nadya here. Her chief probably likes her because she is an energetic, efficient little worker who keeps communications running smoothly. The young people like her, I'm sure, because she is frank and jolly . . . because she is Nadya!

One snub-nosed girl with a pair of short braids sticking out in opposite directions responded very eagerly when I asked for Comrade Kozlova. "Of course I know her! She has fresh roses on her desk all winter. Think of it—fresh roses all winter, in Moscow!"

NORTHERN RUS

PHOTOGRAPH BY VSEVOLOD TARASEVICH

A new road is breaking a path through the northern taiga, across the territory of Northern Rus. This enchanting forestland is the subject of an article in a forthcoming issue.

АКВАРЕЛЬ

Александр Грин

Кли́ссон проснýлся не в дýхе.

Вчера́ ве́чером Бе́тси жесто́ко упрека́ла его́ за то, что он сиди́т на её ше́е, в то вре́мя как Ви́льсон поступи́л на речно́й парохо́д «Деннем».

До́лжность кочега́ра предназнача́лась Кли́ссону, но он с наме́рением опозда́л к по́езду, что́бы «Деннем» ушёл в рейс. Пра́чка зараба́тывала непло́хо. Кли́ссон обду́манно пота́кал накло́нности Бе́тси к вы́пивке. Охмеле́вшая же́нщина дава́ла ему́ де́ньги дово́льно кро́тко. Она́ счита́лась хоро́шей пра́чкой, поэ́тому у неё всегда́ бы́ло мно́го рабо́ты.

Лёжа на крова́ти с тяжёлой голово́й, с жже́нием в груди́, Кли́ссон кури́л папиро́ску и размышля́л: каки́м о́бразом получи́ть кро́ну? День был пра́здничный; вчера́ кочега́р усло́вился с прия́телями, что встре́тит их в кабаке́ Фу́кса.

Бе́тси внесла́ желе́зный ча́йник. Зева́я, ста́ла она́ накрыва́ть на стол.

Хму́рый вид Бе́тси не вызыва́л в нём осо́бых наде́жд. Жале́я, что вчера́ забы́л вы́просить у неё де́нег, Кли́ссон пону́ро оде́лся; опаса́ясь повторе́ния вчера́шних напа́док, он не торопи́лся вступа́ть в разгово́р.

Они́ ста́ли мо́лча пить чай. По тому́, как Бе́тси вы́рвала из руки́ кочега́ра нож, кото́рым тот ре́зал хлеб, Кли́ссон мра́чно убеди́лся, что пра́чка не забы́ла «Деннем». Теря́ть бы́ло не́чего. Кли́ссон сказа́л:

— Опозда́л на по́езд. Ра́зве я хоте́л опозда́ть? Слу́чай, бо́льше ничего́. Не дашь ли ты мне ши́ллинг?

— А будь я про́клята, е́сли дам,— споко́йно отве́тила Бе́тси.— Я пять домо́в перестира́ла за э́ту неде́лю. Бро́шу рабо́тать; начну́ пить, как ты.

Едва́ не загоре́лась дра́ка, но тут пра́чку че́рез окно́ окли́кнула сосе́дка, и Бе́тси вы́шла, бро́сив взгляд на у́гол корзи́ны с бельём. Едва́ жена́ скры́лась, Кли́ссон подскочи́л к корзи́не и разры́л бельё в том ме́сте, куда́ посмотре́ла Бе́тси. В коро́бке от папиро́с лежа́ли де́ньги. Кли́ссон взял кро́ну и бы́стро привёл бельё в порядок, сев зате́м сно́ва к столу́.

Почти́ то́тчас верну́вшаяся Бе́тси с сомне́нием уста́вилась на Кли́ссона, но не догада́лась о кра́же. Вздохну́в, она́ ста́ла вытря́хивать за окно́ одея́ло, а Кли́ссон спря́тал ке́пи во вну́тренний карма́н пиджака́ и че́рез пусты́е ко́мнаты, тще́тно ожида́вшие жильцо́в, прошёл к раскры́тому окну́; он вы́прыгнул из него́ и обогну́л сара́й, где Бе́тси ле́том стира́ла. Тогда́ он наде́л ке́пи и, убедя́сь, что пра́чка не пресле́дует его́, поспеши́л к ста́нции трамва́я.

В перепо́лненном вагóне Кли́ссон оконча́тельно успоко́ился.

Прие́хав че́рез полчаса́ в го́род, Кли́ссон полюбова́лся свое́й кро́ной и напра́вился в тракти́р Фу́кса. Переходя́ с тротуа́ра на тротуа́р, кочега́р посмотре́л вокру́г и вздро́гнул: Бетси шла пря́мо к нему́.

Услы́шав крик: «Не уйдёшь, подле́ц!»— Кли́ссон пусти́лся бежа́ть и свернул за́ угол. Там был глубо́кий сти́льный вход с враща́ющимися дверьми́. Со всей быстротой́ соображе́ния, вы́званной у́жасом, Кли́ссон прочёл на́дпись ова́льного щита́: «Весе́нняя вы́ставка акварели́стов»— и вбежа́л по со́лнечной ле́стнице к вхо́ду в зал, где его́ останови́ла деви́ца реши́тельного ви́да, заста́вив купи́ть биле́т.

Кли́ссон прошёл в зал, где с высо́ких стен гля́нуло на него́ мно́жество лиц. Он ви́дел заду́мчивых посети́телей, обме́нивающихся ти́хими замеча́ниями, и зате́м... я́вственно призна́л Бе́тси: она́, хо́лодно улыба́ясь, приближа́лась к нему́.

— Не ушёл? — сказа́ла Бе́тси ледяны́м то́ном.— Пойдём-ка поговори́м.

— Я не на при́вязи у тебя́,— огрызну́лся Кли́ссон, шага́я всё быстре́е среди́ толпы.

Стара́ясь говори́ть ти́хо, они́ брани́лись, осыпа́ли друг дру́га прокля́тиями, и Бе́тси запла́кала. Не зна́я, что де́лать, Кли́ссон повора́чивал из одно́й две́ри в другу́ю, а Бе́тси сле́довала за ним, как проника́ющее в де́рево сверло́, и Кли́ссон на́чал остана́вливаться во́зле карти́н — хотя́ ему́ бы́ло не до карти́н,— выбира́я таки́е места́, где толпи́лось бо́льше пу́блики. В таки́х слу́чаях Бе́тси молча́ла, но сто́ило ему́ отойти́, как он слы́шал сда́вленный шёпот: «Безде́льник! Пья́ница!»— и́ли: Отда́й де́ньги!»

— Замолчи́!— сказа́л Кли́ссон так гро́мко, что, боя́сь скандала́, же́нщина ути́хла. Сле́дом за ним она́ подошла́ к карти́не, на кото́рую Кли́ссон уста́вился исподло́бья, как на улыба́ющегося врага́. Челове́к де́сять рассма́тривали карти́ну. Доро́жка с полоса́ми све́та, проника́ющего сквозь листву́ и па́дающего на заро́сшую плющо́м сте́ну кирпи́чного до́ма с крыльцо́м, во́зле кото́рого на деревя́нной скаме́йке валя́лась пуста́я кле́тка, показа́лась Кли́ссону знако́мой.

— Похо́же, что э́то наш дом,— произнёс он то́ном мольбы́, наде́ясь прекрати́ть казнь.

— Сбре́днил ты, что ли?

Но чем бо́льше пра́чка всма́тривалась в карти́ну, тем поня́тнее станови́лось ей, что э́то то́чно тот дом, отку́да исче́зла злополу́чная кро́на. Она́ узна́ла о́кна, скаме́йку; узна́ла ве́тви клёна и ду́ба, ме́жду кото́рых протя́гивала верёвки. Яма среди́ куст о́в, поворот за́ угол, накло́н крыши, да́же вы́брошенная ба́нка из-под консе́рвов,— всё э́то не оставля́ло сомне́ний. Глаза́ и па́мять ука́зывали, что Бе́тси и Кли́ссон смо́трят на со́бственное жильё. Восхищённые, испу́ганные, перебива́я дру́г друга подро́бными замеча́ниями, они́ неме́дленно доказа́ли са́ми себе́, что оши́бки нет.

— За крыльцо́м помо́йное ведро́; его́ не ви́дно!— ра́достно заяви́ла Бе́тси.

— Да—а... а внутри́-то?! Хоть бы ты подмела́,— с го́речью отозва́лся Кли́ссон.

Они́ наговори́лись и верну́лись к карти́не, так необы́чно уничто́жившей их вражде́бное настрое́ние. Пе́ред карти́ной стоя́ло не́сколько челове́к. Ви́деть э́тих люде́й каза́лось Кли́ссону так же стра́нным, как е́сли бы они́ пришли́ в дом смотре́ть жизнь. Да́ма сказа́ла:

— Са́мая прекра́сная вещь сезо́на. Как хоро́ш свет! Посмотри́те на плющ!

Услы́шав э́то, Кли́ссон и Бе́тси обо́дрились, подо́шли бли́же. Их терза́ло опасе́ние, что зри́тели уви́дят пусты́е буты́лки и узлы́ с гря́зным бельём. Ме́жду тем карти́на на́чала де́йствовать, они́ проника́лись пре́лестью запу́щенной зе́лени, обвива́вшей кирпи́чный дом в то у́тро, когда́ по пересечённой све́том тропе́ прошёл челове́к со складны́м сту́лом.

— А всё-таки мне бо́льше даю́т сти́рки, чем э́той потаскухе́ Ре́бен,— сказа́ла Бе́тси,— потому́ что я своё де́ло зна́ю. Я со́ды не кладу́, рук не жале́ю. Ну... раз уж укра́л, так поди́ вы́пей... то́лько не на все.

Кли́ссон помолча́л, зате́м шепну́л:

— Пойдём. Я вы́пью. Уж раз я сказа́л, я сло́во своё держу́. За́втра на́до поговори́ть с Го́бсоном,— Го́бсон обеща́л мне ме́сто, е́сли Снэк отка́жется.

— Будь уве́рен, что тебя́ во́дят за́ нос

— Ну, ничего́, вы́пьем с Го́бсоном, поговори́м.

Они прошли ещё раз ми́мо карти́ны, и́скоса взгляну́в на неё, и вы́шли на у́лицу, удивля́ясь, что направля́ются в тот са́мый дом, о кото́ром неизве́стные им лю́ди говоря́т так не́жно и хорошо́.

Learning Russian

(Translation)

THE WATER COLOR

By Alexander Grin

CLISSON woke up in low spirits.

The night before, Betsy had bitterly berated him for poaching on her, while Wilson had gone to work on the riverboat *Dennem*.

The job of stoker had been intended for Clisson, but he had purposely missed the train so the *Dennem* would sail without him. The laundress earned a fair living. Clisson purposely encouraged Betsy's love for the bottle. When she was drunk it was easy to get money out of her. She was considered a good laundress and had plenty of work.

Lying in bed with his head aching and his stomach acting up, Clisson smoked a cigarette and wondered how to get a crown. It was a holiday. The day before, the stoker had arranged to meet his pals at Fox's Inn.

Betsy brought in a tin tea kettle. With a yawn, she began to set the table.

Her sullen manner was not very hopeful. Regretting that he had not asked her for money the day before, he dressed dejectedly. He was in no hurry to break the ice, afraid she would continue her attacks of the night before.

They drank their tea in silence. From the way Betsy tore the bread knife out of his hand, Clisson surmised unhappily that the laundress had not forgotten the *Dennem*. There was nothing to lose. He said:

"I missed the train. You don't think I wanted to miss it, do you? Bad luck, that's all. Won't you give me a shilling?"

"I'll be damned if I do," Betsy returned. "I've washed clothes for five families this week. I'm through working. I'm going to begin drinking, like you."

They had almost started a fight when a neighbor called through the window and Betsy went out with a glance at a corner of the laundry basket. The moment his wife disappeared, Clisson rushed over to the basket and rummaged through the clothes in the place Betsy had looked at. The money was in a cigarette box. Clisson took a crown, quickly put the laundry in order, and sat down to the table.

Almost immediately Betsy returned and stared at Clisson doubtfully without, however, guessing his theft. With a sigh, she began shaking a blanket through the window. Clisson hid his cap in the inside pocket of his jacket, and crossing the empty rooms waiting in vain for tenants, walked up to an open window, jumped out of it, and skirted the shed where Betsy washed clothes in summertime. Then he put on his cap, and making sure that the laundress was not following him, hurried to the streetcar stop.

In the crowded car Clisson was himself again.

Arriving in town half an hour later, Clisson studied his crown fondly and started for Fox's Inn. As he crossed from sidewalk to sidewalk, the stoker looked around and saw with a start that Betsy was walking straight toward him.

Hearing her cry: "You're not getting away this time, you scoundrel!" Clisson started to run and turned a corner. He saw a decorated building entrance with revolving doors. On the run, Clisson read the inscription on the oval sign: "Spring Exhibition of Water Colors." He ran up the sun-splashed stairs to the entrance of the hall, where he was stopped by a determined-looking girl who made him buy a ticket.

Clisson went into the hall where from the high walls a great many faces looked down on him. He saw thoughtful visitors exchanging remarks in low voices and then . . . he recognized Betsy. She was approaching him with a cold smile.

"You didn't get away from me?" Betsy asked in icy tones. "Come along and let's talk."

"I'm not tied to your apron strings," retorted Clisson, walking faster through the crowd.

Trying to speak quietly, they quarreled, heaping curses upon each other, and Betsy broke into tears. Not knowing what to do, Clisson turned from one door to another, with Betsy following him like a drill penetrating a piece of wood. Clisson stopped to look at the paintings, although he had no eye for them, choosing the spots where the crowd was thickest. Betsy held her tongue when people were there, but as soon as he moved away, he heard her choked whisper: "Loafer!" "Drunkard! Give me back my money!"

"Shut up!" said Clisson so loudly that, afraid of a scandal, the woman kept quiet. Following him, she approached a painting at which Clisson was glowering as though it were a sneering foe. Some ten people were looking at the picture. The little path with strips of light coming through the foliage and falling on the ivy-covered wall of a brick house with a porch near which an empty cage lay on a bench seemed familiar to Clisson.

"It looks like our house," he said in a cajoling tone, hoping to make peace with her.

"Are you crazy?"

But the more the laundress stared at the picture, the more she realized that it was the very house from which the ill-fated crown had disappeared. She recognized the windows and the bench, the branches of maple and oak between which she tied up the lines. The hole surrounded by the bushes, the turn behind the corner, the incline of the roof and even the discarded tin can—all that left no doubt at all. Their eyes and memory told Betsy and Clisson that they were looking at their own house. Delighted, awed, and both talking at once, they finally convinced themselves that there was no mistake about it.

"Behind the porch is the garbage can. You can't see it," declared Betsy happily.

"Aye, but what about the inside?! If you'd only swept it a bit," Clisson said bitterly.

They finished talking and went back to the painting which had so uncannily ended their animosity. Several people were standing in front of it. Clisson felt as strange as if they had come into his house to see how he lived. One lady said:

"The finest canvas of the season. What marvelous coloring! Look at the ivy!"

Listening, Clisson and Betsy mustered the courage to go nearer. They were worried that the spectators would notice the empty bottles and the bundles of dirty laundry. In the meantime, the painting began to have its effect, they could feel the charm of the neglected green creeping around the brick house on the morning the man with the folding chair had walked up the light-streaked path.

"Still and all, I get more wash than that trollop Reben," said Betsy, "because I know my job. I don't put any washing soda in, nor do I spare my hands. Well . . . since you've already stolen the money, go ahead and have a drink . . . but don't drink it all up."

Clisson said nothing, then whispered:

"Let's go. I'll have one drink. Once I give my word, I keep it. Tomorrow I'll have a talk with Hobson. Hobson promised me a job if Sneck refused."

"You can be sure they're just stringing you along."

"Well, never mind. I'll have a drink with Hobson and talk it over." They passed by the painting once again, looked at it, out of the corners of their eyes, then went outside, marveling that they were going to the very house about which strangers had spoken so gently and so well.

ABORTION—THE WOMAN SHOULD DECIDE

By Dina Orlova

LIFE CONFRONTS WOMEN with many special problems, not the least of which is childbirth.

Along with the joy of motherhood comes pregnancy and labor, with discomforts and anxieties that even the most tender and understanding of husbands can only guess at. That alone should be enough to give the woman the right to decide whether to bear a child or not.

Still, the birth of a child has always been more than a personal or family matter; the state is also concerned. The growth of its population and the education of its future citizens is of vital importance to a country.

Medical science also has something to say on this matter since there is always the possibility that an operation to interrupt pregnancy may do a woman a great deal of harm.

In many countries abortions are permitted only when childbirth will endanger the mother's health and life, or when one of the parents is suffering from a hereditary disease. But this practice, as rational as it seems, has serious defects. It produces a crop, no matter how small, of illegal abortions performed secretly, without medical supervision. The woman who flatly refuses to give birth must often place her life in ignorant and incompetent hands. Illegal abortions, performed under unsterile conditions without proper safeguards, are often fatal. Doctors estimate that the mortality from illegal abortions is 60 to 80 times greater than from those done in hospitals.

Though legalized in the Soviet Union in 1920, abortion was once again prohibited in 1936. But the always present danger of unnecessary death of healthy young women from loss of blood, blood poisoning or internal injury was more than sufficient reason for us to re-examine our practice.

Ambulance doctors, gynecologists and obstetricians were the first to urge the authorities to license abortions in hospitals for other than medically indicated reasons. Let the woman herself decide whether she wants to become a mother! And let society be her adviser and helper rather than her judge.

An edict issued at the end of 1955 permits interruption of pregnancy not only because it is medically indicated, but simply on the basis of the woman's personal wishes. Abortions, the edict emphasizes, may be performed only by physicians and only in a hospital.

Ten years is adequate time for testing the validity of a measure like this one. Soviet specialists say it has justified itself completely.

We have it from the eminent Soviet demographer Professor Urlanis that legalized abortion did not cause a drop in the Soviet birth rate. According to the statistics for 1960, it is higher than that of the United States and of every country in Europe, except for Albania.

Furthermore, criminal abortions and the resulting mortality have been reduced to a minimum. And so, from the standpoint of preserving human life, legalized abortion turns out to be a boon rather than a bane. It spared women a trying psychological and dangerous physical ordeal.

While appraising the results of legalized abortion, we must not forget the things that encourage a woman to decide in favor of giving birth to her child.

First and most important is the rise in the standard of living and the great scope of housing construction in the period under review. Then there is the considerable psychological and material support the Soviet mother gets from the state.

The birth of a third and of each child thereafter entitles the mother to a lump sum grant, and the birth of a fourth and of each child thereafter to a grant and a monthly allowance. All working women get 112 days of paid maternity leave (56 days before and 56 days after confinement). The postconfinement leave is extended to 70 days in the case of complications or the birth of twins.

A working mother who has given birth to and raised five or more children up to the age of eight qualifies for her old-age pension at 50 instead of 55, and she is required to put in only 15 years of service instead of the usual 20; also the number of nurseries and kindergartens is being steadily increased. And so, when a Soviet woman considers having a baby, there is much to be said in favor.

Suppose, however, the inexperience of youth leads her to make a hasty and thoughtless decision? In that case, there is the doctor to warn her against another thoughtless step.

Maternity clinics issue hospitalization permits for abortion.* This document is issued not as a matter of course, as is the usual hospitalization permit, but after serious and detailed consideration.

Here, for example, is the information offered by a maternity consultation clinic in Podolsk, a small industrial town. Dr. A. S. Ryzhova, the head physician, told me that the number of abortions has decreased in the past three years. She thinks the primary reason is improved living conditions, better housing and higher family budgets, but she thinks credit is also due to the educational work her clinic does.

A doctor considers it his duty to warn every woman who applies for an abortion that it may have unfavorable results even if it is done by the most skillful hand and that, as a rule, childbirth is better for her general health than an interrupted pregnancy.

To give greater weight to his arguments in favor of childbirth, the doctor often calls in a lawyer to inform the woman of her rights and privileges and to help her dispose of one or another difficulty—financial or legal—which may have decided her against having the child.

In some cases, however, all the persuasion is of no avail, and in others the situation may really warrant an abortion. In that event the health center sends the woman to a hospital. Before the operation, the patient must undergo all the necessary examinations and laboratory tests. After the operation, she remains in the hospital as long as her condition requires. When she is signed out, she must report to the gynecologist of her residential district for periodic checkups.

Educational work on sanitation and health is done on a large scale. The dangers of abortion are described in many books, pamphlets, leaflets and in popular science films.

Doctors know that in very many cases abortion is the man's idea. Then let him, they say, also be aware of the moral responsibility he is assuming when he tries to persuade his wife to abort their child.

A man is, of course, not normally called to the obstetrician's office. But the obstetrician does not hesitate to call on the man if that is thought advisable.

In Donetsk, center of the Donets Coal Basin, I witnessed the following scene: Miners assembled in the assignment room before the beginning of their shift to hear Professor Alexander Vishnevsky. Naturally, some spicy jokes were cracked when they learned that the professor was an obstetrician. Very soon, however, they grew serious, for the professor was talking about things that were important to them. He was telling them what unhappiness an abortion could bring to a family and urging them to give more thought to the health of their wives.

In a Moscow health center for women I saw an interesting pamphlet, *A Memo for Men.* It contained statistics on abortion as a cause of subsequent sterility and of various ailments. Almost every woman who visited the health center picked up one of these memos.

I have discussed the problem of abortion with many practitioners and with Dr. Olga Nikonchik, chief obstetrician and gynecologist of the USSR Ministry of Health.

"Believe me," Dr. Nikonchick told me (she might have been speaking for all physicians), "we would much rather handle a delivery than an abortion. And yet we all consider it much more humane to license abortion than to prohibit it. Coercion does not justify itself in any area of living, especially not in this one!"

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* The charge for an operation and hospitalization, no matter how complicated the case, is 5 rubles (5 dollars and 50 cents).

VALENTIN SEROV

By Natalia Sokolova

Self-portrait. *Gouache. 1901.*

VALENTIN SEROV was one of those who gave Russian art, literature and music its democratic emphasis and world influence at the turn of the century. Though Leo Tolstoy, Repin and Surikov were still in their prime, Russian life had already been colored by the work of a pleiad of innovators whose social, ethical and esthetic views had been formed in a period of revolutionary ferment. Like Chekhov and Stanislavsky, Serov dreamed of a renewed society. Like them, he dedicated himself to a new, more searching and essentially realistic perception and portrayal of the period he lived in.

He was never plagued by the question as to whether his art should respond to the demands of the times, for him this was axiomatic. He was engrossed with other problems: the best way to depict the truth of his period, the most telling way to portray his contemporaries.

He created a gallery of portraits drawn from the Russian society of his day that could only have been done by a man with a subtle understanding of human nature. His understanding came from a very active, passionately concerned and critical view of life, a view he evolved in the process of creating and from his communion with men and women from every social strata, from the upper crust down to the oppressed peasant masses.

In the course of his life (1865-1911) Serov worked in almost every medium. He did moving scenes of village life, historical and genre paintings, sketches for stage sets, decorative panels on mythology.

But his real vocation, his soul's need, his "addiction" as he called it, was portraiture. In his youth he talked of confining his painting "to joy alone." His gallery of portraits, therefore, is full of joyous images of childhood and youth, of lyrical visions of women, created with all of Chekhov's sensitivity to the subtleties and moods of feminine characterization. The faces are unforgettably beautiful for their emotional color, their spiritual commentary.

The young artist won the hearts of the public and the critics at once when he exhibited his paintings *The Girl with the Peaches* and *The Girl in the Sunshine* (1887-1888), both very popular to this day. These poems in color brought something new to portraiture—the poetic image of man enriched by his environment, by a freshness of color.

The artist instilled deeper and deeper content in his painting "to joy alone" as the years went by. In the great tradition of Russian democratic culture he looked on the artist's vocation as a civic responsibility. Man, and creative man first and foremost, serving his people and humanity with pen and brush—this is the dominating figure in his gallery of portraits. That was the face Serov sought all his life with passion, inspiration, often with anguish, and always mercilessly demanding of himself.

Young Serov's gallery of portraits includes the writers Leskov and Chekhov and the composers Rimsky-Korsakov and Glazunov. The greatest figures of the Italian stage, Masini and Tamagno, then touring Russia, sat for him. Serov caught Tamagno's overwhelming artistic temperament and Masini's complex spiritual life in these most keenly perceived portraits.

Serov also painted the Russian artists Levitan and Korovin, each portrait a vivid characterization of the creative individual. Levitan is seen lost in thought. It is almost impossible to take one's eyes from that illuminated face, from the artist's slender wrists, both set off by the darkened room behind. While in the other portrait, the full gamut of colors and the essential attributes of an artist's studio give one a sense of Korovin's temperament and pallette.

A series of portrait drawings done from 1908 to 1909 reflect Serov's ties with the theater and his love of the stage. His pencil became a sensitive instrument for psychological insight. Each separate line has individuality and character. Whether in vigorous outlines, or in airy, almost quivering lines Serov's always graceful and inspired drawings record his spiritual affinity with other men and with nature.

The people's struggle for liberation in twentieth century Russia was the source from which the great artists of the period drew their inspiration. Serov was one of those creative giants.

Abduction of Europa. *Tempera. 1911.*

Portrait of P.A. Morozov. *Pencil and tempera. 1910.*

Chaliapin. *Charcoal and chalk. 19*

The Artist's Children. *Charcoal, sanguine and colored pencil. 1906.*

The Girl with the Peaches. *Oil. 1887.*

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For a long time now the Soviet press has been conducting a wide-ranging forum on education. The subjects discussed are not confined to the Soviet Union. They have general bearing, touching as they all do on the universal father-son problem.

The influential Moscow literary monthly Novy Mir joined the discussion with a contribution by the writer Alexei Sharov, from which this article is abridged. Sharov opens his article with these words from the Turkish poet Nazim Hikmet: "Let us give the earth to the children. Let them play with this colored ball."

Adults and the Child's World

By Alexei Sharov

I.

When you reflect on the relation of children, especially difficult children, to the adult world, you realize that this is a subject with all sorts of ramifications. One question brings up another, no less involved and often a long way from where you started.

I recall a teachers' conference I happened to attend in a small town in Voronezh Region in 1947. The principal made a speech full of vigorous gestures. I remember his forceful intonation and his stress on the word "severity."

For me the word carried associations of nineteenth century czarist despotism. In his mind the speaker had the children lined up on the parade ground and was putting them through an exercise in presenting arms to the roll of drums. And he had to be "severe" to keep them in step, all this for their own good, of course.

I also recall the speech an elderly teacher made, brief and to the point. He said: "The old saw that if you beat a hare long enough you can teach him to light matches is nonsense. Most of the people who are a disgrace to the world had their spirit broken in childhood. It can be done as easily as breaking a person's arm. Harshness breeds harshness, and nothing else. The chain should be snapped wherever possible. Those who do the beating after they become strong are often those who were beaten when they were weak."

"Why worry about a child's sense of injury?" some adults say. Yet those injuries may destroy a child's spirit.

Schoolchildren write: "On a hike the teacher could not find his spoon—just a plain tin spoon—but right away the question of theft came up although, of course, whoever took the spoon did it by accident."

I've been on scientific expeditions and in hospitals, and found myself absent-mindedly picking up someone else's mess tin or book or spoon. No one would have dreamed of accusing me or any of my comrades of theft. We're adults. Yet people seem to think nothing of saying "you stole it" to a normal child, to whom the idea of stealing is as far removed as another galaxy.

A lad was sent to a summer camp for the first time. Remembering their own childhood, his parents told him, "Be sure to share your candy with the others."

The boy shared his candy. Later, wanting something sweet, he took a piece of candy from a bag on another child's night table. For punishment he was made to stand in the middle of the bedroom.

The scope and nature of adult and juvenile views of things almost always differ and are sometimes just the opposite. The adult wants quiet in the yard. He is tired and really does need a rest after his working day. But to children a yard is a world filled with noise and movement, a place of wonders. To justify himself, the adult reasons: "I am contributing to society because I create values. The children are only loafing about and wasting time. No reason to spoil them."

All right except for the last two sentences. The children are also creating something without which there would be no world that mattered—themselves, citizens of the future, the future itself.

The more children play, the happier their games, the less cruel and selfish they are, the more sympathy and understanding they show for the younger, weaker children in the yard, the more happiness and understanding there will be in the future world. The one depends directly on the other.

Children at a Moscow school write: "We are not being raised to be proud, independent people, self-disciplined and capable of thinking for ourselves and answering for our actions. We are being brought up to be cowardly timeservers, obedient, petty and unthinking. When our teachers are unfair, we keep quiet, for we have no right to contradict our elders. And when we grow up, we shall probably not want people to call attention to our mistakes, our ignorance, dishonesty, spite and so on."

The important thing about this letter is not whether the children's evaluation of their school is right. Very likely they are wrong on many points. What is important is their reaction to their environment, their very real concern about the false values that are being instilled in them.

Children simply want to be happy. There is wisdom in this natural desire. Only if they are happy will the future world be happy. And whatever grief, injustice and falsity they absorb, the world will in one way or another suffer from it later.

II.

I could have forgotten that word "severity" after 1947 if it had not been repeated later on the most diverse occasions. Early in 1959 *Literaturnaya Gazeta* carried an article by the writer Vladimir Soloukhin about thieves and swindlers. He said: "There are parasites in the walls of the radiant home where we build spaceships, grow grain and write poems. They must be destroyed, and that's all there is to it." Of thieves he said: "They should be—quartered."

The image of a radiant home in which poems are written in one room and criminals quartered in another is an obvious distortion. All the rooms in the home of society lead into one another.

Not long ago the same newspaper ran an article called "Guilt and Punishment," a dialogue between Lieutenant Colonel of the Militia Vladimir Chvanov and journalist Yevgeni Bogat.

"Cruelty is no answer," said the journalist. "Lawyers say that in ancient times when a thief was punished by cutting off his arm, pickpockets were especially active in the crowd watching the cruel spectacle."

"I agree, cruelty is impermissible," says the lieutenant colonel. "But spinelessness, too, is impermissible, and more dangerous. I call it 'humanism for a hundred' at the cost of humanism for the millions."

It seems to me both are wrong. The point is not that thieves continue to pick the pockets of the crowd around the chopping block—that is a purely pragmatic view of the problem—but that one hundred chopped-off hands are far more dangerous to society than a hundred, or even a thousand, stolen purses.

A hundred chopped-off hands or heads means tens of thousands of people poisoned by the sight of the execution, by the knowledge that it can happen, and by their passive complicity in the torture. That is the brutality of society. It is physically possible to destroy all thieves, even all prostitutes and tramps, and that has been done, or tried, at different periods in history. The number of thefts and other criminal offenses may have decreased for a time, but the heightened brutality produced other and more dangerous shoots. Until 1679 a thief or highwayman in Russia was executed, but first his hands and feet were cut off. In those years of the most brutal legislation Bazhanov, a peasant in the Totamsk District, killed his wife simply because she took "a yard and a half of coarse cloth" without his permission.

But to return to the discussion in *Literaturnaya Gazeta*. Natalya Chetunova, a journalist, quoted the eighteenth century Italian jurist Beccaria: "Whenever and wherever punishment was the most severe, the bloodiest and most inhuman actions took place because the same spirit of brutality that guided the hand of the legislator also guided the hand of the patricide and the brigand."

Crime will disappear only when its causes are rooted out.

To say "humanism for a hundred" is essentially to justify brutality, it is not to understand that humanism is indivisible and that good, justice and evil circulate through the whole body of society, washing all its cells.

III.

The stream of "severity" that began to run long ago and far from the schools also washes the "world of childhood."

Much has been written about difficult children, but the article by Georgi Kubansky in *Literaturnaya Gazeta* aroused widespread attention. Kubansky offered a "salutary" prescription—to isolate difficult children in special schools.

But can difficult children be separated from normal children. Won't this moral Daltonism result in irreparable mistakes?

Tom Sawyer, especially after he ran away to the island, and Huckleberry Finn would have been "difficult children" by present-day standards, while Sid would have been given excellent marks for conduct. But we all understand that Tom and Huck were real children while decorous Sid was nothing but a little old man and a fraud.

Here are some more examples, not from literature but from life. A very capable boy was invited to enter the Institute of Physics and Technology, a college of high scholastic standards, before he graduated from high school. The institute asked his teachers for references.

The English teacher wrote: "Average progress. Has no trouble translating the special literature in the field in which he is interested, but he is undisciplined and absent-minded. A difficult boy."

The physics teacher: "When I call on Sasha, he lifts his eyes, filled with refreshing, spontaneous interest, and asks: 'What page are we up to?' Then he goes to the board, and I sit down with the other students and listen."

The literature teacher: "He sits there without a single button on his jacket. They say Einstein's buttons were always missing. His compositions are never on the topics I assign, but there is something very special about everything he writes."

Home room teacher: "That's just it—not a single button. That is the kind of person he is—he can't be trusted with anything important."

How different all these character references are! How different the eyes through which his teachers see this student. The differences can be explained by the teacher's keenness of vision, his inclination toward the light or the dark. Also, some teachers and students have different attitudes toward life, and the teacher's is certainly not always the right one.

In this connection these excerpts from the diary of a schoolgirl printed in *Komsomolskaya Pravda* are interesting. She writes about two of her classmates, a boy named Sasha and a girl named Sveta.

"Sasha is a 'negative type,' by all the rules. He smokes and is always getting into fights. I heard father telling grandmother, 'Sasha had good instincts, but he is not guided by anything and so he is a bad influence on the children around him.' But I don't believe anyone who loves nature and animals can be that bad. Sasha's room is filled with birds. He could be just as good a student as anyone else. One week, on a bet, he got nothing but bad marks, and the next week he turned them all into good marks."

About Sveta the diary says: "At a meeting she once said not everyone should get a high school education and it was about time some kids were kicked out of school. She sounded so mean and arrogant that Lydia, who was the chairman at the meeting, said, 'It might not be such a bad idea to kick *you* out.'

"At that very moment Sasha was expelled. There was a fight near the school the day before. Sasha wasn't in it, but someone had used his foil (we're all going in for fencing this year). So they decided to expel Sasha.

"All the fellows took Sasha's part and asked the principal not to expel him. You should have heard what the teachers said to us—that we were defending a hooligan and that we had insulted a student who was the pride of the school as well as of her class. Sveta's parents were given an honor certificate at a parent-teacher meeting, although the end of the school year is still a long way off. The next day Sasha was not admitted to class. He hung around the coatroom. He didn't know what to do. A group from the first grade came down the stairs. 'Look at that hooligan,' the teacher said to the children. 'He was in a fight and talked back to his elders. He got bad marks and was kicked out of school.' The kids stared at Sasha as though they were frightened to death of him."

It is hard to understand how a boy could have been expelled so thoughtlessly. How could one have so little faith in a class of children ready to vouch for their comrade and so much in one's own powers as a teacher? And how could a conceited girl, a "superstudent" who looked down on her fellow students, have been so applauded?

"What inexhaustible spiritual health our children must have that adults do not succeed in completely ruining them," the father of the writer of the diary sadly comments.

IV.

A child may be made "difficult" by accidental circumstances, but there are cases that are more involved.

A few years ago I received a letter about a 12-year-old boy named Seryozha who had been expelled from all three schools in his town and was "ripening," as a militiaman put it. "Sooner or later somebody will turn up to teach him to steal, and he'll learn; then he'll be caught and sentenced, and we'll send him off to reform school."

A poem by Seryozha accompanied the letter:

He who betrays his friend in childhood
Is capable of becoming a traitor.
He'll betray you for revenge; he'll betray you for money;
He'll betray you from fear; he'd betray his brother.
There are people like that among us.
Don't make friends with traitors.

I went to see Seryozha. He lived in a town 30 miles from the railroad.

The conversations with Seryozha, his mother and his teachers left a conflicting impression.

Seryozha's mother looked like an old woman, her face lined and gray, an embittered, distrustful woman who had spent many years in prison camps. She had shifted the entire burden of her suffering during the years of the personality cult onto the shoulders of her young son.

In speaking of her son, her refrain was: "The worse it is, the better. Let him learn to look at the world without illusions, the way I had to. . . . It may be too much for him to bear, I know, but he is the only one I have, and I talk to him as if I were talking to myself. The truth won't harm him or anyone else. Only lies will. Later he'll understand."

Seryozha's school and teachers and the books he read should have helped him to understand. But his teachers treated him like a boy from an ordinary home, as though there was nothing unusual about his life. They said he swore, got into fights and disorganized the whole school.

They looked for incidents and found them. On a hike in the country the boys found a piece of slate. They tossed it into the campfire because they knew it would make a loud noise. The noise frightened the teacher. She suspected Seryozha of throwing the slate on the fire and said, so everyone could hear, "Like parent, like child."

Seryozha, who was not to blame, answered back. "I'm going to take you to the militia," the teacher said. "We'll see what they can do with you." At the militia station they said the same thing: "A hooligan! Like parent, like child."

Apparently there are people who have forgotten about the injustices committed during the personality cult. Such treatment might well have convinced the boy that injustice is permanent and enduring and not temporary.

Another episode. A teacher with an unpardonable indifference to living things went out to shoot rooks. When Seryozha heard the gun go off and saw a bird falling, he flew at the teacher and tore the gun out of his hands.

Again the boy was accused of disorderly conduct. And again he heard talk about "his mother's bad influence"—an insult to the person he loved most in the world, a person who had endured enough without that.

The generation that suffered the crimes of the past is gradually dying out. But the period has left its stamp, not only on them but on their children and grandchildren as well.

V.

Today the borderline between a "difficult" child and an ordinary one may be almost indiscernible, but tomorrow mistakes by parents, teachers and comrades may bring it into sharp focus.

"I could not seem to calm down my class of 11- and 12-year-olds one day," says Anna Khoperskaya, writing about her early teaching days. "They shouted and banged the tops of their desks. I don't remember now what the reason was, or whether there was any reason at all. I felt so helpless I wanted to cry. The classes on either side of me, with men teachers, were quiet. Finally I gave up and rushed out of the room. I ran to the teachers' room, where I gave way to tears. My classroom was some distance away, but I could still hear the noise. Suddenly the noise stopped. I was frightened. A teacher must have gone in. It was clear I was no teacher. What was I going to do? I had to go back to that classroom. I tried to hide the traces of my tears and entered the room. All the children rose and stood, their heads bent. I told them to sit down. They kept standing. I told them to sit down again, several times, but they just stood there without saying anything. Many of them were in tears. 'What happened?' I asked them. 'Has anyone hurt your feelings, my dear ones? Did Andrei Grigorievich scold you? Did he punish you?' 'No, no,' the children sobbed. 'We'll obey you. We love you and we're going to do what you say. We hurt your feelings.' Then they told me that they had looked through the keyhole and seen me crying."

A letter like that makes one recall Pasternak's words: "All of us became people only to the degree that we loved others."

VI.

Kubansky's article suggesting that difficult children be put in special schools not only aroused sharp protest but also brought in dozens of letters of support.

F., a former schoolteacher, wrote: "Schoolchildren are getting out of hand more and more. They know they will not be punished because the privileged position children have in our country applies to all of them, good or bad. One serious boy, a good student, told his mother there was a future bandit in their class, and that 'his kind should be destroyed before they grow up.'"

"A good student" indeed! He sounds more like a good cannibal.

F. cites instances of juvenile hooliganism. "A boy pushed my eight-year-old grandson into a deep puddle, after which the child be-

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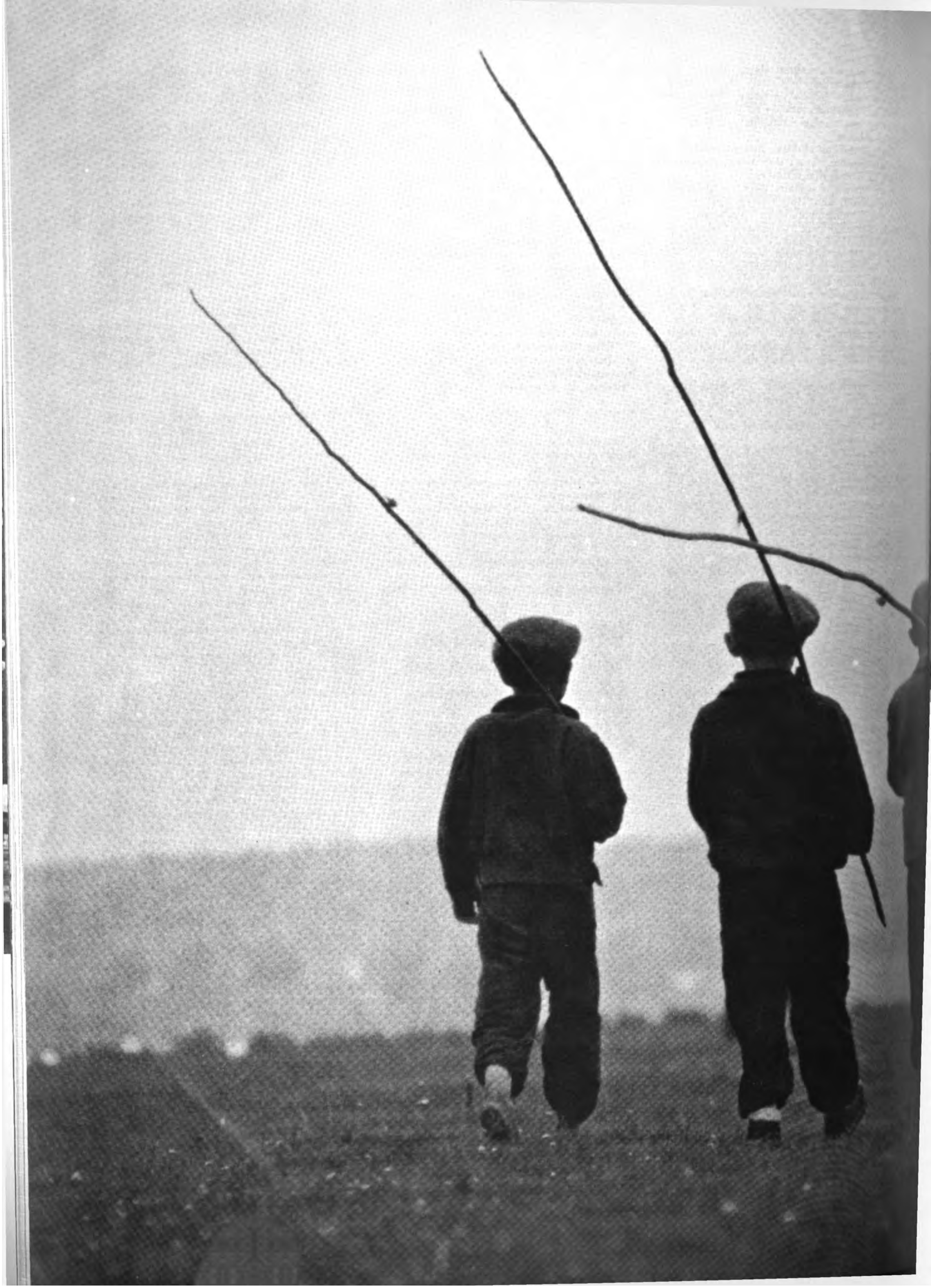


BAREFOOT BOYS AND GIRLS WITH CHEEK

BY ROBERT TSFASMAN

PHOTOGRAPHS BY ANATOLI BOCHININ

SHURKA WAS UP early, even before his rooster crowed the dawn. Shurka's rooster was a flaming red, like his young owner. With spread wings he strutted in the kitchen garden while the boy dug for worms. The glossy, crumbly earth had an icy wet smell—September nights in the Ryazan countryside are chilly even though the sun shines with the warmth of summer during the day.

Hurrying through the drowsy village, Shurka tapped on his friends' windows. Soon five boys, their fishing rods dangling over their shoulders, were walking across the dewy meadows to the river. It was a shallow river: "A chicken could ford it," as the saying went, but it had all the fish you wanted if you knew the right spots—the pools under the bushes. When they reached these favorite spots, the boys were glad to find nobody there ahead of them.

Impatiently Shurka unrolled the line. He hooked the worm and cast, careful not to get the hook caught in the weeds. The corks froze on the dark surface of the water and the boys waited. A big yellow leaf that looked like a tin boat drifted by, maneuvering between the cork buoys. The boys followed it with their eyes until it disappeared behind a bend in the river.

"How far will it drift, Shurka?" Vaska shouted.

"Quiet down, you! To the Oka and then to the Volga."

"It would be nice to sail on it like Thumbelina, remember?"

Vaska's face puckered up in a gap-toothed grin.

"Wish we didn't have to go to school this morning. I haven't memorized the poem. I was digging potatoes till late last night."

He got his school book out from inside his shirt and began mechanically, under his breath, repeating the lines, his eye now and then roving to the corks. But the corks gave no sign of life. The fish had been driven away by the cold, deeper into the water.

"Come on boys, let's go, or we'll be late for school," said Andrei, the tamest of them, regretfully.

It was still early, but the perky girls from the boarding school were already out in the street. Crammers, they had done their homework in good time and could enjoy themselves now. They were clustered around two of the village grandfathers, listening to their yarns. Dropping a chuckle into his tobacco-stained beard, Grandpa Grigori teased:

"Need any help to carry your catch home?"

"Ordered a horse and cart," Shurka snapped back.

Shurka was almost late for school, and all day things went wrong. His teacher kept calling on him when all he wanted was to be left in peace. The warm sunshine streaming into the window and the light breeze tousling the golden tendrils of the white birches inclined him to daydreaming. "How short our summer is," he thought. "It's different in Brazil. What a long summer holiday the kids there must be having. I bet it's a whole half-year long. No wonder they have such good soccer players."

Shurka would have liked to share these thoughts with his friends. But what with having to scrub the classroom floor, call for his baby sisters

at the nursery and chop wood for his mother, he could not squeeze in a free moment. But Shurka did not mind working hard. That's the way it is with country boys—even the laziest of them who will not open a textbook for weeks on end will rarely shirk manual work.

Pushing on his cap until it perched on the back of his head, Shurka, with a pleased look, surveyed the wood he had chopped and said sedately to his mother, "Mom, I think I'll go and play a while now."

It was the custom of these country boys to meet on the outskirts of the village. That was their club quarters, so to speak, until the older boys and girls came to take over and dance to an accordion.

If a city boy heard a tape recording of these country lads talking, he would laugh at their funny ideas about city life, about such things, for example, as traffic jams and skyscrapers. But the city boy would probably get lost trying to follow their conversation about the spare parts of a harvester. And a Moscow boy would probably listen fascinated to Shurka's hunting stories without being able to tell which was the truth and which was Shurka letting his imagination run away with him. The self-reliance and good judgment of the country boy might even take the city boy down a peg or two.

The too much coddled city boy would certainly envy Shurka his muscles and broad shoulders. Although sports clubs and facilities are sometimes lacking in the country, every forest clearing is a soccer field, even if you do have to share it with the geese and the goats. You can kick a ball around to your heart's content as Shurka and his friends now did.

The game over, they thought they ought to get back some of their lost energy. Shurka suggested they help themselves to Grandpa Ivan's apples. Grandpa Ivan grew the best fruit in the village. There were apples for the taking everywhere, every family had an orchard, but to steal Grandpa Ivan's apples was an adventure—you could imagine yourself a military hero on a particularly dangerous mission. The unpleasant side of it, however, was the chance of getting caught, which meant that Grandpa peeled off your pants and made you walk home through the village half naked.

And this was exactly how the day ended for Shurka, who lived at the other end of the village. Fast as he ran, he did not escape Tanya, one of the worst teasers in the class. She thought at first that he was practicing for a race. But she soon took in the situation and was laughing her head off. The last straw. "She'll surely squeal to everybody," Shurka told himself disgustedly.

Adults and the Child's World

(Continued from page 37)

came ill. At the Mir Cinema House a teenager struck his head into the cashier's window and yelled at the top of his voice."

F. winds up with the proposal that "all undisciplined, depraved children and adolescents who will not study should be isolated in special boarding schools with a semimilitary regime or in reform schools with punishment cells and whipping."

It is a good thing that F. can only hope for such antiquated educational methods. But F. is not a minority of one.

U. from Anadyr says, for example: "The easiest thing is to pat children on the head. They say that brutality and coercion produce a base, slavish psychology—and cripple the spirit. But what about Gorky? Wasn't he beaten black and blue? They say seminaries are bad examples of educational institutions, forgetting that people like Pomyalovsky, Nikitin and Reshetnikov were educated at seminaries. And so was Stalin, before whom half the world bowed."

It is hard to believe that anyone would recommend whipping as a good educational method. That means going back not only to the prerevolutionary high school but to the nineteenth century seminary.

In the eighteenth century Vauvenargues Luc de Clapier wrote that "great thoughts come from the heart." Similarly, the idea that whipping and the punishment cell will save the situation come from hands that itch for the rod.

The owners of such hands do not distinguish between self-discipline and compulsory discipline. They believe that the sooner blind subordination of the younger to the older becomes a part of a child's nature, the better off he will be.

That this kind of discipline is hardly the best way to raise a human being seems to me indisputable. In the last war young men reared in schools built on blind nazi discipline came up against men educated in our free schools, schools not yet marked by the personality cult, schools in the tradition of revolutionary education. Our fighting men proved immeasurably more courageous and heroic than the soldiers trained in the Prussian style, with its cane and rod discipline. That is something to remember.

Neither Komensky, Tolstoy nor Korczak need defending. But the accusations by advocates of a "strict regime" against these classical educators are so insulting that I cannot pass them by without comment.

To Tolstoy education was a tremendous thing, perhaps the most important thing in his life. In spite of the difficulties involved, he set up 23 schools in his district and created a system of free education and child rearing in which knowledge and ethics were not injected forcibly but rose in the soul naturally, the way the sap rises in the stalk to the leaves above.

The same sense of the need for free development permeates everything Janus Korczak wrote. Korczak, too, believed that childhood is not the threshold of life but life itself, an intense, joyous life. Or that it ought to be.

School years and preschool years make up a fourth of a lifetime. The school has not merely the auxiliary responsibility of preparing the child for adult life, the school must make *its* part of life fulfilled and happy. After all, there is no telling what the future may hold.

When Korczak and the children in his charge, children of the Warsaw ghetto, were preparing for their last trip, to the death camp at Treblinka, the nazi commandant (says an eyewitness) asked the doctor if he was the author of *The Bankruptcy of Little Jack.*

"Yes," replied Dr. Korczak. "Does that have anything to do with the departure of the train?" "No," said the commandant. "It's just that I read your book when I was small. It's a good book. You may remain behind, doctor." "What about the children?" "The children must leave." "No!" cried the doctor. "The children come first." And he slammed the door of the car shut behind him.

Korczak knew that with all the goodness there was left in the world, with every beat of his heart, he had to ease the inevitable suffering and death that faced the children. He had to protect them while they were still alive and then die with them. This he did. Fairy tales filled that terrible train carrying the children to Treblinka.

In *The Prayer of the Schoolmistress* Gabriela Mistral says: "Oh God, give me just one love—love for my school. May I become more of a mother than mothers themselves, so that I may love and defend, like they, what is not my flesh and blood."

This prayer was offered in one part of the world, and at almost the same time, in another part of the world, it was translated into reality in a way that will never be forgotten.

Of all the classical educators, the only one whom champions of severity recognize, although with thousands of reservations, is Anton Makarenko. "His age was closer to ours in spirit and time," says one letter. "When Makarenko is quoted," says another, "why is it 'forgotten' that he used to persuade his charges at the beginning by smashing a chair over their heads? And that he walked about with a revolver in his pocket, and that every single one of the pupils knew it?"

A person sees what he wants to see. If he wears dark glasses, the world loses its color. It is hard to understand how anyone can write that way about Makarenko when the memory of his *Road to Life* is so fresh. Faith was an element of the greatest importance in Makarenko's educational outlook and his whole philosophy.

"Anton Makarenko declared that at birth man was as transparent as glass and that dark spots appeared later," one of his pupils recalls. "They come from living. He knew how to wipe out those disfiguring spots and bring out all the goodness and beauty that nature bestows on man."

There is an immense distance between Makarenko and "chair-breaking pedagogy."

VII.

I once wrote that I found it impossible to understand how a class of 40 children with excellent marks for conduct can keep silent when a hooligan insults their teacher. That class, I said, was dangerously ill—with the disease of dumbness and cowardice.

"What could the class do?" a teacher asked indignantly. "What could the class oppose to the hooligan, who immediately resorts to his fists? 'The class is dangerously ill—with the disease of dumbness and cowardice.' How true, Comrade Sharov, how true! They are ill with the same disease we once had."

We once had it, yes, but does that excuse our having it now and forever after?

We and the schools and parents must so raise our children that they will never give in to scoundrels, even if, as often happens in life, the scoundrel is armed with more than his fists. A teacher has no right not to understand this.

The school commune, to which Makarenko was not afraid to admit criminals straight from prison and adolescents from dozens of other schools created by the Revolution, was not sick with the disease of dumbness and cowardice. That is why it was never faced with the problem of "incorrigibly difficult" children who had to be expelled or isolated.

There are few things harder than getting a school collective going. Even so, the number of children irreparably crippled by their environment does not run into the thousands or hundreds of thousands but into the dozens or hundreds. The others must learn to get along with them.

VIII.

Education and character training are usually dealt with separately. Yet they are two aspects of the same thing. When you "educate" a person by opening up the world to him in its true colors, you are giving him wisdom and an appreciation of beauty.

Everyone has a need to learn, says Tolstoy, and the sign that education is effective is the pleasure with which it is learned.

Tolstoy also says that the teacher finds it easiest to teach what is simple and general, while the pupil finds it easiest to learn what is complicated and alive.

If a sheep refuses to eat, no one assumes it is because the sheep is stubborn. If the instinct to know, an instinct as real and as strong as the instinct for food, does not operate in the child, we can be sure knowledge is being supplied him in an indigestible form.

Consider school textbooks. In almost all of them the simple and the general outweighs the complicated and the lively.

A gifted child, the son of a research scientist, who had made up his mind to be a physicist, suddenly began getting poor marks in physics. "It's a different kind of physics!" he explained almost tearfully to his father.

IX.

A difficult teenager is truly "invincible" when he senses that he has the silent support and admiration of his fellow classmates for his offensive bravado. But he is helpless against a united class.

At the school commune I attended, someone once stole meat from the storeroom. That was in the winter of 1919, a year of famine. The leaders of the student self-government organization, without asking permission of the teachers, who would have been too softhearted to allow it, went on a hunger strike until the stolen meat was returned. The next day the thief confessed and there were no more thefts thereafter.

The world's leading educators know the creative power of a children's collective. Korczak always lived with the thought of a "children's world" ruled by children themselves. Makarenko drew up an actual plan of a children's republic of several children's communes. The schools established after the Revolution had two elements the old schools lacked: work and student self-government. These elements were gradually forgotten during the years of the personality cult, and the schools took a step backward as a result.

The children who are entering school today will in 10 or 15 years be an active force in a world different from ours in many ways. They must become accustomed in childhood to feeling responsible for the common cause, they must become accustomed to self-government, to the complete democracy without which a communist society cannot be built.

The one serious obstacle to creating strong, responsible children's self-government is the belief some teachers have that schoolchildren are not ready for self-government, that even 16-year-olds will take advantage and hurt the school. To answer them, I should like to quote from a letter of Lenin's: "I assure you that among us there is an idiotic, philistine, sluggish fear of the youth. Fight against this disease with everything in your power, I beg of you."

QUERIES FROM READERS

COMMUNIST PARTY OF THE SOVIET UNION

We have received several questions from our readers concerning the CPSU, its membership and social and professional composition. Some questions concerned the Twenty-third Congress, which was held in Moscow in March-April of this year.

QUESTION: What is the membership of the CPSU?

ANSWER: Nearly 12.5 million people are members of the Communist Party of the Soviet Union, 2.5 million of them are women.

According to the Party Rules, "Membership in the CPSU is open to any citizen of the Soviet Union who accepts the Program and the Rules of the Party, takes an active part in communist construction, works in one of the Party organizations, carries out all Party decisions and pays membership dues."

QUESTION: How is the CPSU organized?

ANSWER: The guiding principle of the Party's organizational structure is democratic centralism, which includes election of all leading Party bodies, from the lowest to the highest, periodical reports of Party bodies to their Party organizations and to higher bodies, strict Party discipline and subordination of the minority to the majority, the decisions of higher bodies being obligatory for lower bodies.

Democratic centralism implies the organic fusion of democracy and centralism. Neither of the two alone can give the necessary activity and level of organization. Only the proper combination of these two elements can provide flexibility and the conditions for developing initiative of Party members and having Party decisions strictly abided by.

QUESTION: What is the social and professional composition of the CPSU?

ANSWER: Workers constitute 37.8 per cent of the Party membership, peasants 16.2 per cent, office workers and others 46.0 per cent. Among those in this last group more than two-thirds are scientists, engineers, technicians and other specialists.

Party standing: up to 10 years, 47.1 per cent; from 10 to 30 years, 47.3 per cent; over 30 years, 5.6 per cent.

Age: up to 25 years, 6.2 per cent; from 26 to 40, 46.8 per cent; from 41 to 50, 24.9 per cent; above 50, 22.1 per cent.

QUESTION: How were the delegates to the Congress elected?

ANSWER: One delegate with a decisive vote was elected for every 2,500 members of the Party and one delegate with a consultative vote for the same number of candidate members.

In all, 4,943 delegates were elected to the Congress, including 4,620 with a decisive vote and 323 with a consultative vote.

QUESTION: What was the social composition of the Twenty-third Congress?

ANSWER: Among the 4,943 delegates of the Congress, there were 1,141 workers, more than 900 workers in agriculture (directors of state farms and chairmen of collective farms, team leaders, milkmaids, machine and combine operators, and others), 704 heads of plants, trusts, firms and enterprises. The delegates included about 1,200 Party workers, 539 workers in government bodies and 82 trade union functionaries, 350 scientists, including 45 academicians and corresponding members of the USSR Academy of Sciences, and 36 members and corresponding members of the academies of union republics.

Among the delegates were 147 people engaged in literature, the arts and in public education, including 53 writers, composers, painters and artists.

Delegates representing the army and the navy numbered 352.

The delegates represented 59 of the country's nationalities.

There were 1,154 women delegates at the Congress.

QUESTION: What is the top Party organ?

ANSWER: The supreme organ is the Party Congress, which is convened at least once every four years. The Congress hears and approves the reports of the Central Committee and the Central Auditing Commission, determines the Party line in matters of domestic and foreign policy, examines the most important questions of communist construction, endorses and amends the Program and the Rules, and elects the Central Committee and the Central Auditing Commission. Its decisions are binding on all Party organizations.

QUESTION: What powers does the CPSU Central Committee have?

ANSWER: The Central Committee is the top Party organ between congresses. It carries out the policy charted by the Congress.

The number of members to be elected to the Central Committee is determined by the Party Congress. Thus, the Twenty-third Congress elected 195 full members and 125 alternate members to the Central Committee.

The Central Committee selects and appoints leading functionaries, sets up various Party organs and distributes the funds of the Party budget.

Every decision that the Central Committee takes is the fruit of thorough investigation. Men and women from all walks of life are invited to Central Committee conferences. Thus, some 25,000 people attended the conferences of farm workers which the Central Committee organized in 1961 in the various republics, regions and territories.

The leading organs of the Central Committee are the Political Bureau and Secretariat, which are elected at a plenary meeting of the Central Committee.

The Political Bureau and Secretariat elected at the Twenty-third Congress consist of 11 members each.

QUESTION: How is the USSR Council of Ministers formed?

ANSWER: At a joint session of the two chambers of the newly elected Supreme Soviet, the chairman of the outgoing Council of Ministers, in conformity with Article 70 of the Soviet Constitution, submits to the chair a statement to the effect that the Council of Ministers surrenders its powers to the Supreme Soviet and considers its duties at an end.

The Supreme Soviet reviews the work of the Council of Ministers and adopts an appropriate resolution. It then elects a new Chairman of the Council of Ministers and instructs him to submit proposals on the new composition of the government.

At one of the subsequent sessions of both chambers, the Supreme Soviet discusses and then approves or disapproves his recommendations and formally inducts the new government of the USSR.

In the interim period between sessions of the Supreme Soviet all matters regarding the composition of the government are decided by the Presidium of the Supreme Soviet with subsequent discussion and approval of all decrees by the Supreme Soviet.

QUESTION: Can a union republic enter into direct relations with another country without actually seceding from the Soviet Union? (James A. Barr, Clarkson, Washington)

ANSWER: Yes. Every one of the 15 union republics has, according to the Soviet Constitution, the right to enter into direct relations with foreign states, to conclude agreements with them and to exchange diplomatic and consular representatives. The Russian Federation, the Ukraine and Byelorussia—the three Soviet republics which made the greatest contribution (compared with other republics) to the defeat of nazism in the Second World War—were charter members of the United Nations and have permanent missions at UN headquarters in New York.

QUESTION: Do autonomous republics, autonomous regions and national areas have official flags and coats of arms? (James A. Barr)

ANSWER: No. These administrative entities are components of a union republic and therefore have the official flag and coat of arms of that republic.

QUESTION: Who trains film workers in the USSR? What is the wage scale? (Shaun Considine, New York, New York)

ANSWER: Most film workers are trained at two colleges: Moscow's All-Union Institute of Cinematography, which trains script writers, directors, cameramen, actors, scene designers and film industry economists; and Leningrad's Institute of Film Engineering, which trains and teaches the technical aspects of film making.

The wages of film workers depend on skill and experience. For instance, the big directors have the highest category rating and a corresponding salary of at least 300 rubles a month. A director with less experience gets 200 rubles a month. Also, after the film is shot, the director and other members of the film crew, the actors included, get what is known as a production bonus of several thousand rubles. The film studios also pay a bonus if economies are made in producing the film and if its artistic level is unusually high.

"No one can become a Communist unless his mind has been enriched with a knowledge of all the treasures mankind has created."

Lenin

MICHAEL SERVETUS

BY ALEXANDER BELOV

IT RAINED all that night. But when morning came, the sky cleared and the slanting rays of the sun lighted up the high lancet towers and the cobbled streets and peeped into windows, awakening the townspeople.

Early on that morning in October 1553 they began to gather along the streets of Geneva that led from the prison to Champel Hill, where criminals were executed.

They waited a long time. Only at about noon were the massive prison gates swung open and an emaciated man in chains, his shirt torn, led out, surrounded by halberdiers. With difficulty he lifted his hand to shade eyes that had not seen the sun for many days and eagerly breathed in the air, so fresh it made him dizzy.

His body moved like a lump of lead, each step was agony. He felt the stare of the crowds lining the street. The words of the Calvinist pastor Guillaume Farel calling on him to recant still rang in his feverish brain.

No, he had nothing to recant. Neither torture nor even the threat of death could make him retract what he knew to be right. He had lived an honorable life as a man and a thinker striving to reach the truth, and he would not surrender what his reason had won.

Scenes from his childhood in the little Spanish town of Tudela in Navarre flashed into his mind. He saw his father's face and heard his voice.

"I want you, my son, to follow in the footsteps of your forefathers. I want you to become a famous lawyer."

Now his memory took him to Saragossa and the university there. He saw himself bent over books, the ancient volumes with which he had begun his search for truth. Little did he think then that they would lead him along the thorny path to the stake!

He recalled Toulouse and the university where he had studied law. But other interests had taken precedence over the law. The writings of the thinkers of antiquity, a close study of the Bible and other Christian writings, an examination of the scientific treatises of the most advanced thinkers of his time had given him original opinions, new ideas.

His first publication, *De Trinitatis erroribus libri vii* appeared in Germany in 1531. The fruit of many years of thought and a thorough study of Christian literature, the treatise came as a bombshell. It denied the holy of holies of the Christian religion, the cornerstone of Christian doctrine, the sacred dogma of the Trinity. How irrational the young scholar's treatise made the dogma appear.

The book was ordered burned. Under cover of night, Servetus had to flee from Germany to escape persecution by the church authorities. He took refuge in France and settled in Lyons under another name. There he worked for a big publishing house. Among other things he translated and edited Ptolemy's *Geography*. Servetus did more than simply edit. His commentaries brought the *Geography* up to the level of the scientific knowledge of his time. Scholars called the work "a masterpiece of erudition," a tribute to the editor's encyclopedic knowledge of geography and history.

In 1536 25-year-old Servetus went to Paris to study medicine. His mastery of Latin, Greek and Hebrew gave him access to the writings of Hippocrates, Galen and other famous physicians of the past. Tenacity and strength of purpose took him far in this new field. Johann Günther, a prominent physician and contemporary, lauded Servetus publicly for his knowledge of medicine.

Then came the great day when this man solemnly donned his doctor's gown to receive the degrees of Master of Arts and Doctor of Medicine. It was one of the memorable days of his life, the reward for years of work.

He set up practice in the small town of Vienne. But he did not devote himself exclusively to medicine. The light burned far into the night in the home of the Vienne doctor, who was writing the book that became his magnum opus. It took 10 years of his life.

Christianismi Restitutio was published in 1553. It was an examination and criticism of Christian dogma. The Bible, the "sacred" book of the Christians, it said, should be submitted to the test of common sense; the mind should not be shackled by religious dogma; it should be left free to search for answers to the riddles of nature. The Bible, said Servetus, was not divinely inspired. It had been written by men and therefore had its many incongruities and contradictions.

Not only Christian dogma but the activities of its ministers were subjected to sharp criticism. Servetus took issue with both Catholics and Protestants, who wanted the Church purged. No, he said, both Calvin and Luther were slaves to Christian dogma, intolerant of those who thought differently. Servetus stated this frankly and honestly.

Did Servetus know that his book, the beloved creation to which he had given so many years, would put him on the road leading up Champel Hill? Probably. He must have anticipated the outraged cries of orthodox religious thinkers. But he had to write the truth. It was surely no accident that so much of the book was devoted to the sciences. He traced the system of blood circulation in the human body, still o mystery at the time. Since Galen, blood was believed to be formed in the liver and from there to course through the body. But Servetus disputed the theory. He showed that the blood passes from the right ventricle of the heart to the left through the pulmonary artery and the pulmonary vein, is purified by oxygen in the lungs and returns again to the heart.

And his new ideas on cosmogony and ethics! Would people someday understand that it was the search for truth that forced him to write the book? How much he would have to endure for the sake of truth!

The book appeared without the author's name, otherwise Servetus would have had to answer to the Inquisition, which gave short shrift to free-thinkers. He did not think there would be a traitor among those close to him. There was, however, and late in February 1553 he was exposed to the inquisitor general at Lyons.

He was arrested but escaped. He chose Switzerland for refuge. Geneva was a Protestant city with no Inquisition. But on his very first day there the Pope's ubiquitous agents arrested him as a heretic.

A cold cell, insults, and daily torture that seemed to have no end. As he faced his questioners each day, he told himself: "I am suffering for truth," and that gave him strength. He did not regret that he had thrown this declaration into the faces of his accusers: "I believe in the truth of what I think and say, and I do not fear death."

Now he was walking down the cobbled street. He raised his head and saw the streak of water that was Lake Geneva. His road was coming to its end. There stood the stake on Champel Hill with the firewood piled around it. And there was the executioner who would place on his head a wreath of straw soaked in sulphur. And the people, the people . . . The sun dazzled him, the sun that he was seeing for the last time.

The executioner tied him to the stake and threw a book, his book, *Christianismi Restitutio,* at his feet. Again Farel bent over him, whispering, "Recant!" And again there was no answer.

The face of the condemned man was calm and proud even when the executioner flung a blazing torch at his feet and tongues of flame leapt upward.

The green wood did not burn, it smoldered, the heavy clouds of smoke choking the condemned man. One of the women looking on, it is said, could not endure the frightful spectacle and threw some dry brushwood on the fire.

That was on October 27, 1553. They had burned the "great heretic" but religious fanaticism could not destroy his ideas or his name. They have been handed down by the generations. Michael Servetus was a gifted geographer, a courageous critic of Christianity, an eminent physician, the first to describe the lesser circulation of the blood, thereby anticipating the discovery made by the great William Harvey. This bold sixteenth century thinker gave his life for truth. He fought the forces of darkness that were trying to halt the triumphant march of reason.

Courtesy of the magazine Nauka i Zhizn

TWENTY-TWO POUNDS OF GRACE

Interview with Ludmila Belousova and Oleg Protopopov

Most people think that figure skaters, to reach world class, should begin at the age of eight, or even as early as five. Do you agree?

Ludmila: Oleg and I often get letters from children 10 or older who complain that they were turned down at skating classes because they were too old.

I started figure skating at 16. I saw the movie *Sun Valley Serenade*, and I was dazzled by Sonja Henie's skill. We lived near the Central Army Park, and I used to skate there on hockey skates. I had no idea, or hope, of learning figure skating. But I happened to see a poster at the gate of the Dzerzhinsky Children's Park announcing a figure skating class. I was lucky. It was taught by Samson Glyazer, a kind-hearted man and a great figure skating enthusiast. He accepted all comers. He heard me out and said, "This way, miss, to the rink."

I went out on the ice and flopped right down. But after a while I got used to it and even managed to skate a little on one foot. That was on November 22, 1951, and I had just turned 16. My first trainer was Larisa Novozhilova. I trained for all I was worth and in three years made the first sports class in both singles and pairs skating. That was when I met Oleg. Let him go on from there.

Oleg: I was also nearly 16 when I began figure skating. Early in 1948 I went to the Leningrad Young Pioneer Palace—I wanted to play the piano. They said no, that I couldn't make out differences in pitch and key. What did I do? I enrolled in a percussion class and began playing the xylophone. The pianists had turned me down because I had no ear, and I was playing Glinka's "Skylark" and Mozart's "Turkish March" by ear! There was a figure-skating class at the palace, too. Once I wandered into the garden where the Rossi Pavilion stood, and there in the middle of all the noise were figure skaters training on the ice-covered lanes. Up to then I had skated like all boys did, hitching on to passing vehicles with a hook. I used hockey skates that I tied to my felt boots with string.

I came to the class with them on and asked to be let in. Nina Lepninskaya, my first and last trainer, thought that my toe spins were good and my centering also. In short, she accepted me, and I was faced with the choice of going on with the xylophone or taking up figure skating. The skating won out. I did have to skate in shoes two sizes too small—there were no bigger ones at the Pioneer Palace, but my desire to skate was stronger than the pain.

A year later I took second place in singles skating at the national youth championship. In the fall of 1951 I joined the navy. I was in the ninth grade at the time.

The ninth grade?

Oleg: Yes, I was overage, because I hadn't gone to school during the war. First the blockade and then we were evacuated to Central Asia. When we came back to Leningrad in 1945, I was 13 and they put me in the third grade.

It means that besides a late start, you had a five-year break in your training?

Oleg: Just about. At first I was stationed in Severomorsk, and there was no place there for figure skating. A year later, when I was transferred to Leningrad, I got into town from time to time, but not regularly. If I managed it twice a week, I was lucky!

By today's standards this was not training, just skating for the fun of it. Now we train four hours a day—from eight in the evening until midnight. But then I'd leave at seven, get to the stadium by eight, train for an hour or so, and then rush back to the ship. Four hours of training a week was just about the limit.

Ludmila: We met while he was serving in the navy.

Oleg: In 1953 only two pairs trained for the national championship. Leningrad figure skaters advised me to make up a pair with Margarita Bogoyavlenskaya. With only two other pairs competing, they said, the least you can get is the bronze medal.

In a week's time we had some sort of a program ready. I talked my commanders into letting me go to Yaroslavl, and there we really did win a third place diploma at the USSR championship. The diploma made quite an impression on the unit, but actually it wasn't worth much, we lost each other several times during our performance. If there had been 15 pairs at the championship instead of three, we would probably have scored fifteenth. Just goes to show you what an important role documents still play in this world. The diploma gave me a new "lease on life." There was a new attitude toward my training. In 1954 I was even allowed to go to Moscow for a month-long rally.

That's where I met Ludmila. Here's how it happened. The rally was held in the same Dzerzhinsky Children's Park where Ludmila began skating. At one point in the rally there was a forced intermission—one of the groups had not arrived. I put on my skates and went out on the ice for practice. Ludmila was already skating there. The rink was small, 30 by 30, hard not to bump into each other, so we held hands and began spinning around together just for the fun of it. This chance spinning was the beginning of our pairs skating.

Somebody looking on asked, "Have you been skating together long? About two years? You do it so naturally." Others said, "Keep it up, you're doing fine!" Yes, but I lived in Leningrad and she in Moscow! There was no way I could get transferred to Moscow. But here Ludmila had a lucky break. She finished

Ludmila Belousova and Oleg Protopopov need no introduction. Scores of articles about the famous Olympic and 1965 and 1966 world figure skating champions have been written, and their pictures have appeared in newspapers and magazines all over the world. But they have never written any detailed stories about themselves, and their rise to the summit refutes all the canons of this big-time sport.

Recently Belousova and Protopopov visited the editorial offices of Yunost *magazine. Part of the interview sports correspondent Gererd Zelensky had with them is reprinted.*

school in 1953 and did not get into the Power Institute.

Ludmila: I took the entrance exams but only got a Fair in mathematics, so I was eligible only for the Railway Engineers Correspondence Institute. But I wanted to become a regular student, so I decided to try my luck in Leningrad. Who knows, there probably wouldn't be a Belousova-Protopopov skating pair if not for that Fair in mathematics.

Let's get back to the question we started with: At what age do you think it is still not too late to begin figure skating?

Ludmila: Some of our trainers are too much inclined to follow foreign methods. They forget that we have different aims in sports!

Many parents abroad, I think, try to get their children into a figure skating school as early as possible so they can win a title and get into a professional review . . .

Oleg: . . . to justify the money spent.

Ludmila: That's why there are so many who go professional at an early age, as soon as they win a title or get to be known.

Oleg: And then they skate in ice reviews for another 20 years! Austrian Ferdinand Lemans is past 40. And how old is American Dick Button? But he still skates and makes money. And the way he jumps. If all young skaters jumped like he does!

So, even starting as late as 16, a skater can get to the top?

Oleg: If he has what it takes.

Ludmila: The older a person gets, the better he should be able to skate. I know that I'm skating better now than I ever did.

Still, what is the age limit for beginning?

Oleg: I think it is a crime to tell any 10- to 15-year-old that he's too old for figure skating.

Ludmila: It's very important for a beginning figure skater to train conscientiously.

Oleg: A person should first get used to skates by himself, and only when he feels thoroughly at home on them should he be taught figure skating. Training a figure skater is a complex and primarily mental process. It requires the utmost concentration and attention. Figure skating today demands intelligence. Unfortunately our skating experts now stake everything on so-called prospects. And what does that mean? It means that they let you join a class at 6 and at 19 they write you off, the way they wrote off Tanya Likharyova, for instance. Who knows how many victims there are of that very questionable "prospects" theory?

I believe there was a time when you too were considered a nonprospect?

Oleg: Even before last year's European championship in Moscow, Skating Federation secretary Sergei Vasilyev said that if Belousova and Protopopov did not become Olympic champions, he'd raise the question of keeping them on the national team and of their prospects. But we won the European championship and then the world championship in America.

At the 1964 European championship we took second place. Though we were in fighting form, the unexpected happened: Ludmila tripped on a hairpin the skater before her had dropped. And so before the Olympic team left for Innsbruck, head trainer of the national team Georgi Felitsin was saying, "Well, in my opinion, Belousova and Protopopov won't do much better at the Olympic games than they did at the European championship."

And even when we came back from Innsbruck with gold medals, he kept on saying that we had won by a fluke, that the chances were 98 per cent against our winning.

Yakov Smushkin of the Central Physical Culture Research Institute also prophesied our defeat. He calculated on an electronic computer (using the "prospects" theory, of course) that the curve of match results of our opponents was rising and that ours was heading downward. On the eve of our departure for Austria he said, "Too bad, kids, but the best you can hope for at the Olympics is third or fourth place."

Whenever I meet Smushkin now, I ask him, "Well, how's your computer doing?"

Who helps you prepare for competitions?

Oleg: Anybody and everybody. You can help too. We don't mind asking anybody for help, even people who have nothing to do with figure skating. In 1962, for example, we first took second place at the world and European championships. And who trained us? The fellow who drove the ice waterer at the Central Army Rink, Sasha Smirnov. He's a first category gymnast and plays a trumpet in an amateur jazz band. We trained alone, and he saw that we were doing too much arguing, considering the contest was so close. Some of the things we were trying just didn't come off because we were nervous.

This young fellow would come up to us and say: "Don't worry, you're doing all right, except there's a glissando here in the music, which calls for smoothness, and your movements are too abrupt." Or: "You, Oleg, spread your legs wide when you jump, and Ludmila's knees are close together, that's why your jump is too long and hers is too short."

We got very used to him and he to us. He would work his shift till nightfall and at six in the morning show up at the rink again. Instead of resting, he'd train us. Sometimes it was hard to force ourselves to go over the whole composition just for him. But Sasha would say: "Come on, kids, let's see how it all looks." It was hard, but we repeated it for him.

I later told that same Vasilyev, "And do you know who trained us? A chauffeur." And he said, "Well, just don't let anyone else know that."

Why don't you have a permanent trainer?

Oleg: That's a long story. At the Dynamo Sports Club in Leningrad, Pyotr Orlov was considered our trainer. But he hardly ever worked with us—we were "nonprospects."

Then we got transferred to the Locomotive Club, but there they had a pretty poor class and no trainer at all. Again we were on our own.

In recent years we were helped a lot by former USSR champion Igor Moskvin. He helped us tremendously just before the Olympics, after we insisted that he be invited to the rally. But Igor lives in Leningrad, and we're only nominally Leningraders. We do most of our training in Moscow. Our home is in Leningrad and we study there, but Leningrad still doesn't have an artificial rink fit for figure skating.

How do you train? Let us in on your secrets.

Oleg: During training Ludmila puts on a 22-pound training belt. We call it "22 pounds of grace."

Ludmila: It's hard to skate with an extra 22 pounds on you, but when you take it off, you feel almost weightless! It's so easy to skate and jump.

How do you get along when you train? One article I read said that Oleg was domineering.

Ludmila: I'm calmer, and he's more nervous.

Oleg: Sometimes I get the feeling that she isn't trying as hard as I am and that upsets me, so I yell, "Come on, get a move on!". . . But that's the whole beauty of pairs skating: The manliness of the male should be blended with the grace of his partner. If we were both the same, like two grasshoppers, it would make dull viewing.

How is it with you, Ludmila, does Oleg hurt your feelings when you're training?

Ludmila: I hurt his feelings, too. But as soon as we leave the rink, it's all forgiven and forgotten, of course.

Oleg, where did you get your music background?

Oleg: My mother was a ballerina, and I grew up in that kind of world. I heard many famous singers and saw the great ballerinas. I've been interested in music since childhood. After the blockade, Mother worked on the variety stage, and I often waited for her at rehearsals. The musicians didn't get insulted when I'd tell them they were off key. On the contrary, they all told Mother it was a crime not to make a musician of me. My mother would answer, "I don't want my son to play in an orchestra." And so I never did! But I did try, as you know. And I still love music as much as ever. When Ludmila and I skate to a melody we are especially fond of, we forget that people are watching. There's only us and the music. We mostly choose classical music. My favorite composers are Liszt and Rachmaninoff.

When we do *Träumerei*, the audience is interested because we try to make them see the music in movement. We never try to play up to the audience or put on a showy display that says: Look how pretty we are! This is not true figure skating. It's cheap, ostentatious.

How do you combine the music and the purely athletic elements of the program?

Oleg: Sometimes we have to combine things that just don't go together. Have you seen our demonstration dance to Massenet's *Meditation?* It lasts 4 minutes and 27 seconds and has only one lift, but it makes a bigger impression than a purely athletic program with nine lifts. So that you ask yourself: Which is more important—the athletic elements or something else?

Say we're preparing a new program, and we see that artistically it is complete and expresses the music, but we're faced with a dilemma: Somewhere we have to make a double jump or else we'll be told that it is not complicated enough.

How do you think figure skating might resolve this contradiction?

Oleg: The German term *Eiskunstlauf* is a fine definition of figure skating.

When West German sports writers were trying to figure out why Kilius and Bäumler lost out at the Olympic Games, one well-known commentator got up a press conference with these skaters. The statement they made there was that they skated better than we did. The commentator analyzed the telerecordings of their performance and ours. First minute. "Yes, that was good," agreed our opponents. "And here is your first minute." "Yes, we were a bit off." Second minute. Third minute, and so on to the fifth, until our opponents admitted that we did skate a bit better.

Then Bäumler suddenly spoke up, "But still we were better, because we had more athletic elements and they had more ballet." Then the commentator remarked that *Eiskunstlauf* (ice art skating) was not *Eissportlauf* (ice sport skating) and should not include just anything.

This is just what we're getting at. The complexity of the program must be justified by its content.

But the way it is, you can do anything you like as long as you put in enough jumps and lifts! This is the salvation of skaters who cannot interpret the music with their movements. They use jumps to patch up the holes. According to the judges, our demonstration programs *Träumerei* and *Meditation* are not complicated enough for competitions. But from an artistic point of view they're head and shoulders above our sports program.

Why is it that Soviet figure skaters do

so well in world pairs skating contests and are behind in singles and dance skating?

Oleg: The answer is ice.

Ludmila: Single skaters and dancers can't practice compulsory figures on a wooden floor.

Oleg: That's right. With the competition what it is today, for us to train without ice is the same as for a swimmer to train in a bathtub.

By ice, do you mean artificial rinks?

Oleg: That's exactly what we do mean. There's a lot of talk in our country about mass sports. This is the reason given for our victories in international matches. But believe me, the success of Belousova and Protopopov does not reflect the level of development of figure skating in our country. What mass figure skating can there be when a city like Leningrad, where Russian figure skating was born, where our first Olympic champion Nikolai Panin lived (and where even now our best figure skaters are turned out), has no large artificial rink!

Ludmila: Every children's sports school should have its own artificial rink. And we only have one such school—at the Young Pioneers Stadium in Moscow. We've won world recognition with our pairs skating, but we won't hold on to it long if there is no one to take our place."

Oleg: Tons of rock have to be shifted to obtain one gram of uranium ore. The same holds for sport. To produce gifted figure skaters, first of all you need ice, and second long years of hard work on it."

What kind of skates do you use?

Oleg: We use British-made skates, ours are not good enough for figure skating. The workers at the Leningrad skate factory have a good answer to our complaints: "We can make better skates than the British. We have the necessary steel and the skilled workmen. But an extra-class pair takes much more time and labor than skates intended for mass consumption. The factory does not as yet have special wage rates for such work." So they stamp out mass-produced skates that you can't hope to win international competitions with.

What do you do besides sports?

Ludmila: I'm in my fifth year at the Railway Engineers Institute.

Oleg: And I'm in the Hertzen Teachers Institute, the physical training department.

Ludmila: The trouble is we spend only a month or two a year in Leningrad.

Oleg: We're excused from class attendance, but the last time we came to Leningrad I took two exams and ten tests. We don't have any special privileges, and we don't get good marks for nothing. Without bragging, to get where we did in sports (though we still have a long way to go) took a lot of work and knowledge. We had to study a lot of biology, physiology, psychology, mechanics, physics, art. . . .

Who are your favorite figure skaters?

Oleg: The Americans Dick Button and David Jenkins, the German Ina Bauer, the Canadians Donald Jackson, Barbara Wagner, Robert Paul. All of them are very musical. It touches your heartstrings to watch them.

Heart—that's what is missing most often. You see a figure skater going all out to do a complex turn. He does it gracefully and cleanly. It would seem that there is nothing more you could expect. But it lacks the principal ingredient.

Ludmila: His heart isn't in it.

Oleg: Yes, it's skillful and correct, but it's not artistic. Very often the mastery of a figure skater boils down to artistic processing of spiritual vacuity. It always comes out in the movements. There are thousands of high-class athletes but someone must be first, and the first is the one who can reach your heart. That's the way it is.

SCIENCE FICTION: from popular science to literature

BY ISABELLA SOLOVYOVA

WHAT is science fiction? "There is really no definition," says the well-known writer Anatoli Dneprov.

The trouble is there are too many definitions, each with its own supporters. "Literature whose theme is the science and technology of the future." "Literature whose theme is the psychological and moral problems of the future." "Fiction which can and should do without human characters."

All these definitions are correct, but they are too limited. There are any number of good stories which these definitions do not cover. Science fiction must assume the right to make scientific discoveries that have not as yet been made. And scientists must be favorably disposed toward such discoveries or, in any case, tolerant of them, said Dneprov in one of his articles.

Dneprov thinks that the scientist-writer dominates science fiction. He attributes the slow development of this type of literature to the lack of another dominant figure, the scientist-critic. There is no one to appraise the discoveries since real scientists are unfavorably disposed to them. Perhaps Dneprov is right. Perhaps we really need a critic who is a specialist, a scientist, for modern fantasy literature.

Take Yeremei Parnov and Mikhail Yemtsov's *The Equation from Pale Neptune* in which the famous Dirac-Heisenberg formula plays a large role. In the story the equation is changed by people from another planet. To understand the story, I had to dig out my old textbook on quantum physics and then ask my mathematical friends to explain. They did not work up any enthusiasm about the story.

I liked it more than they did. (I worked over it honestly and hard.) But suppose I hadn't studied higher mathematics a long time ago? Indeed, some stories really do need a critic who is a specialist. I like science fiction so much that I might almost be willing to go to the lengths Dneprov suggests if it will give me the moral right to criticize it.

But then another problem arises. We need another dominant figure, a specially trained reader. "People who are not interested in science do not read science fiction," says Dneprov. "People interested in science—scientists—do not read fantasy literature," says that very same Dneprov. And that may be so. But then who does read it?! For whom will the writer who is a scientist and the critic who is a specialist be writing? Shall we do the writing ourselves, publish our stories ourselves, read them ourselves, and criticize them ourselves?

Fantasy writers justify their concern with scientific and technical discoveries by Jules Verne, most of whose ideas have been or will eventually be applied. Fantasy writers say that they, too, have the right, even the duty, to think up such ideas.

But Jules Verne's scientific and technical ideas were not evaluated by his contemporary readers but by their children and grandchildren. His contemporaries did not know that his fantastic discoveries were real discoveries. They loved this great writer, his heroes, the incredible, invisible world that his fantasy created. And we love Jules Verne because he was a great writer and not because he foresaw the possibilities of the use of electric power.

The submarine was created long ago, but today we read *Twenty Thousand Leagues Under the Sea* not for the *Nautilus*, but for Captain Nemo, who never ages, just as the real characters in great literature never age. Today we have the laser, but Alexei Tolstoy's discovery was not technical but artistic, not a hyperboloid but engineer Garin. The hyperboloid and the olivine (chrysolite) belt were the means Tolstoy used to solve artistic problems. Science fiction is the story of Ichtiandr, writer Belayev's hero, not the story of complex technological operations. It is the story of an Invisible Man, not of the laws of chemistry; of Gorbovsky (a Strugatsky character), not of the structure of a spaceship.

EVen though there is no one particular definition which is generally accepted, science fiction does exist. There are no laws

that govern this type of literature, but this literature is a fact. It has its successes, as well as its disappointments and failures, as does every type of literature that is developing. There are readers who, despite the question "Is there such a genre or is there not?" seek out the books marked Science Fiction and manage to distinguish this type (or genre, if you wish) of literature without any trouble. Science fiction speaks for itself, has its own trends, is liked and disliked, and is real enough for people to think and argue about.

None of these definitions of fantasy originated by accident. They were all born of practice. There is a veritable ocean of books about the science and technology of the future. Blue Martians and robots of the most intricate and diverse design roam the pages of books. Sinister, brilliant professors steal equally sinister scientific discoveries from professors who are noble, naïve and absent-minded. The earth, outer space and the readers shudder from the application of these discoveries. Gray-haired generals with faces worn from sleepless nights rush to help and are taken prisoner sometimes by Martians, sometimes by foreign intelligence services. And there is no limit to the types of aircraft that fantasy writers design.

The critics were silent. At their slightest attempt to speak seriously, the fantasy writers hid behind science and technology and from there repelled all attacks. Only those who do not care for science, they said, demand from science fiction thrilling plot, good characterization and other literary qualities. There was nothing to argue about.

Gradually the writers themselves began to feel the danger of such a situation. Formulas, drawings, parsecs, spaceships and blue Martians began to disappear. Only one popular name was mentioned at the readers' conferences held five years ago, Ivan Yefremov. Today there are more names.

Science fiction has changed, and very obviously. Turn to any recent science fiction collection and you see the problems and tendencies. The anthology *Science Fiction, 1964* contains an original work of a rare type, a science-fiction hypothesis, one which cannot be proven with the means presently available to modern science. The article by Genrikh Altov and Valentina Zhuravlyova titled "A Journey to the Epicenter of Polemics" is on the riddle of the Tungus meteorite. How many works of fiction have already been written about this enigma? Well they could have written still another didactic story in which six explanations of the origin of the meteorite (all of them incorrect from the authors' point of view) are turned over to six old foreign professors and their own hypothesis (that there was no meteorite, but that there was a light signal of the laser type) is turned over to a young Soviet professor. But they chose not to.

The talented writer-scientists Altov and Zhuravlyova realized, and rightly so, that the tasks of science and of art are different, and that they are solved by different methods. Science does not have to be literature, and it is a good thing when it does not pretend to be. What they have said, in effect, is that fantasy takes different forms and has different possibilities, and they have established a sort of demarcation. "A Journey to the Epicenter of Polemics" is a science-technical work, a work of science fiction, but it is not a work of literature.

However, *Science Fiction, 1964* also contains science fiction pieces which are literary with no pretense of being science. Take Dneprov's story "The Stanlew Farm." The idea here is not technical but literary, a protest against the standardization of life and the intellectual world. Or Vladimir Grigoriev's satirical "The Horn of Plenty," a story of the eternal conflict of the bureaucrat and the inventor. The invention, the horn of plenty, is pure convention, but the setting, the people, the committee that approves the invention are realistic. The same is true of "Fuss About a Divan" by Arkadi and Boris Strugatsky, our most popular fantasy writers.

There are scientific and technical hypotheses in these stories, too, but they are only a means to an end, not the end itself. They are a means of solving ideological-literary problems. The authors are not trying to elaborate another scientific hypothesis but to reveal interesting characters, to make a philosophical, not a technical comment.

The volume has an article with scientific hypotheses, and it has stories with striking characters who live in a vivid, interesting world. Sometimes it is our world of the future. And sometimes it is a fantasy world the writer has invented, as in Alexei Tolstoy's *Aelita.*

In "Fuss About a Divan" and in other of their stories, the Strugatskys create not a world of the future but a world that does not actually exist, a world they have invented. They write for contemporary readers, not for their children and grandchildren. These future readers will decide for themselves what is fantasy and what is prevision. The Strugatskys, like Ray Bradbury (although they do not resemble him at all), create an imaginary world, using very broadly and very boldly creative symbols that have been elements in literature as long as literature itself.

In one of Ray Bradbury's stories his characters fly to Mars in a rocket. It matters not how the rocket is built and how it functions. It is just a rocket. What does matter is the terrible story of barbarians invading an alien world. The Strugatskys have a story that is almost a reflection of this one: *A Well-Organized Planet.* Here people fly to an unexplored planet where they find a biological civilization. They leave the planet because they accidentally and crudely disturb this advanced and well-ordered civilization. They realize themselves that they are not yet ready for contact with this new life, that it will have to be made by people who are more sensitive and more knowing.

In *A Distant Rainbow* a planet dies. A "lu-wave" is the cause. What is a "lu-wave"? We have only a hazy idea of what it is, but we have a very good idea of its danger. Nor do we need to know more. The point of the story is how people react to death. The world is imaginary but is made very real, very familiar and very meaningful.

The volume *Science Fiction, 1964* illustrates a tendency. The direction of movement is from scientific and technical but lifeless fiction to fiction proper, to literary fantasy. That is evident in all more or less popular works of recent years. Even Alexander Poleshchuk, who is such a devotee of technical discoveries which only our descendants will be able to evaluate, in his latest book tries, although timidly as yet, to resolve the literary problems and to write, not for future, but for contemporary readers.

This tendency can also be traced in the works of the Strugatskys. Their earlier book *Six Matches* has stories written like scientific experiments, and what is most important and most interesting in them are the technical enigmas, the turns and twists of scientific thought, not the characters. However, it was not this book that won the Strugatskys their popularity, but such works as *Apprentices, A Well-Organized Planet* and *From Without,* with their courageous, thinking, active characters.

Let us now return to where we started, to definitions. Why is it that this very theoretical, even somewhat academic, question occupies the attention of practical workers? I hazard this hypothesis: that some writers unconsciously wish to reserve for science fiction the right not to be literature. How else can we interpret the definition proposed by Anatoli Dneprov (and he has many supporters) that what we should look for in science fiction is not character or plot, nor philosophical problems and artistic discoveries, but technical and scientific ideas. The literary critics should all have been up in arms. But they were not. They even agreed.

Indeed, some fantasy writers do not want to be writers. Is it because they can't be? But fantasy writing does want to be literature. And it will be!

Courtesy of Soviet Literature

YOUR QUESTIONS ON COMMUNISM

WHY DON'T YOU EXTEND THE PRINCIPLE OF PEACEFUL COEXISTENCE TO IDEOLOGY? IF YOUR IDEOLOGY IS BETTER, IT WILL WIN ANYWAY.

When Karl Marx was alive, much the same argument was advanced: "You say that society evolves, that one system replaces another as a result of objective laws. Then what need is there for political parties and political conflict? No one forms a party, for instance, to bring on an eclipse of the sun."

The argument is specious.

Marxists do say that the birth of a new society out of the womb of the old is a historical process and that it takes place as a result of economic and social laws. But this does not mean that the laws of development of society are the same as the laws of nature.

Solar eclipses do not depend on human will, they happen when nature decides. They cannot be prevented or hastened or interfered with. Besides, nobody is interested in doing any of these things. The process of social development, including the replacement of one ideology by another and the change of one social system for another, is quite another thing.

Despite their objective nature, social processes will take place faster or slower, depending on the support or, on the contrary, the resistance they meet. In this case the intensity of the process depends on the will of men, on the struggle of classes and on the activities of political parties. Some parties are interested in preserving a particular social system because it gives them what they want. Others, on the contrary, try to reform, alter and even replace that society because it does not give them what they want.

In short, the laws of history do not operate by themselves, without the participation of men. The course of history is determined by the actions, the struggle and the organized efforts of millions of people. Otherwise all we would have to do is sit back and wait for the great day when the laws of history would replace a social system we do not want and give us one we do. No party has ever taken such a fatalistic attitude. That would be committing political suicide.

Marx once said that if the multiplication table infringed on anybody's interest, political passions would rage around it. There should be no surprise that the spread of communist ideology is met with such great hostility in our days. For these several reasons it is not possible to extend the principle of peaceful coexistence to ideology.

However, this is only part of the answer, the subjective part—the intentions of the Communists. The same problem has an equally important objective aspect.

The ideological struggle in our era, the clashes between bourgeois and communist ideas, reflects a fact—the existence and competition of two opposite social systems. Whether people like it or not, the controversy between the two systems will continue until one of them proves its superiority in solving man's problems. That controversy cannot be settled by force of arms.

When Communists argue for peaceful coexistence in the relations between states, they are saying that with the present level of development of weapons of mass destruction we must prevent an armed clash between the two systems, that such a clash may mushroom into a thermonuclear war and global catastrophe.

Besides, it would be thoroughly unrealistic to try to extend coexistence to ideology. You cannot ban ideological differences. You cannot order people to think alike. Those who argue that an "ideological truce" is possible are either being hypocritical or fooling themselves.

Although we cannot ban the conflict of ideologies, we do have every measure of control of the forms and methods such a controversy should take. It is one thing to portray the merits of this or that system truthfully, to criticize its deficiences and failings, to conduct a principled debate on the various ways of achieving social goals. It is quite a different thing to resort to misinformation and cold war tactics. The former is altogether compatible with peaceful coexistence, it will not hamper good relations between countries; the latter can only undermine peaceful coexistence.

When we talk of ideological strife, we are talking of debate, for example, of open and honest comparison of moral and spiritual values.

Question answered by Lev Sedin

IS IT TRUE THAT COMMUNISM IS THE IDEOLOGY OF GODLESSNESS?

To begin with, it is worth recalling that the Communists did not invent atheism. There have always been independent-minded individuals who refused to accept the religious world outlook, who believed that man should not place his hopes on the hereafter but work to make this world better.

Atheism is an inherent element in materialist thought, part, and parcel of the scientific view of the world, which is most fully expressed in communism. We respect people's right to their religious beliefs, but we have even more respect for the power of scientific thought.

History shows us that all societies composed of ruling and ruled classes rest on the same two forces: political (the state) and ideological (religion). State systems and new religious beliefs have come and gone, but the alliance of these two forces, despite their temporary differences and even conflicts, has withstood all the storms of history. And there was a reason for this. A state based on class differences needed religion to make its dispossessed citizens believe that submission was a virtue and social protest a sin. And religion needed the state to maintain the prestige of the church and to create a political atmosphere in which atheism would be condemned as socially dangerous.

Man, however, is not a conformist by nature, he is an explorer, a rebel, a creator. He grows out of his political and spiritual clothes, discards them for new ones that give him room to march unencumbered toward a better, more rational, more equitable society.

And what about the ethical values historically associated with religion? What about the biblical commandments "Thou shalt not kill," "Thou shalt not steal," "Honor thy father and thy mother"? These, of course, retain all of their force, not, however, as religious covenants but as elementary standards of conduct, what one might call the foundation stones on which all moral progress is built.

Communism as a philosophy negates religion. But communism as a political entity coexists with religion and defends the right of the individual to profess any faith. Lenin wrote: "There must be complete freedom not only to adhere to any faith, but also to preach any faith or to change faith. No official should have the right even to ask anyone about his religious belief; that is a matter of conscience, which no one has the right to inquire into. There must be no 'ruling' faith or church. All faiths and all churches must be equal before the law." Relations between the Soviet Government and religious groups are based on this principle of complete separation of church and state.

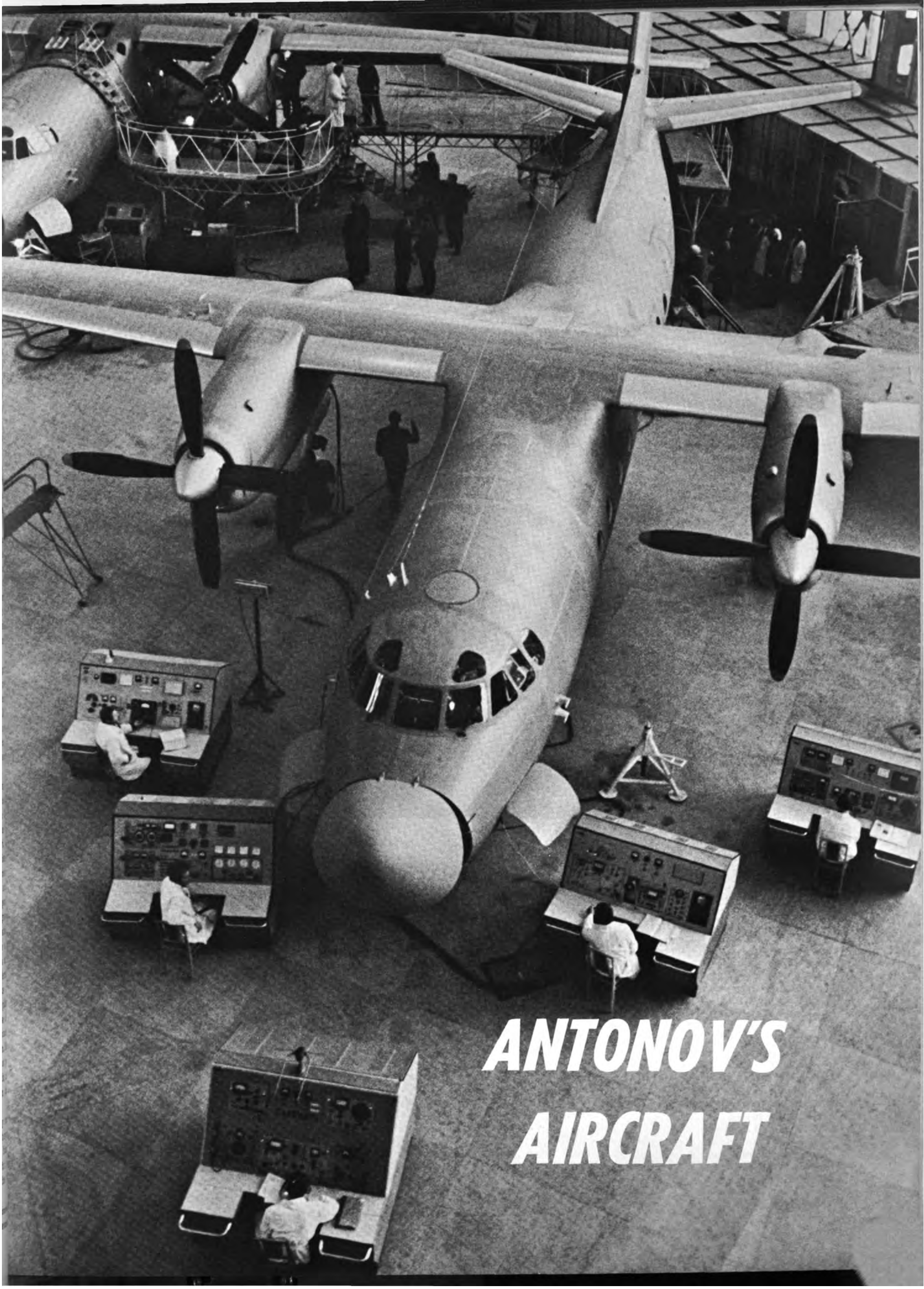
This means in practice that the church stays out of politics and the public educational system. It also means that the state guarantees religious group complete freedom of belief and the right to worship without interference. The church in our country has its own administrative bodies, its own press, its own seminaries and its own sources of income.

The freedom to speak and write against religion is also guaranteed. The approach is a positive one, that is to say, educating people to think rationally, scientifically, to place their trust in reason rather than some heavenly power. Ethical values then acquire a really human content, they become real standards for social relations.

It is interesting that in the past few years there has been a change in the attitude toward atheism of even Roman Catholic prelates. The negative position was expressed by Italian Bishop Barbieri, who said, "Scientific and practical atheism, as to its nature and consequences, is morally and spiritually worse than the atomic bomb." However, there are the proponents of another thesis, who represent a growing tendency to have a dialogue with atheists and Marxists. "If we want to have a dialogue," said Spanish Bishop Guerra at the Ecumenical Council, "we should understand Marxism." Bishop Guerra thinks that "atheism is necessary for the planned communist society, not only because of its programmatic demands, but also because of the special world outlook of Marxism. Marxism wants to be truly humanistic, not pessimistic, not agnostic, but full of faith in the future which will release man in actual reality."

Releasing man in actual reality means releasing him from an illusory interpretation of reality. This is the social function of atheism. It asserts man's right to be the supreme being, the ruler of the world around him.

Question answered by Boris Alexandrov


ANTONOV'S
AIRCRAFT

AIRCRAFT DESIGNER Oleg Antonov, who designs some of the world's largest planes, was 60 this February. Demographic studies say that a man's powers are well on the decline by that age, but Antonov is obviously of a different opinion. He is a lean and muscular man who must have his daily game of tennis, and he has two very young children: Yelena, age 3, and Andrei, born last year. Antonov does not drink. He says, "Life is too short as it is." And he does not smoke. "Too distracting when you work." While not everyone on his staff imitates these virtues, some of his hobbies—tennis, for instance—have infected his design office like an epidemic.

The planes developed by his staff carry the first two letters of his name before the serial number. Obviously, however, they are not the product of his very large talents alone. "If all those who had a hand in designing the plane were to initial it, there wouldn't be enough space," says Antonov. "The era of Edisons and Marconis is over. The twentieth century is an age of group designing. Only my daughter Yelena believes that I made all the planes that fly over our garden. With technological requirements what they are today, one man, no matter how clever, could not turn out a washing machine by himself."

Antonov's staff has designed a variety of aircraft, but they all have the same basic idea. His group specializes in developing heavy-duty multipurpose planes that can take off and land on dirt airfields, snow and ice, as well as on concrete runways. Antonov planes have this great virtue—they can operate under minimum conditions. They generally have a low clearance and their doors are level with truck platforms to facilitate loading. Their wing mechanization shortens the take-off run. All the Antonov aircraft—the AN-8 freighter, the AN-10 airliner, the AN-12 freighter, the 50-seater AN-24 and the newest, the AN-22, which created such a sensation at the International Air and Space Show last year—look much the same outside. But this is only the skin. The special Antonov style is inside, a technical differentiation suited to particular operating conditions.

These photos show you a shop of the plant where the AN-24 airliners are assembled. It looks like an indoor stadium and is as neat as a watch factory. Big cranes help to mount the wings, the engines and the tail unit. When the planes are mobile, the tests begin. All the apertures in the fuselage are closed, and air is pumped at great pressure to see whether the plane is airtight. Then a machine which the aircraft builders call a "Charco showerbath" checks whether the plane is airtight outside. After that the electrical equipment is installed (15 miles of electric wire in each plane). Then the craft goes to the flight test station.

The AN-24 is distinguished for its reliability, one of the reasons so many foreign countries have bought it. Here is an illustration of how reliable the machine is. On a training flight of the Kirovograd flying school, one of the student pilots made a mistake in the adjustment of the propeller screws of both engines (their blades were turned at such an angle that the engines produced no thrust). This happened at an altitude of 9,800 feet. Despite that, the 22-ton machine was landed in a smooth glide on the runway. "Our thanks to you for designing such a wonderful machine," said the chief of the flying school in his letter to Antonov.

The aircraft builders who made the AN-24 were awarded a Lenin Prize in 1966.

Courtesy of Nedelya

PHOTOGRAPHS BY GRIGORI DUBINSKY

1. *Oleg Antonov (left) has designed some of the world's biggest airliners.*
2. *The fuselage of an AN waiting to be dressed in armor.*
3. *A square of sky beckons to an AN still in the assembly shop.*
4. *Every designer has his favorite color. Antonov's is red.*
5. *The "power-shower" checks whether the plane is airtight outside.*

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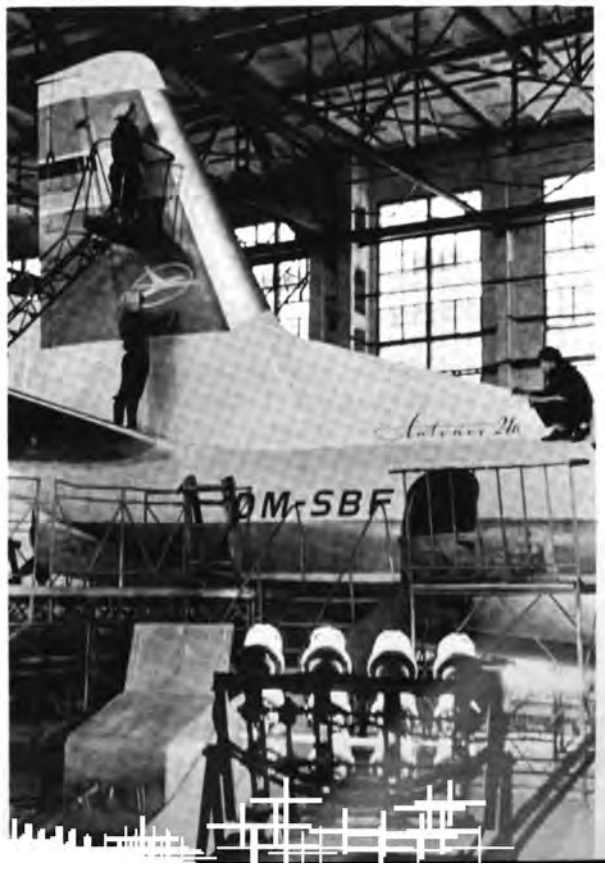


SCANNING SPORTS

A NEW MEASURE of athletic ability and longevity has been added. Here in the Soviet Union when we list an athlete's rating, we make it a point to indicate how many USA-USSR tussles he or she has taken part in.

The USA-USSR track-and-field meet hogs the headlines this month. July, the statistics show, is also when the selectors take more aspirin than any other time of year.

Picking a team for this meet was a problem. Actually, the coaches began thinking about a possible line-up the moment the meet in Kiev ended last year.

What do the selectors want? That's a question sports writers always ask. And it's a question not immediately or easily answered. The off-hand assumption is that the selectors are out for winners. Yet when we look at the names picked, we often raise our eyebrows in wonder. Victory in California this year is not enough. We've got to think ahead to the European championship and even to the future Olympic Games.

One alternative is to pick a squad that could hope for a team victory over the Americans. Another is a squad that might not win but would pick up sufficient experience and know-how to bring home the continental laurels and have something left over for the Olympics.

Gavriil Korobkov, the top coach, who is alternately praised and flayed depending on the showing of the national team that particular season, believes that the U.S. test should be a stepping stone to the European championship and Mexico City. He realizes he is playing with fire, since fans will be clamoring for his scalp if the Soviet showing in California does not measure up to their expectations.

"A coach has got to look ahead," Korobkov insists. "If we didn't look ahead, we would never have discovered Brumel!"

That's true. Including Brumel in the Olympic team to Rome was a gamble. The coaches were more impressed by his rapid progress than by his actual showing. Furthermore, he was an athlete who had absolutely no nerves. As Korobkov put it: "If you told him to go out and compete against a kangaroo, he wouldn't think twice. He'd go ahead and win." At the stadium in Rome, fans all talked about that youngster who lay on the grass reading a book. He'd tear himself away long enough to jump and then go back to his book. The story was Wilkie Collin's *Moonstone* and the athlete was Valeri Brumel.

Brumel has competed in every USA-USSR meet. He made three of his world record jumps at these matches. This is the first one he will not be competing in. A motorcycle accident put him out of competition for a year at least. He hopes to resume training at the end of this year. Meanwhile his coach Vladimir Dyachkov has several competent youngsters on hand.

He pins particular hope on another Valeri, Skvortsov by name. Skvortsov is very much like his namesake in many ways. He is making the same rapid progress. He trains just as hard and by the same Dyachkov system, which translates every ounce of energy into inches of jump.

In the winter, when the Americans were jumping somewhere around 7 feet, Skvortsov easily cleared 7 feet 1 inch on his first try. At the indoor meet in Moscow he even got over the 7-foot-2⅝-inch mark but dislodged the plank on his way down.

Korobkov says, "We believe we've got another Brumel there," although he adds regretfully, "Still, Brumel is Brumel."

Will Skvortsov win in California? Yes, if 7 feet 1 or 2⅝ inches is enough.

There was a time when we were very confident about our distance running. Tokyo shocked us into uncertainty. We have tried consoling ourselves by saying that 10,000-meter runner Leonid Ivanov was sick at the time and that our 5,000-meter men were outpaced because of faulty tactical and strategic planning. Now we're wondering what to do next.

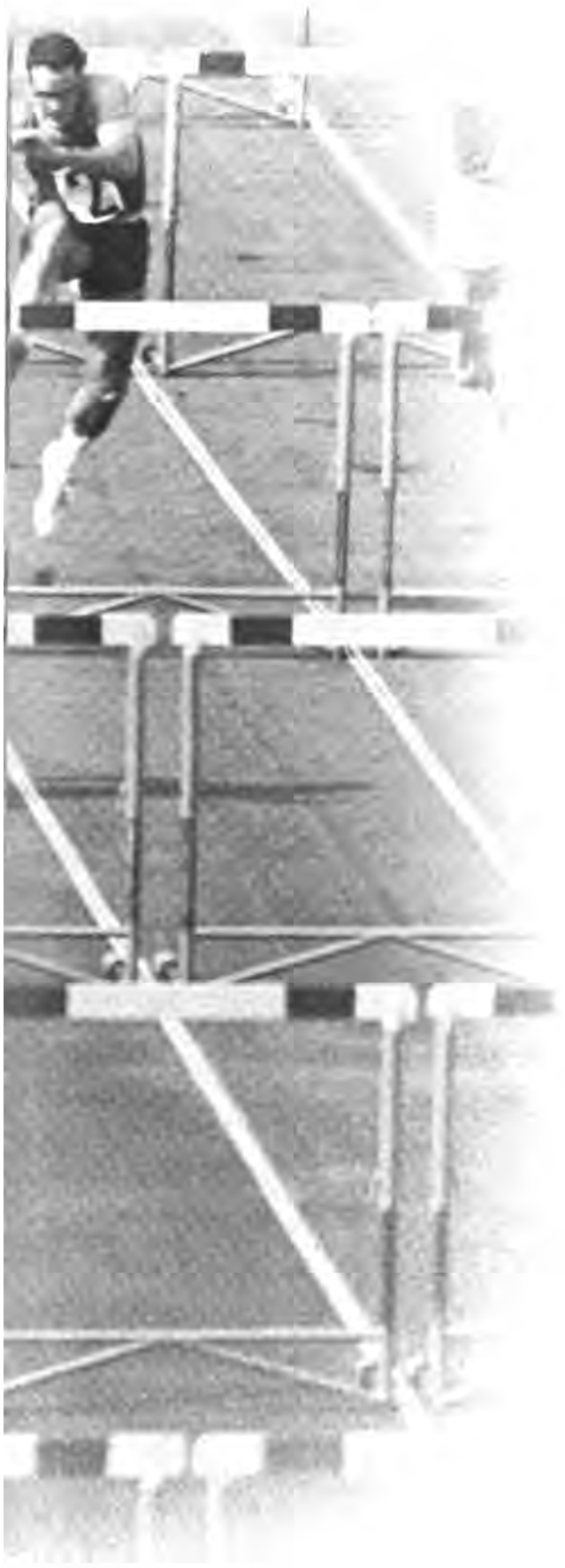
In Kiev we had someone running the steeplechase who came close to the world record. That was Victor Kudinsky. He has since been trying his luck in the 5,000 meter. The coaches are very hopeful.

Kudinsky is the perfect example of what an athlete should not look like. When he walked up to the start in Kiev, the fans smiled. He looked like a last minute replacement, very much out of his element.

Runners are supposed to have long legs—Kudinsky doesn't. Just close your eyes a moment and try to visualize a distance runner. Kudinsky is just the opposite. Everything he is or does upsets standard notions—maybe that's why he wins.

Last winter he toured New Zealand and competed in distance running—evidently to accumulate experience and know-how for tournaments to come. His coach is Vladimir Kuts, the double Olympic winner, who is busy developing a generation of distance runners.

H VICTOR KUPRIANOV



In the sprints the situation does not seem to have changed. Our runners are fast, but they are still runners-up compared with the U.S. Edwin Ozolin and Boris Savchuk have clocked fast 100- and 200-meter performances during the indoor season, but we must not forget that they are old-timers.

Fans continually ask, "When will the situation change?" The reply seems to be, "Only when we start kids running in grade school." The physiologists have all the answers. They can even tell us until what age a youngster can develop speed. Past that age you can't do much. Better techniques can whittle a trifle off the time, but the radical solution is, "Get 'em younger." The present school setup focuses on gymnastics and volleyball rather than on track and field. Track-and-field coaches demand a reorientation. For that matter so do the basketball coaches. Meanwhile we go on producing a fast generation of runners-up.

In the middle distances we have some youngsters growing up. American fans saw them in action during the winter tour of the United States. However, since the coaches are mainly looking ahead to the European championships and the Olympics, we do not expect to take top honors at this stage. Still, even a third and fourth place in the USA-USSR duel can contribute to a possible team victory!

Two events in which we expect some thrilling competition are the broad jump, with Igor Ter-Ovanesyan again trying to catch up with Ralph Boston, and the pole vault, with Gennadi Bliznetsov already competing in the international bracket. For Bliznetsov this has been a big year. He cleared 16 feet 4⅞ inches, he graduated from the Kharkov Polytechnical Institute in the Ukraine, and, as if that weren't enough, he got married. Bliznetsov will not only be competing against the Americans—he will have another formidable opponent in the person of his teammate Igor Feld, who has also cleared 16 feet 4⅞ inches and is out to do better.

The girls team will again be captained by high jumper Taisia Chenchik, who has competed in every USA-USSR meet so far. She will be accompanied by a very capable squad of performers. Only one thing worries the fans—the Soviet girl headliners are somewhat past their first youth, from the sports point of view, that is. While they can go on improving their techniques, it is not likely they can build up speed. Our Miss Dmitriyeva, the Moscow telegraph operator, outran Miss Mulder by the slimmest of margins in Kiev. But she is 13 years the American athlete's senior!

Age is not the only thing that will take its toll on the Soviet side. Many of the top performers are busy with graduate work and they face the choice, the most unpleasant an athlete has—career or sports?

Taisia Chenchik is doing advanced research in electrical engineering. Tatyana Schelkanova, broad jumper, is doing advanced research in electronics. Tamara Press (world records in shot-put and discus) is doing research in civil engineering. Sister Irina, of hurdles and pentathlon fame, is researching a problem the Olympic team may find useful—ways of priming athletes psychologically for major tournaments.

Psychology is becoming a major factor in sports. At the world soccer championships the Brazilian team had a psychologist along. They considered him as important as the team doctor or even the coach.

Korobkov announced earlier this year that the Press sisters would not be available for the Olympic games. And if the pressure of their research increases, they may have to withdraw from competition sooner, this season perhaps.

While we do not flatter ourselves that we are as knowledgeable as Mr. Korobkov, we do feel that with some six and a half million boys and girls going in for track-and-field activities all over the country—half are girls, statistics say—the selectors should be able to come up with some good championship material.

Finally, one new factor that has come up. Athletes say that the huge modern stadium creates a psychological barrier. If so, this is something for the coaches to think about. Edwin Ozolin, crack sprinter, puts it this way: "When you run in that huge stadium you feel like a grain of sand on the beach. And you have no way of gauging your speed. It's like driving across the plains—you don't know if you're going fast or slow."

Ozolin suggests that we follow the American pattern of more meets in indoor arenas. The Americans, he says, are not only good athletes but are expert at organizing these competitions. They know what they're doing.

The sports moguls will undoubtedly give the matter their consideration. And we on the sidelines look forward to the Americans displaying their enviable organizational abilities to the full at this year's USA-USSR match.

May the best man win!

EXPO-67

USSR at the 1967 Canadian Fair

PHOTOGRAPHS BY YEVGENI TIKHANOV

THIS YEAR the Soviet Union will be represented at exhibitions and fairs in Algiers, Brno, Budapest, Damascus, Izmir, Leipzig, Osaka, Plovdiv, Poznan, Pyongyang, Rangoon, Utrecht and Zagreb. One hears these cities mentioned frequently these days at the workshops of the USSR Chamber of Commerce in Kuntsevo, suburban Moscow, where pavilions and layouts for exhibitions abroad and at home are designed.

This is where the Soviet pavilion is being designed for the forthcoming Montreal World's Fair—Expo-67. The well-known Soviet architect Rudolph Kliks is in charge. In his 30-odd years on the job he has designed any number of pavilions and expositions, among them the permanent USSR Exhibition of Economic Achievements in Moscow and the Soviet pavilions at international fairs in London, Rio de Janeiro, Helsinki, Bombay, Damascus, Athens and Leipzig.

His team of architects, designers and artists has been working on the Soviet pavilion for almost a year now. Kliks has been assisted by architects Mikhail Posokhin, Ashot Mdayants and Boris Tkhor and designing engineer Alexander Kondratyev.

Of Glass and Steel

The 80 countries exhibiting in Montreal will occupy an area of 766 acres. About 140,000 of the 172,000 square feet on Notre Dame Island assigned to the Soviet Union will be taken up by the pavilion.

Though this pavilion will be one of the largest at the fair, it is much smaller than Soviet pavilions built elsewhere. In Brussels, for example, the Soviet pavilion had 280,000 square feet of floor space. The reason for halving the space is that there have been several Soviet exhibitions in America in the past few years, like those in New York and Rio de Janeiro, which gave a rather extensive view of our economy. The Soviet Union also took part in the 1961 Canadian World's Fair. This time, instead of giving the whole picture, we want to concentrate on leading branches of our economy.

The salient architectural feature of the Expo-67 Soviet pavilion will be light. It will be made of glass and will be brightly illuminated inside, so that visitors will be able to see most of the displays without even going in.

A Thousand Exhibits

It would take too long to give even a brief description of everything the USSR is going to show. But Kliks assured us that the displays would be up to and hopefully better than top world standards and would demonstrate graphically Soviet scientific and technical achievements and export potentialities. The thousand-odd displays will cover five main topics: the first, the history of the Soviet state (the exhibition year coincides with the USSR's fiftieth anniversary); the second, economic development; the third, education and cultural progress; the fourth, science and space exploration; the fifth, economic, political and cultural contacts with other countries.

The over-all theme is "The Earth and Its People," how man is remaking nature and exploiting the earth's riches in, on and above the ground. The exhibits will be arranged so that the street floor is de-

Rudolph Kliks is head of the design office planning the Soviet Pavilion at the Montreal fair.

A model of one of the exhibits—a superplastic, bubble-shaped auditorium.

voted to man's exploitation of the land's riches, the first floor to man's conquest of space, and the basement to man's exploitation of the seas.

One ground-floor section will show Soviet atomic power plants from the first to the latest one-million-killowatt plant, as well as a proton synchrotron. Pioneering in Siberia will be dramatized by a working model of the Krasnoyarsk hydroelectric power station and graphic material on the new town of Norilsk beyond the Arctic Circle and on the new Northern Sea Route.

The agriculture display will feature the new Soviet village and the work under way on the grand projects to irrigate the Hungry Steppe and the Kara-Kum Desert. The chemicals, metallurgy, coal and oil industries displays will show progress in opencast and underground mining and how oil is extracted from the sea bed at the world's first offshore oil town of Neftyanye Kamni. Diagrams and models will illustrate industrial development in the Soviet Far North and the birth of new towns in the land of permafrost. Sixteen film and fifteen slide projectors and a half dozen TV screens will show various aspects of Soviet life. Samples of all of the country's natural resources—from coal and oil to amber, gold and diamonds—will be on view in 50 showcases.

Space Surprises

The first floor will be devoted to space exploration. Though models of sputniks and spaceship capsules have been shown at international exhibitions before, something new is planned for Montreal. Visitors will be able to trace every step made in space exploration—from the first rockets designed by Konstantin Tsiolkovsky, who developed the mathematical theory of jet propulsion, to the automatic Luna 9 station. And they will not only see a model of this station but will be able to walk on a reproduction of a section of the moon.

Another space attraction will be a glass oval in which 70 "space travelers" will experience all the space sensations, including dead silence and weightlessness. Through the portholes of their rotating cabin they will see a velvet-black sky, the earth receding and meteorites whizzing past.

One of the aviation novelties will be a supersonic airliner of the future, the TU-144.

Ocean in the Basement

With some 100 million people making their living by fishing, and with fish constituting 72 per cent of the ocean's wealth, the exhibition dealing with man's exploitation of the sea should have a large and ready audience.

Besides material on the trawler fleet and the Soviet fishing industry generally, there will be displays of the nuclear-powered ship, new sea routes, shipbuilding and water transport.

An aquarium will contain live 10-foot-long sturgeon and other fish that Soviet scientists are transplanting. Visitors will also see how a hatchery raises the fry for stocking rivers and lakes.

Architect Kliks and his associates discuss the general layout and design.

Some 60 per cent of the earth's water is saline, a major concern with the need for fresh water continually growing. Soviet scientists have done much work on this problem. On display will be illustrative material on the nuclear-powered desalination installations being built in Mangyshlak, Kazakhstan, and elsewhere in the Soviet Union.

Science and Culture

In the past 40 years the average life span of the Soviet citizen has doubled, from 35 to 70 years. One of the displays will show how this was accomplished and how the latest findings in medicine are applied.

The section on architecture and building will demonstrate how houses are put together from prefabricated elements and how modern urban and rural communities with every public service and amenity are planned and built.

The art section will display modern Soviet paintings as well as some of the Rembrandts, Titians, Cézannes and other masters owned by Soviet museums. Theater, dance, choral and circus groups—the Bolshoi Ballet, the Pyatnitsky Russian Choir, the Georgian dance group, the Soviet Army Ensemble, the Moiseyev dancers and others—will be performing through the six-month run of Expo-67.

A motion picture theater seating 600 will be built to show Soviet documentaries. Fashion shows will be held twice daily. In a restaurant seating 1,100 diners, waiters in the national dress of various Soviet republics will serve Russian, Ukrainian, Georgian and other national dishes.

Cooperation

Construction of the Soviet pavilion started last December. The builder is the Italian Fial firm, which has had a great deal of experience with this type of construction. Most of the building material will come from the Soviet Union. After the exhibition closes, the pavilion will be shipped to Moscow and used as a showroom. It will cost about a million dollars to build, and the total bill for the exhibition will run to about eight million. There will be a staff of about 400 Soviet people. A considerable number of Soviet tourists are expected to visit.

"I've been to Canada twice, in 1964 and last year, to do the preparatory work for the exhibition," Kliks said. "The first time we learned what the conditions for exhibiting would be and where the exhibition would be held. On our second visit we agreed to participate in three international pavilions—Man and Health, Man the Creator, Man the Researcher—and we also worked out the concrete details for the construction of our own pavilion. I met the chief architect and other top officials of Expo-67, and I must say that the Canadians are most hospitable and understanding. We were assigned one of the best sites on Notre Dame Island and have found the general conditions for participation very favorable.

"We are sure," Kliks concluded, "that this cooperation will continue through the preparatory period and the entire run of Expo-67."

EMBOSSED METAL SCULPTURE

By Alexander Glezer

CHASING, revived in the last two decades by Georgian artists, goes back a thousand years. The art of ornamenting metal surfaces with embossed designs reached its peak in the late twelfth and early thirteenth centuries, under the reign of Queen Tamara, when two masters of the craft—Beka and Keshken Opizari—founded a school whose ornamental reliefs have been unmatched to this very day. The museums of Georgia have some 2,500 items of medieval workmanship on display—mostly gold icon frames, prayer book bindings, vessels and ornaments. Much as these objects were admired by art lovers and copied by artists, little was done to keep the art of chasing alive or later to revive it. It gradually declined until in the nineteenth century it ceased to exist.

However, in the late forties of our own century, Yakov Nikoladze, a noted Georgian sculptor, tried to resurrect the art. What this venerable sculptor failed to accomplish in his lifetime was done by Irakli Ochiauri,* who studied under him at the Arts Academy. In 1953 Ochiauri exhibited in Tbilisi a portrait of Yakov Nikoladze embossed in brass which now hangs in the Georgian Museum of Art.

Shortly thereafter, Guram Gabashvili, Koba Guruli and Dmitri Kipshidze also began working in the same medium. These four sculptors with distinctly different styles have since produced works famous throughout the country.

One of these sculptors, Dmitri Kipshidze, has a definite tendency toward the monumental, apparent both in the impressive dimensions of his murals, often covering whole wall surfaces, and in his treatment of detail. Kipshidze wants to see the sculptor who works in metal collaborating with the architect. There are already examples of such collaboration, but they are still first efforts.

Kipshidze kept some of his work on top of his studio roof for two years. Though exposed to snow, rain, sun and wind, they showed no sign of damage. An interesting experiment in favor of metal murals for building exteriors.

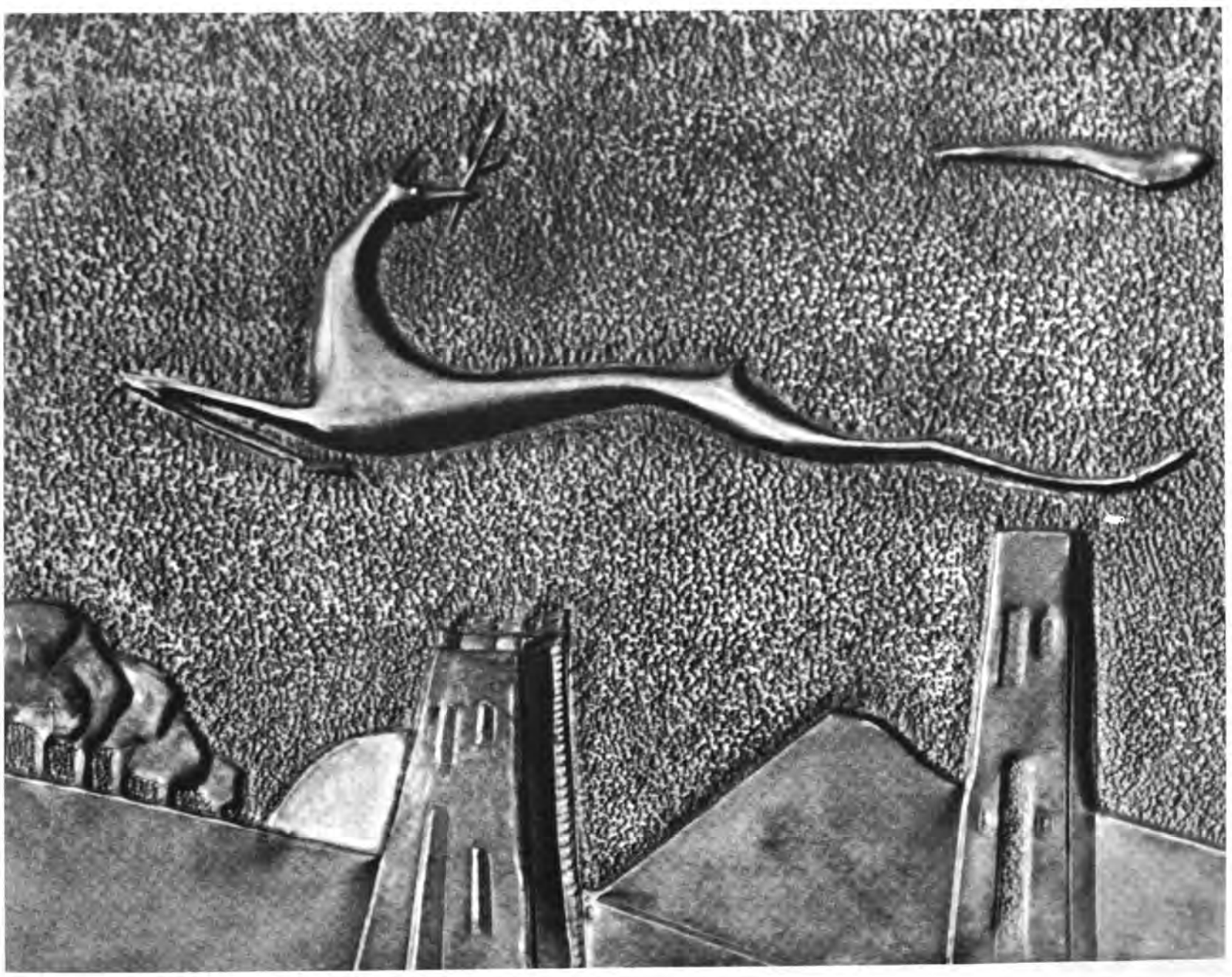
Aside from its monumental quality, this sculptor's work has a strong poetic appeal. Georgia is a land rich in history, legend and poetry. Many of Kipshidze's subjects derive from legend; they are not treated as illustrations, however, the

* See article on Irakli Ochiauri in the November 1965 issue of *Soviet Life*.

legends serve only as inspiration for very original work.

Present-day Georgian metal artists have learned a great deal from the workmanship of the great masters of the Middle Ages, but they have also added new elements. They have pushed beyond the limits of chasing as an applied art. They invest their themes with broader philosophical meaning, their representations of the life of man with greater perception. This is especially true of Dmitri Kipshidze. The traditional theme of the battle between good and evil and the inevitable triumph of good is treated with new symbolic vigor in his work. Evil is depicted as a mythical animal, often the serpent, crushed beneath the powerful paw of the tiger, which in Georgian legend represents courage, manhood, nobility of character. Kipshidze is presently working on a series of murals inspired by *A Knight in Tiger's Skin** by Shot'a Rust'aveli, the great Georgian poet, whose eight hundredth anniversary will soon be celebrated. Far from simple illustration, the murals infuse the classic poem with new life.

* In some translations *The Man in the Panther's Skin.*



IN THE NEXT ISSUE

August is a special issue. From the first page to the last it is devoted to Man and Nature. Covered will be such conservation problems as the effects of industrialization, the prodigal waste of the earth's resources, the pollution of rivers and lakes, the extermination of flora and fauna, erosion of great land areas—and proposed remedies.

Lake Baikal is the deepest lake in the world. It is also considered to be the most beautiful. It is surrounded by vast reserves of timber, making it the ideal spot for a pulp and paper mill. At least that was what the State Timber Industry Committee decided. Scientists and writers have taken issue with that decision. The mammoth plant threatens to pollute the lake's crystal-clear waters. Now public sentiment has been aroused and is on the alert to preserve the "pearl of Siberia".

Since Sputnik I, was hurled into orbit around the earth in 1957, the Russian ending "nik" has become an American household syllable. In August we offer another word with a "nik" ending—*zapovednik*. This is a huge piece of preserved nature, untouched and virginal, as it was thousands of years ago—similar to national and state parks in the U. S. There are now 66 such *zapovedniks* in the Soviet Union.

Open season! Fine and dandy—for the hunters, but what about the birds and the beasts? What is to save them from the massed fire-power of the millions of licensed hunters who track the forests every year? Laws for poachers? Yes, but that's not all.

Some of the other articles in the August issue are:
Every Breath . . . Poison!—chimneys strain skyward and belch out great clouds of pollution; The Forests—a national pride and a national problem; Taming the Desert—steel pipelines and gigantic canals bring life-giving water; Chirps, Warbles, Whistles—the bird songsters of the Russian woods recorded on two LP's available in the United States; The Source of Human Energy: Decoding ATP—the famous biochemist Vladimir Engelgardt experiments with the substance of energy; Today: A Thirst for Perspective—the second of three articles by Vladimir Keler.

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SOVIET LIFE

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COMING SOON

THE ORGAN IN THE DOM CATHEDRAL

By Raisa Gazdarova

Photographs By Lev Sherstennikov

THE LARGE WEATHER VANE topped by a golden cock can be seen from any part of Riga. It crowns the spire of the Dom Cathedral built on the bank of the West Dvina River seven centuries ago.

The cathedral was reconstructed and expanded many times through the centuries, but its congregation gradually dwindled until the cathedral council could no longer maintain the upkeep of the huge building sprawled over an area of 43,000 square feet. In 1959 the cathedral was turned over to the Riga Historical Museum, which started sweeping restoration work. The roof had to be replaced, the walls repaired, and central heating, electricity and water pipes installed.

Architects Edgar Slavietis and Vilis Drudis spent three years in restoring the building. Then came the day when the massive doors of the cathedral were again flung open to thousands of Rigans and guests of the Latvian capital. The Dom Cathedral became the biggest museum in the republic. Today it is both an architectural monument and a wonderful concert hall accommodating 1,500 people. The pride of the museum is its organ.

This unique instrument was built in the latter half of the nineteenth century. It was the biggest organ in Europe at the time and was considered the best for its tone. The majority of the 6,768 pipes are made of special woods. Their size ranges from 33 feet to four-tenths of an inch. The functional pipes are situated in a separate room, and dummy pipes decorate the key console. During the last war 765 of the pipes were lost, but they have all been replaced. The Hermann Oeule Company of the German Democratic Republic was commissioned to restore the instrument. There are many organs in the world today bigger than the Dom instrument, but it is still considered one of the best.

Soviet organists as well as musicians from other countries come to Riga to play this fine instrument. The strains of great organ music and such monumental works as Beethoven's *Missa Solemnis*, Mozart's *Requiem* and Handel's oratorios rise to the high vaults of the cathedral almost every day now.

The balcony in front of the organ can accommodate a choir of 200.

Organ master Gunar Dalmanis and his assistant Aivar Vilberg are in charge of the maintenance of the instrument. They are assisted by a special organ commission composed of musicians, engineers and designers at the USSR Ministry of Culture. Last year some 90,000 people attended concerts in the Dom Cathedral, and 94,000 visitors came to the museum.

The cathedral has come to symbolize musical Riga.

SOVIET LIFE

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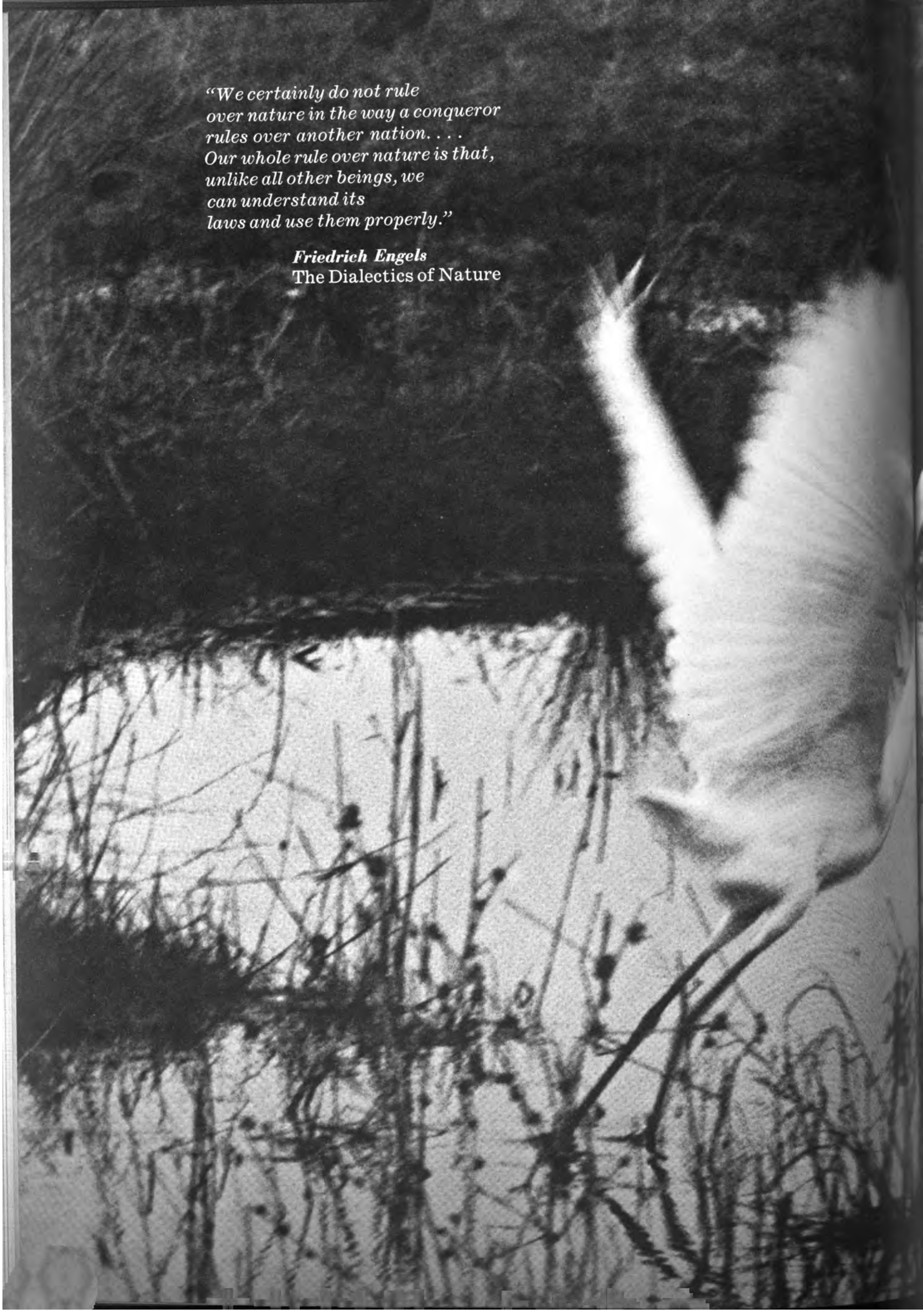
Special Issue

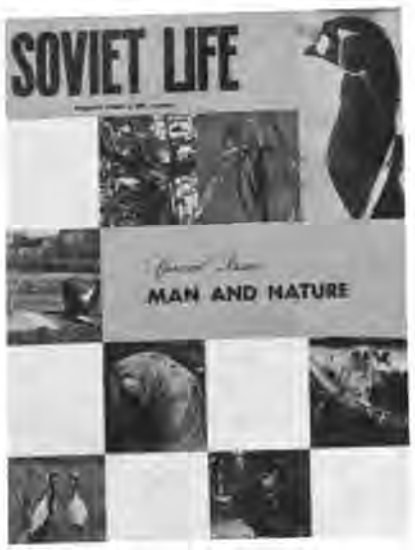
MAN AND NATURE



"We certainly do not rule
over nature in the way a conqueror
rules over another nation. . . .
Our whole rule over nature is that,
unlike all other beings, we
can understand its
laws and use them properly."

Friedrich Engels
The Dialectics of Nature

The white heron may very well be responsible for the beginning of our work in conservation. To protect the rare birds, animals and fish in the Volga delta, Astrakhan, the country's first preserve, was set up there. The decree was signed by Lenin for the Soviet Government in 1921.



Front Cover: The many climatic zones of the Soviet Union support a great variety of animal life. These are just a sample.

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Editor in Chief (Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor (Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor (Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director (Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

Circulation Manager (Washington Editorial Board): Vadim P. Zaitsev, 1706 18th St., N.W., Washington, D. C., 20009.

This issue was prepared and compiled by:
Nikolai Popov, journalist, B.S. (Geography);
Lalel Kvaratskheli, picture editor;
Alla Khokhlova, art designer.

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MAN AND NATURE

Man and nature—today we see their eternal struggle and cooperation in a new light. Man has begun to understand the laws of nature and put them to his own use. As Konstantin Tsiolkovsky said, "The earth is the cradle of reason, but one cannot live in the cradle forever." And man is now taking his first step into outer space.

But too often man is ungrateful for what Mother Nature has given him. His science and technology poison the air, cut down the forests, erode the soil, make sewers of the rivers. Is a befouled nature the price we have to pay for our modern comforts, our clothes, our means of transportation or even our health, threatened by the industrial pollution of our natural environment? Are they right who say that this is the unavoidable "overhead" of industrialization?

These questions are troubling not simply a small number of specialists but millions of thinking people in many countries. They are very much the public concern in the Soviet Union, which is now accelerating its already fast-paced industrial development. Many people are asking: Why, in a socialist country whose constitution explicitly says the public interest may not be ignored with impunity, are industry executives permitted to break the laws protecting nature? Can we prevent, or at least minimize, the destructive consequences of industrialization?

In this issue we present nature and what is being done to prevent its misuse.

Ours is a diversified and beautiful country. It occupies a sixth of the earth's surface, 8,646,400 square miles, almost two-and-a-half times the area of the United States. A traveler going from the Baltic Sea in the western part of the USSR to the Bering Strait in the east will have to set his watch an hour ahead 11 times. Crossing north to south, he will pass through a variety of climatic zones—permafrost, bare and swampy tundra in the Trans-Arctic, deserts in Central Asia, subtropics on the Black Sea coast.

Our country is immensely rich in natural resources. Half of its territory is forest, one-third of all the forest in the world. We have some 150,000 rivers and more than 250,000 lakes. Almost a half of all the plants known to science grow on our territory. More than 1,500 species of fish inhabit our waters. The polar bear and the Ussuri tiger, the clumsy walrus and the swift saiga, the northern husky and that hard-working "ship of the desert," the camel—this unlikely grouping all live in one and the same country.

According to geologists, we lead the world in deposits of 13 of the 16 most important minerals, including manganese, copper, lead, zinc, nickel, mercury and sulphur. In the last few years Soviet geologists have found huge deposits of coal, iron ore, diamonds, oil and gas in Siberia and the Far East.

And with all this potential wealth, czarist Russia was a backward country, most of its people illiterate, living on a bare subsistence level. The Soviet Union, with seven per cent of the earth's population, now accounts for one-fifth of the gross world product. The new social system has developed the country's productive forces, educated its people, raised its living standards, laid the foundation for an economy of abundance. That should have tempered the rapacity and arrogance of man in his "struggle" with nature, ended the wasting of resources which have been the property of the whole people since 1917.

In the very first years of Soviet power, laws for the protection of nature were passed and agencies set up to see that the laws were obeyed. Why is it, then, that the public now sounds the alarm, demanding new and stricter measures against industrial pollution of air and water? How is it that, despite our economic planning and our conservation laws, we see the ruinous effects of industrialization in so many parts of the country?

Lack of experience is not a sufficient answer, even granted that we have had to hew out new paths, that we were the first country in history to build a socialist economy, and under the most difficult conditions. The speed with which we were forced to industrialize also had its effect, of course. That speed was dictated not only by the internal demands of the country but by the pressure of forces outside that did not even bother to hide their intention of destroying the world's first socialist state. The USSR will observe its forty-ninth anniversary this fall. Only 27 of these years were spent on development, the rest were spent in fighting off foreign invasions and rebuilding a war-ravaged country.

In 1945, the year the Second World War ended, we produced 12.3 million metric tons of steel, 19.4 million tons of oil and 43.3 billion kilowatt-hours of electricity. Last year we produced 91 million tons of steel, 243 million tons of oil and 507 billion kilowatt-hours of electricity. The new five-year plan (1966-1970) foresees a 1.5-fold increase in industrial production—124 to 129 million tons of steel, 345 to 355 million tons of oil, 830 to 850 billion kilowatt-hours of electricity—by the close of the five-year period. These figures tell their own story.

In a quarter of a century we built thousands of modern factories, mines and power stations, laid tens of thousands of miles of railways and highways. We built in the old, developed regions and in the new, unsettled areas. And very often people, even with the best intentions, acted by the maxim: "You can't make an omelet without breaking eggs." (Or, as we Russians put it: "When you chop wood, the chips fly all over.") Another contributing factor was parochialism: the head of one or another department or ministry ignoring what was good for the country as a whole to forward his "own" industry and to fulfill his "own" plan, sometimes doing violence to nature in the process.

It is this parochialism, this unreasoned, unjustified decision making, this administrative dogmatism that the Soviet public is protesting. These attitudes manifested themselves with particular clarity in the heated argument about Lake Baikal. The construction of two giant pulp and paper mills near the lake presents a serious threat to this unique gift of nature. Here we reprint excerpts from the Soviet press of the almost nine-year-long campaign to save Baikal.

Argument which swept the country a few years ago led to the cancellation of another project, also drawn up without due consideration for the harm it could have done to nature and, consequently, to the economy. Had the Nizhne-Volzhskaya hydropower project been built, it would have hurt commercial fishing in the Caspian Sea, already suffering badly from other power stations and from the pollution of the Volga's waters. The government heard the objections of specialists and the public and canceled the project. As a result of another sharp debate in the press, a project for the lower reaches of the Ob River was turned down. The dam would have flooded a large area of the West Siberian lowlands rich in timber and minerals.

Conservation is a primary concern of the government, the Party, the trade unions, the YCL and other public organizations. Conservation and the fight against air and water pollution in and around industrial towns and cities are primary tasks, say the directives of the Twenty-third Party Congress.

Rational, scientifically validated use of forest resources, soil and rivers, the protection of rare animals, the improvement of the natural surroundings of health and recreation centers—this is a far from complete list of the problems we are coping with now.

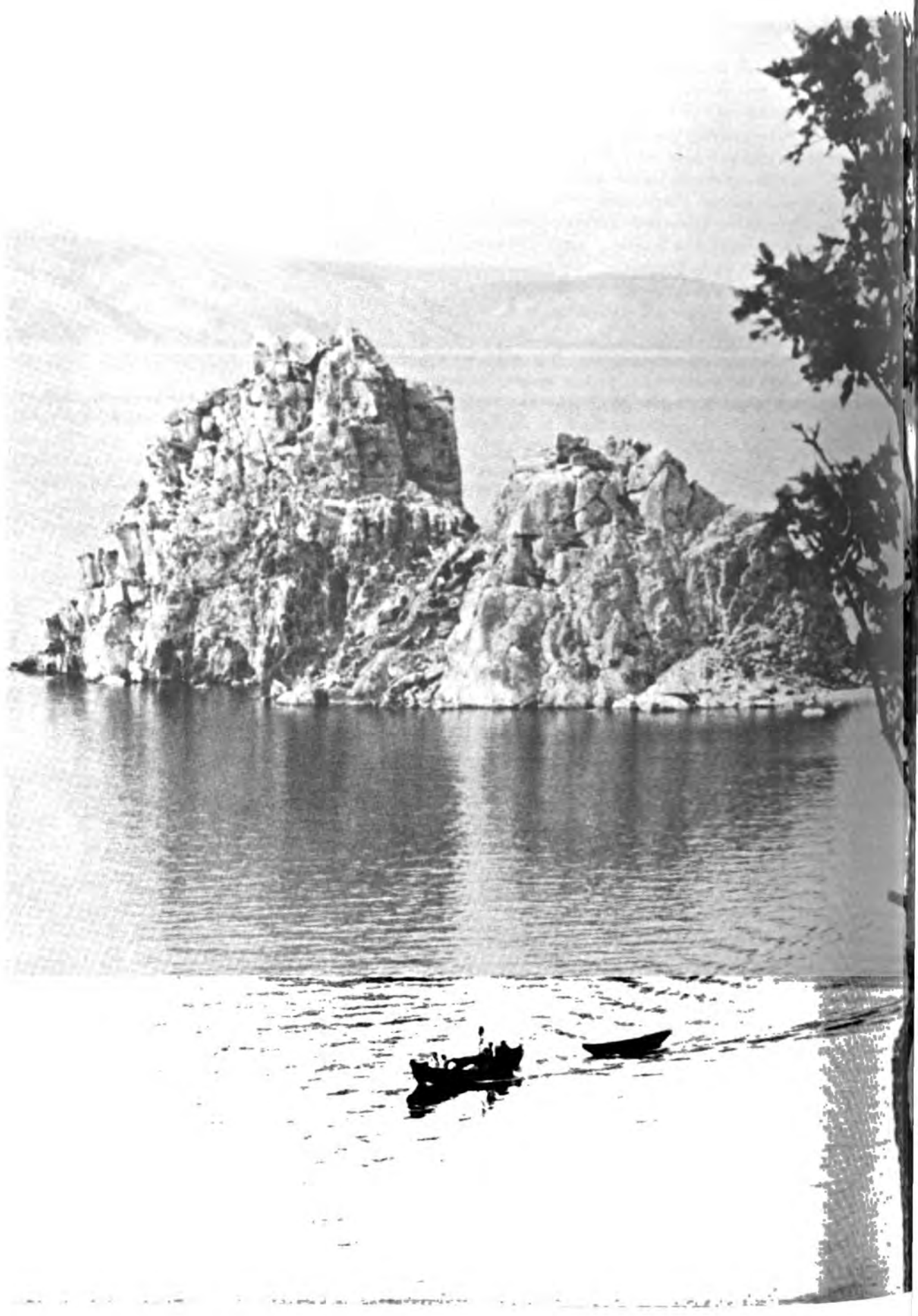
Public ownership of land, mineral wealth and means of production; economic planning; the scientific distribution of productive forces—we have these advantages. The point is to use them judiciously and efficiently rather than hope that the equities of socialism will set things right eventually. We also have our "theoreticians" who say: "Construction may do nature damage, but our paramount task is to build a communist society. That done, we shall plant forests anew and populate our rivers with fish again. We have no time for such luxuries now." Fortunately most people disagree. They will not permit the prodigal waste of their heritage.

Thinking of the man of the future, Anton Chekhov wrote, "Everything ought to be beautiful in a human being—face, and dress, and soul, and ideas." Everything about this new society we are building must be beautiful also. It must not only free man from material cares, not only develop his capacities, it must give him a beautiful world to enjoy, relate to and draw inspiration from.

SACRED BAIKAL . . ."

(From a folk song)

THE CALL O



LAKE BAIKAL

The writer Oleg Volkov is one of the most devoted nature lovers in our country. His sharp, convincing arguments in* Literaturnaya Gazeta *warning against the danger of Lake Baikal's pollution by industrial wastes has stimulated much public discussion. As a result, this problem is now being considered at the highest government level.

***The story on Baikal, given below, was written by Oleg Volkov specially for* Soviet Life.**

THIS PINE with long, dark green branches is nearly 300 years old, yet my thumb and index finger almost meet when I grip its trunk.

Three hundred years ago a winged seed alighted on one of these crags high over Lake Baikal and took three centuries to strike root and grow into a slim tree in a thin mossy layer of soil with solid rock beneath. Survival against such odds means virility. The amber bark of the tree conceals a wood as dense and hard as iron (you will see no annual rings on the stump of such a pine), and the thick needles make a luxurious fur coat that keeps the tree warm even when boulders crack from cold.

This pine gives me an inkling of what an effort it cost nature to cover all these rocky cliffs with vegetation, dark green where Siberian cedars and firs cluster, apple green where larches intrude, and lusterless duck green where pines riot. Where Baikal's stone front is especially steep the greens break, exposing the duns and drabs of rock. Rocky debris also makes bold patches. In some places there are scars inflicted by ax or fire, sometimes centuries ago, but never grown over.

I am standing a couple of steps from a precipice. Down below is the lake, Peschanaya Bay fringed with a strip of yellow sand. This is north of the Goloustnaya River on the western shore of Lake Baikal.

One Vast Sparkle Underfoot

The bay is watched over by two sentinels—cliffs, tall and sharp like Gothic spires but with craggy basalt shoulders. One is called the Big Belfry and the other the Small Belfry. Perched atop the Big Belfry is a tiny wooden lighthouse reached by a string of ladders, the bottom ladder rising to the lowest ledge, where another takes over to the next ledge, and so on up. Even through a good pair of binoculars the ladders seem to be made of matchsticks. I can imagine how it feels to climb them, shaking and swaying in a stormy wind, lashed by spray turning to ice in flight.

As I watch the scene, the waves roll over the sand without even the tiniest fringe of foam. The pennants of a moored diesel ship hang limp, and the surface of the lake is like a crisp tablecloth with the reflections of clouds as embroidery. Not a crease on this summer noon tablecloth whose turquoise near the shore gradually darkens to a cobalt blue before it merges with the horizon. The snow-capped crest of the Ulan-Burgas Mountains gleams above. The view suggests soaring in infinite spaces and makes you dizzy.

The beach is crowded. The diesel ship has arrived to take on a surveying party, and a gang of sun-tanned men are loading bulky equipment. Young girls are busy at cook fires. There are also many tourists, and their camp, a massive log house surrounded by tents, gleams between pines rising where the beach sand ends.

Turquoise, Sapphire and Agate

Baikal's water is a miracle. I understand why two girls on the beach down there have washed a bowl of potatoes whitely clean but keep splashing water on them for sheer pleasure, watching the magic crystals, sparkling, cold, limpid and then iridescent when they finally hit the sand.

Even where the water is 60 feet deep I can see each pebble, the shadows of protruding boulders, and something else, a hyacinth blue that probably belongs to the lake's mermaids.

The crystalline purity of the water seems even more uncanny aboard a ship setting up a wave of glass with myriads of air bubbles. When old Baikal frowns, its water looks agate black as the wind snatches white spray off each crest. But even then it seems limpid and brittle in the glimmer of ship lights and the flashes of lightning as the storm howls in a thousand voices, pounding the ship and showering it with mad waterspouts.

Storms are frequent. Baikal, or the ancient Dalai-nor, or the Great Lake of the Mongols, or the Sacred Sea of the Evenki, makes a point of confirming the old legend about the irascible Spirit of the Lake.

Protecting nature from the undesirable consequences of industrialization has been the subject of a lively public discussion in the Soviet Union for a number of years. Below are reprints of some of the latest materials on the subject.

STOP BEFORE IT'S TOO LATE

The Public vs. State Timber Industry Committee

Public

Purification plants of the type designed for the Baikal mill do not exist anywhere else. This is the first time they have been devised, and they have never been tested in industrial conditions. Advance tests were restricted to a semilaboratory type of device used to purify about 200 quarts of artificially polluted water.

Literaturnaya Gazeta, February 6, 1965

Committee

Lake Baikal will not be polluted. The industrial waste waters will be purified to drinking water standards. *Pravda*, February 28, 1965

Committee

The designs of both the Baikal and Selenga mills fully guarantee the purification of industrial waste waters released into Lake Baikal.

The Baikal pulp and paper mill has arranged for all the water it uses to undergo chemical and biological purification, and then, as an additional precaution, to pass through sand filters . . .

Literaturnaya Gazeta, April 10, 1965

Public

A commission of experts of the USSR State Committee for the Coordination of Scientific Research has definitely stated that pollution of the coastal zone of Lake Baikal in the area where the mill's waste waters are released is inevitable, even with the use of purification methods.

Literaturnaya Gazeta, April 13, 1965

Committee

At the Svetogorsk pulp and paper mills a special semifactory installation was built to purify the waste waters of the operating sulphate pulp plant. It was used to try out all laboratory research patterns and points of departure for further design.

Literaturnaya Gazeta, April 10, 1965

Public

If the situation were really what Orlov (committee chairman—Ed.) claims, how is it that he did not hit upon the simple device of reusing the waste waters, that is, of not releasing them into Lake Baikal but of using them over again for manufacturing needs and thus solve the whole problem? The rub is that Orlov knows very well that the projected water purification plant of the Baikal mill will not provide such clean water.

Literaturnaya Gazeta, April 15, 1965

BAIKAL WAITS

Open Letter Published by "Komsomolskaya Pravda"

THE CONSTRUCTION of cellulose mills on the shores of Lake Baikal and the Selenga River, one of its main tributaries, was strongly protested from the rostrum of the Twenty-third CPSU Congress.

We subscribe wholeheartedly to the call for a review of the decisions approving the project made by the former State Committee on Timber, Cellulose and Paper Industries and Forestry. We believe that the committee made a serious mistake in approving the project, a mistake that is likely to be calamitous for the economy of that part of the country.

These cellulose mills will inevitably pollute the waters of Lake Baikal, blight and destroy the forests in its basin, kill the plant and animal life in the lake and have other irreparable consequences. The contamination of a big body of water and the large areas of land adjoining it, the decline in the economic potential of that thriving territory and the loss to scientific research of the unique lake would be nothing less than tragic.

These facts are well known to scientists, specialists and to the public at large. A great many people have protested this unscientific, irresponsible, narrow and parochial approach to the vital economic problems of utilizing the natural wealth of Lake Baikal and its adjoining areas. But the state committee remained deaf to warnings and to the criticism of the draft project. Without waiting for the project to be approved, they allocated huge sums for construction. More than that, the committee even tried to mislead the government about their choice of a construction site in a seismic zone and the impossibility of obtaining pure water anywhere else. They presented exaggerated estimates of the timber resources around Lake Baikal and, in their reports, lowered the actual costs of construction and the future operating expenses. Disregarding all objections, they also decided on the rafting method of floating timber to the Baikal mills. The committee risked polluting the lake by testing a system of sewage purification, a system that had not been checked under industrial conditions and that was unsuitable for the rigorous climate of the Trans-Baikal zone.

Those who drew up and encouraged the mistaken project must pay for their gross errors and oversights, for their disregard of the protests of scientists and their contempt of public criticism. It is intolerable that the country should pay for this!

We therefore add our voices to those who have protested logging around Baikal and the construction of cellulose mills in its basin. We ask:

1) that approval for the scientifically unfounded Giprobum Organization projects be withdrawn, that work on the Baikal and Selenga cellulose mills be stopped and the structures dismantled;

2) that, in the economic and scientific interests of the country and for the good of the generations to come, Lake Baikal and its basin be declared a territory of extraordinary value to the country, so as to guarantee the uninterrupted natural replenishment of its waters and of the forests in its basin;

3) that this territory of extraordinary value to the country be ad-

THE CALL OF LAKE BAIKAL

During my trip, however, the lake was in its mellowest mood, and our ship's wake was the only disturbance of its unrelieved serenity. The Listvennichnaya pier had long been in full view, but we did not seem to be approaching it. A little more than a mile from the pier is the Limnological Institute of the Academy of Sciences, the cynosure of all visitors.

The institute's museum (housed in one hall) displays all that man knows about the lake. One of the pioneer explorers of the Baikal was Benedikt Dombrowski, a Polish exile who wrote some hundred years ago that all the natives "associate this lake with something mysterious, legendary, awe-inspiring."

The exhibits tell the story of Baikal research. Chersky, Korotnev, Academician Obruchev, Vereshchagin, Berg and others devoted years to the study of the land of the lake and its ecology, climate, minerals. But many of the sphinx's riddles still puzzle science.

The key exhibit, occupying the center of the hall, is a model of the lake. Elongated, somewhat curved, with a rugged base, this slab of transparent plastic reproduces the water mass. If it turned solid from surface to bottom, the ice released from its stone frame would be shaped like this mock-up showing the depths, hollows and strange outlines of the lake, so surprisingly similar to another giant lake—Tanganyika, which exceeds Baikal in surface area but not in volume or quality of water. The mock-up does not convey the dimensions of Baikal, 5,712 feet deep in places, the deepest lake in the world.

Nature has accumulated in this font of stone 5,500 cubic miles of water, one-tenth of Siberia's fresh water, and one-fortieth of the world's. The value of Baikal's water, generously saturated with oxygen and exceptionally pure, can be appreciated now, when a fresh-water shortage is a problem for many areas.

Denizens of the Fresh-Water Sea

No wonder the lake is a rich world of mollusks, fish and other marine life. Maps and graphs on the museum's walls chart Baikal's fishing. Stuffed seals stand in glass cases next to jars with fish, sponges and algae in alcohol.

The place of honor is held by the famous omul, a large fish, some-

THE PUBLIC DEMANDS...

ministered by one agency responsible for the comprehensive utilization of its natural resources.

This letter was signed by more than 36 scientists, artists and writers, including: Vice President of the USSR Academy of Sciences Boris Konstantinov; Academicians Lev Artsimovich, Nikolai Belov, Axel Berg, Boris Bykhovsky, Innokenti Gerasimov, Anatoli Zhukov, Yakov Zeldovich, Pyotr Kapitsa; People's Artist of the USSR Sergei Konenkov; writer Leonid Leonov. *May 11, 1966*

In an editors' note to this letter *Komsomolskaya Pravda* reminds its readers that the campaign to preserve the purity of Lake Baikal has been going on for almost nine years. No one, the paper stresses, has a right to ignore the powerful voice of the public, reinforced by the well-founded conclusions of science. The paper points out that a special committee of experts headed by Academician Nikolai Zhavoronkov, has been set up at the USSR State Planning Committee. The committee has been instructed to study all the material available and to draw up final recommendations on Lake Baikal for the government.

HOW MUCH DOES A GALLON OF WATER COST?

BY VASILI PARFENOV
Master of Science (Technology)

NONE of our natural wealth is squandered away as recklessly as is water. Over the years of rapid industrialization and urban developmen we have polluted hundreds of small and large rivers. The Volga, the country's main artery, has been very badly contaminated. The factories and cities along its banks dump 280 million cubic feet of raw sewage into the river every 24 hours.

The fish are the first to die in polluted water. Before a cellulose mill was built in the Northern Dvina delta, fisherman caught 130 tons of salmon a year, now they barely catch a sixth of that. And all because the engineers and the management did not arrange for purification of the mill's waste water.

We spend large sums on water conservation, we build any number of reservoirs and canals, but we grossly underestimate the need for purification. In many economic areas only half the money allocated for the purpose is used. Sometimes the money is shunted to other uses, industrial construction, for example. The devices built in the Russian Federation in the last three years can purify only 300 million cubic feet a day, while three times as much polluted water is dumped into the rivers in the same time.

Ask an economist to estimate the cost of our natural resources and he will talk in terms of tons of coal, feet of lumber. How much does a gallon of water cost? He will shrug his shoulders. A factory does not pay for the water it uses. It lays two pipes to the river. Through one it pumps in pure water, through the other it pumps out its sewage.

Enough about the irrational use of water, it is time we acted. Rep rimand those responsible? Yes, but we must also take steps to make sure that our water is cleaned up and that its stays clean. And for that we must establish a clear-cut financial understanding between industry and nature.

Industry uses the lion's share of our water, the cities use only 16 per cent. It takes 200 tons of water to make a ton of rolled metal. It takes 2,400 pounds of pure water to make a pound of rubber. The cost of the water should be included in the costs of production of an item.

A factory without purification devices pays no fines at present. At one time every enterprise had a special item budgeted for paying fines, and the State Planning Committee allocated quite a sum for the item every year. The state has put a stop to that. Now fines must be paid by the factory managers and shop foreman. The maximum is 50 rubles. But try to get the factory manager to pay it. He will prove to you with all sorts of documents that his factory is polluting the water in perfectly legal fashion, that he, personally, is all for purification devices but that the builders let him down. The builders will shift the blame to the designers, and they will pass it on to the authorities who take so long examining and approving their plans.

Some mills and plants have been poisoning water for as long as 20 or 30 years. And they will go on doing it unless the damage does not tangibly affects the salaries of the director, chief engineer and others responsible for treating the sewage.

There is one other way to make a factory toe the line that our Czechoslovak friends have used guite successfully. They make a factory pay for every cubic foot of water it pollutes. It becomes so expensive that the factory finds it cheaper to install purification devices.

Says Mikhail Yakovlev, head of the Moscow-Oka Water Inspection Section of the Ministry of Melioration and Water Conservation of the Russian Federation, who has spent many years fighting water pollution:

"Engineers in institutes and factories should think in terms of using and dumping less water. One-circuit water circulation systems can be used to filter out the valuable chemical elements in the sewage, instead of dumping them. The Ryazan and Novo-Gorky oil refineries do that. Fish are not harmed by the water these refineries use. That proves waste water can be purified!"

As to administering water regulations, it would be best for the USSR State Planning Committee to fix the assignments for sewage purification for each industry, and for the Central Statistical Board and the State Commission on Mineral Resources to calculate water use.

A bank should not be permitted to finance the construction of a new mill or plant until blueprints for purification devices are ready. The bank should be required to get the approval of the water inspection agency before handing out money. It should not be permissible to build a new mill and a new residential area around it until the water purification system is a fact. The operating license granted a new factory should include the signature of the nature conservation agency.

A great deal can be done by the factories themselves, but the builders and planners have the biggest job. Builders need economic encouragement to install purification systems.

Our economists must provide the government with economic levers that will direct the attention of engineers and managers to the prob lems of conservation. They must give us a cost evaluation of our natural resources and methods of calculating the damage done to nature.

Every local, regional and republican branch of the Society for the Preservation of Nature must take vigorous action to bring the vital issue of protecting and regenerating natural resources before Party and government bodies. *Pravda, May 21, 1966*

Printing this article by Vasili Parfenov under the general title of "Industry and Nature," *Pravda* appeals to industrial managers, economists, engineers, lawyers and to all its readers, asking them to take part in discussing and working out new, additional measures for the protection of nature in the conditions prevailing today.

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times two feet long, with a vertical narrow fin on the back and an elongated though rather thick body characteristic of the salmon species. The annual haul of this fish exceeds 7,000 metric tons.

The habits of another denizen, the golomyanka, a viviparous fish, are still something of a mystery. The lake abounds in this fish; it is good eating but its shoaling and migration pattern are still unknown. The deepwater habitat of the fish makes research difficult. Incidentally, even the water at bottom of Baikal is now known to be rich in oxygen and—who knows—perhaps new species will be discovered in the lake's 800-fathom deeps?

The museum also exhibits the minerals that occur in the mountains around the lake. One collection reminds you that it is "beyond Baikal" where "they dig gold in the hills" (as an old Russian song goes) and fortunes like that of the legendary Sibiryakov were made overnight. Stuffed beasts and birds represent the fauna of the taiga, and arboreal samples its flora (there are cuts of 500-year-old cedars and pines no more than 15 inches in diameter).

To sum up, the land of the lake is a self-contained world, generously endowed and prepared to yield its riches to those who would use them with thrift and intelligence.

Explorers and Tourists

Baikal has been drawing Soviet and foreign scientists. The lake's austere beauty has won many friends and admirers. All kinds of pilgrims from all sorts of places make long journeys to see "the sacred Baikal" and to stroll on its shore.

In the Limnological Institute I saw an Indian ambassador and his party, a group of Japanese industrialists, French teachers, American tourists, Finnish biologists, Poles, Germans, Arabs. Entries in the visitor's book are made in dozens of languages, for there is a steady stream of foreign tourists from spring to autumn. The lake deeply stirred the famous travelers Zigmund and Ganzelka, who must have been quite sated with nature's miracles.

Venerable scientists and college sophomores come here to work and study. But mostly the lake draws people like myself, who have been moved over the years by the vision of that Siberian giant of a lake thousands of miles away, huge, rough hewn, shaggy, austere, half-legend, like the Russian frontiersman pioneering in the wilds of Siberia.

Naturally, the news that there were plans to build a pulp and paper mill on Baikal's shore and another one on the Selenga was disturbing.

Trip with a Purpose

The *Academician Vereshchagin*, the expeditionary ship of the Limnological Institute, is on the third day of a very involved voyage to carry through a large and varied research program. Now we approach the shore, now we leave the cliffs far astern. The machines are stalled in the middle of the lake and the *Vereshchagin* leisurely rolls on long waves. Hydrologists hurry to the upper bridge, make soundings, take water samples and measure temperature. It's the biologists' turn next. The ship makes a huge arc and then, when the trawl is far astern, runs in a straight line. The machines are stalled, a trap like a narrow pyramid with rigid ribs and a nylonlike fabric stretched over them is lifted aboard, and the laboratory assistants wash the invisible haul into jars. The catch—mainly plankton—is taken to the laboratory where it is studied, tagged and compared with samples taken in other areas of the lake and in previous years.

The weatherman turns up on deck with clockwork regularity. Irkutsk epidemiologists analyze water samples for contamination.

Finally the *Vereshchagin* approaches the southern shore where mountains hold back and give room to a coppice of young yet dense birch trees. The roofs of a new city, Baikalsk, show on the low.gently sloping shore at the mouth of the Solzan. We see neither the pier nor the breakwater because these are way off to the left, opposite the plant building. Running parallel to the waterfront is a broad highway not yet asphalted on which a string of trucks raises billows of dust. You sense the rhythm of hectic work somewhere nearby—the screech of metal and the crackle and chug-chug of many engines.

Baikalsk's streets running into the highway have been asphalted, and even the sidewalk curbstones are just like Moscow's. The houses, however, are different. There are neither long-necked cranes nor multistoried honeycombs of prefab apartments. These are neat one- or two-storied log houses with smart porches and carved cornices. If not for their broad windows, the houses might be mistaken for those built long ago in a provincial Russian town. The architecture is a precaution against earthquakes because this is what builders call a "seismic area." Approximately a century ago, in 1861, a strip of shore not far from this place went underwater, and now Proval Bay rolls its waves there over some 60 square miles. Underground shocks and booms in the mountains are frequent (they contributed to the old legend of the lake's supernatural powers).

For the time being Baikalsk is a settlement of builders. When they finish, the wood pulp specialists will move in. A team of specialists who will take over the plant from the builders and set it operating has already settled in Baikalsk. They were the people I wanted to see.

Processing pulp soaks the purity out of water and returns it to nature a polluted and harmful waste product. Chemical and organic contamination, and, most important, the loss of oxygen, will make this water unsuitable for life. Who is right? Those who think that a wood pulp mill on Baikal's shore will pollute the lake in the foreseeable future, or those who contend that there are reliable ways of purifying waste water and the lake will be none the worse for it?

Pros and Cons

I spoke with Rem Latypov, chief mechanic of the plant under construction. I was dubious, probably because I had heard so much from the scientists of the Limnological Institute. Grigori Galazi, director of the institute, had especially impressed me. He is an imaginative Baikal explorer who does not spurn the tiniest piece of evidence if it helps to explain the origin and development of the lake's ecology. Physically he is an athlete, spiritually he is a blend of analyst and artist.

Galazi argued that since it took Baikal 400 years to renew its water, the lake would not be able to oxidize the plant's sewage, and the dead zone would gradually spread. The scientist calculated that it would take 35 million cubic feet of Baikal water to oxidize the plant's daily sewage of 8 million cubic feet of waste water. Tracing the pattern of currents in the lake, Galazi saw the contaminated zone to the north of the plant spreading all along the shallows of the eastern shore. The zone would seal off the estuaries of the rivers. Even if spawning fish broke through the screen, small fry would die as they rolled back from the rivers. The lake and its tributaries would suffer from the heavy timber rafting. Spawning grounds would be poisoned, the contamination near the plant would get worse.

On the other hand, Latypov demonstrated, a pointer in his hand sliding over the plant layout, that the designers had taken all of this into account! It was true, he said, that processing wood into pulp meant a large volume of waste products harmful to the lake fauna. But they would be using the waste turning wood sugars into fodder yeast, burning bark for fuel, converting resins into oils and soap. The designers had abandoned the idea of processing the pulp at the plant. It would be dried, packed and shipped by rail to other plants. Waste water would be purified by exposure to light, treatment by bacteria and settling in tanks. The chief mechanic assured me they had taken every precaution not to pollute the lake. I was comparing the two viewpoints: Would Baikal be preserved?

Back Journey Meditations

Dense billows of fog rose where the Angara issues from Baikal, crept downstream and dissolved slowly over the lake. Through rents in the fog Port Baikalsk's lights glimmered on the opposite shore, and the smoke of tankers and marshaling locomotives curled like ribbons of silver against the black mountains. The fog climbed as high as the rock ledge on which the Limnological Institute was perched. The moon was

(Continued on page 44)

FIRST NATIONAL PARK

SEVERAL USSR Academy of Sciences institutions and economic planning bodies are working on a project for the country's first national park—around Lake Baikal. Its purpose: to preserve for all time the natural beauty of the region and the unexcelled purity of the lake's water.

Initially the park will cover an area of 5,000 square miles and subsequently be enlarged to 15,000. Camps, motels, resort hotels and hunting lodges are planned for the Khamar-Daban and Barguzin Ridge areas, for Cape Svyatoi Nos, Olkhon Island and other picturesque spots. Spas are to be built around the many hot springs in the coastal ridges and gorges. New highways are to be constructed.

It is estimated that Baikal National Park will be visited by half a million tourists a year, people who will come to see its scenic beauties, to hunt the abundant wild fowl in its forests, to cast a line in its fish-filled waters or to undergo treatment in its salubrious climate.

The local industries required for a natural health and vacation resort will be developed.

The park will probably be managed by a scientific center. Sanitary regulations and forestry, hunting and fishing controls will be established, and, most important, laboratories will be set up to research the only natural factory in the world that produces the uniquely pure and oxygen-saturated Baikal water.

Planning this park on Lake Baikal is a new venture for us. However, we have been setting up natural preserves literally from the day the Soviet Union was founded.

Today we have 66 such preserves spotted all over the country—from the Arctic Ocean Islands to the Asian deserts. Nature in these places is just as it was hundreds of years ago, or at least as it was when civilized man received it from his forebears.

ASKANIA-NOVA

This preserve, one of the country's oldest, is situated in the steppes of southern Ukraine, where the Zaporozhye Cossacks once raced their horses. Its nearly 55,000 acres of virgin land is the new home for animals from many countries: zebra, bison, the Australian emu, gnu, flamingo, nadoo (bottom left), hoopoe (top left). The preserve does work to revive such dying species as the bison and saiga. It also evolves new breeds of pig and sheep. Many farms now raise Askania's breed of fine-fleeced sheep.

LABS UNDER THE TREES

BY NADEZHDA SKOKOVA
AND YURI NIKOLAYEV
MASTERS OF SCIENCE (BIOLOGY)

THE UNIVERSAL DESIRE to keep treasured things unchanged is the reason for natural preserves.

We have preserves for the fauna and flora of the various geographical zones of the Soviet Union. Each of them, in its way, is a miniature replica of one zone, together they are a replica of the whole country. We have preserves in forest and steppe land, in desert and mountain, in river delta and in the sea. They show us how and how much man is changing the natural relief, the soil and the animal and plant worlds, and they also tell us whether these changes are beneficial or harmful.

Some of the preserves have been established to prevent the extinction of such rare animals as the onager, the snow leopard, or the aurochs; others to protect bird-nest colonies of guillemots, gulls, auks, herons, cormorants and the wintering places of aquatic fowl.

We also have preserves especially set up to help nature along. Here animals are bred and subsequently resettled. At the beginning of this century the only beaver colonies left were on rivers near Voronezh and in Byelorussia. Beavers bred at the preserves are now settled all over the country.

Our preserves are open to the curious and interested. However, providing a view of nature's marvels is only one of our jobs. A more important one is research. Bird migration is studied and birds are ringed wholesale at one preserve. At another wild deer are domesticated. And at a third, the reason for the fertility of the black-earth soil of Central Russia is investigated.

Our 10.5 million acres of preserve are state-supported, nonprofit enterprises. They provide us with the best kind of laboratory for a long-term study of the processes that go on in nature.

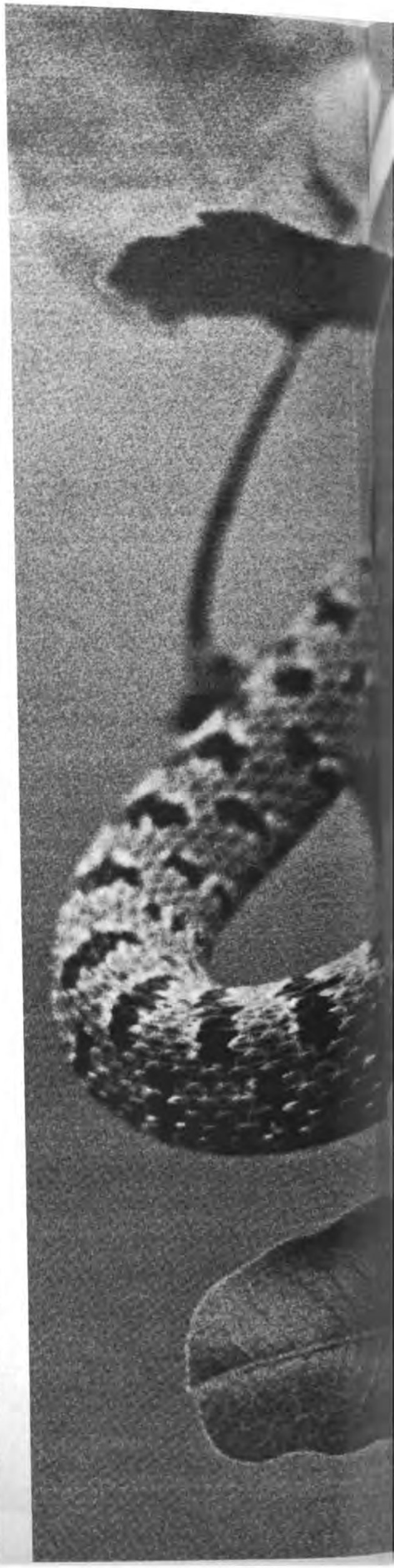
(Left) The zhuravl-krasavka—*"beautiful crane."*
(Below) The *maral, a large species of red deer.*

SIKHOTE-ALIN

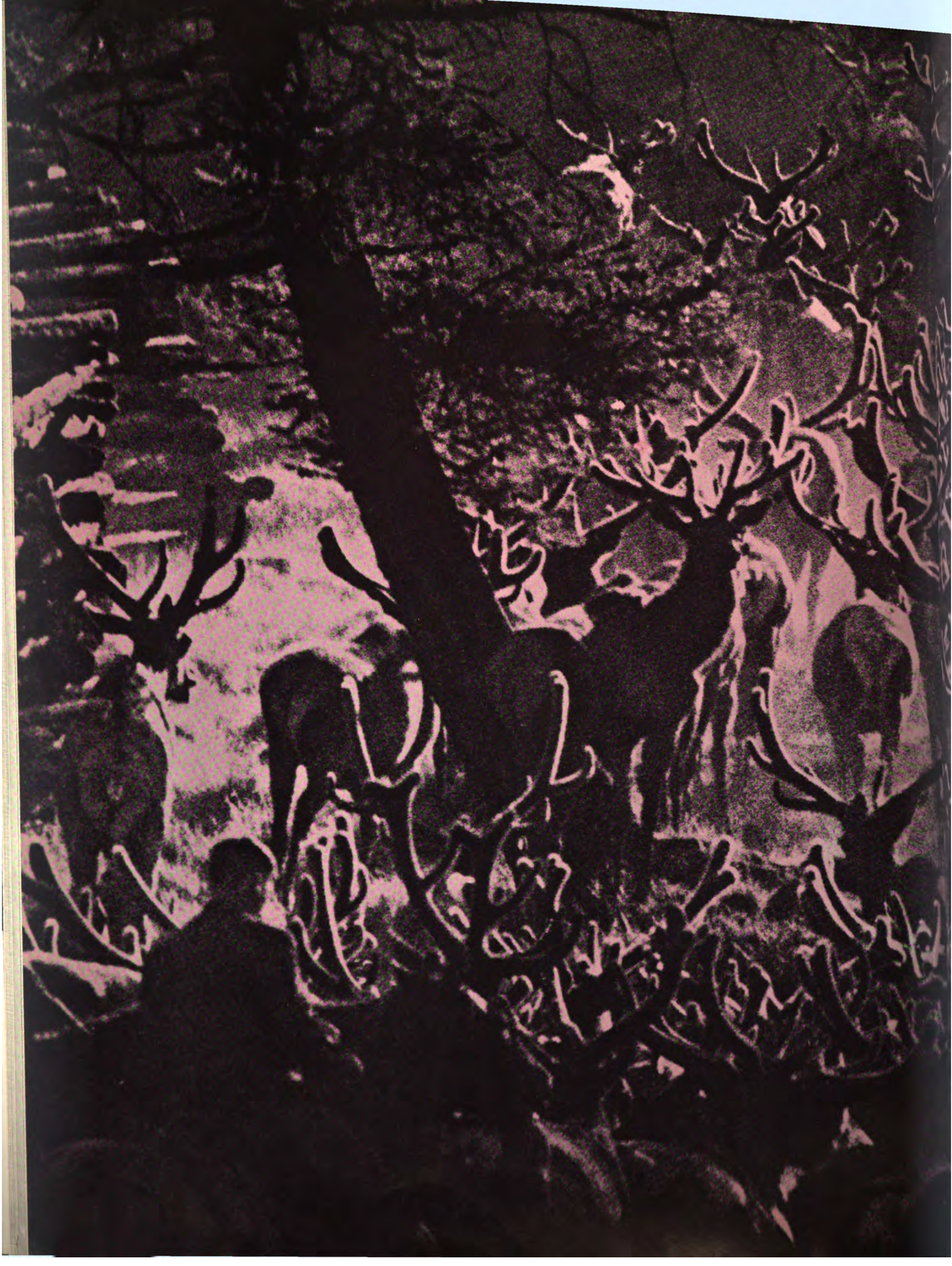
The well-known traveler and explorer Vladimir Arsenyev, called his book on the Far East In the Wilds of Ussuria.
Not much impassible taiga is left there now. The forest that Arsenyev had to cut his way through is now the city of Ussuriisk on an open, treeless plain. The only virgin taiga still left in the region is in wildlife preserves. The three Far Eastern preserves take in nearly a million acres. One of them is the Sikhote-Alin Preserve, which borders on the Pacific Ocean,just opposite California. Here you find rare flora and fauna native to several climatic zones. Northern fir and subtropical liana grow practically side by side. Plants like the yew, Korean cedar and Amur cork have survived from remote geological ages. Rare medicinal plants—ginseng and magnolia vine—also grow here. The preserve is the home of whole colonies of hoofed animals: mountain antelope, East deer, Siberian stag, musk deer, Ussurian elk. When forester Galina Polosukhina (top left) or one of the zoologists blows a horn or beats a gong suspended from a tree, the stately East deer emerge from the forest. Only six or eight of them were left in 1932. The preserve saved them from extinction.
The nonintervention policy of the scientists does not, however, make the lives of the deer and other hoofed beasts secure. The leopards and tigers have a free hand. They regulate the population of the hoofed forest inhabitants.
To do research here, knowledge and interest are not enough. The taiga demands a healthy and well-trained body, the ability to walk far and shoot fast and straight. Professor of Entomology Alexei Kurentsov, the oldest scientist in the Far East,

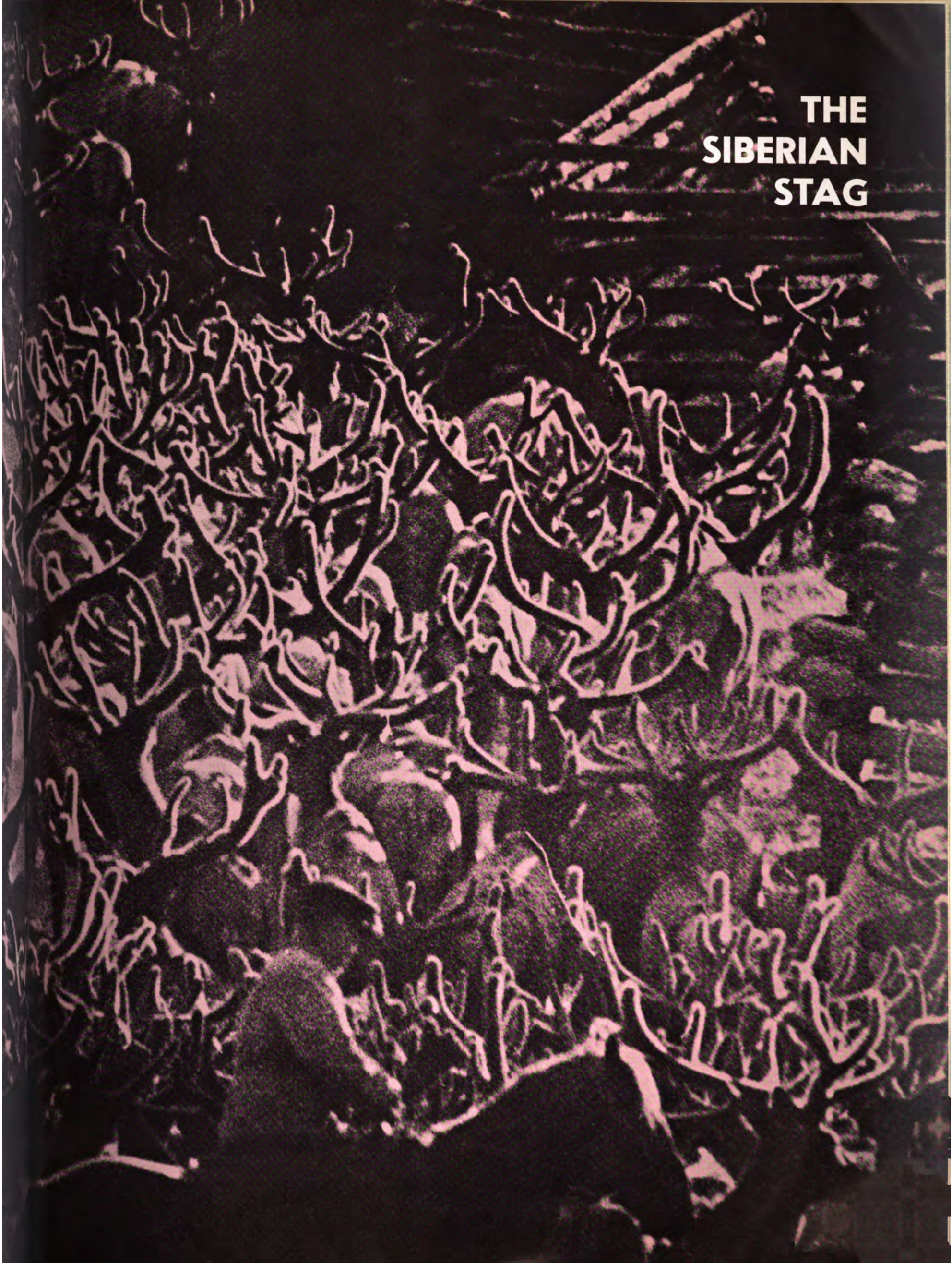
has all these qualifications. In the 30 years of joint work with his friend Vladimir Shabliovsky, the first director of the Kedrovaya Pady Preserve, he has trudged all over the Far East, the Kuril Islands, Sakhalin and the Chukotka Peninsula. He now heads a team of scientists who are studying harmful insects and their effect on taiga life. With other zoologists elsewhere in the country, they are compiling a detailed atlas of the fauna of the USSR. Senior scientific worker Inna Flyagina (bottom) is a member of the research team. The two Kalinnichenko brothers, whose aggregate age is 60, also work in the preserve. Younger brother Yevgeni is a senior scientific worker of the Soil Biology Institute of the Academy of Sciences, older brother Victor is his assistant. At present they are concerned with the dessication of the Sayan spruce in the Ussuri territory, where more than a million and a half acres of this tree in the Iman River basin died in a short time. The brothers want to find out why. How many of us would devote our lives to the preservation of our natural resources for present and future generations, would suffer the solitude of the taiga, the mosquitoes, the cold? Strange as it may seem, young people are attracted to the work. For instance, Lucia Kuleshova is an ornithologist, a graduate of Moscow University. Meeting her in the capital, you would imagine that she has traveled no farther than her mother's summer cottage in the suburbs. But her love of nature has brought Lucia far from home. With her geophysicist husband, also a Moscow University graduate, she is now working in the preserve. The taiga is her laboratory.

SANDS AND SNAKES



The Badkhyzsky Preserve in Turkmenia is in the southernmost part of the country. It is situated in the Paropamisus foothills and has the look of a hilly plain dotted with ancient extinct volcanoes. The higher parts are covered with sparse groves of pistachio. In the spring the hillocks are carpeted with meadow grass and sedge, multitudes of bright blooming tulips, irises, milk vetches and sainfoins. The desert areas have thin groves of halophytic trees with long roots that dig deep into the earth for moisture. Inhabiting the hills are cobras, vipers, sand Echis and rat snakes (large photo). Also turtles (top), weasels (top right) and polecats (right, a young one). The herds of onager, Middle Asian gazelles and wild rams in the preserve are always on the alert for hungry leopards, cheetahs, hyenas and wolves. Onagers are now quite rare, but the preserve workers have increased the local herd population to a high 600. This species of wild ass is a pet of the preserve scientists and one of their favorite research subjects. The pistachio tree is another. They want it to produce more.




THE
SIBERIAN
STAG

THE SIBERIAN STAG

BY NIKOLAI BANNIKOV

THE TWO STAGS move away from each other and paw the ground. Then they rear up and with front legs bent, they attack. They snort, bare their teeth and, closing in, slash at one another's heads with outstretched legs, wielding them like flails.

This fight for the female is cruel. It invariably ends in the death of one of the rivals. Or it would, if not for Kirill Cherepanov.

This 60-year-old native of the Altai foothills has never left Siberia except for the war years, when he trekked all the way to Berlin. Blue-eyed, ginger-haired and sturdy, Cherepanov has been looking after stags for more decades than one. He used to guard them from hungry wolves and from each other. Over the period he learned so much about their behavior that when he stands, peering off into the distance, he has the look of one of his antlered charges.

The Altai stag park lies off the main road, on the banks of the Katun River. Tapering larches etch its boundaries. The untouched hills are overgrown with bracken and surrounded by a tall log fence, taller than the average man. It stretches for some 30-odd miles, enclosing an area of 3,700 acres. This is only one of the many parks in the Altai where the Siberian stag has been roaming free for some 40 years now.

The Aktel state farm has a herd of 700. The animals have the run of the grazing lands. All the herders do is keep troughs near the watering places filled with additional food and replenish the salt supply. In winter hay and silage are added to the menu. The beasts wander free and undisturbed. They do not know what a gunshot means and seem to have almost lost their instinctive fear of wolves and other beasts of prey. They do not behave like caged animals. It is rare for one of them to jump over the fence. They pay no attention to the trucks and cars on the road. They are no longer wild, but they are still not fully tamed.

In this park you can observe the slow but steady process of the stag's domestication. How did man domesticate his animals? We can only guess, it happened so long ago. Now, however, we are beginning to accumulate the living answer. The Siberian stag in the Altai is being domesticated. So is the elk. That noble beast is already being harnessed to the sledge.

Watching these animals in a forest clearing is a feast for the eyes. They move with extraordinary grace, with dignity, and cut a lovely silhouette against the sky. Up in front is the leader, conspicuous for his size and stance. When the herd ran free, the leader had important functions to discharge, but in the park he plays a purely decorative role. Incidents requiring his watchfulness and bravery are few and far between.

To say that the animal's coat is generally brown or rust color is not quite accurate. There are stags whose dominant color is a warm beige, or straw yellow, or ginger, or silver, with shadings in between. Some have an ashy or smoky gray hue. Many have a dark, rather broad stripe down their backs, and all of them have light-silvery tails that make a very pretty picture when the animals become frightened and stampede.

Toward the end of May the herders ride around the park breaking up the herd for a look at the antlers, which are the source of a valuable drug. It is important that they be cut at the right time, any delay and they almost petrify.

The selected animals are herded into corrals and prodded down a narrow, boarded corridor, with every care taken to see that the antlers are not damaged.

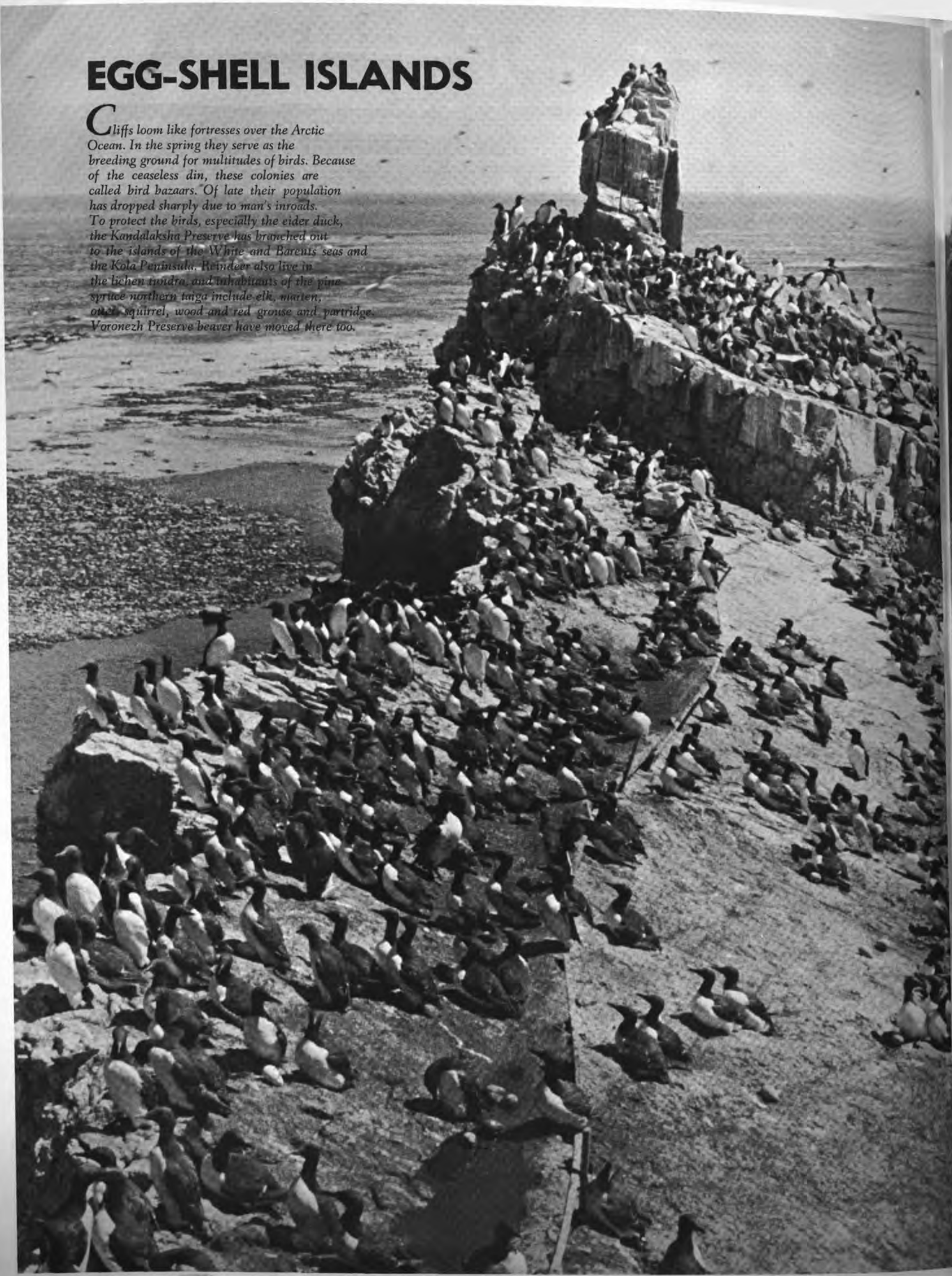
In this narrow corridor the animal is held between pincers. A trap door falls open and the stag hangs suspended in mid-air, helpless. It is blindfolded, haltered and a rest is placed beneath its head. A minute or two of sawing and the antlers, weighing anywhere from 30 to 45 pounds, are off. The stumps are painted with medicine, the pincers opened and the stag, very light-headed, bounds like mad out into the field. The sawing is rather painful but it is only done once a year. The antlers grow to full size again by autumn.

THE VOLGA DELTA

Sixty miles from the Caspian Sea the Volga branches out to form a delta. Its lower and most prolific regions constitute three sections of the Astrakhan Wildlife Preserve. The Volga delta is 88 feet below sea level, a flat bowl full of warmth, light and vegetation. You do not see the water in the open shallows. It is covered by a thick carpet of water lilies, water chestnuts and other floating plants. Fifteen-foot-high walls of rushes rise up, crowned by willow thickets interwoven with creepers. Lotus, common in Southeast Asia but very rare in the USSR, grows in the warm water. It is found in only three places in the country. The preserve guards the spawning grounds of game fish—roach, carp, bream, sheatfish—and the routes of migrant species—herring and the sturgeon from which black caviar comes. The temporarily rain-flooded shallows serve as feeding grounds for fry which leave for the sea as the water ebbs. Thousands of water fowl inhabit the thickets. The cormorant, gray and great white heron and the spoonbill live in the tall trees. Smaller birds—the night heron, curlew, little egret, pond heron and sometimes the cattle egret—nest in the thickets. The reed and cattail on flooded shoals are common nesting grounds for roseate and rufous-necked pelicans. Thousands of molting ducks hide on the flooded "islands," and in the spring and fall migrant woodcocks, ducks, swans and other birds rest and feed there. Scientists, at the preserve the year round, are observing the changes in nature that result from work on the Volga watershed. Their studies are the basis for recommendations on the use of fish resources. Posts in many parts of the country keep track of birds the preserve rings.

EGG-SHELL ISLANDS

Cliffs loom like fortresses over the Arctic Ocean. In the spring they serve as the breeding ground for multitudes of birds. Because of the ceaseless din, these colonies are called bird bazaars. Of late their population has dropped sharply due to man's inroads. To protect the birds, especially the eider duck, the Kandalaksha Preserve has branched out to the islands of the White and Barents seas and the Kola Peninsula. Reindeer also live in the lichen tundra, and inhabitants of the pine-spruce northern taiga include elk, marten, otter, squirrel, wood and red grouse and partridge. Voronezh Preserve beaver have moved there too.



THE VAKHSH VALLEY

The reed and cane thickets in the lower reaches of the Vakhsh River make a fine hideout for the wild boar (below), hare, deer and Middle Asian gazelle (left) which abound in the Tigrovaya Balka Preserve. Judging from the name, tigers must have lived here once. Now the fiercest animal is the wild boar, no less dangerous, especially when wounded. But the main attraction is the nutria, raised in the preserve's many lakes. The aim is a practical one, to find optimal living conditions for this commercially valuable animal.

EAGER BEAVERS

The emblem of the Voronezh Wildlife Preserve should reasonably be a beaver, although there are plenty of bison, spotted deer and elk there too. This preserve is the major center for the study and breeding of that valuable animal. Scientists have been working on methods for ground and aerial stocktaking and for acclimatizing and breeding the beaver in captivity. All this has made it possible to resettle the once nearly extinct animal in scores of new localities, including Siberia. About 2,000 beavers have already moved to new locations. The preserve is also studying the Russian muskrat and supplies pedigree stock. An aerator which preserve workers developed to keep fish in isolated ponds from suffocating is now being made in quantity. The preserve and its Kopersky branch are in the forest-steppe zone of Central Russia. Here the sheep's fescue and Stipa steppes are interspersed with forest, especially in the river valleys. Red deer, never seen outside preserves, and roe deer, marten and badger inhabit the aspen, oak and pine forests.

BY BORIS GOTTIKH
DEPUTY DIRECTOR,
INSTITUTE OF RADIATION AND PHYSICOCHEMICAL BIOLOGY

ANYONE WHO THINKS that all a scientist does is make rewarding discoveries is in error. The much more usual thing is hard, often monotonous work, disappointment, shattered hopes, the never-ending jumping of hurdles and unexpected obstacles which show up one after the other. The strength to prevail comes, on the one hand, from faith in the power of human intellect and, on the other, from that subconsciously hoped for satisfaction which success brings. The power and depth of the joy the scientist feels after a creative achievement is what the artist feels when his idea achieves fruition. This is the greatest and noblest feeling of satisfaction a man can experience. Creativity, the supreme expression of the inner man, is the most precious source of joy and happiness. One's own feeling of success fuses with an elevated awareness of having thereby enriched humanity and contributed to the world treasure house of knowledge."

That was said by Academician Vladimir A. Engelgardt, eminent Soviet biochemist, an honorary member of the American Academy of Science and Arts, the American Biochemical Society, the British Royal Institute, the Indian National Science Institute, the Edinburgh Royal Society and several other scientific bodies.

Academician Engelgardt made his research debut in the early twenties, when biochemistry was making important progress. Where earlier its focus of study was the composition and structure of the initial and final products of metabolism

VLADIMIR ENGELGARDT

The Substance of Human Energy: Decoding ATP

(static biochemistry), by the late twenties it had penetrated deeper into the mysteries of the living cell. It was interested not only in the initial and final products but also in the intermediate transformations, in the dynamics of metabolism.

In a cardinal piece of research done in the very early thirties, Academician Engelgardt discovered oxidative phosphorylation, the emergence in the respiration process of a complex compound known as adenosine triphosphate, ATP for short. In the cell this universal chemical "storage battery" is involved in various transformations of substances. Oxidative phosphorylation explains the entire energy setup of the cell. However, the inner workings and role of this process in the cell's vital activity are still vague, a major problem of the biochemistry and physiology of the cell.

Another no less important contribution was the discovery made by the academician and his wife and coworker Professor Militsia Lyubimova-Engelgardt that myosin, the contractive protein of muscles, can break up ATP, thus releasing the energy for muscle contraction. Their results were confirmed and developed by biochemists in many countries and served as the point of departure for a new stage in the study of the biochemistry and physiology of muscle contraction. It also facilitated the study of diverse forms of movement in all biological systems, from bacteriophages and spermatozoa to mimosa leaves.

Engelgardt's "mechanochemical" principle has set a research trend. Apparently the myosin molecule converts chemical energy into mechanical work and with a very high efficiency. Thus far, such converters have been found only in nature. Nobel Prize winner Academician Nikolai Semenov believes the application of mechanochemical principles to human practice a vital area of study.

These are only two of Engelgardt's major studies, but they are sufficient to illustrate the keystone quality of his work. He directs himself to fundamental studies of the organization of living matter. His research is in the forefront of science. The rapidly developing field of molecular biology is an example.

Molecular biology investigates the link between the structure and biological functions of compounds in metabolism and also the diverse physical and chemical processes underlying vital activity. Its concentration is on proteins and nucleic acids, compounds at the pivot of cell metabolism, cell activity regulation, heredity, etc.

Molecular biology is indebted to the cooperation of biologists, chemists and physicists for its rapid development in recent years. In the past 10 years researchers, by using various chemical and physical techniques, have been able to elucidate the structure of certain proteins, obtain a general idea of the inner workings of protein synthesis and heredity, and synthesize for the first time the protein molecule of insulin.

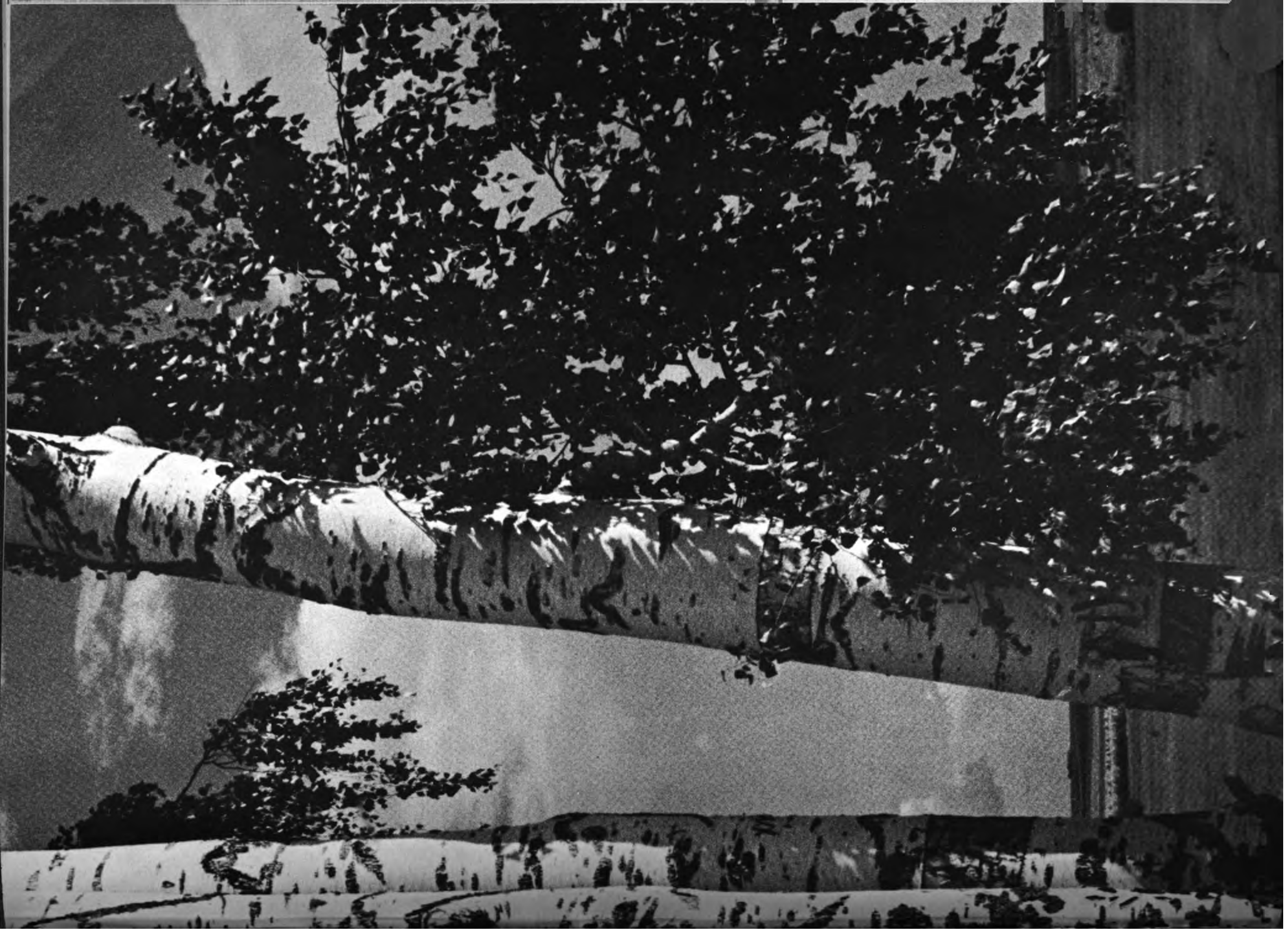
Academician Engelgardt's hybrid research approach derives from his educational background. He is a doctor by training who developed a passion for biochemistry. From his very first experiments he tried to apply chemical principles and methods to the study of biochemical phenomena. His myosin experiments are, in fact, nothing but chemical experiments on biological objects. Myosin protein was prepared as threads. Interacting with ATP, the threads shrank, simulating a muscle contraction. This experimental contraction of muscle effort was the first biological experiment at molecular level, and the day it was staged is the birthday of molecular biology. The academician is therefore the father of this field of science.

On the staff of the Institute of Radiation and Physicochemical Biology, which was recently founded on the academician's initiative and which he directs, are physicists, chemists and biologists, whose joint work, he believes, is essential in biological research.

The 71-year-old academician has many pupils, from scientists of world fame like Academician Alexander Brownstein, to Moscow University graduates with only three or four years of independent research. He considers it a personal responsibility to popularize scientific achievements both at home and abroad. As the representative of Soviet science in several international scientific bodies and an active participant and sponsor of numerous conferences and congresses, he has helped to strengthen ties between Soviet scientists and their foreign colleagues.

I know of no other country with such lyric power, so movingly picturesque, so sad, serene and expansive as Central Russia. My love for it is hard to gauge."

Konstantin Paustovsky



Man is shrewder than nature. Though he looks after her—if he is provident—and leaves her certain preserves, he is concerned with his own needs even there.

This utilitarian attitude to nature is probably ineradicable, for it was born when the first cave man chipped himself a flint axe and set out for a breakfast of mammoth steak and a fur coat for his wife.

Civilization now helps man get that breakfast steak and fur coat. On the hunt, nature and civilization look each other over. Nature stares at civilization through the frightened eyes of its birds and animals; civilization stares back, through the sights of a gun.

FROM HARE TO BEAR: HUNT ANYWHERE

BY OLEG GUSEV
EDITOR IN CHIEF OF
"OKHOTA I OKHOTNICHYE KHOZYAISTVO"
("HUNTING AND HUNTING GROUNDS")
AND VICTOR POKROVSKY
MASTER OF SCIENCE (BIOLOGY)

Hunting has always been one of man's passions, ordering his thoughts and emotions, especially in his youth.

"Nature withholds none of her delights from the hunter, leading him into the depths of the forests, over the valleys and the hills, carrying him to the sea, rocking him lovingly on her rivers, showing him the paths to her marshes, floating his boat on quiet lakes, bearing him over the steppes and deserts on camel back and cheerfully leading the way when he dares to ascend the heights to view her glittering mountain ranges." These words of Alfred Brem, the famous hunter, traveler and writer, are echoed by many hunters in our times.

Nikolai Semenov, Nobel Prize winner and vice president of the USSR Academy of Sciences, once said: "Hunting has played a large role in my life. It taught me to love nature and to dream. Fantasies and dreams are often linked in my mind with my favorite sciences—chemistry and physics—and have helped me greatly."

The cosmonaut Gherman Titov: "When I'm very tired or out of sorts, I force myself to remember the woods early in the morning, the silence broken only by the rustling leaves, the cool fresh breezes and the mating calls of the wood grouse. My weariness vanishes magically then."

Many more testimonies of this sort could be cited, for every hunter is a poet at heart. Being sensible people, however, we must add that hunters need to be curbed, otherwise Dame Nature will come to grief. To quote the German professor Heim, "As many as 72 species of land vertebrates were completely wiped out or nearly wiped out in the past 35 or 40 years." And there is no ques-

tion but that the hunter had a hand in it. That hand needs to be restrained and guided into useful channels.

Generally speaking, hunting some animals, predators, for instance, is encouraged. The wolf is outlawed all over the Soviet Union and brings a premium of 50 rubles.

We have two types of hunters: the professional and the sportsmen. Professional hunting is described in the article "Trappers" on page 29. Our two million amateur hunters belong to clubs that maintain about 6,000 hunting lodges and base camps.

To join a hunting club you have to be at least 16 years old, know how to handle firearms, know the game rules, and know something of the biology of wildlife.

Suppose you want to hunt somewhere near Moscow. You pay the club for a pass—the fee per day of hunting is 50 to 75 kopecks. At the preserve you have chosen you will be provided with a comfortable bed for the night. The game warden will lead you to the spots where you are most likely to get the birds or animals you want to bag. You can have a hut and a gun dog, if you need them. You may hunt or wander about looking at nature. You must, of course, stay within the bag limits specified by the particular preserve.

The spring hunting season is only 10 days, the end of April to early May. Drive-shooting woodcock on the wing is a traditional Russian sport. Other popular spring game is grouse, drake and duck.

The spring limitations are strict. In the middle regions, for instance, you are permitted only two or three woodcock or a single wood grouse, one black grouse or one or two drake in two outings. Hunting with dogs is not allowed in the spring.

The fall season for feathered game begins in the second half of August and lasts for three months. The game is mostly waterfowl: duck, goose, widgeon, black grouse, wood grouse, partridge, hazel grouse and waders like snipe and double snipe. Woodcock shooting is popular in the fall when they come in big flocks.

The fall limits vary with the republic, usually no more than five or six birds a day. Some republics have a seasonal limit, for instance, a maximum of 30 waterfowl for the season.

In October the woods resound with the baying of Russian and Anglo-Russian hounds. This is when the season opens for hare and fox.

Some animals may be hunted only by special permission: the sable, beaver and in certain districts, the otter, marten and mink.

Rare animals like the polar bear and the tiger, and all song birds and swans are out of season the year round. Some republics forbid the shooting of winged birds of prey. These are hunted periodically, to keep the number down, by game wardens.

Hunting regulations are shaped to regional conditions in the Soviet Union and vary with climate, abundance of game and species. They are enforced by the game wardens.

WANNA CATCH A TIGER?

The tiger stops to listen. Then he turns to beat a retreat. But too late. He hears barking on all sides. There is no escaping the battle. His fate, however, is not quite as bad as it seems. Relations between man and tiger are reasonably amiable in the Ussurian taiga. These hunters with their forked sticks and ropes are not after striped hides, they want their tigers alive. The tiger doesn't like the idea of moving to town, hence the battle. But the tiger-catchers keep clear of his mighty claws and sharp fangs, pin him to the ground and tie him up. In a couple of years what was once the scourge of the taiga will be a tamed—we hope—circus cat.

TRAPPERS

SOME 350 different species of game animals inhabit the eight and a half million square miles of the Soviet Union, 40 per cent of which is forest. Most of the hunting is done in Siberia and in the Far Eastern and Northern territories.

In the taiga and tundra zones there are 150 collective and state farms engaged in hunting, and a great many others which besides fur and game, hunt for berries, mushrooms, cedar nuts, medicinal herbs and industrial plants in quantity. These last-named establishments employ somewhere around 100,000 hunters. Some of them are on a year-round payroll; most hunt only two or three months and work at their regular trades the rest of the year—they have the legal right to go on leave without pay during the hunting season.

In addition to pelts, hunters and trappers bring back a large and varied assortment of items—the meat of wild hoofed animals and of fowl, down, feathers, musk, antlers and other medicinal source materials.

However, the main export item in this field is fur. We hold a steady first place in the world for quantity—an annual 100 million pelts of more than 60 different species of animals, valued at 50 million rubles. The USSR has a world reputation for several very valuable kinds of fur, notably sable and squirrel.

Here is a partial breakdown of the yearly catch: about 165,000 fox pelts, five million muskrat, 120,000 silver fox, 80,000 marten, two million hare, 30 million littlesuslik, 18 million mole, 10 million water rats, 300,000 marmot, 200,000 ermine, 150,000 Siberian kolinsky, 8,000 otter, 200,000 polecat, and many others.

Game includes Siberian stag, elk, roe deer, wild boar and about 60 million feathered birds, half of them waterfowl—geese, ducks and coots.

We estimate the net profit from trapping and hunting at roughly 150 million rubles. We say roughly, because it is hard to figure for the whole of our big country, and because hunters are inclined to be sketchy bookkeepers, if at all.

THE FORESTS

However, enough of animals. Let us talk about the forests of Russia, forests that are part of our national wealth, a treasure we prize as much as we do the Volga, that mother of Russian rivers, or our rich folklore.

Indeed, we have more forests than any other country in the world. They make up a third of our territory. We have enough larch, an especially valued wood, to fill 652 million acres, twice the forest area of all of non-Soviet Europe. We have another 267 million acres of pine trees, 300 million acres of spruce and fir, and 210 million acres of birch.

So much for the statistics. They tell only part of the story.

The pointed dark green spruce tops close high overhead, leaving a few patches of blue sky. The reddish cones hang immobile like candles. The lower branches are almost bare, their needles carpeting the ground below. In places one spots moss and glossy-leaved shrubs of bilberry. Everything is neat and quiet, a typical picture of a spruce forest. But you still seem to hear the city noises. They keep you from listening to the silence of the forest. Lie on the ground long enough and you might be able to pick out the distant tapping of a woodpecker, a tapping interrupted by long pauses when the bird itself seems to be listening. Then you hear a slight rustle as a squirrel nibbles at a cone. A bird pipes up. But the sounds do not overlap in confusion. The forest dwellers seem to have made a pact not to interrupt one another.

Motionless giants with straight round trunks stand in the midst of a family of smaller spruce. Observe their rugged roots striking into the moss and needles on the ground. It is hard to believe there was a time when they were as small as the little ones around. These giants were born a century ago, and their young scions will reach the same height only by the beginning of the next century—if they survive, of course, if the air and the quiet that fill lungs and heart with a pure freshness are still there, if no broad highway takes over from the barely discernible animal trail.

Follow the trail for another few miles and you find yourself on the banks of a small stream whose lazy waters carry dead tree trunks that catch at the sand. Some remain, others swivel around and are carried off by the current. Still others, water-logged, float half submerged, one end jutting out of the water. Slowly swaying from side to side as if in sorrow and pain, these logs float on further, cleaving the water. Other trunks bump into them, spin around and continue downstream. Shorn of all their beauty, these once lovely trees resemble corpses.

Indeed, a dead forest is no longer a forest, even though there may be barely noticeable seedlings amidst the stumps. Grass and flowers soon sprout there—as in any cemetery. There are more and more of these dead forests in the world. This worries us too.

USSR NATURE ZONES

On pages 32 and 33 is a nature, or landscape, map of the Soviet Union. For Nature Zones see legend below map. Black triangles with figures indicate *zapovedniks*. Below is a list of *zapovedniks* and their respective zones.

1.	Volzhsko-Kamsky	
2.	Darvinsky	
3.	Kandalakshsky	
4.	Oksky	
5.	Pechoro-Ilychsky	
6.	Prioksko-Terrasny	
7.	Tsentralno-Lesnoy	
8.	Kivach	
9.	Berezinsky	
10.	Moritsala	European Taiga Zone
11.	Slitere	
12.	Grini	
13.	Lake Engure	
14.	Zhuvintas	
15.	Matsalusky	
16.	Nigulasky	
17.	Viydumiesky	
18.	Vaykasky	
19.	Bashkirsky	West Siberian Taiga Zone
20.	Ilmensky	
21.	Barguzinsky	East Siberian and Far Eastern Taiga Zone
22.	Stolby	
23.	Komsomolsky	
24.	Zeysky	
25.	Sikhote-Alinsky	
26.	Kedrovaya Pady	Far Eastern Broad-leaved Forest Zone
27.	Suputinsky	
28.	Khekhtsirsky	
29.	Khingansky	
30.	Mordovsky	European Broad-leaved Forest Zone
31.	Kavkazsky	
32.	Teberdinsky	
33.	Kyzyl-Agachsky	
34.	Turianchaysky	
35.	Zakatalsky	
36.	Dilizhansky	
37.	Garninsky	
38.	Lagodekhsky	
39.	Vashlovansky	
40.	Saguramsky	Caucasus
41.	Borzhomsky	
42.	Adzhametsky	
43.	Satapliysky	
44.	Kintrishsky	
45.	Ritsinsky	
46.	Mariamdzhvarsky	
47.	Babanaursky	
48.	Kolkhidsky	
49.	Batsarsky	
50.	Voronezhsky	
51.	Tsentralno-Chernozemny	European Steppe Zone
52.	Chernomorsky	
53.	Ukrainsky Stepnoy	
54.	Askania-Nova	
55.	Astrakhansky	
56.	Barsa-Kelmessky	Desert Zone
57.	Gasan-Kuliysky	
58.	Tigrovaya Balka	
59.	Alma-Atinsky	
60.	Aksu-Dzhabaglinsky	
61.	Issyk-Kulsky	
62.	Sary-Cheleksky	Mountains of Central Asia and Kazakhstan
63.	Chatkalsky Gorno-Lesnoy	
64.	Zaaminsky Gorno-Lesnoy	
65.	Ramit	
66.	Badkhyzsky	

The Map was designed by the cartographic department of the USSR Ministry of Geology. Chief designer Dmitri Smirnov.

USSR
NATURE ZONES

1. Tundra
2. Mountain tundra
3. Coastal thin forests and grass vegetation
4. Taiga
5. Mixed forests
6. Broad-leaved forests
7. Mountain mixed forests
8. Mediterranean vegetation
9. Xerophytic (hard-leaved) thin forests and shrubs
10. Fores

10 11. Steppes

12. Semideserts

13. Mountain steppes, semideserts and deserts

14. Deserts

15. Alpine and sub-alpine meadows

16. Snow and ice

▲ 36 Zapovedniks–Preserves

Scale 1: 17000000 . 1 Inch to 268 Miles

St. Miles
Km

TIMBERLAND TRAGEDY

(Roundup of Press Comment)

Our forests are being badly depleted because we are felling timber the wrong way. As a matter of fact, felling in the thinly forested areas of the European part of the Soviet Union is eight times more intensive than for the country generally. Coniferous and tall oak forests have been especially depleted.

. . . The attitude toward logging in woods of the so-called third group, which provide commercial timber, is barbarous; only the best timber is cut and hauled out. Between 15 and 25 per cent of the felled timber is left to rot. Besides that, a lot of timber is lost in ratting and hauling to road or railside. All these losses, even at the most conservative estimate, add up to between 2.8 and 3.5 billion cubic feet a year. (About 14 billion cubic feet is hauled out.)

. . . There are people who take out twice and even three times the timber permitted by felling quotas. They are having their own way in the forests these days. The discarded timber and mutilated young trees serve as ready fuel for the frequent forest fires.

In 1964 more coniferous timber was felled than the quotas called for—in Perm, Gorky and Kostroma Regions by 97, 78 and 55 per cent respectively, and in the Udmurt Autonomous Republic and Vologda Region by 50 per cent. That year 776,000 acres of logging area were left uncleared.

. . . We are not against cutting timber. On the contrary, we want more timber felled. But we want it done properly. We object to the reckless depletion of forests. This passion for conquest of nature in general and forests in particular is foolishly wasteful. The saw can do the taiga good only if it is put in the hands of men who love nature, know forestry and understand the consequences of indiscriminate felling.

. . . The whole trouble is that for a long time several different agencies were in charge of our forests. What we need is a single federal agency for forest administration.

LARCH, PINE, BIRCH— THE NATION'S PRIDE, THE NATION'S PROBLEM

BY PROFESSOR PROKOFI VASILYEV

DOCTOR OF SCIENCE (BIOLOGY)
HEAD OF THE FORESTRY DIVISION
OF THE USSR STATE
PLANNING COMMITTEE COUNCIL
FOR PRODUCTIVE FORCES STUDY

THE PRESS is right in its criticism. But life makes its own rules.

What is really happening to the country's forests?

To meet our needs, we must fell roughly six million acres of timber every year. In the past 25 years we have felled a total of 144 billion cubic feet, of which at least 134 billion came from areas where felling was complete. This is more than all the forest area of Sweden, Norway and Finland combined.

Now is this good or bad? First of all, it is a necessity, our economy demands it. Second, far from exceeding the limits for forest reproduction, this figure is below that mark —the annual timber growth in the forest areas where logging is done totals 12.3 billion cubic feet.

We have more than enough resources to provide us with timber even a hundred years from now, provided we:

—carefully pattern our logging on the geography of forest resources;

—fell strictly within the quota;

—reforest at the same time, improving the quality of our timber as we go along. Or, as our young naturalists say:

"For every tree you cut down plant two."

We are doing a good deal to see that these rules are observed. Previously felling was done mainly in the European part of the country, the northern and eastern regions accounted for only a quarter of the timber cut. Nowadays these regions provide upward of 70 per cent of the timber. Imagine what an unhappy picture the old Russian lands of Novgorod, Pskov, Vologda and the Upper Volga would make today if logging had not been moved to the forest hinterland.

We are also doing more afforestation. Even in peak years old Russian did not afforest more than 150,000 to 175,000 acres. Today 3.7 million acres are afforested every year.

Nevertheless, the forestry people are right when they say that this is not enough. There are still too many problems, and it would be unrealistic to think they can be solved with one grand gesture. A large, purposeful and coordinated effort is required.

The administrative direction of the timber industry was separated from forestry as a result of public pressure, and we now have two separate ministries. That will certainly be helpful. In addition, the Presidium of the USSR Supreme Soviet is drafting a bill to regulate forest exploitation. It will set penalties for violations of logging regulations and fix the responsibility not only of timbering enterprises but their executives as well.

One out of every 10 persons employed in forestry has a college or specialized secondary school education. Moreover, 3,500 scientists are studying forestry problems. This is something we never had before. And with the public lending a hand, there is every reason to take an optimistic view of the future of our forests.

Even narrow forest belts serve as windbreaks, retain snow and make the air more humid. For these reasons they have been used in southern Russia since the turn of the century to protect fields from dust storms, soil erosion and dry winds. Four of the big belts run across the Don and Volga river basins.

CONSERVATION LAWS

SOON AFTER the October Revolution the young Soviet state passed its first conservation law. In 1919 a Commission on State Preserves was organized and Lenin, as Chairman of the Council of People's Commissars, signed a decree setting up the country's first natural preserve in Astrakhan, on the lower Volga. The next year a mineralogical preserve was set up in the Urals. In 1921 another conservation decree for the Protection of Natural Areas, Gardens and Parks, was promulgated. Before Lenin died in 1924, several other important decrees were published for the rational exploitation and protection of forests, fishing and hunting grounds.

As time went on, however, the need for a law governing the relations between man and nature became increasingly apparent. Although most people will protest that they love nature, not enough of them will assume personal responsibility for conserving our natural wealth and beauty, give it the time and effort required. Where the moral code does not operate, the legal code must step in. In this case the code lays down the basic principles for the rational exploitation of the country's natural resources and defines the punishment to be meted out to those who violate these principles.

Each of the Soviet republics has its own conservation law passed by its own Supreme Soviet. These laws do more than protect nature from man: they *preserve* nature *for* man.

All these laws for the protection of nature say essentially what Article 3 of the law of the Georgian Republic does: that in exploiting the natural wealth of the republic, consideration must be given to the interests not of any particular industry but of the country's economy as a whole and the cultural and esthetic needs of the people.

Each of the conservation laws has a general section, a prohibition section, and a regulating section. The general section lists the objects protected. Thus, Article 1 of the Armenian conservation law enumerates the soil, forests, minerals, water resources (rivers, lakes, subterranean waters), parks, very old trees and other rare plants, waterfalls, unique geological formations, valuable species of flora and fauna, territories on which natural monuments with cultural, scientific and educational significance are situated, as well as territories that are especially beautiful, that are important for the advancement of knowledge or that are used by people for recreation and health.

The prohibition section lists the activities forbidden. Thus, Article 2 of the Law on the Protection of Nature of the Georgian Republic forbids any business or other activity likely to pollute the water, air or soil; worsen the climate; kill the fish; erode the soil; make rivers shallow; dry up lakes; cause landslides, floods and deforestation; destroy valuable and rare plants, wild animals and birds; or contaminate recreation grounds. The use of the natural wealth of preserves for economic purposes and any activities that impair their natural state are strictly forbidden.

The regulating section, as a rule, requires that various constructive measures be taken by institutions, factories and farms that use natural resources.

Article 6 of the conservation law of the Ukrainian Republic obliges users of farmland to farm in such a way as to prevent erosion by water and wind and to improve soil fertility. Article 7 requires those who do mineral exploitation to protect the earth's surface and the buildings, reservoirs and plants located thereon from the destructive effects of mining.

The equivalent article in the conservation law of the Turkmen Republic is even more detailed. Article 2 prescribes a series of agrotechnical, meliorative and antierosion measures collective and state farms must take to protect the soil. The law also requires enterprises and organizations engaged in building, prospecting and mineral extraction to restore the fertility of the soil in the areas they work, using their own manpower and funds for the purpose.

Articles 8, 9 and 10 of the Ukrainian conservation law have to do with forests and shelter belts. The law says that forests are more than sources of timber, fuel, food and fodder. They serve as the habitat of useful animals and plants and as vital geographical intermediaries regulating the water level of rivers and lakes, supporting river banks, protecting the soil and ameliorating the climate. They also have significant health, cultural and esthetic values. Those who exploit the forests are required to see to their speediest reforestation, to prevent fires, unauthorized felling of timber, damage from cattle, insects and fungus diseases, and to take care of them generally.

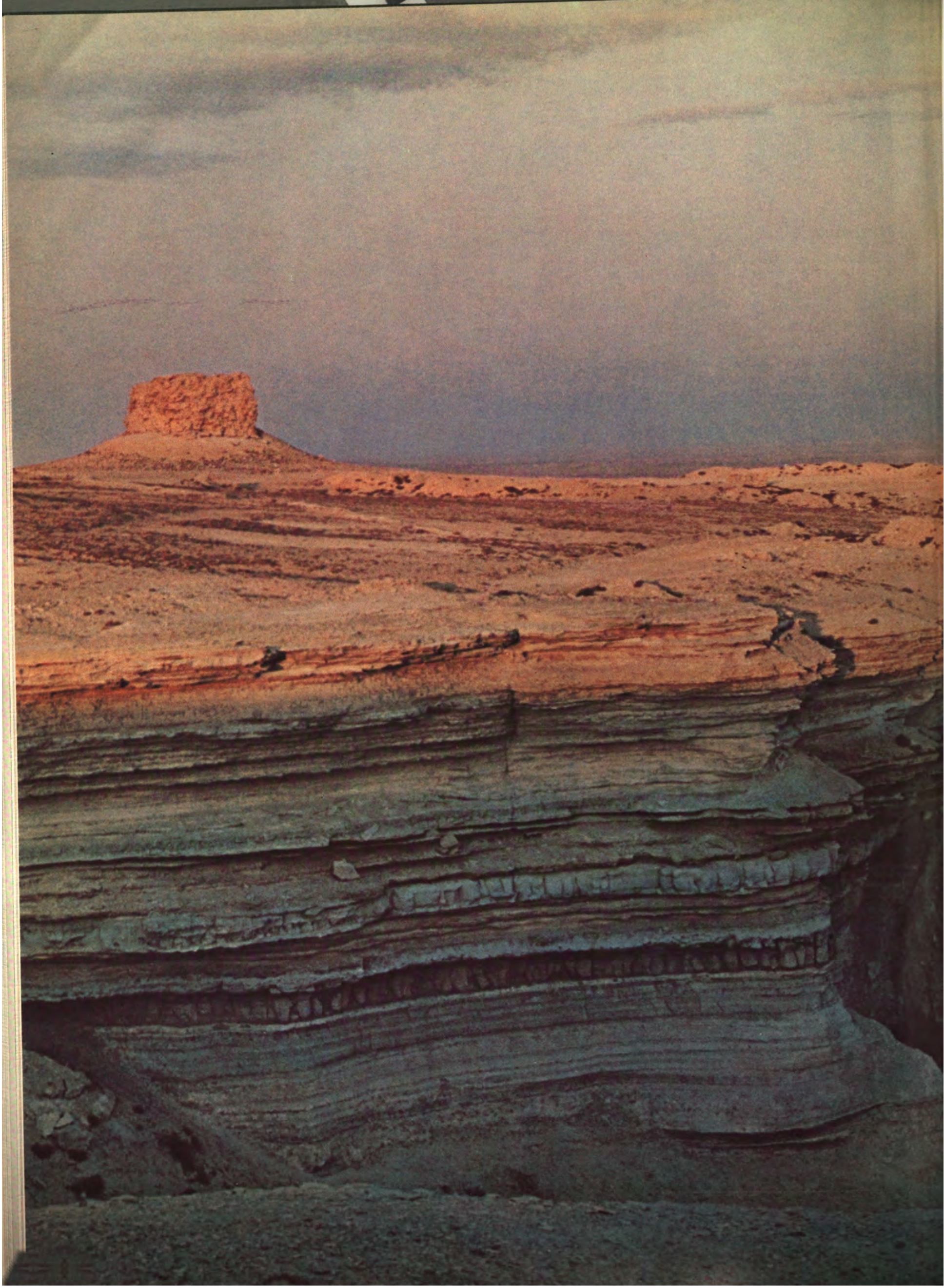
Article 4 of the Turkmenian law deals with the protection of surface and subterranean water from exhaustion, pollution and putrefaction. All users of water and all organizations whose work involves bodies of water are required to undertake hydromeliorative work, forest reclamation and agrotechnical and sanitation measures to improve the water regime and prevent flooding, bogging, salination, soil erosion, etc. Users of water must not exceed the consumption norms. All factories using water must have efficient sewage systems. Designers of hydrotechnical plants must see to it that fishing resources are preserved intact.

Article 21 of the Ukrainian law forbids the pollution of the air in inhabited areas by noxious gases and vapors, soot, dust and other substances injurious to men, animals and plants. To protect the atmosphere from pollution by industrial wastes, the law forbids the licensing of new or reconditioned factories, shops or units unless they are equipped with purification devices.

Pastures and natural vegetation characteristic of a given landscape, rare natural formations and rare species of flora and fauna, natural parks and preserves are also protected by the law.

Penalties for violation of these conservation measures are fixed by the general code in some cases, in others by the law itself. Thus, under Article 4 of the Estonian conservation law, persons found guilty of deliberately destroying and damaging objects of nature in preserves or other protected areas are liable to imprisonment for a period of up to two years or corrective labor for from one month to one year.

But you cannot post guards at every almond tree or alongside every tiger. Especially since tigers are not rabbits and guarding them is somewhat more complicated. Therefore, the fight against poachers and those spoiling our natural beauties never stops for a moment, and among the fighters are scientists and poets, teachers and schoolchildren, artists and actors.



MOTHER EARTH AND HER CHILDREN

There seemed to be no end to her riches. When man planted the first grain and it sprouted a hundred fold, he was not surprised. Only later did he marvel at the earth's fertility. And only recently has he taken steps to husband her resources. Mother Earth was always the provider, generously gratifying all of man's needs. As man matured, his needs grew. And there came a day when what the earth gave could not provide for all. People deserted the old fields for new places. When these did not suffice, woods and forests were felled. When there were no fields to be had, they moved to unpeopled territories. The craving for unsettled fertile soil made man go East and West, thousands of miles distant. And when there were no more free fertile lands to be had, man began to work the same ground harder. But the more he worked it, the poorer its yield. Then came erosion, with thousands of acres of hitherto fertile plowland in the black earth steppes or prairies turned to barren waste scarred by ravines and gullies. The loose, eroded soil could not resist the wind, and the sand and dust storms added one more stroke to the over-all picture of desolation and waste. It has happened before and is happening still.

KEEP YOUR HAND ON THE PLOW

BY PROFESSOR SERGEI SOBOLEV
DOCTOR OF SCIENCE (AGRICULTURE)

FARMING is 5,000 years old. At least, that's what the archeologists says. And soil erosion is just as old, but people began to be aware of it only when all the usable land around them had been put under cultivation and they could no longer simply abandon an eroded plot and move to a new one.

When czarist Russia abolished serfdom in 1861, the most fertile peasant holdings were appropriated by the landed gentry. The former serfs had to make do with what remained: hillsides, slopes and ravine beds, sandy tracts, gullies and the like. The result was that the Central and Volga provinces—the major granary of those days—were gradually transformed into one great water-eroded tract. It reached a point where as much land was laid waste by erosion as was newly plowed by the peasants.

When the plowland area was expanded in the southern, arid parts of the country where livestock farming predominated, another formidable enemy had to be faced—wind erosion. Black dust storms blew away the topsoil and turned fertile earth into hilly wasteland.

Some fifty years ago, great stretches of land were gullied by water and wind erosion. Even now, in the European part of the Soviet Union alone, about 100 million acres of plowland have been ravaged by water erosion, and in the country generally, about 200 million. Wind erosion periodically blights some 75 to 100 million acres. South of the Kharkov-Ufa-Omsk line, approximately on the same latitude as the Canadian cities of Winnipeg, Regina and Saskatoon, croplands in some areas with broken terrain are eroded by water and wind at one and the same time.

The virgin lands program got under way in 1954, and the use of deep plowing and other growing techniques suitable for older and moister crop areas created new areas for wind erosion. In some places not only the crop but the field under it was blown away.

Unfortunately there are no quick cures for erosion, or for any of the ills and wounds nature inflicts. For 5,000 years we have been ravaging our land, and five years will not remedy the situation. But we are beginning to fight back hard and with a variety of weapons.

The Ukraine and southern Russia once had great stretches of steppe. The few virgin areas like this left have been made natural preserves.

These gullies and ravines are wounds man has inflicted on his earth. With some care they may heal, but the process is long and difficult.

We plant shrubs on gully slopes, grow forest belts to shelter fields from wind, use snow retention techniques. However, the most certain weapon against erosion is good farming methods.

We have two major farm zones: the black earth zone, where plowing has been done with heavy plows since the time of Kiev Rus, and the nonblack earth zone, where light implements were mostly used.

The black earth zone, now the country's big granary—takes in more than 70 per cent of the plowland—415 million acres. The soil is the most fertile in the world, with a humus layer as much as five feet thick. For centuries the farmers here have been gathering fairly good harvests without using any fertilizer.

Crop farming on black earth soils is a kind of school for "dry farming," a school of struggle against periodic drought, dry winds, dust storms and destructive rains which wash away the fertile soil. In the black earth areas not affected by wind erosion, deep plowing can be done. It helps control weeds and provides a better water regimen.

But what is good for one zone is not necessarily good for another. After long study and debate agronomists concluded that each soil-and-climate zone, each crop and sometimes even each plot requires its own growing techniques, strictly adjusted to the climate, the terrain and the specific crop rotation system used in the area. Only that will give reliable protection against erosion.

That is the soil scientist and practical farmer Terenti Maltsev's method. By using a system of moldboardless plowing, which he himself devised, and by adapting his sowing periods and grain varieties to local conditions, he has been getting stable harvests of spring wheat for a period of 20 years. And all this in Siberia and the Kurgan Region. Moreover, the soil in his fields is in good shape and does not suffer from either water or wind erosion.

This is a good example of how to work the land and keep it working. The guiding principle is that land is not the property of any one generation. It belongs to those who till it today and to the generations that will till it in the future.

OUR USE OF NATURAL RESOURCES

BY YURI KURAZHSKOVSKY

HEAD OF A LABORATORY FOR RESEARCH ON THE USE OF NATURAL RESOURCES SET UP IN ASTRAKHAN BY UNPAID VOLUNTEERS

THE USE and remaking of nature confronts us with some very knotty problems. For instance, dams thrown across big rivers are good for power development, shipping and irrigation, but they are bad for the fish population, particularly the commercially valuable sturgeon varieties. Another example. Some 15 years ago we studded most of our steppeland zone with a network of tree belts to shelter crops from dry winds and to create a more favorable microclimate in drought areas. However, though there was no intrinsic reason why these places could not have been afforested, because the scientific concept was wrong, many of these shelter belts died.

This shows that we must evolve a workable theory for the use of our natural resources, one that is based on man's optimum interaction with his geographical environment. The aim is threefold. First, that man obtain the highest possible return from his use of natural resources. Second, that we reduce to a minimum the waste and destruction that result from man's overlapping and often conflicting uses of natural resources. And third, that the ways in which man changes nature be dictated by more than the needs of the moment.

For good conservation we must study the natural environment we work in and determine its guiding laws. We can do that best by setting up preserves and national parks. Soviet and American ecologists—the biologists who study the relation between organisms and their environment—have done valuable work toward that end.

A salient problem is the biological productivity of land. It takes two forms. Over-all biological productivity is the ability of land to generate living matter of all kinds per unit of area. Special-purpose productivity is the ability of land to generate one or another type of living matter, say timber, hay, fruit, meat, wool or such end products as resins, butter, sugar.

We can tell with very considerable accuracy what forms of productivity a particular kind of land will have. For instance, if we know the chemical composition of the soil of a forest, we can tell almost exactly, by using a not very complicated formula, what the bird population of this forest will be and how large it will be.

Rational practice requires that we adapt to and make use of the natural conditions in each case. In humid country precipitation is greater than evaporation, and we have a continual draining off of nutritive substances from the soil. In arid country we have, on the contrary, an evaporation potential far in excess of precipitation and, as a result, shifting salts accumulate in the surface layer. In the medial case evaporation and precipitation more or less balance, and a maximum of nutritive substances accumulate in the soil. Land of this type has the highest overall biological productivity. It should be put to most intensive use, the investment of effort per unit of area yielding the greatest returns. It also makes a fine human habitat, a hygienic optimum.

In remaking nature, we must, generally speaking, try to produce medial conditions. But we must always bear in mind that humid or arid conditions may be best for some special forms of productivity. Thus, while the brewer prefers his raw material from humid areas, the gourmet would choose a watermelon grown in an arid area.

Changing nature may often have bad effects that far outweigh the benefits derived. A case in point is the Siberian squirrel, which was imported into the Crimea "to enrich the useful fauna" of the area. But in the warm Crimea the squirrel shed its valuable fur and became an orchard pest.

Hence it is vital that we know what effects human interference with natural processes will have and how they will spread. The part played by air, water and geological and biological factors in spreading various effects must all be taken into account.

For instance, shifting air and water masses may be the vehicle for spreading harmful industrial waste. Animals, especially those newly acclimatized, may serve as carriers of parasites.

It is, of course, much harder to foresee the occasional chain reaction that develops over a period of years, but every new experiment makes forecasting that much easier.

LETTERS TO THE EDITOR

HELPFUL TO STUDENTS

I have been reading your magazine for a number of years now, and it is excellent in every respect. As an instructor of international relations and social science at a local college, I find your articles most helpful in creating much needed understanding of the USSR in American students. I only wish you would do a little more in the area of social science and literature.

Sincerely yours,
William J. Brindle
Detroit, Michigan

VITAL PROBLEMS

Dear Editor:

Two years ago your magazine published material on the round-table conferences sponsored by SOVIET LIFE. One of them was devoted to the problem of applying mathematical methods to economics. Being a Soviet economist, I appreciate your magazine's contribution to the solution of this problem. The conference took place at the time that economic-mathematic methods were establishing themselves in our country and needed active support. It was the round-table conference of SOVIET LIFE, EKONOMICHESKAYA GAZETA and VOPROSY EKONOMIKI that gave them this support. Arguments and differences of opinion were brought out of the narrow walls of the university halls and ministry offices to be considered by the public at large. The book *Economists and Mathematicians at the Round Table*, which was based on material from the conference and gave a popular and detailed account of the pros and cons in this sphere, was sold out within a few days and has become a landmark in the establishment of mathematical methods in economics.

It is quite gratifying that a magazine published for a foreign country does not ignore the problems arising at home. In my opinion, acquaintance with different viewpoints on various vital problems would be both interesting to the Americans and useful for ourselves.

Sincerely yours,
Victor Belkin
Moscow

TO MAINTAIN PEACE

Sir:

In reference to the letter from Carin Hultgron (June, 1966), I want to stand up and be counted among the precious few who unabashedly ogree that it will never, never be Russia who will start a world war. It was a nerve-wracking lesson for me to learn; I learned it well and I'm glad I experienced this change of attitude toward Russia.

In principle, I'm not a Communist, and regrettably, I'm not a Russian, so as an ordinary American I unquestionably believe and willingly admit that Russia will go *beyond* those efforts considered by others as "extreme" to maintain peace.

Russians have accomplished extraordinary things.... Why can't Americans acknowledge greatness and justice, equality and often superiority when it concerns Russia—and when it is so manifest?

For the little that it's worth, you have my sincerest respect and good wishes.

Mrs. W. J. F.
Indiana, Pennsylvania

ANSWER TO THE BIRCH GROVE PUZZLE

Dear Editor,

I take pleasure in answering here the question Mrs. Ramsing asked about the drawing I sent to the United Nations Children's Fund.

One day two ladies from the Children's Fund dropped in at the Soviet exhibition of graphic art in New York. It appeared that they wished to select a drawing for a New Year's card sold for the benefit of the Children's Fund. Our visitors explained that the Fund's catalogues contained the names of artists from all over the world and that they would very much like to add the name of a Soviet artist. On learning that I was an artist, they asked me if I would be kind enough to donate a design to the Fund. I told them I would gladly do it but that I must have time to think of a subject. There were not many of us in New York then and we were kept very busy at our exhibition. I naturally wanted to make a design that conveyed something of our national spirit.

Some time later the subject for the card was suggested to me by one of my own drawings on view at the exhibition. It was a variant of the birch grove reproduced in SOVIET LIFE. I often draw birches because the birch is my favorite tree. This tree is indeed the symbol of Russia and is sung in its poems, songs and folk tales. I decided to use it as my main motif and added little animals since the card was for the Children's Fund.

On leaving the United Stotes I sent my design to the Children's Fund. A year later I was happy to see it reproduced and printed in the many thousands of cards which people sent to different lands to wish friends a Happy New Year.

It is most rewarding to an artist to know that his work in some way brings delight to others.

Sincerely yours,
Orest Vereisky
Moscow

A letter from Mrs. Ramsing in which she asked us about a Christmas card called "Fairy Tale" issued by the United Nations Children's Fund was published in our May issue.

Editor

EVERY BREATH . . . POISON

Air Pollution: Its Effect on Human Health and Ways of Preventing It

BY PROFESSOR MAXIM GOLDBERG
DOCTOR OF SCIENCE (MEDICINE),
DIRECTOR, AIR HYGIENE LABORATORY,
INSTITUTE OF GENERAL AND MUNICIPAL HYGIENE

From a nearby hill, look down on a large industrial center and you will see a dark cloud of smoke and vapor floating above it. That is smog. Breathed day in, day out, it undermines health. The higher death rate of lung and cardiac patients on days when London smog is particularly dense is an acknowledged fact. Man pays in health and longevity when he upets the balance of nature. Keeping the air, water and soil free of toxic pollution is not motivated by abstract concern for nature, but by a very practical concern for ourselves.

WAY BACK in 1887, Fyodor F. Erisman, the founder of Russian hygiene, lecturing at Moscow University, talked of "the vital importance of clean air for general well-being." But in those days practically nothing was done to prevent air pollution, though the chaotic location of industries hazardous to health made living intolerable in the working class districts of industrial towns.

If air pollution was a health hazard 80 years ago in industrially underdeveloped Russia, in our day industrial development, power engineering and motor transport have made it an infinitely greater hazard.

Researchers in this field and others are confronted with this paradox: Concentration of industry makes for higher living standards and at the same time tends to shorten the average life span. In other words, the material security that industrial development brings has to be paid for in health. Obviously the problem of air and soil pollution cannot be solved by curtailing industrial construction.

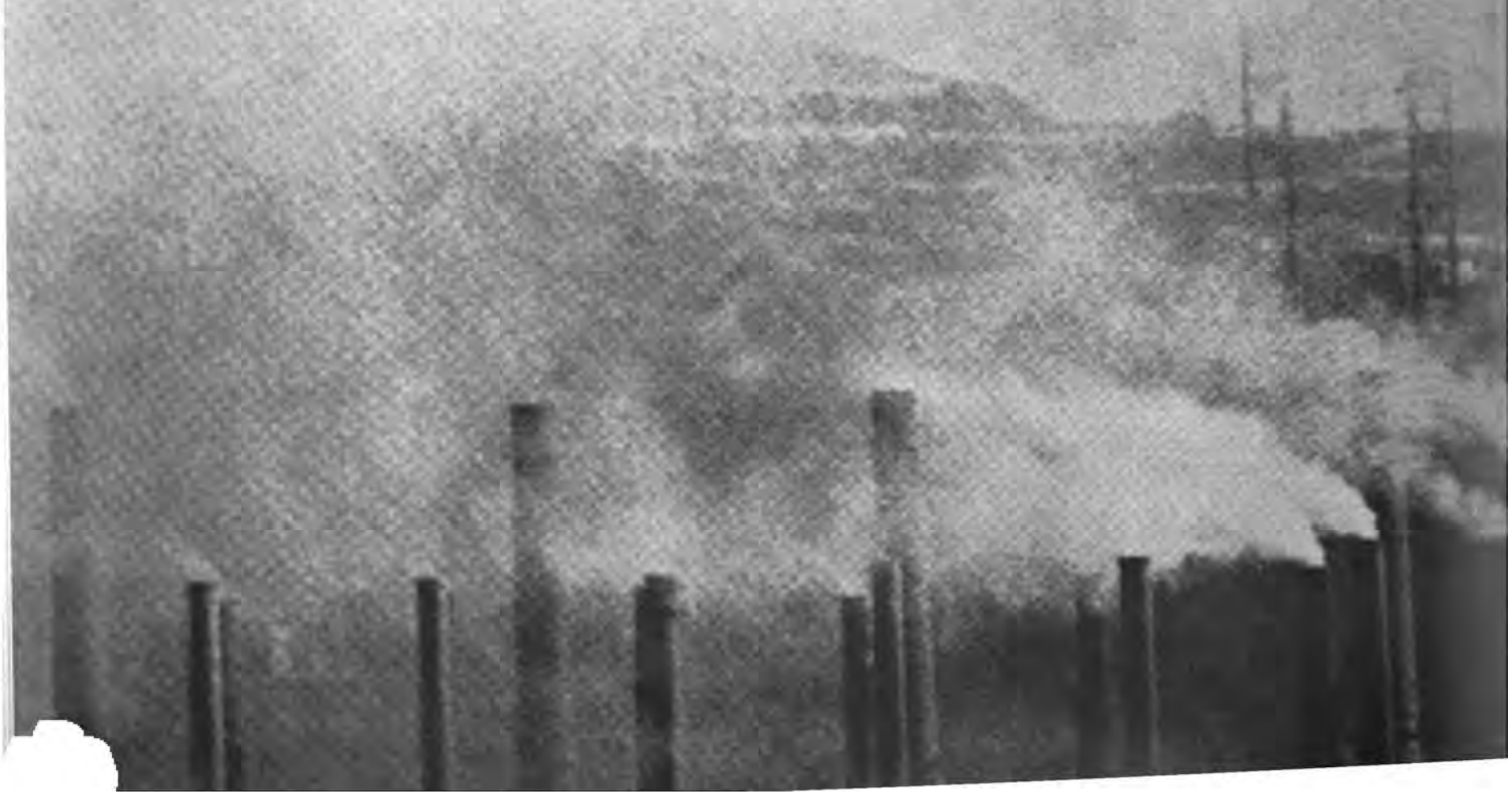
The first question our researchers had to answer was: What are the permissible concentrations of harmful substances in the air around residential districts, concentrations which do not directly or indirectly affect a man's health, do not reduce his working capacity and do not have any adverse emotional consequences? In other words, it was necessary to work out air quality standards. Soviet scientists have done considerable work in this field, particularly in the past 20 years, drawing on the studies of Professor Vladimir A. Ryazanov.

Their work has elicited this comment from Helmut Kettner, a leading West German specialist:

"The Soviet Union is the first country in the world to fix the maximum allowable concentrations of harmful substances in the ambient air of residential areas. Moreover, these concentrations are so small that in residential areas adjoining major industrial plants they cannot be reached by merely cleaning industrial emissions. The maximum allowable concentrations were fixed so low to force factories to take additional steps to reduce the content of harmful substances in the ambient air."

Air quality standards in the USSR are set for industrial shops and for the ambient air, in both cases after thorough study and experimentation. The maximum allowable concentrations are those to which the organism does not react, in which the harmful substances in the ambient air are at a biologically inactive level. In view of the difference in the temporary action on the organism of the air in industrial shops and the ambient air outside, the outdoor concentration standard is approximately 1,000 times smaller.

Soviet law fixes such strict requirements for the air quality of residential areas for two reasons. First, bad air in residential districts has to be breathed around the clock; in a shop it can be left behind at the



end of the working day. Second, people who come to work are, generally speaking, healthy, while in every residential district there are children, old people and sick people who are sure to be very sensitive to polluted air.

Our researchers have already determined maximum one-time and average 24-hour concentrations for each of 70 substances, as well as the maximum allowable concentrations for several groups of substances (most of them emitted by chemical plants), which in combination act differently than they do separately.

The World Health Organization's Inter-Regional Symposium on Criteria for Air Quality and Methods of Measurement (August 1963) decided to establish uniform air quality standards based on a combination of Soviet and American standards. This first international air pollution scale fixes four levels. Level I corresponds to Soviet maximum allowable concentrations, and Levels II, III and IV to the standards adopted in California.

Level I. Concentration and exposure time at or below which, according to present knowledge, neither direct nor indirect effects (including alteration of reflexes or of adaptive or protective reactions) have been observed.

Level II. Concentrations and exposure times at and above which there is likely to be irritation of the sensory organs, harmful effects on vegetation, visibility reduction or other adverse effects on the environment.

Level III. Concentrations and exposure times at and above which there is likely to be impairment of vital physiological functions or changes that may lead to chronic diseases or shortening of life.

Level IV. Concentrations and exposure times at and above which there is likely to be acute illness or death in susceptible groups of the population.

The symposium urged all states to bring their air pollution concentrations down to Level I. If that level cannot be achieved for technical reasons, temporary deviations may be permitted for a limited period. The symposium's decisions were subsequently endorsed in the report of a WHO Expert Committee on Atmospheric Pollutants, which met at Geneva in October 1963 under the chairmanship of V. G. MacKenzie, Chief, Division of Air Pollution of the United States Public Health Service.

On the basis of these decisions and a series of research studies, the Soviet Union adopted several pieces of legislation which rest on a solid experimental foundation and rule out any guesswork. In the Russian Federation such legislation includes "Building Charts and Rules," "Sanitary Standards in Designing Industrial Plants," "A Law on the Protection of Nature." Similar laws have been adopted by the other union republics. Among other things, they establish zoning regulations for industrial plants near residential areas and specify the maximum allowable concentrations of harmful substances in the ambient air of populated areas.

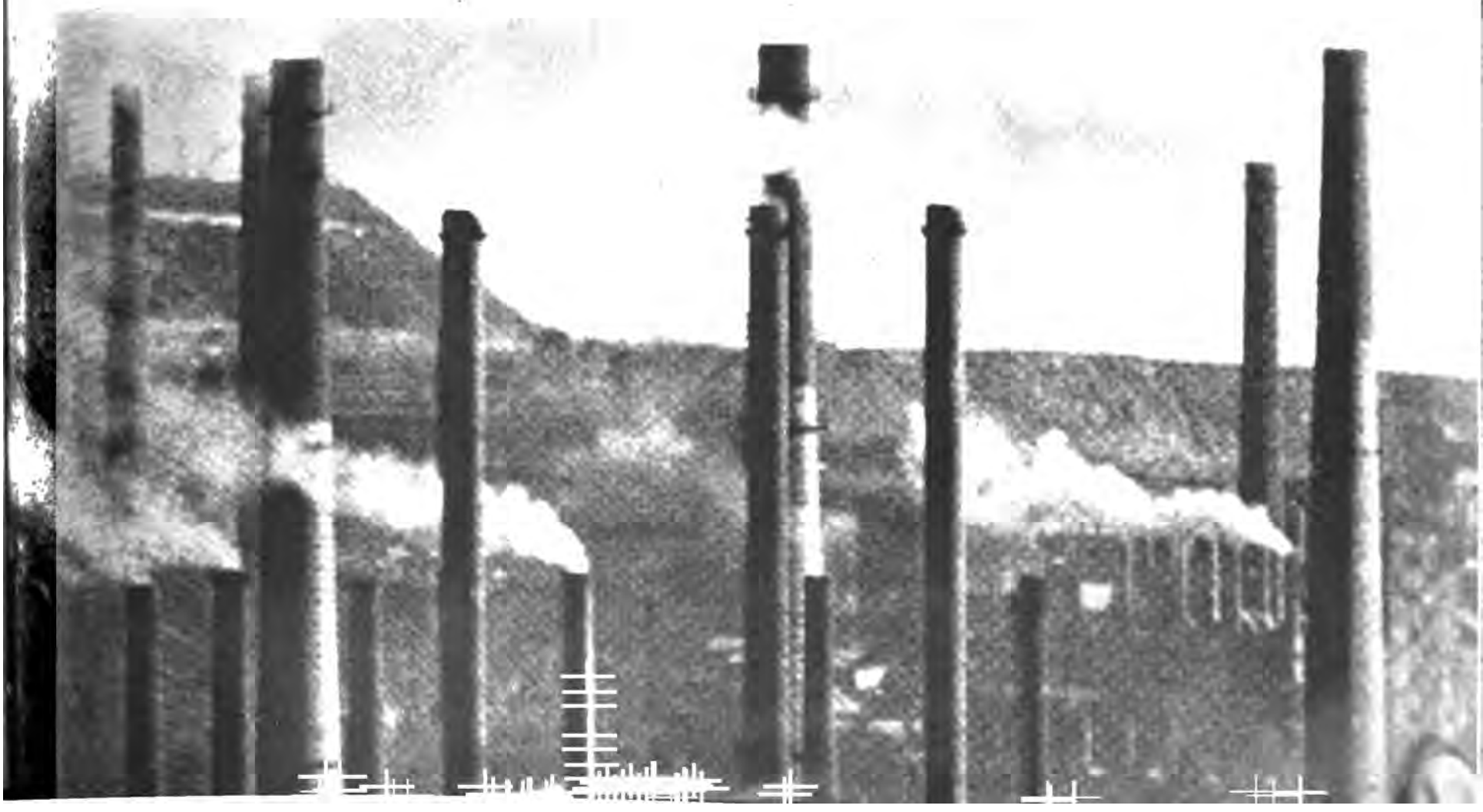
Control is exercised by the USSR Public Health Ministry's Central Sanitation-Epidemiological Department and its local branches. The importance we attach to these matters is indicated by the penalty for polluting the air with industrial by-products injurious to health. It is punishable, under the Criminal Code of the RSFSR and the codes of the other Soviet republics, by a maximum of 12 months of correctional labor or a 300-ruble fine.

On demand of a sanitary inspector, an enterprise which systematically pollutes the air of a residential district can be shut down until it makes the necessary technical changes. This happened with the coke and by-products plant in Khanjonkovo (Donbas), which systematically polluted the air with black smoke containing 3,4-benzopyrene (a carcinogenic hydrocarbon). The plant was charged by the local sanitation-epidemiological station with endangering the health of people in the neighborhood and was closed down. It was permitted to resume operation only after all the standards were met.

Soviet legislation prohibits the commissioning and permanent or temporary operation of industrial enterprises, factory shops, units or power plants that pollute the air with harmful substances unless they reduce the content of toxic elements and dust in the ambient air to permissible concentrations. They can resume operation only with the permission of the state sanitation-epidemiological station. New industrial enterprises whose emissions cannot be absorbed by modern air-cleaning devices must be located in places which the local sanitation-epidemiological station certifies are far enough removed from populated areas and suburban forest-belt zones.

Notwithstanding definite progress in the fight against air pollution, the problem is still acute. Many industrial plants do not have adequate air-cleaning devices; the present gas-cleaning installations are often ineffectual and do not meet minimum requirements; and air-cleaning techniques still lag behind industrial development, particularly in the chemical branches. Devising effective air-cleaning methods for many technological processes remains a pressing task.

The important thing, wrote the eminent physiologist Ivan Pavlov, is to prevent a disease from taking hold, from invading the organism. This applies very much to air pollution. It is this principle of prevention that guides the nationwide efforts of Soviet scientists to devise technological processes based on closed cycles.



Chirps, Warbles, Whistles

Melody, the Soviet recording company, has issued two long playing discs of bird songs heard in the Moscow suburbs. They make a wonderful gift for a bird fancier. We thought our readers would be interested in the following excerpts from the text accompanying the records.

Springtime . . . the green mist of first leaves, the clean trunks of birches, the smell of earth still moist. Listen. The forest is alive with discordant voices. All the birds are singing, warbling and chirping at once. This hubbub is heard only at dawn. As the sun rises, some of the birds become silent.

From a bush close by comes a familiar song—the ***nightingale.***

And this is a ***chaffinch.*** *Its loud song rings out in every wood and park. It is heard even in big towns. Besides singing, the chaffinch cries, also loudly, and most often before a rain.*

Listen to the ***warbler.*** *All warblers look alike, but their songs are quite different. The* ***willow warbler*** *sounds much like the chaffinch, except that the finch ends its song with an abrupt flourish, while the willow warbler lets its melody die away gently.*

Every now and then a bumblebee drones by.

This is the ***wood warbler.*** *Besides twittering, it also sounds off with a loud, sad whistle.*

Here is a ***wren*** *perched on a tree blown down by the wind. During pauses in its song, this bird bobs up and down, with its short tail sticking up as far as it will go.*

The ***blue titmouse*** *is singing. It is heard everywhere—in the woods, and even in village and city gardens.*

In an overgrown forest clearing you can hear the long drawn-out whistling of the ***white-browed thrush.*** *Its whistled trill is followed by a low, indistinct chirruping.*

And now we hear the ***pied flycatcher.*** *It lives in tree hollows and starling houses, in parks and gardens. The male's velvety black and white coloring catches the eye immediately.*

Do you hear that from the edge of the forest? It is the ***turtledove*** *cooing.*

And this is the song of the ***blackcap,*** *one of our best forest warblers.*

Listen to the ***whitethroat*** *singing. Can you hear how hurried its twitter is? The bird sings in flight when, with flapping wings, it rises into the air. Its trill finished, it ducks right back into the bushes.*

The male ***yellow bunting*** *sings from its perch on a treetop. . . .*

Listen to this nocturnal concert of lake frogs. Hear the occasional fragments of a nightingale's song? In the meadow nearby a ***land rail*** *keeps crying endlessly. Like the rail, it travels North by foot.*

The ***nightingale*** *is perhaps our finest songster. In strength of voice and variety and beauty of warble, not to speak of the effort it puts into its singing, it has no equal. But its song comes dressed in plain clothes, its plumage is very modest. Young nightingales learn to sing from their elders and other birds. When this bird sings, you can easily distinguish the separate musical phrases or bars. Listen: that's the first . . . the second . . . the third . . . the fourth . . . the fifth . . . the bars form phrases and stanzas. You recognize the beginning of a stanza from the pause and the characteristic bar with which the nightingale usually begins each new stanza. . . . You can hear this nocturnal song of the nightingale on the bank of Moscow River not far from Zvenigorod.*

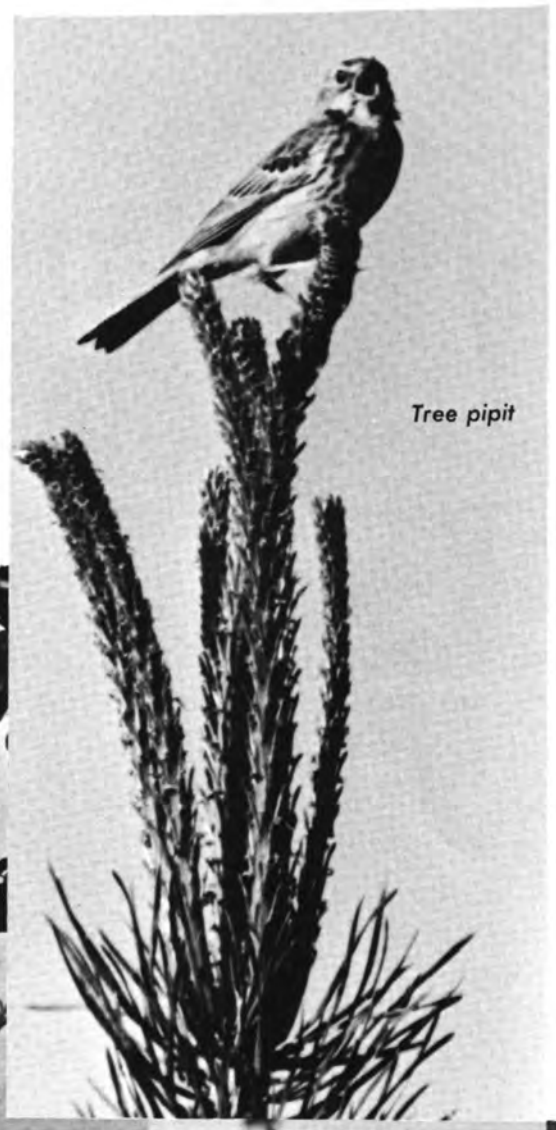
Nightingale

These records can be ordered in the United States through:

Four Continent Book Corp.
156 Fifth Avenue
New York, New York 10010

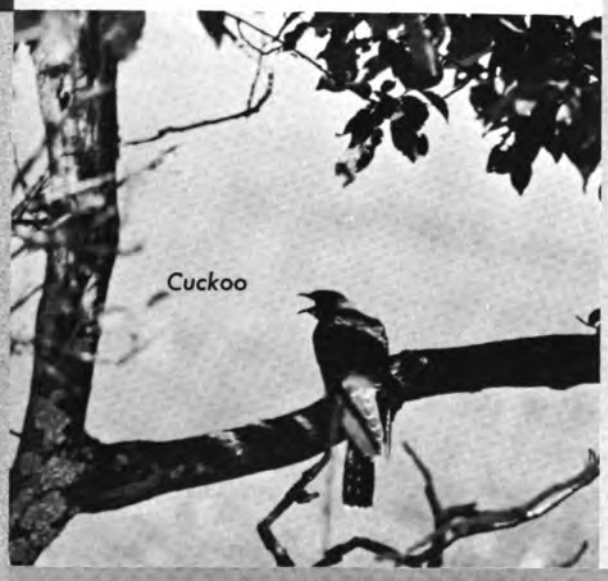
Victor Kamkin, Inc.
1510 Columbia Road, N.W.
Washington, D.C. 20009

Znanie Book Shop
5237 Geary Boulevard
San Francisco, California 94118

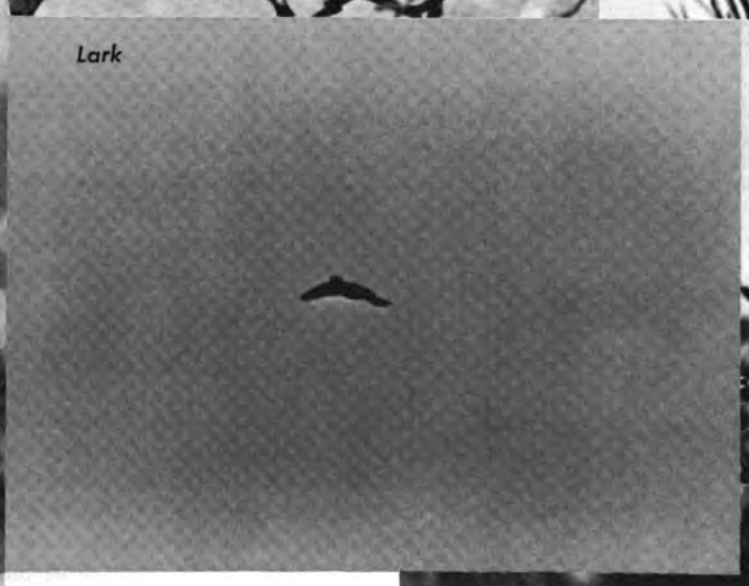


Tree pipit

Whitethroat



Cuckoo



Lark

Turtledove

Robin

Sedge warbler

European red sparrow

IN THE NEXT ISSUE

Elegance, some people say—fashion people, obviously—is 90 per cent the woman's dressmaker and 10 per cent hairdresser and shoemaker. The relative contributions notwithstanding, there is no denying that clothes make the elegant woman. Vyacheslav Zaitsev proves that, if it needs to be proved. He is the imaginative young Moscow fashion designer who has set Soviet fashions for the past several years and is likely to be setting them for the next several to come. The "Zaitsev style" distinguishes the well turned out Soviet woman of today. His creations all have the indefinable something—the line simple, the colors imaginative and the fabrics chosen with an artist's discrimination. For more see the next issue.

In July 1937 a Soviet flight crew, captained by Sigizmund Levanevsky, tried to open a USSR-USA passenger and cargo air route via the North Pole. It was the first attempt of its kind for a four-engined plane, and the flight was followed with the closest attention, reported in newspapers the world over. Tragedy struck over the North Pole, one engine went dead and the plane had to come down from its record-breaking altitude. Covered with ice, the aircraft would not obey the pilot. When radio signals stopped coming, Russian and American ace airmen, defying foul weather, took off to look for the men lost in the polar tragedy. Full story in the September issue.

Countless reams must have been written on the Russian Revolution, its every incident described and analyzed. But the whole grand story, its impact on history, its scope, its human drama, will always bear retelling. In the September issue *Soviet Life* begins a series of articles on those "ten days that shook the world." The sources of the Revolution, remote and immediate, the people who made it, its events, its documents will be presented in this history brought to life.

Sergei Bondarchuk directed the newest film version of Tolstoy's *War and Peace*. He calls it the most difficult and the most rewarding film assignment he ever undertook. For an introduction to the rather inconspicuous girl who turned out to be the ideal heroine for the Tolstoy epic, an explanation of how one works with a composer of incidental music who falls in love with the leading lady, a consideration of the problems of interpreting and dramatizing the novelist's color symbols and musical notations and a revelation of the frequent despairs of movie-makers, read the article by this famous director.

Other articles in the September issue are:
Martiros Saryan—about one of the Soviet Union's leading artists, with some color reproductions of his paintings; Tomorrow: The Summit—the third and last part of Vladimir Keler's essay "Yesterday, Today, Tomorrow"; Shota Rustaveli—the great poet whose verse has inspired generations of Georgians since the twelfth century; The Trade Union on Overtime—a union leader explains the law and how it works; Alexander Pushkin—a sampling of his poetry, in Russian, with free verse translation, the beginning of a series ranging from the classics to the contemporary.

NOVOSTI PRESS AGENCY

SOVIET LIFE

Norilsk — About the mining town in the midst of the tundra, presented in 15 pages of pictures.

Moscow Conservatory Centenary — A photo story of the world famous music school and the artists that it produced.

COMING SOON

THE CALL OF LAKE BAIKAL

(Continued from page 8)

high overhead, and the short shadows of the cliffs barely reached the highway running on a narrow jut along the waterfront.

The moon was bright and the mountains stretching along the left bank of the Angara gleamed above the fog. They are sparsely wooded, with many bald patches. To think that quite recently this was all dense taiga! Forests disappear everywhere: the population keeps increasing, forest fires are more frequent, and mechanical saws and tractors are going at it full blast.

Man does not always realize that when he fells trees in mountain areas he is inviting erosion, that rivers will flood violently in spring and then go dry, and once denuded, the slopes will never be green again and the washed-down soil will silt the lakes.

In the land around Baikal the danger of denudation is all the greater because of the Gobi Desert just next door. So far the sands have lain dormant under the forests which Mother Nature planted atop their thousand-foot-thick mass during some uniquely favorable geological epoch. The distinguished Russian geologist and geographer Academician V. A. Obruchev was very sensitive to this danger at the turn of the century. Unfortunately his warning was forgotten, and the far-reaching consequences of wind and water erosion are now evident in the Barguzin caldron, the former Selenga Dauria. Sand drifts bury meadows and plowland, and even pine woods, rivers, canals and highways.

The wood pulp mill will devour timber at a prodigious rate. Can timbering on so big a scale be done without harming the lake? Anyway, the reforesting must be continuous and the forest fire threat fought hard.

The bus station outside which I am waiting for a car is perched on a tiny rocky ledge with a highway on one side and the lake on the other. The fog has risen level with the ledge. I am on the shore of a fantastic sea of gray cold vapors with fathomless deeps lurking in between.

I am not sorry to be waiting. For several days I have been meeting scientists at the institute, builders at the plant, the designers of the project in Irkutsk, scientists at the East Siberian Branch of the Academy of Sciences and officials of state agencies. After all this flurry I enjoy the solitude and tranquillity of this fairy tale land shimmering in the moonlight. I know that my metaphor "fairy tale land" is frail and dated, going back to something science has crushed with its sober and rational miracles. Easy enough to explain why the vapors have condensed over a certain area because of such and such temperatures and pressures. Still, this *is* a fairyland—at least at this hour, and with that fog and glimmering lonely vastness.

What is lurking behind the fog? A heavy boat lined with larch boards that carried Russians up the Angara three centuries ago? Perhaps on a night like this they reached that spot, never suspecting that a lake lay behind the milky pall? They made a fire somewhere on these boulders, spliced a rope which had worn thin after their long journey, mended their simple tools and kept a sharp eye on everything around to remember as much as they could to tell to their kinsmen.

Later the somber clang-clang of iron shackles came from those rocks and carried far across the water. The dark and long age of hard labor in Siberia. Convicts were convoyed to Cape Listvennichny over there to get them across the lake. Generations of fettered men in striped coats and with shaven crowns blasted boulders and labored with pick and shovel. They built a highway and later a railroad around the lake. Old Believers rebelling against the authority of the Patriarch who challenged the power of the czar himself settled in those valleys. They hid in the Baikal wilderness rather than become apostates. They are ancestors of many Siberians, frontiersmen, tough Kershaks.

Generations of Russians looked at these grim cliffs with despair or hope. Merciless atamans of the czar collected "40 sables" for the never sated treasury. Hoarfrosted horses pulled closed sleighs with Decembrist revolutionaries and convoy gendarmes. A lonely fugitive from a hard labor settlement might be dragging his way back home.

Their shadows lie on these rocks, and their rare joys and long ordeals are part of us, because everything here is part of our Russia.

Unforgettable

Our plane took off and, climbing, made a huge circle over Irkutsk. Bound westward. The Angara above the Irkutsk dam flashed us good-by. The dark mountains loomed around Baikal in a smoky haze. Good-by. No one can forget you, the wooded cliffs on your shores, the soft even music of your surf.

I think I can hear it even now above the roar of the engines, and I will hear it when I tell my friends about Russia's ancient pearl which will adorn the earth forever.

TOURING, HIKING, MUSHROOM PICKING

FOR MOST CITY DWELLERS summer vacation means getting closer to nature. And that means going somewhere. Where depends on the cash available and such things as age, vigor and temperament.

Three Kinds

Holidaymakers fall into three disproportionate categories. One, on the shady side of 40, is overburdened with sundry ailments big and small. These people go to the health resorts in scenic spots where the climate suits their particular ailment and treatment is combined with recreation. They take sun, air and mud baths, dip in the sea or in mineral springs. The most celebrated spas are Mineralnye Vody, Kislovodsk and Zheleznovodsk in the foothills of the Caucasus. There are hundreds of health resorts on the Black Sea coasts of the Caucasus and in the Crimea as well. At some health resorts the climate is the No. 1 medicine. The Bairam Aly kidney disease sanatorium is an example—104°F. of heat and Europe's and the Soviet Union's lowest humidity.

Note that the trade union foots half and more of a member's bill at a health resort.

Like Home

The hale and hearty of all ages and tastes, mostly the underforties, prefer the regular vacation resorts, also located in scenic spots and far from the madding crowd, in highlands and woods, on riverbanks, lakes and seashores. Accommodations are cheaper than at a spa, and the admission slip, usually obtained at one's place of work, includes board, room and everything else that goes to make three to four carefree weeks.

Tourist camps are much like these vacation resorts. Accommodations cost between 50 and 150 rubles (again cheaper than for a health resort) and cover tent, meals at the base camp and all the gear needed—boat, sleeping bag and sundry other items. These rugged types camp out a lot, and many of them climb mountains. The most popular vacation resorts and tourist centers are in the Caucasus including the Black Sea coast, all over the Crimea, in the Carpathians and along the coasts of the Gulf of Finland and the Bay of Riga. The Urals is on the way to becoming a favorite. Siberians holiday in the Altais, the Sayans and camping on the shores of Lake Baikal. There are also many vacation resorts in Sakhalin and Kamchatka.

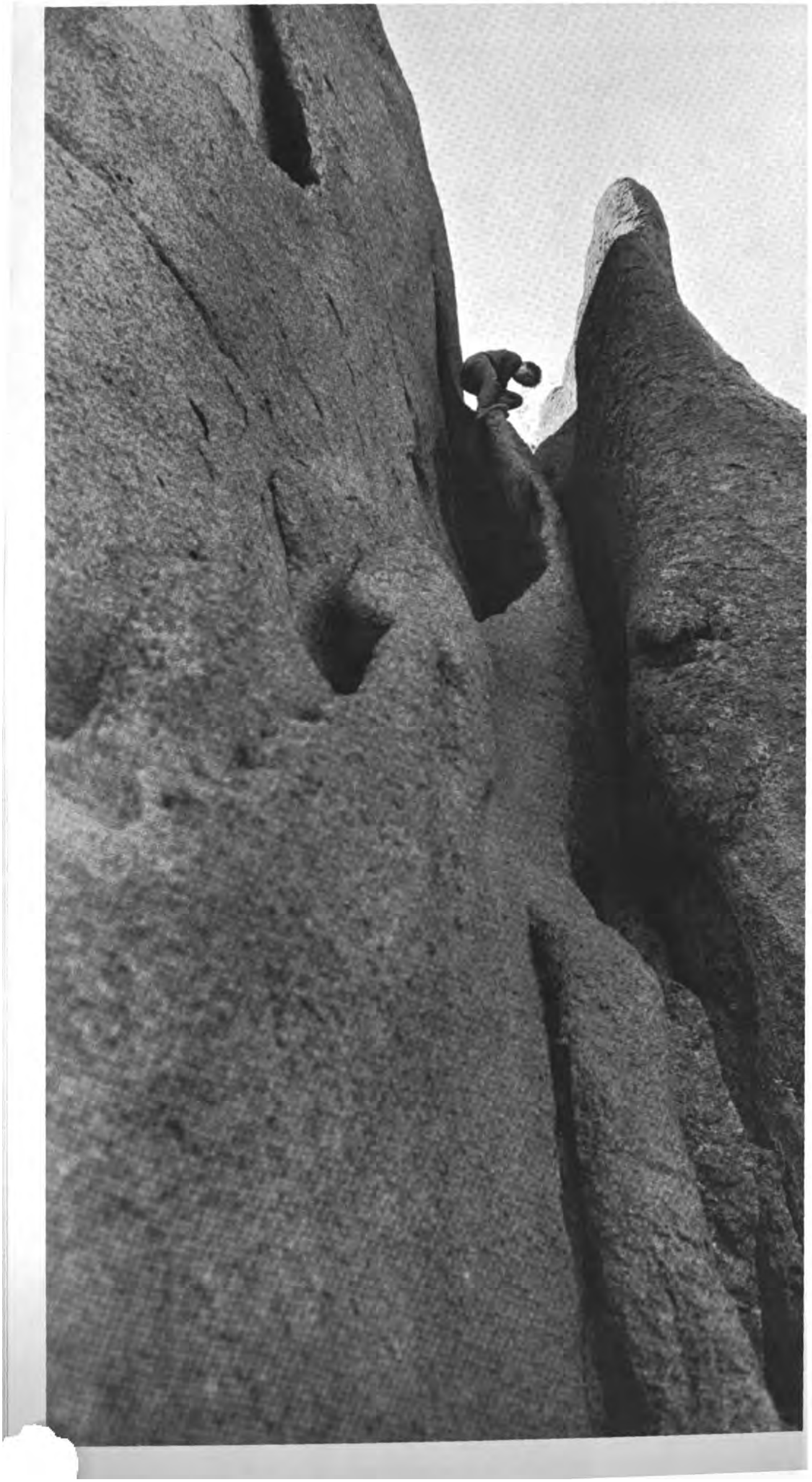
At Grandma's

Despite the conveniences that resorts and tourist centers offer, many prefer to "do-it-themselves." So they visit *babushka* or *tyotushka,* grandma or aunt—if they've got them, of course—who usually live near the sea or in the country. But what about people improvident enough to have no relative in Sochi, Sukhumi or some far off village? They go "wild."

The "Wild" in the Wilderness

Going "wild" means that you take your car—unfortunately we have too few of them yet—or get on a train and strike out

(continued on page 48)



Can one ever stop feasting one's eyes on the sky or on gnarled trees each always with its own expression, silhouette, spirit and thought? For a long time I wandered beneath them never tearing my eyes away from their infinitely varied tops, branches and leaves, craving to understand, fathom and remember their images, and sat thinking about them on the spacious slopes at the bottom of the garden amidst enormous oak tree stumps, crude black patches in succulent tall grass and flowers, the radiant ponds in the ravine below still full of water. The spirit then took flight from life to look at it with a sad and beneficent wisdom, as if from a place out of this world, contemplating the 'things and doings' of man."

Ivan Bunin

TOURING, HIKING, MUSHROOM PICKING

(continued from page 45)

with only the bare essentials and, of course, the cash (usually 100 rubles per person, exclusive of fare, will do the trick).

The "going wild" ones eventually congregate in habitual haunts around the Black, Azov and Baltic seas as paying guests of private owners—something the state permits for a small fee. You eat at the nearest restaurant and spend your time on the beach or wherever else your fancy takes you.

Those who want to get off to the real wilds where there are no tourist camps arrange for an experienced guide at a sports club and set off in small groups. More often, friends at a college or factory club get together, grab their knapsacks, tents, sleeping bags and even rubber dinghies, and strike out into the unknown. It is very simple and cheap—some 15 rubles for train fare—to leave Moscow and find yourself in the middle of a wilderness with not another human being around for hundreds of miles. You're a good deal more likely to run into a bear than another hiker. For the daredevil on the lookout for as many thrills as he can get, there are more or less untrodden paths in the tundra of the Kola Peninsula, the lake country of Karelia, the low-lying wooded Carpathians and the rocky Crimea. In the Caucasus hiking is gradually evolving into mountain climbing in summer and mountain skiing in winter. A growing number of spelunkers are exploring the caves of the Urals and the Caucasus. Canoeing is also very popular, and during the vacation season whole flotillas of collapsible boats ride the rapids up North and in the Urals as well as the placid rivers and lakes of Central Russia.

Moscow Suburb Evenings

Hiking and canoeing in summer and ski jaunts in winter are general favorites. From early Saturday afternoon of a weekend, suburban trains going anywhere up to 60 miles from town are packed with knapsack, ax and guitar carriers. They start strumming as soon as they entrain and finish on the train back to town Sunday night. These groups hoof it some five to ten miles through the woods to a stream or river and pitch their tents. Campfires and barbecues are started up, the *pièce de résistance* usually being the humble potato, baked in the jacket on glowing coals, a mouth-watering dish no gas or electric oven will ever produce. Sunday is spent swimming, eating, of course, and maybe playing volleyball. Dog-tired but happy, the weekenders return, leaving a trail of crushed grass, many a bare patch in the woods, and thousands of shredded newspapers, tin cans and bottles. A veritable scourge, we must admit. Whether neglected or smothered with love, nature, like the child, suffers.

Mushroom Pickers

On sunny days in August, September and October, thousands in wellingtons or high boots, carrying old-fashioned and well-used wicker baskets, join the haversacked throngs. These are pursuing a Russian sport as old as hunting, mushroom picking. In remote woodland villages mushrooms—stewed, fried or pickled—continue to be a substantial supplement to the menu. City dwellers spend hours on end searching in the dew-moist grass for mushrooms with names that would bewilder the American or West European housewife. Pickled or salted, they make every bit as delicious an appetizer as caviar, oysters, salmon or most anything else you can think of.

At any rate, like the hikers, the mushroom pickers meet sunrise in the woods, sometimes tramping dozens of miles on their search. This breather is a welcome respite for people who spend most of the other six days of the week in stuffy rooms surrounded by the noises and smells of the city.

It's a paradox that country folk are so often unmindful of nature's beauty. But as soon as these same people become city dwellers, they can't let a weekend or holiday go by without communing with nature.

FORGET-ME-NOTS

By Mikhail Prishvin

Mikhail Prishvin (1873-1954)was famous for his insight into the world of nature. He combined a gift for words with a background in agriculture and natural science that he acquired as a young man. His writing strikes a balance between deep poetic feeling and thought and remarkably precise, almost scientific, observation.

He is noted for his very perceptive vignettes of the woods, the soil and the water. He also wrote an autobiographical novel, **The Chain of Kashchei.**

For 40 years he kept a diary. One of the last entries was to his wife:

"My dear friend, if you outlive me, make a bouquet of these leaves and call this little book **Forget-Me-Nots.**

These are excerpts from the book.

THE BUDS on the trees, chocolate-colored with green little tails, a big glistening drop dangling from each beak, open up. You take one of them, crush it between your fingers, and for a long time afterward are haunted by the odor of birch or poplar resin. Or the memory-inducing bird cherry brings back the times you climbed to the top of this tree, picked the bright black gleaming berries, swallowed handfuls of them along with the pits, and nothing but good happened to you.

The evening is warm, and the quiet fills you with expectancy. You know that something must happen. And it does. The trees begin to whisper to each other. A white birch sends a message to a friend some distance away. A young asp, standing in the forest clearing as upright as a green candle, communicates with its companion. One bird cherry offers another a green bough with flowering buds. The forest trees hold their discourse not so much in the language of sound as that of smell, each species surrounded by an aura of its own fragrance.

As dusk descends, the buds are swallowed by the darkness. All the shrubbery has turned into an indefinable blur, but the drops still glisten. There are only these drops and the sky, the drops drawing the light of the sky and illumining the path in the somber wood.

I feel as though I had myself contracted into a tiny bud and was seeking an outlet in a human companionship so wonderful that it would crush into dust all obstacles.

Woodland Brook

If you want to fathom the very soul of the woods, strike the path of a brook and follow it in its upward or downward course. I walk along the banks of my favorite brook, and this is what I observe, hear and think.

I see the running water in a shallow bend break against the pine roots with murmur and bubble. Rushing headlong, the bubbles burst, but the greater part of them merge on their further course as they are faced with a new obstacle and cluster together into a snow white ball visible in the distance.

New obstacles keep blocking the water's path, but each time the water, in an array of streamlets, enters the fray with fresh vigor.

Rippling in the sunlight, the flowing brook casts fast moving shadows across the fir trees and grass. And the air seems to vibrate with sound, the grass to grow to music and the shadows to be at peace with each other.

From a wide but shallow pool the water, sallying with fresh intensity, is precipitated into a narrow depth, the challenge caught by the sunlight and reflected in the leaping shadows on the trees and grass.

Fallen timber makes the brook fret, its murmur and splashes grow louder, but there are no weak, plaintive or desperate notes. Such human emotions are unknown to the water. Every brook flows with the certainty that it will reach the free expanse, reach it even if its way is blocked by a mountain as high as Elbrus; it will cut through it and sooner or later arrive at its destination.

The eddies gleam in the sunlight, and the shadows flicker across the trees and shrubs like curling smoke. To the chatter of the brook the resinous buds open up and the water weeds and grass rise.

A pool of still waters with a fallen tree crosses its course, the sullen waters rippled by the flitting of bright-winged insects.

To the languid murmur of the water the streamlets proudly roll and chatter, converging, swelling, trebling lustily and joining into a mighty flow.

Flipping the buds of newborn flowers, the eddying water bubbles and foams, merrily trilling amidst the flowers and dancing shadows.

Undaunted by a heavy tree trunk, green with age and long lying across its path, the brook sallies forth under it and sparkles out.

The grass and weeds emerging above the water bow and curtsy to the swift flowing brook and its tremulous shadows.

Let fallen timber block its path, let it by all means! Obstacles make for life. Were there no obstacles, the brook would vanish lifelessly into the ocean, the way the last breath mysteriously departs from the body.

A hollow, wide and deep, blocks the path of the brook. The brook does not grudge its waters. Filling the hollow generously, it sets out again on its course.

And here is a tangle of branches from a crouching thicket bent under the weight of winter snows. Like a big gray spider with long tentacles, it holds the water in its grip.

On the water's surface float fir and aspen seeds.

The entire passage of the brook across the wood is a path of long struggle by which time is measured. In the course of long struggle life begins, and my mind is stirred to thought.

If these impediments which arise at every step were absent, the water would disappear effortlessly and the life-time element would not exist at all.

There is exertion in the brook's battle. The streamlets tense and twist like muscles, but there is no doubt that sooner or later it will find its way into the open, into the free expanse, and in this "sooner or later" is the key to time and life itself.

When the brook leaves the dense woods behind and, emerging in a clearing, spreads out into a big wide pool, the first yellow flower pops its head out of the water, and frogs' eggs, like a honeycomb, lie so ripe that the black little tadpoles are clearly visible. Over the water's surface swarm bluish midges appearing from nowhere and dropping into the water, this activity perhaps exhausting their brief span of life. A gleaming copper water beetle whirls by, and the ichneumon fly hops daintily without even stirring the water. They are joined by a big and bright flitting insect. The little puddles around the pool are now overgrown with grass and flowers, and the young willow boughs are covered with downy balls of yellow fluff that look like tiny chicks.

But what has happened to the brook? Half of it is flowing one way and the other another way. Perhaps in its struggle for faith and its "sooner or later" it has split into two halves, one claiming that its course would lead it soonest to its destination, the other hitting on a short cut. Their ways thus part, and after each makes a big curve around a big island of water, they reunite merrily, understanding that there are no divergent roads, that all roads, sooner or later, are bound to bring them to the ocean.

My eye feasts upon the scene. In my ears ring the words "sooner or later," and there is the floating aroma of the poplar and birch buds, all fused into one. I am as happy as can be. I have reached my goal, and I drop down to the ground in between the spreading roots of a tree, nestling close to the trunk and turning my face to the warm sun. The moment I longed for has arrived. Time has come to a standstill. Feeling like the earth's last and first man, I enter this blossoming realm.

My brook has found its way into the ocean!

* * *

There are times when a stillness settles of itself upon the woods, a hush that makes me sit spellbound somewhere on a stump. But at times it is by a sort of tacit agreement that the trees, shrubs and grass sink into silence. The quiet plunges me into musings, and the distant past is revealed in a new light.

Not a twig stirs, not a leaf quivers. Only the outlines of their crowns tell me that the trees stand as though molded in wax with an imperfection that is far superior to all perfection.

I am suddenly shaken out of my reverie by a breath from the deep woods on my cheek. Or is it my imagination? No, for I can see a brambly stalk, slender as a knitting needle but tall so that it comes up to my waist, sway gently, nod and receive an answering nod. A little farther away a fern on a single stem whispers to another fern, and the essence of what is said is conveyed in the breath against my cheek. In the utter tranquillity, the wood breathes from within, like a human being.

Man's Friend

It is not the ugliness of the monkey that we resent as its judging us by itself; and all that we hold dear and that distinguishes man from brute it regards as its own birthright.

A dog, on the contrary, recognizes our superiority and tries to be deserving of our love and esteem.

A small puppy chasing a paper tied to a string will suddenly stop short because it has noticed something or has perhaps divined the secret of its game and will cast a quick look at you with an intelligent gleam in its eyes.

When a dog looks at me in a way that is almost human, I know that there was a human being from whom it got that glance.

I understand my dog lying on the floor beside me and pressing my shank so that I will not go away while it sleeps. This to me is merely evidence of its canine nature. But in the middle of the night when I am not likely to leave home, it suddenly wakes up feeling out of sorts and, dragging its mat between its teeth, comes to my bed at the other end of the room. It is not content to sleep in its place by the stove but must sleep near me. I take this to be a feeling of loneliness, wanting to be near someone else, which comes of the dog's long association with human beings.

The woods and meadows, the water with its vapors, all life on earth yearns for light. But were there no shade, there could be no life; every living thing would be scorched by the sun. We thus owe our lives to the shade, yet we do not thank it, and all that is noxious we call the shady side of life, while all that is good—reason, kindness and beauty—has come to be linked with light.

"Without knowing it, the falling snowflakes shape figures on the branches everywhere. These figures are purer than any marble, and nowhere in the world would you find freer lines than those making up the shapes of snowflakes. There is neither plan nor thought-up use in the construction—it is just for nothing."

FORGET-ME-NOTS

"It seems to me that the dynamic feeling for one's native land is much like a man's being born. Every man, in birth, moves from the darkness of the womb out into the boundless newness of a light-filled world."

"Under the snow, the water is already following its unseen ways."

"In the daytime all the spring birds flock on the spring road to feed, and at night the animals run along it so as not to get caught up to their ears in the grainy snow. But for quite a while yet the sleighs will be sliding over the manure which keeps the road ice from thawing."

"While out hunting today, I listened to the water. It rolled noiselessly along the meadow glen, but sometimes two tiny currents met with a splash. Listening and waiting for the next splash to come, I asked myself: Why does it happen?"

"I have found water pools in the snow near the birch trees. And this is a symbol, the beginning of the spring of the water."

"The last remains of ice on the road crunch under foot—'crocks' they call them."

"All the flowers in the meadow are woven into the webs, and a spider's net hangs lacelike in the dew."

The heavy damp begins to lift, and the earth heaves a sigh as though just awakening from its long winter slumber."

"Icebound, tired, beaten with horse hooves, cut by sleigh runners and dunged, the road runs straight into a pure sea of water and becomes a transparency of spring clouds, transformed and very beautiful."

FACE LIFTING ON A GRAND SCALE

BY NIKOLAI POPOV

IT ALL BEGAN thousands of years ago, when man first scratched furrows in the earth to divert water to the plants he was growing for food. Gradually he progressed to irrigation ditches, canals and dams, then to flood dikes, mill ponds and ship canals and, in more recent times, to power dams. In our century his efforts to face lift the earth have been impressive indeed.

Many of today's projects would have seemed utopian only half a century ago, but even more ambitious ones are now on the drawing boards. Some of them have the look of science fiction. Others show a disregard for the balance of nature that disturbs people of many professions, who fear that the benefits accruing from such projects might have to be paid for with the flooding of great areas of farmland, the destruction of forests, erosion, sharp climatic changes and the like. But there are projects, equally grand in scope, that seem to be both sensible and feasible.

SOS from the Caspian Sea

Because of the general rise in climatic temperature and the reduced inflow from the Volga and Ural rivers which feed it, the Caspian Sea is growing shallow at a calamitous rate. Its level has dropped eight feet in the past 35 years. The sturgeon, from which we get caviar, and other fish are dying off. The harbors are becoming shallow, and the coastal fields and meadows are drying up. It is getting harder and harder to extract oil from offshore wells.

For a long time now scientists and engineers have been devising schemes to save the Caspian. One, described in our April issue, is to build dams on the upper reaches of two northern rivers, the Pechora and the Vychegda, and channel water from their reservoirs into the Caspian via the Kama and Volga rivers. The estimated cost of the first main stage of the work is in the neighborhood of 700 million rubles, less than the cost of each of the giant Volga hydroelectric power stations. An earlier suggestion had been to build a dam across the Caspian so that water would accumulate in its northern section, which is shallowing fastest.

Great Inland Waterway

The plan to divert the waters of northern rivers into the Volga and the Caspian is part of an even more ambitious project to create an integrated system of navigable waterways in the European part of the Soviet Union. This would link up seas, lakes and rivers into a single complex providing direct service between all the seaports.

Part of the system has already been built—the series of dams that have made the whole Dnieper navigable, and the reservoirs on the Volga and Kama rivers. Ship canals have linked the Moscow River with the Volga, the Volga with the Don, the White Sea with the Baltic and, finally, the Volga with the Baltic Sea via the Rybinsk Reservoir and Lake Onega.

Next comes the linking of the Dnieper and the Neman, which will open an inland waterway between the Black and Baltic seas. The plan is also to connect the Ural and Volga rivers. Dams on the northern rivers will make it possible to link the Caspian and Black seas with the White and Barents seas, which form part of the basin of the Arctic Ocean.

In the more distant future the rivers of the European and Asiatic parts of the country will be tied into a single network.

A Dam Between Two Continents

In 1959 engineer Pyotr Borisov suggested another grand face-lifting operation which provoked heated argument. His idea was to throw a dam linking Chukotka and Alaska across the Bering Strait, which would wall off the Arctic Ocean from the Pacific. It would then be possible to pump water from the Chukotka Sea into the Bering Sea, thus creating a water shortage in the Arctic Ocean and forcing the Gulf Stream, which now goes no farther than the Scandinavian shores, much further East, to wash both Soviet Arctic and North American shores.

It would take only a few years for the warm waters of this current to melt the Arctic ice and give us round-the-year shipping there. But the most dramatic changes would come later. Free of ice, the Arctic Ocean would absorb much more of the incident solar energy than it did before, when the ice reflected back the sun's rays. This would mean still warmer weather, which would spread all over the Northern Hemisphere and possibly all over the globe.

In Northern Siberia, where frosts currently go down to as much as 76° F. below zero, we would have a climate of the kind we now have in the Northern Ukraine. Southern Europe would have no winter and spring frosts, and hardly any of the rivers in Europe would be icebound in winter. The borders of the permafrost zone would retreat far to the North. There would be similar changes in Alaska, Canada and North America generally.

From the engineering angle the project would seem to be practicable. The Bering Strait is only 46 miles wide—no great challenge to modern engineering—and the shores and bed are firm enough. It would be necessary to pump 33,530 cubic miles of water a year from one sea to the other, for which some 15 to 18 million kilowatts of electricity would be required annually. Provided the several countries concerned cooperate, it would cost the Soviet Union roughly four billion rubles to build the dam, hardly an impossible sum, considering the advantages to be derived.

The major objection is that we cannot accurately forecast the effects, good and bad, that the project may have on the climate since we do not yet have all the pertinent information on atmospheric circulation. Cyclone routes over Europe and Asia may change, which would reduce precipitation in many places. And if the glaciers of Greenland and Spitsbergen start melting, the level of the world oceans would rise and many coastal areas would be flooded.

However, despite this and other objections, the idea still attracts weathermen, climatologists and engineers, who are trying to estimate its possible effects.

Rivers and Electricity

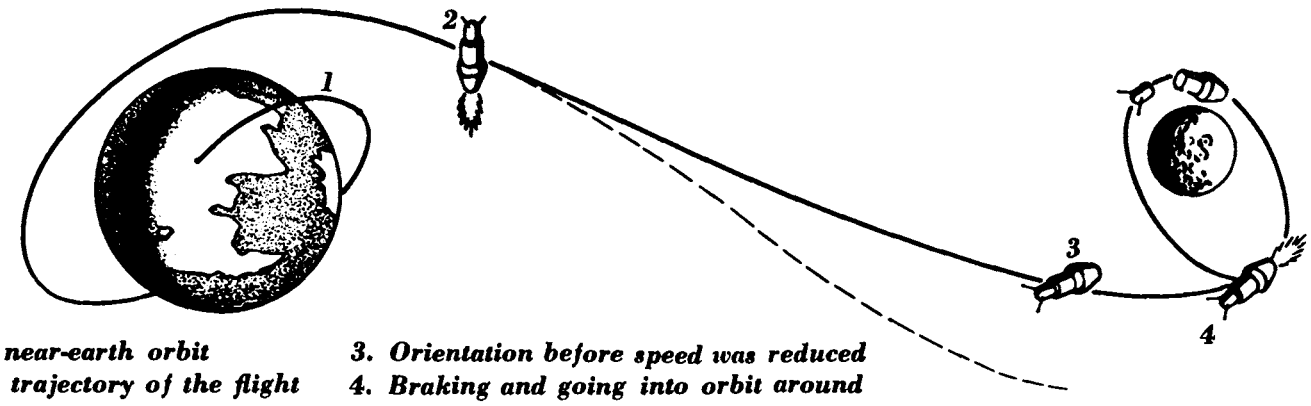
Soviet scientists and engineers are now planning a series of big hydroelectric power stations on the Siberian rivers. Six are to be built on the Yenisei, which cuts across Siberia from south to north, and another six (two are already generating current) on the Angara, a tributary of the Yenisei.

Thirteen power plants are planned for the Lena. The largest will be the 20-million-kilowatt Lower Lena Station. The impounded water will flood an area as large as the Aral Sea.

There is a project on hand to divert the waters of Siberian rivers to feed the irrigation systems of a big desert area in Central Asia. Shortage of water limits industrial and agricultural development in the Soviet Central Asian republics. Before long now the two principal rivers in Central Asia, the Syr Darya and the Amu Darya, will be fully harnessed for irrigation. Water from the Siberian rivers could irrigate 86 million acres, an area larger than Italy. The flooding of large tracts in Siberia might be worth that. At any rate, the matter is still under discussion.

While scientists and engineers are debating whether Siberian water should be diverted to Central Asia, a 930-mile canal is being built there to irrigate the hottest and driest region in the country.

FIRST LUNAR SPUTNIK



1. Intermediate near-earth orbit
2. Correction of trajectory of the flight to the moon
3. Orientation before speed was reduced
4. Braking and going into orbit around the moon

ONLY TWO MONTHS after Luna 9 made a soft landing, the eyes of the world were pinned on the moon again. On April 3 the Soviet automatic Luna 10 station went into orbit as the moon's first manmade satellite.

Manmade moon sputniks are a necessary stage in space exploration. Earth sputniks helped lift a corner of the veil hiding many of nature's mysteries. Today hundreds of them are whizzing around the earth transmitting radio and television broadcasts via space, forecasting weather and carrying on meteorological studies. Earth sputniks have also given us important information about circumterrestrial space, the earth's radiation belt and magnetic field, the ionosphere, solar corpuscular emission and cosmic radiation.

Many of the problems posed by the earth's closest neighbor, the moon, can be researched directly with moon sputniks.

One fascinating problem is the meteor situation in circumlunar space. Meteorite streams may represent a hazard to space vehicles. Whizzing along at dozens of miles per second, meteorite particles can do a great deal of damage. Though the probability of colliding even with negligibly small meteorites is not great, still it is essential for us to know more about the composition and variation of meteor streams if our space vehicles are to be guaranteed absolutely safe passage.

Another vital problem is the moon's thermal characteristics. We know that its surface temperature has a wide range. The moment the sun rises over the moon's horizon, the surface temperature quickly goes up. By noon the lunar surface in equatorial areas warms up to between 212 and 266°F. When the sun sets, the moon's surface quickly cools, its temperature dropping to 184°F. below zero.

The moon's magnetic field has already been studied by the Luna 2 space probe sent up in September 1959. These studies demonstrated that the moon has an insignificant magnetic field, with an intensity not more than one-thousandth of the earth's field. Further measurement of the magnitude of the moon's magnetic field with a more sensitive magnetometer is important for determining the nature of the magnetism exhibited by various celestial objects.

Another urgent problem is the characteristic features of the moon's gravitational field. We have been able astronomically to determine the moon's mass, but as yet we have only a rough idea of the more specific features of its gravitational field.

The initial stage of Luna 10's flight is similar to that of other moon probes. It was launched into a near-earth orbit and from there started for the moon. However, the flight trajectory was not aimed at a definite spot on the lunar surface but at a point 620 miles away.

The flight trajectory of a space probe headed for the moon is divided into two parts: span of motion in the sphere of the earth's activity, where the pull of the earth on the craft is stronger than the pull of the moon; span of motion in the sphere of the moon's activity, where lunar gravity predominates.

The moon has a mass considerably less than the earth's and so the sphere of the moon's activity is smaller than the earth's. The moon's sphere of activity stretches to about 37,000-43,000 miles from the center of the moon and is within the sphere of activity of the earth. When the Luna 10 probe started from the intermediate orbit of a manmade earth satellite, it was imparted a velocity of about six and three-quarter miles per second by the acceleration unit.

With this initial speed, it took the probe a little less than three and a half days to reach the moon. When it reached the sphere of the moon's activity, the probe was traveling at a velocity of about six-tenths of a mile per second relative to the moon.

To place the space probe into predetermined near-moon orbit, its trajectory was corrected to conform with radio measurements. This put the probe into a trajectory passing at a fixed distance from the lunar surface and it went into orbit as the moon's first sputnik.

The instrument compartments of the Luna 10 probe house the flight control and orientation systems, the latter consisting of gyroscopic instruments and electronic-optical and programming-and-timing devices, as well as the power supply sources, telemetric control equipment and the microengines of the orientation system.

The control system stabilizes the probe in regard to its center of gravity and commands the engines to switch on and off. Jet microengines stabilize the automatic probe in flight.

The weight of the Luna 10 automatic probe, on the flight trajectory toward the moon, was 3,500 pounds.

The automatic probe and the accelerating unit were first placed by the carrier rocket into the orbit of a manmade earth satellite. The orbit had these parameters:

perigee—124 miles;

apogee—155 miles;

orbit inclination to the equator—about 52 degrees.

The probe was later switched to a lunar flight trajectory. According to data transmitted, the actual movement of the Luna 10 probe was somewhat different from the set one.

The correction was made, and the speed of the Luna 10 automatic probe was changed by the value necessary to the required direction. The ground center measured the parameters of the corrected flight trajectory. Calculations showed that the trajectory after correction practically passed through the calculated point. The initial data to retrofire the probe into a lunar sputnik orbit were determined from the trajectory parameters received after the correction. These data were transmitted to the station.

Approximately 5,000 miles from the lunar surface the probe was orientated to put the engine nozzle into a retrograde position at the moment of retrofiring.

When the retrorocket was switched off, the speed of the probe had dropped from one and one-third miles per second to about three-quarters of a mile per second. The lower speed enabled the probe to redirect to a lunar satellite orbit with these parameters:

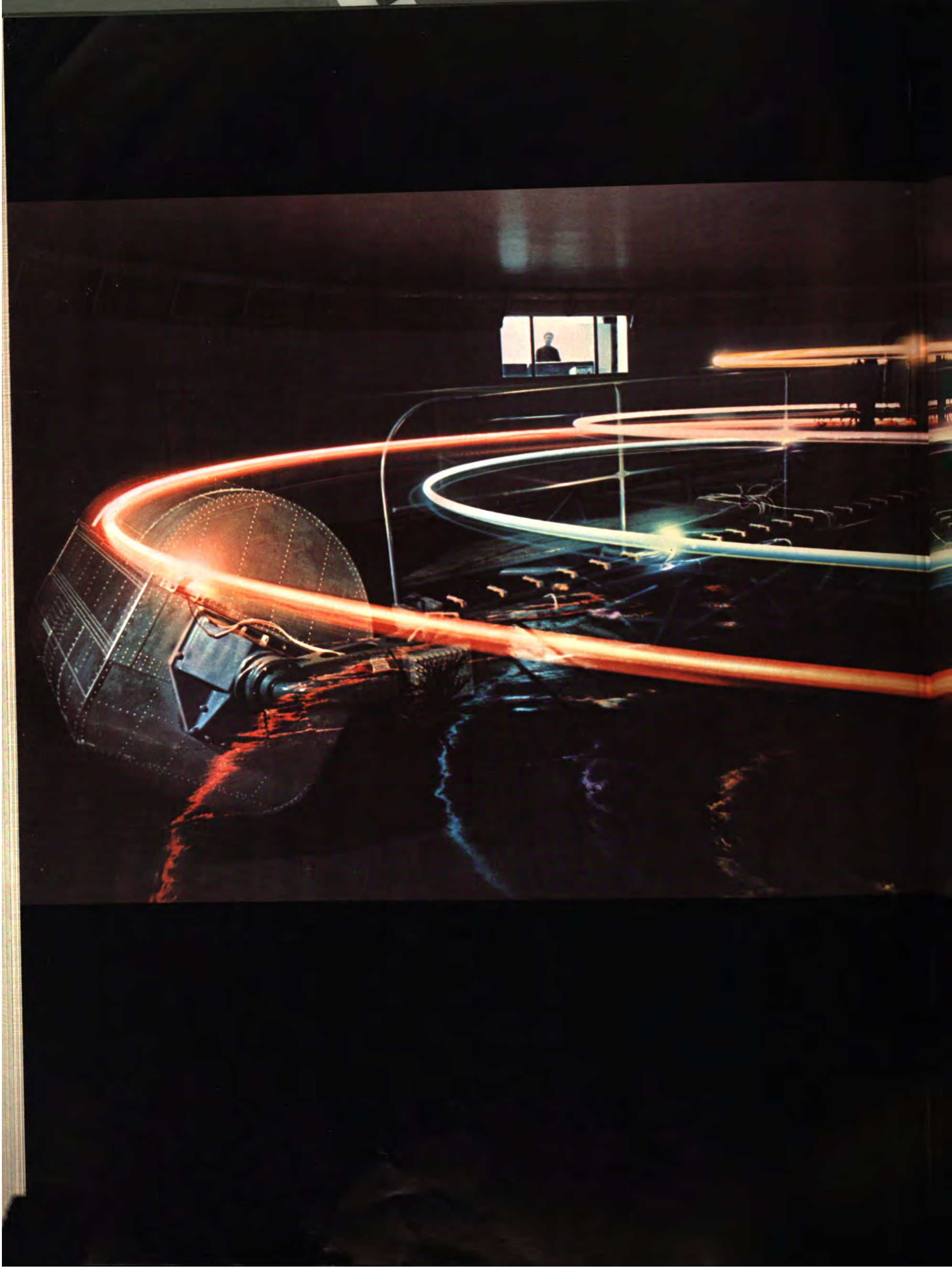
apocynthion (maximum distance from the lunar surface)—about 621 miles;

pericynthion (minimum distance from the lunar surface)—about 217 miles;

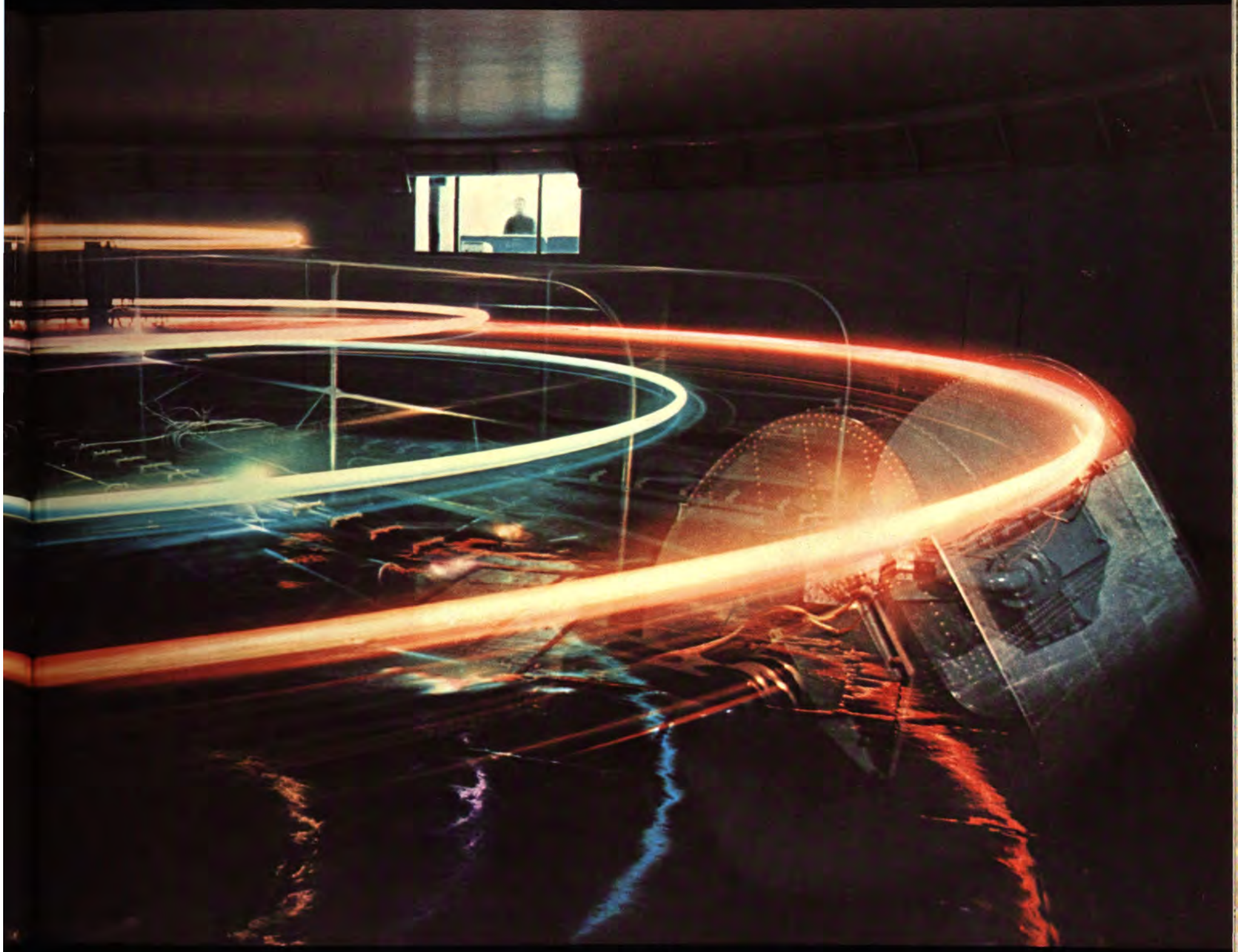
orbital period—about three hours.

Twenty seconds after the retrorocket was switched off, the control system signaled to cut off the lunar satellite (an airtight container weighing 540 pounds) from the engine and control system compartments. The jettison system operated smoothly. Then the radio communication sessions with the lunar satellite were started. These sessions showed that the instruments functioned smoothly, that the thermal control system provided the required regime, and that radio communication with the satellite was stable.

Courtesy of Pravda



SPACE MERRY-GO-ROUND



THE CENTRIFUGE TEST is one of the toughest and most thrilling Soviet space pilots have to go through at their training school.

"It's a merry-go-round ride for the boys, with the doctors watching their pulse and breathing like hawks." This comment comes from No. 2 cosmonaut Gherman Titov.

"The centrifugal force presses down hard all over your body as the contraption spins around faster and faster. Remember swinging a can of water round and round without spilling a single drop? The same centrifugal force presses the water to the bottom of the can.

"As the speed of the centrifuge increases, you weigh twice as much as normal, then three times as much, five times, seven. You can't move a finger. Your lips feel like lead, and you have a lot of trouble moving your tongue. The muscles flatten all over your face as the stress multiplies eight times over. And you already weigh several hundred pounds!

"Everything swims and whirls before your eyes, but you have work to do, checking to see whether you can manage arithmetic problems and reporting your condition to the doctors and answering their questions."

Titov sums up: "The centrifuge test is tough and for some of the fellows the last one in their space flying career."

A man who stands up under this test will have no trouble with the stress of rocket blast-off and spaceship landing.

TAMING THE DESERT

BY NIKOLAI SOMOV

THE KARA-KUM is one of the biggest sand deserts in the world. It is located in the southernmost part of the Soviet Union, east of the Caspian Sea. A canal is being built across the desert to bring water to fields and pastures, cities and industrial plants.

The Kara-Kum covers four-fifths of the territory of Turkmenia—the Soviet republic that spreads as far south as the thirty-fifth parallel, to the latitude of Memphis and Chattanooga. This part of the earth is a huge sand-filled brazier. In summer the temperature reaches 122° Fahrenheit. Mean annual precipitation is only 6.30 to 6.69 inches, and the center of the desert gets no more than 2.95 inches. This territory, the size of Nevada, is not crossed by a single river. The springs and rivers that come down the mountains get lost in the sands and form blind deltas.

Sunlight is the major resource of these parts. The sun shines from the cloudless sky 300 days a year. If water were added to all that sunlight, even the sands and foothill badlands would yield crops. Moreover, there are fertile lands thirsty for water on the boundaries of the desert and in the valleys with their drying rivers and springs. Turkmenia has more than seven million acres of such land. Only about one million acres have been irrigated and put under cultivation.

Wells of salty water, often drying up or buried by sand, provide the only moisture in the Kara-Kum.

Searching for Water

The desert is bordered by the Amu Darya River in the northeast with its 15.5 cubic miles of water. But only 20 per cent of it is used for irrigation; the rest flows wasted into the Aral Sea, the fourth largest lake in the world. For three centuries now, crop and livestock farmers have been dreaming of using Amu Darya water to irrigate Turkmenia's southern and western areas. Numerous expeditions and a great deal of exploration hatched various schemes in the late nineteenth and early twentieth century to channel the Amu Darya water to the desert. All these schemes made use of dry river beds and so, in spite of the great difficulties involved, seemed to be practicable.

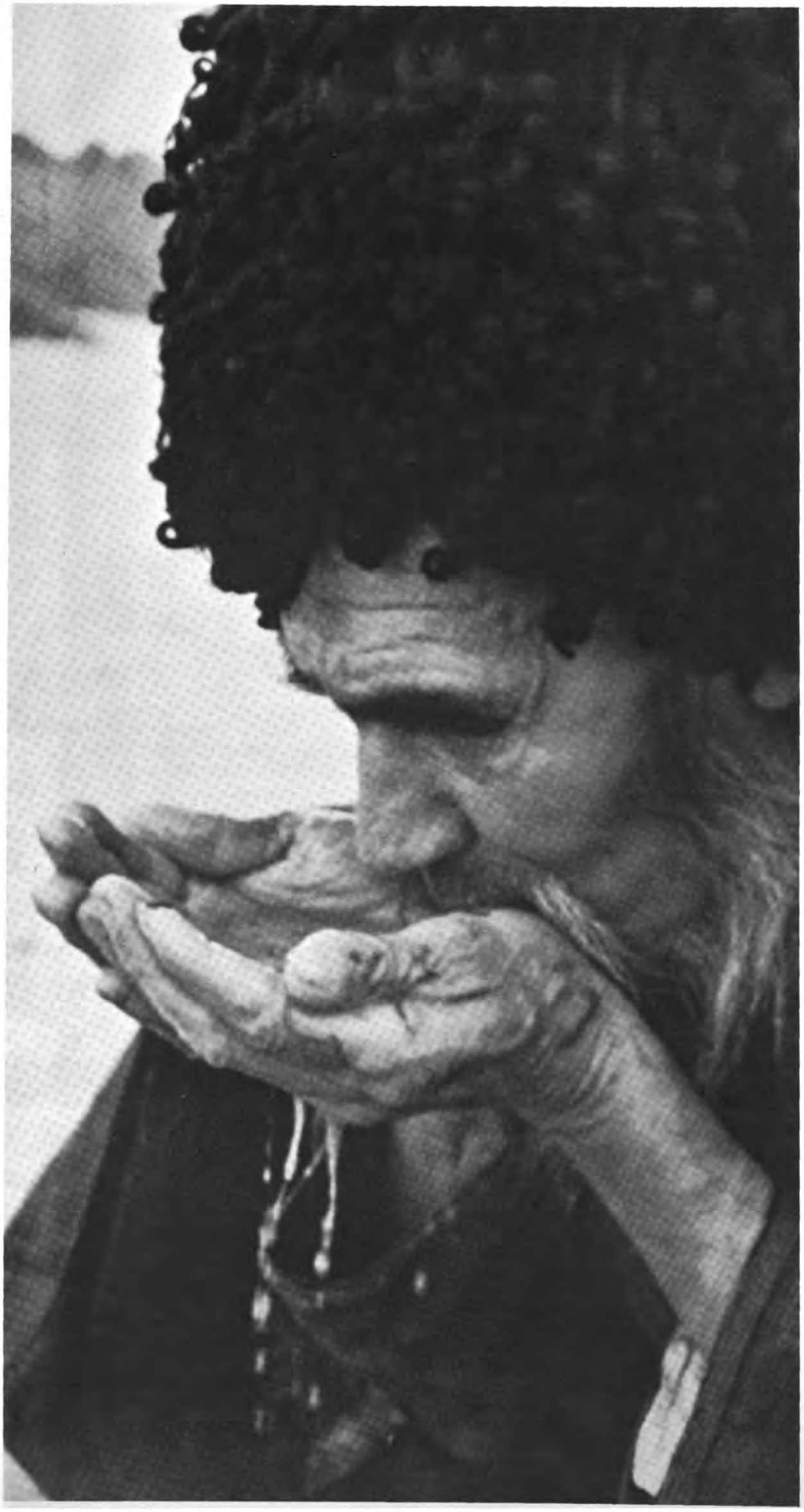
Then this question arose: Why spend decades of effort and great sums building canals to irrigate dead land when there were vast undeveloped and fertile areas in Siberia and when the developed areas could be so much more productive if they were worked more efficiently?

However, only in the deserts of Central Asia, chiefly in Turkmenia, is the climate hot enough to raise Egyptian cotton. Also, that is where apricots, mulberries, peaches, grapes, melons and many other southern crops thrive.

In 1940, large-scale planning and surveying was begun for a canal, and by 1947 the design was ready.

A Canal: Two Variants

Initially it was decided to build the canal from the lower reaches of the Amu Darya across the sand desert, making use of the Western Uzboi—the old bed of the Amu Darya—to the



Cotton picking on the newly watered plantations of Central Asia's Hungry Steppe is 60 per cent mechanized.

Fergana, in a valley that was semi-desert and salt marsh, is now one of the greenest cities in the country.

Steel ducts are laid in rock-hard land where irrigation canals are not feasible, as in the Vakhsh valley.

An orchard, a melon patch and sometimes vines behind the house are very common in Uzbek and Tajik villages.

city of Krasnovodsk on the Caspian Sea. That was the "Northern Variant."

In 1950 preparatory work was started with the delivery of materials and the construction of a dam.

The route of that canal was half the length estimated for the "Southern Variant." Besides, using the old bed meant a great deal of earthwork saved. But the trouble was that almost the whole canal would have to pass through quicksand that was no good for farming, and that water would be wasted en route. As for the areas to be irrigated, these were still almost uninhabited. They were to be developed in the future by settling about a million people.

With the "Southern Variant," however, the water could be used soon after construction was started to irrigate the areas along the canal, which were suitable for farming.

Having again weighed all the pros and cons, the designers decided to abandon the "Northern Variant." Thus, in 1954, construction of the "Southern Variant" was begun.

Irrigation—Two-and-a-half Million Acres

The canal is to be 898 miles long. It will deliver water to all Southern Turkmenia and to industrial areas in the western part of the republic. Beginning at the town of Kazandjik, the canal will fork: the northern branch will go to the irrigated lands and the towns of Western Turkmenia, the southern branch to the subtropics in the Atrek River valley and the western foothills of the Kopet Dagh range.

The canal will irrigate more than one million acres of land in the coming years. Ultimately it will irrigate two and a half to three million acres.

Amu Darya water is already flowing through 500 miles of the canal's three completed sections and has filled up a water reservoir built near Ashkhabad, the capital of the republic.

When the construction of the first section to the Murgab River was startetd in 1954, no one had ever built such canals in sand with machinery. The builders could not draw on the experience acquired in the construction of the White Sea-Baltic Canal, the Volga-Don Canal or the Suez Canal.

Input: Four Billion—Output: ?

The battle for water began.

First of all, there was not enough of it to provide drinking water and water for the machines. In the daytime the thermometer hit 122° Fahrenheit—machines could not operate. The wind raised clouds of dust and sand that clogged the moving parts—the machines had to be stopped and dismantled.

In 1958 water reached the Murgab Oasis. Five years of construction provided a great deal of experience. The second section was begun in 1960. It took only six months to build the 87-mile stretch to the Tedzhen Oasis.

But soon new problems arose. The biggest one was that the canal made the soil saline. As a result some lands could not be used at all. The trouble was due to the inadequate development of the system for draining the saline ground waters. Previously, the ground water level was low and there was no salination, and the builders did not have the time to build a new network. Now drainage work is in full swing, and the crop areas in these parts are steadily expanding.

The canal has brought water to Ashkhabad. The city's inhabitants now have a reservoir to swim in and water for their bathtubs. Each of them uses 106 gallons of water a day. Five years ago the individual ration was 20 gallons.

Southern Turkmenia's land development program is to be completed by 1980. The irrigation project and the cultivation of two-and-a-half million acres is estimated to cost about four billion rubles. However from 1963 to 1980 the land in the canal zone is expected to yield more than 7.5 billion rubles' worth of additional farm produce.

WATER AND FERTILE LAND

Soviet farmers work a variety of soils and in several climatic zones. Drought is an omnipresent threat in the sun-scorched steppes of Central Asia, in the Volga areas and in the North Caucasus. Many parts of the central non-black earth zones of Russia, Byelorussia, the Baltic republics and the Polesye region of the Ukraine get too much moisture. As a result, the average yields and the gross harvests of grain and other crops fluctuate sharply.

In the past decade the average yield of grain crops has been as high as 11.4 centners per hectare and as low as 8.3 centners. The gross harvest has ranged from 102.6 million tons to 152.1 million and State purchases have varied from 35.4 million tons to 68.3 million. This instability does neither agriculture nor the country's overall economy any good.

A most vital item in our farm development program is to improve soil fertility in all zones. Land improvement was the main item on the agenda of the recently held plenary meeting of the Central Committee of the Communist Party of the Soviet Union (May 25-27, 1966). It mapped out a ten year project.

The plenary meeting proposed that 7-8 million hectares more land be irrigated and 15-16 million hectares be drained. This will increase the total area of irrigated and drained lands to 37-39 million hectares, 2.5 times more than the present.

In the next five years 9 million hectares of meadow and pasture will be improved and 50 million hectares watered. Where will this work be done? For the most part, in places which have functioning irrigation and drainage systems. Collective and state farms will clear their lands of small forest growth, underbrush and stones.

There will be a good deal more water conservation work done in the Northern Caucasus, the southern part of the Ukraine, Moldavia, Kazakhstan and the Far East. Irrigation systems are to be built in the Volga areas and those in Central Asia and in the Transcaucasus expanded. Major scheduled projects include the Toktogul water reservoir with a capacity of 19 billion cubic meters, the Nurek Reservoir with 10 billion, the Chardarin with 5.7 billion, the Charvak with 2 billion, the Andizhan with 1.7 billion, and the Khuazkhan Reservoir with 1.6 billion. Big hydroprojects—the · Takhiatash, Kyzil-Ayak and the Kazalin among them—are planned. Land development in the Hungary Steppe and the Karakum Canal zone will continue. All this in the country's East.

Large scale improving will be done of lime soils in the non-black earth zone of Russia. Water and wind erosion prevention will be expanded and more forest protection belts planted.

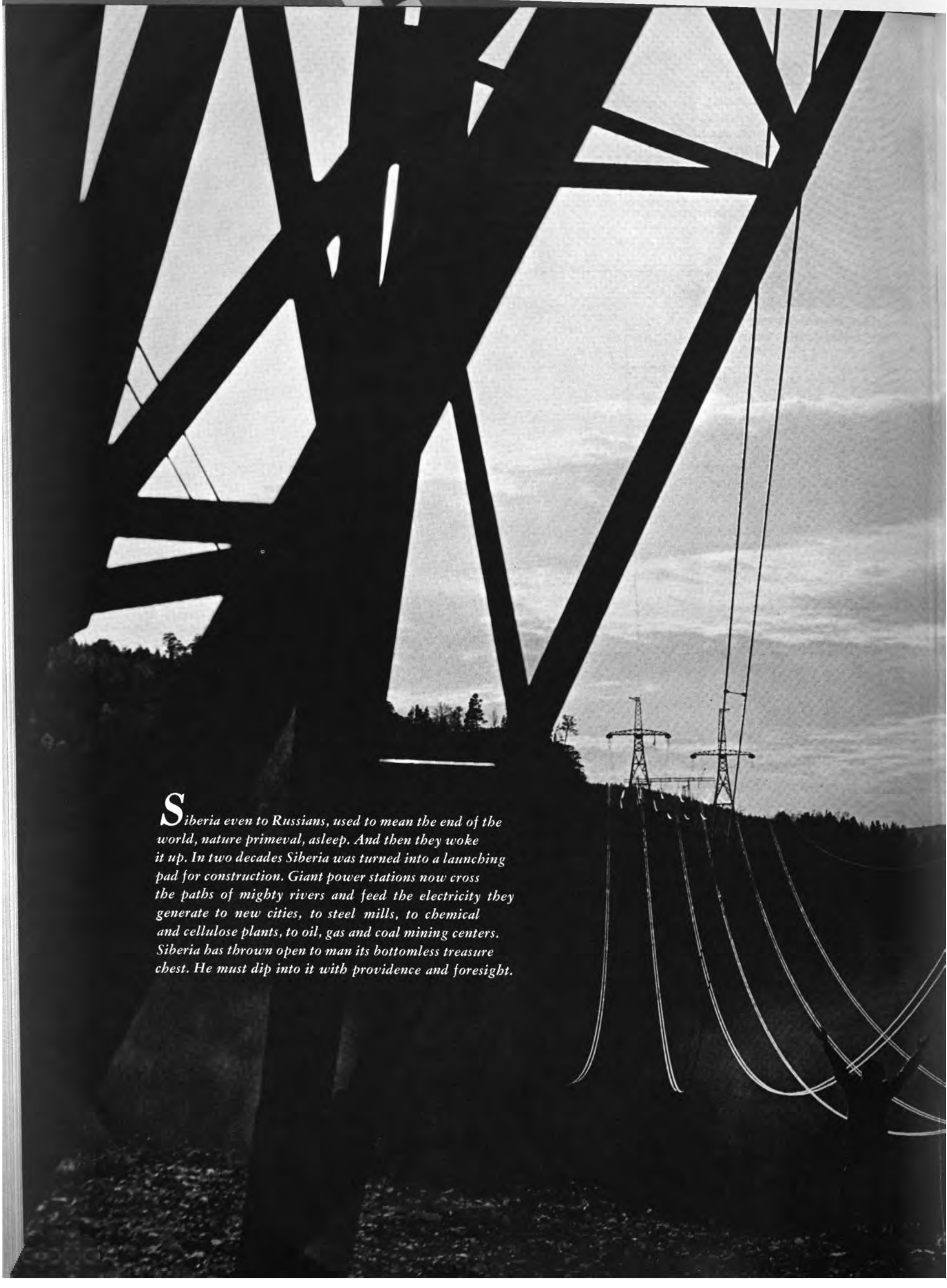
The funds, machines and man-power required will be made available. Some 15 billion rubles are to be spent for land improvement over the next five-year period, including the development of new lands. Water conservation projects will have the use of 32,000 excavators, 28,000 bulldozers, 18,000 scrapers, 10,000 tractors with a high cross-country capacity, 80,000 trucks and many other machines. Large construction industry plants are to be built in the irrigation and drainage zones.

The irrigation and land drainage program is expected to guarantee stable harvests of grain and other farm products. Now, we grow mostly cotton on our irrigated lands. We have had notable success with this crop. Our procurement agencies last year warehoused 5,660,000 tons of raw cotton. Uzbekistan's contribution was some 4 million tons, more than is grown by the United Arab Republic, Pakistan and Turkey combined. On the average Uzbekistan picked 24.2 centners per hectare, a higher yield than Mexico or the United States gets.

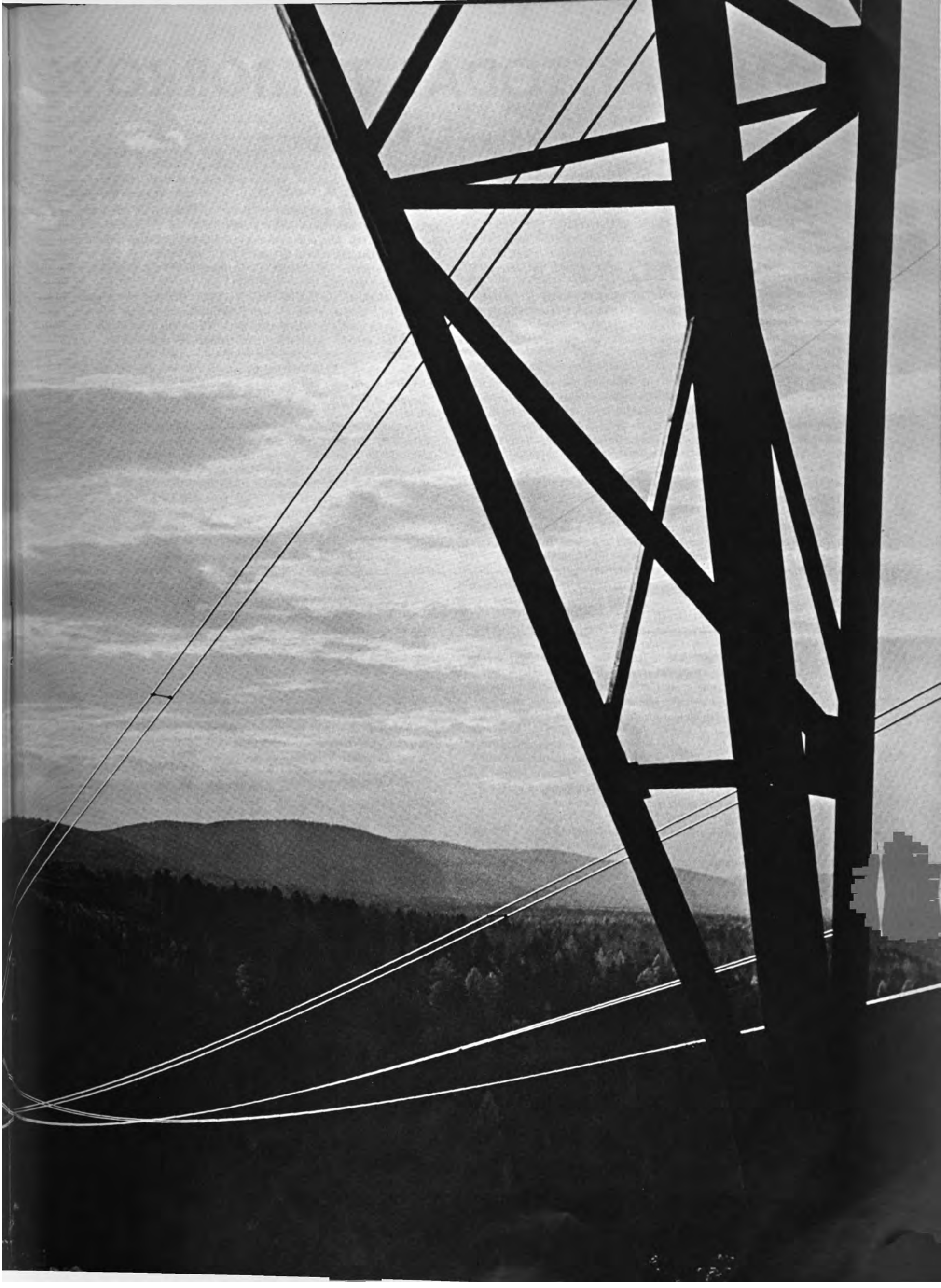
With no less attention to cotton, we plan to allot a big irrigated area for rice, wheat and maize primarily. By 1970 we expect that 25 per cent of our grain harvest will come from improved lands and in another five years we expect these lands to yield us 34-36 million tons of grain.

These figures are reasonable. They are confirmed by the experience of many farms in the southern part of the Ukraine, the Northern Caucasus and Moldavia. Some of those farms already harvest 50-60 centners of winter wheat per hectare of irrigated land.

The experience of certain northwestern farm districts where drained fields account for almost half the crop land, is additional corroboration. It is nothing unusual in these districts to harvest 25-30 centners of grain per hectare. Many farms in the non-black earth zone get high yields of potatoes, vegetables and grasses. The large-scale work planned for zones with bog land, it is estimated, should bring returns of some 14 million tons of grain, 3 million tons of meat and 30 million tons of milk from this area in 10 years.



Siberia even to Russians, used to mean the end of the world, nature primeval, asleep. And then they woke it up. In two decades Siberia was turned into a launching pad for construction. Giant power stations now cross the paths of mighty rivers and feed the electricity they generate to new cities, to steel mills, to chemical and cellulose plants, to oil, gas and coal mining centers. Siberia has thrown open to man its bottomless treasure chest. He must dip into it with providence and foresight.



YESTERDAY, TODAY, TOMORROW

Today: A Thirst for Perspective

By Vladimir Keler

I WOULD LIKE to begin this second installment* of my article with a few reminiscences of a visit to Princeton University.

We arrived in Princeton two hours after leaving New York. One minute we were rolling along a broad concrete highway in a bus, racing past factories and mills, and the next, or so it seemed, we were in a delightful chestnut grove.

The members of our group strolled off separately along the pleasant walks and shady lanes. I settled myself on the steps of a building to make an entry in my notebook.

Everything all around was cool and quiet. Through the trees I could see the buildings of the university.

My friends came up to me.

"Rutherford put the figure of a crocodile over the entrance to his laboratory," one of them remarked. "A symbol of science. The crocodile is the only animal that can't turn its head, so it can only move forward. The squirrel seems to be the animal favored here. They ought to make it the town emblem. It's a suitable symbol for science too—fast, insatiable, always on the move."

"I'll remember that for Dubna," said another. "We have squirrels there too."

Intrigued by the comparison, we began looking for other points of similarity.

Both beneath the chestnuts of Princeton and the pines of Dubna-on-the-Volga there is room for the creative mind to expand. In neither place do you feel awkward about saying to someone, "Excuse me, please. I'm busy thinking."

The chief product manufactured by both towns is ideas. They are produced at Princeton and at Dubna in the same way that Kostroma makes textiles and Hollywood makes movies.

We were later surprised and pleased to discover that not only the two towns but their people as well are alike.

They are unassuming and have a sense of humor. When I photographed the figure of an amusing old man in glasses with a book ornamenting one of the building fronts, I recalled the friendly jests and epigrams people in Dubna are always making up about one another.

I discovered that the contemporary scientific, technical and demographic revolution is just as much a conversation piece of Princeton intellectuals as it is of the Soviet scentists I know. For one thing, they are both discussing the problems posed by the population explosion. And although we and the Americans usually have different recipes for improving the condition of the earth's fast growing population, for the most part the views of both sides are anti-Malthusian.

The Shadow That Threatens from Afar

Is there any foundation for such optimism? Are there sufficient grounds today for an anti-Malthusian viewpoint?

It is a question worth looking into, for the Malthusians have grown much more active in recent years. They flourish statistics and estimates to prove their point. Sometimes their arguments seem to make sense.

Just what does an unbiased picture of population growth look like?

Of the 33 billion acres of the earth's surface (without Antarctica) only 3.2 billion acres, or less than 10 per cent, is now plowland, plantation and orchard. By developing virgin land, clearing and draining marsh-ridden areas, irrigating arid land, and making intelligent use of part of what is now jungle and forest, the cultivated portion could be very considerably enlarged.

How much? Opinions differ. The eminent economist Professor Fritz Baade, director of the Institute of Underdeveloped Countries in the Federal Republic of Germany, says by as much as 10 billion acres. Colin Clark of Great Britain thinks it could be 17 billion.

How densely is the earth populated?

If we take the 47 million square miles of the earth's surface that is suitable for habitation and divide it by the 3.3 billion people in the world, we obtain an average density of 70 persons per square mile. This is not much when you consider that population density in some European countries is 932 persons to the square mile.

To see how the population is going to increase in the next few decades, it may help us to take a glance backward. According to Louis and Mary Leakey, who did archeological digging in Tanganyika, a man-like being inhabited the earth some 1.8 million years ago. But we shall start from a much later time, the beginning of the Quaternary period, one million years ago.

This period can be divided into two approximately equal parts. In the first half million years (Lower Paleolithic, the ancient Stone Age) our ancestors gradually discovered work. The human brain was taking shape. The world's population then could be reckoned in tens of thousands.

By the end of this period the human brain had already developed. The Cro-Magnon race had appeared. There were hundreds of thousands of people in the world by this time, although probably less than one million.

This period, the Upper Paleolithic, lasted about a half million years, followed by the Mesolithic, the middle of the Stone Age. That was about 13,000 years ago. The earth was covered with glaciers which retreated, it is true, but then returned. It has recently been established that the last big glacial movement took place about 11,400 years ago. But a thousand years later the glaciers retreated for good. In the Mesolithic period man used the bow and arrow. From objective evidence we may assume that the earth's population was somewhere between one and five million. Ten thousand years ago it was between five and twenty million. Professor Baade puts the figure at 10 million. Let us strike an average of 12.5 million as the basis for further estimates.

Some 2,500 years later the world's population doubled for the first time, to 25 million. In 1,800 years, it doubled a second time, to 50 million. It was about then, around 2700 B.C., that is, that metallurgy made its appearance.

The population doubled for the third time, to 100 million, somewhere around 1300 B.C., and for the fourth time, to 200 million, at the beginning of the Christian Era. All researchers agree on the last figure, or something close to it.

Around 1200 A.D. there were about 400 million people in the world. That means that it took 1,200 years for the population to double for the fifth time. The sixth doubling, making the population 800 million, took place 600 years later, around the year 1800.

After that the rate of population growth rose sharply.

Only 90 years were needed for the figure to double for the seventh time, to 1.6 billion; that was around 1890. And in 1963 we had our eighth and latest doubling, when the population of the earth stood at 3.2 billion.

Hopeful Outlook

What is going to happen now? How many inhabitants will the world have by the year 2000? According to the latest UN demographic forecast (October 1965), approximately 7.4 billion. That means the ninth doubling will take place in the nineties, that is, in 30 years' time.

A table of the population increase would look something like this:

Year	Population *(in millions)*	Number of years it took to double
7000 B.C.	12.5	
4500 B.C.	25	2,500
2700 B.C.	50	1,800
1300 B.C.	100	1,400
0 A.D.	200	1,300
1200 A.D.	400	1,200
1800	800	600
1890	1,600	90
1963	3,200	73
1990's	6,400	30

What after that? Will the rate of growth continue to increase as it did for the tens of thousands of years of human history?

Certainly not. A simple estimate shows that to be incredible. Even if the rate remained what it is today, with the population doubling every

* The first: "Yesterday: The Rock-Bottom of Optimism" appeared in July.

30 years, it would still be beyond reason. After doubling 17 more times the population would reach all of 416 trillion somewhere around the year 2500. There would not be enough standing room on the earth's surface, even including Antarctica.

There is one striking fact about this table—the rapid rate at which the population began to grow in the nineteenth century.

For thousands of years the human race hardly increased in numbers.

It took many centuries for the world's population to double—as if the earth's capacity for human beings were being used to the full. Suddenly the capacity seemed to expand as decades instead of millenniums and centuries separated one doubling of the population from another.

The leap was perfectly normal. It followed from the great discoveries and inventions of the modern age.

We do not, unfortunately, know for certain whether there were leaps in the world's population growth in prehistoric times. But there are hints of at least one such leap. There is even an indication of when it took place—about 10,400 years ago, when the last glaciers retreated.

What evidence is there? For one thing, the complete absence of any traces of human habitation in Northern Europe, Britain and North America older than 10,400 years. Only in Southern Europe, the Mediterranean basin, for one, and in Asia Minor, the Middle East, the African continent and a number of other southern areas can we trace human life farther back into the past.

Some scholars believe there are no traces of man in the regions the glaciers passed over simply because the glaciers destroyed them. The argument is not very convincing. Could the ice have destroyed everything, down to the last stone axe and the last bone? Moreover, traces of man's presence could have been preserved in deep stone caves.

Excavations in various parts of the world give us good reason to believe that by the end of the last glaciation there were no more than five million people on earth. Beginning with 7000 or 6000 B.C. the world's population started to double every several thousand years or less. If the same rates applied before, it would be weighty evidence that man appeared not a million years ago but much later, about 100,000 years ago.

Since that runs contrary to all our scientific knowledge, it is clear that right up to the end of the glacial period the rates of population growth were much slower. Consequently, the leap in the growth rates took place soon after the final retreat of the last glaciers.

Rise in Fertility

How did it all happen? Most probably, something like this.

In the Mesolithic period the earth's population was no more than one or two million. Mankind had reached this total through a painfully slow evolution that took half a million years.

If we assume that at the beginning of the Upper Paleolithic period there were no more than 100,000 people on earth, the population doubled on an average of every 100,000 years. That continued until the end of the middle glacial period, at the close of which hardened mankind suddenly entered the warm, more salutary Neolithic period and began to multiply rapidly, so that the world's population doubled every thousand or every several hundred years.

We conclude from this that the earth's population did not grow evenly but by stages. Each stage had its growth rates and growth limits. Up to now there apparently have been at least three stages: the prehistoric, the historic and the modern. Each stage had its typical population capacity, which mankind filled as it developed. There would be a temporary equilibrium between the size of the population and living conditions. Then would come new conditions and another step toward the next typical capacity.

Apparently the population capacity typical of one stage could not be realized in another. For example, take the stage we call the historical. It began 9,000 years ago and ended at the close of the nineteenth century. This stage had a population capacity of about a billion people. In the previous, prehistoric stage, that many people simply could not have survived.

The typical population capacity of our stage is most likely from 35 to 40 billion. A lower figure is unreal. Mankind is not merely moving but flying toward that limit. To speak of a higher figure is premature. That is for the more distant future, the next stage.

True, some scholars believe that science has advanced to a high enough level to make the land feed very great numbers of people. Clark places the figure at 90 billion. The late Academician Abram Ioffe calculated that new growing methods would produce yields so high that an area the size of Moscow Region could feed the population of the whole world. Ioffe's estimates applied worldwide would give us the impressive figure of three trillion people.

Man does not live by bread alone, however. I do not believe we need to equate possible population capacity with possible grain harvest. It is quite likely that the better human society is organized, the more food will be planned per head of population. And not merely to give each person more and better food than his parents or grandparents had. The goal of all humanistic progress is abundance. Any food product that is good for man must be as abundant as air or water.

Relieving man of some of his material concerns would set his mind free to create and enjoy spiritual values.

In recent years scientists in various countries have been studying the population problem. The fact that some 500 papers were read at the Second World Population Conference in Belgrade in September 1965 shows how keen interest in the problem is. The conference was devoted, in great measure, to a search for solutions to the problem facing the underdeveloped countries. Many of the speakers expressed neo-Malthusian views, implying that population growth is a *biological* law and therefore extremely difficult to control.

That population growth is a problem goes without saying. It is, however, one of many problems, among them hunger, unemployment, widespread disease due to working conditions, the consequences of urbanization, illiteracy. These are not imaginary but very real problems, said Professor Boris Urlanis, prominent Soviet demographer. They may not exist at all in some countries, in some they are approaching, in some they are already knocking at the door, and in some they have already "entered" and are really making themselves felt.

In the second place, these problems are based not on biological but on *socioeconomic* laws. Biological laws operate through socieconomic laws that can exert a considerable influence on biological processes.

If, by applying common sense and scientific premises, we set a reasonable population limit in the contemporary world (until mankind takes off for other planets on a mass scale) at from 35 to 40 billion people, as we assume, or at some other figure, we could, by proper organization, painlessly regulate the increase in the numbers of people. "It is not a matter of 'planned quotas in child-bearing,'" says Professor Mikhail Kolganov. "The population can be regulated by a complex of measures. First, rational utilization of the earth's riches and an increase in soil fertility, crop yields and livestock productivity. The second important step is to replace agricultural raw materials with synthetic materials." Professor Kolganov also speaks of raising the cultural level of the population and making women more active participants in the life of their community and country. This is a precondition for conscious motherhood, when birth would no longer be merely a biological act, would always bring the parents joy, and would give every child the promise of a full, happy life. There are other steps as well, such as a natural drop in the birthrate through an increase in life expectancy.

The table below sums up what we have said about the three stages in population growth:

Stage	Years	Period of population doubling	Typical population capacity
Prehistoric	From one million years ago to 7000 B.C.	Hundreds of thousands of years	One million to three million
Historical	From 7000 B.C. to 19th century	Hundreds of years	One billion
Modern	From 19th century to sometime in the future	Decades	40 billion

Yes, there is a sharp jump from the length of one doubling period to the next, a leap from hundreds of thousands of years to, suddenly, hundreds of years, and then merely decades. But if this surprises you, recall how rapidly man, his entire life, his environment, changed in the transition from one stage to the next.

The idea of stages has little in common with the idea of a stream, so often used to describe man's evolution. A more appropriate comparison of population growth is the way a tree grows.

"Everything is always changing," said Heraclitus, "and it is impossible to step into the same river twice." In other words, it is a completely new stream all the time. But this cannot be said either of people, who bear the stamp of past generations, or of a tree, which has one and the same trunk.

Mankind is increasing in numbers more and more rapidly. But this is not the acceleration of an avalanche rushing irresistibly toward disaster. The evolution of man bears a greater resemblance to the growth of a plant that gathers strength in winter and flowers rapidly in spring. The trunk grows while the crown spreads and thickens.

Next: "Tomorrow: The Summit"

This could be a fitting symbol for the bitter conflict between civilization and nature, the symbol of man's unbridled whims and follies, his prodigal waste. We prefer another symbol, the white heron. And with that bird our story opened. With it began the fight in the very first years of Soviet power to preserve and multiply our natural wealth. We have not always stayed on the straight and narrow. But we have done much for which future generations will be grateful.

"Nothing in nature is separate from us, the slightest ripple in the air being a movement of our own life."

Ivan Bunin

SOVIET LIFE

September 1966 • 35 cents

AUG

Vyacheslav Zaitsev: A Russian Yves St. Laurent

POLAR TRAGEDY

On August 12, 1937, a large plane with a blue body and red wings took off heavily from a suburban airfield near Moscow, circled the city, and headed for Fairbanks. That was the start of Sigizmund Levanevsky's trans-Arctic flight. He never touched down in Alaska. The plane crossed the Pole, and 24 hours after take-off disappeared. Ships and planes flown by Russian and American crack polar pilots went to the rescue, but to no avail. The Arctic still keeps the secret of that ill-starred flight.

See pages 36-42.

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Front Cover: Fashions from the collection Vyacheslav Zaitsev will be showing next year at the Montreal world exposition.
See story on page 18.

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Editor in Chief (Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor (Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor (Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director (Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

Circulation Manager (Washington Editorial Board): Vadim P. Zaitsev, 1706 18th St., N.W., Washington, D. C., 20009.

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LETTERS TO THE EDITOR

WHAT ABOUT CRITICISM?

Dear Editor:

I always look through the Letters to the Editor section and believe it is the most interesing in the magazine. And no wonder. It is the echo of living contacts with those for whom the magazine is published. Yet it is surprising that the preponderance of the letters express complacency and praise. Some of them have more laudatory statements than there are toys on a Christmas tree. I cannot believe that the Americans do not write critical letters. Why don't you publish these?

I hope that you will publish my letter.

Sincerely,
Mkrtich Gevorkyan
Yerevan, Armenia

MORE FREE DISCUSSION

Dear Editor:

Congratulations upon your very fine presentation of the "Dialogue" concerning guilt and punishment (March issue).

Upon giving scrutiny to both content and structure of the article, I was happy to have my innermost suspicion confirmed: that some people here in the West are grievously incorrect in their assumption that important social questions are not openly and freely discussed in the Soviet Union. In fact, *if only* we in America had a few such similar dialogues, we might not continue to be plagued with perhaps the highest national crime rate in the world!

My hat is off to you, gentlemen, and please continue to enlighten us with more serious educational articles in the future.

Sincerely,
Arthur M. Maday
Ypsilanti, Michigan

CORRECTION

Dear Sir:

In your July 1966 issue under "Queries from Readers," the answer to one of James A. Barr's questions states that the Russian Federation is a separate member of the United Nations, as are the Ukraine and Byelorussia. This is not entirely correct.

Both the Ukraine and Byelorussia are UN members of course, but the Russian Federation (RSFSR) is not. The USSR, as such, is a member of the United Nations.

In general, I enjoy SOVIET LIFE and find it both interesting and informative. I do wish you would put a little more emphasis on musical events in the USSR, however, but that, obviously, reflects a personal bias.

Yours sincerely,
Paul H. Gottlieb, Ph.D.
Brookline, Massachusetts

You are absolutely right. Usually the Foreign Minister of the Russian Federation (RSFSR) is a member of a Soviet delegation to the UN General Assembly session. But unlike the Ukraine or Byelorussia, the Russian Federation is not a charter member of the United Nations.

See Queries from Readers in the May issue for more detail.

The editorial staff asks that our readers accept our apologies for this error.

Editor

A BETTER UNDERSTANDING

Dear Sir:

I like the format and the variety of the articles in SOVIET LIFE but I am particularly impressed with the quality, the humanity of articles such as Alexei Sharov's "Adults and the Child's World" in the July issue.

Thank you so much for the work you are doing toward a better understanding between our nations.

Harry C. Werner
Elizabeth, Pennsylvania

Dear Sir:

SOVIET LIFE is very helpful in learning to understand the Soviet Union and the Soviet people. I'd like to see more articles about the different regions of the Soviet Union and the different ethnic groups. The Soviet Union covers such a vast territory and so many geographical zones. Also, many people don't realize that the Georgians and Azerbaijanians are just as much Soviet citizens as the Russians in Moscow.

Norma Bold
Cohoes, New York

On page 48 of this issue we publish a picture story about the peoples of the Daghestanian Autonomous Soviet Socialist Republic.

Editor

THEATRICAL VISIT

BY NIKOLAI FIRYUBIN

DR. SAUL COLIN, director of New York's Carnegie Hall Theater Studio, visited the Soviet Union recently. Though his stay in Moscow was brief, three days, he managed to crowd in a great deal, thanks to the Institute of Soviet-American Relations.

He saw five productions in four theaters, spoke to some 30 theater people, including Professor Pavel Markov, directors Ruben Simonov, Victor Komissarzhevsky and Yuri Lyubimov, and actors Vasili Lanovoi, Mikhail Kozakov and Oleg Tabakov.

Dr. Saul Colin

He saw two of the Moscow Drama and Comedy Theater's productions—*Ten Days That Shook the World*, based on John Reed's book about the October 1917 Revolution, and *Antiworlds*, after Andrei Voznesensky's long poem of that name; the Vakhtangov Theater's *Cinderella;* the Yermolova Theater's *Goose Feather;* and a stage version of Ivan Goncharov's *An Ordinary Story* at the Sovremennik Theater.

Dr. Colin liked the productions. Although their styles of acting and presentation were different, he said, they had a common denominator, the quality of acting, "that basis—the method which Stanislavsky left us, the great heritage of the world today."

Speaking of the Drama and Comedy Theater on the Taganka, Dr. Colin said it was a workshop in the best sense of the word. He called the Vakhtangov production "dignified," and *Goose Feather* a "delightful comedy." As for *An Ordinary Story*, he thought it "a remarkable production," one that stirred not only him, a veteran of the stage, but also the rest of the audience, which he had observed closely.

Goose Feather, Dr. Colin commented, was written in the style of Aristophanes. He was not comparing it with *Lysistrata*. What he meant was that when Aristophanes wrote his *Lysistrata* and other plays, his contemporaries did not consider them especially significant. Centuries had to pass before Aristophanes' plays were recognized as great works of art. "The spirit of *Goose Feather* can be expressed in the phrase: *Castigat ridendo mores*," said Dr. Colin. "Its intent and result consists in criticizing and reporting . . . the relationship between the old and the young, teachers and pupils and parents. Both *Antiworlds* and *Goose Feather* contain a great deal of criticism and a little bit of strong irony—which is a healthy way to criticize what is happening."

Dr. Colin said that in America audiences were leaving the theater for the movies and television. But in the Soviet Union, he observed, it was hard to get tickets to many shows. For instance, reservations for tickets to the Theater on the Taganka had to be made three years in advance! The reasons, he said, were the "wonderful, interesting and alive" performances, the "moderate prices of tickets" (from one to two rubles—approximately one to two dollars), and the fact that there is "a great hunger in the Russian people for the theater."

Of the productions he had seen, he wanted to introduce Americans to the Drama and Comedy Theater's production of *Ten Days that Shook the World* and to stage *An Ordinary Story* in New York "if I can find, without breaking my neck, as talented an actor as Oleg Tabakov."

"Give us an organization of revolutionaries, and we shall overturn Russia!"
Vladimir Lenin

1861—1917: END OF THE CZARS

A reader from Chicago, Robert Shannon, writes: ". . . Every nation has not only its present, but its past. Kindly devote some attention to your people's past, since this will help us, Americans, to better understand your present."

To meet this and similar requests from readers, we begin a series on the past hundred years of our country's history illustrated with documentary photos. The century we cover begins with the 1860s, a particularly intensive period of development of the socioeconomic processes which led to the October 1917 Revolution and the birth of the new Russia, whose fiftieth anniversary we will be celebrating next year.

By Nikolai Smirnitsky

A TALL THIN-FACED MAN brought all his trunks to one room, roped them up and penciled the tags: "Mr. Abe Lincoln, The White House, Washington, D.C." As the President-elect crossed the country West to East, word came by telegraph that on February 18 in Montgomery, Alabama, to the jubilation of huge crowds, Jefferson Davis had become President of the Confederate States of America. Slavery fettered developing America. The country was to go through the forge of the Civil War to hammer away these fetters. Russia faced similar problems, but she solved them differently.

"Liberation from Above"

On February 19, 1861, in the St. Petersburg Winter Palace, Alexander II signed a manifesto which abolished serfdom in Russia. The reform had been planned like a military operation. Special government agents sent all over the country had been instructed to use force in case of any "trouble, disobedience or recalcitrance from the peasants." [1]

To many contemporaries of Abraham Lincoln Russia was a sphinx, with its own unique destiny. Indeed, Russia was still in the Middle Ages, which most European countries had left far behind after their bourgeois-democratic revolutions. However, history soon exploded the idea that Russia was unaffected by the general course of historical development.

No matter how heavy the oppression of serfdom, it could only hamper, not halt, the development of capitalism in Russia. Alexander Herzen, an enemy of autocracy who had been forced to emigrate, noted that the Russian landlord, "once a nobleman, became a factory owner, a plantation owner and a trader of white Negroes." [2] The reform, officially interpreted as evidence of the "wisdom" of autocracy, was actually a foregone conclusion.

The conflict between Russia's reactionary social system and nascent productive forces aggravated all the social contradictions. The position of the peasantry was unbearable. The landlords, aware that their unlimited ownership of serfs was about to end, worked them longer hours, grabbed the better lands and exacted additional fines.

The Crimean War (1853-1856), by exposing the imminent collapse of the entire economic and political system of serfdom, aroused general public excitement. After the war, in which Russia was defeated by Britain and France, the peasant antifeudal movement grew stronger.

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Around drafts drawn up by committees of noblemen, the government worked out a reform which gave some scope for the development of bourgeois relations and at the same time favored the nobility. It preserved many of the landlords' privileges and their sources of income. Serfs became legally free. They could not be bought or sold. They could marry without the landlord's consent, buy and inherit property and hire themselves out where they liked. However, liberated from bondage, the peasant was also liberated from the land. The greater part of Russia's peasantry was cheated; some 4.1 million acres were taken from peasants and handed over to landlords. The land left to peasants had to be redeemed at a price exceeding the actual value: 867 million rubles as against 544 million rubles. Ten years after the reform 23 million peasants owned 327.5 million acres of land and 15,000 landlords 190 million acres of land (900 magnates owned an average 82,500 acres each).

The peasantry was also burdened with heavy taxes. Of the 208 million rubles in taxes paid by the rural population, the peasants paid 195 million and the landlords only 13.

[1] *The Peasant Movement in 1861 After the Abolition of Serfdom*, Parts I and II, p. 4, Moscow-Leningrad, 1949. Russian edition.

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Following the reform, two classes began to emerge in the countryside: the rural bourgeoisie and rural proletariat. After the nobleman, the rich farmer was now master in the village. By the eighties more than 6,000 new landlords owned estates ranging from 275 to 27,500 acres.

In no country had the peasantry been so impoverished as in Russia following such an event as the Manifesto of 1861. A wave of peasant riots swept the country very soon after. These local outbursts could readily grow into a rebellion against the autocracy. The revolutionary democrats, led by author and critic Nikolai Chernyshevsky, wanted to assist the process. Late in 1861 they formed a secret society, Russia's first revolutionary organization. It announced its program: the land to the peasants and the autocracy replaced by the people's power. The leaders of this society thought the peasant revolution was imminent, but there was no uprising. The government put down isolated outbreaks in the countryside and bore down heavily on all revolutionary activity. In the summer of 1862 Nikolai Chernyshevsky and several other leaders of the liberation movement were arrested. Chernyshevsky was sentenced to 20 years of hard labor in Siberia.

The Czar Hunt

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"Give us an organization of revolutionaries, and we shall overturn Russia!"
Vladimir Lenin

1861—1917: END OF THE CZARS

A reader from Chicago, Robert Shannon, writes: ". . . Every nation has not only its present, but its past. Kindly devote some attention to your people's past, since this will help us, Americans, to better understand your present."

To meet this and similar requests from readers, we begin a series on the past hundred years of our country's history illustrated with documentary photos. The century we cover begins with the 1860s, a particularly intensive period of development of the socioeconomic processes which led to the October 1917 Revolution and the birth of the new Russia, whose fiftieth anniversary we will be celebrating next year.

By Nikolai Smirnitsky

A TALL THIN-FACED MAN brought all his trunks to one room, roped them up and penciled the tags: "Mr. Abe Lincoln, The White House, Washington, D.C." As the President-elect crossed the country West to East, word came by telegraph that on February 18 in Montgomery, Alabama, to the jubilation of huge crowds, Jefferson Davis had become President of the Confederate States of America. Slavery fettered developing America. The country was to go through the forge of the Civil War to hammer away these fetters. Russia faced similar problems, but she solved them differently.

"Liberation from Above"

On February 19, 1861, in the St. Petersburg Winter Palace, Alexander II signed a manifesto which abolished serfdom in Russia. The reform had been planned like a military operation. Special government agents sent all over the country had been instructed to use force in case of any "trouble, disobedience or recalcitrance from the peasants." [1]

To many contemporaries of Abraham Lincoln Russia was a sphinx, with its own unique destiny. Indeed, Russia was still in the Middle Ages, which most European countries had left far behind after their bourgeois-democratic revolutions. However, history soon exploded the idea that Russia was unaffected by the general course of historical development.

No matter how heavy the oppression of serfdom, it could only hamper, not halt, the development of capitalism in Russia. Alexander Herzen, an enemy of autocracy who had been forced to emigrate, noted that the Russian landlord, "once a nobleman, became a factory owner, a plantation owner and a trader of white Negroes." [2] The reform, officially interpreted as evidence of the "wisdom" of autocracy, was actually a foregone conclusion.

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A generation of revolutionaries familiar with working class life appeared in the seventies. Fitter Victor Obnorsky helped organize a North Russian Workers' Union. It was smashed and he was exiled to Siberia.

Pyotr Alexeyev, weaver, one of the leaders of a revolutionary group in Moscow, declared at his trial: "The intellectual youth will follow us. . . ." He was sentenced to hard labor in Siberia and was murdered there.

Stepan Khalturin joined the Narodniks after the North Russian Workers Union was broken up. He got work as a carpenter at the Winter Palace and tried to dynamite Alexander II. He was executed in 1882.

Georgi Plekhanov left the Narodnik movement when he concluded that its terrorist tactics were futile. In 1883 he organized the first Russian Marxist group, the Emancipation of Labor. A generation of Social Democrats were brought up on his writings. He later opposed the Bolsheviks.

Answering a Party questionnaire on his revolutionary work before 1917, Vladimir Lenin began: "1892-93, Samara. Illegal Social Democratic circles." Just out of the university, he began to practice law, but his real purpose was revolutionary activity. He soon led an underground Marxist group.

In 1896 informers reported that a revolutionary group calling itself the St. Petersburg League of Struggle for the Emancipation of the Working Class was operating in the capital. It was the embryo of the future Bolshevik Party, a merger of the Social Democratic circles in the city organized on Lenin's initiative. Though the people in this photo are young, they styled themselves "Old Marxists," and they were. They all had years of revolutionary experience and some had been in prison.

Narodism made these three assumptions: First, that capitalism in Russia was not a progressive process but was alien to the nation's tradition, a drag on its development. Hence, the wish to arrest the breakup of the patriarchal pattern. Second, that the Russian economic system in general and the peasant community in particular were unique, intrinsically Russian and valuable. Narodism believed communal land tenure was superior to capitalism and that the peasant was the communist principle personified. Third, that the intelligentsia constituted an omnipotent force that could turn the tide of history toward Narodism.

To revolutionize the Russian peasantry as soon as possible, the Narodniks, beginning with the spring of 1874 went "to the people." They settled in the villages. Alarmed by the scope of the movement, the government had the police alerted. By the end of 1874 some 1,000 propagandists had been arrested. All told, 2,500 Narodniks were tried between 1873 and 1879, among them 355 women.

The Narodniks soon realized that propagandizing the villages would not lead to revolution: the illiterate Russian peasant, dependent on the landlord and rich farmer, would not readily become a political fighter.

However, reprisals and failures did not break the will of the young revolutionaries. In 1876 the Narodnik organization Zemlya i Volya (Land and Freedom) was formed. After long debate on the aims and methods of struggle, the group which favored a political *coup d'état* by terror won out.

Terrorism had been used by Russian revolutionaries before, but in retaliation or for self-defense. Thus, Vera Zasulich shot Trepov, the Mayor of St. Petersburg, after an outrage perpetrated on her friends in prison. And when a revolutionary was executed, Zemlya i Volya retaliated with the assasination of the Gendarme Chief Mezentsev.

Now terrorism was accepted as a basic weapon. In August 1879 a conflict between the "terrorists" and "propagandists" split Zemlya i Volya into two independent organizations: Narodnaya Volya and Chorny Peredel (Black Redistribution — meaning the redivision of land to the peasants).

The nucleus of Narodnaya Volya was a group of professional revolutionaries led by Andrei Zhelyabov. A black-haired giant with a huge beard, bouyant and cheerful, he infected his comrades with his zest for struggle. Son of a serf peasant, he was admitted to the faculty of law of the University of St. Petersburg owing to his exceptional abilities. He never lost heart, and had Narodnaya Volya succeeded, he would unquestionably have been at the helm of the revolutionary government.

His closest associate was Sofya Perovskaya. A daughter of the governor of St. Petersburg, she ran away from home at 16 and joined the secret society.

Narodnaya Volya still hoped for a popular revolution but was aware that the peasant movement "for all the efforts of the party to support and organize it, cannot stand up against a well-armed enemy." It might seem that this admission was only one step from shifting the emphasis to another class, the proletariat, but Narodnaya Volya did not take that step. Instead, the plan was to seize power by a political conspiracy staged by professional revolutionaries whenever they were ready. A popular uprising would merely support the *coup d'état*. Nardonaya Volya thought the czar's assassination would rouse the dormant society and trigger off the popular movement.

Early in the eighties the duel between Narodnaya Volya and the autocracy reached its high point. The logic of terrorism pushed every other activity to the background. Dynamite was about to bring a hard but quick victory. On March 1, 1881, the czar hunt was over: Alexander II was killed. But the assassination did not trigger off an uprising. A state of siege was immediately declared in the capital. Troops cut off the working-class suburbs from the city center. A few days later gendarmes arrested the leaders of Narodnaya Volya. They were given away by one of the conspirators, Nikolai Rysakov. On April 3, 1881, Andrei Zhelyabov, Alexander Mikhailov, Sofya Perovskya and Nikolai Kibalchich were hanged in a St. Petersburg Square. Rysakov was also executed: his betrayal did not save him. Days before the execution Narodnaya Volya published a letter to the new czar, Alexander III. "We will stop the terror only if you meet the following conditions: political amnesty, political freedom, election of a people's assembly."

These demands were, of course, rejected. Narodnaya Volya, beheaded of its leaders, could not fight with the same vigor. The reactionaries went on the offensive.

Several years later, in April 1887, one of the last Narodnaya Volya

One of the thousands of hunger-stricken village communities of the time. Only charity kept the peasants alive. Of Russia's population of 125 million at the turn of the century, 97 million lived in the countryside. With unfailing regularity there was a crop failure every five years. The starving peasants abandoned their homes and went to the cities in search of subsistence. The cities were glutted with men who would work for a pittance.

groups was tried at a special session of the Senate. The conspirators were charged with preparing an attempt on the life of Alexander III. The police archives preserved the final speech of one of the defendants, Alexander Ulyanov. "I can attribute to my early youth that vague feeling of resentment which, penetrating more and more into my consciousness, led me to the convictions which guided me in the present case. However, it was only after a study of the social and economic sciences that the conviction that the existing system is abnormal took root in my mind, and the vague dreams of freedom, equality and brotherhood developed into strictly scientific and socialist (and no other) forms." [4]

Three weeks later Alexander Ulyanov and his four comrades were executed. Their last words were: "Long live the People's Freedom!"

A younger brother of Alexander Ulyanov, Vladimir Ulyanov, later known as Lenin, said at the time (he was still in school): "No, we will not take that road. The right road must be some other."

But what was the right road? This question had still to be answered by Vladimir Lenin and his future associates. They believed that Russian revolutionaries must be guided by the laws of social development formulated by Karl Marx and especially by his law that the working class is the mainstay of the socialist revolution.

[4] "Alexander Ulyanov's Speech at a Court Session, April 18, 1887." *First of March 1887*, pp. 289-293, Moscow-Leningrad, 1927. Russian edition.

Flame from a Spark

In January 1900 the newspapers were full of forecasts of the events likely to change Russia in the new century. One of these events was neglected by the newspapers but duly registered in the police files: "A prominent Marxist, Vladimir Ulyanov, arrived in Moscow on the expiration of his term of exile."

Since the trial of Alexander Ulyanov the police had been watching every step the family took and every line of their correspondence. Nevertheless, a handful of revolutionaries grouped around Vladimir Ulyanov worked vigorously for their cause.

In prison late in 1895 Lenin wrote with milk between the lines of a book a draft program for a future socialist democratic party, and in the summer of 1896 *Explanatory Notes on the Program*. His bride, Nadezhda Krupskaya, smuggled them out of prison. In his letters he urged that a party be organized as soon as possible.

On the morning of March 7, 1898, a man slipped into a house on the

outskirts of Minsk (today the capital of Byelorussia). Another man followed. Thus nine representatives of Russia's Social-Democrats met for their first congress.

They met in secret, held six sessions in three days and decided to pool all social-democratic organizations into a single Russian Social-Democratic Labor Party. But in two weeks the newborn party was smashed. The police arrested 500 active Social-Democrats in various cities. The member of the Central Committee who had not been arrested published the congress manifesto. It declared: "The Russian proletariat will throw off the yoke of autocracy to continue with still greater energy its struggle against capitalism and the bourgeoisie until the complete victory of socialism." [5]

Exiled to Shushenskoye, a tiny Siberian village, Lenin corresponded with associates all over the country, including St. Petersburg and Moscow. For him exile was part of the battle. He pondered on this problem: What was the first necessity in building an active Social-Democratic Party? His conclusion: An underground political newspaper. Published outside Russia and circulated by reliable people, it would rally social-democratic groups in factories into the Russian Social-Democratic Labor Party. The newspaper was to cover Russian and foreign events from the Marxist point of view, develop among all revolutionaries a single approach to social processes, teach them unity and organize them for struggle.

Upon his return from exile Lenin visited 11 cities, where he met underground workers and decided on secret codes and meeting places, aliases and the points where the newspaper would be distributed.

In July 1900 at a spot near Geneva, Lenin met members of the Russian revolutionary group Emancipation of Labor. They decided to publish a joint newspaper, *Iskra (The Spark)*, with an editorial board of Vladimir Lenin, Yuli Martov, Alexander Potresov, Georgi Plekhanov, Pavel Axelrod and Vera Zasulich.

The first issue of *Iskra* (December 1900) was printed in a village near Leipzig. To the left of the masthead title were the words "Russian Social-Democratic Labor Party"; to the right, "The spark will kindle a flame!" (from the reply of the Decembrists [6] to the poet Alexander Pushkin). The lead editorial in the first issue, "The Urgent Tasks of Our Movement," was written by Lenin. "Before us, in all its strength, towers the fortress of the enemy from which a hail of shells and bullets pours down upon us, mowing down our best warriors. We must capture this fortress, and we shall capture it if we combine all the forces of the awakening proletariat with all the forces of the Russian revolutionaries into a single party embracing all that is virile and honest in Russia." [7]

In January 1901 copies of *Iskra*, packed in bales and hidden in double-bottom trunks, were smuggled into Russia. They were sent to different addresses, stowed away in albums or pictures, carried by seamen or on horseback along mountain trails.

Though the illegal shipments of *Iskra* into Russia kept growing, the movement grew even more quickly, and so did the demand for the newspaper. In issue No. 7 a weaver said, "I showed *Iskra* to so many comrades that the issue is all worn out, but we still value it!"

Lenin wanted to print the newspaper in Russia too. His associates set up underground presses in Kishinev, Moscow, St. Petersburg and Nizhny Novgorod. In the summer of 1901 another *Iskra* press made itself known in Baku. Its underground name was "Nina" and that of its organizer, Georgian Social-Democrat Vladimir Ketskhoveli, was "Nina's father." It was an underground press in the most literal sense of the word. A house was rented and a cellar for the press dug out under it. For two years the police found newspapers and leaflets "Nina" printed not only in the South but in the Ukraine and in Moscow as well. But they could not track the press down. Maxim Gorky, a famous author by then, helped *Iskra* actively.

No. 18 of *Iskra* (March 1902) announced Lenin's book *What Is to Be Done?* which dealt with such urgent problems as the attitude Social-Democrats should take to the spontaneous working class movement, political propaganda and the establishment of a revolutionary organization. These problems had originated when two positions on the working class movement took shape among Russian Marxists. At the time hardly anyone realized that the position which argued for purely economic struggle diverted social democracy from revolutionary Marxism to trade unionism.

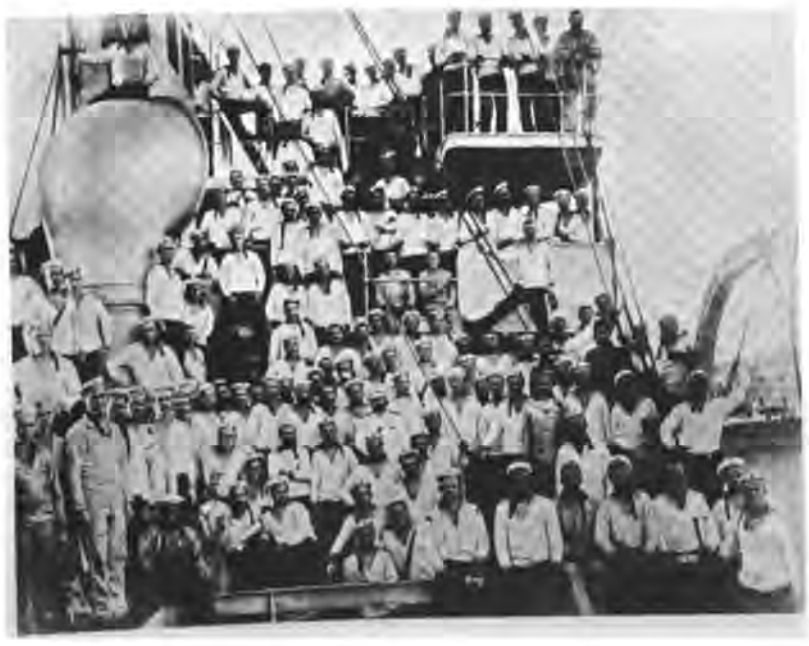
West European Social-Democratic parties committed to purely economic struggle developed as a rule under bourgeois-democratic conditions. The party of the Russian proletariat, on the other hand, was growing under harsh reprisals. With this in mind, Lenin put forward an unusual plan for a Marxist party in Russia. The underground working-class party was to consist of two sections. Its backbone was to be made up of a comparatively small circle of professional revolutionaries. They might be intellectuals or workers, but they had to be people with strong convictions, good theoretical grounding, political experience, organizational talent and the ability for underground work. The other section was to be comprised of the widest possible network of local groups, the growing membership at factories.

[5] *The First Congress of the Russian Social-Democratic Labor Party: Documents and Materials*, p. 80, Moscow, 1958. Russian edition.

[6] A group of young people, most of them army officers, who planned an uprising against Nikolai I for December 14, 1825. Five of their leaders were executed and more than a hundred exiled to Siberia.

[7] Lenin, *Complete Works*, Vol. IV, pp. 376, 377, Moscow, 1959. Russian edition.

The revolutionary ferment spread to the armed forces. The Black Sea Fleet had an organization led by the Bolsheviks. In June 1905 the crew of the battleship **Potemkin** mutinied, raised the Red Flag and headed for Rumania. In the fall the men of the cruiser **Ochakov** (in the photo) joined the revolution. They rejected an ultimatum, exchanged shots with the Sevastopol fortress and abandoned ship only when it was a mass of flames.



Under Bolshevik leadership, the workers in many towns and cities formed fighting squads. In December 1905, when the government tried to break a general strike by force, they threw up barricades. One bourgeois paper reporting the events in Moscow said: "Gunfire does not stop. . . . The fighting squad has become a hydra. Two new heads appear for each head chopped off." Guard regiments were rushed from St. Petersburg.

On the morning of January 9, 1905, a procession led by the priest Georgi Gapon marched to the Winter Palace chanting prayers and carrying icons and pictures of the czar. Though they came in peace to present a petition, they were met with violence by a volley of bullets. Cossacks rode their horses into the crowd. Over 1,000 people were killed and 5,000 wounded. This was the "Bloody Sunday" that ushered in the First Russian Revolution.

To beat down any protest against autocracy, poverty, national oppression, the czarist-inspired "Black Hundreds" broke up demonstrations, murdered revolutionaries and incited religious and racial conflict. In Baku Armenians and Turks killed each other in a bloody massacre. The "Black Hundreds" led pogroms. "Groups of young men, including police, grabbed Jewish-looking men, women and children," reported one eyewitness.

The men in this photograph, hierarchs of the Russian Orthodox Church and members of the Holy Synod, were the real power behind the Russian throne. Besides their religious functions—appointing a great army of priests and overseeing the many seminaries and religious instruction in all schools and universities—they wielded enormous influence. No government decision of any moment was taken without their express sanction.

On July 20, 1914, Nikolai II declared war on Germany amid the ringing of bells and the thunder of ovations. Patriotic parades converged on the Winter Palace, monarchist organizations professed their loyalty in a deluge of telegrams, the newspapers wrote of "the union of the czar and the people," and the landowners and commercial interests organized for a quick victory. The initial success in the field seemed to bolster their hopes.

Grigori Rasputin, known for his "healing" powers, was brought to the court by the czarina to cure the heir apparent of hemophilia. The royal favor gave him great personal power. He had a finger in every affair of state and placed his cronies in high offices. He was assassinated by a group of courtiers fearful of his growing influence. This was one of the last pages in the chronicle of court intrigue and conspiracy.

In the summer of 1902 *Iskra* published a draft program for the Russian Social-Democratic Labor Party. Few people knew how much it had cost Lenin to reach an agreement with Plekhanov and Axelrod on crucial points of the program. Lenin had insisted on the leading role of the proletariat in the revolution, the proletarian orientation of the Party which must be the vanguard in a working-class movement.

One after another Social-Democratic local adopted the *Iskra* position. Early in 1903 more than 30 committees of the Russian Social-Democratic Labor Party declared *Iskra* their leading organ. A sponsoring committee was set up to call the Second Congress of the Party. It was held in the summer of 1903 in Brussels and then in London, the 43 delegates representing 26 Russian Social-Democratic groups.

The Congress was to endorse the first program of the Russian Social Democratic Labor Party and its Rules, decide on uniform tactics for the struggle against the autocracy and elect a Central Committee. It was, as Lenin said, to set up a "genuine party on those principles which *Iskra* had developed."

The debate at the Congress revealed a split between the Bolsheviks, Lenin's supporters, and the Mensheviks, his opponents. (Bolshevik comes from the Russian word bolshenstvo, which means majority, and Menshevik from the Russian word menshenstvo, which means minority.) Nevertheless, Lenin was satisfied. He had written: "Give us an organization of revolutionaries, and we shall overturn Russia!" And here was an organization of revolutionaries.

An opponent of Bolshevism, Nikolai Valentinov, writes in *Meetings with Lenin* that he was struck by Lenin's firm belief that a social revolution was inevitable in Russia. "Can you really believe," said Valentinov to Lenin in March 1904, "that a socialist revolution will soon break out in Russia? All the rules of Marxism say that for a long time to come there is no possibility for a revolution in Russia. Anyway, neither you nor I shall live to see it."

"Let me tell you," said Lenin, "that I am convinced I will live to see a socialist revolution in Russia." [8]

The defeat of the First Russian Revolution (1905-1907) when thousands of supporters of the young Social-Democratic Party were shot and imprisoned did not shake Lenin's conviction.

Perish or Move Full Steam Ahead

There is ample evidence to show that all great turning points by which nations have risen to a higher stage of national development were revolutions. There is also ample evidence to show that a nation or most of it does not launch a revolution because someone wants it to or because of some abstract idea, no matter how attractive. This is how Lenin expressed it: "Revolutions are not made to order, nor can they be timed for a certain moment, but mature in the process of historical development and break out at a time conditioned by the whole complex of internal and external causes." [9] Of course, this applies to the Russian revolution also.

On the eve of the Revolution in Russia two major classes stood opposed: the bourgeoisie and the proletariat.

The numbers of Russian bourgeoisie in 1917 cannot be gauged accurately because of incomplete statistics. Indirect evidence is furnished by commercial and industrial data. The big bourgeoisie owned 14,000 commercial and industrial enterprises, the middle bourgeoisie 199,000 and the petty bourgeoisie 1,155,000. The number of persons who belonged to the merchant estate shortly before the war ran close to one million, according to some estimates, and the bourgeoisie as a whole (including members of their families) totaled six million persons.[10]

Power, as you might expect, was in the hands of the finance capitalists. The list of financiers was headed by Alexander Putilov, president of the Russian-Asian Bank. This smallish, inconspicuous, negligently or even shabbily dressed man owned wholly or in part 44 industrial and transport enterprises; he was one of Russia's richest men. Alexander Vyshnegradsky, president of the Petrograd International Bank, ran a close second and was matched by the Nobels, the oil kings. The fortune of Mikhail Tereshchenko, later a minister in the Provisional Government, was estimated at 60 million rubles, and that of Savva Morozov, textile king, at close to 120 million rubles. The personal wealth of Nikolai II can be gauged from the fact that his annual income from the enterprises he controlled reached 125 to 150 million rubles.

A characteristic of Russian capitalism was its high concentration. Before the First World War the monopolies of all types (cartels, syndicates and corporations) controlled the key industries, raw materials, commerce and even farming. Large banks accounted for more than three-fourths of loan capital and exceeded British and German banks in their concentration of capital.

Thus, Russia was mature enough for the transition to socialism as far as concentration of industry and finance was concerned.

Politically, the Russian bourgeoisie was most reactionary. Its major party, the Constitutional Democrats, was liberal, in the main, but essentially blended with the Monarchists. A vital element in the destiny of the Russian bourgeoisie was the lack of that moral and political prestige which the West European bourgeoisie had acquired either as leaders of bourgeois-democratic revolutions, as organizers of industrial development or as architects of world empires.

The Russian bourgeoisie could least of all attract popular support. As Georgi Plekhanov aptly noted, the Russian bourgeoisie "developed lungs which require the pure air of political self-government but at the same time still had gills which continued to breath in the turbid water of

[8] Nikolai Valentinov, *Meetings with Lenin*, pp. 150-151, New York, 1963.

[9] Lenin, *Complete Works*, Vol. XXVII, p. 506, Moscow, 1962. Russian edition.

[10] Pavel Volobuyev, *The Proletariat and Bourgeoisie of Russia in 1917*, p. 43, Moscow, 1964. Russian edition.

The czarist government, believing the war would be short, had only four months' supplies on hand. In the spring and summer of 1915 the Russian army suffered one setback after another. The soldiers were poorly equipped and trained. They were hungry, demoralized, did not trust their officers, refused to obey orders. They did not know what they and millions like them were dying for. The toll of the dead, wounded and captured was 3.5 million.

decaying absolutism." [11] The "gills" were the economic and political vestiges of serfdom the bourgeoisie used in their own behalf. Abundant and cheap manpower, oppression of the working class by the autocracy, large opportunities for brutal exploitation—all this yielded a rate of profit which was double and triple the European rate. On the other hand, fear of revolution prompted the bourgeoisie to seek protection from the autocracy.

The working class of Russia was a powerful and independent revolutionary force. Large-scale industry and transport were located in several relatively small areas—Moscow, St. Petersburg, Baku, the Donbas and the Urals. This is where the proletariat was concentrated and the entire course of the country's development was decided. It compensated for the relatively small numbers of workmen (only 15 million, 10 per cent of the country's population).

Several factors contributed to the stable composition of Russia's industrial proletariat: agrarian overpopulation, a perpetual stand-by army of unemployed, the difficulty of vertical movement to more privileged strata, the predominance of large-scale production, among other things. These conditions forced the Russian workers to organize.

The working class as a political force had another advantage over the bourgeoisie: until the First World War its numbers grew more rapidly. The explanation was the foreign capital invested in such industries as metal-making, fuel, electrical engineering. As a result the concentration of labor in these industries ran as high as 400,000 persons. The investment of native capital, on the other hand, was relatively small.

Politically, Russia's working class was highly revolutionary. By 1917 the Russian proletariat was perhaps the only one in the world working-class movement which had so rich a body of experience in open class struggle and mass revolutionary activity.

When Lenin was in France, he called on Marx's son-in-law, the well-known socialist Paul Lafargue. The conversation turned to Marxist propagandizing by Russian Social-Democrats in workers' societies.

"What happens in these societies?" Lafargue asked.

"The workers study Marxism."

"Do they read Marx himself?"

"They do."

"And understand him?"

"Yes."

"Well, here you are mistaken," noted Lafargue skeptically. "They understand nothing. In our country they don't understand Marx after 20 years of a socialist movement."

However, what Lenin said was true. The Russian proletariat was more mature politically than the proletariat of any West European country. A young class (since Russian capitalism was young), the proletariat was free from the burden of guild and trade-union traditions and of reformist illusions.

The worker's position in Russian society made him a natural ally and a center of attraction for all the oppressed and discontented. There were many such people in Russia, more than in any Western country. They included the millions of peasants suffering from the exploitation of landlords and lack of land, the non-Russian nationalities that the czarist empire had shorn of all rights, sections of the urban petty bourgeoisie and most intellectuals oppressed by the police regime.

Under czarism Russian workers had no opportunity to organize mass trade unions. Nevertheless, they constituted a politically well-organized class. Against tremendous odds they created a party of a new type, the Bolshevik Party. During the First Russian Revolution (1905-1907) they set up Soviets, destined to be the elements of a new type of government, and thus demonstrated what they were capable of. All this made the Russian proletariat the leader of the revolutionary-liberation movement.

There was not a single problem of importance on which the interest of the Russian proletariat and the bourgeoisie did not clash. The country's destiny hung on the struggle between the two classes. As Lenin wrote in the critical days of the autumn of 1917, history posed this alternative: "To perish or move full steam ahead." [12]

[11] Georgi Plekhanov, *Selected Philosophical Works*, Vol. I, p. 224, Moscow, 1956. Russian edition.

[12] Lenin, *Complete Works*, Vol. XXV, p. 338, Moscow, 1961. Russian edition.

To follow: "February 1917."

YESTERDAY, TODAY, TOMORROW

Tomorrow: The Summit

By Vladimir Keler

VEGA is one of the brightest ornaments of our nocturnal sky. That star has special importance for us inasmuch as the sun and its brood of revolving planets have been flying toward it for countless ages. Every second brings us 12 miles closer to Vega.

The star patterns of our sky will alter as hundreds of milleniums pass. The constellations will change their shapes, for the stars will part before the sun like underbrush before an automobile speeding through a forest. Mankind will continue to struggle and make love under different skies, but Vega will lie ahead—like a cherished aim. Its rays will still be leading the sun on half a million years from now.

The Star of the People

There is another guiding star—the star of the people certain of the golden age ahead.

Some of us are left breathless by the speed with which new developments are taking place in our day. Much has been said, for instance, about the tremendous growth of scientific information. A well-known American physicist calculated that if the size of *Physical Reviews*, the leading American journal of physics, continued to grow at the rate it has from 1945 to 1960, it would be bigger than the earth by the next century. His calculations are probably correct, but those who are terrified by them, who see them as a blind alley to progress, are profoundly mistaken.

Their fear is based on the misconception that development proceeds only along quantitative lines. They lose sight of the fact that every completed cycle must inevitably alter its quality.

Delving further into a blind alley of logic, some people say that science keeps narrowing the areas of specialization, that we are coming to a pass where scientists will soon know just about everything about nothing. Fear has also been expressed that the training period will have to be extended out of all reason if people are to learn enough to do competent scientific research. Some people are saying, "The more capable a man is, the longer he should study!" Others have argued themselves into the notion that science will soon disclose everything and will have exhausted its potentialities forever (the saturation theory).

Actually things are much more promising.

The search for and assimilation of information will be helped along by better and better electronic computers. The creation of such machines operating at the rate of hundreds of thousands and millions of calculations a second are already the order of the day. It is probable, too, that even a billion operations a second will by no means mark the limits of the automatic systems of the future. We are already at the birth of "intellectronics"—machines performing certain kinds of intellectual work: proving intricate theorems, evolving formulas, constructing generalizing theories, and so on. The intellectronics of future decades will not demean man. Quite the contrary, they will leave him more time for hard thinking and subtle pleasures while developing their own fantastic potentialities.

Nor should we lose sight of another important prospect. As we know, the process of man's reception of information is several times slower and that of his delivery of data and commands scores of times slower than his brain's logical process of assimilating information. Scientists are already working on a device for accelerating the receptory and delivery processes of man's thought and nervous psychic activity. These devices are controlled through biocurrents and will probably come to be as common as binoculars or spectacles are today. Optical instruments augment inadequate vision many times over, bionic devices will do the same for the mind, or rather, for its operation.

The fear of overspecialization and unduly prolonged schooling will fade with the development of intellectronics, "the binoculars for the mind," cybernetic devices, and simply with the heightened culture of the individual, an altogether natural development for a really civilized society. Narrow specialization is essentially a children's ailment in man's mental growth and will vanish without a trace once people have attained true maturity.

The saturation theory too is groundless, for cognition is inexhaustible and limitless by its very nature. That is why there can never be any limits to the growth of knowledge.

That Is How It May Be

The progress of scientific and technical thought does not imply merely that it has served as a beneficial mainspring copiously precipitating growing quantities of material values, but also that it has been undergoing evolution. One cannot visualize the future without weighing the evolution of ideas.

What are our contemporaries preparing for their children and grandchildren? Can we name the achievements in science and technology we may reasonably expect in the next decades? Can we say that this will be invented before 1970, that before 1980, a third by about 1990, a fourth at the turn of the century, and that such and such accomplishments will grace the twenty-first century?

Visualizing the future is possible in a general way, I think. But we can only say: "That is how it *may* be tomorrow" and not "That is how it *will* be."

Eyeing the perceptible trends of ideas, we can guess that the coming decades will bring us something of the following in discoveries and inventions.

Before 1970

A monumental offensive will be launched against cancer, that fearful scourge of mankind. Following on the pattern of the International Geophysical Year and the International Year of the Quiet Sun, we will organize an International Year of Public Health and Medical Research. The joint efforts of scientists will evolve—if only in a preliminary form—a theory on the origin and the conditions of the development of cancer.

Thanks to this kind of fight against disease and to better living conditions, the average span of life will reach 75 years.

Man will land on the moon.

Geophysicists and geologists will enrich our knowledge of the earth's

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The two earlier articles in the series are "Yesterday: The Rock-Bottom of Optimism" in July and "Today: A Thirst for Perspective" in August.

crust and penetrate the upper mantle beneath it. That will be done through two very deep drilling projects, one Soviet and the other American.

We already have quite a few electronic machines translating books from one language into another. These machines still need a great deal of improving, the quality of their translation leaves much to be desired. We can anticipate that this will be done in the next few years to give us precise machine translation.

We have no reliable means so far for predicting weather, especially over long periods. Important developments in weather forecasting are now in the offing. A new and complex method will make a precise enough science of forecasting to give us the weather for several weeks ahead.

The Soviet zoologist Boris Astaurov made a phenomenal discovery in the most abstruse sphere of life, the laws governing the reaction of sex genes to heightened temperatures. His discovery offers the possibility of influencing the sex of an organism. Astaurov's idea may soon be put to work regulating sex in animal breeding.

With the recent discovery of element 104 we now know 92 elements available in nature and 12 (the transuranium elements, as they are called) synthetically produced. A search is under way for heavier elements. The heaviest chemical element will probably have a number in the neighborhood of 120. We may expect to see all the gaps in the Mendeleyev table filled in the next few years.

Up to 1980

The mark of this decade will be the great achievements in medicine. Cancer will be checked, and the major cardiovascular diseases eliminated. The average life span will be 80 to 85.

Scientists and engineers will finally fathom the secret of the durability of hard materials. Work will begin on the production of test metals with a durability scores of times greater than present metals.

Automatic devices will be soft-landed on Venus and Mars to collect information about these planets nearest the earth. Detailed charts will be compiled of both.

Power will be transmitted in large quantities without wires. Electric power will be stored up in suitable warehouses.

Initial practical use will be made of rockets with atomic engines.

A universally accepted theory of the origin of the earth and the solar system will be formulated.

Peaceful uses will be found for rockets. They will carry mail and various other cargo. Supersonic passenger planes will fly between the farthermost points of the earth.

Wide uses will be found for thermal elements, directly transforming thermal into electric energy.

Up to 1990

Man will land on Venus and Mars.

A general theory of elementary particles will have been formulated by then, and man will penetrate into the ultramicroworld, the world that is "simpler" than the world of elementary particles.

The dream of controlled thermonuclear power will be realized in practice; and the first thermonuclear stations will be generating power.

An entirely new source of power will be discovered—one superior to and more promising than controlled thermonuclear reaction.

The number of synthetic chemical substances will reach a billion.

All five "worlds" of nature—the ultramicroworld, the microworld, the macroworld, the stellar world (objects as far away as a million light years) and the megaworld (objects more than five million light years away) will be explained by a unified theory of physics.

Up to 2000

Though the world's population will be 7.4 billion by the turn of the twentieth century, at least three times as much food per capita will be raised as today.

The average span of life will be 90 to 100 years. Comfortable and well-arranged towns and factories will be built on the sea bottoms to tap their untold wealth.

Cosmonauts will set up the first science center on the moon.

The code of heredity will have been deciphered, and directed heredity will be general. The first synthetic animals will be created.

Synthetic food factories will be built.

The building materials industry will be producing superdurable materials.

Automatic devices will be soft-landed on all the planets of the solar system. With the information thus gained, scientists will be able to compile precise charts of all the planets.

Odors will be transmitted over great distances.

A basically new neutrino astronomy will be developed, an astronomy based not on electromagnetic waves, but on the minute particle, the neutrino. This new astronomy will give us our first look into the innermost depths of the stars, X-raying them, as it were, and a universally recognized theory will explain their internal structure and processes.

In the Twenty-first Century

An all-world board for the control of scientific and technical progress will have been organized by then to provide for intelligent and well-regulated development.

Automatic devices will fly beyond the solar system and reach other galaxies.

We will have penetrated to the core of the earth, and the inside of our planet will no longer be *terra incognita.*

We will contact other civilizations of the universe if there are any, or else we will find that ours is the most highly organized form of life in the visible part of the universe. My feeling is that the second possibility is the more likely, for if the universe had any other creatures more advanced than we are by even a millenium, it is hard to see why they have not found and contacted us by now.

Man will reach the surface of the sun in superfireproof spaceships.

The first devices will be invented to control the waves of gravity, nature's most mysterious force thus far.

All the senses, including taste and touch, will be transmitted across great distances by signals of some kind.

Hereditary memory will be revived. With new devices and more knowledge of the laws governing the accumulation of information (to be conveyed through desoxyribonucleic acid molecules) people will awake to their past and remember what their forefathers lived through and saw hundreds, thousands and perhaps millions of years back.

Uncreative work will be done entirely by machines, and mankind will turn into a great creative society completely gratifying its intelligent needs and tastes.

Matter will be found to exist in forms besides substance and field.

Drought and flood will be eliminated, and the riddles of hurricane, volcanic eruption and other elemental catastrophies will be solved.

Synthetic life will be created for scientific uses. At first plants and then fauna will be created without embryonic development.

Personal mortality will no longer be a tragedy. If wanted, life will be continued for any period, even centuries.

New space rockets will fly at speeds approximating the speed of light.

Man will fly to other planetary systems.

Superintelligence will be general and will keep rising to continuously higher levels.

Besides the usual means of communication, people will be using devices for telepathic communion.

* * *

That is how our world may look before very long. Though life and its accidental currents may change something here and there, I think that my picture is generally accurate.

Whatever the world of tomorrow may be like, however, we can be sure it will be the sort of world people have been striving toward for milleniums—a just, rich, very livable and interesting world.

AROUND the COUNTRY

LABORATORY ON A FLOE

A new and lugubrious radio call has been coming over the air waves recently, "UVY-3," which translated into English means Alas-3. The melancholy is purely alphabetical, however, these are the call letters of a research camp on an ice floe. It is drifting to collect data on the habits of the Greenland seal. The expedition was organized by the Arctic Institute of Fish Economy and Oceanography.

The beautiful, soft fur of the young Greenland seal is very valuable commercially. However, lately there has been a marked decrease in the number of White Sea seals. Why? And how can the animal be preserved? Norway and the Soviet Union are especially interested in the answers.

Soviet representatives at the recent Eighth Session of the Soviet-Norwegian Commission announced that our hunters would stop seal hunting for the next five years so that the animal could be studied during the period when it bears young.

The expedition was flown by helicopter to the northwestern part of the White Sea and lowered to the ice. The six members of the floating laboratory will mark newborn seal pups and study the habits of the "mamas" and the herd.

MUSIC BOX

This music box will be much too big for a living room table. It will take up an entire Moscow block. As yet it can be seen only in sketches and exists only in the imaginations of architects Iosif Loveiko and Mikhail Firsov.

The projected State Museum of Musical Culture holds all sorts of surprises in store for music lovers. Thousands of melodies will be collected in its three-story building. The two upper floors will seem to hang over the first. There will be no glass in the walls except for a strip on the first floor. Visitors will be able to listen to the sound of any instrument they choose merely by pressing the appropriate button.

The building is designed to be virtually soundproof.

IN MICA LAND

Siberia is a tough but very beautiful country where the Vitim and Mama rivers flow together. Russian explorers found mica there 275 years ago. They called it "muscovite" in honor of the city that had sent them to this snow-covered region. The fame of those wonderful crystals spread through many lands. And there was no finer gift a Russian envoy could bring to a foreign court than a mirror or some other article made of the magic Siberian muscovite.

Today Mama mica has many more uses, and it is mined in much different fashion, by machine. A crystal dug up in a Mama mine not long ago astonished even the oldtimers; it weighed 1,100 pounds.

CHI-CHI MAKES A WEDDING TRIP

Chi-chi is a rare species of panda. She lives in the London Zoo ordinarily, but she recently came to Moscow for a visit. The London Zoo asked the Moscow Zoo to introduce Chi-Chi to one of its residents, An-An, a male of the same species.

Giant pandas are very valuable animals. And so the airline, to make things as comfortable as possible for Chi-Chi, used a turboprop of the Vanguard type instead of the usual Comet jet liner. The entire cabin was vacated for her, 30 passenger seats being removed for the purpose. This was Chi-Chi's first nonstop flight to Moscow, which took four and a half hours. She made the trip in a specially designed crate and had a special "escort," chief veterinarian Oliver Jones and chief supervisor of the London Zoo Sam Morton. When Kenneth Hawkins, the BEA man in Moscow, met this important traveler, he said that he hoped the plane's payload would be heavier five months hence, when Chi-Chi goes home.

BRAVO, ZAVYALOV!

Six years ago the British Parliament asked the Postmaster General why the anniversary of poet Robert Burns was commemorated by a Soviet stamp and not by a British issue.

A stamp honoring the famous Italian actress, Eleonora Duse, whose one hundredth birthday was first celebrated by the Soviet Union, also created something of a stir in its day.

Vasili Zavyalov, who has designed some 600 stamps, has a place of honor among Soviet stamp designers. Back in 1935 he created a whole gallery of portraits to commemorate the first air heroes—the fliers who rescued the expedition of the SS *Chelyuskin* stranded on an ice floe in the North—and a series dedicated to the Moscow-USA nonstop fliers.

Zavyalov's gifts have won him international fame. When a stamp exhibition was held in Rome in 1953, the visitor's book was full of such comments as: "Bravo, Zavyalov!" He was awarded the coveted Colli Cup and the Cortina d'Ampezzo Medal.

Last year he designed a series commemorating the history of the Soviet post. Each of the seven stamps is a work of art.

The Soviet people honored the artist on his recent sixtieth birthday.

CHURCH RESTORED

The badly damaged cathedral of the Monastery of the Nativity in Moscow, a remarkable piece of architecture which the chronicles say was built in 1501-04, has been completely restored. Many of the missing original decorative elements have been re-created.

BETTER GOODS CONTEST

In a contest of consumer items manufactured in the town of Rostov-on-Don, in southern Russia, the footwear factory, the third largest in the country, won first prize. In 12 months it turned out more than 12 million pairs of women's, men's and children's footwear. Its hundred models are equal to the world's best.

THE MOSKVICH ABROAD

The Moskvich-408 is the first Soviet passenger car to be bought by people in Italy, France and the Federal Republic of Germany. Cars trademarked "Made in the USSR" can be seen on the roads of 70 countries. The latest Moskovich is better looking and more comfortable than earlier models. It is much more spacious even though the body of the car is no wider than before. The Moskvich-408 has a four-cylinder 50 horsepower carburetor engine. It makes 36 miles on a gallon.

NEW METRO STATION

Preobrazhenskaya Square is the Moscow Metro's seventy-fifth station. The Soviet capital's underground railroad, now 68 miles long, carries more than three million passengers daily.

BATTLE OF THE "LITTLE SULTANS"

An Uzbek festival usually ends with the traditional competition on horseback. *Ogardysh* is a special favorite. The contest can go on for hours. Each of the riders wears a "little sultan" on his hat. Each contestant battles with spear and sword to knock his rival's "little sultan" off. A defeated rider leaves the field, and the victor continues his battle with the others. The rider whose "little sultan" stays on his hat is the winner.

NEW PHOSPHORITE DEPOSIT

A geological party prospecting near the Kazakh town of Aktyubinsk found a phosphorite deposit that spreads over 230 square miles. The deposits are usefully located near the virgin lands of Northern Kazakhstan.

IN THE NICK OF TIME

To pick up an injured lumberjack in the far-flung Karelian village of Klyushina Gora, a flying ambulance was called from Petrozavodsk. In the bad weather pilot Vladimir Bar barely averted disaster, and an hour later the lumberjack was on the operating table.

"RAINBOW" ENGLISH SONG GROUP

The English song group that 13-year-olds at Leningrad School No. 183 started performs at other schools in the city and region. The youngsters wear ties of seven different colors, which explains the name—Rainbow.

VACATIONING FARMERS

This year the Erkin Collective Farm in Kirghizia will provide cut rate vacation and health resort accommodations to at least 160 of its members. They will vacation at such famous resort centers as Yessentuki, Kislovodsk, Sochi, Jalal-Abad and Issyk-Ata.

ROBBIE SPEAKS ENGLISH

Films for students of foreign languages are now being made. The Moscow Popular Science Film Studio is shooting Robbie, a picture based on a science fiction story by American Isaac Asimov, in which a little girl named Gloria, Robbie the Robot and other characters speak English. Many more such films for schools and colleges will be appearing soon in English, French, Spanish and German.

ON THE OLYMPUS OF ELECTRIC POWER

An Olympus, indeed. The might and magic power of the person seated at the control panel would have been envied by the ancient dwellers of that mountain of the gods. The dispatchers in the combined control room of the United Power System (EES) of the European part of the USSR light up the entire European part of Russia, Lithuania, Latvia, Estonia, the Ukraine, Byelorussia, Moldavia, the Transcaucasian republics and even Northern Kazakhstan. During the current five-year-plan period a united power system for the whole country will be completed. At a command from the center, electric power in any quantity will be sent to any part of the USSR.

TRAILBLAZING BY BULLDOZER

The second section of the Ingrim-Serov gas pipeline has been laid. It stretches for 310 miles. This new line connects the industrial Urals with the rich gas deposits of Siberia. Two years ago the battle with swamp and taiga, cold and snowstorm began. Bulldozers, cross-country vehicles and excavators followed animal paths. When the terrain was too swampy, helicopters came to the rescue.

The pipeline crossed more than 200 rivers and streams. The last few feet had hardly been laid when the builders began a new line, the Serov-Nizhny Tagil. This one will connect with the Bukharo-Urals line to form a single system.

TONS OF CRAB MEAT AND BLACK CAVIAR

The Soviet fishing fleet is known in the United States, England, France, and the Federal Republic of Germany for the superior crab meat and unsurpassed black caviar it brings to their markets. Eighty per cent of the world's caviar comes from the USSR.

Besides sturgeon roe and crab, the fleet brought in 5.8 million metric tons of fish and other marine products last year.

A catch that big requires a huge fleet. Ships flying the Soviet flag can be seen at all latitudes. They work the southern and equatorial Atlantic and parts of the Indian Ocean. The larger portion of the fleet is made up of refrigerator trawlers and floating factories which process the fish on board.

The fishing fleet will be enlarged by 2.5 times in the next five years. Several foreign yards are building Soviet vessels to order.

NEW TRADES

This school in Perm, in the Urals, is typical of Soviet vocational and technical schools. It keeps a close eye on technological changes and job needs. Every year about 500 high school graduates are taught the trade of their choice. They become radio assemblers, electricians and radio communication mechanics. The technical re-equipment of plants has created a demand for the newer specialties, including key-punch machine mechanics and adjusters of equipment for the vacuum tube industry. Graduates are guaranteed jobs.

NEW ROADS

The Frunze-Osh road, which cuts across the Tien Shan Mountains to join Kirghizia's North and South, is called the "Road of Life" because of its economic importance to the republic. It crosses the Chu Valley, continues through a high mountain tunnel one and a half miles long, and then descends to the cotton-growing South.

Trucks are now rolling along the new Bratsk-Tupun highway. This Siberian road cuts through taiga and swampland to connect Bratsk and Irkutsk.

The country's toughest road-building job now under way is in the Tien Shans, a 125-mile highway that will connect the tin ore deposits in the settlement of Saryjas with Lake Issyk-Kul. Sixty miles of the road will cross mountain slopes and passes at altitudes of 13,000 feet.

. . . AND MOTELS

More and more foreign and Soviet tourists are making use of automobiles to see the country. And therefore more and more motels are being built near the highways. New ones will be opened this year in Kharkov, Krasnodar, Kursk, Kiev, Sukhumi, Oryol, Smolensk and Novgorod.

A comfortable motel, with a café, restaurant and a garage to accommodate 300 passenger cars is being built in Tbilisi, the capital of Georgia. The garage will be equipped for servicing and emergency repairs.

FOR THE WINE-LOVER

The sayings, maxims and legends about grapes and wine are innumerable. These have been collected from the folklore of the Soviet Union, Italy, Bulgaria, Hungary, Spain, Turkey, Iran and other countries and published in *Secrets of Sun-kissed Grapes*, the first anthology of its kind, so far as we know, and put out, appropriately, in the grape-growing Crimea.

BIG DAM MOVES

The seventeenth unit of the Bratsk Hydroelectric Power Station was put into operation last year in the Siberian city of Irkutsk. Soon this station, the largest in the world, will be working at full capacity. An interesting sidelight —the 416-foot concrete dam across the unruly Angara is in continual horizontal motion, sometimes leaning toward the sea, sometimes straightening itself out. The fluctuations depend on the temperature changes in the surface strata of the concrete and sometimes are as much as three-fourths of an inch from the axis. More than 5,000 instruments in the dam register, with great precision, the slightest change in the thickness of the concrete wall. The information is processed by a computer and is important not only for the Bratsk station but also for new ones now being designed for Siberian rivers.

MANMADE WATERFALLS

With the waters of the Naryn River, Kirghiz farmers have created five powerful artificial waterfalls to irrigate 12,300 acres in the Kyzyl-Jar Valley. The water shoots over a 100- to 130-foot cliff and then meanders through 56 miles of irrigation canals and ditches.

THE TALKING DOLPHIN

Dolphins are extraordinary animals. For one thing, they can speak. Scientists say the dolphin's brain is large, complex and strikingly like man's. Dolphins always try to make contact with human beings.

Researchers in a whole variety of fields are now studying the dolphin. Some believe that the time is not far off when we will be able to speak their language and teach them ours. When that happens, we will have access to the innermost secrets of the sea. Some scientists even think we can train dolphins to shepherd herds of fish and to locate schools. For these several reasons Minister of the Fishing Industry Alexander Ishkov has forbidden dolphin hunting, which used to be done off the shores of the Black Sea.

MARINE ROBOT

The Ukrainian Marine Institute has built a deepwater automatic bathyscaphe that looks like a rocket. It can go down more than 32,800 feet to collect information on the physical processes taking place at various ocean depths. It is a deepwater self-contained turbulimeter and has electronic devices to record the data obtained, power sources, an automatic equilibrium system, and other equipment. It is a bathyscaphe with man replaced by automatic devices. The researcher on deck sets the program for the "marine robot," and then it sinks, a half ton slab acting as a plummet. When the assignment has been fulfilled, the electronic brain sends a signal to a device that separates the plummet from the bathyscaphe. It then rises to the surface, a float with an antenna emerges, and the automatic radio station starts broadcasting. A ship comes rushing to the spot and the information collected is fed into a computer.

GLASS HOUSE

The new block of 16-story apartment houses in Moscow's Novye Cheryomushki development glitters like a sunburst. It is faced with colored glass tiles manufactured by a glass factory in the town of Leninsk outside Moscow. Soon they will be used to face many buildings flanking major thoroughfares.

AROUND *the* COUNTRY

CHESS: No. 3 NATIONAL PASTIME

By Grandmaster Mikhail Tahl
Ex-World Champion

We are starting a chess section in Soviet Life and have invited ex-world champion Grandmaster Mikhail Tahl to be its editor for these several reasons: firstly, he stands third on the world list (after Tigran Petrosyan and Boris Spassky); secondly he is one of the most original and inspiring improvisers of this ancient game; and, thirdly, he is a professional chess writer, being editor in chief of Shakhmaty (Chess), published in Riga.
His reviews in the local and national press are widely read. He is always a bit of a philosopher at the chess table and desk, and we believe that our readers will find his wide-ranging views interesting.

I GLADLY ACCEPTED the offer of *Soviet Life's* editors to swap ideas and opinions regularly with my American opposite numbers, meaning everyone who likes chess, not only masters or grandmasters.

Caissa, the tutelary deity of chess, is capricious, and she demands, as do her closest relatives Aeolus and Melpomene, sacrifice from her devotees. Many players think it more convenient and certainly more practical to bring only chess pieces to the altar of Caissa, but some sacrifice more than that: dozens of years at the chessboard and without laurel wreaths and prizes. Their names are missing in the chess Hall of Fame, and their moves are not recorded in the textbooks.

Is this unrequited love? I think not. I say it is unselfish service to a great art. That is why I am very happy for this opportunity to make contact anew with overseas friends.

Soviet and American chess players have been meeting for a long time. There was talk back in the last century about arranging a match between the legendary Paul Morphy and Alexander Petrov. One of the nineteenth century luminaries, Harry Pillsbury, was a frequent guest in our country. Moscow fans gave a rousing welcome in 1925 to Frank Marshall, and 15 years later we saw Grandmaster Samuel Reshevsky in the flesh. The players of both countries learned from the matches and, more important, they made us better friends.

But these contacts should not be limited to tournament fixtures. As editor of this new chess section I assure you that any material coming from abroad, whether it be an analysis of an opening variation or simply a comment on a controversial point, will be gratefully accepted. I know that my colleague Grandmaster Yuri Averbakh, editor of *Shakhmaty v SSSR (Chess in the USSR)* shares my feeling. His magazine contains games analyzed by Robert Fischer, a theoretical review by Larry Evans, and a game between Reshevsky and Mikhail Botvinnik, with the American victor providing the commentary.

This is a beginning, but not enough by any means. I would like the first swallow appearing in *Soviet Life* to make the spring. I invite you, friends and colleagues, to write to us, send in your queries and search out our mistakes, and I promise to do likewise. I am sure that dialogues with Fischer and Reshevsky will be appreciated by everyone. We all know the saying about truth being born in argument.

We also know that Soviet players have dominated chess since 1945, that the world crown has remained in our country since Mikhail Botvinnik first won it in 1948, that the global chess queen lives in the USSR, and that we have captured Tournament of Nations honors since 1952.

Why have our players done so well that they now look on second or third place in a tournament as failure? There are mixed views on the question. One British journal claimed that our victories were due to geographic or, rather, climatic, factors. The Russians excel, the article said, because of their long winter evenings, they can't stick their noses out of doors, and so they hug the fire and play chess. I thought this was a good explanation until it occurred to me that Greenland is not much warmer.

There are other explanations that raise a smile, but when I ponder on the problem, I am always reminded of something that happened to me.

Eight years ago I was in the graduating class of Riga University. All the philology seniors were supposed to do practice teaching in the local schools.

My first was a sixth grade class. I was more nervous than before a crucial chess game. I felt even worse when I saw that besides the university instructors and schoolteachers present (I had graduated from the same school five years before) some of my joker friends who wanted to hear how Tahl would

THE SIXTH GRENADE

BY MYUDA DEREVYANKINA

IT IS a long time since Albert Kariste was a lieutenant. For 10 years he has been head of a big Estonian collective farm, and his first concern now is land and crops. But when his fellow villagers—milkmaids, team leaders, tractor drivers and other collective farm members—get together, whoever is chairing the meeting will say from force of habit, "The lieutenant now has the floor."

The lieutenant, a dark-haired man of average height, steps up to the stage to talk about farm affairs. The spotlight is tactfully turned away from him; his face is disfigured.

Albert Kariste was in Jarvakandi, a small town, when the Second World War broke out. He was one of the 10,000 Estonian volunteers to join the national corps. He was cut off from his native land in fierce fighting with the invaders.

Returning was not easy. Battles raged on the entire front, from north to south across the Soviet Union. For every soldier there is one point

teach children to form participles were also sitting in.

When I stepped into the classroom, I spotted a chessboard with pieces on it on the window sill. Were the kids trying to make up to me? A closer study of the adjourned position and I thought not. It was White's move, and, by an effective Rook sacrifice, he could win the game in four moves. I said to myself: If everything goes all right with my lesson, I'll show the boys during recess how to manage that checkmate. Unfortunately, my hopes did not materialize.

I asked a girl to go to the blackboard and write a long sentence. Tahl the teacher made a crude tactical blunder: for 40 seconds I stood with my back to the class. When the sentence was down —regretfully, with spelling mistakes—I looked around at the class again, thinking the others might prompt her. I glanced at the window sill and was shocked to see that it was Black's move and all chances of a four-move checkmate were gone. My chess experience told me that the players had had time to make five moves each, and not the best ones at that. The "criminals" had to be caught redhanded.

"Tell me, please," I addressed the pupil who played the White pieces, "is everything on the blackboard right?"

"Y-e-s," the boy said uncertainly.

"Why do you think so?"

"Because she's our honor student."

The reply of his classmate who played the Black pieces was just as convincing.

"What were you two doing?"

The "criminals" tried to tell me they had not touched the chessboard at all. This was an obvious underestimation of my grandmaster ability. Also the pride of Tahl the teacher was hurt. Gnawed by the thought of revenge, I asked the two boys to hand me their report cards. I was annoyed that they had spoiled my first meeting with the class. However, the rest of the lesson passed quietly. When the bell rang for recess, I said:

"Let's agree, boys, not to play chess in class." I gave them back their report cards. The boy who had played the Black pieces left the room without a word, but his partner stayed behind and asked for my autograph.

I don't know how many autographs I have given on slips of paper, concert programs and menus, but this was the only time I was ever asked to autograph a report card. And so I wrote on Konstantin Revo's card: "You didn't find a four-move checkmate in Russian language class."

This is an amusing incident, of course, but it explains to me why chess standards are so high in the Soviet Union, why you see people playing chess every free moment in factories, offices, schools, colleges, collective farms and army units. Somebody ought to find out how many times Riga Theater performances were held up because Hamlet and Polonius couldn't evaluate an adjourned position.

Many foreign newsmen call our country a chess Klondike or Eldorado. With so many veins showing, it's no problem finding nuggets.

I have faced many opponents in games of simultaneous play in many countries and discovered that the most dangerous ones come from the shaving generation, whereas our grandmasters and masters at home experience their most humiliating defeats at the hands of knee pants adversaries. "We'll play with anyone, but no kids," they protest.

Robert Wade, the talented British master, scoffed at this threat when he agreed to a simultaneous play exhibition at the Moscow Young Pioneers Club in 1951.

The exhibition began, as usual, at 6 P.M. Worried parents started arriving somewhere near midnight. Wade was still sweating it out. The best he could do was 10 drawn games. He lost the other 20 to city schoolboys. When the editor in Britain read the news, he thought the telegrapher had balled up the message: His newspaper came out saying that Wade had *Won* 20 games and drawn 10.

Our yearly chess statistics show that the game ranks third in popularity among all sports. We have more than 3.5 million officially registered players who compete in factory and school championships. There's no counting the number of people who don't go to bed when major tournaments are played until they hear the special late radio chess news bulletins. They line up at the newsstands the next morning to read full accounts with analyses of the game their favorite played.

I think one of the reasons for all this popularity is that chess is more than a game, it is an institution. Once again I turn to comparisons. As I said before, my colleagues and I have seen action at all kinds of international matches in other countries, but never in such grand places as the Tchaikovsky Concert Hall, the Hall of Columns of the Trade Unions, and the Soviet Army Club. In recent years the venue of world chess matches has shifted to the Moscow Variety Theater, which seats more than 1,000. When these matches are played, the box office is invariably mobbed. This is the dialogue you hear:

"Going to Raikin's show?"*

"No, Petrosyan's. . . ."

The popularity of chess in our country was noted by such wizards of old as Emanuel Lasker and José Raoul Capablanca when they were our guests back in the thirties. Soviet chess has graduated 26 grandmasters, over 100 masters and dozens of world champions. They comprise the credit side, so to speak, as we approach the fiftieth anniversary of our chess. Unfortunately, there is the debit side, too: We have no Fischer or anyone like him. These last 10 years junior world title laurels (special hopes are pinned on this competition) have escaped our challengers. But more about that next time.

* Arkadi Raikin is one of the most popular variety actors in the Soviet Union.

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on the frontline which he remembers the rest of his life. For Albert Kariste that point was in Byelorussia, the village of Alexeikovo.

The lieutenant's heavy machine gun platoon was assigned to defend Alexeikovo. The enemy attacked at twilight, with two tanks and machine gunners breaking through in a pincer move around the trench Kariste was in. The tanks stopped about 160 feet away and opened fire at the trench. The nazi machine gunners were only a few steps away.

Suddenly a black object fell in front of him.

"I grabbed it, without giving any thought to what it was," Albert Kariste recalls. "One of my men yelled, 'It's a grenade!' I threw it back and saw how the Nazis hugged the ground 60 feet away from us. I shall never forget those split seconds when I held death in my hand.

"A few seconds later, another grenade came whistling in our direction. I caught it on the fly and tossed it back."

It was incredible, but this incredible thing was happening before the eyes of the whole platoon. He went on catching grenades like baseballs and throwing them back. A third grenade, a fourth, a fifth. . . .

When it happened, in 1942, the whole front heard of Lieutenant Kariste's exploit. The Americans, our allies in the fight against the Nazis, also heard of it. On behalf of President Franklin D. Roosevelt, he was decorated with the American Medal of Honor. In the Soviet Union he was awarded the Order of Lenin, the country's highest decoration.

"What helped me in that engagement," Kariste said, "was that I was an athlete. I played ball, boxed and wrestled in my home town. This saved me and helped me recover. You see, the sixth grenade exploded in my hand. I picked it up from the bottom of the trench, but I was a second too late letting go of it. Here are the marks."

Collective farm chairman Kariste stiffly raised his left hand, gloved in black leather, and pointed to the scars on his face. That hand, too, was a leftover from the war, a leftover from the sixth grenade.

By Boris Korolev

CERTAINLY for the foreseeable fashion future imaginative young Vyacheslav Zaitsev, who designs for the USSR Fashion House, will be dressing the elegant Soviet miss. His influence on the tastes of our 100 million or so style-conscious young ladies—an influence that bids fair to cross the border—compares with the revolution elsewhere that Parisian designer Yves St. Laurent is responsible for.

On the cover are Zaitsev designs for the Montreal world exhibition in April through October of next year. Moscow Fashion House designers base their collection primarily on folk motifs, combining in autumn-winter wear modernized knitted stoles and the motley-knitted stockings which over the centuries protected Russian grannies from rheumatism. The craving for fur every woman has will almost certainly provoke a boom in the industry.

Zaitsev believes that the folklore motif is no passing fancy but will dominate styles, in Europe too, for a good 10 years to come, though now it plays an unassuming decorative role and earlier it was limited to the half-hearted use of embroidery and goffered lace. Zaitsev's revolutionary innovations have chopped nicks in each of the three pillars of dress—cut, silhouette and color. Only a few years ago Zaitsev's excursions into old folk costume did not take in very much geography; they were mostly confined to Central and Northern Russia. His present Montreal collection has borrowed Ukrainian and Byelorussian motifs too, something which will certainly not pass unnoticed in Canada, with its many naturalized Ukrainians and Byelorussians.

This is a full autumn-winter and spring-summer collection, cut from material suggested by folk motifs, notably the traditional chintzes, Russian printed cottons and linens. Natural Central Asian silks and light Caucasian cloths will be well represented also, which shows that Vyacheslav Zaitsev is drawing upon nearly all the Soviet republics for his designs.

"Working for women who want to put on tomorrow the dress you style today," Zaitsev told us, "cramps action, since the designer has to keep in mind the possibilities of the textile and garment industry. Working on the world exhibition collection, I could let my imagination run riot." However, even with his head in the clouds, Zaitsev has both his feet planted firmly on the ground, his models being intended for 1967. The cocktail dress on the right is a veritable cocktail of Astrakhan and mink, with a rep bow and a brooch playing the cherry.

This young designer has agreed once every quarter to divulge his ideas on fashion in our magazine. Now he is mostly preoccupied with silhouette—in which field he has three interesting innovations: the "chess-pawn" silhouette which will make every miss a queen; the "two-triangles" scheme, rather daring; and what I think is the most unusual, the "Russian icon." I can't describe them, they really have to be seen. I can only promise that as soon as Zaitsev gets his ideas set, he will tell you about them himself.

As for Yves St. Laurent, Zaitsev thinks him "fantastically interesting." Although his feeling is that St. Laurent's latest motley geometric figures, which will probably set Europe's vogue-minded raving, will give the wearer the look of a circus clown or a court jester.

Designed by Zaitsev

CANDIDATE-STUDENTS

By Anatoli Agranovsky

Last year 1,300,000 boys and girls graduated from high school in the Soviet Union. Three hundred and fifty thousand of them were admitted to higher educational establishments. How was it decided who was to be admitted? On the surface this seems a rather simple problem to solve. The students who want to continue their education merely take the entrance exams given by the college of their choice. Those who receive the highest grades are accepted. The rest find jobs. The more ambitious in the latter group will acquire a higher education later through evening or correspondence schools. But this is only half the problem. What happens when the high performance displayed at entrance exams is not sustained? The Ministry of Higher Education, which spends an average of 5,000 rubles on each student, considers that a college must *"pull the lagging student through" to graduation since considerable sums of money have already been spent on him. As a result of this policy, even loafers and ignoramuses usually manage to get a graduation diploma. Meanwhile, sometimes owing to pure accident, capable young men and women may not make a particularly brilliant showing in the entrance exam and be rejected. Journalist Anatoli Agranovsky made a five-year study of the experience of the Gorky Institute of Water Transportation Engineering in trying to overcome this situation and wrote an article on his findings which was published in* Izvestia. *The following is an abridged version of this article.*

TWO GIRLS from Aktubinsk wanted to go to the same college. They had grown up in the same family and had gone through high school together. They were sisters, identical twins, in fact. You could tell them apart only if you knew that Galia wore a watch and Lida didn't.

They came to Gorky on the Volga to take the entrance examinations at the Institute of Water Transport Engineering. Their final high school marks had been exactly the same. The girls said: "We got Excellent in physics, Good in algebra and Excellent in geometry." They studied together for the college entrance exams.

In mathematics Galia drew an easier examination card than Lida. Galia made more credits than Lida and was admitted, Lida was not.

One of the twins was now headed for engineering. The other wiped away her tears and prepared to take the boat home. It wasn't a tragedy, people do get along without a college education, but it is too bad that a person's future should be decided by an accidental stroke of bad luck.

Seeing the twins weep, upperclassmen took pity on them. "Go see the rector," they advised the girls. "He'll understand."

The twins pleaded with the rector. "We'll share a dormitory bed if only you'll admit us both."

What could the rector say? He is aware of the inadequacies of competitive examinations. He knows there is always an element of chance involved. Some applicants sleep poorly the night before; some get a case of nerves; some just have bad luck. They draw their examination cards like lottery tickets. The exams are more a test of memory than of intelligence, more a test of good coaching than of innate ability. But what would you suggest instead?

I have known rectors who hide out after they post the admissions lists. They get sick for a couple of days or invent an urgent trip. Professor Ivan Krakovsky, rector of the Gorky Institute of Water Transport Engineering, however, is there for anyone who wants to see him, all the tearful mothers, irate fathers and dismayed applicants. He will not change the admissions lists, but he wants people to know they were drawn up honestly, without bias or outside pressure. "I'm a mild man," he told me, "but I won't be insulted." Professor Krakovsky, a State Prize winner and a scientist with an international reputation, is not worried about losing his administrative job, he is a very intelligent and very honest man. For all these reasons I believe there is no favoritism in his college.

But is the college sure it has accepted only the very best? Can it be certain it has chosen those who are most suited to that particular vocation? Finally, can it say that only the incapable applicants have been rejected?

Everyone draws an examination card. The chances are equal, or at any rate, the method is fair. At present there apparently is no better method. The bad part of it is that competitive examinations is the *only* method we use.

Dropouts are not allowed for in a college's plan. Administrators are called on the carpet for dropouts. Instructors may be dismissed for dropouts. The Ministry quota is one instructor for every 13.5 students. But the instructors are not held accountable in any way for the quality of their output. Schools of higher education are the only enterprises in the country that can get away with substandard products.

The result is that once an idler has been enrolled as a freshman, the college does everything it can to carry him along to graduation. And after that? Once he has his diploma, he has the right to demand that the state give him a job. And once he is hired, just try to fire him! One such student who was "carried through" to graduation was assigned a job at a factory here in Gorky.

"It would have done us more good if they'd sent us a ton of nails," said the factory's managing director.

The most distressing part of it is that for five years an ignoramus held down a place in college that should have gone to an industrious, intelligent, responsible person. But how to pick him out? How can a college select the best applicants? The rector sits in his office listening to the twins. He looks at one, then at the other. He can't tell them apart. Both are intelligent; both want to study water transport engineering and nothing else. Their father is a Volga skipper, and they were born on a barge. How is it possible to decide, on the basis of a single mark, which of the two is better? As a matter of fact, at the beginning all freshmen look alike to the college.

Be that as it may, the freshmen feel at home at once. Each has received the rector's congratulations and has had his hand shaken. Then they gather in the assembly hall to hear the rector deliver the traditional speech. He urges them to study hard, get their term assignments in on time, and do their homework. All rectors say the same things at the start of the school year, and all students lend a deaf ear.

"It is possible," Professor Krakovsky told them, "that some of you are thinking: 'I heard the same thing in high school but I graduated without too much effort. With a little luck I should be able to get through college the same way.' I must warn you that you won't. Behind each one of you stands somebody who is just waiting for a chance to get in. We're not going to coddle anyone into engineering."

Then came figures. The rector read them off to the now much sobered freshmen. A year

ago 325 freshmen were admitted; 49 of them have been expelled, two whole groups. The college was not afraid of getting rid of lazy and incompetent students.

How does this rather small college manage with such a big dropout? How does it fulfill its plan of graduating trained engineers? Beautifully. It now has 325 sophomores. It has found another way, besides the regular competitive examinations, of selecting students for admission. It has a group of "candidate-students."

That's the secret.

Don't think I use the word "secret" just for dramatic effect. At the Ministry of Specialized Secondary and Higher Education in Moscow I asked what the attitude was to these candidates.

"We can't have an attitude to something that doesn't exist," I was told. "There are no such things as candidates. That is a violation of the rules. Officially, we know nothing about it."

"And unofficially?"

"Unofficially, we've heard talk about candidates."

It would, of course, be better to admit more freshmen than the number of graduates called for by the plan. Sooner or later we'll have to. People in the know tell me it can't be done now. Expenditures for student maintenance, scholarships, the additional teaching hours, and so on would run too high. My personal feeling is that it would be a hundred times cheaper than the losses from graduating diplomaed failures. Nevertheless, the fact remains that choosing from among the students already enrolled is, to all intents and purposes, forbidden.

That is why this Gorky college thought up the idea of candidate-students. When the admission quota is filled, the college selects another 15 per cent from among the applicants who came closest to meeting admission requirements. These candidates are permitted to attend lectures and laboratory classes and to take all tests and examinations. They do not get maintenance scholarships, and the instructors take on the additional work without pay so that no additional expenditures are called for. The college has a reserve of students to draw on. After the examination period, those who do not make satisfactory progress are expelled and the best of the candidate-students take their place.

I saw former candidate-students who are now full-fledged sophomores and juniors. They were doing fine. Many were going in for research in the science clubs. Admitting them had not been a mistake, it would have been the biggest mistake not to admit them.

Twenty-one per cent of the students at the Gorky Water Transport Institute do not maintain sufficiently high grades. At the same type of college in Novosibirsk the figure is only three per cent. The problem: Which college is doing a better job of training engineers?

The Ministry of Inland Water Transport decided to solve this problem and, to do it justice, solved it correctly, with the help of a commission from the Gorky institute. The standard of the engineers trained in Novosibirsk turned out to be very low. The Ministry is much concerned since it will be the one to employ them.

Now for the standards. The difficult job of setting them has been taken on by two departments at the Gorky institute, the departments of theoretical mechanics and higher mathematics. They are both headed by first-class scientists who are, besides, principled people. When Vadim Davydov flunks a student or when Nikolai Bautin sends one of every five students back for a repeat examination, low marks become a legitimate weapon the college uses to make the majority study hard and to weed out the minority.

There are not so many candidate-students, but they influence the entire student body. Here the famous rhetorical statement, "You are filling a place someone else could fill," takes on real meaning. The "someone else" is sitting in the lecture hall beside you. Undergraduates quickly realize they cannot loaf their way through college. To get an education takes years of hard work.

Significantly, standards have risen sharply and poor students have all but disappeared. Lights burn late in the dormitories. Reading rooms are filled to capacity. Everywhere students are drawing, memorizing, calculating. I found the twins in their room. They were studying differential equations together, Lida as a candidate-student. Their fellow students call them the brothers Grimm.

But the Ministry does not recognize candidate-students. Official policy says they do not exist. But they do. This is a case of people either refusing to stand up for what they believe in or of having convictions they refuse to state openly. Why do officials disown candidate-students? Because, they say, they are concerned for the student's state of mind. The student, they say, will be plagued by the fear of being expelled at any time. Also, they are concerned that "a spirit of competition alien to us" will develop in our schools of higher learning. Besides, they say, to talk of human beings as "substandard products" is not right. "People are not hunks of iron, after all."

Unlike the Ministry officials I spoke with, I saw the candidate-student system working and noticed no "alien spirit." The candidate-students at the college in Gorky are no different from the other undergraduates. When Lilya Maximova got sick and missed the differential functions section of the math course, Galina Aikanova and Yevgeni Ronnov helped her catch up. They were not afraid she might take their place. There is nothing harmful about such a "competitive spirit." Call it a spirit of emulation instead, if you prefer.

As for "hunks of iron" and "human beings," it strikes me as more inhuman to try to make engineers of all those who are admitted. That is like saying: "We've given you 100 hunks of iron; produce 100 finished articles." At the Gorky college I found an individual, humane approach to each student. The rector realized the Volga skipper's twin daughters should be studying together and made Lida a candidate-student. He also admitted a young man from Byelorussia as a candidate-student. (Another secret I'm divulging.) The lad did very well in the math and physics entrance exams but fell down in his Russian composition and did not get the required number of credits. But his high school final marks in both written and oral Byelorussian and Russian had been Excellent. From sheer nervousness the young man had mixed up his grammar, the two languages being so similar. The rector believed he would make a good engineer and let him write a second composition.

That, my opponents will say, opens the door to all kinds of violations. Competitive examinations are official procedure. If we allow a rector to expel whomever he sees fit in the middle of the year and admit others, how are we going to check up on him? I could reply that rectors whom the Ministry does not trust should not be empowered to expel and admit. A dishonest rector who wanted to play favorites could do so more easily in the entrance exam period, when hardly any of the applicants know each other. It's harder afterward. The students know who solves problems by himself and who asks for help from others. The competition is open and aboveboard. Not a single student expelled from the Gorky college has ever complained of unfair treatment.

Then there is such a thing as a reputation, the reputation of an individual and a college. Professor Krakovsky has a fine reputation. The college he heads has a fine reputation. And a reputation deserves respect. It also deserves more opportunities and greater authority.

The problem is very current. This year we had an especially large number of high school graduates, from both the 10-year schools and 11-year schools. Competition for college places will be stiffer than usual. It is the duty of the colleges and universities to see that their competitive examinations are conducted fairly and efficiently. Which will we do? Reject the unlucky ones outright or give many of them a chance to try again?

The purpose of this article is to bring the existence of candidate-students to the attention of the public; to prompt (or help) Ministry officials study the experiment with an open mind, using facts and figures; to bring this "terrible secret" out into the open.

am," she really becomes beautiful. And this is a gift, this is a talent more precious than a pretty face.

A real actress does not stop to think whether the cameraman has made her pretty. A real actress is not afraid of looking ugly. Remember Zinaida Kiriyenko who played the part of Sokolov's wife in *The Fate of a Man?* When she sees her husband leave for the front, she is frightening in her sorrow, her hair unkempt, her eyelids swollen, her eyes senseless with pain.

We shall soon be filming the scene where Natasha, the charming girl we have all come to love, is hateful. When her elopement with Anatole fails and she screams, "Go away, you've spoiled everything for me!" she even looks repulsive. If Savelyeva understands this, if she does not look in the mirror at that moment (not literally, of course) but is carried away by the acting, she will play it well.

Something of this same thing (but in an entirely different way) happens to Hélène when the marble veil of a society lady drops to reveal an uncivilized and vulgar woman.

What I mean is that beauty does not at all presuppose chiseled features and an ideal figure. Tolstoy, for example, did not endow Natasha with either. He writes about her big mouth and protruding shoulder blades. And yet she is beautiful. Why? Because she has that combination of the physical and the spiritual which is real beauty.

Beauty is not the mask, it is the essence.

And so, you may say, it was simply a matter of luck—this coincidence of the characters of the actress and the heroine—that brought Lusya Savelyeva the lucky ticket marked Natasha.

For us, the makers of the film, the birth of Savelyeva the actress in her first major role was to a certain extent a stroke of luck. For her it was the logical development of a sequence of events. Savelyeva had long been preparing herself for it, though subconsciously.

As far as I know, she entered the ballet school against her parents' wishes. She had had a long siege with tuberculosis and her health was frail. So you see, she guessed her future profession, but only in general terms of the stage.

The first two films of the *War and Peace* series have already been released. I have been watching Savelyeva with some anxiety—the first interviews, the first evening gown, the first press comments. Initial fame.

How rarely does fame become one's ally!

The Volcanic Ovchinnikov

The music for the film, like much else, was decided by Tolstoy himself: old Bolkonsky loves Haydn, the soldiers sing an old Russian ditty, in the English Club we hear a cantata, and at the uncle's home "The lass went to the well." The song in the finale is "Long Live Henry IV!" and so on. The remaining music—the prologue, the waltz for Natasha's first ball, the polonaise and much more—is the work of Vyacheslav Ovchinnikov, a young composer.

In my opinion, Ovchinnikov is an unusually talented musician and composer. He is a remarkable combination of naïvete and self-confidence, negligent in ordinary things and disciplined in his work. But most of all, there is his incredible working capacity and almost compulsive need to create, to write and compose.

When the Art Council of Mosfilm studios was considering the team to film *War and Peace* four years ago, one of its members expressed some doubt as to whether the 25-year-old Ovchinnikov could cope with the job. Whereupon he struck a belligerent pose and declared with something of a challenging air:

"At my age Lermontov was writing his best works and Mozart was a European celebrity. I can add, without venturing far back into history, that most of the leaders of the Cuban revolution are younger than I am."

He did not disappoint me. Much of what Ovchinnikov wrote I did not include in the film, not because it was superficial or dull but because I had already overfed the picture with his music.

Ovchinnikov settled the question of his calling at an early age. He did not ask himself whether he should become an agronomist or a doctor, let us say. He composed the mazurka which we use in the film when he was eight. At 16 he began to compose an opera *War and Peace*. After about four years of reflection, he composed the music for the film with extraordinary speed.

I like Ovchinnikov's fanatic devotion to art. He neglects everything for his work. He made me quarrel with many musicians, with Boris Alexandrov's Song and Dance Ensemble and with Alexandrov himself (when he said that they were not singing the soldiers' ditty properly). He himself conducted the orchestra and was impossibly exacting.

He worked nights composing music, spent his days conducting the orchestra, and one day fainted right at the conductor's stand because he had forgotten to eat.

Ovchinnikov is a real artist. To get a feeling of Tolstoy's categories of life and death, he forces his way into places open only to doctors. For a more intimate idea of death, he visited the morgue. And one day, when I came down with spastic contractions of the heart, Ovchinnikov was at my side and I had the impression that he was counting the meter of his music.

But there is nothing callous about any of this. To compose the waltz for Natasha's first ball, Ovchinnikov had to love her. And he did love the heroine and the actress who played the part. He nurtured this love, kept it alive by writing poems, presenting bouquets and casting a spell over himself. Like his visits to the morgue, it was all part of his particular creative process.

The Right to Be One's Self

Everyone is entitled to this right, but it often has to be fought for.

Originality is one of the most valuable qualities for any person, to say nothing of the artist.

There are so many authorities in the world of art today, that young people risk going through life laboring under one influence after another.

Have you ever stopped to think why even a mediocrity can exert a greater influence on audiences from the screen than from the stage? Because a film is like a highly concentrated food; eight hours, or even eight months of human energy are concentrated in a few feet of film.

The character on the screen is the end product of the efforts of the actor, cameraman, director, composer and script writer. The director can make up for the actor's failings by using the many photographic techniques he has available, by filming the actor so as to bring him out to best advantage. As a consequence, directors are much too tolerant in their choice of screen actors. That is why, I believe, we have so few real characters created today. Actors are losing their originality.

To create a character means to sink into the character so completely as to be able to speak and act as he would in any situation. After rehearsing three acts of *Hamlet*, a good actor should be able to play the fourth act without even knowing the text. When he can do that, he has created a character.

Life has an unhappy tendency to smooth down corners, to level surfaces. This is what happens to people. People are different, and they should be. They should have different and independent tastes and opinions. That applies not only to artists but to readers and spectators as well.

Lastly, I want to say something about death.

I know that very few people at the age of 20 give it any thought. But Tolstoy pondered on nonexistence at an even earlier age.

It seems to me that from time to time we should measure our actions and our lives by the thought: Suppose I die tomorrow, what will I have accomplished? What will I leave behind me? Did I live honestly? Will the regrets that I have gone be sincere and not just conventional tributes, last respects? Thoughts about death can help one to be unselfish, free one from pettiness and needless compromises.

We are all equal before death, from janitor to Napoleon, but our deeds are not equal. Our deeds alone remain after us. It is by them that we will be judged and remembered.

The better part of mankind, its pride and glory, has always felt its responsibility to the future. It was of people like that that Chernyshevsky wrote: "Salt of the earth, tannin of tea." But I also know a species of young people who feel: "Who cares whether the grass grows after I'm gone!" "After us, the deluge," they are saying. This impoverished philosophy is born of an impoverished spirit. I pity these people, but I also despise them.

To do something mean, deceptive, dishonest and not make rectification is to commit suicide. It is to remain forever mean and dishonest.

It is hard, it even seems absurd, to think of death in youth. And yet, do think occasionally of this last judge of our deeds.

So hurry. Hurry to work, to live, to do good, to speak the truth. When you are 45 (this, alas, I know from personal experience), you often feel that you no longer have time to do anything great, anything really important.

This is a bad, a destructive feeling. To be free of it, we must, every single day, do as much as we possibly can, exhaust all our possibilities.

Courtesy of the magazine Yunost

A number of readers have written for information about the cosmonaut training program in the Soviet Union. Below Lieutenant General Nikolai Kamanin answers reporter Yuri Dokuchayev's questions about the school for Soviet cosmonauts.

COSMONAUT SCHOOL

THE SCHOOL has classes and laboratories completely equipped with everything up to mock-ups of spaceships. But even more important, its educational principles and course of study are based on a body of practical experience without which progress in modern science is not possible.

It would tire your readers if I gave a detailed account of the school's five-year history but I will outline the main stages. We prepared for man's first flight into space by reviewing all the related theoretical material. We began with hypotheses made by Konstantin Tsiolkovsky, the pioneering Russian theorist of jet propulsion, on the sensations that man would experience on leaving the earth.

The main problem we foresaw was adjustment to weightlessness. Under terrestrial or circumterrestrial conditions it is very difficult to reproduce the effect of weightlessness, but we did, to some degree. Jet plane flying gave us a facsimile of weightless conditions for only 30 to 40 seconds, but that was sufficient to get some feel of what it would be like and to work out, at least schematically, the motions and positions a cosmonaut should take.

What our students learned aboard the jet plane when it went into a vertical climb to produce the weightless effect was confirmed in subsequent space flights. And this includes Alexei Leonov's walk in space and his sensation of "floating" in a vacuum.

We checked many things in practice even before Yuri Gagarin's flight. Researchers, physicians and student cosmonauts followed on TV the space flights of the first living "test pilots"—the dogs Belka and Strelka—from the moment of launching to re-entry and landing. The conclusion reached after several later showings of the film was that the practice was not too removed from the theory.

When he trained with the other cosmonauts, Yuri Gagarin's program included general physical fitness exercises and special drills on training stands. Since we did not know what to emphasize, we tried to cover all elements of training as thoroughly as possible. Gagarin and Gherman Titov, his stand-in, were scouts, and they had to be equipped for all possible contingencies. We attached particular importance to psychological preparation.

The cosmonauts had daily classes in theory. They studied astronomy, the mechanics of celestial bodies, the theory of rockets and rocket engines, and space biology and medicine. Many of these sciences were just taking their first steps, and on returning to earth, the cosmonauts could be expected to fill in the gaps in information. There were no texts to help us teach, chapter by chapter, from A to Z. The textbooks had to be written by our cosmonauts in process of exploration.

By now our course of training has a solid basis of gradually acquired practical experience.

Gagarin's flight had, in the main, confirmed the soundness of our initial approach. We had learned that a well-trained, physically fit and psychologically stable man can fly in space, stand the overloads of launching and landing, and carry through an assigned program of work in flight. That was not enough, however. The next flight had to confirm our conclusions by a longer stay in space. Gherman Titov's flight was to last 24 hours. Why 24? Because that would provide a complete cycle of working, eating, sleeping.

The 24 hours Titov spent in space contributed greatly to our school program. Cosmonaut No. 2 was the first to experience the temporary disturbance of vestibular functions which results from weightlessness. Titov handled the disturbance on his own. Cosmonauts in subsequent flights had no problem with vestibular disturbances because of substantial changes the school made in its training program. We learned from experience that we can strengthen the vestibular apparatus, as we can other parts of the body, by drills at stunt flying levels and by parachute and training stand exercises.

The first joint flight after Titov, made by Andrian Nikolayev and Pavel Popovich, showed that we were right and that our new training scheme had justified itself completely. It was also confirmed by the flights of Valeri Bykovsky and Valentina Tereshkova, the first woman cosmonaut.

Meanwhile, time marched on and presented us with new problems. Our cosmonaut's school, like any other scientific project, moved from the simple to the more complex. We reached a new stage—man's walk in space. The usual kind of training would not do for Alexei Leonov, Pavel Belyayev and their stand-ins, men who would have to leave the ship and work in space. As the problem grew more complicated, the preparation

A trio of cosmic explorers in one of the laboratories of the Zhukovsky Air Force Academy in Moscow. From left to right: Andrian Nikolayev, who made the first joint flight with Pavel Popovich; Yuri Gagarin, the first man in space; and Valeri Bykovsky, who orbited the earth 81 times and flew more than two million space miles.

became more thoroughgoing. We emphasized parachute jumping under various conditions and training in the zero gravity chamber. A major problem was learning to work in a space suit. It had to become ordinary dress, the cosmonaut's work clothes.

Alexei Leonov, on many occasions, rehearsed leaving the spaceship in a space suit via the lock chamber while flying in a state of weightlessness in a plane over the earth. The space suit was tested many times in a thermobarochamber at low pressure at a "flight" altitude of up to 50 miles and at low "cosmic" temperature. These were difficult tests for the cosmonaut.

On returning to earth after his space flight, Leonov said that he found going into the lock chamber, leaving the ship and returning to it easier in space than during terrestrial training.

It should be said that Leonov himself was very insistent that the flight preparation be as thorough as possible. At the daily training session he would put on the space suit, turn on its ventilation and work in it for an hour, then two, then three and finally a full ten hours.

Only after Leonov became accustomed to the space suit under all kinds of conditions, when he made it part of his body, so to speak, did he take his walk in space. His stepping out of the lock chamber of *Voskhod II*, his floating in the void are matched in importance only by the first space flight. It was a new stage in space exploration. Shortly thereafter, American researchers ventured to duplicate the experiment.

Even in the most remote parts of our country everyone knows the facts and figures of space exploration. Just as in the thirties when young people knew by heart the life histories of the pilots who flew across the North Pole to America or the women fliers who made the nonstop flight from Moscow to the Pacific Coast, so youngsters nowadays know the biographies of the cosmonauts. An endless list of questions keeps coming to Stellar Town from letter writers all over the country.

Pilot-cosmonaut is more than a title of honor, it is a profession. And like any profession, it makes demands on a man. A cosmonaut must, first of all, be in perfect physical condition and perfectly trained. But that is far from all, he must also be master of a large body of knowledge. To my mind, his age should be somewhere between 25 and 35 to a maximum of 40. He should have a good flight background and know how to pilot a spaceship. That is for the skipper of the spaceship. As for the others, in view of spaceship improvements, a crew will soon be unnecessary. They could just as well be passengers—scientists, reporters, movie cameramen, etc. And all they have to be is healthy—roughly the same relationship that exists between the captain and the passengers of a modern airliner.

This difference was tested in the *Voskhod* flight. The ship's skipper was the well-trained pilot-cosmonaut Vladimir Komarov and the crew members were research associate Konstantin Feoktistov and physician Boris Yegorov. Komarov's flight companions were not his equal in physical fitness or flying experience. However, the flight went off smoothly. Guided by a fine skipper, the scientist and the physician handled their crew assignments well. And, of course, the information they brought back added much to design thinking and to astronomy, biology and medicine.

Fortunately, Komarov did not have any unpleasant surprises. However, the following flight of *Voskhod II* proved our point: Automated control notwithstanding, there must always be an experienced and well-trained skipper standing by and prepared for all emergencies. When the *Voskhod II* was about to return to earth, as everyone knows, there was some question as to whether the ship would land on a radio signal. It was then that skipper Belyayev took over the controls. For the last circuit, Leonov (who had completed his experiment by that time) was to stay in his chair and not interfere with the skipper. Belyayev orientated the ship and, after changing its orbit, landed it safe and sound in the Perm area.

As for the question we are often asked: "Why is it that no Soviet cosmonaut has flown in space more than once?" the answer is in all the history I have given above. In the first stages of our space research we tried to use cosmonauts with different levels of training and different vital—medicobiological—statistics. Tereshkova's flight is a case in point. It helped fill out our selection and training requirements.

Our skippers will be piloting multiseater spaceships in the future. They will fly twice, three times, for as many times as we need them until new generations of cosmonauts are trained, for space exploration will be a job for many decades to come.

ACADEMICIAN SERGEI P. KOROLYOV

Below is an excerpt from the Chief Designer's speech on the eve of the launching of Voskhod II.

Sergei P. Korolyov (1906-1966), born in the Ukranian city of Zhitomir, was interested in aviation from his early youth. He worked in one of the first aircraft plants in the country while continuing his schooling at the aeromechanical department of the Moscow Higher Technical School. At 23 he was graduated and the same year got his pilot's license.

A meeting with Konstantin Tsiolkovsky, the father of rocketry, was the turning point in Korolyov's life. He was one of the few people who saw the feasibility of Tsiolkovsky's ideas, at the time regarded as sheer fantasy by most people. From that day on he became one of the really dedicated enthusiasts of rocket engineering and devoted his life to its development and progress.

In 1933 GIRD (Group for Studying Jet-Propulsion) was formed. Korolyov was one of its sponsors and helped design the first experimental rockets. This small group of enthusiasts was the forerunner of today's collective of space scientists and designers.

The first manmade satellite **Sputnik 1** ***and the sputniks that followed, the 10 luniks—one delivered a Soviet pennant to the moon in September 1959 and another photographed the hidden side of the moon in October 1959—and the other spaceships that made the exploration of outer space and manned flight possible were designed and built under the direction of Korolyov.***

For his outstanding services Korolyov received the Hero of Socialist Labor award twice, the Lenin Prize and numerous orders and medals of the USSR.

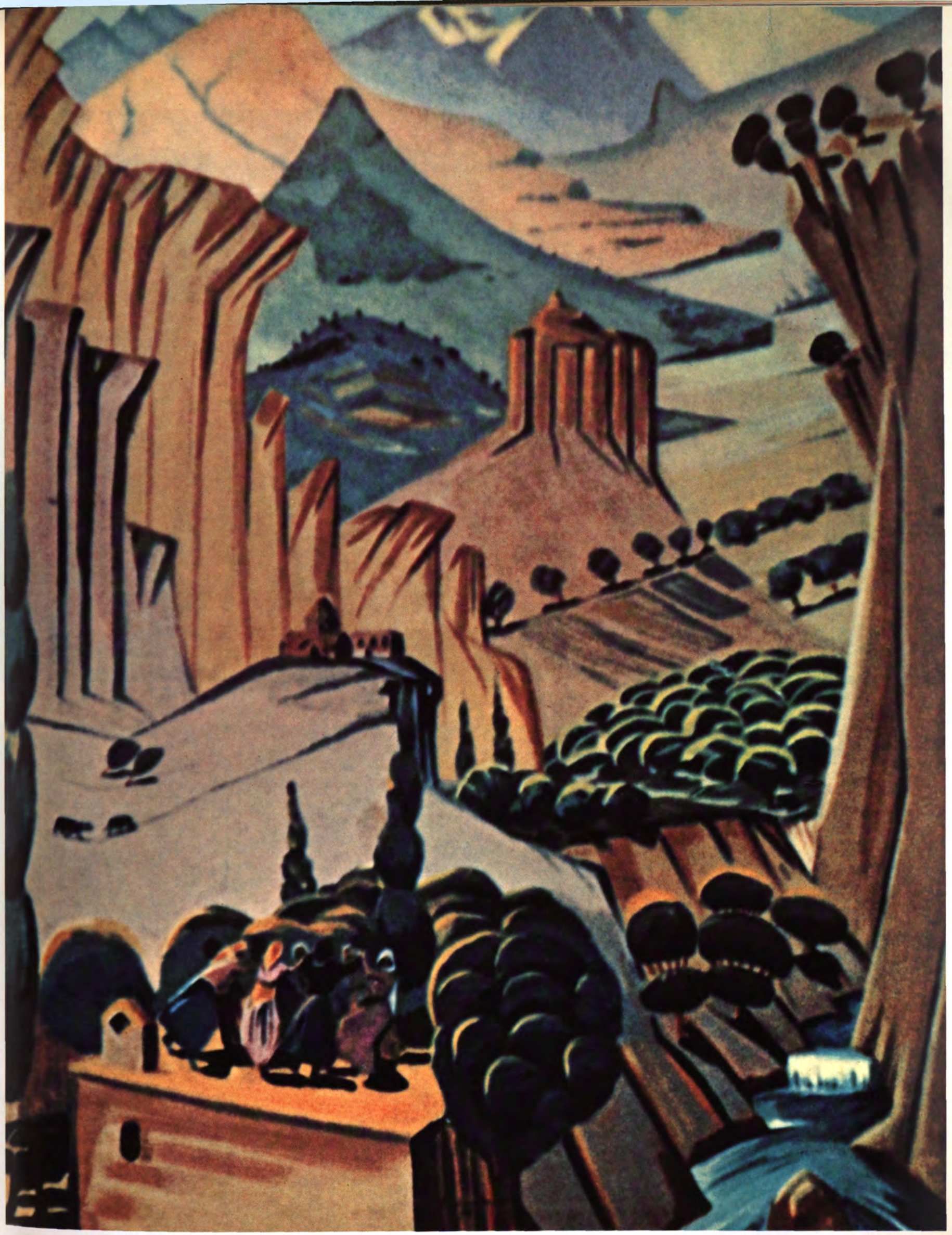
A grateful country honored Korolyov in death as in life, and his ashes rest in the Kremlin wall, the place reserved for the remains of those who dedicate their lives to mankind.

IN the last few short years we have had so many space flights that we have been moving imperceptibly toward a new quality. As all of you know, first we flew one-man ships; then a three-seater and now a two-seater is about to take off. It looks as though one-seaters will soon be going out of use. I think we might even forecast the next step. We will soon be asking ourselves whether it is worthwhile sending out such costly systems as spaceships for just a few days, whether it might not be better to put them in orbit and leave them there for long periods. Supplementary spacecraft of a simpler type would have to be used to provision the spaceships in orbit and relieve their crews, and they would, of course, have to be equipped with docking devices so they could be coupled with the spaceships in orbit.

It looks to me as though we are imperceptibly progressing toward qualitative changes in our ideas and the trends of our work in space exploration, near space as yet, with orbital flights near the earth. When we come to longer and more distant flights, you can see, of course, that our ships will certainly not be so separated as to make it impossible for one ship to communicate with another except by radio. For that would rule out any kind of mutual help, support, even such an ordinary but vital need as human relationship.

Why do we want to walk out into space? I think the simple answer is that if we are going to be flying in outer space, we must step out into that space, just as those who sail the ocean must learn to swim and can not keep being frightened about falling overboard. It will be required by any number of operations which may be necessary to dock ships and to make observations in outer space (incidentally, that will make observations much easier). It will also be necessary in case a ship needs repair. We feel strongly, for example, that when a cosmonaut steps out into space, he should be able to do all the repair jobs necessary, down to, let us say, welding. That is not an extravagant notion, it is a simple necessity. The longer people fly in outer space, the more strongly they will feel this necessity.

Finally, we have to reckon with a possible situation where one ship will be called on to help another. How will it go about helping? A ship is thermally a very well-protected structure, that is to say, it is a very strong structure. Which means that you may be able to approach a ship and not be able to do anything when you get to it. If you depressurize the ship by opening the hatch, the people inside will die. So, the system of docking and stepping out of a ship must be such as to make this kind of assistance possible and safe for everyone concerned. Here we may give free rein to our fancy and say that perhaps (particularly with big ships) they will not need to come very close. Perhaps they may even be several miles apart, hearing and seeing each other with the help of radio equipment. How would cosmonauts go from one ship to another? In a space suit with an individual oxygen-supply kit and some sort of motor? Hardly. They will need some kind of space taxi, a space lifeboat. A space taxi would be a necessity, particularly for long distances, since a man going out into space, say 10 miles from his ship, would have to carry with him thermal insulation, emergency reserves and safety equipment. He would have to be able to see his ship and the ship he is heading for. He would have to be able to reach the other ship and come back, to maintain communication with both ships. Also, we must allow for all sorts of support in case of emergency. With this in mind, it would be easier, I think, to make some light device which would not be affected by the earth's gravity, a device which would make it possible for man to move about in outer space.



Armenia. *Oil. 1923.*

MARTIROS SARYAN

Self-Portrait, Three Ages. *Oil. 1942.*

Memorial to the Armenian Fighting Men in the Great Patriotic War. *Oil. 1945.*

In the Mountains. *Oil. 1924.*

Portrait of Katarina Saryan. *Oil. 1963.*

Date Palm, Egypt. *Distemper on cardboard. 1911.*

Red Horse. *Distemper on canvas. 1919.*

Street in Constantinople at Noon. *Oil. 1910.*

The Artist

By Sergei Konenkov
People's Artist of the USSR

I ESTEEM SARYAN for his creative genius, his daring. Every artist follows his own road. Some lead to summits from which the future can be glimpsed. This is the road Saryan, who is over 80 now, has been following all his life, a road that leads to a nobler, more generous, finer kind of human being.

A student of the eminent Russian masters Valentin Serov and Konstantin Korovin, Martiros Saryan has been constant to the artistic principles he learned from them. This irked the critics, who accused him of every mortal sin. Today, however, he is a recognized master, a leading spirit in Soviet painting, a People's Artist of the USSR, a member of the Academy of Arts, and a Hero of Socialist Labor. He is at home in both Yerevan and Moscow, a tireless experimenter for whom nature is a laboratory, not a temple. Fifty years lie between his inspired oriental *Date Palm* and his latest work, a portrait of his daughter-in-law Katarina.

I am grateful that I am his contemporary, his colleague, his friend, because his living art gives people hope and a sense of promise —very important in this twentieth century. His work evokes from the viewer a creative attitude toward the world around him, awakens the artist in him. Saryan's paintings are like the elements, as beautiful as the sea, the mountains, the sun, the forests and the pure air of spring. Everything from his brush has the power of connotation, of suggestion, that makes great art great.

When he was still a young man, Saryan began his search for a style that would convey his sensations and observations with the utmost economy of line. He said at the time that nature was his home and his parent; that his regard for nature was permanent, his admiration for works of art short-lived; that nature, with its profusion of color and many faces, was always there to teach and was the only teacher.

Looking at the work Saryan has produced at different periods of his life, one feels almost physically the artist's organic fusion with nature. In his paintings the real world seems different. The artist reveals for us new and unfamiliar aspects. We look at his paintings and wonder how we could have failed to see a sun like that, a land like that, a man like that, before—although we had seen them all a hundred times. Saryan has the same ability the old masters had—to make us see anew.

I will not be telling you anything you do not know when I repeat this artistic truism—that the fewer words one takes to say something, the more forcefully is the meaning expressed, and the fewer lines there are in a drawing, the more powerful it is. This is very much a characteristic of Saryan's work.

His paintings take us to the snow-capped summits of Ararat and among sturdy suntanned harvesters. Each scene, still life or figure is full of the sunshine of his native Armenia. On his canvases the sun, caressing nature, glitters in a riot of color.

He has done portraits of the pianist Konstantin Igumnov, the composer Aram Khachaturyan, the stage director Ruben Simonov and the poet Avetik Isaakyan, among others. Different personalities, yet linked together by Saryan's brush, by his spark of genius, each one displays the richness of the sitter's individual world, his particular character, his particular vision.

The thousands of canvases he has painted comprise a land of radiant sunshine and kindness, a land we might well call Saryania.

THEORY, EXPERIMENT, PRACTICE

In science these days problems crop up not singly but in galaxies. Research is going on in countless labs, on everything from methods of treating radiation sickness to the design of a new movie screen.

Taking the Sun's Temperature

Neutrinos are the most amazing kind of elementary particles. Moving with the velocity of light, they could pass through a pig iron plate millions of times thicker than the distance between the earth and the sun. Other elementary particles would get stuck in a plate no thicker than your palm.

So far astrophysicists have only been able to study the processes on the surface of the sun. Light and radio waves bring the data. Photons are generated in the core of the sun. Can we use them to get a glimpse of the processes inside stars? Unfortunately, the path of a photon to the sun's surface is extremely complicated. It is likely to collide with another particle and perish in the collision, giving rise to another photon with a different energy. A million years will pass before some descendants of the original photon produced in the depths of the sun emerge on its surface.

Neutrinos are different. Born in the sun's molten depths, they get out unimpeded and preserve all the original information on the complex processes inside the sun. Thus, having registered the neutrino fluxes reaching the earth, we can learn what is going on deep in the sun and, more particularly, take the temperature of the sun's core.

At the Astrophysics Department of the Ioffe Physical-Technical Institute in Leningrad, a team of young scientists headed by Grant Kocharov have considered theoretically all reactions conceivable in the sun and then calculated the portion of energy carried away by neutrinos for each reaction. From their energy spectrum registered on earth, the scientists estimated the over-all energy and then the temperature inside the sun.

At present the assumption is that both the temperature and chemical composition of the sun change from the sun's center to its surface. Scientists have calculated the course of nuclear reactions and neutrino fluxes for different star models, taking into account the variation of temperature and chemical composition along each star's radius. From these calculations they have obtained new data on the possible neutrino fluxes from the sun. The calculations yield the upper limit of the neutrino flux and hence indicate that the sun's temperature is below 18 million degrees.

Woman at the Bottom of the Sea

Her French colleagues called Valeria Troitskaya "the world's first mermaid." She is a Doctor of Science (Physics and Mathematics) in charge of a department at the Institute of Terrestrial Physics of the USSR Academy of Sciences. She is also the only woman who has gone down in a bathyscaphe to a depth of 7,500 feet.

Dr. Troitskaya was invited by a group of French scientists to submerge in the bathyscaphe *Archimedes* to take magnetic and electrical measurements for developing a method for locating minerals at the bottom of the sea. The *Archimedes* spent eight hours in the Mediterranean, not far from Toulon, five of them at the bottom.

Flexible Houses

A coal field is a labyrinth of drifts and shafts stretching for miles underground with a sprawling miner's settlement on the surface. The ground above a worked-out tunnel may sag (as happens in the Donbas field) and a house will crack and have to be put in steel corsets. It will be safe to live in but damaged permanently.

Some time ago it was thought that houses should not be built over mines at all. Then it was decided to make them especially sturdy, with stronger foundations, thicker walls and heavier metalwork. This, however, makes them 15 to 20 per cent more expensive.

A team of engineers of the Donbas Research Institute has worked out houses made of independent sections. When the soil sags, the corresponding section lowers, but the house stays completely intact. The costs are no higher than for conventional units. Soon Donbas miners will be giving housewarming parties in these "rubber" houses.

Marrow Transplants for Radiation Sickness

New advances in research on the atom and on outer space call for a more thorough study of the effects of radiation and the prevention and treatment of radiation sickness.

Radiobiological research has been expanding in the Soviet Union. Key projects are protection against irradiation and studies of its effect on heredity, variability and development.

Nikolai Emanuel, Corresponding Member of the USSR Academy of Sciences, is studying the effect of free radical processes on living organisms. Free radicals are fragments of large molecules. As they break away, some of their bonds are left free. Hence their name. They originate as intermediate products under the action of radiation on organisms and various biological models. By selecting chemical compounds which tie up the free radicals, we can arrest or stop radiation injuries. The role of free radicals in the regulation of various processes and especially in metabolism will probably develop into one of the key trends in radiobiology research.

Transplantation of marrow is used more and more often to restore normal blood production in radiation sickness. Autotransplantation has been used successfully in many clinics. In this case conserved marrow is taken from the patient himself before his sickness. But suppose it is not needed?

Gavriil Strelin, Corresponding Member of the Academy of Medical Sciences, recently demonstrated the value of autotransplantation in partial radiation injuries. In these cases marrow taken from the patient after irradiation can be used provided it comes from those parts of his body which were not exposed or were irradiated comparatively slightly.

Radiation sickness is being checked and may soon be controlled completely.

Protean Movie Screen

Before it closed, the last century left us a gift—the movies. A few decades later the movies acquired a voice, and in a few more decades color. Then it was time for stereo. However, on a conyentional screen the view angle is only about 25 degrees, while the spectator's field of vision is close to 180 degrees. Therefore, only when stereo is complemented with a natural view angle, will the illusion of reality be complete. That effect was most nearly achieved by Cinerama, but shooting and screening by this method is complex and expensive. Another method, which is less stereo effective but cheaper and suitable for conventional movie theaters, is CinemaScope. Here the view angle does not exceed 80 degrees. But even that screen seems too wide sometimes! Of course, such a wide screen is a must for, say, shooting the battle scenes for *War and Peace*. But what about a close-up which must focus audience attention? The screen cannot be made smaller just for that, since the next shot may need a wide screen again.

The screen should change in size and shape at the film director's will! As a matter of fact, the rectangular screen was simply borrowed from contemporary arts like painting. Why should the screen always be rectangular? Why can't it take any shape, even the most fantastic, if that suits the script? The Leningrad Institute of Film Engineers has designed such a variscopic screen. The Mosfilm studios are shooting a varioscopic film, and audiences will soon see both in action.

BY OLEG STROGANOV

POLAR TRAGEDY

Sigizmund Levanevsky

Their Report about Themselves

Sigizmund Levanevsky, the son of a worker of Polish extraction, was born in St. Petersburg (now Leningrad) in 1902. His mother was left a widow with four children when Sigizmund was only eight. She sewed from morning until late at night to feed the family. The sonic background of his childhood and adolescence was the hum of a sewing machine, in his youth it was the roar of battle—he enlisted in the Red Army at 17—and the rest of his life it was the whir of airplane engines.

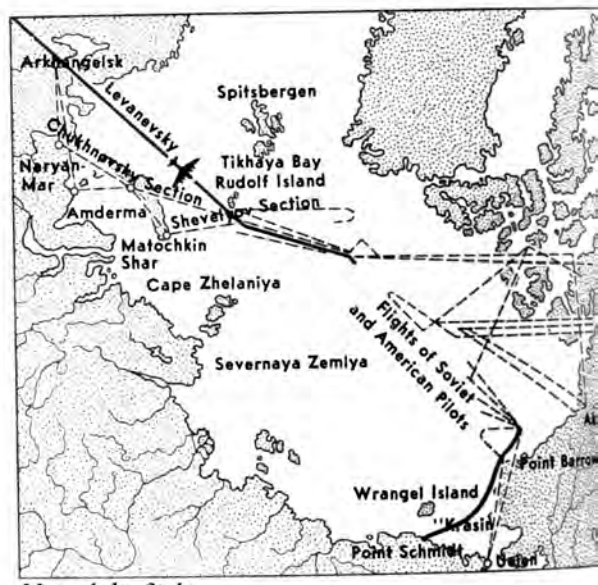
In 1933 Levanevsky asked the newly established Main Northern Sea Route Administration (Glavsevmorput) for an Arctic assignment. His first mission was to fly the two-engine seaplane *Dornier Val* from Sevastopol to Khabarovsk.

Nikolai Kastanayev, whose acquaintance he made just prior to the flight, was 29 and already a very experienced flier who tested seaplanes for the Air Force Scientific Testing Institute at Sevastopol. Sigizmund took an immediate liking to this strong, broad-shouldered young fellow whose job as test pilot had already given his frank, manly face the stamp of confidence and will power. His kindly and quiet certainty somehow carried over to Levanevsky.

The famous American flier James J. Mattern was then doing a round-the-world flight with several stops. One of the stops, in the area of Chukotka Peninsula and the Gulf of Anadyr, was unscheduled. The Soviet Union sent several rescue planes. Levanevsky and navigator Victor Levchenko made up the crew of one.

The sick and starving Mattern was found, and Levanevsky flew him to Alaska. When the Russian seaplane taxied up to the sandy spit at Nome and the unemotional Mattern got out, kneeled and patted and raked the sand with his hands, whispering: "America, America," Levanevsky was deeply moved.

He spent all that summer and fall convoying ships in the eastern part of the Arctic, following newspaper and radio reports on the



Map of the flight

drift of the *Chelyuskin* (Schmidt's expedition). News that the ship had been crushed by ice reached him in the Ukrainian city of Poltava, where he was spending his vacation. The next day, February 14, 1934, he was speeding northward, leaving an anxious wife, daughter and son at home.

Levanevsky and his friend Mavriki Slepnyov were authorized to go to the United States to buy two American planes for the rescue operations. From Alaska they flew these planes to the Chukotka Peninsula, with the intention of reaching Schmidt's icy camp from there. But at an in-between stop, Levanevsky was grounded and he had to be rescued himself. Fortunately six of his comrades had already ferried the whole Chelyuskin party to the mainland.

For their part in the rescue operations seven pilots, including Levanevsky, were awarded the very first gold stars of Hero of the Soviet Union, the country's highest honor. But his own accident bothered him.

The N-209 fueling up for its flight across the North Pole on August 12, 1937.

He preferred to forget this expedition, and in his later autobiographical sketches and articles we find only vague references to this flight.

It was during the Chelyuskin rescue period that Levanevsky thought of pioneering an air route to America across the Pole. In 1935, with Victor Levchenko and Georgi Baidukov, he tried it in a Tupolev-designed ANT-25. Somewhere over the Barents Sea oil spurted from an engine. Levanevsky wanted to go back. Baidukov, who saw that no more oil was escaping and that the engine was operating normally, wanted to go on. But Levanevsky headed for the mainland and touched down at the nearest airfield.

Only the very close reader of books and articles on aviation and Arctic exploration written at the time will find any mention of this unsuccessful flight. But deep inside Levanevsky was keeping a tally of his failures. He began more serious study of aircraft engineering and piloting and started planning a new expedition.

A busy summer schedule and assignments to aircraft exhibitions in London and Los Angeles prevented him from making immediate flight preparations.

Valeri Chkalov, Georgi Baidukov and Alexander Belyakov, followed by Mikhail Gromov, Andrei Yumashev and Sergei Danilin had the same idea. On June 18, 1937, at 1 hour 06 minutes Greenwich time, a red-winged ANT-25 took off from Shchelkovo Airfield near the capital and headed for America along the "white" route. The nonstop flight was successfully completed 63 hours 25 minutes later in Portland, Oregon. "We are the first but by no means the last." Chkalov had said. And indeed, "No sooner had the roar of Chkalov's plane died down over our heads than Gromov zoomed over the Pole to Los Angeles," wrote American newspapers.

That was on July 12. Exactly one month later, at the "lucky" starting hill in Shchelkovo, a new four-engine transport plane designed by Victor Bolkhovitinov was preparing for take-off. Crates of furs, cans of caviar and mailbags were loaded into the long, roomy body in addition to extra fuel tanks. The flight was to be a practical demonstration of the route the crew thought best for regular flights between the USSR and the USA.

The last test flight had just been made. There had been more than a hundred of them since that April day in 1935 when test pilots Yakov Moiseyev and Nikolai Kastanayev of the Moscow aircraft works first took the plane off the ground. The fliers had "tuned it," as they say, in flight. Beginning with low-altitude circles over the airfield, they had put the craft through the whole complex "training" course. When they reached limits for those days—speed 174 miles per hour, payload 12 metric tons, ceiling 19,700 feet and a range of more than 4,350 miles—the fliers decided to take a rest.

Take-off was in 24 hours.

They must have thought they were equipping the plane for every contingency—a rubber boat, guns, tools, a spare radio power unit, liquid oxygen cylinders and enough food for several weeks. Not much in the way of warm clothing. But that seemed completely unnecessary. The plane was to fly the whole way above the clouds and on the tail of the polar day. The sun would warm the cabin. They had checked that. On one training flight several days before, they had flown at 13,000 feet. The temperature outside was 4 degrees below zero, inside the cabin it was 50 degrees above. Levanevsky had not even had to change clothing, he had piloted bareheaded in sandals and a summer suit.

But suppose? . . . Copilot Kastanayev dismissed the thought, but it kept recurring. He had tested the aircraft. He should know all its possibilities. Certainly its design incorporated the best in home and foreign engineering. It was the first craft of its type to use semi-retractible landing gear, special shields, a smooth duralumin sheathing and special radiator fairings. The power unit was a little on the low side, but then all four engines, designed by Nikulin, were so conveniently placed that they were easily accessible from the inside for repairs in flight. He had often discussed this unpleasant possibility with Lev-

American flyer James Mattern (center) says good-by to Levanevsky, who flew him to Alaska.

anevsky, who insisted that if they had to, they could manage on three engines.

Their Report to Us

Next we look at the documents. These time-yellowed papers before us constitute the N-209's brief record up to the moment communication broke off. The thinnish stack of radiograms was much too sketchy to give us a picture of the flight and the accident or mistake, whichever it was.

. . . Afternoon. The sun is setting. The shadow of the big N-209 slides off the starting hill and, growing longer, extends all the way down the concrete of the airfield. Cars keep coming up to the plane, bringing government officials, friends, designers, newsmen.

Despite the bustle of parting, Kastanayev concentrated on the weather report just handed him. Not very promising. August fogs are frequent in the Arctic, so are low-hanging, leaden clouds and gales. Yes, Professor Boris Dzerdzeyevsky was right, they would be flying through the center of a cyclone and intersect at least two fronts with continuous high clouds and hurricane winds: one along the line Spitsbergen—Franz Josef Land, the other at the Pole or beyond it.

As for Levanevsky, he was wearing a well-pressed suit and an elegantly knotted, gay necktie, and was surrounded by newsmen. As was his habit, he answered their questions with his arms crossed on his chest. "Of course icing is possible. But we expect to fight it with altitude by flying above the clouds, above the zone of humidity, where the sun will help us navigate."

Only those who knew Levanevsky intimately had any notion of what that outward calm cost him. His narrowed eyes and clasped arms were saying: "This time I'll hold out to the end. Don't get the idea that I'm going to turn back, halfway, as I did in '35."

The navigator seemed unaffected by all this. He told the newsmen:

"Ours is the fourth flight this year from Moscow to the Pole: there was the Vodopyanov expedition to land the Papanin foursome on the ice, then Chkalov and then Gromov. But airplanes don't leave a track. The only trace left is in one's memory, one's heart. Chkalov and Gromov flew along the 120th meridian, but according to Levanevsky's plan, we will be flying along the 148th to Fairbanks, Alaska."

Victor Levchenko began asking Baidukov about American customs and was advised to take along plenty of small coins because Americans are fond of souvenirs. So the navigator went around with a hat that was soon so full of coins that going up the gangboard, he rattled like a child's savings bank. Next aboard were mechanics Nikolai Godovikov and Georgi Pobezhimov. They began warming up the engines immediately, while radio operator Nikolai Galkovsky, quiet and concentrated, made one more check with the navigator of the approach times to radio beacons.

Warmly embracing their friends, the pilots got into the cabin last. The big ship, its four engines and the airborne weight of 35 tons took artistic piloting, tight control and a steady hand. Since Kastanayev was more experienced and knew the plane better, Levanevsky told him to man the controls, he himself took the copilot's seat.

The take-off strip was cleared. A green rocket soared into the evening sky. Kastanayev revved up for take-off, released the brakes, and, as if it had come to life, the plane raced across the hill to the strip. It moved faster and faster. Now it was speeding down the take-off strip. The tail lifted, the undercarriage left the ground. A "Hurrah!" resounded over the airfield above the roar of the engines. And a hearty "Bon Voyage!" sped the aircraft disappearing behind the woods. Everyone applauded the perfect take-off. Air Force Commander in Chief Yan Alksnis looked at his watch: "Thirty-five tons and a 35-second ground run. Good boy, Kastanayev!"

That was August 12, 1936, the time 6:15 P.M.

Ten minutes after take-off Nikolai Galkovsky radioed to earth:

"Time 6:25. Transmitting on 55 meters. How do you hear me?"

Kastanayev flew quite low, as if unwilling to leave the earth. Perhaps he recalled his mother's request: "Please, fly lower." The bend of a river gleamed below, with villages scattered on its banks. To the left, as straight as an arrow, ran the Moscow-Volga Canal.

"Time 6:45. I can hear you on 32.8 meters. Audibility good. Have passed Zagorsk. All's well."

Radio contact was established. By evening it was cloudier and so while still over land, in order to rise above the clouds, the plane began its gradual climb up a great sloping hill, according to the flight program that had been worked out at the aircraft plant. Levanevsky, Levchenko and Kastanayev had then set the altitude at from 3,200 to 13,000 feet. The fliers knew that over the Arctic, to avoid cyclones, they would have to fly even higher, as high as the craft was able.

As they flew northward, new radio stations contacted them — Arkhangelsk, Amderma, Dickson Island—and the N-209 answered.

Below, one could see the melancholy vastness of the sea. Nothing there to describe. Now that the overland part of the flight was finished and the route lay across the ocean, dozens of Soviet and foreign stations kept track of the flight. Ernest Krenkel from the ice floe drifting near the Pole, the Canadian signal corps, U.S. Army communications and many weather stations transmitted reports on conditions beyond the Pole and in Alaska. They were disquieting: the cyclone in the East Siberian Sea was shifting rapidly toward the plane, the sky was clear over Alaska, but a cyclone was heading for the Pole from the Beaufort Sea. It was still 1,240 miles away—more than a third of the distance.

All four engines ran smoothly, bringing them 125 to 135 miles closer to their destination every hour. Kastanayev calmly manned the controls, glancing at the instruments. It was useless looking down, the Barents Sea was hidden in clouds. This made Levchenko a little nervous—a single break in the clouds and they could drop a navigational bomb which would leave large multicolored rings on the water and help fix their position. If only the night would end, then the sun would help out too!

"Time 2:20. Latitude 70 degrees 20 minutes, longitude 45 degrees 15 minutes. Altitude 8,200 feet. The sun has risen, solid clouds below. Temperature minus 25. Stand by."

"Time 2:54. At 2:25 we were at latitude 72 degrees 15 minutes, longitude 45 degrees 47 minutes. Altitude 7,500 feet. Flying over solid clouds. All is well."

With the sun they fixed their position, which proved to be 125 miles nearer the Pole. Levchenko cheered up. But Galkovsky had no time for talk. He was searching the ether for the call signals of Franz Josef Land. The crew of the N-209 knew that in this northernmost archipelago, at the airfield on Rudolf Island, Ilya Mazuruk was standing by. Mazuruk had recently returned from the Pole, where he and other fliers had helped the Papanin foursome. As a government commissar, he had to record the flypast of the N-209, and so he had the radio operators of Rudolf Island keeping a close watch. Mazuruk heard Levanevsky and Kastanayev talking to Ivan Papanin, and then he contacted them himself and gave them a weather report. He was very worried, Dzerd-

(Top) Levanevsky with Northern Sea Route administrator Ushakov and pilot Slepnyov.

(Bottom) Leaving the airfield with his family after the Los Angeles to Moscow flight.

zeyevsky's forecast was a fact: a cyclone was headed straight for the plane!

"Time 3:50. Hear both beacons well. But we cannot proceed directly to Rudolf. Heavy clouds to the east of the 50th meridian. We are heading for Alexandra Land."

"4:28. All is well."

In the 10 hours 13 minutes since take-off, 19 radio messages had been received from the N-209, including the last two, which appeared in the morning papers. In reports from their Moscow correspondents, *The New York Times* and the *New York Herald Tribune* commented on the fine take-off and said that American businessmen considered this the first trans-Arctic flight of commercial and passenger planes. Associated Press reported that Fairbanks was preparing for the landing and that everybody in town would be at the airfield. *Pravda* correspondent Lev Khvat, in a report he titled "The Golden Heart of Alaska," said that the famous American fliers William Levary and Clyde Armistead, who had been awarded the Order of Lenin for their work in rescuing the Chelyuskin men, had also arrived in Fairbanks to meet the N-209 and help ready it for the next stage of the flight to Chicago and New York.

While the presses were rolling off these news items in millions of copies, Levanevsky and Kastanayev were steering their plane upward to bypass the dangerous cyclone. Humidity and icing were their immediate worries. Dozens of Soviet, Norwegian, American and Canadian radio stations heard their call signals:

". . . RL . . . RL . . . August 13, 06 hours 44 minutes. Have passed over the front. Heading for Rudolf by beacon. How do you hear us? All is well."

It was still several hundred miles to the North Pole. Galkovsky's reports became fewer and shorter. The altitude was very great. The crew worked in oxygen masks. It was hard to move and breathe. And then at last:

"Time 13:40. Flying over the Pole. Made it with difficulty. Continuous clouds from the middle of the Barents Sea. Altitude 19,700 feet. Outside temperature minus 31. The ports are coated with frost. A strong head wind. Give us the weather beyond the Pole. All is well. Levanevsky, Kastanayev, Levchenko, Galkovsky, Godovikov, Pobezhimov."

All their thoughts had been focused on the Pole, they very much wanted to see that white spot at the top of the planet with their own eyes. But everything was hidden under heavy clouds. The plane flew along their upper edge, occasionally touching the tops with the wing tips. "To try breaking through the clouds would be suicide," though Levanevsky. "The wing edges are iced as it is. The craft has become heavier. If we only have the control and the skill to maintain altitude!"

Above the Pole the plane was headed to the right along the 148th meridan, as charted by Levchenko, so as to fly along it and reach Fairbanks by evening. But instead of the customary "all is well," Galkovsky radioed:

"Time 14:32. Outside right engine has failed on account of damaged oil pipe. Altitude 15,000 feet. Flying through solid cloud. Stand by."

"As soon as we got that radiogram in Moscow at the flight center," I was told by the famous polar flier Mark Shevelyov, recalling that tragic hour, "a simple calculation showed that 15,000 feet was the ceiling for three engines. This meant they were flying blind, icing up dangerously and drifting hard to the right. Headquarters immediately radioed the order: 'Descend to 6,500 feet at once!' but we never received the QSL signal, the verification, so to speak, that they heard us."

For all those who were tracking the flight, an anxious period of questions, guesses and speculation began. Had they reduced altitude? Had the mechanics been able to reach the dead engine through the passage in the wing? There was no answer to these questions for a long hour and twenty-six minutes. Finally a telegram arrived from Yakutsk, reporting that the local radio station had managed to decipher through the static:

"All is well. Audibility R-1."

In the International Radio Code this meant that audibility was poor. And another hour and fifty-five minutes later the radio station at Cape Schmidt thought they heard this message:

"How do you hear me? This is RL. Stand by."

Our Report About Them

It was like a brain dying away—one more flash of consciousness, one last impulse. Thus, across thousands of miles of polar ice, through whistling and static, we received that "Stand by."

At the request of the USSR People's Commissariat of Communication all the military, commercial and amateur radio stations of North America listened for the call signals of the Soviet aircraft. All Soviet stations searched day and night. Telegraph and telephone contacts were set up between Moscow, Washington and Fairbanks. All newspapers published the communiqué of the Government Commission.

In the first 24 hours after the accident, search operations were begun by the icebreaker *Krasin*, by a transport ship and by nine planes flown by Boris Gratsiansky, Vasili Zadkov, Ilya Kotov, Endel Puseps, Mikhail Kaminsky and other leading Soviet pilots. Then a group of three heavy planes flown by Mikhail Vodopyanov, Vasili Molokov and Anatoli Alexeyev and commanded by Mark Shevelyov headed for Rudolf Island and Mazuruk, from there to search the neighborhood of the Pole.

On the same day, August 14, three American planes flew out across the Arctic Ocean from Fairbanks. Joe Crosson's Lockheed Electra reached Flaxman Island north of Point Barrow but found nothing and returned to the coast at night. Two Fairchild planes with fliers Murray F. Stewart, S. E. Robbins and Armistead searched west and east. After flying 300 miles each, they returned to Fairbanks too, where Mattern had also come. That grand American flier, answering the same call that took old Roald Amundsen on his last flight in search of the dirigible *Italia*, could not be a bystander. He worked out a plan of flying to the Pole, refueling in the air from a Ford refueling aircraft.

The likelihood is that the crew of the lost plane was unaware of the rescue efforts, unless their receiver was still operating. A possibility—it had happened to the Nobile expedition. When the gondola of the dirigible *Italia* broke against the ice, the receiver was salvaged. The stranded men were able to follow the progress of the search by Soviet aircraft and keep up their morale.

"On August 17 again very faint signals were heard that might have come from the transmitter in Levanevsky's plane."

"During August 18 the N-209 transmitter could not be picked up with any degree of certainty."

Such brief phrases opened the Government Commission's reports those days. Newspapers sold out as soon as they hit the stands. Anxiety grew with every hour and day.

Then a report from New York appeared in *Izvestia*. A fourth American plane that joined the search August 19 had flown over big stretches of the Arctic Ocean off Alaska. The pilot Bob Randall had landed on various islands and questioned the inhabitants. The

Eskimos of Barter Island, 300 miles to the east of Point Barrow, said they had heard a plane at about the time Levanevsky should have flown by. The news fired new hope. The search area was extended: It included the Alaska coast, Franklin Mountains and Endicott Range, where a plane was headed from New York with the famous polar explorer Sir Hubert Wilkins and the Canadian pilot H. Hollick-Kenyon.

Unfortunately, a new cyclone from the Okhotsk Sea swept across all of Alaska and part of the Arctic Ocean to stop the rescue flights. Subsequently the feeling was that these two days of forced inactivity had consummated the tragedy somewhere on the ice. Still, more and more forces and means were being mobilized to rescue the six men.

Summarizing, as it were, the first week of search, Glavsevmorput Chief Otto Schmidt said in an interview with *Pravda:* "All told, search operations are being conducted by 15 Soviet airplanes and 7 foreign planes—in the American sector of the Arctic."

In response to this the British newspaper *Manchester Guardian* wrote:

"There is no reason to believe the flyers will not be found!"

Again on August 22 there were reports of faint signals heard on the wavelength and at times typical for Levanevsky's plane. Only separate letters could be made out."

The communiqués were shorter and less hopeful each day. They appeared less regularly. The beginning of the Arctic fall made flying harder. Before the polar night set in, a strip along the 148th meridian to 85 degrees north latitude was reconnoitered in detail. On September 19 American flyers broke off searching for the time. That same day the Government Commission stated that it was assigning an additional group to the western sector of the Arctic. It was commanded by Boris Chukhnovsky and consisted of four heavy aircraft equipped for night flying. Also, a ship was sent to Rudolf Island with five small planes for weather reconnaissance and communication.

Three weeks later, on October 7, 1937, the N-170 with Mikhail Vodopyanov and Mark Shevelyov and navigator Ivan Spirin on board flew through the falling polar night to the Pole and 100 miles beyond. They brought back no comfort.

It was two months since the last radio message from the N-209. Polar night enveloped the Arctic. But flier Babushkin suggested a new plan: Two planes were to fly from Rudolf Island to the probable site of the accident and set up a temporary base there that would be supplied by plane. With the base as a point of departure, the whole area where the six might be was to be gone over mile by mile. But the plan could not be carried out. Storms and blizzards kept everything grounded that winter. Not until January 16, 1938, did Sir Hubert Wilkins, exchanging his seaplane for a ski plane, try to reach the Pole from Alaska. On March 10 he repeated the attempt. Making allowance for the drift of the ice. Wilkins searched an area 43 degrees further east to 87 degrees 45 minutes north latitude. Approximately the same point in the American sector of the Arctic was reached on April 4 by Soviet flier Yakov Moshkovsky, who flew across the Pole from the west. Despite the excellent visibility, for the polar day was beginning, no traces of the expedition were found.

In the nine months of searching until April, 24 Soviet and 7 foreign planes combed 22,000 square miles of land, sea and ice. In May 1938 the Government Commission decided to call off the search. But the friends and relatives of the lost men hoped against hope and reason.

In the second postwar summer an English newspaper printed a telegram which said that Icelandic fisherman working off the coast of Greenland had found box slats with "August, 1937" in Russian letters etched on them frozen into the ice. They could have been the remains of the wooden crates carrying goods on the first commercial flight of the N-209 to America.

Above the Slopes of the Lomonosov Range

As for Levanevsky, Kastanayev, Levchenko, Godovikov, Pobezhimov and Galkovsky, theirs was the fate of those who perish and do not age, remaining in the memories of their contemporaries just as they were last seen—at the controls of a powerful plane that had flown thousands of white Arctic miles.

This was the thought unexpectedly formulated for me by the flagship's radio operator Alexei Chelyshev, when with 90 friends we were returning home from the first Soviet wintering in the Antarctic. It was August 1957, and the newspapers carried articles on the twentieth anniversary of the flight. A year later, at the beginning of the polar winter, much the same thing was said by Ilya Mazuruk, when his aircraft landed on the ice floe of the North Pole 7 station. And, as luck would have it, our talk about the flight took place precisely in the area where, according to the calculations of navigators, the accident had happened.

"It's hard to believe that right where we are walking our comrades died," Mazuruk said.

Later, sitting in the polar tent, Nikolai Belov, the chief of the station, unfolded a chart of the drift. The station was then 90 miles beyond the Pole. Under it was the submarine Lomonosov Range, from whose slope our geologist Kirill Samsonov had raised specimens of bottom rock with a trawl an hour before.

"The ice is drifting over a graveyard," Mazuruk finished off.

We were talking to him in the former Glavsevmorput office at 9 Razin Street in Moscow, to which Levanevsky's crew had radioed the final "Stand by." The office was furnished like the wheelhouse of an icebreaker: the walls hung with large-scale charts in a central polar projection, navigators' instruments lined up on the table. I had come to finish the talk begun seven years before in the ice camp North Pole 7.

The old flier, who had made a thousand landings on the ice, hundreds of them at the Pole, approached the big map marked with routes he and his comrades had traveled. Fortunately, each of the dotted lines, when it reached a point on the chart marked with a red flag, continued to the mainland. Only one of the dotted lines broke off somewhere beyond the Pole.

"I suppose this is what happened," explained Mazuruk. "With two engines on the left wing and only one one the right, it was hard to keep the plane straight. When the wings iced up, it lost altitude and did not obey the controls. Probably the venturi tube and the pitot tube iced up. Knowing Levanevsky, I'd say that though he gave Kastanayev the privilege of taking off in Moscow, over the Pole he piloted the plane himself, and once in the pilot's seat he probably stayed there until the accident. So it seems to me," Mazuruk frowned, "that with Sigizmund's generally impulsive ways, his piloting of the iced plane must have been just as unpredictable. Kastanayev, who sat in the righthand seat, could not see the instrument panel on the left. He could tell only by the reaction of the stick and the sluggishness of the pedals that the plane was not responding to the controls. The pilots' seats are at opposite sides

All set for take-off. A farewell embrace from Yan Alksnis, Deputy Commissar of Defense.

of the cabin, with a wide aisle between them. With the instinct of a test pilot, Kastanayev must have gripped the controls harder in an effort to straighten the aircraft. Possibly he managed to, but not for long. In the solid clouds which were probably sitting on the ice, the aircraft continued losing altitude. This is when Galkovsky must have sent the final "Stand by." What we were to stand by for, we still don't know. They had neither the time nor the opportunity to fix their position. The whole many-tonned bulk plunged onto the ice. This must have happened soon after the engine failed," Mazuruk concluded.

Others joined the conversation: Mark Shevelyov, Alexander Kalina, who personally knew Levanevsky and Kastanayev, and Victor Bolkhovitinov, the designer of the N-209, who also designed the world's first jet fighter plane in 1942. I talked to each of them but could not seat them all simultaneously around the table covered with a large chart of the Arctic showing the route that broke off somewhere beyond the Pole. For the sake of brevity, I shall present our many meetings and debates as a single conversation.

Shevelyov: "The ceiling was 19,700 feet, and I know from personal experience that in the Arctic clouds form up to 33,000 feet. That is probably the kind of front they encountered just before the Pole. In a case like that, there would be no sense in holding to the flight schedule and flying at top altitude."

Mazuruk: "That was when my radio operator at Rudolf relayed the headquarter's telegram instructing them to reduce altitude immediately."

Shevelyov: "Yes, when the engine failed, they should have reduced altitude at once. That would have increased their fuel consumption, reduced the load on the engines and given them more reserve power, enough to make Alaska. But in the situation that developed, banking or bumps in the clouds would be enough for the aircraft to lose speed and height."

Kalina: "But if they flew at the top speed of three engines, then they must have maintained cruising speed, and that would have prevented wing-heaviness."

Shevelyov (with a wry smile): "Yes, but don't forget that it was the far right engine that failed. The so-called "buttered-bread law" was operating, bread always falling with the buttered side down. The far right engine is the most important, and it always carries the biggest load. Icing does all kinds of tricks, even to a plane in perfect running order! And here we had unbalanced propulsion to complicate things."

Kalina: "Still, since they were obviously more concerned with keeping the plane airborne than sticking to the course, they must have drifted to the right of the 148th meridian trying to keep the plane from turning over. In the 3 hours 21 minutes when their two vague radio messages were heard, they must have kept flying and then made a forced landing considerably to the southwest of the area searched."

Shevelyov: "But we searched there too. And the conditions for landing were perfectly all right—great fields of pack ice. Vodopyanov flew over one for almost 16 minutes, and that's 28 miles. An excellent airfield!"

Mazuruk: "But if they had brought the plane down, it would have had to be a crash landing. It's very tricky landing on wheels on unknown ice. The undercarriage had no skis. If the landing gear was fully retractible, then it would have been possible to land on the belly, with the risk of breaking a prop, of course. The pilots and mechanics knew that in sufficient time. But I think they had no choice: the plane broke up either in the air soon after the engine failed, or when it hit the ice, but in falling, not landing."

Bolkhovitinov: "We can't possibly get the truth by considering the psychological factors alone. And as far as the facts go, we have very few to go by. But three things are definite. First: that unexpectedly bad weather and the danger of icing made them increase their altitude to the maximum at the Pole. Second: the altitude made them overspeed the engines and one of them failed. Third: with three engines left, the aircraft lost altitude, got into solid heavy clouds and iced up thickly. The conclusion to be drawn is that it all happened so suddenly and so fast that they had no time to even report their position. But we can't hold the commander and crew solely responsible, we can't blame them for the whole business. It was 28 years ago, but I haven't lost hope that the Arctic will eventually reveal its secret."

Listening to the designer of the aircraft, I couldn't help but think of the effort these words must cost him, this man whose dream fell short of its goal.

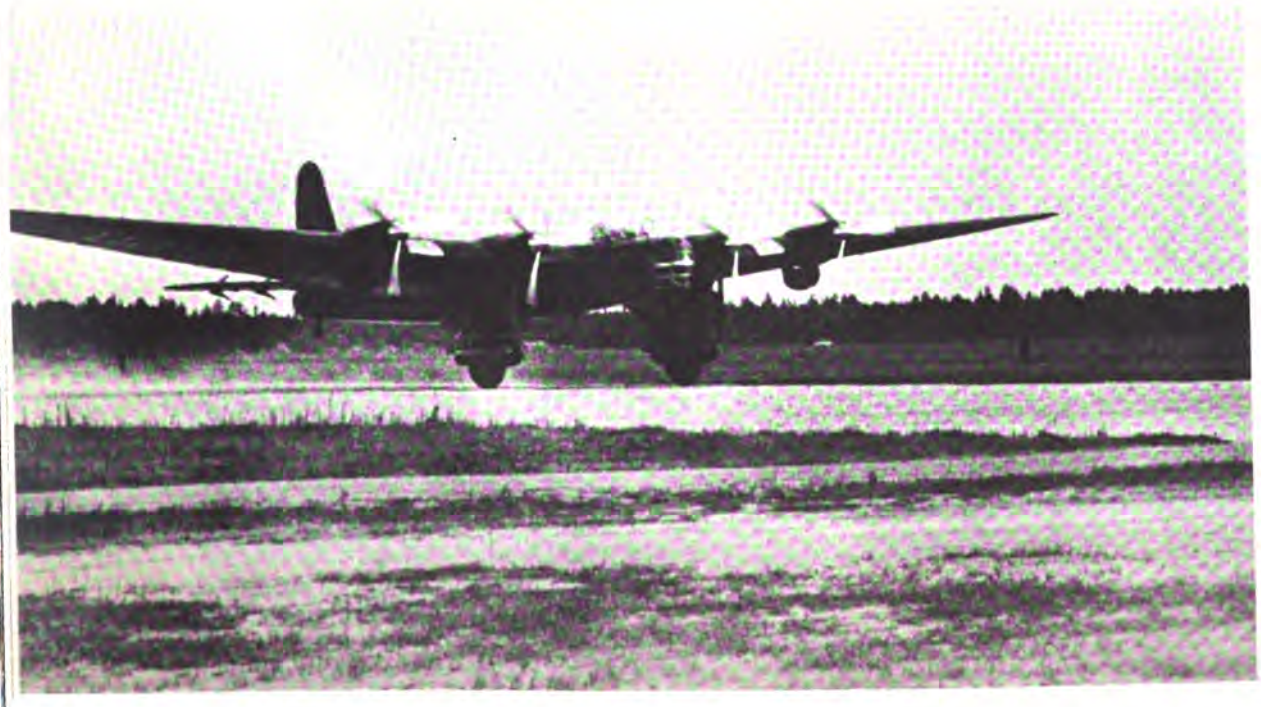
"And how about the fact that for several days various radio stations picked up what sounded like signals on the wavelength of the N-209?" I asked.

Mazuruk said: "I don't know too much about radio reception, but if I had been sitting at a receiver in those drama-charged days, I think I would have heard the signals too. They would have been transmitted to me by my emotions, hope, obstinacy, the wish to see my comrades alive, to find them, to save them! But, unfortunately, none of those who said they had heard the signals could make out any words or the position. Had there been a forced landing, had the crew survived on the ice for at least a few days, I'm sure they would have been found."

The search went on for nine months. All the resources of science, reason and faith were exhausted. But so long as there was the least hope, the Motherland did everything to rescue her six sons.

We are not saying this to console ourselves once more. The talk of these flyers, the comparison of facts, the new calculations are aimed at disclosing the secret which the Arctic has now kept for over a quarter of a century. Who knows, perhaps Victor Bolkhovitinov is right and some day the ice will cast something ashore that will tell us what happened.

Courtesy of the magazine Nauka i Zhizn



The heavy plane cautiously taxis out. The hoped-for route: Fairbanks-Chicago-New York.

YOUR QUESTIONS ON COMMUNISM

WHAT IS DIALECTICAL MATERIALISM?

Dialectical materialism is a philosophy whose foundations were laid by Marx and Engels in the last century. It is no hard-and-fast system. As social practice accumulates and we learn more about man and the world around him, it develops and is enriched, always open to every new advance of the human spirit.

How come "spirit," when materialism, as its critics allege, either completely denies or relegates to the background the spiritual, the ideal. Such assertions at best derive from an ignorance of the meaning of dialectical materialism. This philosophy does not either deny or minimize the spiritual factor. It says only that the spiritual, the idea, consciousness, thought cannot exist apart from the material and prior to the material. The ability to think appears only at a particular stage of the evolution of matter and exists only because the brain—its vehicle—exists. It is only in this sense that materialists assert matter to be primary and consciousness secondary, a derivative of the first.

Idealist philosophy has contrived any number of logical, at times very ingenious theories, to confute this basic thesis of materialism. However, no theoretical subterfuges can get around the decisive question, which is: Can one think without a brain? If one can, then idealism is absolutely right. If one can't, then materialism is right. Science, taking support from the obvious fact, categorically says "No!" Thinking, science declares, is a function of the brain. With an eye to the likely prospects of cybernetics, one could say that thinking is a function, a property of definite material patterns arranged in a definite way. This could be either the result of protracted biological and social evolution (the brain) or an artificial creation (a cybernetic device). In both cases the ideal originates at a definite stage in the development of the material.

Of course, one can *believe* in the supremacy of the spiritual. All religions are based on belief. Philosophy, however, insists on more than belief, it demands cognition.

So, to sum up: Ideas are secondary; they are the derivative of matter. This does not by any means imply that ideas are inert, says materialism. On the contrary, ideas play an active, transforming constructive role. Why? Precisely because consciousness, thinking, is the product of a material world. Ideas reflect this world and its laws of development. Hence, only materialism can provide the logic by which to recognize the activity of the ideal in material reality.

So much for materialism. Now to dialectics. In a very general form dialectics may be defined as the science dealing with the development, or rather as the science dealing with the most general laws of the development, of nature, society and thinking. Each of these has its own specific laws which are the object of study of the corresponding sciences (physics, chemistry, biology, sociology, etc.). However, in addition to these, so to speak, specific laws, general common laws of movement and development also operate. The principal and most fundamental law of this type is the law of the unity and struggle of opposites. This law says that struggle, the collision of opposite tendencies, their interaction, is the source of the inner impulse for development. Thus, taking the history of civilization, we see that this is a process of the continual birth, growth and resolution of contradictions (between nature and society, between the individual and the state, between different social groups, etc.). Some contradictions are temporary and transient; they are resolved and disappear. Others (for instance the contradictions between society and nations) are as everlasting as mankind itself.

Since it believes that all concrete forms of being are transient, materialist dialectics opposes any dogmatic acceptance of the system which exists. Marx said that dialectics incorporates in the concept of the existent system or form the concept of its negation, its necessary ending; it sees every social form in movement and therefore passing. It worships nothing and is in substance critical and revolutionary. It is this critical (and self-critical) approach that pervades the philosophy of dialectical materialism, making of it the imperative ideological force of our time.

ARE SOVIET SCIENTISTS ENCOURAGED TO DO PURE RESEARCH, STUDIES WHICH HAVE NO FORESEEABLE PRACTICAL APPLICATION?

The people responsible for planning research and for allocating grants have to decide what the proportion should be between purely theoretical and applied research. No more than a hundred years ago great discoveries were made by individual scientists working alone with crude instruments they often made themselves. Times are different. Your present-day scientist is more likely to say: "I have an idea, and if you give me 30 million and a staff of 3,000, maybe something will come of it." Not every director, not even one who directs research, will hand out grants for an idea with nothing much to back it. At first glance it would seem much more sensible to give the money available to research projects that promise immediate returns. However, experience has taught us to take a much wider view. "There is nothing more practical than a good theory," the well-known physicist Ludwig Boltzmann once said. Research policy-makers work on that premise in our country, also.

Applied research, promising immediate returns, is done, as a rule, on the basis of theories already elaborated and discoveries already made. However, sooner or later we exhaust the theory, and then we need a fundamentally different solution. If we don't have one, scientific and technical progress is retarded. To forestall that, long-range research that might have very little to do with immediate practical needs, must be done all the time.

We do particularly intensive pure research in mathematics, astronomy, cybernetics (bionics included), physics, chemistry and biology (at the molecular level). Since some of this research is linked up with foreseeable needs, strictly speaking we cannot call it 100 per cent pure. However, there are studies which the logic of scientific development itself demands. The results obtained may transcend the limits of foreseeable needs. They may be so much in advance of the times that we simply do not know how and where to apply them. We thus accumulate a stock of knowledge which, though useless today, may be very necessary tomorrow.

IS THE COMMUNIST PARTY OF THE SOVIET UNION AN AGENCY OF THE STATE AND IS IT SUPPORTED BY GOVERNMENT FUNDS? IF NOT, HOW IS IT FINANCED?

The Communist Party of the Soviet Union is not supported by the state and is not a government agency. The Party supports itself. Its Rules say:

"The funds of the Party and its branches come from membership dues, the income from Party enterprises and related sources."

The monthly dues range from 10 kopecks (for pensioners, students and people earning 50 rubles a month or less), to three per cent (for people earning 300 rubles a month or more). Here is an approximate estimate of the amount received from membership dues. The average pay is about 130 rubles a month. Out of this the Party member has to pay one per cent, 1.3 rubles. That will come to 15.6 rubles a year. Since there are 12 million members in the Party, total annual income from dues will be 187.2 million rubles.

The Party enterprises referred to in the Rules are newspapers and magazines, for the most part. The Party press has a very large circulation. *Pravda,* the official Party daily, prints about seven million copies, the magazine *Kommunist* more than 500,000 copies, etc. The income from these publications is substantial.

The estimates for 1966 show that membership dues will account for 65 per cent of the Party budget, and the proceeds from publications for 35 per cent.

The money is spent to maintain the Party organization, its schools and educational centers, the Institute of Marxism-Leninism and its branches, the Party archives and its various congresses, conferences and meetings. Auditing commissions accountable to the Party congresses and conferences check on expenditures.

Questions answered by Boris Alexandrov

"No one can become a Communist unless his mind has been enriched with a knowledge of all the treasures mankind has created."
Lenin

SHOTA RUSTAVELI

BY ACADEMICIAN IVAN LUPPOL

HISTORY HAS NOT handed down to us any dependable particulars about the life of the great twelfth century poet Shota Rustaveli. The chronicles of his time make no mention of him, and the painters who were his contemporaries did not leave us his likeness in their miniatures or frescoes. The familiar portrait, from which all later ones were copied, was found in a fifteenth century manuscript. The clergy did all they could to destroy or distort the ideas he embodied in poetry. And so we have no true biography, no authentic portrait, no tangible relic of the life of the "bard of Rustavi."

But this lack is more than compensated for by the heritage he left the Georgian people, his immortal *A Knight in Tiger's Skin*. Georgians have surrounded the name of their great poet with legend, have created his poetic biography, drawn his portrait, repeatedly retold and even continued his poem.

They carried Rustaveli's *Knight* in their memories and hearts through decades and centuries of foreign invasion, national captivity, alien oppression and internal tyranny. The common people—the peasants and artisans—recited Rustaveli's poem by heart to their sons, and it became the custom to include handwritten copies in a bride's dowry. Thus it served as a continuing reminder of the spiritual history of the Georgian people until their liberation by the Great October Revolution, when Rustaveli's poem flourished anew, adding its wealth to the literature of all the Soviet peoples.

A Knight in Tiger's Skin is a treasure house of ideas Rustaveli put into the mouths of his heroes. They are bountifully strewn through the poem, are quotable out of context and have become aphorisms in the spoken language.

There is perhaps no other poet in all of world literature who is as aphoristic, if one may use the term, as Shota Rustaveli. His *A Knight in Tiger's Skin* has more than 200 aphorisms of one, two, three and four lines. In this respect he stands high among the classics of epic and heroic poetry, from the legendary Homer to the greatest epic poets of the seventeenth and eighteenth centuries.

Classic epic poetry is full of apt and pithy expressions, poetic sayings, maxims, and even generalizations that have achieved the status of quotations in literary and colloquial usage. Misapplied culture ("A bit of Latin adorns one.") brings them into everyday speech. These quotations usually provide an isolated fact (for example, Homer's: "The day shall come and mighty Troy shall fall."), or deal with a particular circumstance, (Dante's inscription above the gate of hell: "All hope abandon, ye who enter here."), or are simply terse replies (Virgil's: "I fear the Greeks, even when bringing gifts.").

The history of world literature is full of such quotations. Not every quotation is an aphorism, however. An aphorism must contain a generalized philosophical concept and, in the case of a social-philosophical concept, should serve as a maxim by which men guide their actions.

Rustaveli, whose calling was poetry and not philosophy, deliberately (and he had every justification) garnished his poem with philosophical and ethical aphorisms, because for him poetry was a manifestation of philosophy, of wisdom. "The gift of song is an area in the kingdom of profound wisdom" is how he defined poetry.

In the foreword to the Italian edition of *The Communist Manifesto* Friedrich Engels characterized Dante as the "last poet of the Middle Ages and at the same time the first poet of modern times." This is equally true of Shota Rustaveli.

Man acts from reason and from the heart, said the Georgian poet:

"Man needs reason to support him."

"If your reason is your counsel, you will not be deemed a pauper."

Reason is acquired through work and experience, talks with good advisers and counselors:

"Study, for to be unenlightened is to be an ass."

"Counsel is beloved by wise men and hated by fools."

Rustaveli does not contrast the heart with reason; for him these are not two forces moving men to action but one force with two sides. Thus, one of his heroes, Asmat, says: "Heart and spirit, lucid reason—all are links of a single chain. Both the spirit and reason perish if the heart has died." According to Rustaveli, the heart and the emotions even outweigh reason. He puts this aphorism into the mouth of another hero: "Having heard a hundred counsels, do as the heart bids—it is wise!" As the poet saw it, the heart was not illogical and unreasonable, but a wise and sensitive prompter. He did not separate the rational and the emotional, as did learning in the Middle Ages.

For this reason all of Rustaveli's virtues, the qualities and standards of human behavior which he considered ideal, were both emotional, in the philosophical sense of the word, and rational. His virtues were love, friendship, fidelity and valor, and *A Knight in Tiger's Skin* is a poem of love, friendship, fidelity and valor.

Most of his aphorisms are concerned with the emotions, and more particularly with love. His concept of love is given in the introduction to the poem. It infuses all the aphorisms.

Rustaveli's love is a thing of this world, human love, an affinity of spirit. Love elevates, cleanses, ennobles man.

Love will elevate your spirit,
pure as newly born will make you;
But to lust if you surrender,
it will turn you into dust . . . .

Love is one of the most powerful of emotions; it is fraught with infinite happiness, but also and inevitably with sorrow, "That true love entails misfortune, mortals ever should remember."

Elsewhere Avtandil, the central character in the poem, expounds Rustaveli's concept of love:

Troubles lie in wait for lovers;
to escape from them is hopeless!
He who tastes of life's misfortunes
in the end will honey find.
Know that love is fraught with danger,
whirling mortal o'er the chasm,
Giving knowledge to the simple,
driving the wiseman out of his mind . . . .

But no matter how strong this emotion, says, Rustaveli, the enamel of love is inferior to the gem of friendship. Love without friendship is worthless, and friendship is stronger than love. Manly, courageous, selfless friendship—that is Rustaveli's central theme. Avtandil says:

Friend must for the sake of friendship
fear no trials and tribulations.
Heartstrings must respond to heartstrings,
love with love must pave the way.
Loving hearts all sing in chorus,
share their happiness and hardships.
Without friend our life is joyless,
though it shine as bright as day!

Truthfulness and fidelity are the principal and ideal virtues that must dominate a man's attitude toward his homeland and its sons. Love, friendship and fidelity expressed in courageous and heroic deeds—this is Rustaveli's poetic legacy. Death is to be preferred to shame: "Better perish, but with glory, than to live one's days in shame." Glory won in heroic deeds should mean more to man than riches: "Better that your name be honored than to hoard great wealth in chests." And it is in heroic exploits that one lends glory to his name: "Heroes who have shared exploits are by mortals idolized."

Rustaveli was not limited by his own time. His love for freedom made it possible for him to reach out to ours.

What is the secret of Rustaveli's immortality and perennial youth?

The answer is contained in his poem. Rustaveli appeared as sunshine in the dark history of his people. He was an "almond tree in bloom."

In the name of life we must live,
for the living give our life.

He created his poem in the name of life, in the name of and for his contemporaries and, therefore, he created it for posterity, for eternity. That is why it has come down through the ages.

This portrait of Shota Rustaveli was recently brought from Jerusalem by Irakli Abashidze, the well-known Georgian poet and author of the book **Following the Trail of Rustaveli.** It was found on one of the columns of the Jerusalem Cross Monastery, covered over with century-old layers of paint that had to be removed with the most painstaking care by restorers. That it was a portrait of the twelfth century poet was verified by a delegation of three scholars from Georgia who visited the monastery. With this only known representation of Rustaveli, scholars have been able to confirm the few biographical details that have been preserved in legend and song.

SCANNING SPORTS WI

THE WISE MEN who devised the calendar slipped up. They should have made the month of September longer, much longer. Because of their rush we have to crowd at least seven European and world championship meets into a month that has only 30 days. And what about national activities? Somebody should really do something about it.

A new September departure is the junior world championship in wrestling. This is one of the most generally favored participant sports in the Soviet Union. In the countryside it's a "must" at local festivities. Historians tell us that in ancient days wrestling tournaments in the Caucasus were also poetry contests. In this tussle of bards the best poet was obviously the one who could pin all his fellow poets to the mat. We wonder what would happen nowadays if the referee announced after a match that the two strongmen were going to recite their poems.

Enthusiasts insist there's poetry in wrestling. Whether that's so or not, the fact is that matches draw capacity crowds and always have. The older generation can still remember the time when no circus would travel without its strong man to take on all comers.

The Soviet Union is holding its own in wrestling and has even branched out into judo. We hold the European laurels in the latter event, and while we cannot yet hope to beat the Japanese on the Olympic level, we are trying hard.

Our statisticians have been combing wrestling results since the Olympics and have come up with the discovery that the rest of the world is slowly but surely climbing the performance ladder. That means competition at the next Olympic games will be razor keen. This junior tournament will give us an idea of how we're doing. It will also test the Olympic hopefuls.

Boating with Special Angles

Sailboat racing will also be coming in for a lot of attention in September. In the Finn class we pin our hopes on Valentin Mankin, who won the silver medal at the European championship off Lisbon last year. At the Tokyo Olympics the United States took the silver medal in this class.

Mankin comes from Kiev, where sailing is very popular. Glancing back to the 1960 Olympics, we see we had another medalist—this one was a Muscovite and an argument against the notion that the best sailors are born on the coast.

Here in the Soviet Union most of our sailing is done on inland waterways and reservoirs. Some of these power station reservoirs are veritable seas for size. And when the wind whips things up, the waves can be as rough as the sea in one of its turbulent moods.

Boating clubs are mushrooming all over the country. They provide the boats and the rest of the fittings. Everyone is encouraged to join, even high school students. The membership fee, which includes instruction, is about 30 dollars a year. The rules stipulate that before anyone can go out on his own he's got to pass a course of sailor's know-how. It includes the art of sailmaking and everything else a seafarer is expected to know, short of the hornpipe.

Sailing is gradually becoming a college man's sport, with special angles, of course. Remember how collegians in the United States tried to see how many of them could squeeze into a telephone booth? Ours are trying to do the same with sailboats. As a result, as soon as they learn to hoist sail on a small boat, they turn the thing into a vacation cruiser. Those who have tried it say it makes a fascinating vacation. But riverboat captains complain that the water is teeming with them. Said one venerable pilot, "When I was young we used to watch the river for sandbanks at this time of year, now you can't see the river for the sails."

The figures show that more people like rowing than sailing. Some row to build up muscle, others to work off weight. Interest is more or less evenly divided between sculling, kayak racing and canoeing. The last is a comparatively recent addition to the sports list. The Soviet Union has supplied quite a few winners in all these events, an indication of the popularity of the sport. What always excites comment is

TH VICTOR KUPRIANOV

that Soviet winners are well on in years. The explanation is that most folks look on rowing as a health builder and not merely a fad to be indulged in when they are young.

In Olympic rowing we have been lucky in the singles ever since we made our debut in the 1952 Olympics. Muscovite Vyacheslav Ivanov is typical of the Soviet school of sculling. Observers are impressed with the way he can develop speed and sustain it. Three Olympic victories seem to indicate that he might be a superman—but is he?

He started as a school boxer, then by one of those whims of fate he switched to sculling. His coaches got him started on physical fitness—this is standard procedure in all sports. At one time Ivanov was even wondering whether he'd ever get into a boat. Some people argue that this sort of physical fitness build-up tends to discourage an athlete who wants to go out and break records right off the bat. It sometimes happens that a boy wonder does appear and pulls off a surprise victory. But boy wonders are rare and they never last, which is why coaches prefer waiting to build up a sure winner to picking a fluke.

Good as Ivanov was at Olympic meets, he always ran into bad luck between Olympics. Just what it was, no one can say. At at any rate, our coaches believe they have found the secret of winning Olympic medals.

Recently Soviet eights have also zoomed into the foreground. One of our crack crews and Olympic designates will be competing at the world championship in Yugoslavia. This test is a sort of dress rehearsal for the Olympics. We believe that the American eight will be running up against some very strong competition from Europe.

Kissing on the Gallop

Equestrian sports come in for headline attention with a world championship in a three-day event. This is a test for both horse and rider. It includes dressage, endurance and jumping. The dressage affair is about the toughest test you can imagine. The program of the international three-day event held in Moscow last year says the object of dressage is "to test the horse's understanding of its rider." It all has to be committed to memory. If I were out on the course without the horse, I probably wouldn't remember those 12 exercises for which 7 min. 30 sec. are allotted. But then, that's what the horse is for—to prompt you.

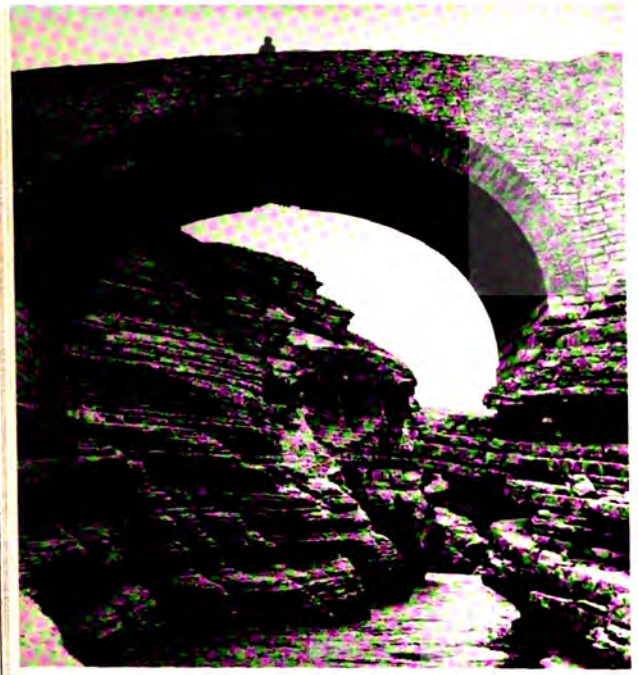
Lots of youngsters go in for equestrian sports. There are clubs all over. The horses come from the stud farms where they're bred as racers. The thoroughbreds that fail to make the grade are sent to the equestrian sports clubs.

One of Moscow's leading clubs is at the Hippodrome, as the race track is called. The youngsters are not only taught to ride but to train their horses and look after them. When you see a youngster headed for the race track with cubes bulging in his pocket, you know those are lumps of sugar. Funny about these youngsters—some of them bristle when mom asks them to run the vacuum cleaner over the rug, yet they'll spend hours every day rubbing down and brushing a horse. One young lady I know has plaited the prettiest braids on her horse—her own hair is a mess.

At the world championship in Britain the Soviet Union will probably be entering an all-male team. The fair sex will tolerate it this time, but, say those in the know, the girls will be making a very strong bid for the Olympic team. This should be no surprise—it certainly doesn't surprise anyone here. We already have girl jockeys—Miss Burdova is one, and she has several international victories to her credit.

In the Central Asian republics the girls can ride as well as the men. In fact one of the exciting events is the boy-chase-girl race. The girl goes racing down the track, the boy after her. If he catches up, he gets a kiss. Double prize—a kiss and the applause of the stands. If he doesn't overtake her by the end of the course, they turn around and she chases him—only this time with a whip flying, and she lets him have it. The skeptics say there's more to this race than a fast horse. They suggest that the girl may sometimes persuade her horse to take it easy.

I don't know. I've interviewed many a girl who has been kissed at the finish line. Not one admitted to reining in her horse. The answer was always the same: He was just faster than me! Well, maybe.



MOUNTAIN FOLK

By Robert Tsfasman
Photographs by Edward Pesov and Nikolai Rakhmanov

Please cease debates that gush like fountains
And leave your rooms so small and tight
And sally forth into the mountains
To see the world from a height.

Rasul Gamzatov

Translated, Daghestan means land of mountains. Half the territory of this small autonomous republic is sliced up by the ridges of the Northeastern Caucasus. This is a land of petrified rock, bottomless chasms, roaring streams and rugged cliffs. In this exotic setting live more than 30 small nationalities that have achieved independence and equality after centuries of conflict.

Daghestan is a land of curiosities, one big museum. There are ancient bridges here over which valiant warriors once galloped, and the ruins of castles hidden in the underbrush. The republic is a pleasing blend of past and present, where ancestral custom does not forbid travel by helicopter, and national dress does not look out of place against the bright background of southern cities.

If you are a worthy man indeed,
You must blazon with enthusiasm
That a manly heart is like a steed,
Hurtling through the mountains o'er the chasm.

Rasul Gamzatov

VILLAGES nestle high in the mountains. Their days are never gloomy since the clouds float somewhere down below. The high altitude villages look more or less alike, but each has its own traditions and sometimes its own language. Some villages, or *auls* as they are called here, are very famous. For instance, Kubachi (upper photo) is known for its goldsmiths and silversmiths. Silverware made by Kubachi masters attracts attention at many international exhibitions. The *aul* Chokh is famous for its sheep breeders. Tsovkra is the homeland of a whole dynasty of tightrope walkers. Urakhi is a "partisan *aul*." During the Civil War almost all its population fought against the White Guards. Megeb is a village of heroes. Two centuries ago its inhabitants routed the Iranian army of Nadir Shah in the remote gorges, and in 1941 Magomed Gadjiyev, a native of Megeb, commanded a submarine that sunk three German ships in a single battle.

Daghestan is the birthplace of 39 Heroes of the Soviet Union. Courage and love of freedom are bred in the bones of these mountain dwellers. In the *gazyrs* (breast pockets of their national costume) the people of the Caucasus traditionally carry rifle cartridges. It used to be that Daghestanians spent their whole life in the saddle, always with rifle to hand.

Youth rushes by like a mountain stream
rampageous
What has flown will never more return,
Youthful exploits that like a beacon burn
Memory will carry through the ages.

Rasul Gamzatov

THE ADAT—the unwritten law of the mountains—assigned a secondary role to women. To win the hand of a mountain beauty, a young man often had to shed blood, but the very next day after a sumptuous wedding, his wife became little more than the servant in his house. The only place she ever went was to the spring and back again, a heavy copper pitcher on her shoulder. The men left their homes for long periods. Crop failure and hunger drove them from the mountains and the steppes. Some went to the neighboring towns, others still farther afield, to Russia.

Now 32 per cent of the republic's people live in towns. Makhachkala, the capital, is a Caspian port (upper photo), from where meat, fish, wool, fruits, oil and glass are shipped to other parts of the country. Freighters with machines, lathes and equipment for power stations unload here.

Cutting deep canyons in the mountains, Daghestan's turbulent rivers—the Terek, the Sulak, the Samur—rush to the Caspian. Their potential energy is enormous, but the first hydroelectric power station was built only just before the war. By modern standards, the capacity of the Gergebil power station (lower photo) is not great, but a start has been made. Villagers from remote *auls*, who had never before come down from the mountains, are building dams and factories. Local intellectuals are working in the new schools and hospitals.

Makhachkala University and colleges elsewhere in the country have 11,000 Daghestanian students enrolled. Among them are young people from nationalities which, though represented in the Supreme Soviet, have no written language of their own and read newspapers published in the more widely known tongues—Avar, Darghinian, Lak and others.

People of my country have before them
Rules of conduct, old, and very recent.
If the world at large would not ignore them
Then the world would be a lot more decent.

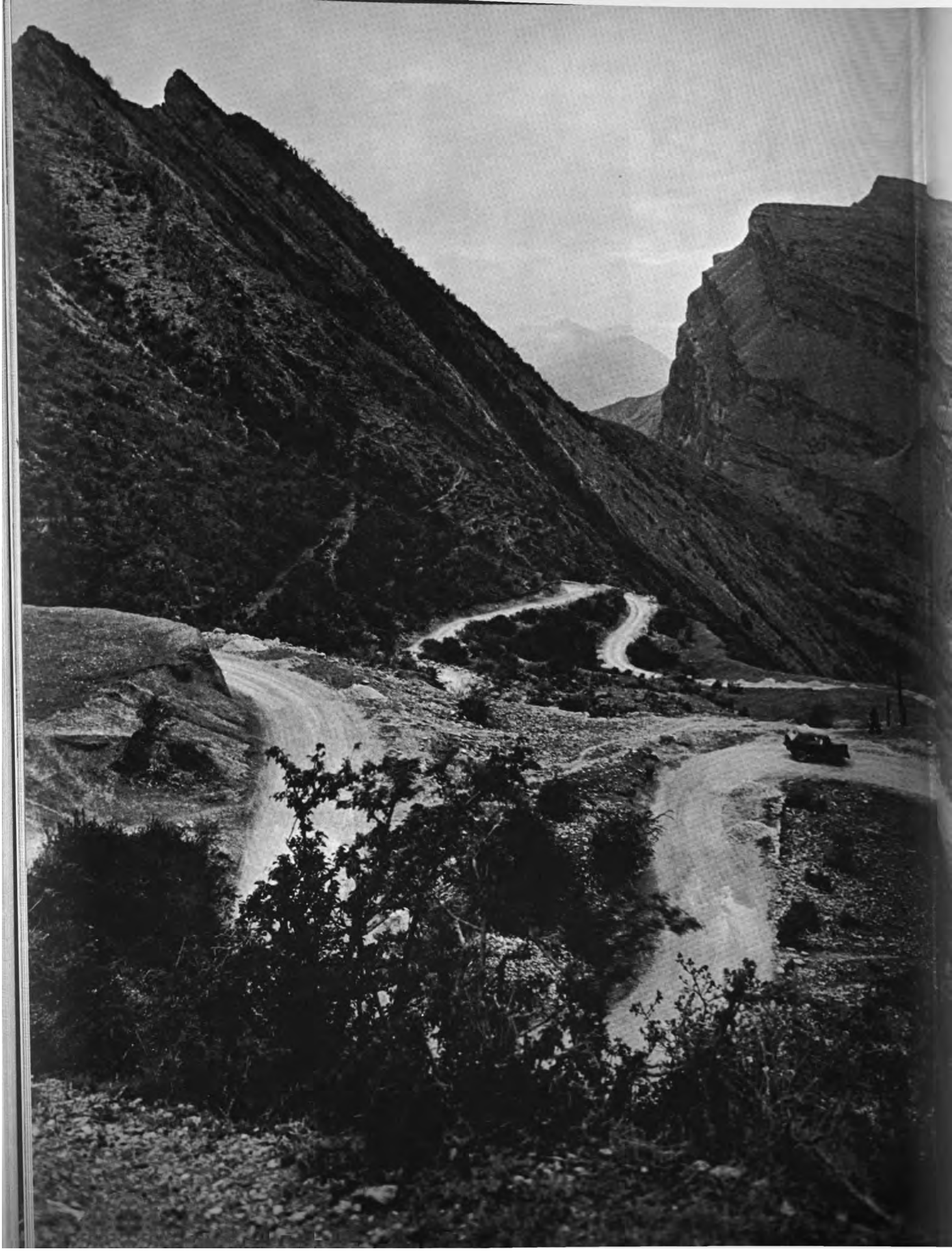
Rasul Gamzatov

ONE of the traditional Daghestanian trades is carpet weaving. Women of the Tabasaran *auls* are famous for the craft. They weave fascinating designs as colorful as the mountain meadows of their land. The Tabasaranians' love for bright colors is reflected in their costumes.

Once Tabasaran was also famous for the holy places that drew pilgrims from the neighboring *auls* and distant Arab countries. The Daghestanians are Moslems, and there are many mosques in the region. There were those who tried to frighten the unenlightened mountain dwellers. "The Bolsheviks persecute believers," they said. *Giaours* (unbelievers, heathens) wrote in their proclamations: "The Military Revolutionary Committee does not intend to interfere with Islam, nor with the rights and customs of Daghestan. . . ." Even today, from the tops of the mosques, muezzins call the faithful to prayer.

On festive days the Daghestanians gather to the sound of the *zurna*. This is a cleverly built instrument that can play without a pause, as if the musician had the lungs of the legendary hero Nart. The *zurna* has a plaintive sound, but the folk festivals are both gay and solemn, in the oriental fashion, especially the Festival of Cherries. The cherries ripen early here, and the festival is held in late spring after they have been gathered. It always concludes with the mercurial Caucasian dance, the *lezghinka*, with its leftovers of pagan ritual.

However, in addition to the exotic, there are also the prosaics of everyday life. The Daghestanians are a hard-working folk, and nature in the Caucasus is bountiful but cantankerous. For ages the people here have suffered from drought. The rivers in the Daghestanian plains often dry up in summer, while up in the mountains the eternal snows glisten and streamlets gurgle from under the glaciers. So thousands of people have come down from the barren heights and have dug canals to carry the water of the mountain streams. The map of Daghestan is crisscrossed by blue lines. This small republic now contains a quarter of all the irrigated lands in the Russian Federation.

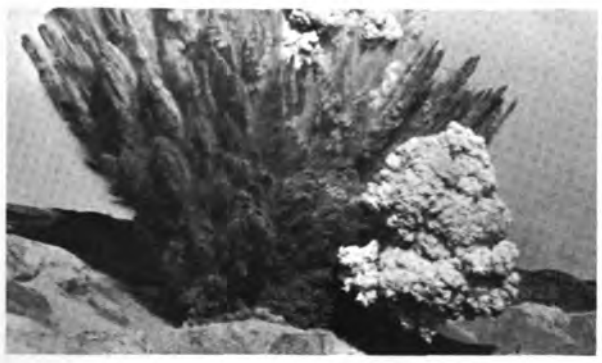


While far off in silence everlasting
Mountains watch, as people rush about,
Watch so stern, such woeful glances castir
As if they would say: Our time is out.

Rasul Gamzat

Life in this country is full of contrasts, and many things

changing rapidly. The once secluded mountain girls ar



city women

for the ancient na

Somewhere in its very heart the

sions announces the blasting of new roads. Not far from the bridge across the Great Sulak Canyon

a dam as tall as the Empire State Building is to be built for Daghestan's new million-kilowatt Chirkei Hydroelectric Project.

Only the mountains are unchanged in their grim majesty, and, as of old, idyllic flocks of sheep roam among the sleeping giants. But the land of m

IN SOARING FLIGHT

BY YURI KHAZANOV
Writer and Translator

y 200 years ago there
d-Baku Express had
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merable dialects!

There is a Caucasian legend that when a messenger of God was sent with a bagful of languages to fly over the earth and distribute them evenly, on reaching Daghestan, he was careless enough to leave the strings of his bag loose, and before he had time to fasten them again, the harm was done. Over 30 different languages had slipped out of the bag and dropped down on the people of this small country.

But to get back to the house on Buinakskaya Street with the sign "Writers Union" on its door, if you drop in you will be met by the chairman, Rasul Gamzatov, a medium-tall, gray-haired man with a young face.

He is a poet so popular in his republic that he is called affectionately by his first name. Rasul is a common Caucasian name, but to Daghestan people there is only one Rasul, Rasul Gamzatov. His verses and aphorisms admired for their wisdom and originality, have become household words.

His advice to young poets is t *hemselves, in their verse as well as in life, whether* *curse, for "both the white shroud and the wedd* *the same needle." The nightingale's one s* *him because it sings the glorie* *disdainful of bustling, fussing* *they had a hundred years to li* *hoary mountain tops frozen in* *they had but a fleeting five min*

Gamzatov's poetry is impass *also ironic and humorous. H* *breathe the age-old wisdom of* *dagger, for example, reads:* *dagger's best place." Another o* *one neither wise nor known to* *head to him for he was a man!"*

He recently put a legend he i *is it.*

Once upon a time there lived *was a brave warrior, but since he* *than a single dagger, he could not* *too, but owned only a single goat so* *beard too heavy to drag. The man was* *but he had only one fruit tree which neve*

disgusted did he become that one day he drew his dagger, cut down the tree and carved out of it a kumux *(a local musical instrument). Then he slaughtered the goat and out of its sinews made strings on which he could play and sing the sad fate of the mountaineer.*

Many years have gone by since. These same mountain dwellers who were once cut off from civilization, were illiterate, had no written language, never saw a movie or newspaper, now publish 52 newspapers in nine languages (including Russian), a woman's magazine and a literary monthly called Druzhba. *On the staff of* Druzhba *are a Lezgin prose writer, a Darghin poet and a Kumyk dramatist. Writers of many different nationalities —Avars, Laks, Tabasaranians, Tats—crowd into its office to discuss an issue.*

Daghestan is a land of rugged and contrasting beauty—the Caspian shores and the Nogai steppes, the Terek tableland and the Greater Caucasus Mountains cut through by deep canyons. Bazar Dyuzi is Daghestan's loftiest peak. Around it cluster many smaller but no less stately mountains.

In literature grouped around Gamzatov are many distinguished men of letters. There is the poet Anvar Adjieyev. He is very lyrical about sun and sky, but the roots of his poetry are in solid earth. Thus to his heroes the sky is often a "drinking trough" for the "golden company of sheep," "a granary whose walls are the Milky Way and whose grain is starlets." It is "a roof held together by nails of gold" or a meadow "with hurtling steeds of rockets."

Zulfukar Zulfukarov, another writer, was still very young when he came back from the war badly wounded. He did a superhuman job of muscle training, and now swims regularly in the Caspian even in the winter and looks as fit as a star athlete. He writes humorous sketches and adventure novels for children. Incidentally, a number of leading Daghestan authors, among them Rashid Rashidov, Magomed Yakhtayev, Nuratdin Yusupov, Abdul Mirzayev, Kiyas Medzhidov and Izamit Asekov, write nursery rhymes, riddles, animal stories and puppet plays.

They no longer "bake a loaf out of a handful of dough leavened by a pitcher of water," as Rasul Gamzatov phrases it, no more of the old black-and-white pictures of life. Their writings sparkle with the rich colors of real life.

The road to one of these writers runs through mountains, across passes and turbulent streams. At first a few houses burst *to view and then a street, narrow and winding, that pours into* *small square like a streamlet into a lake. Scattered on all* *es of the square are great smooth boulders. This ancient* *re has been the gathering place of generations of villagers.* *they listened to their elders, heard the latest news and set-* *portant matters. It may very well be that in this square the* *mountain dwellers refused again and again to sign the* *iating terms of surrender offered them by Nadir Shah of*

s village is the home of Omar Gadji Shakhtamanov, a *s teacher who is also a poet. His verse pays tribute to both* *lls of the mind and the hands of the herdsman, tractor* *l grain growers he lives with.*

Jafarov, a journalist living at the other end of *s stories of his land and its people for the local*

k full time, others divide themselves between *d other jobs, but their common theme is the* *heir people.*

of Daghestan poetry published in Makhachkala *o was titled* In Soaring Flight, *an apt description* *u state of literature in this small mountain republic.*

QUERIES FROM READERS

QUESTION: What does a college education cost? (F. C. Pollard, New Bedford, Massachusetts)

ANSWER: College education is free in the Soviet Union. The government pays for it—more than a thousand rubles per college student per year, besides maintenance stipends.

QUESTION: How about dental bills? (F. C. Pollard)

ANSWER: Dental service in all state clinics is free. There are also state-operated commercial clinics which charge a fee. The rates at these clinics vary. A consultation is 20 kopecks, a filling 40 kopecks, treatment involving two or three visits 1 ruble 20 kopecks. A complicated extraction with anesthetic costs 80 kopecks, a simple extraction 40 kopecks. A plastic or metal crown is 2 rubles, a combined metal-plastic crown is 2 rubles 60 kopecks. The cost of partial, removable artificial dentures varies from 1 ruble 80 kopecks to 6 rubles 70 kopecks. The top price for a complete set of removable artificial dentures (uppers and lowers) is 14 rubles. (One ruble equals 100 kopecks; 100 kopecks equals one dollar and 10 cents.)

QUESTION: Rent, consumer goods and food bills? (F. C. Pollard)

ANSWER: Rent and utilities (gas, electricity, telephone) average three to five per cent of a family's income. About three quarters of the income goes for food, clothing, furniture and consumer goods generally.

QUESTION: Vacation costs and where to go? (F. C. Pollard)

ANSWER: There are more than 4,000 health and vacation resorts and more than 500 tourist bases for campers, hikers and mountain climbers. Many people have their own *dachas* (country cottage) or visit relatives who live on farms or by the sea. About a million Soviet citizens spend their vacations abroad each year.

As for costs—accommodations at tourist bases and health and vacation resorts vary, of course. They run from 30 to 180 rubles a month. In most cases, however, part or all of the bill is paid by the vacationer's trade union.

QUESTION: Price of beer, wine, vodka and cognac? (F. C. Pollard)

ANSWER: Vodka is 2 rubles 50 kopecks to 3 rubles 50 kopecks a bottle (half a liter), wine is 1 to 4 rubles, beer is 25 to 70 kopecks. The cheapest Soviet cognac is 4 rubles, the most expensive is 10 rubles.

QUESTION: I am interested in your fishing industry and its economic importance. (Mrs. Dale R. Rubenstein, Jersey City, New Jersey, and Arthur W. Stier, Newton, Massachusetts)

ANSWER: Our fisheries are run mainly by state fleets and fishery collectives. Most fishery collectives are located on inland seas, lakes and rivers, the state fisheries, on both inland waters and the high seas. In volume of catch and processing, our fishing industry is third after Peru and Japan, with an annual 5.8 million metric tons of fish products. During the current five-year plan period (1966-1970), the annual yield of fish, whales, sea animals and sea products is to reach 8.5 to 9 million metric tons.

Our press has been calling for strong action to stop the waste of industrial resources—destructive lumbering practices, strip mining, and especially pollution of the country's rivers and lakes with industrial sewage and the consequent poisoning of fish.

QUESTION: What is the social stratification of your society? (Mrs. Dale R. Rubenstein)

ANSWER: First of all, let us decide what we mean by "strata" and "classes." Those who argue for such concepts as "social stratification" say that "classes" are obsolete and that the term should be replaced by "strata." The criterion which fits a person into one or another stratum is, however, very indefinite. It might be vocational, for example, and then the president of a corporation and a clerk employed by the same corporation would be in the same stratum, both white collar workers. Another criterion suggested is psychological, that an individual should decide for himself what stratum he belongs to.

Marxists say that the basic indicator of class distinctions is relation to the means of production, all other indicators are peripheral. The nature of ownership determines how profits are made, who makes them, who gets them, how big they are as well as the class structure of society.

Since the Revolution, the class structure of our society has changed radically. Landowners and town and country bourgeoisie ceased to exist as social groups after private ownership of land and factories was abolished. A society came into being in which there are no exploiting classes, a society composed of friendly classes and social groups—the working class, the collective farmers and the intelligentsia. About half of our population are workers (before the Revolution it was only 15 per cent), about a quarter are farmers (before the Revolution it was about 50 per cent), and a little less than a quarter are professionals.

QUESTION: As a baker I am interested in information about my trade in the USSR. (R. Eachon, Spokane, Washington)

ANSWER: Except for the small bakeries, the trade is largely mechanized. The major suppliers of bread (100,000 metric tons a day) are the 2,000 mechanized bakeries, where the baker's hands never touch the dough.

The temperature, moisture and other factors at these bakeries are automatically controlled. Machines mix the dough and feed it into the ovens. All the baker does is see that the set conditions are maintained. Automated bakeries operate round the clock in three eight-hour shifts. Wages range up to 150 rubles a month. A baker gets a day off every three days, *i.e.*, eight or nine days off a month, and a month's paid vacation, with his trade union providing cut-rate or free accommodations at one of the country's resorts.

Many bakers continue their education. There is a whole system of free schools—day, evening and correspondence. Experts are trained at food industry institutes in five to five and a half year courses; technicians and economists at 15 technical schools in four to four and a half years; master bakers at 100 trade schools in two years. Upgrading courses are given right at the bakeries. If three-shift work interferes with studies, management is required to transfer the baker to a one- or two-shift schedule.

QUESTION: I would like some information on Soviet aid to the Aswan Dam in Egypt. (Wayne S. Huff, San Jose, California)

ANSWER: The Soviet Union is providing both economic and technical aid for the Aswan project (dam, power plant and 1,700 miles of high-voltage transmission lines). That includes long-term loans at 2.5 per cent per annum of 292 million rubles (324 million dollars). In the last six years thousands of Soviet experts in all phases of construction have passed on their experience to some 13,000 Egyptian colleagues. The project was designed by the Soviet Gidroprojekt Institute. Equipment is being made at more than a hundred of our plants. Well over 300,000 tons of equipment have already been shipped from the Soviet Union to Egypt.

The first three of the 12 turbines are to be put into operation next year, and the whole Aswan complex by 1970.

QUESTION: I was born in Alexandrovsk. I would appreciate information on the town. (B. A. Pregozen, Chicago, Illinois)

ANSWER: Since 1921 Alexandrovsk has been called Zaporozhye. It is one of the Ukraine's big industrial and power centers, known for its iron and steel mills. It was here on the Dnieper River that the largest prewar hydroelectric power station (Dneproges) was built. The city has become an important railway junction and large river port. Its population is more than half a million. The industrial plants are separated from the riverside residential area by a wide belt of parks.

The city has a television station, four colleges, ten technical schools, more than a hundred grade schools, theaters, a concert hall, dozens of movie houses, palaces of culture, libraries and a dozen newspapers.

QUESTION: How is television broadcasting organized in the USSR? (Mrs. Christina Neslin, Spokane, Washington)

ANSWER: Television and radio broadcasting are directed by a single state committee. The first television broadcast was in April 1931. We now have 120 television centers and 500 relaying stations. Via periodically launched satellites, television broadcasts from Moscow can be seen in the remotest corners of the country, as much as 6,200 miles away. In addition to the three basic television programs, we do experimental color broadcasting. Each of the 15 union republics directs its own television center.

Within the next five years the plan is to build another 120 television centers and to increase the annual manufacture of television sets to 7.5 million. In 1965, 3.7 million sets were manufactured, to make a total of 16.5 million in the country.

THE TRADE UNION ON OVERTIME

By Mikhail Karelin

Trade Union Committee Chairman, Novosibirsk Tool Factory

ONE EVENING the factory guards stopped a man who was climbing over the fence onto the grounds. He turned out to be Semyon Vetvitsky, a fitter employed at the factory, a responsible worker and a man in full possession of his faculties.

"I was just going to my shop," he told the guards. "I'm in the middle of a job that I want to finish. I knew they wouldn't let me back in after my shift, so the only way was over the fence."

The incident is odd but true. And it illustrates the point I want to make—that we do not encourage people to put in time after working hours.

There is probably not a factory in the world, however, where the workers do not put in some overtime. They say that even at the space launching sites, with their superrigid daily schedules, the staff works overtime before a spaceship goes up.

Our factory has a heavy schedule. We supply tools for just about all of Siberia's industry and for export also. What with the scale and complexity of our output, tough problems crop up, and every now and then some of the workers or engineers have to put in some extra time. It is really unavoidable.

Not long ago, for example, a failure developed in the power cable feeding the factory boiler house. That created an emergency. If the cable was not repaired immediately, the factory's whole heating system would freeze. And in a Siberian winter, when the mercury sometimes drops to 40 degrees below zero, that's no joke. The chief electrician, who was off duty that day, was summoned at once. A crew of electricians were asked to stay on after their shift. Although every minute was precious, the chief power engineer got in touch with the factory trade union committee to ask permission for overtime work. We gave it, of course.

Ordinarily the committee is not ready to say yes. The labor laws are against overtime in principle, the limit is 120 hours a year per worker. Our factory cannot, as yet, manage without overtime, but we do try to get along with the least possible.

The factory committee discusses the management's applications for overtime for the month ahead. There are shop and clerical workers, engineers and planning experts on the committee. We all know the situation in the shops, and we do not meet simply to rubber-stamp the applications.

"Why do you need that much overtime next month?" we ask each manager. "Some of the machine tools have to be overhauled, and we're putting out a new item," one of them answers. On the face of it, that looks reasonable. But then a member of the committee says: "The overhauling is practically finished by now. You don't need that much overtime." And so we cut down the number of hours he asks for.

We find from experience that it pays to be strict. For example one shop superintendent who had permission for 1,000 overtime hours a month used only 800. When we asked him why he had requested more than he needed, he shrugged his shoulders and answered, "I figured wrong."

At first glance there seems to be nothing wrong with that. Two hundred overtime hours were saved, after all. But what it actually meant was that the shop superintendent had planned a slow production pace. By getting those extra overtime hours, he had, so to speak, wangled permission not to fill his production quota in the regular working time.

CITY OFFICIALS ACT

Our readers often ask what actual powers Soviet municipal officials have, what their relationship is to the industrial plants in their city or town. Correspondent Ilya Gitlits reports this episode from Ryazan.

FOR THREE DAYS several shops in four of Ryazan's factories were at a standstill. They had the raw materials, the power, the working force . . .

But let's begin at the beginning.

The beginning was when a delegation of Prioksky suburb housewives called on Executive Committee Chairman Nadezhda Chumakova. They complained that for the past few days the water in their apartment houses just about reached the second story and only trickled on the third and fourth, that they could neither cook nor do any washing.

The Executive Committee dispatched members of its standing Municipal Economy Committee to investigate. They came back with this picture:

Factories in Prioksky suburb had recently built additional facilities. According to plan they were supposed to lay their own water conduits. But they decided that it would be cheaper to draw water from the city reservoir. And so, as a result, water became scarce.

The next day the Executive Committee passed an ordinance requiring all the Prioksky plants to build water conduits within three months and warned them that unless they did, their municipal water would be cut off.

"They won't dare. That would be tantamount to closing down the plants," the managers reasoned.

Three months later the Executive Committee made a check. None of the four managers had done anything. The Executive Committee thereupon cut down their supply of water, first by 50 per cent, then by 75 per cent, and then completely.

After that events developed as follows:

First day: 9 A.M. The telephone rang in the office of Nadezhda Chumakova. Manager Pyotr Grishin of the reinforced concrete prefabrication plant was on the line.

"Was it at you orders that the plant's water was cut off?"

"Yes, ours."

"Do you know that two of our shops are idle? If we do not meet our production quotas, the responsibility will be yours. I'm complaining to . . ."

In the next 20 minutes there were three more telephone calls. The managers of two other plants and of a trucking outfit also said they were going to register official complaints.

10:40 A.M. Chumakova was asked to come to the Regional Executive Committee. The four managers were there already.

"The City Executive has messed up our production schedules. We want its decision reversed," they told the chairman of the Regional Committee.

"I see no reasons for reversing it," he replied.

11:20 A.M. The trade union committee of the asphalt-concrete mixing plant asked that representatives of the City Executive come there. Executive Committee Secretary Leonid Zhivopistsev went to the plant.

"Who is going to pay for the enforced idle time?"

"The guilty party. Your management refused to comply with the Executive Committee's ordinance. They'll have to pay," Zhivopistsev said.

The trade union committee decided by a vote of seven to two that it was management's fault that the workers were idle. "For enforced idle time the management must pay the workers their average earnings," read the decision.

Second day. Still no water.

9:30 A.M. A special meeting of the City Party Committee was called which was attended by representatives of the City Executive Committee, the plant managers, and the

We know that some managers act by the old Russian saying, "A little extra won't put your pocket out of shape." They feel it makes things simpler, and they don't have to pay so much attention to organizing the work properly.

There are managers who complain about the trade union committee's attitude toward overtime. "Why do you always try to put a spoke in our wheel?" they ask. "The men can use the extra money."

The law provides for higher rates for overtime. A man gets time and a half for the first two hours and double time for anything over that. The pay is good, of course, but frequent overtime is too exhausting, we think. A man who works overtime loses that many hours of rest and relaxation and that does his health no good, even though he may not feel it immediately.

I cannot remember an instance of a worker refusing when a shop superintendent asked him to stay on for another hour. The men who go to school in their spare time are generally in a hurry to get to their classes, so that the management does not ask them to work overtime. The others usually have no objection. But, as the saying goes, money isn't everything. While people do not refuse to put in extra time, they prefer to spend their free time with their families, or sports and other kinds of recreation and, as I said, in studying.

In a word, a man does not live by work alone. We look forward to the time—and it is not far off—when we will be able not only to do away with overtime altogether but to make the working day still shorter.

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chairmen of the trade union committees.

"All right, we'll lay a water conduit, but it will take us four months," said Pyotr Afanasyev, manager of the asphalt-concrete plant.

"The Executive Committee gave you three months, but you didn't do a thing," Chumakova parried. "Say you'll build the conduits in two weeks, and we'll give you water today."

The conference drew a blank.

2:25 P.M. The Ministry of Motor Transport and Highways in Moscow calling the Executive Committee.

"In the interests of production you must give the truckers water."

"In the interest of our citizens we can't," Ryazan replied.

4:30 P.M. The Regional Trade Union Council intervened. It supported the Executive Committee.

Third day. 9 A.M. Manager of the asphalt-concrete plant Pyotr Afanasyev pledged in writing to lay a water conduit in two weeks.

10:40 A.M. A similar commitment was submitted by Bikbulatov, manager of the Silicate Brick Kilns.

11 A.M. Pyotr Grishin of the reinforced concrete prefabrication plant turned in his. Finally, trucking manager Vladimir Tsygankov came round.

The same day they all got water, but in two weeks they were cut off again. This time, however, they didn't need city water, their conduits were laid, and on time.

Thus ended the story which began with the housewives' visit to the City Executive.

IN THE NEXT ISSUE

SOVIET LIFE

Ten years ago, in October 1956, the first issue of *USSR* magazine appeared on newsstands all over the United States and the first issue of *America* on newsstands all over the Soviet Union. This followed a reciprocal agreement between two great nations of the world to bring to the people of each country a truthful and firsthand picture of life in the other country. Our front and back covers for October will commemorate the tenth anniversary of *USSR*, which has been called *Soviet Life* since 1965. In the past decade the editorial board of the magazine has tried to do everything to give the readers in the United States a truthful picture of life in the Soviet Union.

This year will mark the centenary of the Moscow Conservatory. A photo story by Vsevolod Tarasevich will familiarize our readers with this Mecca of Soviet music, which has been drawing the attention of Americans on an ever growing scale. It was here that Van Cliburn's star began to rise when he won first prize for pianists at the International Tchaikovsky Contest in 1958. More and more American musicians are participating in this contest, which is held once every four years.

Tashkent—Catastrophe and Courage is an on-the-scene report from the earthquake city by *Komsomolskaya Pravda* journalist Vasili Peskov. Peskov found the city in shambles, tens of thousands homeless, hundreds injured and the tremors still coming. But the spirit of the people was indomitable, characterized by the sentence sweeping the devastated city: "Everything will quake back into shape."

The Thousand Facets of a Crystal is about the institute that "grows" precious stones. These are not imitation or synthetic stones but real rubies, sapphires and topazes. Though not produced in nature's workshop but in man's laboratory, they are exact replicas of their natural counterparts, with one difference: They are completely free of flaws.

Other articles in the October issue are:
U.S. Ambassador Visits Soviet Georgia—about Foy D. Kohler's trip to the Caucasus; Discussing the Budget—what happens in the USSR Supreme Soviet before a bill is voted into law; Of the Black Sea and Its Bright Fish—a short story by Vladimir Soloukhin; Theater: For Sevens to Seventeens—an essay about Moscow's Central Children's Theater; World Without Grownups—about children's games; Chess: No. 3 Pastime—second article in a series by Mikhail Tahl; We Must Learn to Control Life—an article by the Soviet biologist Nikolai Dubinin; February 1917—the second installment in a series about the Russian Revolution; plus all our regular features.

NOVOSTI PRESS AGENCY

SOVIET LIFE

On the Edge of Europe — An illustrated story about the Urals, the oldest industrial area in Russia.

Russia's Forests — A photo story about a source of national wealth and people who tend it.

Fedoskino — An account of the magic world of Russian miniatures, illustrated in color.

COMING SOON

In preceding issues we printed several Russian stories for students of our language. We should now like to introduce our readers to Russian poetry, from Alexander Pushkin to contemporaries Alexander Tvardovsky and Andrei Voznesensky. This selection is, of course, no anthology, but it does give some idea of the variety of creative styles, trends and directions in Russian poetry. A rhymed translation, no matter how good, is necessarily an approximation. In translating these poems for our magazine, Vladimir Pozner tried to preserve the rhythmic patterns of the original. As for the music of the poems, that unfortunately one can hear only by reading them in Russian.

ПУШКИН

АЛЕКСАНДР СЕРГЕЕВИЧ

/1799-1837/

КЛЕВЕТНИКАМ РОССИИ

О чем шумите вы, народные витии?
Зачем анафемой грозите вы России?
Что возмутило вас? — волнения Литвы?
Оставьте: это спор славян между собою,
Домашний, старый спор, уж взвешенный судьбою,
Вопрос, которого не разрешите вы.

Уже давно между собою
Враждуют эти племена;
Не раз клонилась под грозою
То их, то наша сторона.
Кто устоит в неравном споре:
Кичливый лях, иль верный росс?
Славянские ль ручьи сольются в русском море?
Оно ль иссякнет? — вот вопрос.

Оставьте нас: вы не читали
Сии кровавые скрижали;
Вам непонятна, вам чужда
Сия семейная вражда;
Для вас безмолвны Кремль и Прага;
Бессмысленно прельщает вас
Борьбы отчаянной отвага —
И ненавидите вы нас...

За что ж? ответствуйте: за то ли
Что на развалинах пылающей Москвы
Мы не признали наглой воли
Того, под кем дрожали вы?
За то ль, что в бездну повалили
Мы тяготеющий над царствами кумир
И нашей кровью искупили
Европы вольность, честь и мир?
Вы грозны на словах — попробуйте на деле!
Иль старый богатырь, покойный на постеле,
Не в силе завинтить свой измаильский штык?
Иль русского царя уже бессильно слово?
Иль нам с Европой спорить ново?
Иль русский от побед отвык?
Иль мало нас? или от Перми до Тавриды,
От финских хладных скал до пламенной Колхиды,

От потрясенного Кремля
До стен недвижного Китая,
Стальной щетиною сверкая,
Не встанет русская земля?
Так высылайте ж к нам, витии,
Своих озлобленных сынов:
Есть место им в полях России,
Среди нечуждых им гробов.

ОБВАЛ

Дробясь о мрачные скалы,
Шумят и пенятся валы,
И надо мной кричат орлы,
И ропщет бор,
И блещут средь волнистой мглы
Вершины гор.

Оттоль сорвался раз обвал,
И с тяжким грохотом упал,
И всю теснину между скал
Загородил,
И Терека могущий вал
Остановил.

Вдруг, истощась и присмирев,
О Терек, ты прервал свой рев;
Но задних волн упорный гнев
Прошиб снега...
Ты затопил, освирепев,
Свои брега.

И долго прорванный обвал
Неталой грудою лежал,
И Терек злой под ним бежал,
И пылью вод,
И шумной пеной орошал
Ледяный свод.

И путь по нем широкий шел:
И конь скакал, и влекся вол,
И своего верблюда вел
Степной купец,
Где ныне мчится лишь Эол,
Небес жилец.

* * *

Я вас любил: любовь еще, быть может,
В душе моей угасла не совсем;
Но пусть она вас больше не тревожит;
Я не хочу печалить вас ничем.
Я вас любил безмолвно, безнадежно,
То робостью, то ревностью томим;
Я вас любил так искренне, так нежно,
Как дай вам бог любимой быть другим.

The blood of ancient and noble Russian lineage mingled with African blood in the veins of Alexander Pushkin, a bold and independent poet of brilliant wit. He began to write at a time of social upheaval in Russia which culminated tragically in the defeat of the Decembrist revolt of 1825. Pushkin made many enemies, among them Czar Alexander I and Czar Nicholas I, and spent several years in exile. However, on returning to St. Petersburg, life in the Russian capital brought him more grief than joy. He was degraded and vilified by high society, even to the point of having his very beautiful wife openly courted by the Baron d'Anthes. Pushkin challenged the Baron to a duel and was mortally wounded. His death was a shock to St. Petersburg and to all of Russia, his great renown as a poet obscuring the defamation of his ill-wishers.

Pushkin's most known poetic works are Eugene Onegin, *a novel in verse, and the tragedy of* Boris Godunov. *His flowing verse conjures up a whole period of Russian life.* Boris Godunov *is a tragedy in the Shakespearean manner built around early seventeenth century Russian history and the problem of "the czar and the people." Its iambic verse has an austerity, perfection and power rarely reached by poets in any language.*

Conversant with the literature of his own and other countries, Pushkin built on the best works of his predecessors to bring a new strength to Russian literature. With him life in all its fullness of color and sound rushed violently into the stiff and bookish Russian poetry of his day.

Pushkin broke with the rigid canons and traditional forms and freed the literary language of its archaic rhetoric. Drawing upon the living Russian speech, upon folk tales and songs, he combined in his poetry clarity and exquisite mastery, the unadulterated freshness of folklore and the erudition of a highly cultured person.

Pushkin's verse is simple and graceful. "When uncle, in good earnest, sickened (his principles were always high), my own respect for him was quickened," is how Eugene Onegin *begins. These unpretentious, conversational lines were a surprise to readers accustomed to flowery turns of phrase. For our Learning Russian page we chose "I Loved You Once . . ." perhaps the most moving confession of love in all of Russian poetry.*

With Pushkin Russian literature came into full bloom. He was a writer of great versatility, his genius found expression in lyric poetry, drama, the novel and even the historical novel. The tradition he began was continued in new work imbued with new ideas by many generations of novelists and poets.

PUSHKIN

ALEXANDER SEGEIYEVICH

/1799-1837/

TO RUSSIA'S CALUMNIATORS

Why do you cry so loud, you popular orators?
Why do you threaten Russia with anathema?
What angers you?—Lithuanian uprisings?
Enough: that is a quarrel among Slavs,
An old family quarrel, already weighed by fate,
A problem you will never solve.

Age-old is the dissent
Between these two tribes;
More than once the storm
Carried the day for them, or for us.
Who'll withstand in this unequal quarrel:
The conceited Pole, or the true Rus?
Will Slav springs flow together to a Russian sea?
Or will it dry up—that's the question.

Leave us alone: you have not read
The blood-covered tables;
This family hostility
Is strange and incomprehensible to you;
For you the Kremlin and Prague are silent;
You are senselessly attracted
By the struggle's desperate valor—
And you hate us . . .

Why? Answer: Is it because
On the wreckage of burning Moscow
We did not recognize the insolent will
Of he before whom you trembled?
Is it because we felled into a chasm
The idol who weighed heavy over kingdoms
And with our blood bought
Europe's liberty, honor and peace?

Your words are menacing—let's see you act!
Or does not the old giant, quiet in bed,
Have the strength to fix his Ismail bayonette?
Or is it that the word of Russia's Czar
no longer carries?
Or that we face Europe for the first time?
Or that Russians have lost their taste for
victory?
Or that we are few? Or from Perm to the Crimea,
From the cold Finnish cliffs to fiery Georgia,

From the shaken Kremlin
To the walls of immovable China,
Won't the Russian land arise,
Bristling steel sparkling?
Come, you orators, send us
Your resentful sons:
There's room for them in Russia's fields
Among other coffins familiar to them.

THE AVALANCHE

Fractured on the frowning rocks,
The billows boil and thunder,
And overhead the eagles cry,
And the forest groans,
And through the wavy haze sparkle
The mountain peaks.

From there an avalanche once slid
And fell with a heavy rumbling roar,
And closed the gorge between
The cliffs,
And stopped the Terek's
Mighty waves.

Suddenly, weakened and subdued,
Oh Terek, you broke off your roar;
But the backwater's stubborn fury
Pierced the snows . . .
Enraged, you overflooded
Your banks.

Long did the pierced avalanche
Lie, an unmelting heap,
And the wicked Terek coursed under it,
And with its spray,
And sounding foam washed
The icy vault.

And over it a wide route wound:
And horse galloped, and oxen pulled,
And his camel led the prairy
Trader,
Where now skims only fleet-footed Aeolus,
The sky-dweller.

* * *

I loved you once perhaps that love as yet
Has not burnt out in my soul;
But let that not cause you worry;
I would not want to sadden you in the least.
I loved in silence, loved you hopelessly,
Now timid, now wracked with jealousy;
I loved you so deeply, so tenderly—
God grant you find such love in another!

SCULPTURED NATURE

Every Sunday millions of city-dwellers leave for suburban woods. Some spend the day waist-deep in bog water hoping to startle a brood of ducks. Others make for young spruce groves to ferret out mushrooms. There is another category of nature lover, a special type, numerically the smallest. These are people with rare gifts of observation and artistic sensibility. They are collectors of forest souvenirs.

In the irregular intertwining roots and branches they see the contours of expressionist sculpture; a snag half buried in the sand looks like a sleeping mermaid. A few minutes with a knife to whittle off unwanted pieces,and a work of art is ready, even for exhibition.

Such an exhibition was held last winter in Moscow. It was sponsored by the Russian Federation's Society for the Protection of Nature.

The society's various local branches chose the most interesting carvings. Most of the sculptors have been collecting and shaping forest finds almost since childhood. They are all amateurs. Muscovite Leonid Aranovich, for instance, is a hydrotechnician, and Leningrader Vitali Stanyuk a factory worker. The exhibition attracted many visitors and gave the more orthodox gallery shows hard competition.

Not far from this bridge that spans the Grand Sulakh Canyon a dam high as a 100-story skyscraper will tower. Daghestan's new Chirkeysk Hydroelectric Power Station will generate one million kilowatts.

SOVIET LIFE

THE RUSSIAN REVOLUTION

TASHKENT—
CATASTROPHE AND COURAGE

October 1966 • 35 cents

1956

Dmitri Shostakovich

A revealing glimpse of one
of the world's great
and controversial composers.
Photo by Oleg Tsessarsky

120 WINDOWS LOOKING INTO OUR WORLD

Dear Readers:

Ten years have passed since the fall of 1956 when the magazines *Soviet Life* and *America* first appeared as part of the reciprocal agreement between the governments of the United States and the Soviet Union. In these 10 years *Soviet Life* has tried to give its readers a close look at people in the Soviet Union, an idea of what their aims and aspirations are, what their problems are and how they are trying to solve them, and a glimpse into the future at the communist society they are building. Because we believe that mutual understanding is essential for world peace, we have attempted with each issue to add to that understanding.

Over the years scores of people have sent comments and suggestions to the editorial board. A letter from Mr. B. L. of Ontario we think sums up what was expressed in many letters, letters which seem to us to reflect broad public opinion:

"I feel it is essential for all the peoples of the world to come to understand one another, regardless of their philosophies of life. With the imminent and ever present danger of a nuclear holocaust hanging over us, it is not only desirable that we understand one another and strive for peace and disarmament, it is absolutely essential for the very survival of mankind."

During the past 10 years American readers have received 120 issues of our magazine. This means that they have, as it were, 120 windows looking into our world through which they can see a great deal. In the same period Soviet readers have received 120 issues of *America*, familiarizing them with various aspects of life in the United States.

It is hard for those of us who work on the magazine to judge how *Soviet Life* is coping with the difficult task of providing Americans with detailed and diversified information on life in our country. We therefore give the floor to our readers. This is what they have to say:

"I wish to compliment you on the wonderful job you are doing in portraying Soviet life. It is a good thing for people here in America to see how your system works." (D. R. Reynolds, Idaho Falls, Idaho)

"I have been a subscriber of *Soviet Life* for a number of years, and I like it very much. It is constantly being improved, with superb photography, the broadened subject range and the image of ever expanding economics and cultural life." (Bruce Walker, North Bend, Oregon)

"As a translator of Russian and one who recognizes the need to explore all pathways to peaceful coexistence, I have found *Soviet Life* a valuable source of information."(W. J. G., Massachusetts)

"I especially enjoy reading about your schools and educational system, also enjoyable are your art and literature articles." (Sally Severance, Johnston, Rhode Island)

"What impressed me above all else was the self-criticism, for example, in the article "Automation and the Worker" and the one about the movie *The Chairman*." (J. Maxwell Raspey, San Diego, California)

"I not only like it because it is informative for students, teachers, librarians and just plain people, but also because it is a decent publication." (Mrs. Madeline K. Hartmann, Lindenhurst, New York)

Soviet readers also have had something to say about the magazine:

"I regard your magazine, which the people of America read, as a little mirror of our big country. The pictures it gives should be fine and clear. You are doing very important work, dear friends." (Margarita Zatsepina, Honored Teacher, Voronezh, Russian Federation)

"It is quite gratifying that a magazine published for a foreign country does not ignore the problems arising at home. In my opinion, acquaintance with different viewpoints on various vital problems would be both interesting to the Americans and useful for ourselves." (Victor Belkin, Moscow)

But we also receive some critical remarks from our readers which deal with the subject makeup of the issues, style and errors. We always try to take these remarks into consideration, especially since they show a sincere desire to help us improve our publication.

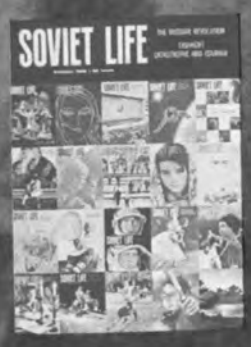
Our readers' letters of approval, their critical remarks and proposals have always been and will continue to be very useful. We would like to take this opportunity to point out that many of the articles in the magazine were published at the request of our readers.

To the Soviet public figures, scientists, writers, artists, cosmonauts, workers and collective farmers who so readily responded to the editors' request to write for the magazine, our very deep gratitude. Nor can we forget to mention the Soviet press, always ready to consent to having their materials reprinted in *Soviet Life*. We can say with confidence that this cooperation reflects the general feeling of the Soviet people. They justifiably consider that every contribution to the cause of the development of understanding between our peoples, small though it may be, is important.

Soviet Life is entering its second decade. We shall continue in the future to do everything in our power to make it more interesting, so that American readers will find on its pages the answers to their questions on life in our country.

Dear subscribers and readers, please accept our best wishes for your health and happiness on the occasion of the magazine's tenth anniversary.

The Editors



1957

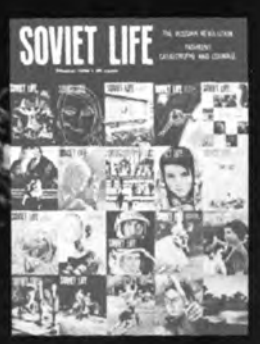
The Joy of Living

Crisp air, fresh snow, last echo of the school bell—
a thing called happiness.
Photo by Miroslav Murazov

1958

The Call of the Mountains

The summit—a magnet and
a peak of human daring.
Photo by Victor Ruikovich



1959

Canals for the Desert

Bringing water to the arid expanses stretching out to the far horizon.
Photo by Max Alpert

SOVIET LIFE

OCTOBER 1966 No. 10 (121)

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Editor in Chief
(Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor
(Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor
(Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director
(Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

Circulation Manager
(Washington Editorial Board): Vadim P. Zaitsev,1706 18th St., N.W., Washington, D. C., 20009.

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NOVOSTI PRESS AGENCY

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WE MUST LEARN TO CONTROL LIFE

MAN HAS INTERFERED vastly with the natural evolution of life. As a result of his activity, the living conditions of animals, plants, microorganisms and viruses have changed in many respects. In our present period of widespread development of atomic energy and the chemicalization of agriculture, life on our planet has new factors to contend with, factors that are global and affect all organisms. The entire biosphere of the earth has already, to some degree, turned to new forms of evolution because of increased radiation and chemical production. This new evolution is becoming a major biological problem.

The deposits from industrial smoke have begun to alter the coloring of the landscape and its chemical properties. We know that many species of butterflies living in industrial regions have undergone a rapid evolution. Species that were formerly light have been replaced by dark varieties. Some scientists associate the appearance of new, more dangerous forms of influenza with the mutations of viruses in Japan, the effect of radiation from the atomic bombs dropped on Hiroshima and Nagasaki. It was found in treating people with antibiotics that in some cases the microbes quickly evolve and create strains that are immune to the medical preparations which previously killed them. In other words, we are now entering a period of accelerated interference by man with nature.

There is no doubt whatever that radiation and many chemically active mutagenic substances, those which cause mutations, affect heredity most profoundly.

The influence of this penetrating radiation is not a completely new phenomenon. Throughout the history of the earth, organisms here have been subjected to the constant, even if weak, effect of background radiation which comes from terrestrial rocks and cosmic rays. Radiation, therefore, is, to some extent, among the agents which naturally influence the development of the organic world. But there are periods when cosmic radiation increases. Today, however, the marked increase in the level of radiation can fundamentally disturb the relationship of evolutionary factors, and the earth may be facing new and radical evolutionary changes.

Not to find ourselves disarmed when confronted by these vitally important problems, we must develop new approaches to the science of evolution. It is most important to realize that we can understand the problem of the influence of radiation on plants, animals, microorganisms and viruses (evaluate the maximum allowable levels when radiation increases and the maximum allowable radiation "overloads" in the organism, control evolution affected by radiation and chemical agents) only if we know the basic laws of evolution and the genetic essence of the evolutionary process.

The initial stages of the process have to do with the changes within a particular species. The operation of the mechanism of the processes caused by changes in the environment is the enigma of the evolution of a species. The task is to evaluate the effect of radiation and chemistry on evolution.

Science in our day has combined the study of the genetics of a species with radiation and chemical genetics, which studies the essence of the effect of radiation and chemical substances on heredity. We use a new approach in our selection of plants, animals and microorganisms. Selection is now being done to produce increased radiation resistance and responsiveness to certain types of mineral fertilizers. We are also trying to develop microbes capable of processing oil and new forms of green, unicellular water plants and other organisms that can adapt to the closed ecological system of a spaceship and are able to resist poisons.

We see evidence of evolutionary processes caused by increased radiation and changes in the chemical environment of the plant and animal inhabitants of various regions. These phenomena constitute a new element in the eternal process of the transformation of life. We note, for instance, that in England, due to the explosion of a reactor, the level of radiation in the surrounding meadows, forests, fields and reservoirs has increased greatly.

The basic factors of evolution, as Charles Darwin pointed out, are heredity, mutability and natural selection. The influence of each of these is now being studied by methods of evolutionary genetics. The appearance of something "new" resulting from the hereditary mutability of organisms is one of the big questions of the theory of evolution. If nothing new appears through hereditary mutability, there can be no progressive evolution or any successful selection of plants and animals.

For a long time this question was incorrectly interpreted. It is now clear that the new appears in the process of mutation and that the changes are hereditary. Changes in the chemistry of the genes, in the structure or number of the chromosomes, which arise as a result of external or internal factors, are the sources for the appearance of new hereditary traits. Mutations and their combinations that result from interbreeding create gigantic hereditary mutability in all organisms. Natural selection is the creative factor in evolution. Depending on environmental conditions, selection creates perfect adaptational forms of the organisms and makes possible the magnificent process of progressive evolution.

In nature, hereditary changeability is due to a whole complex of internal and external causes. There would be no evolution without natural mutations. The natural mutational process is a fundamental characteristic of all forms of life; it contains the source of everything new for evolution and selection. The importance of understanding the mutation process is quite obvious.

At the beginning of the century the concept was widespread in genetics that mutations (hereditary changes) did not depend on external and intracellular conditions. The spontaneous decay of atoms of radium, which does not depend on temperature or other environmental changes, was cited as an example.

The discovery that ionizing radiations, ultraviolet light and such other factors could cause mutations was very important for an understanding of the problem. However, even after this discovery, we ascribed much greater physical and chemical stability to hereditary structures than to other vitally important substances in the cell. It was thought that their internal physical and chemical properties exempted them from that regu-

NIKOLAI DUBININ WAS AWARDED A 1966 LENIN PRIZE FOR HIS WORK ON THE CHROMOSOME THEORY OF HEREDITY AND THE THEORY OF MUTATIONS. THIS EXCERPT IS FROM HIS NEW BOOK "HUMAN EVOLUTION AND RADIATION"

lated metabolism which is so enormously complex and without which there is no life.

As we know, the nuclei of the cells contain chromosomes which are capable of self-reproduction. They contain hereditary information. The elementary "unit" of heredity is the gene. Each time the cell divides to make new chromosomes, the genes must feel the effects of the intracellular processes of energy conversion and of that powerful chemical factory which every cell is. However, for a long time the idea was current in genetics that the processes which cause mutations were fundamentally accidental.

Back in 1933 studies indicated that in the process of metabolism substances that cause mutations appeared in plants. It was found, for instance, that the aging of seeds induces a large number of mutations in them. Numerous experiments on the chemical causation of mutations confirmed that many compounds of organic origin are also mutagenic, that is, they change heredity. There is a system of intracellular regulation which does not permit the mutagenic substance either to appear under the usual conditions or to accumulate in effective concentrations. However, if conditions are changed, these substances affect the genetic material and change it.

Both natural and especially evoked mutations of the gene are chemical changes of the genetic material which require an influx of energy from without. In accidental, natural mutations the energy is accumulated in the course of the chemical changes that take place in the cell. In this case the substances that appear during metabolism in the cell play the role of mutagens. The action of natural radiation may prove to be essential for types in which the species are long-lived. For instance, in man, apparently about 25 per cent of the mutations are caused by the action of three rads of ionizing radiations absorbed by the organism during 30 years of life.

Present-day data on the reasons for natural mutations have shown that genetic material does not have special properties of stability, that it is chemically reactive and in principle is no more stable than many other chemical compounds.

But any hypothesis on the nature of mutations must also explain such obvious facts as the relative stability of the genes and the definite rate of mutation. What is the reason for the relative stability and individual frequency of the mutations of each of the genes if their molecules are ordinary chemical compounds with no special stability? The reason is to be found in the system of intranuclear defense against genetic affections and in the specific character of the organization of the genetic material within the chromosomes. There are large gaps in our knowledge of the problem. We need more data on the biochemistry of the cell and the chemical and biological organization of the chromosomes for the complete answer.

The microscopically visible chromosome is not the actual genetic structure. The hereditary structures, which have a molecular organization, are concealed within the chromosomes. However, both the visible and the molecular organization of the chromosomes are very important in the functioning and the splitting of the genetic material. It is possible that this organization can also create a medium which ensures the stability of the hereditary structures and those genetically controlled conditions in the form of chemical intracellular defense which permit a definite, optimum rate of mutation.

The stability of the genetic material, which is in many ways ensured by the natural biochemical defense of the compounds in the substance that surrounds the nucleus, is strikingly manifested in the discovery of a special class of chemical substances, the so-called antimutagens. The antimutagens, which are present in the cell or enter it from without, suppress the trend of the natural mutation process.

The discovery of antimutagens has set researchers a new and important problem—to control the trend of the natural mutation process.

Our laboratory has made a cellular analysis of the natural mutation process in experiments with cells of the roots of onions, horse beans, and of human cells in a tissue culture. In all of these forms a fundamental similarity was observed in the organization of the chromosomes as well as a uniformity in the change of the stages of development of the chromosome in the cellular cycle. It is reasonable that certain of the most significant characteristics of chromosome mutability should be common to animals and plants. And in actual fact, the types of chromosome reorganization in the natural mutation process are the same in the cells of onion, beans and man. The same mechanism operates in the primary process when the chromosomes split and in the secondary process when the fragments either merge or do not merge.

What also distinguishes the antimutagen is its great universality. We have proven that one and the same antimutagen suppresses the natural mutation process in the cells of man, in the embryonic cells of the vinegar fly, and in the cells of onion roots.

New tasks confront the researcher in the light of the data on the complex interaction of the biochemical and physiological processes in the vital activity of the cell, which proceed differently in various phases of the cellular cycle. These processes affect various phases of the development of the chromosomes. The synthesis of DNA molecules and chromosome albumins marks a turning point. The problem of antimutagens also needs solution.

We are beginning to get a clearer idea of the reasons for mutations in nature. In principle, we should be able to control natural mutations with antimutagens. The use of antimutagens may be of the greatest practical significance in human genetics, in fighting hereditary diseases, for example.

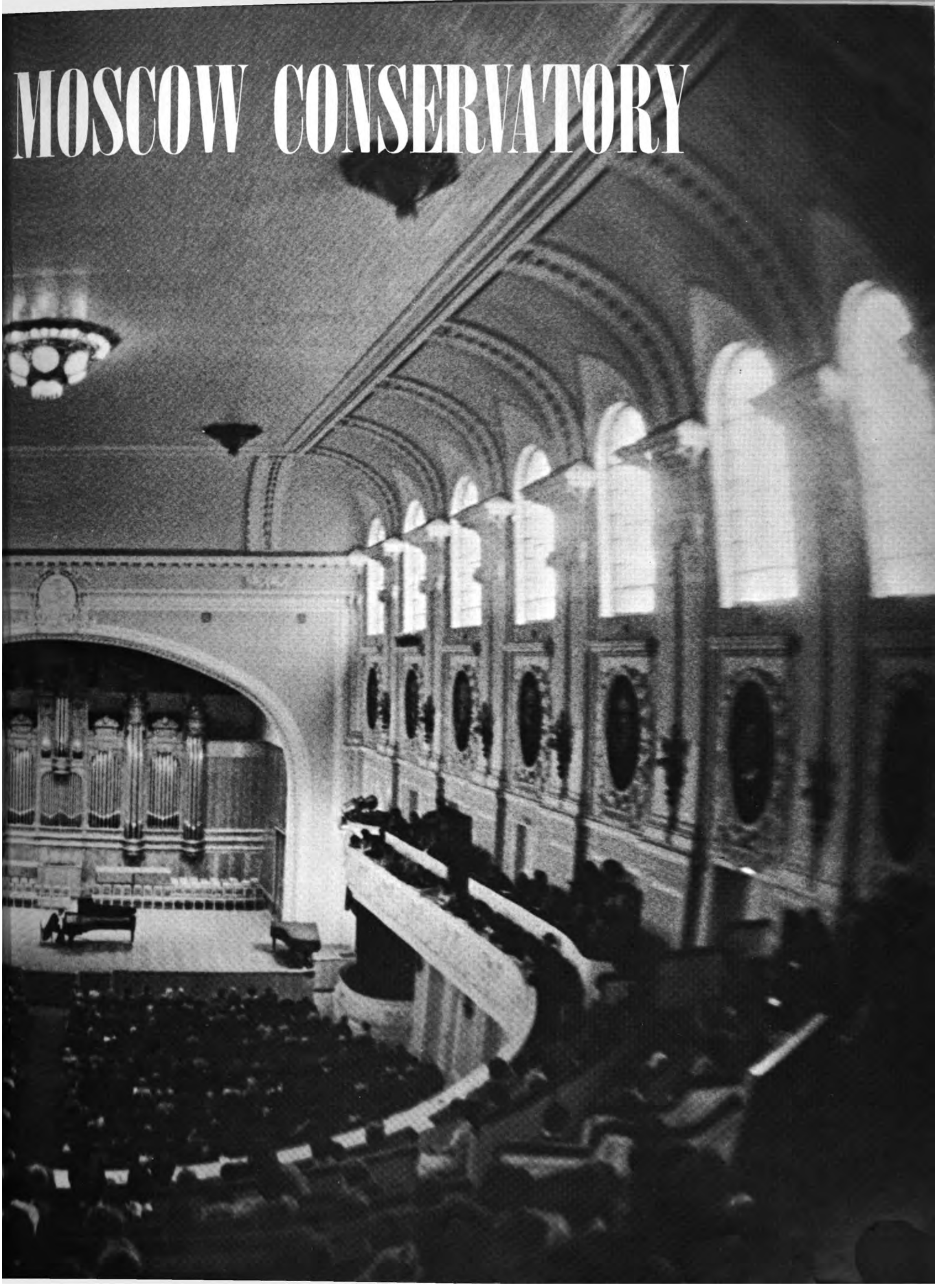
Experimental methods of inducing mutations have been devised. They are especially effective with radiation and chemical mutations. In experiments on molecular genetics of viruses and bacteria the first facts obtained show that under certain chemical influences definite molecular changes develop in the DNA within the genes. All of this is hopeful and leads us to think that the time is not far off when methods of directing mutations will be discovered.

Directed mutation, the essence of the genetic principle of evolution, is the prime problem of biology. The solution promises that biology will some day achieve the great aim of controlling life.

Courtesy of Nedelya

100th ANNIVERSARY OF M

MOSCOW CONSERVATORY



There are many distinguished musicians at the conservatory. One of the professors is the famous violinist David Oistrakh (top), who has trained a host of winners at international competitions. Violinist Boris Belenky is an associate professor.

Pianist Yakov Zak (top), another professor, first received world acclaim when he won top prize at the International Chopin Competition in 1937. The virtuosity of Professor Mstislav Rostropovich has inspired many cello works written especially for him.

THIS IS MOSCOW CONSERVATORY'S ONE HUNDREDTH YEAR—THE GOLDEN AGE OF RUSSIAN MUSIC. THE FIRST CONSERVATORY COMPOSERS—ONE OF THEM WAS TCHAIKOVSKY—ESTABLISHED THE TRADITION THAT HAS SINCE BEEN HANDED DOWN TO EACH NEW GENERATION OF TEACHERS. BASIC TO THE TRADITION IS THE ALMOST IMPOSSIBLE DEMAND MADE ON THE STUDENT FOR HIS ABSOLUTE ARTISTIC INDEPENDENCE.

THE STUDENTS HAVE ALSO EVOLVED THEIR TRADITIONS. THE MOST IMPORTANT—A COMPLETE DEDICATION TO MUSIC AND A NEVER-ENDING PROCESS OF HONING TECHNIQUE AND TALENT TO THE FINEST POSSIBLE EDGE. THIS MAY BE THE REASON WHY MOSCOW CONSERVATORY IS THE ALMA MATER OF SO MANY GREAT MUSICIANS: A SPECTRUM RANGING FROM SERGEI RAKHMANINOFF TO LEONID KOGAN.

DISTINGUISHED ARTISTS MAKE WAY FOR YET UNKNOWN YOUNGSTERS. GRADUATES, MANY OF THEM PRIZE WINNERS AT INTERNATIONAL COMPETITIONS, SAY OF THE FIRST-YEAR STUDENTS: "THEY'RE WONDERFUL. AT THEIR AGE, I DIDN'T HAVE HALF THEIR TECHNIQUE." THE TEACHERS MAKE SOMEWHAT MORE CONSERVATIVE JUDGMENTS; THEIR PRAISE IS NOT EASILY COME BY.

THE CONSERVATORY'S GRA[illegible] AND SMALL HALLS ARE A GREAT [illegible] TION FOR MUSIC LOVERS. THE [illegible] HALL WAS OPENED IN 1901, [illegible] WAS THERE THAT RUSSIAN AU[illegible] FIRST HEARD ALEXANDER S[illegible] ANTONINA NEZHDANOVA AND [illegible] CHALIAPIN. THE GRAND HALL [illegible] STAMPING GROUND OF RUSSIA[illegible] MUSICIANS AND HOST TO THE [illegible] BEST. IT IS THE PLACE IN MOSC[illegible] GALA CONCERTS. HERE ALSO I[illegible] THE FINALS OF THE TCHAIKOV[illegible] PETITIONS ARE PLAYED OUT[illegible] FUTURE PRIZE WINNERS IN TH[illegible] ROOMS PRACTICE DIFFICULT P[illegible] FOR THE UMPTIETH TIME. [illegible] FALLS ON THE GRAND HALL[illegible] 7 P.M. WHEN 2,000 PEOPLE AND [illegible] POSERS OF THE PAST (THE[illegible] TRAITS DECORATE THE HALL) [illegible] FOR THE FIRST BARS.

STUDYING AT MOSCOW CONSER[illegible] CALLS FOR A GREAT MANY THI[illegible] CLUDING ALMOST INHUMAN PER[illegible] ANCE. AT OTHER COLLEGES STU[illegible] TAKE EXAMS TWICE A YEAR, BUT [illegible] EVERY MEETING IN THE CLASSR[illegible] A NEW TRIAL. A "B" ELSEWHERE [illegible] SIDERED PRETTY GOOD. HERE[illegible] THING LESS THAN AN "A" MARKS[illegible] AS SO-SO, VERY AVERAGE.

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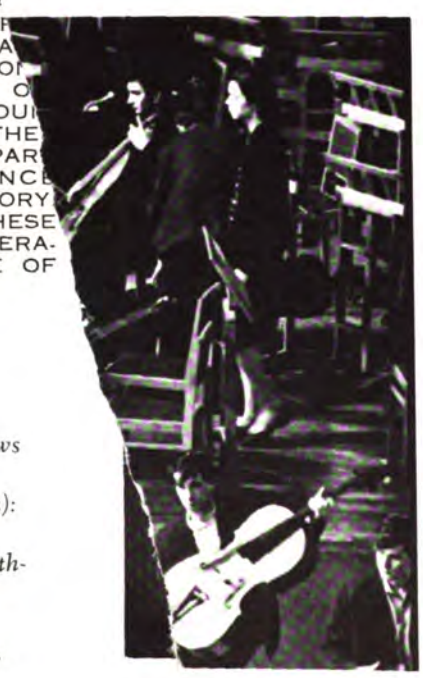

Moscow Conservatory's high reputation draws young talent from many places. Among those now attending are (left, top to bottom): second-year student Igor Chernyavsky, in Yakov Zak's class; Tatyana Akopyan, a fourth-year student under Dmitri Bashkirov; and Jacqueline Dupre, who came from Great Britain to study with Mstislav Rostropovich.

Students at the conservatory have a full day. Their time is divided between lectures, practice (in any available corner), exams (and waiting to take them), orchestra rehearsals, and sometimes a rousing soccer match viewed on the dormitory TV. It was a winning combination for cellist Karine Georgian (top, center photo), a pupil of Mstislav Rostropovich, who took first prize at the Third International Tchaikovsky Competition held this year. The above photo shows the panel of judges for cello.

There are many distinguished musicians at the conservatory. One of the professors is the famous violinist David Oistrakh (top), who has trained a host of winners at international competitions. Violinist Boris Belenky is an associate professor.

Pianist Yakov Zak (top), another professor, first received world acclaim when he won top prize at the International Chopin Competition in 1937. The virtuosity of Professor Mstislav Rostropovich has inspired many cello works written especially for him.

THIS IS MOSCOW CONSERVATORY'S ONE HUNDREDTH YEAR—THE GOLDEN AGE OF RUSSIAN MUSIC. THE FIRST CONSERVATORY COMPOSERS—ONE OF THEM WAS TCHAIKOVSKY—ESTABLISHED THE TRADITION THAT HAS SINCE BEEN HANDED DOWN TO EACH NEW GENERATION OF TEACHERS. BASIC TO THE TRADITION IS THE ALMOST IMPOSSIBLE DEMAND MADE ON THE STUDENT FOR HIS ABSOLUTE ARTISTIC INDEPENDENCE.

THE STUDENTS HAVE ALSO EVOLVED THEIR TRADITIONS. THE MOST IMPORTANT—A COMPLETE DEDICATION TO MUSIC AND A NEVER-ENDING PROCESS OF HONING TECHNIQUE AND TALENT TO THE FINEST POSSIBLE EDGE. THIS MAY BE THE REASON WHY MOSCOW CONSERVATORY IS THE ALMA MATER OF SO MANY GREAT MUSICIANS: A SPECTRUM RANGING FROM SERGEI RAKHMANINOFF TO LEONID KOGAN.

DISTINGUISHED ARTISTS MAKE WAY FOR YET UNKNOWN YOUNGSTERS. GRADUATES, MANY OF THEM PRIZE WINNERS AT INTERNATIONAL COMPETITIONS, SAY OF THE FIRST-YEAR STUDENTS: "THEY'RE WONDERFUL. AT THEIR AGE, I DIDN'T HAVE HALF THEIR TECHNIQUE." THE TEACHERS MAKE SOMEWHAT MORE CONSERVATIVE JUDGMENTS; THEIR PRAISE IS NOT EASILY COME BY.

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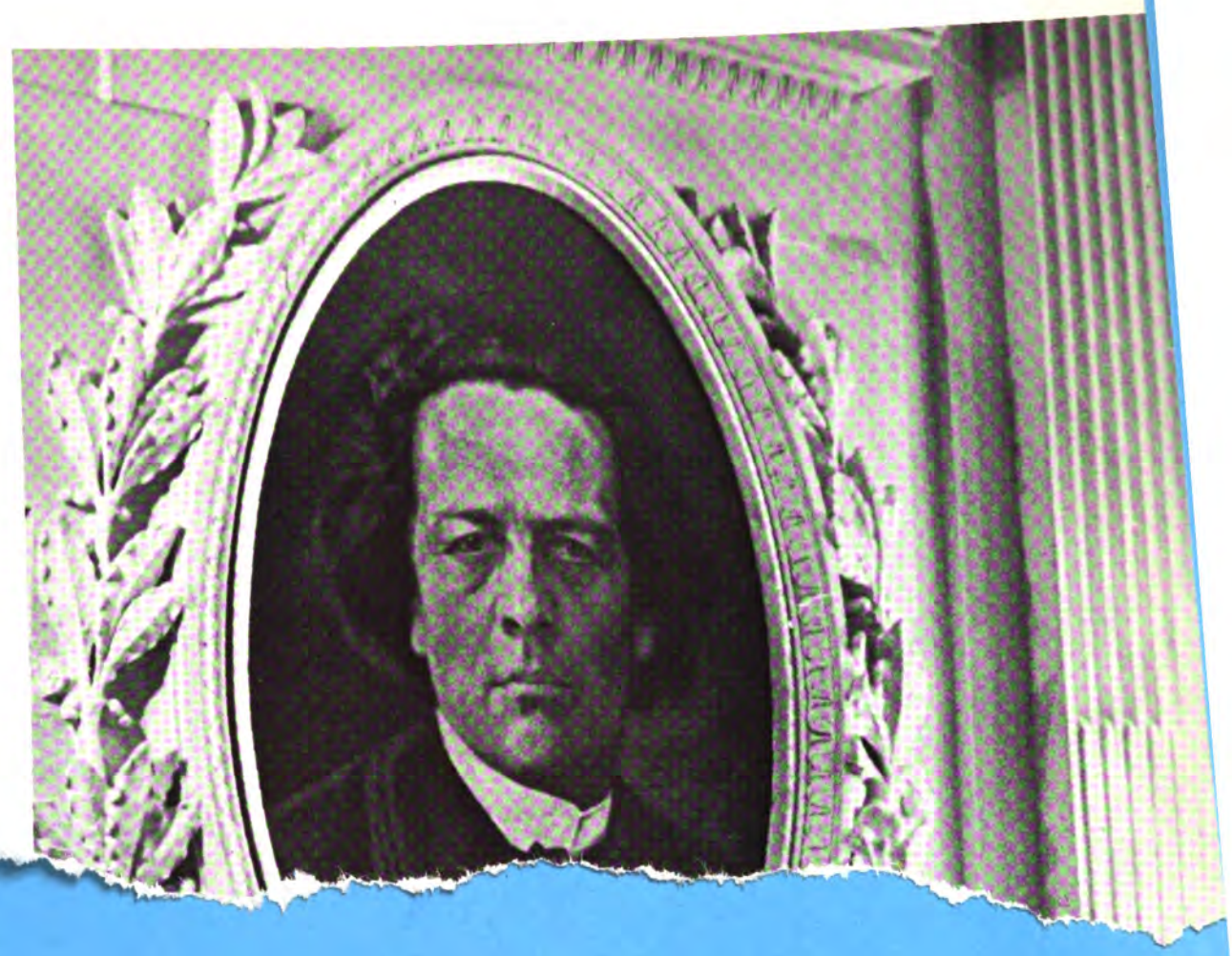

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AROUND the COUNTRY

FERRY TO THE MAINLAND

The talk on Sakhalin is all about a ferry which will connect the island with the mainland. It will run from Vanino on the mainland to Kholmsk on the island. At present there is no sea traffic in the winter, but the new ferry, which will be built like an icebreaker, will be able to make trips the year round. It will have propeller screws fore and aft and a reinforced hull for maneuverability in ice. The ship will have room for a whole train of railroad cars. Passenger comforts will include air-cooled cabins, salons, a bar and everything else to make for a pleasant 140-mile crossing. The ferry will be in service next year.

243-TON TRUCK!

Encouraged by the gold medal the Leipzig Fair awarded their 30-ton dump truck for excellent performance, the designers of the Zhodinsky Automobile Plant in Byelorussia are working on experimental models of 72-ton trolleys. They can be powered by either an overhead trolley line or a diesel engine. The Byelorussian automobile plant, which sells to 15 countries—will shortly be producing giant 121-, 176- and 243-ton dump trucks.

COLOR MUSIC

The image on the screen changed from crimson to a joyful blue. This film without story or actors—nothing but color and music—was made by amateur cameramen, students of the Kazan Aircraft Engineering Institute. They shot Scriabin's symphonic poem *Prometheus*. Bulat Galeyev, the director, tried to realize the composer's cherished hope of sounds "shining in color." The *Prometheus* score has a line marked "lux." The composer himself hoped to play his poem on a luminous organ in London, but the First World War interfered.

THE 104th ELEMENT

Soviet and Czechoslovak physicists working at the Joint Institute of Nuclear Research in Dubna have synthesized a superheavy element—the 104th in the Mendeleyev table. Many scientists asserted the synthesis would be impossible. The new transuranium element, they thought, would disintegrate in some thousandths of a second. However, it was found that the new element "lives" for as long as three-tenths of a second, sufficient time—with the elegant and extra fast methods devised by the Soviet-Czechoslovak research team—to identify it and investigate its properties.

Chemically, the 104th element is very similar to hafnium, element No. 72. But its very great difference from other transuranium elements opens a whole new area of study.

CONTINUOUS INVENTOR

Vladimir Mamonov, a worker at the Moscow Metallorukav Plant, suggested that the fittings for the hydraulic systems of machines be made by the continuous flow method. Engineers and executives thought the idea was worth trying. They found that it saved the plant a great deal of money. Mamonov suggested 10 more innovations shortly thereafter. The latest was stamping couplings instead of turning them out on a lathe. The lathe method wastes metal and takes the time of several machine operators. Plant accountants estimate that the stamping method will save about 5,000 rubles a year.

SUPERVISED EARTHQUAKES

A force 12 tremor shook the building. Its windows shattered and its wall split. But the people sitting around looked on calmly at all this damage wrought by the elements, jotted something down in their notebooks and went on with their quiet conversation. Then a button was pressed and the earthquake ended.

The whole thing took place in the laboratory of the Georgian Institute of Civil Engineering Technology and Earthquakeproof Construction. In cooperation with designers, researchers have developed a test platform on which models of buildings up to 26 feet high are mounted. The installation checks the capacity of structural parts to withstand earth tremors. Models of residential buildings, hydroelectric dams and other industrial structures can be mounted for testing.

TRAINING ECONOMISTS

This fall colleges in the Ukraine admitted 29,000 more students than last year. The economics departments of many of the colleges have been reorganized with a stronger emphasis on such fields as economic planning and financing. Kiev has opened a new commercial institute, and Odessa and Kharkov are completing new auditorium and dormitory buildings.

LANDING STAGES FOR A SAND SEA

Landing stages and docks are obviously essential on the shores of seas and oceans, but are they necessary in a desert? People who cross the Kara-Kum Desert in Turkmenia with flocks of sheep and herds of camels are inclined to make nautical comparisons—they talk of waves of sand. There are only a few places in this sand sea where shepherds can take a rest. The Turkmenian Republic proposes to repair the mistake of nature and create green "landing stages" in the very heart of the desert. It is planning 12 big oases.

IRRIGATING THE DESERT

Of the Karsha Steppe Uzbeks say: "If a bird flies over it, it burns its, wings; if a man walks over it; his legs turn to cinders!" Now people are tackling the big job of making this impassable steppe not only accessible but productive. Preparatory work has begun—roads are being built, power lines are being erected and artesian wells are being drilled.

Several years ago a reservoir to irrigate 124,000 acres of arid land was built on the Kashka Darya River. However, this river was too small to water the whole desert. Another river, the Amu Darya, will be used to irrigate the rest. Pumping stations will raise the water as high as a 50-story skyscraper and send it to the desert via a canal that will carry about one million cubic feet of water a minute. Two reservoirs are being built to guarantee an unfailing supply.

BRIDGE GLUED TOGETHER

Yaroslavl on the Volga, where Valentina Tereshkova, the world's first woman cosmonaut, was born, is building an unusual bridge. On the river shore, near the walls of the ancient kremlin, is a platform where the huge sections of the bridge are joined with a synthetic glue. Cranes then place the sections on the bridge girders, where they are fired. A bridge like it in Moscow has already verified that the glued joints will stay intact in rain and blazing sun.

ELECTRONIC WRIST WATCH

Customers have been asking for the Slava transistor watch that Moscow Watchmaking Factory No. 2 puts out. This new model electronic wrist watch has been tested under all possible conditions—even in a spaceship. Stores will soon be getting a large consignment of these watches whose parts are 90 per cent smaller than those of other timepieces and whose precision is 10 times greater. Watchmaking Factory No. 2, one of the oldest of its kind in the country, now competes with the world's best timepiece makers. The factory has 24 automatic transfer lines and will soon be installing electronic control instruments in its shops.

INJECTION FOR A BUILDING

When a man begins to ache, you have a doctor look after him, give him a series of injections or prescribe a drug. But what do you do when a building begins to come apart at the joints? And not just an ordinary building but one built several centuries ago? Fortunately there are doctors for architectural monuments as skillful as any medic. The most recent patient of these restoration artists was the unique 800-year-old Dmitrovsky Cathedral in the town of Vladimir. The cathedral, which had split into two parts, was placed in a corset. The cracks were opened enough to be syringed with a lime solution that cemented the wall solid.

HOMEMADE MUSIC

In Transcarpathia, a region famous for its folk melodies, one lumberjack ensemble dresses for concert occasions in green felt hats and coats to match. They also manage to pull an extraordinary amount of melody from their instruments. Only a few people in their audiences know the instruments are homemade. Some are even invented. Vasil Kotlan, one of the ensemble musicians, plays on something he calls a barbenitsa. It is a simple instrument—a few horsehairs attached to the bottom of a wooden keg. Vasil plucks the hair to get a sound somewhat reminiscent of the double bass.

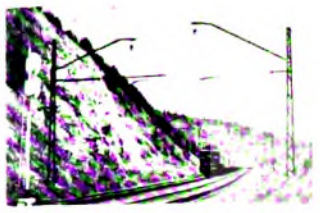
RESCUE IN THE NORTH ATLANTIC

In gale weather the crew of the fishing vessel Y. Greifenbergeris was hauling in a catch in the North Atlantic. Most of the trawl was already on deck when it suddenly slipped off the hook. Senior trawl master Vasili Yershov rushed for the cable, but the trawl jerked, threw him to the deck and a big wave washed him overboard.

The fisherman showed great presence of mind. He freed himself of the clothes that were pulling him down and with great effort slipped out of his top boots. Several times his legs were paralyzed by cramp. He stayed afloat in the cold and churning water for more than a quarter of an hour until he was rescued.

ELECTRICALLY STIMULATED GRAPES

Georgi Kuchava, research associate at the Georgian Institute of Farm Mechanization and Electrification, has developed an electrostimulator for grapevine grafts. He found that the seedling stock and the scion join better in a high-tension electric field and, as a result, the yield of top-quality seedlings is 30 per cent higher. The root system of the processed seedlings grows faster. The unit designed by Kuchava is fitted with a conveyor system that can process more than 2,000 grafts an hour. The Mtskheta vineyards have planted 50,000 electrically stimulated seedlings and are awaiting an exceptionally rich harvest.



MOSCOW-PRAGUE RAILROAD

The Moscow-Kiev-Prague Trans-European Railroad, which has 1,056 miles of track on Soviet territory alone, is being electrified. The line is already being used by heavy trains pulled by high-speed electric locomotives. The railroad carries a large fraction of the Soviet Union's export and import freight to and from other European countries. However, even this big line makes up only a small part of the track the Soviet Union has electrified in the past few years. Placed end to end, it would circle the equator twice.

OCEAN HIGHWAY

To go from the Arctic port of Pevek to the gold mining settlement of Baranikha in Northern Siberia, truckers drive across the ocean ice. This is not the first winter they have used this unusual highway. By the end of the navigation season great heaps of cargo have accumulated at the port. And when the weather has coated the ocean with thick enough ice, the trucks start rolling over it. Teams of hydrologists check the surface. Instruments under the ice in the bay register the speed of the currents which determine the condition of the ice. Occasionally the frost will turn from the driver's friend to his enemy. Once the temperature fell to minus 76 degrees F., and the surface began to crack. Logs were frozen into the ocean highway to strengthen the ice. Usually it can be used until May.

SECOND DIPLOMA

A few years ago a group of mature and professionally established Leningrad engineers—shipbuilders, electrotechnical specialists and transport experts—went back to school. They enrolled for the full course of study at the Vera Mukhina Higher Industrial Art School. Recently 15 of them were awarded diplomas as artists. They will be applying their schooling in the area of industrial design.

SATIN SLIPPERS

A ballerina's slippers must be smart, graceful and, besides, give her feet proper support. They need to be made with mathematical precision to distribute the weight of the body on all the toes. Leningrad physician Eleonora Boitsova has designed satin slippers that conform to the strictest requirements. They are built around a last that reproduces every detail of the dancer's foot. Boitsova's slippers were tested at the Leningrad Ballet School and won the high praise of all the future ballerinas.

LITHUANIAN COMPOSER-PAINTER

A museum dedicated to Mikalojus Ciurlionis was opened on the ninetieth anniversary of his birth in the quiet Lithuanian town of Druskininkai. The objects in the house, where the Lithuanian composer and artist spent his childhood and youth, speak of his interests and early search for expression. He lived in Kaunas, the capital of the republic, for many years, and some of the items on display are from this period in his life.

Besides composing, Ciurlionis also painted, and both these talents supplemented each other. You can hear music in his pictures *The Sun Sonata* and *The Sea Sonata*, and his music is as striking as his colors. Speaking of his work, Romain Rolland said: "This is a new continent of the spirit, and Ciurlionis has become its Christopher Columbus."

QUADRUPLETS GROW UP

These quadruplets are on the way home from school. It is a special occasion, as you can see from the big smiles—their sixteenth birthday.

Moldavian railroad man Georgi Shereper and his wife Stepanida are the parents of sons Victor, Boris, Alexei and daughter Valentina. When the quadruplets arrived, the state gave the family a new and larger apartment and substantial financial aid. The children had expert medical care, and a nurse from the children's consultation office helped Stepanida take care of them. The quadruplets are normal, healthy youngsters. They like sports and do well in school.

NEW FISHING WATERS

One more blank spot on the fishery maps of the Pacific has been filled in. After two years of exploration and study the area southeast of the Gulf of Alaska to 40 degrees North Latitude has been declared good fishing waters. Big deep-freeze trawlers, after bass and angler, have already started working the new grounds. Some of them haul in 22 to 27 tons of fish in a single trawl. Specialists believe the new waters will provide very stable catches. Soviet expeditions are studying the oceans in various parts of the world. The research ship *Gagarin* is exploring the ocean near Chile. Studying the waters of the Great Australian Bight is the trawler *Konopus*, another vessel of the Soviet Far Eastern Fishing Trust. A flotilla of ships has gone after the big schools of sardines in these waters.

COUNTRY'S CHEAPEST ELECTRIC POWER

Bottled up behind the dam of the Toktogul Hydroelectric Power Station in Soviet Central Asia is the turbulent Naryn. The river, with a hydropower capacity as great as the Volga, is now rushing at a speed of 50 to 65-feet a second along a 2,600-foot deviation tunnel cut in granite. When completed, the Toktogul power station will provide the country's cheapest electricity. Its dam will be 754 feet high, and its reservoir for 671 billion cubic feet of water will irrigate the drought-threatened collective farms of the Central Asian republics.

VERY BULKY GIFT

This unusual and very bulky gift—a house-building combine—had to be carried by 100 railway flatcars. It was going to Kyzyl-Yurt, a new town on the shore of the Caspian. The combine was made by the people of Leningrad and presented to the town in Daghestan. The huge machine is completely automated. An interesting detail: it has no boiler rooms or steam chambers. The building sections are to be made of vibroactivated concrete with electric heating. This year thousands of families in Kyzyl-Yurt will be moving into new apartments produced by the combine.

LATHES SOLD ABROAD

Mikhail Baikov, adjuster at the Krasny Proletary Plant in Moscow, has made four trips abroad to teach foreign buyers how to handle the machine tools his plant makes. They are exported to factories in Europe, Asia, Africa and America. The Krasny Proletary trademark is well known in Japan, the Federal Republic of Germany, France and Italy. The famous IK-62 screw-cutting lathe will shortly be replaced by a more reliable and durable machine. Designers say it will work five years longer than its predecessor without repair.

VOLCANOES ON VENUS?

Soviet astronomer Nikolai Kozyrev believes there are. He has already located active volcanoes on the moon, and hypothesizes that Venus also has them. He proves it by analogy with the spectrum of terrestrial volcanoes. For instance, the spectrum of the smoke of the Kamchatka volcanoes has two lines which sometimes appear in the spectrum of the day side of Venus. The astronomer thinks the core of Venus is active and that indirect proof is the luminescence of the night side of the planet. The cause of this luminescence, says Kozyrev, is the formaldehyde resulting from the oxidation of hydrocarbons. The astronomer cites the 1964 flare on Venus, which was as bright and intense as a nuclear explosion.

NEW ITEMS FOR SALE

Once a month the State Commission of Experts gathers in one of the halls of the USSR Chamber of Commerce to approve new items for mass production. This top commission, made up of specialists from the various industries, industrial designers and sales people, decides which new items will appear in the stores next week or next month. At the last session more than 100 items were submitted for its approval. Among the items chosen by the commission were the Estonia-4 radiophonograph manufactured by the Punane-Ret Plant in Tallinn, a toy cross-country vehicle for young automobile fans made by the Gorky Automobile Plant, crystal glass articles made by the Gus Khrustalny Factory, and kozhvolon, a synthetic produced by the Research Institute of Film Materials. Kozhvolon shoes are light, comfortable and last three or four times longer than the leather variety. A cheap and simple-to-operate photo gun will also be available soon to wildlife camera bugs.

TASTES LIKE BOTTLED SUN

One of the wine cellars in Yalta gives you the impression of a medieval castle: the candles in the chandelier dimly light up cherry-colored walls, and a huge barrel stands in the middle of the hall. The impression is heightened by the girls in attendance, who offer you a crystal glass goblet filled with a golden-, cherry- or ruby-hued beverage which you sample in solemn silence. The sunniest bouquet is the Krasny Kamen (Red Stone) muscat, which visitors are treated to last. The label on a bottle of this muscat pictures eight of the gold medals and the Grand Prize silver cup France awards to the finest wines.

The Soviet Union has a tenth of all of the world's vineyards. The plan is to double grape wine production by 1970.

AROUND the COUNTRY

CHESS: What's The Matter?

By Grandmaster Mikhail Tahl
Former World Champion

THE LAST TIME the Soviet junior chess players won the world crown was 11 years ago, when Boris Spassky did the trick. He went on straight from that championship to the Interzonal Tournament in Sweden and qualified as an international grandmaster.

It might not have been entirely correct, therefore, to call Boris a junior. He did, after all, have national title play experience and picked up more in a big international tourney in Bucharest.

But that aside, I can't think of any junior today who could match Spassky or Bobby Fischer for chessboard wizardry. Frankly, I believe that players like Fischer just aren't born very often. You can argue whether he is the world's leading challenger or in the top five or top ten, but one thing is certain: nobody at the age of 15 played like Bobby.

Why can't our young players retrieve the high places in world chess which we, not unreasonably, expect them to hold? Is it really so hard for them to elbow their way through the big, broad-shouldered group of grandmasters, or is it simply that our young players do not have enough of what it takes?

I think they have—the performance of Soviet teenagers in regional and national tournaments say they have. It is true that no new Spasskys have emerged, but there are plenty of talented newcomers.

What's wrong? I would say we've been a little spoiled by the consistent victories of our players. We see the smallest setback as a horrible failure. Therefore, when the question comes up of whom to enter in an international fixture, we always have "a reliable fellow" at hand: "Victor Korchnoy will certainly take first place!" "Yefim Geller won't let us down nor will Vasili Smyslov!"

I'm sorry to say that we do have a great many players who feel they must carry off top honors in major tournaments. Our younger fellows do, indeed, have a tough time breaking through to the front ranks

Until recently the international debut of a gifted youth was usually the world junior championship, and he went at it with hypertrophied excitement. But oddly enough, as soon as the decisive championship rounds came up, he forgot all of his chess theory and lost all of his confidence.

I can very well understand how a young player feels in official tournaments: He is tense, looks at the little flag of his country on the chess table, tells himself he must not let his older comrades down. I have been in his boots, been nervous and excited. That kind of excitement is good for a young player, it's a joyous, creative excitement. When a player loses that, he becomes nothing but a mover of pieces. But knee-knocking excitement is something altogether different, and this, I am sure, is what prevents our capable lads from showing their real worth.

I am glad to see this business, which has been worrying all of us, beginning to straighten itself out. We have been sending our most able young men to international matches more frequently. There is no panic, as there used to be, when they lose a few unofficial games. This will stand them in good stead later on, give them the experience and poise they need.

I'll chance a prediction on 16-year-old Yuri Balashov of Shadrinsk in the coming world junior championship. He devotes a great deal of his time to the game and is being helped by none other than the former world chess king Mikhail Botvinnik. Balashov did well in Holland and notched up a win at the Hastings Christmas Congress (1965). The point is not whether he finishes at the top or even in third place in a grandmasters' tournament next year; his game will improve from match to match and so will his showing, which is why I am betting on Yuri in the 1967 world championship.

And now let us analyze one of Balashov's games, played against Lepeshkin in 1964.

White—Balashov Black—Lepeshkin
Grünfeld Defense

1. P-Q4	Kt-KB3
2. P-QB4	P-KKt3
3. Kt-QB3	P-Q4

This system of defense, "invented" by a leading Austrian chess theorist, Ernst Grünfeld, is very popular nowadays. Black gives way to the White Pawns in the middle with the intention of undermining that place later on. White accepts the challenge.

4. PxP	KtxP
5. P-K4	KtxKt
6. PxKt	B-KKt2
7. B-QB4	O-O
8. Kt-K2	Kt-QB3

Twenty years ago, an analyst would certainly have written a big question mark after this last move. The original Grunfeld defense pattern would have called for an immediate reply of 8...P-QB4, which, incidentally, was considered practically obligatory on the sixth move. However, modern inter-

preters have found fresh aspects of this comparatively new opening. The patent for the scheme starting with the given move is held by Soviet Grandmaster Vladimir Simagin. Black postpones his undermining operations in the middle for the time being, because he first wants to deploy his pieces more conveniently on the Queen's wing.

9. O-O ....

Balashov is in no mood to push deep inside the jungles of theory. The theorists promise an advantage for White in the event of 9. B-KKt5 or even 9. P-KR4 (!?), but thrusts of that kind are not in character for this young, sober-minded master.

9.	**Kt-QR4**
10. B-Q3	**P-QB4**
11. B-K3	**Q-QB2**
12. QB1	**P-QKt3**
13. Q-Q2	**B-QKt2**

This natural move is the source of approaching difficulties. The exchange of the black-square Bishop should be avoided here, because it could be useful both in exerting pressure on the middle and in protecting the King. It would pay to continue with 13. ...,R-Q1 in order, after B-KR6, to be able to move the Bishop away.

14. B-KR6	**R(QR)-Q1**
15. BxB	**KxB**
16. R(KB)-Q1	**Q-Q2**
17. P-KR3	**....**

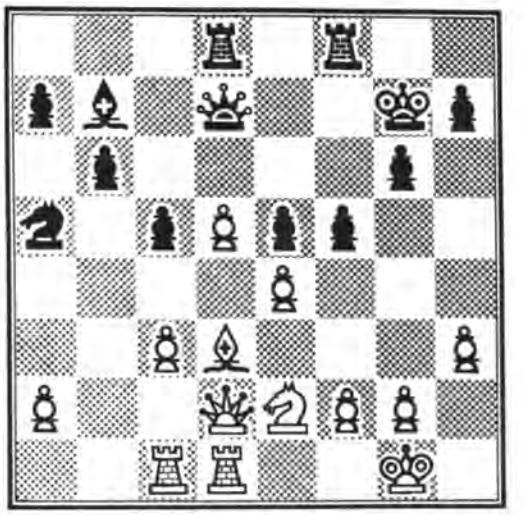
Black concentrates his forces around the Pawn on Q5. Balashov would seem to have underestimated Black's last move. Instead of an indifferent 17. P-KR3, I believe the reply should be 17. Q-K3 to prevent what did happen.

17. .... P-K4

This is an invulnerable Pawn, a capture, 18. PxP (K)' is impossible in view of 18. ...,P-QB5, with the capture of a piece. The Queen's Pawn is compelled to move forward, losing White flexibility in the middle.

18. P-Q5 P-KB4!?

This thrust is too sharp. With a series of vigorous moves Balashov proves that his opponent is not fully ready for "infighting." His Knight is in a static position. A stronger reply would be 18. ...,B-QB1 in preparation for the maneuver of the Knight from QR4 to QKt2 and further on to Q3 (diagram).



19. PxP ....

It would be worse to play 19. P-KB3. Following 19. ...,P-KB5, the position would remain closed, and Black would be able to maneuver without interference. Balashov has figured out the complicated situation thoroughly.

19. .... QxP(Q)

There is the danger of a checkmate, but White combines defense with active operations.

20. Q-KKt5 Q-KB2

It turns out that 20. ....P-K5 is impossible, because of 21. Kt-KB4, QxP; 22. QxQ, with a winning exchange (23. Kt-K6ch).

21. PxP! ....

White is not afraid of ghosts, whereas Black finds his King is in great danger.

21.	**QxPch**
22. K-KR2	**Q-KB3**
23. Q-KKt4	**B-QB1**
24. Q-KKt3	**PxP**

Black has repulsed the first attack and pocketed an extra Pawn into the bargain. However, the weakened cover of his King and the distant removal of the Knight on QR4 enables White to continue the offensive.

25. R-KB1	**Q-K3**
26. P-KR4	**....**

The reserves are hurled into action.

26.	**Kt-QB3**
27. P-KR5	**Kt-K2**

A more vigorous 27. ...,P-K5 would also not free Black of the difficulties arising after 28. B-QKt1 (and not 28. Kt-KB4?, RxKt!), Kt-K4; 29. Kt-KB4, Q-KB4; 30. R(QB)-K1, and it is impossible to play 30. ...,Kt-KB6ch, because of a reply of 31. RxKt.

28. PxP ....

Another White Pawn has come up too close for the Black King's comfort. This, certainly, makes for nerves.

28.	**Kt-KB4**
29. BxKt	**RxB**
30. RxR	**QxR**

The second onslaught is beaten off, but Black is stalked by more unpleasantness.

31. R-K1	**B-QR3**
32. Kt-KKt1!	**P-K5**

This optimism is swiftly and convincingly punished. It would be essential to pass onto an ending with a reply of 32. ...,Q-KB5, after which Black would have every reason to count on a favorable outcome of the game. Though even here, following 33. QxQ, PxQ; 34. Kt-KR3!, White would have a certain advantage, whereas now with the joint effort of the Queen and impatient Knight, White quickly mounts an irresistible attack.

33. Kt-KR3	**B-QKt2**
34. K-KKt1!	**....**

White threatens to bring his Rook into offensive play and, with a move of 35. Q-KR4, to attack the enemy Rook, Bishop and King. No defense can be seen against this scheme.

34.	**R-Q6**
35. Q-KR4	**QxP**
36. Kt-KB4	**Q-QB3**
37. Q-KKt5ch	**K-KB1**
38. Kt-KKt6ch	**....**

Black resigns, in view of the loss of his Queen, as a minimum.

Although there are no effective combinations in this game, the consistent and logical play of this 16-year-old schoolboy makes a very pleasing impression.

1960

Lightning

The click of the shutter was
lost in the gust of wind
and the crack of lightning.

Photo by Alexei Bushkin

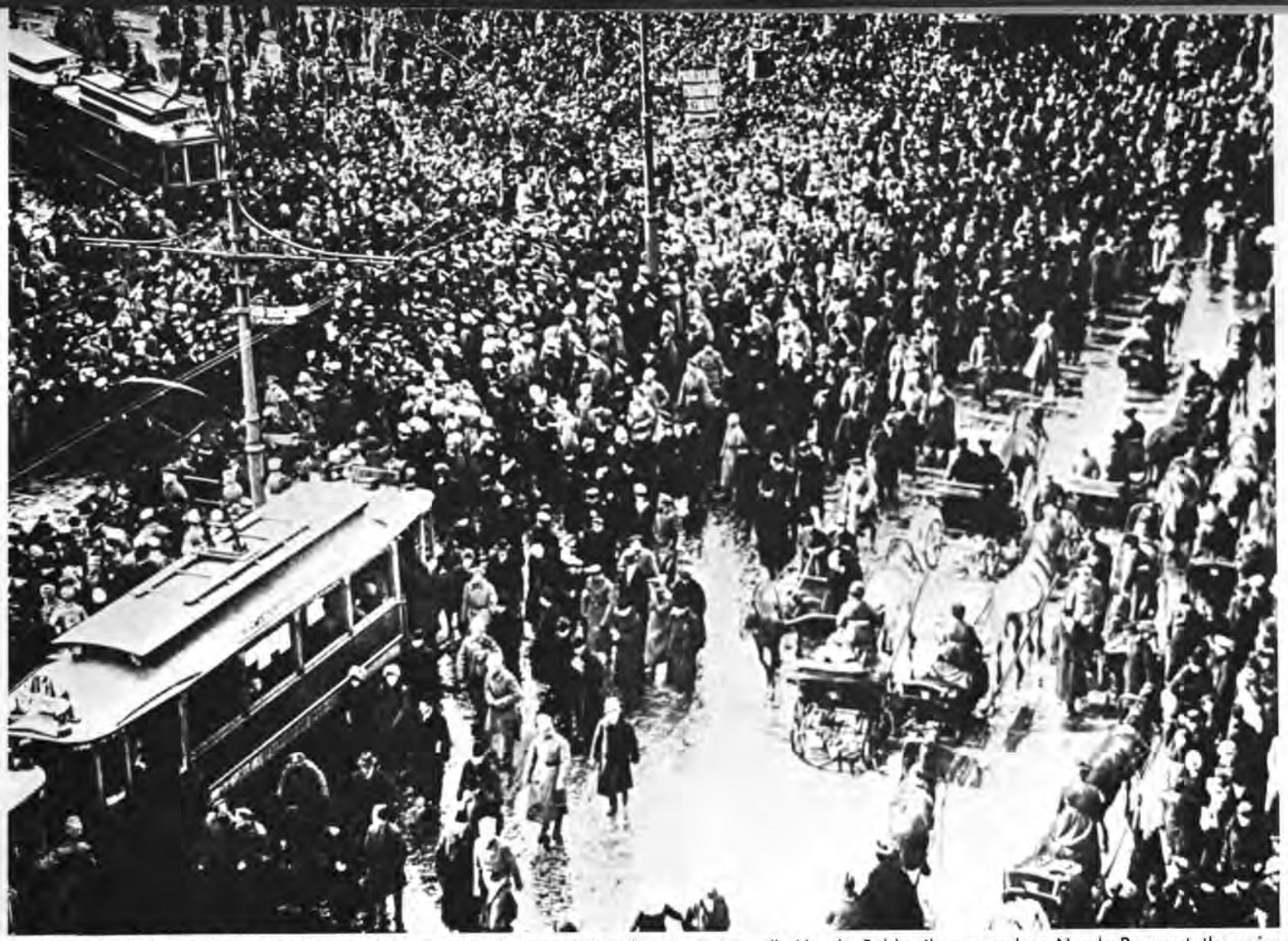
You rose up, working-class St. Petersburg,
And began the war
Of all oppressed
Against all oppressors.
In order thus to kill
The very seed of war.
—From the inscription on the tombstone of workers who were killed during the February Revolution.

FEBRUARY 1917

By Irina Pushkaryeva
Master of Science (History)

In 300 years the Romanov dynasty had built an empire that stretched from Central Europe to the Bering Strait, a great empire that rested on the bayonets of its soldiers. In the February Revolution the Russian soldier used the butt of his gun to smash the czarist symbol, the two-headed eagle. On March 2 monarchist Vitali Shulgin and Octobrist Alexander Guchkov handed Nikolai II the text of his abdication. They waited for several hours before he affixed his signature to the document that made him the last Russian czar. It was the end of the old order, the stage was set for socialism.

This is the second article in a series on the Russian Revolution. The first, covering the period from 1861 to 1917, appeared in the September issue.



This is how the February Revolution began. An International Women's Day demonstration called by the Bolsheviks moves along Nevsky Prospect, the major thoroughfare of Petrograd. The day before, the Putilov plant had locked out its workers. There was a shortage of bread in the city, and the hungry people, women mostly, raided the food shops and the bakeries. The czar commanded General Sergei Khabalov "to put a stop to the disorders no later than tomorrow." But neither the troops nor the wheat which had been rushed in to quiet the desperate and hungry people could halt the revolution. Workers from the suburbs streamed into the center of town. It was a general strike. Stores shut down, telephone service was disrupted, electricity stopped. General Khabalov said, "When the banners read 'Down with the autocracy!' no amount of bread will quiet them," and ordered his troops to shoot.

THE AFTERNOON of March 2, 1917,[1] Meczyslaw Bronski, a Polish Social-Democrat, rushed into the apartment in Zurich, Switzerland, where Vladimir Lenin was living in exile.

"Have you heard?" he exclaimed. "There's been a revolution in Russia!"

Lenin threw on his overcoat and rushed down the narrow streets to the bulletin board on the embankment, where the *Neue Zuricher Zeitung* posted the latest news. He read the dispatch over and over again: a general strike in Petrograd, clashes between workers and police, soldiers side with the strikers, a Soviet elected.

"Producer of the Revolution"

On July 26, 1914, the highest official bodies of the Russian Empire, the State Council and the State Duma, met in the czar's Winter Palace in St. Petersburg, the capital, soon to be renamed Petrograd. Six days earlier Czar Nikolai II had issued his Declaration of War.

Russia went to war to the peal of church bells. Victory promised new markets. Besides, the czar thought, the war would make it easier to crush the growing revolutionary movement. He was haunted by the recent barricades in St. Petersburg, so reminiscent of the First Russian Revolution of 1905-1907.

In the Winter Palace the Russia of the landowners and bourgeoisie demonstrated its unity with the czar. Monarchist Sergei Sazonov, the Foreign Minister, and Pavel Milyukov, leader of the bourgeois Constitutional-Democratic Party, both supported the war. "Be audacious, Sovereign," Mikhail Rodzyanko, Chairman of the State Duma, exclaimed rapturously. "The Russian nation is with you!" The Socialist-Revolutionary Alexander Kerensky, leader of the left wing of the bourgeois democrats, also gave the war his blessing.

That day both groups of the Social-Democratic Labor Party in the Duma, the Bolsheviks (majority) and the Mensheviks (minority), came out against war appropriations. Soon after, however, the Mensheviks decided to support a defensive war. The Bolsheviks, Lenin's followers, were the only ones to take an active stand against. "A war against war is our slogan," Bolshevik Alexei Badayev, a member of the Duma, told foreign newsmen. "That is the slogan for which we, the genuine representatives of the working class, will fight."

An unpatriotic policy? Nothing of the sort. The Bolsheviks were opposing an unjust war, a war for plunder, a war which the Great Powers were waging to redivide the world. The Bolsheviks called on the workers and peasants in army uniform to turn their guns against their own governments, to turn the imperialist war into a civil war.

Developments very soon cast a gloomy shadow on the hopes of Russia's landowners and bourgeoisie for victory. In the spring and summer of 1915 the Russian armies suffered a series of defeats. These reverses had their echoes on the home front. The war disrupted industry and transport, the economy was in difficulties. The revolutionary movement was growing. In 1915-1916 there were 2,500 strikes involving two million workers. Strikes became political, anticzarist. There were antiwar actions of industrial workers, soldiers and sailors, peasants.

A revolution was imminent. It was difficult to foresee the day and hour when it would strike since it was maturing under the surface. The Bolsheviks, who had stood firm against the harsh repressive measures which the autocracy had instituted with the outbreak of war, were quick to sense the changing mood of the people and to lead the mounting revolutionary movement.

During the war Bolshevik Party groups functioned underground in more than 200 Russian towns. They turned out millions of leaflets calling for revolution. Petrograd, with an underground organization of more than 2,000 followers of Lenin, became the center of the movement.

The Socialist-Revolutionaries and Mensheviks saw the revolutionary movement in a different light. The Socialist-Revolutionaries were awakened, as it were, by the explosions of the uprisings. "The revolution came as a complete surprise to us," [2] Vladimir Zensinov, a prominent Socialist-Revolutionary who lived in Petrograd at the time, wrote in February 1917. In September 1916 Menshevik Lev Martov openly opposed preparations for a revolution, branding such activity by Socialists as "directly criminal." [3]

[1] Here, as elsewhere in this article, the dates are given in the Old Style (Julian) Calendar, then used in Russia. The New Style (Gregorian) Calendar was adopted in February 1918.

[2] *From the Life of a Revolutionary*, Paris, 1919.

[3] "The Danger of Simplification," Bulletin of the Foreign Committee of the Bund. No. 1, 1916.

Word of the February Revolution reached Lenin in Zurich, where he was living in exile. With other émigrés he immediately took steps to return to Russia. That was no easy task with Europe intersected by battlefronts. Also the Provisional Government did not want him back. A group of émigrés managed, with difficulty, to get to neutral Sweden and from there to Russia. Here we see them in Stockholm. Lenin is the man with the umbrella.

Under pressure from the growing revolutionary movement some factions of these parties, like the Left Socialist-Revolutionaries and the Internationalist Mensheviks, came out against the war and adopted the Bolshevik slogan of overthrowing the autocracy. The Bolsheviks made contact with those groups from time to time. They did not, however, seek an alliance with the Socialist-Revolutionary or Menshevik parties since their leaders, notably Alexander Kerensky, Nikolai Chkheidze and Mikhail Skobelev, were urging the people to support the bourgeoisie and its representatives in the Duma. From the platform of the Duma, these men spoke of "the government's inactivity," hinting at connections between the czarina and the Germans, and demanded the dismissal of Rasputin, favorite of the czar. The "progressive bloc" opposition in the Duma demanded that the czar form a new government that could win the war and crush the rising wave of indignation in the country.

The czar found those speeches "revolutionary." Sergei Shidlovsky replied for the Octobrists, another party of the big bourgeoisie and landowners whose program was practically the same as that of the Constitutional-Democrats. "The government thinks we are making a revolution; on the contrary, we are preventing one," said Shidlovsky, summing up the opposition's activity in the Duma. The bourgeoisie looked toward a Constitution in which the czar, in the light of the war situation, would give them a voice in the government. But the ship of state was floundering, and Nikolai II ignored the claims of the bourgeoisie.

The upshot of the ferment in the Duma was that the czar dissolved that body until the political passions of the bourgeoisie died down. He continued to take his guidance from devoted ministers like Ivan Goremykin, a 70-year-old Monarchist, and the reactionary politician Boris Stürmer. The war, requiring an efficient and unified government, laid bare all the infirmities of absolute monarchy. The ministerial crisis (there were four successive Chairmen of the Council of Ministers during the period, not to speak of other posts) were also a result of the internal collapse of the autocracy. The war multiplied and deepened the economic and political contradictions. By creating the conditions for the rapid disintegration of the Romanov dynasty, it was, so to speak, the "producer" of the February Revolution.

The "crisis at the bottom" (the suffering of the people, and their economic and political actions) plus the "crisis at the top" (czarism's inability to govern the country) created a general revolutionary crisis. Only the spark was needed to trigger the revolution.

Day of Decision

Few people in Petrograd imagined that the events of February 23 would start the Second Russian Revolution. The day before, the Putilov Works management shut its doors and locked out its workers for going on strike. Thirty thousand workers were thrown on the streets.

The Bolsheviks called an antiwar demonstration on February 23, International Women's Day. Women textile workers made the rounds of the machine factories and metallurgical plants, talking political strike. Demonstrations began with the slogans: "Down with the autocracy!" "We want bread, land, peace, freedom!" Skobelev, the Menshevik, and Kerensky, the Socialist-Revolutionary, called for an end to the strike. The Bolshevik leaders, meeting in secret, decided not to limit its duration and not to yield to the police and the troops. They took steps to draw the Petrograd garrison over to the side of the workers.

The next day more than half of Petrograd's workers went out on strike. Neither the troops, nor the wheat which had been hurriedly shipped in to quiet the desperate and hungry people, nor the arrest of their leaders could halt the revolution.

On February 26 demonstrators from the suburbs streamed into the center of town. It was a general strike. Promenaders disappeared from the avenues. Stores closed. Telephone service was disrupted. The flow of electricity stopped. Troops fired on the marchers.

About 50 dead and many more wounded remained lying in the streets. Mikhail Rodzyanko phoned General Sergei Khabalov and asked him to instruct the troops not to fire on the demonstrators because he feared an outburst of popular fury. His fears were justified. The shootings heightened revolutionary sentiment among the soldiers. The first to join the revolt was a company of the privileged Pavlovsky Regiment; that same day the company turned its guns against the autocracy. Other

(Left to right) Alexander Kerensky joined the Provisional Government as Minister of Justice and became Prime Minister. He fled the country during the October Revolution. Kerensky was a leader of the Socialist-Revolutionaries. Pavel Milyukov led the Constitutional-Democrats. He was minister of Foreign Affairs in the Provisional Government. After the October Revolution he helped the anti-Soviet interventionists, and later he emigrated to France. Nikolai Chkheidze was a Menshevik. The Mensheviks believed the bourgeoisie had to replace the monarchy, that a socialist revolution would have to take place in the West first. They favored continuation of the war. From February to August 1919 Chkheidze was head of the Petrograd Soviet of Workers' and Soldiers' Deputies, and after October a leading figure in the Georgian Constituent Assembly. In 1921 he emigrated to Paris, where he committed suicide.

On April 4, the day after he returned to Russia, Lenin addressed a gathering of some 500 Bolsheviks and Mensheviks in the Taurida Palace in Petrograd. His speech analyzing the prospects for the revolution played a large part in guiding the Bolsheviks through that troubled time. The major points of this speech, known as the April Theses, defined the policy of developing the bourgeois-democratic revolution into a socialist revolution, and called for an immediate end to the war; the nationalization of all private lands, banks and factories; the transition to the second stage of revolution, with the transfer of power to the proletariat and the poorest strata of the peasantry; withdrawal of support for the Provisional Government; recognition of the Soviets of Workers' and Soldiers' Deputies as the only possible form of revolutionary government in Russia. He raised the slogan "All power to the Soviets!"

The first governing body created by the revolution, Russia's first parliament of the people, was the Petrograd Soviet of Workers' and Soldiers' Deputies. The Executive Committee of the Soviet met in the Budget Committee Room of the Taurida Palace. Catherine Hall resembled a huge bivouac, with rifles scattered all over the floor. A peasant jumped up on a box in the middle of the hall and yelled: "We don't need any Turkish, German or Polish land. There's enough in Russia for everybody if we only had our own government!" The Soviet formed armed detachments to guard state institutions and maintain order; it founded a newspaper, formed food and finance committees. While the Soviet met in the left wing of the palace, the bourgeois Duma sat in the right wing; its one thought was to stay dominant. Later Vitali Shulgin said, "Machine guns! That's what I wanted then."

The summer of 1917. The women's shock "Death Battalion" swears an oath of allegiance to the Provisional Government. These bob-haired fanatics asked to be sent to the front at a time when the soldiers, fed up with the long and senseless war, were quitting the trenches en masse. When the October Revolution broke out, only this battalion and a few cadets rallied to defend the Winter Palace and the Provisional Government.

units followed. By March 1 nearly the entire Petrograd garrison had gone over to the revolution.

February 27 was the decisive day. In the morning workers and soldiers broke into the arsenal, seizing 40,000 rifles and 30,000 revolvers. Thus armed, they captured the main post and telegraph office and railway stations. In a Manifesto "To All Citizens!" the Bolsheviks came out for the formation of a Provisional Revolutionary Government. On the instructions of Lenin, they called for contact with the proletariat of the belligerent countries to promote a revolutionary struggle by the peoples involved that would end the war. The czarist ministers resigned. Nikolai II sent a punitive expedition under General Nikolai Ivanov to Petrograd. When that force also went over to the revolution, the czar decided to go to the capital himself, but the railwaymen refused to let his train through. The last Russian monarch was thus informed that he no longer wielded power.

On February 28 czarism's last stronghold in the capital, the Admiralty building, where General Khabalov had taken refuge, fell. The people arrested Khabalov and locked him and the ministers in the Peter and Paul Fortress. Bolshevik Ivan Chugurin, rifle in hand and a cartridge belt across his chest, brought the news to the building on Serdobolskaya Street where the Russian Bureau of the Party's Central Committee, the Bolshevik guiding center of the uprising, had its headquarters.

"We've done it!" he reported, his face wreathed in a smile.

News of the successful revolution in Petrograd spread to all parts of Russia as fast as the telegraph lines could carry it. In the first week of March czarist rule was overthrown in all the big towns. The revolution spread to the army in the field and to the peasantry. Soviets, elected organs of the people's power, were set up everywhere.

Dual Power

The Soviets were a people's parliament with broad representation from all sections of the working population. The Soviet of Workers' and Soldiers' Deputies in Petrograd formed armed detachments to guard state institutions and to maintain order. It banned the monarchist newspapers and founded its own paper, *Izvestia*, which has been published ever since. It formed food and finance committees.

The Petrograd Soviet was altogether capable of setting up a people's revolutionary government. That did not happen, however. Leadership of the Soviet was taken over by the Mensheviks and Socialist-Revolutionaries, who united to form a bloc with a far larger number of votes than the Bolsheviks. Menshevik Nikolai Chkheidze became the head of the Soviet. The Mensheviks regarded the bourgeoisie as the only guiding force of the revolution.

In his book *Notes on the Revolution*, published in 1919, Nikolai Sukhanov, one of the most radical of the Menshevik leaders, said: "The power that replaces czarism must be bourgeois. . . . That is the solution to aim at. Otherwise the revolution will expire."

Acting jointly, the Mensheviks and Socialist-Revolutionaries decided to transfer executive authority to the bourgeoisie. The Duma leaders were afraid of the revolution and were concerned only with ways to crush it. But massive protest demonstrations in Petrograd demanded that the monarchy be toppled.

Its hopes of setting up a constitutional monarchy gone, the bourgeoisie agreed to the proposal by Chkheidze and Kerensky that it form a Provisional Government whose actions were to be controlled by the Petrograd Soviet.

A government was formed on March 2 that included Guchkov, a big businessman; Alexander Konovalov, a manufacturer; Mikhail Tereshchenko, a big sugar refinery owner; and Milyukov, ideological leader of the bourgeoisie, with Prince Georgi Lvov, a landowner, at the head. This was clearly a government of the ruling classes, a government of the bourgeoisie, and not a government of the revolutionary people. The big bourgeoisie included Kerensky in the government as a sop to the revolutionary people.

This created a peculiar situation of dual authority with legislative and executive power held simultaneously by two opposing camps: the workers and peasants through their representatives in the Petrograd Soviet and the other municipal Soviets, and the landowners and capitalists through their spokesmen in the government.

The landowners and capitalists were not happy at sharing power with the people. As early as March Guchkov was saying bitterly: "The Provisional Government exists only insofar as the Soviet of Workers' and Soldiers' Deputies permits it." [4]

Soviets were formed in all provinces and towns, at mines, in army units and in many villages. Millions of people helped to set them up. The Soviets were talking for the nine-tenths of the people who wanted peace, land, bread and freedom. The Soviets called for Russia's withdrawal from the war, the transfer of the land to the peasants, an eight-hour working day and democratic freedoms—the basic demands of the revolution. The Provisional Government was against all that, but it was not strong enough to crush the popular initiative.

Dual power could not continue. Either the people or the bourgeoisie and landowners had to take sole power. The working masses tolerated the bourgeois government only because they still believed the Menshevik and Socialist-Revolutionary promise that the government would follow a revolutionary policy "under the control of the Soviets."

Actually, it followed a totally different policy. Not only did the Provisional Government move to the Mariinsky Palace, where the czarist Council of Ministers had met, but it copied that same czarist policy. It proved incapable of carrying out the tasks set by the revolution. The needs of the country called for the mobilization of all productive material, food and financial resources, without regard for "sacred" private property or the profits of capitalists or landowners. But the Provisional Government allowed the economy to be plundered by inflated prices for war supplies and closed its eyes to the sabotage of manufacturers who wanted to strangle the revolution with "the bony hand of hunger." On behalf of the merchants it raised grain prices. Instead of taxing capital, it issued paper currency, which led to more inflation and higher living costs. Industrial output declined. Trains ran irregularly. The country broke up into isolated economic districts and was heading for economic collapse. In this situation the demand of the bourgeoisie that the war go on and the Bosphorus and Dardanelles be captured was absurd.

Without asking permission, the people began to use their democratic rights. The Provisional Government had no choice but to recognize freedom of assembly and association, which it reluctantly did a month and a half later. After a number of factories had shifted over to an eight-hour day at the demand of the workers, the government was forced to make this concession as well. But it categorically refused to turn over the land to the peasants. It issued an edict making efforts by peasants to divide landowners' estates a criminal offense.

It became clear that the two-headed eagle, symbol of the czarist autocracy, had lost only one of its heads.

Lenin's Arrival

On April 3 Lenin returned to Russia from exile abroad. In his March letters from Switzerland to the Bolsheviks in Russia he had exposed the nature of the Provisional Government and the treachery of the Socialist-Revolutionary and Menshevik leaders who had surrendered part of the power to the bourgeoisie. After the February upheaval, Lenin had said, the revolution had to move on from its first stage to its second, a Soviet Republic, the only form of government possible.

That day being Easter, the newspapers did not publish in Petrograd, and the factories were closed, but news of Lenin's arrival spread to all the working-class districts and army units. Thousands of people gathered spontaneously and marched to the Finland Railway Station to greet him.

Mensheviks from the Petrograd Soviet also came to welcome Lenin. They did not stay with the delegations of workers and soldiers but waited in the Czar's Room of the station.

In his book *Notes on the Revolution* Menshevik Nikolai Sukhanov described Lenin's arrival: "Lenin, excited by his meeting with revolutionary workers on the platform, strode quickly into the Czar's Room. In the middle of the room he ran into Chkheidze. The latter made a glum welcoming speech which said in part: 'Unity, and not disunity, is what is needed in the ranks of democracy. We hope that you will pursue these aims with us.' Lenin turned away from the speaker and greeted

[4] *The Revolutionary Movement in Russia After the Overthrow of the Autocracy*, (a collection of documents), Moscow, 1957, pp. 429-430.

the workers and soldiers. He went out into the station square with them. It was night by this time. Countless banners were lit up by searchlights. The *Internationale* rang out. To incessant shouts of 'Hurrah!' Lenin was lifted to the top of an armored car. The searchlights were focussed on him. He delivered a speech in which he said that the proletariat of the world was looking with hope at the bold actions taken by Russia's workers. He concluded his speech with the slogan: 'Long live the socialist revolution!' "

The leader of the revolution had returned to Russia.

As long as the bourgeoisie did not war against the people openly, and as long as the Provisional Government remained in power thanks to agreement with the Petrograd Soviet, the Bolsheviks called for a *peaceful* transfer of all power to the Soviets. The Bolsheviks hoped that the Socialist-Revolutionaries and Mensheviks would show themselves for what they really were and so lose their majority in the next elections to the Soviet.

The Mask Is Dropped

The actions of the Provisional Government bore out its imperialist substance. Once again the war was the touchstone. Even in the early months, when the feeling of revolutionary defense of the country was strong, the workers and soldiers believed that the Provisional Government should sue more for peace. Some 100,000 people marched to the Mariinsky Palace with posters demanding: "Down with the war!" "Down with Milyukov!" "All power to the Soviets!"

The bourgeoisie was forced to drop Foreign Minister Milyukov and War Minister Guchkov from the Provisional Government. A group of Socialist-Revolutionaries and Mensheviks again came forward to "save" the situation. The Socialist-Revolutionary Kerensky carried out the government's imperialist policy, Menshevik Mikhail Skobelev handled labor matters and Socialist-Revolutionary Victor Chernov defended the interests of the landowners and rich peasants.

More and more strikes were called in the factory districts. By this time the Bolshevik Party had grown very considerably. Lenin's followers were in a majority in the urban and rural Soviets. Hundreds of local peasant gatherings and the first All-Russian Congress of Peasants' Deputies demanded a solution to the land problem. The peasants had read Lenin's letter in the newspaper *Soldatskaya Pravda* about the need for the transfer of power to the Soviets. This demand was also supported in the army, where the Bolsheviks were doing fruitful work.

Developments were heading toward the realization of the slogan, "All power to the Soviets!"

The leaders of the bloc of Socialist-Revolutionaries and Mensheviks isolated themselves more and more from the people. Disheartened by the organizational impotence of the hourgeoisie, they saw no way out and stubbornly kept repeating that there was not a single political party in Russia that was prepared to assume all power in so chaotic a situation. "There *is* such a party!" Lenin declared in June 1917, at the First All-Russian Congress of Soviets, replying to Menshevik Mikhail Tsereteli. The Bolshevik Party was ready then and there to take on the responsibility of governing the country.

The reckless June offensive at the front did not succeed in diverting the attention of the people from the revolution. The soldiers refused to attack, and the army suffered a crushing defeat, losing 60,000 men. This set off another wave of indignation. At the beginning of July thousands of people demonstrated spontaneously in the capital. The soldiers of the First Machine Gun Regiment called on the workers and soldiers of Petrograd to stage an armed demonstration demanding that the Provisional Government be ousted. The Bolsheviks were opposed to armed action, they thought the provinces were not yet ready to support an uprising in Petrograd. But it was impossible to hold the people back. A demonstration of 500,000 workers, soldiers and sailors whose slogan was "All power to the Soviets!" began the afternoon of July 4.

On orders from the Provisional Government, troops opened machine-gun fire on the marchers. This happened in the same Petrograd streets where czarist troops had fired on the people during the February Revolution.

The next day the Provisional Government attacked the Bolshevik organizations. Half-printed pages of the newspaper *Pravda*, thrown out of the windows of the raided print shop, were blown through the streets by the wind. Police agents of the Provisional Government tried to seize Lenin.

Thus, four months after the February upheaval, the Russian bourgeoisie dropped its mask and showed its true face. It was as though barricades had gone up. On one side stood the revolutionary people, headed by Lenin. On the other side stood the Provisional Government, the government of the bouregoisie and the Socialist-Revolutionary and Menshevik ministers, whose hands were red with the people's blood.

Dual power had ended in a victory for the bourgeoisie. The peaceful period of the revolution was over.

To follow: "October 1917: New World in Birth"

This picture was taken in Petrograd on July 4, 1917. That afternoon a demonstration of 500,000 workers called for "All power to the Soviets!" On orders from the Provisional Government, troops opened machine gun fire on the marchers. This was in the same Petrograd streets where czarist troops had fired on the people the February before. About 400 dead and wounded were left lying in the streets. The next day the Provisional Government wrecked the Bolshevik party offices and raided its printshop. Half-printed pages of the newspaper **Pravda** were blown through the streets by the wind. Police agents were ordered to find Lenin and shoot him on sight. Thus the barricades went up. On one side the revolutionary people, with Lenin their leader; on the other the Provisional Government, the government of the bourgeoisie, its hands red with the people's blood. The October Revolution was to follow.

SOVIET LIFE

Vladimir Izvekov, the director of the Institute of Crystallography at Kharkov reports on some of the startling results his institute is getting.

OUR INSTITUTE grows precious stones. The word "grow" may seem strange, but it is true: we grow rubies, sapphires, emeralds. Not ersatz, the real thing. The stones are created by man in laboratory conditions that duplicate exactly conditions in nature. Also, we work without waste —something nature rarely does.

The crystal grows in electric stoves at very high temperatures. The future crystal is "enticed" by a minuscule splinter of precious stone. The splinter acts as a sort of supreme authority, commanding the molecules of the melted down material to reassemble themselves in its pattern.

Certain monocrystals have strange and wonderful properties: they glow when struck by any kind of radiation. They emit an eerie, cold green or pale blue light. Use them on panels of a spaceship or deep in the ocean bed, in complete darkness—no need for electricity—and they will show the smallest amount of radiation present. We call such monocrystals scintillators.

THE THOUSAND FACETS OF A CRYSTAL

Glowing luminescent crystals as they are transformed into precious stones.

Can anything be more transparent than pure water? Yes, and our laboratory makes them, materials that conduct not only light visible to the eye, but invisible rays also—a very important consideration for astrophysics. Try to register the light emitted by far-off galaxies through normal telescopes; you'll get nothing. It's like trying to read in the dark. Monocrystals solve the problem.

Here is another property of monocrystals discovered only recently: NaCl, or table salt, without which no human or animal can live, can block off electromagnetic waves by changing them into ultrasonic waves. These crystals are now being used to eliminate atmospheric static and are a must in much of the new radiotechnical equipment.

Machine-building plants now process a finished detail with a transparent liquid and then check it under an ultraviolet light. A fine golden green reflection tells them that the detail is of poor quality. The liquid—a luminescent—was made in our institute. We try to find the connection between the pattern of organic molecules and their glow properties. Then we make such self-emitting crystals, which have wide applications in science and industry.

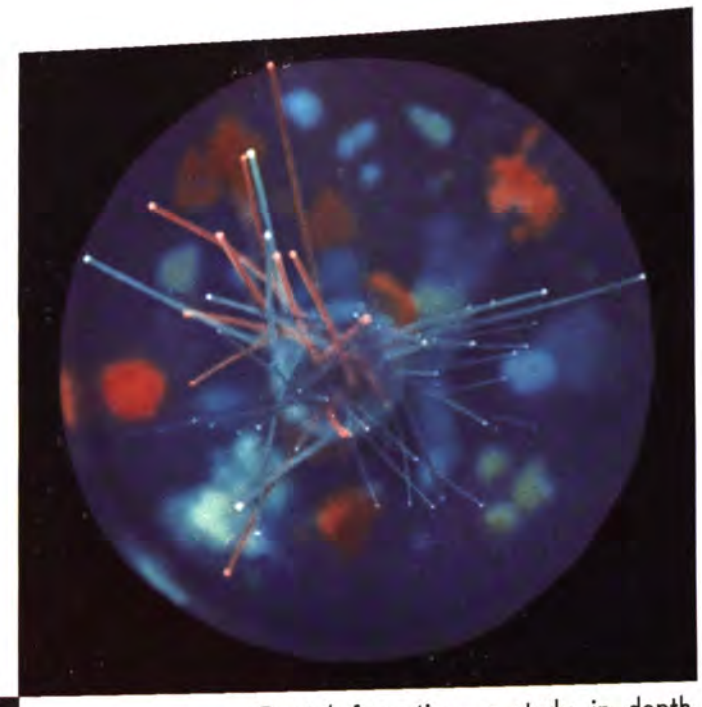
Take plastics—the brightest ones include luminiphores in their makeup. The same thing is true of strands of artificial material—nylon and others.

Aircraft painted with luminescent liquid is camouflaged perfectly. Daylight advertising signs, street signs—they all glow in full daylight thanks to the sun's rays and they emit radiation.

We have set up a small exhibit of the crystals made in our institute. What our labs do is try to push back the borders of pure science. But they also play an important practical role. For example, they saved industry some 30 million rubles in one year by devising such techniques as the luminescent method for detecting defects mentioned earlier. The method makes it possible to produce perfect details—no microscopic cracks that, undiscovered, can spell catastrophe for a turbine or motor.

One of our labs has produced a new crystal, born, it would seem, for radioelectronics. The crystal has fantastic properties: it increases ultrasonic waves a thousand fold. Another of our monocrystals glows when placed in an electric field. It may, perhaps, be used to produce a TV screen —then your TV set will be as thin as a book.

This is just a glimpse at the multitude of properties a single crystal has.



Crystal formation—a study in depth.

Here Nature is the ultimate artist.

1962

Lenin

The man who led the first socialist revolution—concentrated and composed.

QUERIES FROM READERS

QUESTION: How many miles of highway do you have? (George J. Storz, Whittier, California, and M. R. Whitehouse, Van Nuys, California)
ANSWER: We have 310,000 miles of highway. The principal ones are of the asphalt-concrete type. The Ukraine, Estonia and Georgia have the densest highway networks. The age-old shortage of good roads in our permafrost, forest, swamp and desert regions is gradually being met by air. water, rail and other kinds of transport.

By 1970 the total length of our highways will be considerably greater. The construction of 39,000 miles of trunk highways alone is planned.

QUESTION: How many newspapers and magazines do you publish? Their circulation? Who owns them? (Kenneth Wise, Arlington, Virginia)
ANSWER: We publish 7,700 newspapers in 58 of the languages spoken in the USSR and almost 4,000 magazines in 46 languages. The total newspaper circulation is more than 100 million, and magazine circulation 86 million. This means we publish an average of 45 newspapers and 37 magazines per hundred people. The aggregate circulation last year exceeded 22 billion newspapers and nearly 1.5 billion magazines.

Some of our newspapers and magazines are published by the government, others by the Party, the trade unions, the Young Communist League and the unions and associations of writers, artists, musicians. scientists, etc.

QUESTION: Armenians throughout the world commemorated the fiftieth anniversary of the first modern genocide, the Armenian massacres. The Armenian community would be interested in your views on the Armenian question and the Turkish-caused Armenian genocide. (D. Terlemian, Waldwick, New Jersey)
ANSWER: The newspapers *Pravda, Sovetikan Aiastan* and *Sovet Erministani* ran an article on the subject by Academician Mkrtich Nersesyan and Doctor of Juridical Sciences Nikolai Ushakov entitled "Genocide, the Greatest Crime to Mankind." We consider this event to be one of the most tragic in Armenian history. The article said: "Fifty years ago the Young Turkish government massacred a million and a half Armenians. Hundreds of thousands of Armenians were forced to flee to foreign lands. Many perished trying to escape the brutal persecution. The perpetrators of this crime also brought much misfortune to the Turkish people. They earned the hatred of all of Turkey's progressive forces."

On the fiftieth anniversary of this event, all Armenian newspapers reported on public gatherings held in Yerevan, the capital of the Armenian republic.

QUESTION: I should like some information on Vasili Kalinnikov. (Harold Cox, Chicago, Illinois)
ANSWER: This year is the centenary of Kalinnikov's birth. He was a very gifted composer. During his brief lifetime (1866-1900) he wrote two symphonies, a suite and two intermezzos for orchestra, a cantata, the musical tragedy *Czar Boris*, symphonic pictures, piano romances and other compositions. His music is melodic and lilting and has a great deal of Russian national color.

QUESTION: How many people in the USSR are keen on photography? (Charles Blum, Chicago, Illinois)
ANSWER: Millions. There is hardly a family without its own amateur photographer.

QUESTION: Just what is the USSR, nationally speaking? (Louis W. Roddenwing, Davenport, Iowa)
ANSWER: The USSR is a state comprised of 120 nationalities. There are such large national groups as the Russians, who make up more than half the population, the Ukrainians, Byelorussians, Uzbeks and Kazakhs, and very small groups like the Aleuts, Yukagirs, Orochi, Tofalars and others, each of which numbers less than a thousand but has the same rights as the larger ones.

QUESTION: What is the average longevity in the USSR? (John Hribar, Jr., Miami, Florida)
ANSWER: The average is 70. For women it is 73, for men 65.

QUESTION: Do your children learn about other countries? (John Smith, New York, New York)
ANSWER: Of course. The children first learn about the continents and the larger countries in primary school. They study foreign countries in greater detail in the sixth grade, when they take geography. In the eighth grade they are taught the economic geography of various countries. Besides that, they learn about the past and present of foreign countries in the modern history course given in the eighth through tenth grades.

QUESTION: I am a pharmacist and therefore interested in medicine, especially sensory color perception. (James W. Cash, Arlington, Virginia)
ANSWER: Our scientists, after a good deal of testing, have found nobody besides Roza Kuleshova who can "see" with his fingers. As for Roza Kuleshova, they have come to the conclusion that her unusual gift derives from a peculiarity of her nervous system that makes the skin of her fingers light sensitive. (See "A Sixth Sense?" in the February 1964 issue.)

QUESTION: Why don't you have pen pal clubs for your children as we do for ours? (Sam Plank, Tucson, Arizona)
ANSWER: We do, we have many of them: in high schools, especially those where the instruction is in a foreign language (English, German, French), at Pioneer houses and palaces and at trade union clubs. They are called International Friendship Clubs.

QUESTION: I read some time ago about a cave in Russia where horses were found saddled up and ready to go, but for some unknown reason they were frozen. (F. V. Banks, Ohio)
ANSWER: The nomads of the Eurasian steppes used to bury a man's horses with him. In the burial mounds of Mt. Altai, because of permafrost, the corpses sometimes remained intact. In one such mound 22 horses were found. They lay between their owner's wooden coffin and the wall of the burial mound, and were covered with stones and logs. For that reason the harness, saddles and trappings embellished with many wooden and leather inlays and tassles and coated with fine sheets of gold, as well as the felt and silk shabracks with colored appliqué work, were all well preserved. On the heads of some of the horses were cult masks depicting battles between real and imaginary animals.

These burial mounds date back to the fifth and fourth centuries B.C. and belong to tribes related to the Scythians, who spread all the way from the Danube to the Yenisei rivers and over part of Central Asia. Soviet archeologists began to excavate these permafrost mounds in the twenties. The objects unearthed were dried and coated with a temporary preservative, paraffin, until they arrived at the museum restoration workshops of Leningrad. At first creosote was used to keep the bodies of the horses intact and later synthetic resins.

Several of the horses from the Altai burial mounds are on display at the Hermitage Museum of Leningrad.

QUESTION: What civil rights do Soviet citizens have? (W. Max Smith, Jamesbury, California)
ANSWER: This is what the Constitution of the Soviet Union, adopted in 1936, says:

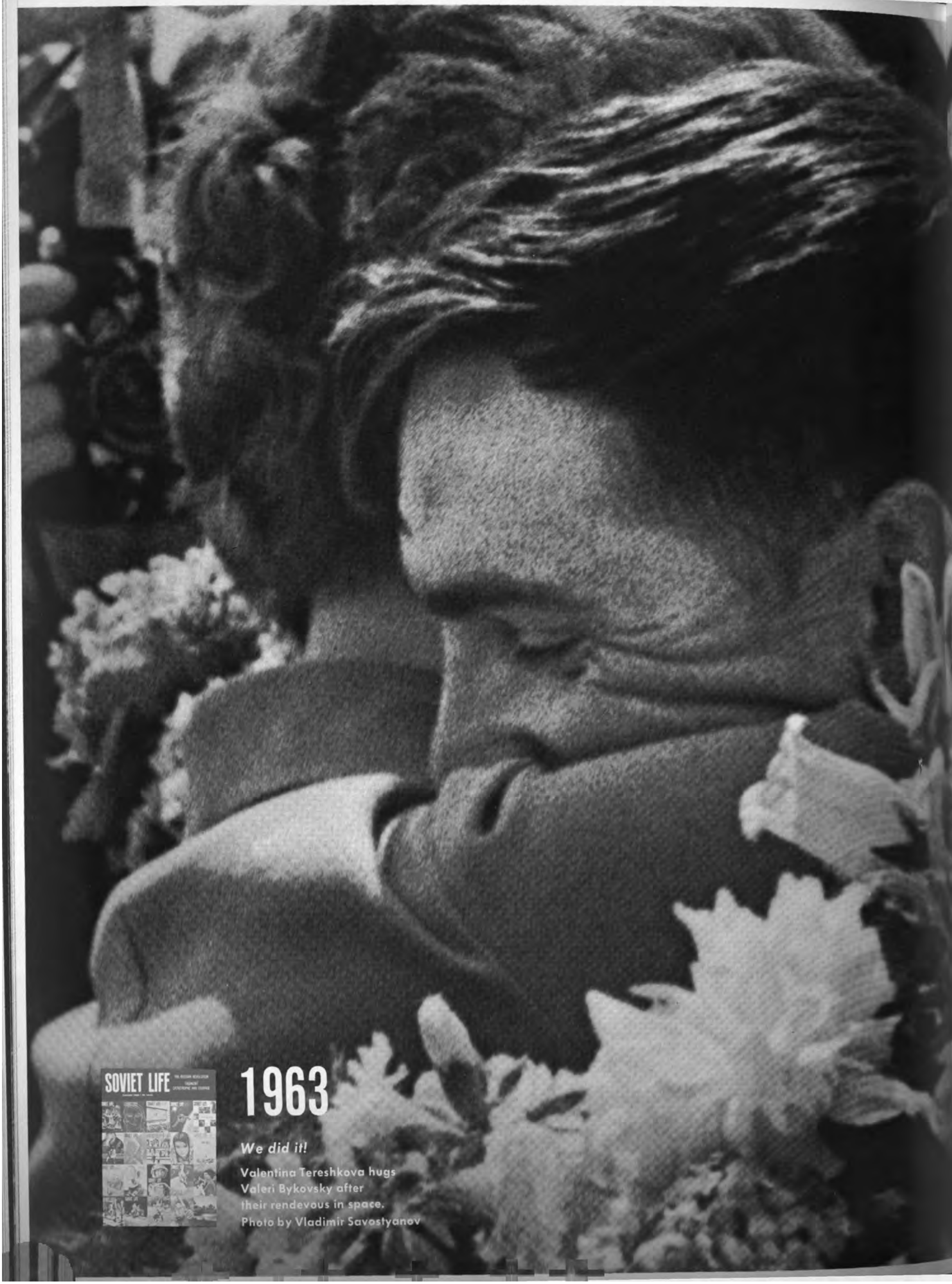
"In conformity with the interests of the working people, and in order to strengthen the socialist system, the citizens of the USSR are guaranteed by law: a) freedom of speech; b) freedom of the press; c) freedom of assembly, including the holding of mass meetings; d) freedom of street processions and demonstrations.

"These civil rights are ensured by placing at the disposal of the working people and their organizations printing presses, stocks of paper, public buildings, the streets, communications facilities and other material requisites for the exercise of these rights."

Freedom of religious worship and freedom of antireligious propaganda are recognized for all citizens. The Constitution likewise guarantees each citizen the right to form and join mass organizations: trade unions, cooperative societies, youth organizations, etc.

But the most important freedom that the socialist system guarantees is freedom from exploitation. And this decisive prerequisite for personal freedom gives us the right to work for ourselves, the possibility of freeing ourselves from the threat of unemployment. The Constitution guarantees every citizen the right to work and to maintenance in old age as well as in sickness or disability. We give everyone equal rights irrespective of nationality or race.

QUESTION: What part do your trade unions play in the struggle for peace? (J. S. Edelman, New York, New York)
ANSWER: We have trade union representatives in the USSR Supreme Soviet, at the Party congresses and in the Central Committee. They help to shape and apply the country's policy of peaceful coexistence. The trade unions take an active part in the world peace movement and are in contact with trade union peace groups in other countries. The trade unions hold mass meetings to exert pressure for the peaceful solution of international conflicts.


SOVIET LIFE
1963
We did it!
Valentina Tereshkova hugs
Valeri Bykovsky after
their rendevous in space.
Photo by Vladimir Savostyanov

World Without G

BY MARINA KHACHATUROVA

TIME AND SPACE have contracted in this age of science and technology. We live faster, see and hear more. We are deluged with information by radio, newspapers, television.

The outer world intrudes as imperiously upon our children. It seems to shorten their childhood. An old truth has it that the child is the adult he will subsequently be, but lacking the knowledge and experience he will, hopefully, acquire by living. That knowledge and experience are acquired more rapidly today than they used to be. Children begin to look at TV when they are practically still in their diapers, and often enough watch programs that are meant for adults. Algebra is now taught in the first grade, and upper grade high school students study higher mathematics.

But children stay children regardless. You see that in their play, the way they lose themselves in games. The world of play is their own world, one which adults are not allowed to enter. Some of us can get in for short stays, but only if we have patience and an observant eye.

The games children play are, in many ways, a working out of instincts. All little girls have played, and always will, I hope, Mama and Daughter, or, as children in America say, they play House. They dress, feed and doctor their dolls. Here is the human need to care for someone. It is the rare child who does not want an animal pet.

In play children show their community of interests as well as their similarity of tastes, which begin to differ only later.

Children of all countries, not only French or English youngsters, like to play Three Musketeers and Robin Hood,,if they know these stories. An American boy who plays a Peter and the Wolf game and a Russian youngster playing Winnie the Pooh have that much more in common than their parents. Children are not at all bothered by the fact that the wooden boy is called Pinocchio in the United States and Buratino in Russia. He is one of them, no matter what his nationality. He behaves and thinks in a way that automatically makes him a member of the Great Order of Childhood, together with Tom Sawyer and Huck Finn.

Children's play is also a reflection of the world about them, the world of adults and of society. Tom Sawyer and his friends played Steam Engines and Steamships. Their children played Airplanes. Today's Toms and Vanyas play Rockets. They no longer want to be firemen, cabbies or sailors, only astronauts.

However, one of the old games is still very much around, and has been from time beyond memory, war. Soviet children also play War, but the enemy is one their fathers fought 20 years ago—the "fascists." For these children war is a story of something that happened long ago, before they were born.

The period they live in is mirrored in the play of children. In the Russia of the nobility and serf, when life was stagnant and unchanging, children preferred "choral" games—Catch, Boyars, We've Come to You, and We've Sown Millet, which date back to heathen Rus. You see that in the tunes and in the words. For instance, in We've Sown Millet two groups sing and act this out:

First group: But we've sown, we've sown the millet
Oh, did-lado, we've sown, we've sown.
Second group: And we'll trample, we'll trample the millet
Oh, did-lado, we'll trample, we'll trample it.

And so on. The refrain "Oh, did-lado" reflects the heathen origin of the game.

Today these games have almost completely vanished. Only the very youngest children still play Karavai (a round loaf), which is usually connected with someone's birthday.

Choral games, which do not reflect the movement and tension of our time, have given way to team games in which the element of rivalry dominates.

About 40 or 50 years ago lapta (like stickball) was played, also American lapta (like baseball). These games have been crowded out, and for all time, by soccer, which is as popular in the Soviet Union as baseball is in the United States.

However, this is no longer play in its pure form, but a sports game in which the work element enters—practice and training. The mass participation in sports these days, aside from play appeal, is attributable in part to the significance which countries attach to international matches.

The games children play tell us a good deal about the tensions and even the tragedies of our time.

The boys of a certain country play an exciting game they call Assassination, those of another country play an equally exciting game, The Drunk. Both the "assassins" and the "drunks" fight the authorities. Someone is "it" and the rest chase and catch him. But the end of the game is not what you might expect: someone "kills" the "assassin," and the "drunk" is locked up. Thus, those of us who are permitted to visit the playworld of children can get a look at ourselves, see an artless, naïve but truthful depiction of the dark sides of our adult world and blush at it.

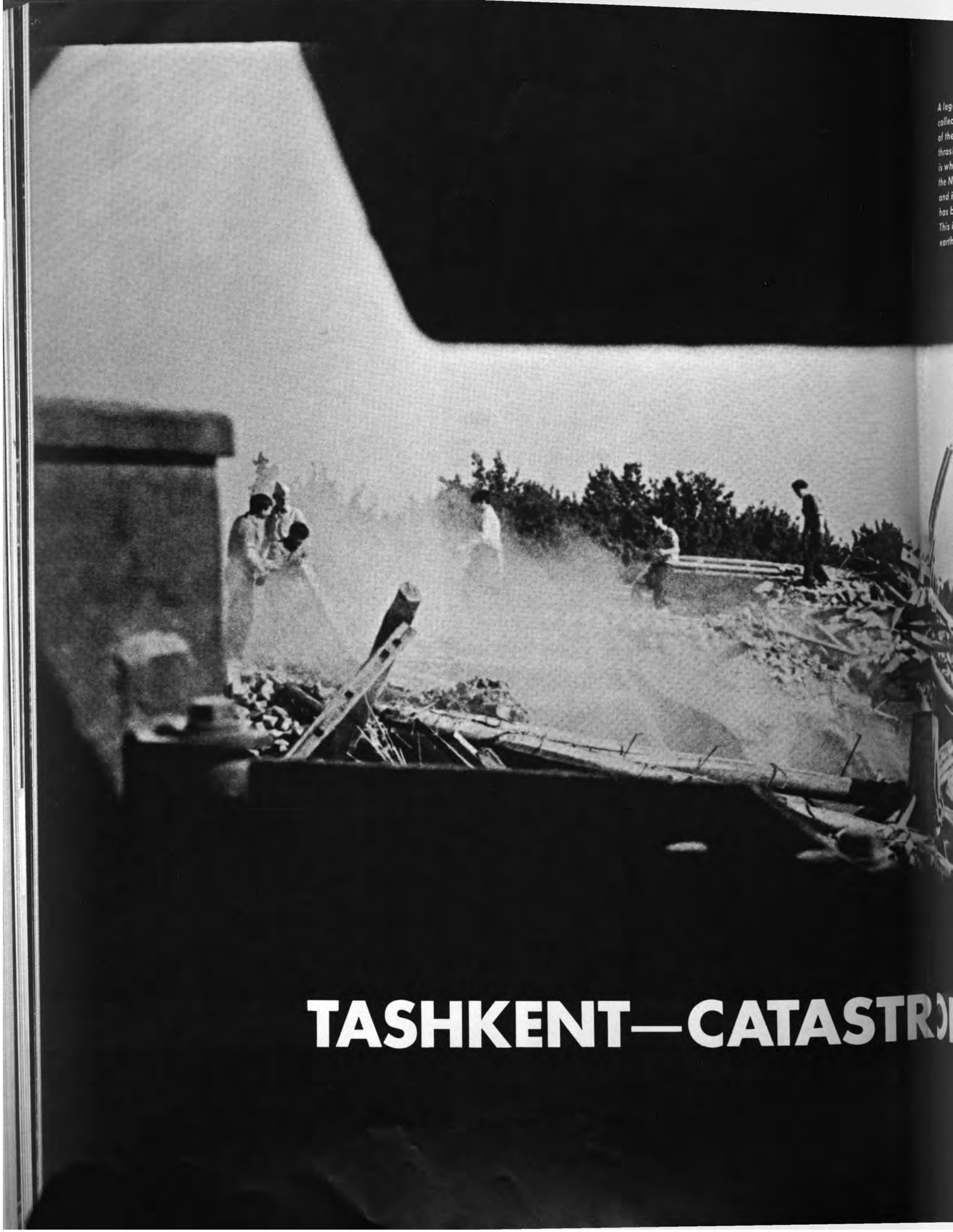
Something I take pleasure in is the continuity of children's games. In the modern repertoire are still such games as Blindman's Buff, Hide-and-Seek, Tag, and Hopscotch, which were played when I was a child, when my parents were children and, as far as I can tell, when my grandparents were.

These games go back to the sources of the human race: Hopscotch was played in ancient Rome, Blindman's Buff was played by Robin Hood's friend Little John, and primitive man used to play Hide-and-Seek and Tag.

Children and their games once again tell us that, in the last analysis, all people have needs that unite them and that these human needs are stronger than all the factors that disunite them.

Children have much to teach us.

Grownups


TASHKENT—CATASTR

A legend widely current in Japan tells about a giant sheatfish called the Namazu that lies dormant in the bowels of the earth. From time to the time the fish wakes up and thrashes about, trying to break through to the surface. That is when the earth quakes. On April 26 of this year the Namazu began to thrash about in a frenzy under Tashkent and is still not asleep. Since then the Uzbek capital has been shaken by an average of about 10 quakes a day. This is the first serious trouble the Soviet Union has had with earthquakes since 1948, when Ashkhabad was destroyed.

STROPHE AND COURAGE

Report from the Earthquake-Hit City

By Vasili Peskov

JOURNALIST, LENIN PRIZE WINNER

All this little girl remembers of the terrible disaster are sirens screaming through the dark streets and bulldozers pushing aside the rubble of her home.

I FLEW into Tashkent on Saturday night, May 7. As we approached, the passengers stared down through the portholes with relief —down below the usual array of lights twinkled. As I drove from the airport to the hotel, I did not immediately notice signs of disaster. The sleeping city gave out the aroma of fresh greenery, warm bread, gasoline and a new, unusual odor of clayey dust.

In one of the streets the headlights ran into the canvas side of a tent. The road was blocked by two rows of tents on the asphalt. There was no trace of alarm in the snores of the sleepers and the hushed talk. The impression was that nightfall had caught a group of hikers in the center of the city, and, without racking their brains about it, they had camped right there in the street. At one of the tents was a lamp on a stool. A bearded Uzbek and his grandson sat nearby reading by its light. I asked them to let me have a look at the books. With a friendly gesture the old man handed me the Koran in a black leather binding. His grandson, a student, was busy with a textbook.

The patrol came up—a girl and three young men, all with red bands on their sleeves.

"How are you, comrades?" they inquired.

I asked whether I could examine the house. The old man raised the lamp to light up the adobe wall. It was cracked in spider-web design and trembled at his touch.

"Allah helped to build it, Allah took it," said the old man.

The lamp illuminated the room, a wall was gone. Through a gap in the ceiling I could see the stars.

"I was sleeping here," the student said. "It's a miracle I'm alive. The stove collapsed right next to my bed."

It was the rare street without tents.

Before turning in, I jotted down, as I usually do, my program for the next day and underlined the words: Ask as many people as possible what happened.

Nature made my job easier. Now I myself can say what happened. I woke up with the feeling that someone had awakened me with a careless push. I switched on the light and began leafing absent-mindedly through a book. My watch showed a little after three. I don't think I'll ever forget what happened next. The house shivered and shook. My bag of cameras on the wardrobe began dancing to the edge. I jumped on the window sill and looked up at the ceiling. For some reason it did not come tumbling down, although the house was doing a jig. There was a distant rumbling and from overhead came the strange sound of crumbling plaster. The feeling I had was that I was sitting inside a box and some brute was kicking the bottom and sides hard. That went on for five or six seconds. There was a tinkle of broken glass at the entrance and then silence.

"Lina, jump out!"

That was the first sound I heard. The night watchman in the square in front of the hotel was calling Lina, the manager. I heard dogs barking, thousands, tens of thousands of them barking simultaneously, a horrifying howling all around. Then all at once the sound of human voices. A million people jumped out of bed at the same time and rushed into the streets. Outside, men and women in the city on business shivered from the freshness of the night as they stood in raincoats and jackets thrown over pajamas, their shoes on bare feet. They milled around, afraid to enter the building.

In the morning it turned out that the tremor was of force 6—the second in force after April 26. No one was killed that night. But the city suffered. Another 12,000 people were left homeless. The ambulances picked up more than 100 injured.

On May 8 and 9 I crisscrossed the city on foot. My general impression was that the city had not lost its usual rhythm. The one-story part of Tashkent was badly damaged, the new, multistory buildings were not even touched.

From the center near the Opera House it seemed as though nothing had happened. The fountain was playing in the sun, buses and streetcars were running. Children were riding around the Opera House on tricycles. The streets had their ordinary crowds. The windows of the concrete department store glittered in the sun. Outside the six-story Hotel Tashkent, Africans wearing long robes stood talking. They had flown in for the symposium on illiteracy. I later learned that this hotel was the only one in the city left intact. Its two upper stories were cracked here and there and the guests had to be moved into other rooms, but on the whole the huge building sustained no real damage. All the buildings put up in the last six to eight years remained intact. I could see factory smoke stacks standing. Blocks of modern housing were not damaged. Neither was the 640-foot TV tower, but paradoxically the one-story radio studios were destroyed. The announcers were doing their broadcasting from buses.

The one-story houses suffered most, and since they make up three-quarters of Tashkent, the losses did not lend themselves to immediate calculation. All city institutions were moved from the doomed buildings. The militia moved into tents. The signs on them read: "Chief of Militia," "Administration Office," "Investigator." You heard the click of typewriters and the ring of phones. The first-aid station had also moved into tents. Under a tree a woman doctor was dressing the wounds of several cave-in victims.

"A little patience. It'll be over in a second."

The patient, a man, gritted his teeth and turned away not to see his bloody shoulder. An elderly Uzbek stood next to me watching the scene. He sighed, "Just like the war."

The residential neighborhoods in this part of the city were badly hit. Not a single house is standing. Motor traffic in the narrow streets is banned. Even footsteps set the cracked walls, fences and ceilings trembling. The little houses were huddled against one another like swallows' nests. Had the tremor been half a point higher, they would have turned into a mass of rubble in 10 seconds, and the number of victims would have been uncountable. Luckily they remained standing but on virtually every one of them is a sign reading: "Danger! Keep Away! Condemned!" There were piles of unglazed brick, chimneys and stoves that had collapsed, walls that had caved in. In places signs—"Caution! Do Not Come Near!"—cordon off a whole block. New tremors added to the destruction. The Kashgarki District, where I made my way with difficulty through the littered narrow streets, is only fit to be swept into a pile by a bulldozer and carted off.

Here are the figures: More than 28,000 buildings were damaged, more than 200 of them were children's institutions, about 200 were hospitals and clinics, 180 were schools. But it is not these expensive losses that shock you. Your heart is stabbed with pain near some of the tiny homes. I saw a mother looking around, afraid to touch the walls, carrying a box with dishes out of the ruins. Her small son wanted to follow her but she turned around and yelled:

"Keep away! You hear me? Keep away!"

Then she turned to me, a stranger: "You . . . say something."

What can you say to a person who has lost her home? If she were the only one, it would be easy to calm her. But now there is one distress for all. "Is everyone alive? There's no need to pity the house. In a couple of years there will be a new Tashkent. There's help coming from all sides."

"But the tremors . . . won't they ever end? I can't sleep nor can the boy." The woman took the boy by the hand and led him into the tent. I heard the clatter of broken dishes.

There are tents everywhere, over 10,000 of them. The parks have been turned into tent towns. New streets have been formed from tent rows. I saw a store in a tent and a lunchroom next to it. Pilaf was steaming in the huge black cauldron in the open air. I saw a boy riding his tricycle. A girl student with a first-aid kit slung over her shoulder was sitting on a stool furtively reading her university lectures. At the entrance to one of the tents a samovar was smoking. Elsewhere people were playing dominoes—I could tell by the tap of the dominoes on the board that served them as a table. A schoolgirl with a stack of telegrams was looking for house No. 17. Students were helping to load salvaged household belongings onto a truck.

The scope of the damage and the work piled up are staggering. What is astonishing is the calmness with which people faced the catastrophe. I recall a fire in a village—one thatched roof catches fire and you have a rush, tears, panic. But here more than 100,000 people were instantaneously left homeless, and there

Many live in tents or under the open sky. Even where their houses still stand, some people prefer sleeping in their backyards, it's safer.

No panic. The city goes about its work. Here Professor Alexander Schleicher, injured during the quake, examines student Antakhan Adjudayev.

is no trace of disorder or panic, although the city is hit by a dozen and more tremors a day. Tashkent has not even broken its usual rhythm. Everything is operating. The theaters are giving regular performances. All the big league soccer matches are being played. The May Day demonstration attracted an unusually large crowd. In one of the tents on Lakhuti Street I met two newlyweds, Muhammed Narimanov and Lyuba Kolesnichenko.

"Maybe you should have postponed the wedding?"

The moment the words were out I was sorry I had said them, because the reply was simple and sage:

"Wait? What for? We had this planned in advance. If we share everything now, we'll certainly get along later."

They told me at the Palace of Marriages that all the marriages scheduled for those 10 days had taken place.

Disaster did not divide people—it united them.

The time the quake shook the city is fixed on all city clocks. All clocks in Tashkent now show one and the same time: 5:23. The first tremor stopped all of them. The people of Tashkent should put at least one of these clocks in their museum in commemoration of the courage with which they met the disaster.

I asked many people: "How did it happen?" Here are some of the replies I jotted down.

Sharaf Rashidov, First Secretary of the Central Committee of the Communist Party of Uzbekistan: "I was on my feet when the quake occurred. I saw the sky aglow beyond the outer fringe of the city. We don't know yet whether the luminescence was caused by a short circuit of the high voltage line or by some terrestrial phenomena. I phoned the Central Committee. The electrician answered, 'The building is intact, but it rocked from side to side on the sixth floor.' I immediately left for the city. There was no gauging the wreckage. Ambulances raced through the streets. Someone with a towel wrapped around his head was running to the medical center. I saw a man with an infant in his arms. Luckily, it turned out there were fewer people hurt than we thought at first. Eight were killed and more than 1,000 injured. Transport lines, water mains and electricity lines did not suffer too badly. The telephone lines were broken in some places. I can say with pride for Tashkent that there was no panic. There may have been an hour or so of confusion, but then the situation was well in hand. There have been instances when people suffered more from panic, confusion and looting than from natural calamities. We had none of that. Everyone reported for work the next morning. Some had to walk four miles, others carried children in their arms. I asked one of the men, 'How are things at home?' 'My home—it's gone!' The scope of the damage was clear in the very first hours. I phoned Moscow after making an inspection tour of the city. That same day, as you know, Leonid Brezhnev and Alexei Kosygin arrived in Tashkent. They began their tour of the city directly from the airport."

Valentina Zykova, doctor, first-aid service: "Yes, the paper did write something about me. I must admit that I'm a bit of a coward. I don't know where all my courage came from. And I'm not the only one. Our girls in the dispatcher's office stayed at the switchboard all the time. They covered their heads with sheets of plywood. No one ran off, although many of them have children at home."

Yuri Kruzhilin, reporter: "I woke up because a flowerpot fell off the shelf. The dishes in the pantry rattled and danced. The house rocked and shook. I scooped up our son, grabbed my wife by the hand and ran out. But a reporter is always a reporter. I made notes on what was happening and where. One young man ran out in shorts holding on to an accordion. Our neighbor was standing in her nightgown and rubber boots. When everything quieted down, I took my son to my parents and hurried to the newspaper office. Transport was at a standstill. The city walked to work. The first ones to show up at our office were, as usual, the cleaners. This time, in addition to the paper and dust, they carried heaps of plaster out into the yard."

Nariman Narimanov, electrician: "I'm a bachelor. I ran into the streets in my shorts, happy to be alive! The house was split in two. The hell with it, I thought. There'll be a new one. Then I noticed that things were not too good. I heard someone groan on the other side of the wall. In about two minutes I dressed and started my motorcycle. I took our neighbor, an elderly woman, to the first-aid station and then rode out to my relatives who live outside the city. I wondered if anything had happened to them. But they didn't even know there was any trouble. In fact they slept through it all."

Yuri Tursunkulov, militiaman: "I had just come off duty and gone to bed. And suddenly I felt as though I were driving a cart over boulders. I heard cracking and rumbling. I thought a bomb had exploded. Someone ran out of the house right opposite mine. 'What is it—a bomb?' 'What do you mean bomb, stupid. It's an earthquake! Get away from that wall!' By then everything was quiet. I got into my uniform and boots and ran to the militia station. You probably heard that in half an hour's time the whole militia had assembled. We came running from all parts of the city. You never can tell what may happen at a time like this."

Suleiman Satyev, chief, Department of Criminal Investigation: "To tell you the truth, I thought we'd have our hands full. That's no joke—there are more than a million people in the city. What's a calamity for one might turn out to be a profitable business for another. Yet here are the figures—crime fell to a mere one-fifth of what it usually is. A drop of five times! Why was that? Yes, we announced that we would be very hard on looters and thieves. Was this what did it? Maybe. But only partly, that does not always prevent crime. We were helped in enforcing law and order by 2,000 YCLers. That was a big help. But the main thing was something else. The calamity drew people together. I know Tashkent. You can take my word for it that in those 10 days we grew closer to one another. I live next to a courtyard. The usual bickering and complaints. Then I saw them carry one of the neighbors on a blanket to the first-aid station—and someone took the victim's children into his own house."

There are a million people in the city. In that hour of distress everyone found his place with others, he did not look after only his own personal welfare. "Man is to man a comrade, friend, and brother." That morning of April 26 the people of Tashkent realized that these were not empty words.

The busiest man in Tashkent today is Valentin Ulomov. He gets the least sleep and is in greatest demand. Two weeks ago no one knew he existed. He sat with 10 of his associates in a tiny building measuring the vibration of the earth's crust. Seismology does not supply the city with anything tangible—no bread or butter. And if the tiny building with the sign "Seismo Station" were to vanish suddenly, the city would not immediately notice its loss. Yet all at once Valentin Ulomov became the most wanted person in Tashkent. In the first hour he was the only one who could say what had happened and what to expect. At a top-level conference attended by Kosygin and Brezhnev, who flew in from Moscow, Ulomov hung up an old map marked by lines only he himself understood. He explained simply the cause of what had happened. Since then he not only has had to work at his science around the clock, but to talk to newsmen, appear on TV, and answer countless telephone calls "Will there be another quake today?" "Is it safe to go to bed now?"

I also plagued Ulomov for about half an hour. Here are the seismologist's replies to my questions:

"There are earthquakes in Tashkent every year, but most of them are recorded by instruments only. Every year there are as many as a million tremors on earth. There are no earthquakes in the valleys, only in the mountains. In Moscow? Yes, in November 1940 there was a force 4 earthquake in Moscow, but this was a mere echo of an earthquake in the area of the Carpathian Mountains.

"The shock which hit Tashkent was of force 7.5. The last time the city had an earthquake of this force was 100 years ago. This time the tremor came from right under the center of the city and was directed vertically upward. The shock in Ashkhabad 18 years ago was stronger, and it was followed by horizontal waves. That's the difference. Ashkhabad was demolished completely. Tashkent suffered, but remained standing.

A special account was
State Bank in Tashkent
after the earthquake to
donations for earthqu
individuals and orga
workers of 150 organ
Khorezm Region don
pay, and the Central
Trade Unions transfe
million rubles to the
Money is pouring in
the country. These f
used to build new r
like Chilanzar (righ
the damage shown

"The damage? It still has to be totaled. In 1923 an eight-second earthquake cost Japan five times more than the Russo-Japanese War."

Of earthquake predicting,Ulomov said: "We can tell the magnitude of a coming earthquake, we can tell where it will strike, but we can't say when."

I read some of my notes to him and asked for comments. Here are the notes.

Before the Ashkhabad catastrophe several old Turkmenians came to an official and said: "There will be an earthquake." "How do you know?" "The snakes and lizards have left their nests." Two days later the earthquake happened.

Here is an entry I made three years ago: A fellow passenger on the train took out a batch of photographs of his family. Among them was a snapshot of a shepherd dog. "He's just as dear to me as a person," my fellow passenger said. "My wife and I were working in Ashkhabad at the time. That night we got home late. We did not go to bed right away. I sat up looking through my papers. My wife was reading. Our daughter was asleep in her carriage. Suddenly the dog jumped up, closed his teeth on the baby's nightgown and dragged her out through the door. This had never happened before. The dog has gone mad! I went for my rifle, and my wife and I rushed out after him. At that moment everything behind us collapsed. The entire city fell down before our very eyes."

Some items recently reported. Oleg Bychkov, correspondent for the paper *Soviet Trade*, said: "On the 26th I woke up with an unpleasant sensation—something was scratching the sheets on my bed. I looked and saw the kittens under the blanket. The cat had dragged them in. I let the cat have it and carried the kittens back to their place in the kitchen. I walked to the sink to wash my hands when suddenly I was thrown forward and my head smashed against the wall."

Arkadi Zabrovsky, a citizen of Tashkent: "I keep about four dozen pigeons of various kinds. Half a minute before the first tremors the birds noisily left the pigeon house and in the dark flew up and settled on the roof. The pigeons had never before flown at night. I wondered what it meant. And suddenly it started. Now the flock goes up before every tremor."

Ulomov shrugged his shoulders: "I only believe in instrument readings." But he agreed that facts are facts. Evidently nature in these millions of years had created some sort of "instrument," some sensitivity to underground tremors. Perhaps it would be worth man's while to make a closer study of nature.

Immediately after the first tremor the seismologists predicted many more weaker shocks to come. Everything was substantiated—a schedule was even drawn up. And these tremors did take place. For two weeks the city has been living in a state of siege—there have been nearly 300 tremors. Some are hardly felt. Others keep people awake and add to the destruction. On the night of May 9 the city was awakened by a shock of only slightly less

Nurse Valentina Yefremova with little Sergei Plyushkov, one of the 22 children she saved after the quake. On night duty in a children's hospital at the time, she rushed through the wards to carry the children out. In one ward the door stuck. She wrenched it off its hinges and saw that though the walls had collapsed, the metal netting had held up and had shielded the children. Unmindful of the glass and jagged metal, she dug through the rubble with her bare hands and was able to to save all but one of the children in the ward.

magnitude than the first one. That night many people did not risk returning to their homes. Bonfires burned in the streets. People slept on park benches or sat huddled by the fire. Next morning there was more destruction. People were brought to the hospital with cardiac and mental disorders.

Add to this distress the hurricane on May 5 that uprooted trees, blew down walls and roofs and tore up tents, and you will realize that Tashkent has withstood a very grim test. Now things are quieting down. The tremors are becoming weaker. Life goes on. The city has hundreds of problems. The first is how to house the homeless. No one must be overlooked. Housing and a kind word must be found for everyone. The district executives and the many committees are working day and night. Grants are made, tents pitched, housing distributed. Students are moved from dormitories to schools for the summer and the dormitories turned over to homeless families. The YCL is caring for thousands of boys and girls, arranging free summer camps for them. Students have decided to forego vacations and take construction jobs this summer. The city has asked the YCL to train drivers for the 5,000 vehicles being sent to Tashkent from all over the country. Every day the papers appear with a banner headline reading: "We Are Building a New Tashkent." Meanwhile shelter must be found for the homeless. All those who can are making room for the victims. Here is a typical item I noticed in the paper: "We live in the first block of the Chilanzar housing project. House 66, apartment 12. We will gladly accept any family. Semyon and Varvara Morozov, pensioners." People are quick to help one another.

And the entire country lent a helping hand to Tashkent. Other cities in Uzbekistan have invited hundreds of displaced families and turned over their newly built apartments. On the very first day plane loads of tents were brought to Tashkent from various parts of the country. On the very first day Moscow, Krasnodar, Minsk, the Ukraine, the Far East responded: "We will build a hotel." "We will build a whole residential block." "We are sending 10 trainloads of building materials. Bringing projects, workers, building materials." Architects are already selecting sites for the future blocks. They already have names: Moscow, Minsk, Leningrad, Kiev. The Shumilova Station near Tashkent can hardly cope with the deliveries of freight. Today a trainload of dump trucks arrived from Mytishchi. Trains are coming in with lumber from the Urals, with dishes, cement, foodstuffs. All are marked "Tashkent—Urgent." Men all over the country chalked these words on the trains to make sure they are not held up en route. The government made sizable funds available to Tashkent. And alongside this ample relief is the 30 rubles sent from the city of Yelets: "This is part of my salary. Please give it to those in greatest need."

New Tashkent—we shall see it in two or three years. It took that long to rebuild cities that were destroyed in the war. In those difficult days everything had to be raised from the ashes. Who can doubt that in two years we shall see a new Tashkent? Let us keep in mind that during the war this city gave shelter to thousands of evacuated families, thousands of children found homes in Tashkent. After the war Tashkent did not rush to ask for construction funds. "Let the cities that were damaged by the war be rebuilt." That is why there were many mud huts that collapsed in the earthquake. It is our common duty to build a new Tashkent. This city must stand beautiful and solid.

I left Tashkent two days ago. They were already beginning to clear the center of town for the new houses. Century-old rubble was carried out by hand or dug up by excavators. Hundreds of people watched tanks breaking down everything that needed to be demolished. A tank with its gun dismantled worked up momentum and with a roar disappeared in the debris. Walls came down, the sound of destruction, clouds of dust sealed off the tank. Suddenly the mounds of debris began moving—they trembled and the tank emerged, shook off the wreckage and again thundered into the attack. The tank stopped. The hatch opened and the head of the driver appeared. His face could not be seen under that layer of dust. He passed a hand across his cheeks and a nose and eyes took shape. His eyes were red with dust and heat.

"Hey, fellows! Some water!"

He gulped down the contents of a flask. I tried to outshout the roar of the tank.

"Hi, there! Where are you from? What's your name?"

"I'm from the Ukraine. Vladimir Khomenko!"

The hatch closed and the tank disappeared again in clouds of dust.

"What's that—another tremor?"

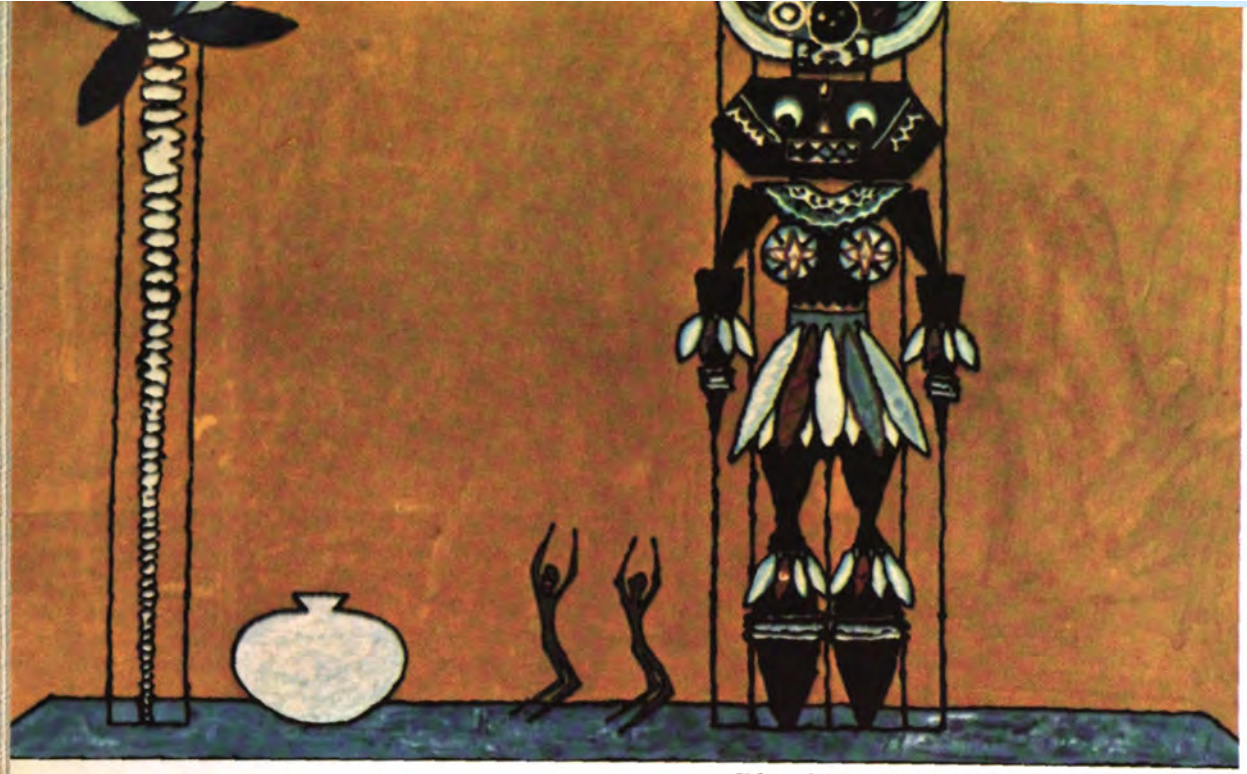
People in the crowd looked at one another. Something seemed to crash—either underground or behind the tank.

"Everything'll quake back into shape."

Everyone smiles. I heard that sentence repeated many times—it seems to have swept the city: "Everything'll quake back into shape." When a city that has gone through such a nightmare is still able to joke, it is in good health.

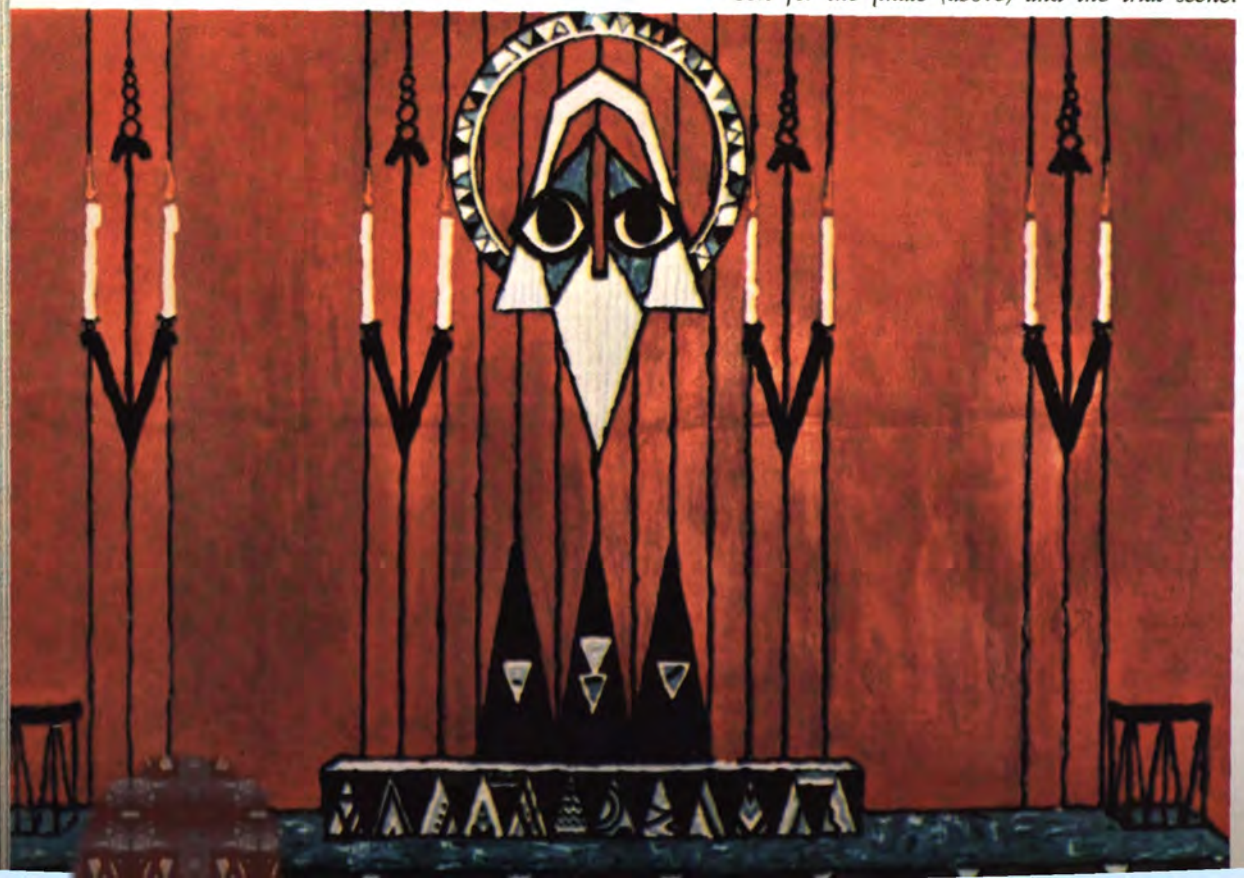
Courtesy of Komsomolskaya Pravda

This quartet of construction workers is from the Ukraine. The whole country is lending Tashkent a helping hand—funds, materials and manpower.



Edward Zmoiro's sketches of costumes and sets for King Matiush I. *(Above) The Africa scene.*

Sets for the finale (above) and the trial scene.



Stage designer Edward Zmoiro

THEATER: FOR SEVENS TO SEVENTEENS

BY LES TANYUK
DIRECTOR

A Soldier of the King's Guard

AT LEAST three famous directors made their debut at the Central Children's Theater—Georgi Tovstonogov* who now directs the Bolshoi Drama Theater in Leningrad, Oleg Yefremov,** who directs the Sovremennik Theater in Moscow, and Anatoli Efros,*** who directs the Lenin Komsomol Theater, also in Moscow.

The age of the audience at this theater ranges from 7 to 17. Acting must be imaginative, simple, and almost impossibly versatile. It must include word and gesture; pantomime, song, dancing and acrobatics; stage tricks and psychological insight; conventional stylization and elaborate verisimilitude.

"For children we must play just as we do for adults, only a little better," Konstantin

The Melancholic King's costume

Stanislavsky used to say. This theater is not afraid of introducing its audiences to the complexities of life today. Every one of its performances is a battle against hypocrisy, narrow-mindedness, go-getting, cant—a battle for each human soul. The theater boldly pioneers controversial plays, and stands up under a heavy fire of criticism on occasion. This is what happened with Natalya Dolinina's *They and We*, which is being performed at other theaters as well. When it was first staged, there were many people, especially schoolteachers, who criticized it for dealing with opportunistic high school seniors, the kind who trim noble ideas into convenient steps to help them in life. The play staged by Anatoli Efros left no one indifferent, and it still has its champions and opponents.

This is a theater which is very much aware that children enjoy new expressive forms, lines and colors. That is what stage designer Edward Zmoiro is after. Children like his sets because they appreciate rich fairy tale symbolism. One of his best sets is for Janus Korchak's *King Matiush I*, in which reality and fairy tale combine to produce a fantastically real world. The entertainment element is very important in children's theater, hence the emphasis on fairy tale and adventure. In such plays the children also become performers. "Don't go! There are wolves there!" they yell to the little goat. They cry, laugh, even throw things at the actor who plays the Wicked Witch or the Evil Magician.

Younger school-age children like stories of travel, discovery and romance, but as they grow older they become more interested in the relations between parents and children or between young people like themselves. Such plays make up an important part of the theater's repertory.

This theater finds its own playwrights, Victor Rozov, for example, a subtle psychologist whose characters are young people trying not to make the mistakes their parents did. His audiences are people of all ages. Humor, philosophy, a dynamic plot, simplicity and a social undercurrent distinguish his plays. Their best interpreter is the Central Children's Theater.

The theater keeps abreast of new stage developments but shies away from the kind of excessive avant-gardism that so easily degenerates into esthetic snobbery. No heads sticking out of garbage cans or any other antitheater horrors. It does not stage what will not deeply stir its audiences. On the other hand, it has no use for plays in which reality is viewed through pink glasses.

The best received plays are those with a strong element of conflict. This is especially true of Victor Rozov's.

In his *A Happy Journey* Andrei says to his mother: "It doesn't matter *what* I'll be, it's the kind of man I'll be that's important!" Should he try for college the hard way or use influence? Sixteen-year-old Andrei makes his choice. He leaves Moscow for Siberia, leaves behind the hothouse conditions in which he has grown up, to face the difficulties of independent life.

Oleg, aged 15, of *In Search of Joy* rips a new set of furniture to pieces with his father's old saber. The scene always evokes aplause. By this act which seems superficially violent and barbarous, Oleg is slashing away at the power of things over people. He realizes that the meaning of life is in man's search for the unknown, for the things that connect him with other human beings.

Liza and Slava are in love, and their love faces a hard test. This is the plot, quite traditional, of the play *Battle Against Heavy Odds*. The young people do not accept the philosophy of their utilitarian parents and teachers, and their love triumphs over vulgarity and cynicism.

These plays are not moralistic. The spectator is shown life in process, its deeper currents, and is left to draw his own conclusions. Of course, the play leads him to conclusions that are good and vital.

A Goose's Feather by Ilya Nusinov and Semyon Lungin breaks the clay idol that a teacher worships and wants her pupils to worship too. "The truth will never harm anyone. We have no false ideals, our genuine ideals are good enough," is the message of this witty satirical comedy, one of the most popular of recent seasons.

Minister of State's costume

A word about the theater's classical repertory—*Matchmaking* by Nikolai Gogol, *Boris Godunov* by Alexander Pushkin, and others. Incidentally, there has been a growing interest in classical plays, which were sadly absent a few years ago. They are staged during the time the plays are being studied in school.

The first theaters for children sprang up in the twenties, and now there are more than a hundred of them, including puppet theaters. A musical theater for children was recently opened in Moscow. Soviet children's theaters have had their many triumphs and setbacks, and their problems are perennial. Comparatively young (this year marks its thirtieth anniversary), the Central Children's Theater never stops searching for new ways to young hearts.

Costume for the Royal Chef

* See article on page 54 of February 1963 issue of *USSR*.

** See article on page 46 of April 1964 issue of *USSR*.

*** See article on page 10 of December 1965 issue of *Soviet Life*.

THINGS CULTURAL

By Natalia Chulaki

THE DYNAMIC SQUARE

Sergei Eisenstein, the great Soviet film director, said of the motion picture **Potemkin,** "You watch it as a newsreel, but it works on you like a drama."

This classic of film art was controversial in 1926, when it was first shown in movie theaters all over the world. It was denounced for its politics by officialdom abroad (too realistic an example of revolutionary spirit), and at the same time awarded the Super Grand Prix in Paris and voted "the best film in the world" by the Motion Picture Academy in Hollywood. Thirty-two years later, at the Brussels World's Fair in 1958, it headed the list of the 12 best films ever made anywhere.

Produced by Eisenstein with Grigori Alexandrov, scenario writer Nina Agajanova and cameraman Edward Tissé, **Potemkin** combined expressive montage, unusual composition and magnificent detail in a film that showed history in the making, but showed it through individuals, the "little people," who made a difference after all!

And, 40 years later, the Art Movie House in Moscow's Arbat Square, decorated (as before) with fluttering Navy signal flags and an enormous picture of the glorious battleship in front, is host to members of the group that made the immortal film, as a squadron from today's Soviet Navy salutes them, like their older comrades did 40 years ago.

New techniques in puppet films are always welcome, particularly since this kind of movie is so popular with the youngsters and, surprisingly enough, with the more mature members of the family. Drawings for cartoon and puppet films at the Multfilm Studios used everything from the cheap eighteenth century color prints of the old folk tale "Levsha" (published in the United States as "The Steel Flea"), to wood carvings of homely charm in another story, "Go There, I Know Not Where." Less convincing was the attempt to use Palekh miniatures for a theme of epic quality as in "Dobrinya Nikitich." The humorous film based on the character Horton the Elephant in the American children's book by Dr. Seuss needed a more sprightly gait. In the cartoon section of the show, the most attractive drawings were those in **A Tale of the North, The Three Fat Men** (especially the romantic, blue-green city at night as Dr. Gaspard rides through it), and a stylish and decorative **Rikki-Tikki-Tavi.**

TOURS AND EXHIBITS

The big Tischler show at the Pushkin Fine Arts Museum was greeted with enthusiasm by all those who appreciate the fanciful, "masquerade" side of life and who, while perfectly serious in relation to their work or to the world in general, can find the solemn and the significant more easily through a gay, even splashy exterior. This is not to say that everything this artist does is earnest or grim at bottom—some of it goes no further than a daydream fantasy—but there often is a pensive, sometimes even a tragic note under the light, bustling brushwork.

Alexander Tischler is a painter and theatrical designer. In fact, the theater part should stand first, for Tischler is not only a designer of actual sets for a specific production (as in his work at the old Jewish Theater in Moscow), his whole outlook is built on the pageantry and make-believe of the theater, where everything is different, somehow splendid and extraordinary.

Tischler's manner seems musing, almost preoccupied, as if he were mulling over a theme, letting his mind run through a succession of images in free association. And though they all bear on the same general idea, it is through this tentative groping and noting down of the procession of thoughts—in addition to the exterior of what he sees—that Tischler reaches a conclusion, or rather, offers you several ways of reaching your own.

The themes are those of the theater, and especially Shakespeare—**Hamlet, King Lear, A Midsummer Night's Dream**—the Civil War, the rape of Europa, the circus, "fashionable ladies," his own neighbors in a small Jewish community in the Ukraine. All are painted in series, as variations on a theme, some truly dramatic (two of three soldier groups and all of Lear), others more parade than drama. The young Europa on her bull has a familiar, almost domestic touch that leads one to suspect that this must have been one of Tischler's more whimsical moments, when a caprice of lighting turned the next-door neighbor's girl into a glowing princess, her couch into a bull. Yet it is no trick he plays on the viewers; we are convinced of his sincerity. We feel that Tischler is always in touch with reality, but though his feet are on the ground, he gives his imagination free rein to produce what it may. How else could the folk fantasies of a nation have been born, other than by letting some stray beam of light coming at an angle transform a familiar sight into something fabulous, or the dancing shadows of the evening into what—perhaps the devil himself?

And so, all the transformations in Tischler's art are the results of a moment's inspiration, but a moment wedded to a lifetime of observation.

A word about the sculpture. Yes, besides three halls full of paintings, there are two shelves of wood carvings placed high above the pictures. Too few for anything except a sampling, they nevertheless disclose another facet of the same mind at work. And it is a fact that even those visitors who were not attracted to the paintings (there are weaknesses—of color, of doll-like faces, of repetition) discovered in the sculpture a freshness of conception combined with a richness of execution that was irresistible!

Made of what looked like the thinnest of boughs or sticks, they retain their exteriors more or less intact, but inside, peering out, still encased in their cloaks or dwellings of wood, are carved the slenderest, most elegant of female figures. Finely painted, they are mysterious, fascinating, and utterly charming.

Some 30 works from this show have been shown abroad.

A series of lyrical landscape prints exhibited in a little show at the Pushkin Museum are the work of Alexander Skvortsov. They more or less mark the milestones in his life, starting with the large and detailed compositions of youth and ending with small (two by three inches) but intense snow scenes, with one bush and one bare tree, distilling the beauty of winter. The collection includes etchings, aquatints, dry point, and mezzotints.

The Moiseyev Folk Dance Company has a new program to take on tour. It opens the door on the inner workings of the choreographic laboratory, on classroom and rehearsal hall, revealing the preperformance activities of the boys and girls who make up the troupe. In the vivacious, highly diverting style we have come to look forward to, the various sections are taken through their paces, while detail after detail is added to the dance which they make up as they go along—or so it seems. The unmistakable ingredients of folk dancing are there, too: the gestures and style, the spirit of each country!

Also to be included in the program is a scene out of the Russia of a hundred years ago, as seen through the eyes of the servants in a town house —the lively cook, the mincing chambermaid, and their suitors.

Igor Moiseyev, director of the troupe, comments on their aims: "We still have so far to go. We want to develop in every direction. But our business is not merely to collect and report on folklore, we always strive to be artists, interpreters of what the people have created."

About "Travel Notes," dances built upon impressions in Europe and South America, Igor Moiseyev says the first few "pages" are ready and include, among others, a Sicilian tarantella and "Jota Aragonesa" from Spain.

Over 500 Byelorussians toured the Urals and Siberia this year in a friendship visit of music, drama and dance. The Byelorussian Festival, as it was called, went to industrial and farm centers all over the big area from the Ural Mountains almost to the Sayans, including such large cities as Sverdlovsk, Kemerovo, Omsk and Novosibirsk with its Science Town. Opera, folk choruses, theater and dance groups performed at concert halls, workers and farmers clubs, college lecture halls and factory shops, for coal miners, industrial workers, collective farmers, railwaymen, housewives—everyone who loves a good show! With the performing artists came traveling picture galleries, lecturers and films, including the recent **Alpine Ballad.**

HAIR! HAIR!

A hundred and two hairdos were entered in the finals of the Ninth Moscow City Championships for Hairdressers this year. A cheering crowd watched

as the capital's topnotch barbers and hairdressers showed how to put inspiration to work with the greatest possible effect. Only when everything was ready, with every curl in place, and the beauticians discreetly out of sight, did the judges file in to view the masterpieces—and a lovely lot they were! The two-day contest ended with prizes for the best styles and a demonstration of modern techniques by veteran men's and women's hair stylists.

SHARPS AND FLATS

The revival at the Bolshoi this season of the Rimsky-Korsakov opera **The Invisible City of Kitezh,** after an absence from the stage of many years, was an event of significance here. Though in the great tradition of **Boris Godunov, Prince Igor, Khovanschina,** and the other national classics of the nineteenth century, **Kitezh** has not always had the solid success of its monumental predecessors. Whether this was due to its somewhat disjointed libretto or to confusion in the staging is not certain, but probably every director has had to contend with the rather obscure mysticism that, like a fog, surrounds the characters of the heroine, the maid Fevronia, and the scurrilous Grishka, both of whom hear fantastic birds singing with human voices and other strange phenomena.

After a slow first act that has some difficulty getting off the ground (being made up almost exclusively of Fevronia's beautiful but rather repetitious monologues and her duets with the prince), the action suddenly brightens when the Tatar tribes literally burst into Lesser Kitezh, with the intention of taking everybody prisoner and then finding someone to guide them to the mother city of Greater Kitezh. The plot thickens, for while none of the steadfast citizens will consent to do this job, one wretch, a drunkard called Grishka, does seem to be willing. (He is later to pay for his treachery by going mad.) Meanwhile, one messenger gets out to warn Kitezh, but the Russians are sadly outnumbered. And just when it seems nothing can save the city, it suddenly fades away while the Tatars stare dumbfounded at its reflection in the lake.

The legend combines its patriotic message with a beautiful folk tale, and the whole is staged on a grand scale but with sensitivity. The sets of the master painter Vadim Ryndin, highly expressive on their own, help build up the atmosphere of mystery. In one of the most effective scenes, the great, grim faces of the painted saints staring down from the stone walls of the ancient church are in striking contrast, yet strangely akin, to the dignified but vulnerable cluster of human beings below.

The solo singing is good, but I liked the deep sound of the church bells mingling with the orchestra, and best of all—the choruses! Singing in the forest and the town square, or kneeling with candles in the darkened church, praying for deliverance from the Tatar hordes—these are scenes and sounds of unforgettable beauty!

Here is a case where one man represents a whole epoch in the musical history of a country. Ivan Kozlovsky, 66, for over 30 years leading tenor at the Bolshoi (and now retired from the operatic stage), has reached an age when most tenors would prefer to rest on their laurels or throw in the sponge, whichever is more appropriate under the circumstances But Kozlovsky has become something of an institution in this country, due partly to the spirited rivalry over many years between his many and ardent fans and those of another tenor of note. Yet, music lovers who appreciate real, old-fashioned artistry, as well as a voice of poignant beauty, know why Kozlovsky wears so well and is still in the public eye today. One of the last of the "old school" of Russian interpreters, he can keep an audience enthralled as he holds a long lyric fermata that carries all the poetry and yearning of a young man's fancy.

Most famous for his performance of the ardently poetic Lensky in Tchaikovsky's **Eugene Onegin,** he sang the role countless times, and the crowds at the stage door could have beat some of today's pop idol devotees all hollow! He is on excellent terms with most of the Russian, Ukrainian, French and Italian operatic and concert repertoire, and even **Lohengrin,** though his voice has too mellow a quality for most of Wagner. To the man in the street, Kozlovsky means opera!

Kozlovsky has recorded a great many Russian and Ukrainian folk songs. Their flowing melody and highly charged emotionalism places them with the best.

The Kozlovsky recital this season at the Grand Hall of the Moscow Conservatory included the Benjamin Britten Serenade for Tenor, Horn and Orchestra, and songs by Sergei Rakhmaninoff, characterized by exquisite phrasing and great warmth of feeling. And might that not be paraphrased as the main attributes of maturity and youth?

RECORDINGS

Melodia, the company that makes phonograph records, has announced its plans for new releases.

First, a full-length stereophonic recording of Tchaikovsky's opera **Pique Dame (Queen of Spades),** with Tamara Milashkina, Zurab Andjaparidze, Yuri Mazurok, Irina Arkhipova, and the orchestra of the Bolshoi Theater, is already in the works, and will soon be available abroad.

A series of Chaliapin reissues will include almost everything he ever recorded. Advance orders from Soviet music lovers are at an all-time high.

New single LP's will feature Bolshoi opera singers Ivan Petrov, Tamara Milashkina, Elena Obraztsova (a promising young mezzo-soprano), as well as artists from other companies, in songs and operatic excerpts; the Prokofiev ballet **Cinderella** and all seven of his symphonies; and a musical story, **Tchaikovsky.**

David Oistrakh plays violin concertos by Sibelius and Khachaturian.

Maria Greenberg plays all the Beethoven piano sonatas.

The Violinists' Ensemble of the Bolshoi Orchestra, under the direction of Yuli Reyentovich, plays Tchaikovsky's **The Seasons.**

News in folk music is several solo and group recordings by amateurs from town and country. Professional groups and soloists are well represented, as usual.

Scenes from well-known plays have been recorded by the Moscow Art Theater troupe and other celebrated companies.

Novelties recorded by pop artists are classed by composer and performer, and include a number of new names, as well as favorites of previous seasons.

From Two to Fifty is a comedy program starring the inimitable Arkadi Raikin, with his "regulars."

New recordings of poets and writers reading from their own works include one of Sergei Yesenin.

The voice of Vladimir Lenin will be heard in records of his speeches.

A series of recorded talks sponsored by the Znanie (Knowledge) Society brings the voices of noted scientists to the school or college classroom. Here members of the Academy of Sciences discuss "The Origin of Life on Earth," "New Materials—the Basis of Technological Progress," "Cybernetics" and other subjects.

Another notable item is the audio magazine **Krugozor (Outlook),** with a monthly circulation of 250,000.

MELOMANE'S DELIGHT

The Violinists' Ensemble of the Bolshoi Orchestra—"seventeen violins that play as one"—is 10 years old. But it doesn't really seem so long ago that they first played the **Perpetuum Mobile** of Paganini, which started them off as a performing group. Born of the Bolshoi Theater and led by concertmaster Yuli Reyentovich, the group has attained such ensemble perfection that every phrase and every nuance is like a jewel, while the tone, instead of being merely bigger in volume and motley in consistency, is symphonically full and rich, especially in the slow, sustained passages, without losing the warm, lyrical quality of the chamber instrument.

The problem of repertoire was present from the beginning since there was literally nothing written for such a group. However, besides the arrangements of classical and contemporary music, from Bach through Shostakovich, which quite naturally became the backbone of their programs, they had the cooperation of several Soviet composers who stepped in to fill the breach (with some of their most successful work to date, I might add). Mikhail Chulaki was the first composer to write a piece—**A Russian Holiday**—especially for the ensemble, and Rodion Shchedrin, Igor Morozov, and Yevgeni Krylatov followed soon after.

In the 10 years of its existence as a group, the ensemble has crossed and recrossed the Soviet Union time and again, appearing in town and country, factory and farm, with tours abroad whenever time permitted (all are still regular members of the Bolshoi Theater Orchestra). There are other ensembles now, cello and viola, but the leader is, of course, the Reyentovich group, and leadership, they say, imposes obligations.

Mstislav Rostropovich has been made an honorary professor of the Leningrad Conservatory for the very considerable teaching he has been doing there.

The celebrated cellist has been a full professor at the Moscow Conservatory for two years.

American folk music, increasingly popular in the Soviet Union, wins new friends whenever an artist or group comes here to perform in person. It is now available on records and sheet music as well, with a recorded hootenanny by Pete Seeger on sale at record shops and an album of songs at music stores.

Bound for Glory, the autobiography of one of America's best-loved folk singers, Woody Guthrie, is being translated into Russian.

OF THE BLACK SEA AND ITS BRIGHT FISH

Excerpt from the essay "Blackthorn"

BY VLADIMIR SOLOUKHIN

A FRIEND had been telling me about Cape Pitsunda and its village of Lidzava for years. He had even given me the address of a certain Nadezhda Vasilyevna and directions for getting to her house.

Pitsunda, he said, is the only place on the Black Sea where a pine grove descends to the very water front. It is a quiet place, inexpensive, with lots of good food. Heavenly, in short. And the fishing! Just go to the cannery and fish right off the pier! For bait use clams, any number of which can be found clinging to the piles under that same pier. I remembered all this very well and easily persuaded my family to reject the comforts of a boarding house for the summer, convincing them that a whole new life awaited us in Lidzava.

Our daily routine in Lidzava began the next morning. But first a few words about the place. Imagine a deep horseshoe bay, serene even when the sea beyond is seething. At such times you can see the whitecaps far out at the jutting ends of the horseshoe, while the clear transparent water at your feet gently laps the shore. When the Black Sea is really stirred up, overtones of the storm may seep through to the haven the next day. Without so much as a breath of wind, high waves suddenly plunge to shore at long but regular intervals. "The Black Sea acted up last night!" say the local people on such occasions. Sometimes, true enough, the wind comes roaring in directly from the sea, spreading the storm to the bay from the outset, but this is rare.

The left prong of the horseshoe rises high over the water in tall rocks slanting away into the sea with a narrow passage left between waves and shore. The right end is low and wooded, and this is Cape Pitsunda. The entire semicircle of the bay is lined with a long but narrow strip of blue pine. Relic Grove, it is called, the only one like it in the world. The significance of this grove will be understood if I say that it is tantamount to having a place on earth where mammoths still live and multiply. The blue pines of Pitsunda, they tell me, are even older than the mammoth. These trees flourished in the Tertiary period and perhaps grew all along the coast of the Black Sea and even other seas. Only the few at Pitsunda miraculously survived. The grove now is registered by all botanical societies. This, in short, is a unique, prehistoric relic of a grove.

The pines are stout and knotted. If one of the trees were cut down, you could stretch out full length on its stump. These are no timber pines, tall though they are. Their dark red bark, characteristic of pines, is cracked in many places, showing how stout and mighty the trunks are. The crowns are wide, with bent, twisted branches. The needles of these pines are several times longer than those of their more ordinary relatives. They are tinted, moreover, an indeterminate color, for which reason they are called blue. Sea pebbles and larger polished stones lie scattered around the trees. Hanging over them are the reddish-brown needles and thick, shining cones. There is no underbrush. If I add that the pines do not grow close together so that you can see through the whole grove in any direction, you will have a better idea of Pitsunda's relic of a grove, or rather of its unfenced section. There are no deep shadows here unpenetrated by the sun, but there is no direct sunshine either, only diffused light—half sunshine, half shadow. This is a precious quality, for here you can do without tents, awnings or other beach shelters to protect yourself against the scorching rays. You may lie directly on a bed of pine needles, enjoying the breeze tinged with the fragrance of the sea. It is warm here, but never hot. This, too, will give you an even and lasting sun tan with something of the hue of the relic pines themselves.

The first Pitsunda pines we saw as we came out of the garden, or rather the plot of land belonging to Nadezhda Vasilyevna, rose before us in black silhouettes with patches of blue and gold between them. Thirty steps from Nadezhda Vasilyevna's gate brought us to the trees, a hundred more, into the grove, and thirty more, to the edge of the water. This became our daily path to the seashore.

It is only in Albania, in the Adriatic Sea, that I have seen water as clear and transparent as in this bay. Even when I swam out to where the water was many feet deep, I had only to look down to see the play of pebbles so clear that they seemed within arm's reach. What bliss to have such water on all sides, caressing, washing and smoothing you, or dropping on you in heavy waves, throwing you on the pebbles covered with weightless foam.

We were surprised to find the beach so quiet compared with noisy, crowded Novy Afon.* There were plenty of people here too, but moving at a slower pace, reminiscent of a slow-motion film. Amid the trees we distinctly heard the determined drub of a woodpecker. "Have a rest, have a rest, a rest!" the sound seemed to say.

I had seen my fill of gray skies and found this blue one unreal, decorative, even artificial. The sunshine, water and wind were very real, however, and I soon came to believe in the blue of the sky as well.

The pebbles were cold underfoot in the mornings, for this was September, as a matter of fact, the second half. But I did not mind the cold pebbles after my morning swims in Olepino.** The cooler the pebbles, moreover, the warmer and more inviting was the sea.

Several times in the morning I saw a scene I would certainly have painted had I been an artist—an almost naked Georgian girl with a lovely golden sun tan giving a stout old woman a rubdown with a towel, massaging the drab flesh. Several times she went to the sea to soak the towel, and when she returned I could look at nothing but those two figures. The touch of that young goddess should have transformed the

* A Black Sea resort town.

** A village on the upper Volga.

flabby old body. Her towel should have wrought a miracle, turning the old lady into a young, strong, agile, sun-tanned girl like herself.

Judging by the girl's efforts, this was her mother-in-law. But there was something more here. This was life at the beginning and at its end, life without a beginning and without an end, divinity and mortal frailty, poetry and prose, love and death. All this going on under the crowns of the relic pines, against a background of eternal sea that had rolled its waves shoreward for millions of years.

You could lie about there for hours, listening to the rustle of the pines, to the whispers of the sea, while offering first one side and then the other to the September sun, not at all scorching, but warm enough to make the salty breath of the sea all the more pleasant. If you lifted your head, you might detect the outline of a steamer on the bluish horizon—probably on its way from Sukhumi to Sochi. If there was a wisp of smoke behind it, you could almost be sure it was a big liner. Still, it was better to lie back. Closing your eyes did not shut out the scene, for it was still there in your memory.

Through this misty half-dream I sometimes saw visions of my desk in Olepino, of my papers, the lamp on an overturned flower pot, the yellow stain left on the desk by the lamp, and the damp dark wind lashing the window. Sometimes, too, I would remember the pond formed by the little stream flowing through Olepino. Its surface was covered with leaves. Some of the leaves sank to the bottom, but the others kept floating on the cold water. I grew a little homesick when I thought of all this, but drove my vision away quickly. Newcomers to Pitsunda spread the rumor that Moscow had wind and rain and a temperature of 36 degrees F.

On our first day in Lidzava I followed the advice of my friend who had been here before and set off with a fishing line, hooks and a big tin can in a string bag, headed for the cannery. The pier looked like one of the low wooden bridges women washed clothes on in our ponds, but many times larger. It was about 50 paces long and 7 or 8 wide. The end of the pier rose about 13 feet above the surface, and the water was about 16 feet deep here. It was so transparent, however, that one could see everything in it: all sorts of scrap iron and junk, dead fish thrown away by the cannery, and live fish swimming around almost at the bottom.

Losing no time, I stripped and slid into the sea in search of clams. There were plenty on each pile under the pier, but the ones at the top had long ago been plucked by other fishermen. That is why I had to dive, or rather plunge deep, clinging to the piles, to tear off the clams sticking firmly to the post and to each other. It put them into the string bag in my left hand, and my right was soon bleeding, cut in several places. But this was only the beginning. There were more and more cuts every day. My hands were scratched and cut all the time we were in Lidzava. But there were always plenty of clams in my string bag. I put them into a can filled with sea water, and this kept them fresh for the next day.

Five or six people usually sat fishing on the pier, some of them women, the wives of the fishing enthusiasts. These five or six came every day and soon grew acquainted. The most comical in the group were a young pair of newlyweds who sat beside me. The husband, a sun-tanned fair-headed chap with cheerful blue eyes, kept fishing from six in the morning until eight at night. He left only for dinner, though sometimes he even did without. His wife found the whole thing a bore and kept complaining, saying they ought to be sun-bathing on the beach like everybody else. Why couldn't they enjoy themselves like everybody else? She kept sitting next to her husband day after day, nagging quietly. Her dissatisfaction was turning into resentment, and her husband finally announced that this was his last day of fishing. And indeed, on that day he generously distributed his hooks, sinkers and line and even the penknife which he had used to open the clams. We were all very surprised, therefore, to find them back at the end of the pier two days later.

"It's my wife," explained the young fisherman. "She was restless, she said something was missing, that we ought to go fishing."

She was richly rewarded, for within an hour she caught the biggest fish of the season.

The fishing here was done as follows: you baited your hook with a bit of clam meat or fish and cast your line some yards from the pier or let it unwind from your finger directly below. When the bait went under, your finger could feel every move of the horse mackerel tearing away at it. It was best if your bait could reach the bottom, where the bigger and better fish swam, but it was always nibbled up long before. Which meant that you had to haul in your line and bait your hook again.

I wasted a whole string bag full of clams on the mackerel on the first day and got very little in return—only four little mackerels accidentally hooked by the stomach, the tail or the scales near the gills.

The others fishing on the pier seemed satisfied with this small fry. They used small hooks, floats and rods and caught as many as 30 and 40 mackerel an evening. I would have liked to hook the larger and more varied fish swimming closer to the bottom, the kind my Moscow friend had talked about with such excitement. Finally I struck on a simple idea: What if I made the sinker very heavy? The bait would sink quickly through the layers inhabited by the mackerel and reach the bottom, though benibbled.

The sea became rough toward dinnertime the next day, and there seemed little hope for any fishing. But I was so anxious to test my theory that I went to the cannery just the same. The still warm wind kept tangling my line, making things difficult, but I finally got my hook baited and dropped the line. Down sped the bait with its sinker about the size of a walnut. Only twice did a mackerel's nose touch it. My finger soon felt the sinker and hence the hook had reached the bottom. This done, I remembered my winter fishing and jerked the bait up a foot or so from the bottom. Suddenly I felt a great weight on the end of the line. At first I thought I had hooked some debris far down, but the fish, whatever kind it was, darted under the pier. There could be no doubt now, and I pulled up my line fast, before my quarry could come to its senses. The surface finally parted for a monster, the likes of which I had never seen before. Threshing on the hook was something wide, spotted and reddish-brown. It was about as big as a pint bottle and much the same shape. The round mouth on that big face was so large, it could have easily accommodated the fish's own bulk. A tall fin bristling with needles stood up from the back, and two fans spread out at right angles to the body near the head. The belly was nearly red and flabby like an empty bag. All this taken together went by the simple name of sea ruff.

"Be careful!" I was warned. "Don't prick your fingers on that fin. A fisherman who did had to keep his hand in a pail of cold water all night because of the pain."

But I had been able to catch this thing and was equally able to get it safely off the hook.

Luck was with me now. My sinker had no sooner reached the bottom than there was another tug on the line, a strong one. My new catch fought harder than the ruff. Threshing from side to side, it tried to get away under the piles, and I was afraid it would, for the line could easily have been cut by those metal rails.

It was no easy job bringing it to the surface. The new catch looked like a tench. It was not very large, though fat, and had the same swollen mouth and broad tail as a tench. But what a color the sea had thought up for it! The fins seemed to have been steeped in green and blue ink, and the sides were a vivid green with red wavy lines. I was told that I had caught a green fish or *zelenukha,* as it was called locally.

I had many more adventures on that pier in Lidzava. I spent many happy hours there with a fishing line around my finger.

Here are the different kinds of fish I caught on that delightful vacation. The names are all local, I never learned the scientific ones. There was the sea ruff and *zelenukha* I spoke about, and a carp shaped something like the carp in my home region but silvery with a tinge of violet. It had sharp protruding teeth that could bite through a hook that wasn't solid enough to hold it. Then there was the *barabulka,* a graceful fish with a face cut obliquely and with red spots on the body that vanished the instant it dried up. I also caught a fish called *kolyachka* (prickly) that looked something like a fresh-water perch but with a blue spot on each side. Another one I caught was called a *petukh* (cock), a bright colored and much coveted specimen. Others included a dogfish, the biting variety with leopard spots; a gray mullet; and finally a horse mackerel, the most numerous, troublesome, but also the tastiest of all the fish I caught off that pier. The meat of the sea ruff is extraordinary—thick, white and rather juicy. Some people say it tastes like chicken, but I though it tasted more like crab cooked in fresh water. The sea ruff is used only in soup.

The warm blue sunny days filled with sea air and the caress of the south flew by one after the other, and I could hardly bring myself to interrupt their lazy procession. But I had to make up my mind finally, and the day came when we knew that this was the last time we would be bathing here, the last time we would bask on the pebbles and the last time I would cast my line from the pier.

FIVE-YEAR PLAN TAKES OFF

This year is the opening year of the new 1966-1970 five-year plan for economic development. Though specialists both at home and abroad say the plan is realistic, the economic situation at home and international relations may present some serious obstacles to its fulfillment. That probably accounts for the interest aroused in the results of the first six months.

Then, too, the half-year results make it possible to get some idea of the viability of the economic reform initiated in the USSR a year ago with the aim of making the over-all economic system more effective and efficient.

The report of the Central Statistical Board tells us that in these first six months industrial output went up eight per cent compared to the corresponding period of 1965. While this is more than the plan anticipated, it is below the 1965 industrial output index of 8.6 per cent.

Soviet economic planning is conducted both on a territorial pattern, *i.e.*, for each union republic and large economic area, and according to the various branches under the different ministries. All the republics achieved the target for industrial increases, though development was uneven. The highest increase—16, 15 and 14 per cent—were reported by Kirghizia, Georgia and Byelorussia respectively; the lowest—8, 7 and 7 per cent—by the Ukraine, the Russian Federation and Azerbaijan. Nor was everything smooth sailing on the ministerial side. The food industry, fisheries and also the timber, pulp and paper, and woodworking industries barely managed to exceed the 1965 level. The backlog in the food industry is traceable to agricultural misfortunes in 1965 and earlier. The other branches topped last year's results, exceeding the targets by an average of 3 to 4 per cent. The larger increases—14 per cent—were reported in the chemical industry, gas output and the manufacture of household equipment and appliances, while an increase of 15 per cent was registered in the manufacture of control and automatic equipment.

So far the economic reform, whose aim is to give enterprises more independence and make the profit factor the main yardstick of achievement, has involved mainly consumer goods industries and transport. Enterprises in a number of fields, employing more than one million of the total labor force of 78.5 million and including garages with an aggregate pool of 55,000 automobiles (an article concerning one such garage was printed in our February issue), have been switched to the new system.

All the enterprises where the reform was put through have topped the increased sales plan of 10 per cent more than last year, while labor productivity shot up by 8 per cent (the average for all of industry was 4.7 per cent). The figures for industrial output show that the basic heavy industries are keeping to the level of an 8 per cent rise. However, coal output increased by only 2 per cent (the actual output for the six months is 293 million metric tons), which is due to the wide-scale replacement of coal as a fuel by gas, the extraction of which went up by 13 per cent in the half year.

The output of mineral fertilizers totaled 17.1 million metric tons, an increase of 17 per cent. This will mean more than 35 million tons for the year (against 12.4 million in 1958). This has already been a boon to agriculture, which in the past has not been able to produce stable harvests largely because of unfavorable weather conditions and an insufficient supply of fertilizers. Noteworthy among other industries is the chemical industry, which has registered a 15 per cent increase in synthetic resins and plastics and a 13 per cent increase in man-made fibers.

Industry fell short of the planned output for steam turbines and the generators for them. Not enough equipment for the oil industry is produced. But probably the most unpleasant pill is the inefficient use of industrial capacities which went into operation last year in the iron and steel, building materials, chemical, pulp and paper and coal-mining industries. As a result, the huge funds invested will be frozen for several years. This point was taken into consideration when the five-year plan was drafted, and the policy is to give priority to investments for the technical reconditioning of enterprises already in operation, for mechanization and automation of production, and for improvement of technological processes.

Though designers and scientists have been developing many new items, and one and a half million inventions and rationalization suggestions have been put to practical use, we still have to find more effective incentives to encourage enterprises to quickly draw on scientific achievements.

Despite the difficulties, the social product is growing and the costs of production and circulation are falling, as a result of which over-all profits increased by seven per cent, the increase in industry being even higher—eight per cent.

The Soviet consumer is reaping tangible benefits from the initial results of the reform. He is finding a greater variety of clothing, fabrics and other goods in the stores including items which had been in scarce supply before, for example, refrigerators.

In the period under review production of knitted outer garments and of woolen cloth went up by 22 and 11 per cent respectively. Meanwhile durable items registered a record increase. The number of washing machines produced totaled 1,880,000, or 15 per cent more than in the corresponding period of 1965; refrigerators, 1,029,000 or 40 per cent more; and TV sets, 2,100,000 or 28 per cent more. Though automobile output is to quadruple by 1970, there was no appreciable increase in the period under review. A total of 324,000, including slightly more than 200,000 passenger cars, were produced. This is because of the time needed to expand plants in operation and to build new ones.

Agriculture is still the No. 1 problem. It is being tackled in several ways. In the six months the farms purchased from the state 141,000 tractors, or 294,000 in terms of 15 horsepower units; 42,000 grain harvesters; 2,000 potato pickers; and a great deal of other machinery. In addition, far more mineral fertilizers were supplied than in 1965. Over recent years the state has been paying higher prices for collective farm produce, which has strengthened these farms and increased their profitability.

The herd has grown, and more livestock products were sold to the state. In the six months this included 4.5 million metric tons of cattle and poultry, or an increase of 20 per cent; 19 million tons of milk, or an increase of six per cent, and 7.9 billion eggs, or an increase of 10 per cent.

The collective farmers also sold produce directly to the population at the markets. Further, the state encouraged collective farmers to breed cattle on their own private plots, with the result that a considerable rise in produce was reported, while collective farm market prices went down. The payment to collective farmers for their work has increased by an average of about 20 per cent.

Though average wages and salaries went up by only 3 per cent, deposits in savings banks increased by 2.2 billion rubles, or 12 per cent, and came to 20.9 billion rubles as of July 1, 1966. This is largely due to the various privileges and benefits derived in the way of pensions, scholarship stipends, grants, free health services, free and discount nursery school accommodations, free and discount vouchers for sanatorium and vacation resort accommodations and free refresher training—all at the expense of the public consumption fund. Payments issued from this fund totaled 22.4 billion rubles, or 8.4 per cent more than in the corresponding period of 1965. This also meant free tuition for 72 million pupils, including 48 million in schools of general education. There were two million high school graduates in June, as well as 440,000 university and college graduates and 690,000 specialized secondary school graduates (high school plus two years of professional training).

During the six months 500,000 families moved into new apartments in the cities and many collective farmers and factory and office workers built private cottages at their own expense with the help of state loans.

The country's foreign trade turnover totaled 6.8 billion rubles in this period.

It is naturally difficult to make any definite forecasts on the basis of the results of six months, just a tenth of the five-year plan period. Still, things do look optimistic and an analysis of the figures at hand gives us an idea of the areas which may need some adjustments.

1964

Straight as the Crow Flies

The Abaken-Taishet Railway, one of the biggest construction projects of recent years, now finished. Photo by Lev Sherstennikov

Where the discussion of the budget begins. The heads of the finance and economic planning ministries report to a joint meeting of the responsible committees of the Supreme Soviet.

DISCUSSING THE BUDGET

By Pavel Antonov
Photographs by Igor Vinogradov

The committees are divided into 31 subcommittees, each dealing with a major budget item, such as national income, budget revenue, transport and communications, heavy industry, economic development of the union republics, and so on. They go over the draft bill item by item. Their conclusions are presented to the full committees, which draw up appropriate resolutions. The bills are then debated and voted on at separate sessions of the two chambers of the Supreme Soviet.

DECEMBER 9, 1965, was the third day of a regular session of the USSR Supreme Soviet, held in the Kremlin Palace in Moscow. Two bills were on the agenda—one on the new economic plan, the other on the 1966 budget. The two chambers—the Soviet of the Union and the Soviet of Nationalities—voted separately.

"Adopted unanimously," the stenographic record reads. There were no Nays and no abstentions.

Is it likely that among 1500-odd deputies there would be no differences of opinion? A detached observer might conclude that such unanimity indicates a lack of democracy. Let us see how much and how many of the 1500 deputies who voted were involved in working out the bills.

In this case, because of the nature of the bills, the preliminary work did not begin in the Supreme Soviet itself but in such bodies as the State Planning Committee (Gosplan) and the Ministry of Finance.

First Acquaintance

In mid-November, nearly a month before the session opened, some 250 deputies to the Supreme Soviet, members of the Budget Committees of the two chambers and of the Economic Committee of the Soviet of Nationalities, met at Sverdlov Hall in the Kremlin to consider the two draft bills. The plan bill was submitted by Nikolai Baibakov, Vice Chairman of the USSR Council of Ministers and Chairman of Gosplan, and the budget bill by Vasili Garbuzov, Finance Minister.

The gist of Baibakov's statement. The rise in industrial output projected for 1966 is 6.7 per cent, nearly two per cent less than last year's increase. One reason for the reduction is last year's severe drought, which cut down farm production.

The key idea of the plan is to do away with the lag in farm production, which throws the economy off balance. Scheduled for agriculture is an 18 per cent increase in power consumption and an added 263,000 tractors, 85,500 combines, 130,000 trucks, and 29.5 million tons of mineral fertilizer.

The other reason for the smaller increase projected for industrial output is the lag in ferrous metallurgy due to the fact that several new iron and steel plants were not put into operation as scheduled. To end this lag, the government proposes to appropriate an extra 100 million rubles for iron and steel industry development.

The plan brings oil production to 264 million tons, and gas to 5,224 billion cubic feet. It also calls for intensive exploitation of new fields.

It projects a rise in living standards. Real income per capita will go up 6.5 per cent, and three million apartment units are to be built, more than in any previous year.

The gist of Garbuzov's statement. The budget bill provides for 105.3 billion rubles in appropriations, only 100 million less than revenue. For our country this is unusual. We generally have far larger surpluses.

Industrial development gets 42.8 billion rubles, with priority to the electric power, machinery and chemical industries.

Agriculture also gets more money, 13.2 billion rubles. More credit will be granted collective farms by the State Bank. Effective January 1966 is a reduction in the price of tractors, trucks, machinery and electrical equipment sold to collective and state farms. Farm income will go up because of the sizable increase in the price the state is paying for staple farm produce. This and other farm assistance was legislated in 1965. The higher prices charged for manufactured goods in rural areas have been rescinded. An added source of budget revenue is higher factory profitability. The plan is to have some industries switch over to the new system of settling accounts with the state beginning with 1966, not 1967, as had been contemplated.

Following the reports, each of which took an hour and a half, questions were addressed to the Ministers. Deputy Yelena Demina wanted to know:

"In 1966 the schools will graduate more than two and a half million boys and girls. How does Gosplan propose to take care of them?"

The answer:

"Earlier our estimate was that 700,000 would go on to colleges or specialized secondary schools, and 1.9 million would take jobs in industry, agriculture or the service areas. We are now revising this estimate. We find that colleges, specialized secondary schools and vocational training schools can accommodate more students."

After the brief question and answer period the deputies were given the full texts of the bills and related statistical material. In the month before the opening of the session the committee members would be going over every item in the bills and submitting their recommendations for changes to the Supreme Soviet.

A Subcommittee at Work

For more efficient consideration of the problems involved, the large committees mentioned above are divided into 31 subcommittees, each concentrating on a major budget item. There are subcommittees on national income, budget revenue, transport and communications, construction, heavy industry, economic development of the union republics, and so on.

Here is a typical subcommittee meeting. This one is the joint subcommittee on agriculture of the two chambers. Called in to furnish added information and to clarify some questions were USSR Deputy Minister of Agriculture Izyaslav Balyasinsky and several experts from that ministry; Grigori Kutuzov, department chief of the USSR Ministry of Finance; and Mikhail Gritskov, assistant chief of Gosplan's agricultural department.

Presiding at the meeting was the subcommittee's chairman Edgar Tõnurist, who is also First Vice Chairman of the Council of Ministers of the Estonian Republic.

Tõnurist, 46 years old, is of peasant stock. Before 1941 he was an assistant agronomist. He saw frontline duty in the Second World War. After the war he did advanced study in his field and then held posts in various farm agencies. In 1953 has was appointed Minister of Agriculture of his republic, a post he held until his present appointment.

Other members of the subcommittee are: Vladimir Svetlichny, 39 years old, a tractor driver who earned the title Hero of Socialist Labor for his outstanding work in growing sugar beet; Georgi Nalivaiko, 56, director of the Altai Grain Cultivation Institute and member of the Academy of Agricultural Sciences; and Sergei Babin, Master of Science (Agriculture), 53, director of a state farm in Moldavia.

The subcommittee had already considered and approved the principal articles of the plan and budget draft bills relating to agriculture. At this meeting they were discussing the more concrete problems.

Svetlichny took the floor:

"I want to ask the representative of the Finance Ministry this question: The price of farm produce was raised by government decision last March, bringing the collective farms more money immediately. There was no corresponding adjustment of the old regulations for the state farms, so that whatever the state farms made from the higher prices went to the state as profit over and above plan. Is the same thing going to happen in 1966?"

Kutuzov's reply:

"In 1966 the state farms will keep all of the profit they make, 58 per cent going for capital investments and 42 per cent for wages and other current needs."

"And how much money will the state spend on development of state farms?" the deputy asked.

"This is how it will work," Kutuzov replied. "Previously, state farms set aside a certain part of the profit for budget

revenue, and they were allocated money for capital investments from the budget. Now state farms will be operating on a self-supporting basis and will have to cover their expenses from income."

"I too would like to put a question to the representative of the Finance Ministry," said Tõnurist. "A government decision provides that 40 per cent of the profit agricultural research institutions make from their experimental farms is to go for scientific development. In 1965, however, the Finance Ministry took all of this profit away. I should like to know on what grounds."

"Of late," Kutuzov replied, "the practice has been to assign such profits to budget revenue."

"Exactly. 'Of late.' Earlier, when these farms yielded no profit, the financial authorities naturally did not include it in their revenue plans. They got along without it. But now, with profit beginning to show, they take it away. They seem to be operating on the principle that 'Even if it's only a kopeck, it belongs to us.' This illegal practice retards research development. It must stop."

"What are you doing to see that collective and state farms get enough agronomists and other farm specialists?" subcommittee member Babin asked Vasili Syrovatchenko, a Ministry of Agriculture expert.

"Roughly 60 per cent of the agronomists and more than half of the zootechnicians working on farms," Syrovatchenko replied, "have done formal study in their fields. We are now working out procedures that will give us more accurate information on farm needs for specialists. In 1966 enrollment in agricultural colleges and specialized secondary schools will be 41,000, higher than for any previous year."

"It's true that the enrollment is higher," Babin remarked, "but chickens should be counted in the fall when they hatch. Here are some figures: In the last 10 years agricultural colleges graduated 90,000 farm specialists, and only 15,000 of them are working on farms. One reason for this lamentable situation is that agricultural colleges and specialized secondary schools often admit townspeople who never had anything to do with farming, and after graduation many of them do not take farm jobs."

"Your information is out of date. Today 85 per cent of the students of agricultural colleges and specialized secondary schools come from the countryside."

Here Tõnurist interposed:

"We have spent billions for farm development, but so far we have done very little to improve the living conditions of farm specialists. That's why they don't take farm jobs. What do you think, Comrade Balyasinsky?"

"The Ministry of Agriculture," Balyasinsky replied, "has a plan in preparation that will make working conditions more attractive for farm specialists. Unfortunately, the draft is not yet ready."

Nalivaiko took the floor.

"Physicians," he said, "are opposed to the use of DDT and other chemical pesticides. What is the ministry doing to substitute organic methods?"

Ivan Churayev, another agricultural expert, replied:

"By 1970," he said, "we plan to do away entirely with the use of chemical pesticides. We presently have 19 laboratories working on the problem. We will soon be setting up an institute for the development of organic methods of plant protection."

Other questions raised at this meeting had to do with the distribution of mineral fertilizers to the various republics, deficiencies in the work of fruit and vegetable procurement agencies, seasonal prices for milk, and so on.

A few days later the subcommittee held a final meeting at which it formalized its recommendations on these matters and others that had been discussed earlier. The subcommittee found that the plan bill did not provide for enough trucks, tractor trailers, cranes and excavating machines for the farms. It asked that the Finance Ministry be directed to adhere strictly to the established system of financing research by scientific institutions operating experimental farms; that procurement agencies be instructed to be more strict in collecting damages from those responsible for delays in contract shipments of fruits or vegetables; that the State Committee on Construction be directed to build more storehouses for fruits and vegetables; and that the farm specialist problem be held over until the draft of the new statute is ready.

All other subcommittees were similarly engaged during the same period. Their recommendations were presented to the full committees.

At the Supreme Soviet Session

What happened when the bills came up for consideration at the session of the Supreme Soviet itself?

First, Baibakov and Garbuzov reported to a joint session of the two chambers of the Supreme Soviet. Their reports this time were much more comprehensive and detailed.

Next, at separate sessions of the chambers, reports were given covering questions raised by the respective committees. The Soviet of the Union heard a report from the Budget Committee, and the Soviet of Nationalities two reports, one from its Budget Committee and the other from its Economic Committee. The reports, made for the committees by Deputies Ivan Kapitonov, Mikhail Yasnov and Grigori Butenko, summarized the work of the subcommittees and committees on the bills and set forth in detail the recommendations and amendments agreed upon.

The debate on the bills took place at separate sessions of the two chambers, and 53 deputies spoke from the floor.

Next, again at a joint session of the two chambers, Baibakov and Garbuzov made closing statements. They informed the Supreme Soviet which of the recommendations made by the committees and individual deputies the government was prepared to accept, which suggestions it wanted to study further, and which for one reason or another it did not find acceptable. These are extracts from the ministers' closing speeches:

Baibakov. Important proposals have been offered by the Budget Committees of the two chambers, the Economic Committee of the Soviet of Nationalities, and by individual deputies. They involve more efficient use of production capacities, improved quality, untapped financial resources, greater output of some items, larger circulation of commodities and stepped-up construction. There are also proposals for more capital investment. The Council of Ministers accepts the committees' proposal for production increases in textiles, milk, clocks and watches and other goods by 271.4 million rubles.

The committees also recommended more rural electrification and the sale of more machines and spare parts to collective and state farms. Gosplan is now finishing its draft of proposals for rural electrification for the 1966-1970 period and will take these recommendations into account. The projected output of spare parts is planned around orders placed for them. Also projected in the 1966 plan is a considerable increase in the delivery of farm machinery.

The economic committee and deputies Yelena Demina, Suren Movseyan and Tatyana Nikolayeva are not satisfied with the 1966 plans for placing young people in jobs. I want to inform them that Gosplan and the trade unions are jointly working on further steps to be submitted to the government for approval very shortly.

Deputy Georgi Gaile from Latvia, Givi Djavakhishvili from Georgia and Shafik Chokin from Kazakhstan have each recommended the construction of new hydroelectric power stations in their republics. We see no present need for them. Stations soon to be operating, those now under construction and those scheduled for construction will adequately supply these republics with power until 1970, and at a lower production cost.

I have been instructed by the Council of Ministers to state that all recommendations and all comments made by the committees and deputies with regard to the 1966 plan for economic development will be given careful consideration and will be acted upon.

Garbuzov. The Council of Ministers accepts the recommendation of the three committees for increasing revenues by 120.6 million rubles. We agree with the committees as to the sources for the extra revenue: the turnover tax, in view of expanded output and sales, should yield an extra 81.8 million rubles, and the amount allocated to the state from the profits of enterprises should bring in 38.8 million rubles.

We have also approved the committee recommendations for expenditures from these funds: 60 million rubles for improvement of district centers, 30.7 million for equipping hospitals, 18.5 million for children's health resorts, plus an extra 11.4 million rubles to cover the cost of medicines provided free.

Some deputies have pointed out that not all the local finance agencies do sufficient checking up on expenditures, and the finance ministry will take further measures to tighten control centrally as well as locally.

Deputy Abdurakhman Daniyalov made a proposal that the Councils of Ministers of autonomous republics be given additional funds to come from a levy on the profits of enterprises using local raw materials. Deputy Georgi Antosyak proposed that all turnover tax money received above plan should remain at the disposal of the republics. And deputy Tonurist thought it advisable to establish a uniform system for distributing state farm profits, those scheduled by the plan and those earned above plan. The finance ministry will study these and other recommendations made by the committees and deputies and submit its proposals to the government. The decisions taken will be reported to the deputies in due course.

After these closing speeches the bills were enacted into law.

What Guarantees Are There?

The recommendations that were incorporated into the bills will be carried out, since they are now law. But what about the recommendations the ministers promised to look into? Is there any assurance that the government bodies will not pigeonhole them?

There are such assurances and they are perfectly good, based on past experience. The year before the Supreme Soviet also approved a plan and budget —for 1965. And at that time, at the fall session of 1964, the same promise was made that the recommendations which were not included in the resolutions would be studied. What happened to them?

Let us check with some of the deputies who submitted proposals in 1964. We address our first question to Georgi Popov, a deputy from Leningrad:

"You asked that when appropriations are made for housing construction funds also be appropriated at the same time for schools, hospitals and stores in the new blocks, since otherwise the construction job, to use your expression, would be incomplete. The residents would not have the facilities and conveniences they need. Has this question been decided to your satisfaction?"

"Not entirely. As far as construction jobs paid for by the state are concerned, everything is all right. My criticism was met. But more recently we have had a big increase in cooperative housing construction in Leningrad. Members of these cooperatives pay in to build their apartment house, but they don't pay in for other construction that goes with housing. Which means that we have the same problem of incompleteness all over again and have to figure out how to solve it."

Deputy Rakhmankul Kurbanov from Uzbekistan complained at the 1964 session that his republic was not getting a big enough appropriation for housing construction.

"What happened with your complaint?"

"I'm satisfied. We got a considerably larger appropriation for the purpose in 1965, and for 1966 we are getting so much money that we should be able to increase our housing construction by 25 per cent. That's fine, and I really can't ask for more. For the present anyway. It won't solve our housing problem, but it will make a big dent."

At the 1964 session Yegor Savvinov, a deputy from the Yakut Autonomous Republic, took the floor to speak on diamond mining in his republic. He said:

"No industry gives such big returns as diamond mining. And yet Gosplan scrimps on appropriations for it. Yakutia can supply a lot of diamonds at a cost of production much lower than the present if the industry is expanded. The republic should get an additional 10 million rubles for 1965."

"What effect did your speech have?"

"The USSR Council of Ministers gave the Yakutalmaz (Yakutia Diamond) Trust an extra 11.9 million rubles from its special fund," he replied.

"That's more than you asked for."

"So it is. When we talked over how much to ask for, we decided not to squeeze too hard. But after my speech we were asked to submit exact estimates, and they gave us what we specified. We came through on our end. We fulfilled the 1965 diamond output plan ahead of time."

Boris Kulik, a deputy from the Urals, had this to say at the 1964 session:

"Machinery manufacturing plants find it hard to get qualified machine operators. The work of an operator on a complicated machine takes more and more skill, but his pay stays low. That's why people don't want to become machine operators."

"Did your speech produce results?"

"No, I regret to say. Shortly after the Supreme Soviet session the Committee on Labor and Wages and the Central Council of Trade Unions jointly decided to raise machine operators' wages 15 per cent. But that's not enough. It takes two years' experience on a machine to turn out a skilled operator. But to become a founder or molder, a month's training is enough, after which a man gets good pay. Obviously, when men come to a factory looking for jobs where the work is easier and the pay higher, they are not going to become machine operators. No, the problem of the pay of operators in machine-building plants it not solved yet, and I'll keep on raising the question until it is."

Speaking at the 1964 session of the Supreme Soviet, Mohammed Gapurov, a deputy from the Turkmen Republic, said:

"Construction of the first and second sections of the Kara-Kum Canal cost 213 million rubles, and the cotton grown on the land irrigated by the canal has already yielded 600 million rubles. We asked that construction on the third section be started in 1965."

"And what was the response?"

"At the time I made my speech the draft of the third section project was not finished. The designers assured us that two weeks would see it completed, but they let us down. It was not ready even by the end of January 1965, when the Council of Ministers discussed our proposal. The government nevertheless appropriated funds for the initial work and told us the full amount would be available when the technical documentation was presented. Now construction is in full swing."

That is how government agencies responded to the speeches deputies made at the 1964 session. Much the same thing will be true this time. The guarantee lies in the concluding clauses of the plan and budget laws. They both read:

"The USSR Council of Ministers is instructed to consider the proposals and comments set forth in the resolutions of the committees of the two chambers and the views expressed by the deputies at the Supreme Soviet sessions and make appropriate decisions."

1965

The End

Twenty-odd years ago. The horror, hopelessness and utter futility of war. Photo by Victor Kinelovsky

YOUR QUESTIONS ON COMMUNISM

YOU MAINTAIN THAT FREEDOM OF THE INDIVIDUAL AND DISCIPLINE COEXIST HARMONIOUSLY IN SOCIALIST SOCIETY. DO YOU NOT THINK THAT THE FORMER PRECLUDES THE LATTER?

The Philosophical Dictionary (published in Stuttgart, the Federal Republic of Germany) has this to say on the question: "Freedom is the opportunity to behave as you wish. Freedom is freedom of will."

Heinrich Walk, professor of the history of religion at the University of Bavaria, FRG, develops this thesis: "Every day experience shows that if we see it without prejudice, a healthy man can behave as he wishes, proceeding from his free will."

To answer Professor Walk: You can plant a tree with its roots in the ground, and you can also, proceeding from your free will, plant it with its branches in the ground. Man, however, plants a tree with its roots in the ground, because he knows that only then will it grow and bear fruit. This is the way nature wants it, what we have here is a necessity that must be reckoned with.

Consequently there is an element of necessity in the idea of freedom. Here is what Frederick Engels said about it in his *Anti-Duhring:*

"Freedom of the will therefore means nothing but the capacity to make decisions with knowledge of the subject. Therefore the freer a man's judgment is in relation to a definite question, the greater is the necessity with which the content of this judgment will be determined; while the uncertainty, founded on ignorance, which seems to make an arbitrary choice among many different and conflicting possible decisions, shows precisely by this that it is not free, that it is controlled by the very object it should itself control."

Incidentally, in the case of the tree, there is only one side manifesting its particular will. The situation is, of course, more complicated when you have to deal with people who also have their particular "free will."

Imagine yourself speeding through the streets, paying no attention to the red lights and perhaps even knocking down a couple of pedestrians quietly crossing the street (serves them right—how dare they restrict your freedom of movement).

Though this is an outlandish example, it answers the question you put. Apparently there is no freedom without discipline. You might cite as an exception the case of the son of doting parents who indulge his every wish. But what happens when he grows up and tries to act the same spoiled brat in the world outside the family

PLANNING AND ECONOMIC LEVERS

BY REM BELOUSOV
Master of Science (Economics)

STATE PLANNING implies purposeful economic guidance, the concentration of funds, resources and manpower on major, key and critical sections of the economy, with the general welfare in mind.

One can argue whether or not planning is the best and most progressive way to guide a country's economy, but for us the indisputable fact is that with planned management we were able, in the course of one generation, to transform backward agrarian Russia into a leading industrial power, to break through into outer space and to head for the moon.

Here are the figures for the last seven years. In that period our industry reached a productivity level that it took the United States 18 years to achieve. Our steel output went up from 55 million metric tons in 1958 to 91 million in 1965. It took the United States 14 years to do that. The level of cement production we reached in seven years took American industry 28. Our oil extraction has saved a comparable 13 years. Another comparison—this one most indicative—our building materials industry today manufactures more goods than any other country. We are first in the world for volume of capital investments in industry and agriculture. And now that we are conceded the world's second industrial power, we have begun to reshape our economy, instituted a reorganization which will affect every facet of our economic life.

Why are we doing it?

Efficiency Is the Reason

When you build a house, you begin by laying the foundation. You put down your parquet floor only after the house has a roof. The same holds true for the economy. We started with the material and technical foundation, with the power engineering, metallurgy, chemistry, machine-building and building materials industries an industrially developed country must have. That made for a certain economic one-sidedness. We had to channel funds, raw materials and manpower resources into heavy industry development. This had its positive and negative aspects. On the negative side it was responsible, among other things, for less effective use of basic production funds and serious lags in agriculture and housing construction.

In the past we had to put up with these deficiencies, to make these sacrifices. But today the situation has changed. Now our major economic task is to secure further considerable industrial growth and high and stable rates of agricultural growth to be achieved through the maximum application of scientific and technological research and greater labor productivity, thus achieving a higher standard of living and more complete satisfaction of the material and cultural needs of all our citizens.

What this means is abandoning our old one-sided approach, moving toward a balanced development of all branches of the economy, but with the emphasis on living standards.

We can do that only by more efficient production. And that, in turn, demands a change in methods and forms of planning.

Several years ago, for instance, we found out that certain types of goods (not only consumer goods but machines and other industrial equipment) were not selling. Although these goods were in demand, nobody wanted to buy them. The explanation? Factories were so busy turning out goods in quantity to meet their production quotas that they paid comparatively little attention to quality. And once the acute shortage was over, buyers would not accept shoddy goods.

Another thing we found out. We spent large sums on capital construction, buying equipment and building shops, without enough consideration of the size and the immediacy of the return the investment would bring. As a result, large sums were frozen. There were long delays before investments were repaid in the form of manufactured goods and a consequent drop in the income per ruble of basic assets.

These and other considerations called for a re-evaluation of outworn forms and methods of economic management. In the past our planning problems were rates, volume and natural balances; today they are efficiency, better production patterns and higher quality. It became evident that the old, largely administrative methods of directing the economy had to give way to economic methods. Economists and business executives wanted the individual enterprise to be given more independence in planning its production and selling its goods.

What Government Controls Are Left?

The state still represents the economic interests of all the people, as it did previously. It still sets balanced ratios of development for the various branches of industry, still allocates capital investments, still trains personnel. State planning agencies still regulate the over-all pattern of production capacities so as to establish a balance between production and consumption that will avoid inflation and crisis.

The state must still approve a factory's production plan, but with a difference. To cite an example, the Moscow Hammer and Sickle Metallurgical Plant now has to meet only 9 indices instead of the previous 80. What is fixed by the state is the volume of goods to be

group? The world wil[l] not take it, he learns quickly enough and usually the hard way. [M]an cannot live in a socie[t]y without fulfilling certain definite obliga[t]ions to others.

Talk about freedom [a]nd you must admit the elem[e]nt of discipline. The element of the re[a]sonable also enters into the p[i]cture.

Hegel said that f[r]eedom is only self affirmat[i]on, a very apt definition from the vie[w]point of psychology. Ask an employer and a hired worker what th[e]y mean by freedom and you g[e]t two different answers. The employe[r] will say that freedom is t[h]e system that gives him the lion's sh[a]re of the profits from his b[u]siness, and the hired worker will say t[h]at there would be much mor[e] freedom if the profits were distributed [m]ore evenly.

That these two peop[l]e should mean such differe[n]t things by the word "freedom" is to be expected. The question her[e] is how one may want unrestricted freed[o]m at the expense of o[t]hers, for example. But there is also the a[l]ternative—letting reasonable necessity restrain your desires by r[e]cognizing the fact th[a]t freedom is not the privilege of the select fe[w].

Socialism says: "He who does not work neither shall he eat!" This is an acknowledgement of the reasonable necessity of working. To operate by this principle is to broaden the concept of freedom, or, to use a comparison, it is telling ou[t] a driver that he must stop at the red light. When everybody does this, everybody is free, because everybody recognizes the necessity of discipline.

There is no contradiction between freedom and discipline.

sold, *i.e.*, what should reach the consumer. Additional indices are production of a definite quantity of certain types of items, the total wage fund, what the plant pays the state for its use of equipment, buildings, raw and other materials, new kinds of items the plant is required to manufacture, profit and profitability. In all other areas the plant has a free hand. As a matter of fact, even the indices that come down from the top are aimed at stimulating local initiative and independence.

What Is Profitable for a Plant?

A factory has to find buyers for the goods it manufactures. It has to study demand, gauge the market, and make contact with consumers. Some firms have branched out from the production end. They also sell the items they manufacture. This stimulates business. It presents no problem since key economic factors are regulated by the state.

Factories today are finding it profitable to make goods of the highest possible quality. Such goods are highly valued and find a ready market. The result is a better paying enterprise.

Why does the profit index occupy such an important place in the new scheme? Its advantages over other planned indices are that it is a better yardstick of efficiency, a better measure of the economic effect of expanding production, cutting costs and improving quality. One further consideration—profit gives the personnel of a plant more incentive.

Incentives and Efficiency

Higher remuneration for work has a great deal to do with productivity and the quality of the items turned out.

The new system of management and planning makes it possible for an enterprise to reward its personnel more adequately for increasing the volume of goods sold, for cutting costs, etc.

How is it done? Part of the profit a plant makes goes into what is known as an encouragement fund for bonuses, grants and other such awards. The size of the fund will depend, first, on the rate of growth of goods sold and, second, on the level of a factory's profitability.

Experience shows that the new system works. The 43 enterprises that started to operate by the new system as of last January 1, increased the volume of goods they sold by 25 million rubles over and above plan, and their profits by 11.4 million rubles. A considerable part of this money remains at their disposal. To use the Volgograd Red October Works as an example: Of its 800,000 rubles of additional profits, 720,000 rubles is going for bonuses, for building apartment houses for the plant staff and other welfare projects.

Obviously, we are not giving up planning. What we are doing is making it more flexible, adapting it to our present-day needs, using a variety of economic levers—price, value, bonuses, credit and profit.

IN THE NEXT ISSUE

Ever since 1958, when Van Cliburn scored a brilliant success at the First International Tchaikovsky Piano and Violin Competition, this contest has been a showcase for outstanding young musicians from all over the world. As in each of the two previous events, the International Tchaikovsky Competition held this year spotlighted some unusual talents. Soviet and American contestants made a particularly strong showing. In a future issue music critic Natalia Lagina will report on the prizes and the prize winners.

After 197 turbulent days of struggling to remain in power the Provisional Government was trapped and defeated in its last stronghold, the Winter Palace. Its fall marked the beginning of a new era in the history of Russia. October 1917: New World in Birth, the third article in the series on the Russian Revolution, tells about the events that developed into the Socialist Revolution and about the first days of the Soviet Republic.

Sergei Gerasimov was a painter who, like the writers Turgenev and Paustovsky, praised the glories of the Russian countryside. He was a master of the landscape; his brush miraculously captured the calm and poetic beauty of Central Russia. But he also painted monumental works on the vital issues of the day. Before he died two years ago, Gerasimov wrote what was to be his last public statement. In it he called for creative honesty and fidelity to one's ideals. Full color prints accompany the story in the forthcoming issue.

Situated within the Arctic Circle near rich deposits of nickel and other nonferrous metals, Norilsk is the northernmost modern city in the world. It is a city built on eternal frost. There is nothing unusual in many-day blizzards and temperatures of 50 degrees below zero. It is a city with ambition that meets its problems with bold solutions. The plan to put a roof over part of the city to provide it with an artificial climate is a good example. Indeed, Norilsk is a city unlike any other. See for yourself in the next issue.

Other articles in the November issue are:
Bartolomé de Las Casas—about the Spanish priest who defended the interests of the Indians in Latin America against the abuses of the gold-lusting conquistadors; Man—Factory—Country—the effect the new economic reform will have in terms of people; Letters, More Letters—Masha Rolnikaite writes on the mail she has received since publishing her diary of the years she spent in the Vilnius ghetto and in nazi concentration camps; Sports and Cybernetics—how computers can be used to develop better training methods and to find out what man's limits in sports performance are; Belozero Monastery of St. Cyril—a photo story on one of the finest examples of late fifteenth to late seventeenth century Russian architecture; More About Candidate-Students—the latest developments on this controversial question, reported by Anatoli Agranovsky.

NOVOSTI PRESS AGENCY

SOVIET LIFE

Fedoskino A village that competes with Palekh in the production of beautiful miniatures.

Soviet Jazz On jazz musicians and the sensational concert at the Prague jazz festival.

COMING SOON

SCANNING SPO

THE AUTUMN WINDS blow colder. Time to place flannels and woolens in easy reach. This could be the headline hockey season, what with coaches and fans already thinking of the world championships. But at least three million boys in the country have their eyes on an event no less exciting, even though it ranks somewhat lower on the glamor scale—the Golden Puck Tournament for 11- to 14-year-olds.

This tournament is open to backyard teams only. Two years ago the sponsors of the play-off announced that at least two million boys had taken part. Last year the number jumped to three million. Now that the event has the top coaches talking of international contests, we may expect even more boys to take part.

What's hardest about organizing a backyard team? That was the question I put to players, parents and officials. The players insist that it's picking a snappy name for the team. Call it "Little Eagles" (silver medal last year!) or "Tornadoes," and you can be sure of a turnout. Call it the "Good Boys Club" or "Teacher's Pets" and you'll find every youngster in the neighborhood giving ice hockey the cold shoulder.

Parents say the big problem is equipment. The boys have not yet grown up to regulation size, and sporting goods factories are still slow in responding to the needs of this bracket. Coaches back parents, and the Hockey Federation has even taken steps to see to it that the proper gear and equipment are provided. Sporting goods executives say they can't meet the demand. Hockey popularity is growing so fast it will be some time before the factories catch up. Said one executive: "My telephone is constantly ringing. The big boys want more equipment their size, the junior players want more, too, and now this backyard tournament." I reminded him that some of the coaches were talking up hockey for preschool children. "When that happens, I'll quit," he bellowed with a harassed look and turned as his telephone began to ring.

Experienced coaches are also at a premium. They are badly needed by the minor and major league teams. The backyard players are coached by older boys who have played the game themselves and in some cases by players of clubs higher up on the scale. However, once the team is formed, volunteer coaches seem to appear from nowhere.

While technique is not the backyard player's strong point, his enthusiasm and will to win might well be envied by the big league clubs. The big league coaches hunt out these games in their search for talent. Coach Anatoli Tarasov calls them reserves for big hockey. He would like to see backyard players given international stature. Last year a boys' team was invited from Czechoslovakia. This was a first. Coach Tarasov is looking forward to the time when teams from the American continent will also be competing in these tournaments.

With so many local teams in the game, aren't the available rinks crowded? Not at all. Most cities have homemade rinks. An area is cleared (usually in the backyard of a big apartment house), flooded with the janitor's garden hose and in a few hours it freezes over. As you might expect, the size of the rink and the quality of the ice vary from block to block.

Training begins early in the season. Many teams are already practicing. You can do without ice at this stage, I was told. What the player has to learn now is how to handle his stick and pick out his teammates' voices from the many others at the rink. And the voices are indeed many. The junior player is not merely a member of a team, he is simultaneously a general leading his army into attack. And generals always shout their orders. Then on the sub bench each boy waiting his turn has to yell his advice to the players already on the ice. The fans, too, are decidedly partisan, and each of them has a word to put in.

"Couldn't the noise be toned down a bit?" I asked. "Certainly," an official assured me. "But that would take the fun out of the game." So the noise stays.

A good idea of the scope of the Golden Puck preliminaries can be gathered from the setup in Kuibyshev on the Volga, where the silver medal Little Eagles come from.

Their coach is Pavel Zavalsky, a factory worker who played the game when he was younger. The boys started training in August with field hockey. The neighborhood council liked the idea and bought 10 pairs of hockey skates for the use of boys who didn't have their own. Eight competing neighborhood teams were picked from a population of 900 boys. After a local tournament on the knockout system, they made the city tournament in which 300 backyard teams competed.

The backyard preliminaries stimulated school hockey, and individual classes formed their own teams.

The finals for the Little Eagles was a big event. For many it was the first time they had been away from home and on their own. Seventeen boys made the trip. In Moscow a school was their host. They stayed in its dormitory, ate their heads off, did a lot of sightseeing and had a wonderful time—almost enough to compensate them for not winning the gold medal. Each boy was presented with a hockey stick autographed by the squad that won the world championship—the biggest thrill of the trip.

In Moscow autumn weather is always uncertain. Many youngsters turn to indoor sports. Prominent on the list is airplane modeling. Airplane modeling, chess and checkers are considered sports in the Soviet Union, and the same system of grading is used as for the conventional athletic events.

In my school years airplane modeling meant a set of bamboo sticks, tissue paper, glue and rubber bands—and the hope that your model would get off the ground for a short spin. Nowadays modeling keeps in step with the latest in aircraft engineering. Witness is the club organized at one of Moscow's airfields—Tushino, where the world aerobatics championship was held just a few months ago.

The boys and girls here laughed at my story of modeling 30 years ago. The distance record then was 385 feet, and the best models were airborne for no more than three minutes. The current record is held by Yevgeni Borisevich of Byelorussia. His model, powered by a piston engine, flew more than 230 miles in a straight line. And a radio guided model made by Nikolai Malikov of Tula, a city 100 miles or so south of Moscow, stayed in the air 10 hours 38 minutes.

In my day we were happy if a model got off the ground. Now the youngsters want something more. They make midget planes weighing ounces that can go through their paces in an ordinary room, as well as huge things with a wingspread of 10 feet. Some of the models now displayed do aerobatic stunts and develop high speeds. The national champion, Yevgeni Mosyakov, has a microplane that does 140 miles an hour.

The younger generation is very scientific-minded; that explains the popularity of the new club. It helps modelers design and make their planes and engines, and even the jet fuels they need. The club also lends a helping hand to those interested in radio equipment and all sorts of automatic gadgeting. It supplies technical information about all the innovations in the field and the expert advice of a consultant.

When I inquired at the club about membership requirements, I expected them to tell me that a master's degree was the minimum. It seems, however, that membership is open to anyone. The initiation fee and annual dues cost about as much as two packs of cigarettes.

This club at the Tushino airfield is not the only one. There are even clubs for future spacemen. It's lots of fun, the youngsters tell me, some of them launch three-stage minirockets. Parents and educators are also pleased at the added stimulus to study science at school.

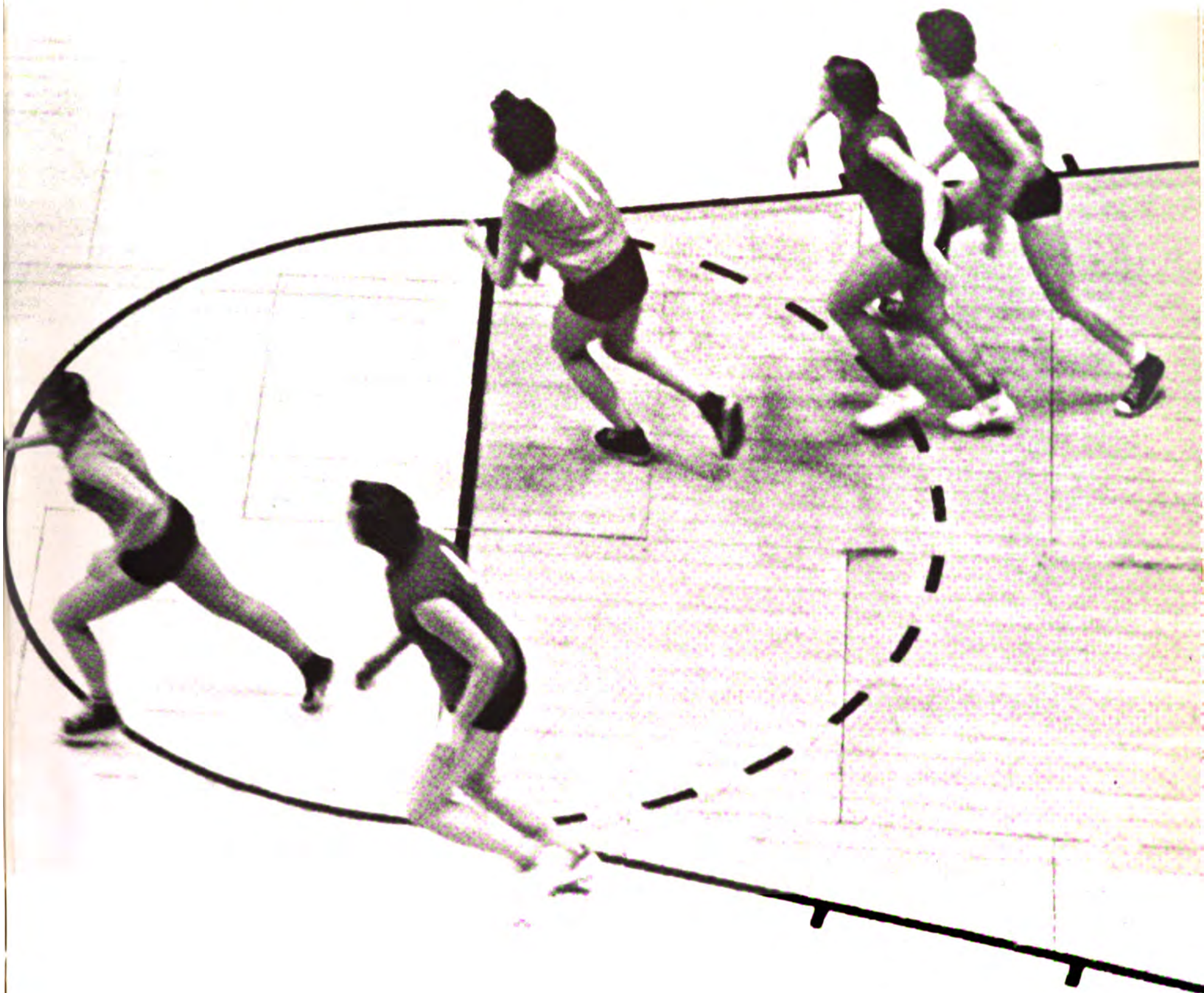
October, says the calendar on my desk, is the time for the international basketball games. Running down the prospective candidates for the girls' national, I came across a name I've been seeing in the headlines since 1959. Skaidrite Smildzinya, aged 22, is one of the top scorers and a veteran of the all-USSR team. The selectors picked her when she was only 16. They were impressed by her height—she stands 6 foot 2 when she smiles.

Skaidrite Smildzinya comes from Riga, where basketball is one of the top sports. She started playing with the TTT club subsidized by the trade unions (TTT stands for Tram and Trolley Trust). This year the TTT girls, captained by Skaidrite, won the national title.

At one international meet a sports writer watched her spellbound. "With her height and speed she's the answer to any coach's prayer! I'd give her life membership on any championship team!"

But basketball is not the only thing on this young lady's mind. Skaidrite Smildzinya is a sophomore in the School of Mechanics of Riga's Polytechnic Institute. She wants to become an engineer, and her scholastic record indicates that she will make a good one. As good, if not better, than she is a basketball player.

RTS WITH VICTOR KUPRIANOV



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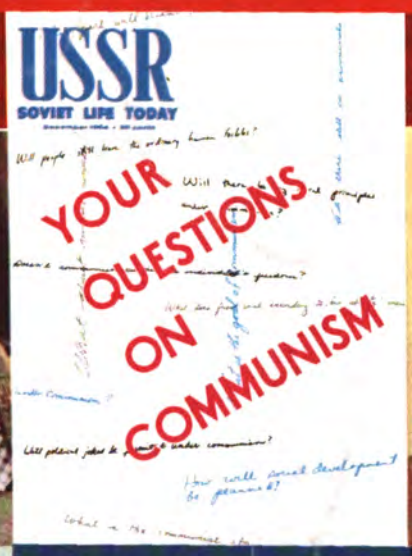
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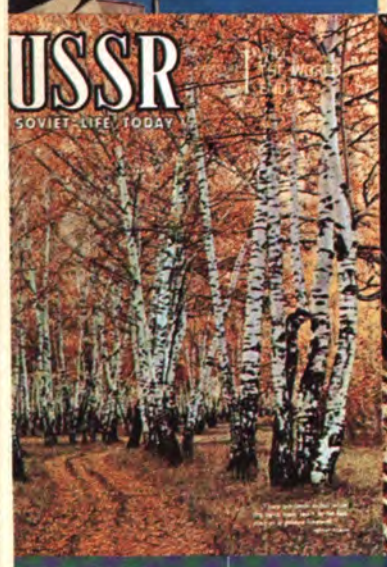
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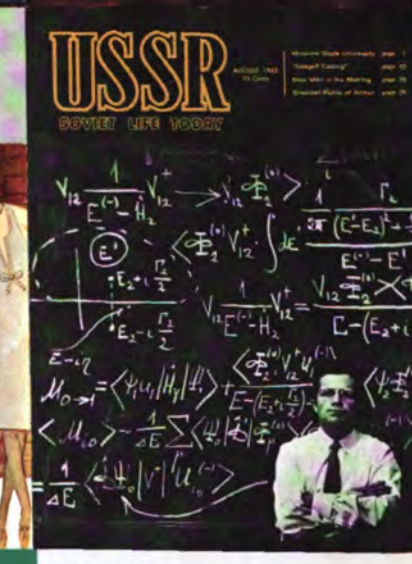
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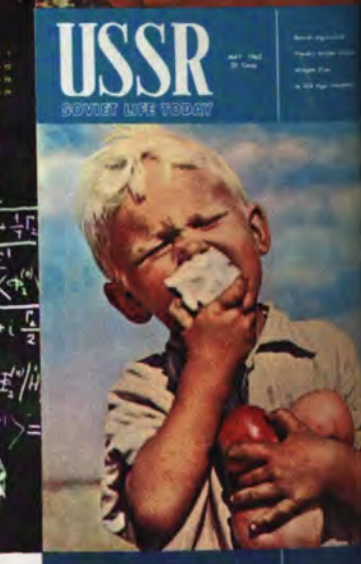
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Always be a sunbeam
Always be my Mommie by
Always be little me.

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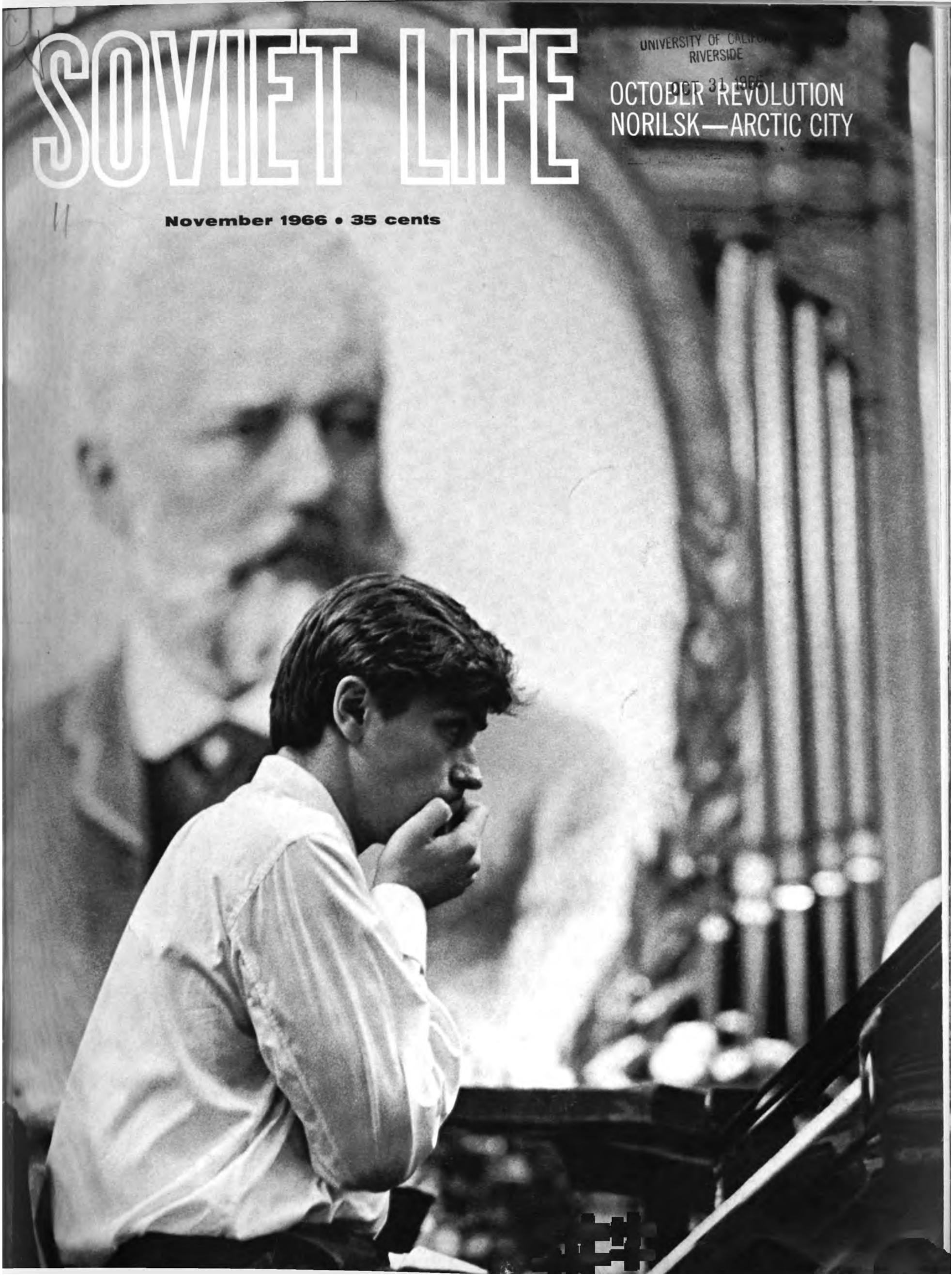

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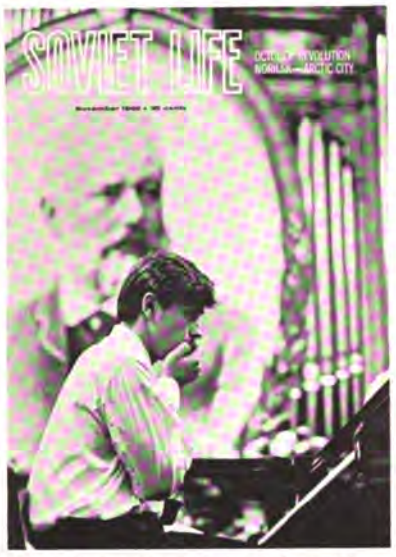

Front Cover: One of the 250 musicians who tried for honors at the recent Third International Tchaikovsky Competition.

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Editor in Chief (Moscow Editorial Board): Yuri S. Fantalov, APN, Pushkin Sq. 2, Moscow, USSR.

Editor (Washington Editorial Board): Alexei S. Belokon, 1706 18th St., N.W., Washington, D.C., 20009.

Managing Editor (Washington Editorial Board): Alexander L. Makarov, 1706 18th St., N.W., Washington, D. C., 20009.

Art Director (Moscow Editorial Board): Marina T. Zabolotskaya, APN, Pushkin Sq. 2, Moscow, USSR.

Circulation Manager (Washington Editorial Board): Vadim P. Zaitsev, 1706 18th St., N.W., Washington, D. C., 20009.

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"Oh Mother-Revolution! A heavy threat,
The triangular frankness of the bayonet . . ."
Edward Bagritsky

OCTOBER 1917:
New World in Birth

By Samuel Khesin
Master of Science (History)

AN AUTOMOBILE displaying the American flag sped through the unquiet streets of Petrograd on the morning of October 25, 1917,[1] its shining body reflecting the glow of bonfires around which Red Guard patrols of soldiers and sailors were gathered: Alexander Kerensky was fleeing the insurgent capital in an American Embassy car.

A little more than 100 days earlier, on July 8, Kerensky had become the head of Russia's Provisional Government. That was after government troops had shot down a popular demonstration in Petrograd, thus bringing an end to dual power and the possibility for the peaceful development of the revolution. Assuming the post of Premier, Kerensky announced that he proposed to save Russia and weld her unity with blood and iron.[2]

The government he headed decided to crush the revolution by force, with the main blow directed against the Bolshevik Party. Several Bolshevik newspapers were closed down and many of the Party's leaders arrested. Vladimir Lenin went into hiding on a deserted islet in a lake outside Petrograd.

The Provisional Government issued one warrant after another for the arrest of anyone who carried on Bolshevik propaganda; it banned meetings and rallies in army units and reinstituted the death penalty at the front; it ordered the weapons of workers' detachments confiscated and peasant disturbances crushed by armed force.

All the enemies of the revolution supported the policy of the Kerensky government: the Constitutional-Democrats (Cadets), the Right Socialist-Revolutionaries, the Mensheviks and the Monarchists. Confident of victory, the reactionary forces clamored for the harshest measures against the revolutionary masses. The ambassadors of the Western powers, too, insisted on merciless action. The British ambassador George Buchanan wrote in his memoirs that he urged the Russian government to apply the same disciplinary measures in the rear as had been sanctioned at the front.

The government was perfectly willing to comply with these demands, but it lacked the power. The gleeful statement in *Rech* on July 7, 1917, that "an extremely sharp turn in feeling has occurred and Bolshevism has died a sudden death," proved nothing but wishful thinking.

The Kornilov Revolt

The July attack on peaceful demonstrators in Petrograd stirred up the whole country. Mass demonstrations of workers and soldiers were held in 40 cities and swept the frontline. Neither Cossack knouts nor the shooting down of demonstrators could quell the popular wrath. The people had seen the true face of the Provisional Government and the forces standing behind it; they began to realize that the revolution would have to be won by force of arms.

The orders of the Provisional Government remained on paper. The Bolsheviks were not crushed, nor did the Petrograd workers surrender their arms. To replace the closed Bolshevik newspapers, new ones were published immediately. The influx of new members into the hounded party grew: in Petrograd alone more than 4,000 workers and soldiers enrolled in the last three weeks of July. Ever more peasants joined the struggle. In July, 1,122 cases of peasant unrest in the countryside were reported, four times as many as in May. The revolution was gaining momentum.

At that turning point the situation had to be assessed soberly and new tactics worked out, and here Lenin played the main part. The government sleuths ordered to track down Lenin and kill him "in an attempt to escape" roamed all over Petrograd and its environs. Though in hiding, Lenin was in close touch with the Party. His articles were delivered to Petrograd regularly and published in the Bolshevik press. Taking every precaution, his comrades visited him for counsel and instructions.

Lenin guided the preparations for the Sixth Congress of the Bolshevik Party which was held in Petrograd from July 26 to August 3, 1917. The 267 delegates from all parts of the country represented 240,000 Party members, three times the membership three months earlier. The congress was held secretly and changed meeting places three times.

The congress analyzed the situation and, overcoming the vacillation of some delegates, came to the conclusion that Russia was on the threshold of a nationwide crisis which could be resolved only by taking power away from the bourgeoisie and the landowners. The Soviets, in which the Socialist-Revolutionaries and Mensheviks were in the majority, had become a mainstay of the Provisional Government. For that reason the congress, on Lenin's motion, temporarily withdrew the slogan "All power to the Soviets!" and decided to prepare for a popular uprising.

The attempt of General Lavr Kornilov to establish a military dictatorship was the culminating point of the counterrevolutionary offensive. A dictatorship was demanded by the Russian tycoons Pavel Ryabushinsky and Mikhail Tereshchenko, by the leader of the liberal bourgeoisie Pavel Milyukov, the big landowner Mikhail Rodzyanko, many generals and, last but not least, the representatives of the Western powers. General Knox, head of the British Military Mission in Russia, in a conversation with American Colonel Raymond Robbins declared that Russia needed a military dictatorship.

When Kornilov moved his Cavalry Corps commanded by General Alexander Krymov on Petrograd, the people went into action. At the call of the Bolsheviks 40,000 of the city's workers enlisted in the Red Guard. They were joined by soldiers of the Petrograd garrison and by Baltic sailors. The entire country stood behind the working people of Petrograd: more than 200 local Soviets declared their readiness to fight against Kornilov.

This time, however, the guns remained silent. The drive of the counterrevolutionaries was blocked on the approaches to Petrograd. Railwaymen would not let the troop trains through. General Pyotr Krasnov, a participant in the revolt, wrote, "On someone's orders a locomotive would be coupled to a train which would be pulled for two or three stages and then left at some out-of-the-way station without fodder for the horses and food for the men." [3] Persuaded by Bolshevik propagandists, Kornilov's soldiers refused to obey the orders of their officers. Perhaps the only victim of the campaign was General Krymov, who in desperation committed suicide. The French newspaper *Excelsior* was annoyed that "Kornilov turned out to be a braggart, not a dictator."

Paradoxical as it may sound, the counterrevolutionary attempt served as a catalyst in speeding the development of the revolution. It threw the spotlight on the aims of the reactionary forces and showed up the political bankruptcy of the Provisional Government. Even those who had believed Kerensky's verbal antics were no longer convinced.

After the failure of Kornilov's revolt, the Soviets regained their strength. Although the Mensheviks and Socialist-Revolutionaries were still predominant, once again there seemed to be a possibility that the Soviets could take over peacefully. The Bolsheviks wanted the opportunity used, but the Mensheviks and Socialist-Revolutionaries again failed to heed the voice of reason. They made another deal with the bour-

[1] Here and elsewhere in the article the dates given are according to the Old Style (Julian) Calendar, then used in Russia. The New Style (Gregorian) Calendar was adopted by the Soviet Government in February 1918.

[2] *Rech* (newspaper of the Constitutional-Democrats), July 11, 1917.

[3] Pyotr Krasnov, *On the Home Front*, p. 26, Moscow-Leningrad, 1926. Russian edition.

geoisie: they supported the hastily concocted five-man directory set up by the Provisional Government and headed by the selfsame Kerensky.

The people's patience was coming to an end. Not a single one of their demands had been met. Workers in the cities were on the verge of starvation; the peasants saw no sign of the land question being settled in their favor. Strikes flared up in Baku and the Donets coal fields, in the Moscow industrial area and the Urals. Peasants were seizing the landed estates. The soldiers continued to rot in the trenches and the word "peace" was heard ever more frequently at the front. The soldiers, becoming convinced that the Provisional Government was determined "to fight until victory," were getting out of hand, doing more and more fraternizing with the Germans and Austrians. "The attitude to war is most negative," the command reported. "The striving for peace is becoming widespread, the best proof of which is the success of Bolshevik slogans and ideas at the front."

The way out lay in the decisive steps proposed by the Bolsheviks: the nationalization of large-scale industry and the banks, the establishment of workers' control over production, the distribution of the land to the peasants, the offer of a just peace to all belligerents. But these measures ran counter to the interests of factory owners, bankers and landowners, the reason the Provisional Government did not press for them. The Socialist-Revolutionaries and the Mensheviks again and again tried to pacify the people by forming different government combinations. The Provisional Government lasted 197 days, and 57 of them were spent on cabinet crises. The Bolsheviks declared outright: "The only way out of the situation is to overthrow the Provisional Government and hand over all power to the workers and peasants."

The Bolsheviks again raised the slogan "All power to the Soviets!" But this time it was a call for an uprising. Moreover, the Soviets themselves had changed. They had many more Bolshevik deputies than before July. On August 31, the Petrograd Soviet adopted a Bolshevik resolution demanding that power be handed over to the proletariat and the poor peasants; the Moscow Soviet did likewise on September 5, and the Kiev Soviet, on September 8. In one day alone, September 1, 126 local Soviets demanded that all power be turned over to the people.

Lenin Presses for Action

The Central Committee of the Bolshevik Party met in Petrograd on October 10. For the first time since the July events, Lenin was present. A few days earlier, disguised as a locomotive fireman, he had returned to the capital. He characterized the situation in the country as favoring the success of an uprising and proposed that practical preparations be made at once. Eight members of the Central Committee supported his proposal; two, Lev Kamenev and Grigori Zinovyev, were opposed. In their opinion, "conditions for the victory of a socialist revolution were not yet ripe in Russia."

A few days later the Central Committee met again. This time the meeting was also attended by representatives of the Petrograd Soviet, the factory committees, the trade unions and the garrison. All of them confirmed the readiness of the workers and soldiers to support the uprising. Nineteen people voted for the uprising, two (Kamenev and Zinovyev) voted against, and four abstained.

The Petrograd Soviet formed a Revolutionary Military Committee, the general staff of the insurrection. It consisted of Bolsheviks and Left Socialist-Revolutionaries, representatives of the trade unions, the factory committees, the garrison, the fleet and the railwaymen. This committee had the complete confidence of the soldiers and workers.

The Second All-Russia Congress of Soviets was to open on October 25 and the uprising was timed for the eve of that day. When every hour was critical, the Bolshevik leaders disagreed. Some of them, particularly Lev Trotsky, proposed to make the uprising dependent on the decision of the congress. Actually this meant postponing the uprising, a dangerous decision because it would give the Provisional Government a chance to forestall events. Others, like Zinovyev and Kamenev, opposed the uprising. But the majority of the Party leaders, Lenin in particular, insisted that it must begin on the very eve of the Congress of Soviets so that the power captured by the workers and soldiers could be handed over to that body. This point of view prevailed.

By October 24 everything was prepared. In units of the Petrograd garrison the word of the commissars appointed by the Revolutionary Military Committee was decisive. The Baltic Fleet was ready to support the insurrection at any moment. The revolution had at its command 250,000 Red Guards, soldiers and sailors, in Petrograd and its environs.

But the counterrevolutionaries were not sitting by idly. The Provisional Government was taking frenzied steps to crush the uprising. It also expected to throw into action an estimated 250,000 men. The assault force was to be made up of Cossacks and officer cadets of 60 military schools in Petrograd and elsewhere. On the eve of the clash Kerensky said: "I have large forces, and if the Bolsheviks act, they will be crushed." [4]

The government tried to take the initiative. Early on the morning of October 24 a detachment of officer cadets broke into a print shop where Bolshevik newspapers were being run off. Simultaneously the govern-

[4] Vladimir Nabokov, *The Provisional Government*, p. 60, Moscow, 1923. Russian edition.

General Lavr Kornilov (center foreground) was made Commander-in-Chief by the Provisional Government the summer of 1917. He disbanded scores of prorevolutionary divisions and introduced capital punishment at the front. The end of August he failed in an attempt to overthrow the government and set up a military dictatorship.

In the autumn of 1917 Petrograd was split into opposing camps. Counterrevolutionary detachments were concentrated around the Winter Palace, while on the other side of the city the Bolsheviks were meeting at their headquarters, the Smolny Institute. "Those days," Nadezhda Krupskaya recalled, "Smolny was brightly lit and busy as a beehive. Members of the Red Guard and representatives of workers and soldiers were coming from everywhere for instructions. Typewriters were clicking, telephones jangling. The Revolutionary Military Committee was always in session. Armored cars rumbled around the square in front of the institute, where stacks of firewood were piled, ready to be used as barricades, if necessary....Machine guns and artillery pieces guarded the entrance."On the night of October 24 Lenin left his hiding place for Smolny to take charge of the insurrection.

With the shooting down of demonstrators in July the government announced its campaign of terror against the Bolsheviks. A warrant was issued for Lenin's arrest; 50 officers of the shock battalion pledged to get him or die. Lenin went into hiding and eventually, disguised as a railroad worker, went to Finland.

The Red Guard was a vital force in the revolution. On the eve of the uprising against the Provisional Government, Red Guard battalions in Petrograd and Moscow numbered 35,000, with some 200,000 more in other parts of the country. Led by World War I veterans, they were in full preparedness, carrying their rifles to work with them.

ment had decided to arrest members of the Revolutionary Military Committee and capture the Smolny Institute, where the Bolsheviks had their headquarters. But these decisions could no longer be carried out.

The revolutionary forces were brought into play at once. The officer cadets were driven from the Bolshevik print shops. Detachments of armed workers, soldiers and sailors guarded the Smolny Institute.

The Revolutionary Military Committee moved to carry out the order of the Central Committee of the Bolshevik Party: "Act with determination, complete the overthrow of the government and the capture of power before the Congress of Soviets opens."

The Red Guards and revolutionary soldiers occupied the most important places in Petrograd. The insurrection began.

Lenin followed the events from his last hiding place, the apartment of Margarita Fofanova in a workers' district of Petrograd. A Finn named Eino Rahja was liaison man. He came at intervals during the day, bringing reports on developments in the city and taking back Lenin's notes to the Party leaders. In the evening Lenin sent a letter to members of the Central Committee: "In no case must power be left in the hands of Kerensky and Co. up to the 25th—not under any circumstances; the matter must be decided without fail this very evening or this very night." A few hours later, walking safely through the dark streets of Petrograd, he came to the Smolny Institute to lead the insurrection.

In one day the insurgents captured almost the whole city. They controlled the bridges over the Neva, the railroad stations, the post office and the telephone exchange. The power of the Provisional Government was actually confined to a small area in the center of the city. Thus far not a drop of blood had been shed, and the Provisional Government was, in effect, already shorn of power. No one supported it. Troops from the front did not arrive—they were held up on the approaches to the city. The officers' schools were blocked by Red Guards and soldiers. Any offensive against the revolutionary forces was out of the question. "It was necessary to take command at once," Kerensky admitted subsequently, "no longer for an offensive but to defend the government itself."[5]

With great difficulty the Provisional Government managed to muster a small force—1,800 officer cadets, four armored cars and six artillery pieces—to defend the Winter Palace where the ministers had sought refuge. "Doomed people, lonely, abandoned by all, walked around in the huge mousetrap, occasionally getting all together or in little groups for brief conversations."[6] This description is by Pyotr Malyantovich, Minister of Justice in the Provisional Government.

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[5] Alexander Kerensky, *From Afar*, p. 201, Paris, 1922. Russian edition.

[6] *Petrograd, October 1917. Reminiscences*, p. 442, Moscow, 1957.

Storming the Winter Palace. Diorama at the Leningrad Museum of the Revolution.

The Signal from the *Aurora*

At 10 A.M. on October 25 the Revolutionary Military Committee issued an appeal written by Lenin informing the country that the Provisional Government had been overthrown by a workers', soldiers' and peasants' revolution. What remained was to capture the Winter Palace and arrest the members of the Provisional Government.

At 1 P.M. on October 25 revolutionary detachments occupied the Mariinsky Palace, where the Pre-Parliament was meeting, and demanded the premises be cleared. Members of the Pre-Parliament who were in the palace hastened to obey.

Lenin pressed for the swift capture of the Winter Palace and insisted that forces be concentrated at strategic points. At 6 P.M. the ring around the Winter Palace was closed. The Provisional Government was asked to surrender and given 20 minutes to deliberate. The ultimatum was rejected.

At 9:45 P.M. a blank shot fired from a six-inch gun on the cruiser *Aurora* gave the signal to storm the Winter Palace. The guns of the Peter and Paul Fortress went into action, and the insurgents exchanged rifle and machine-gun fire with the officer cadets and shock troops who took up positions behind barricades erected around the Winter Palace. These defenders of the Provisional Government, however, soon saw that their position was hopeless. At 10 P.M. the women's battalion surrendered. At one past midnight firing subsided and Red Guards broke into the palace.

That was an unforgettable moment. Nikolai Podvoisky, a member of the Revolutionary Military Committee, writes in his memoirs: "Lines of Red Guards, soldiers and sailors, stumbling, falling, rising again, but never for a moment stopping in their hurricane advance came surging from the nearby streets, from around adjacent corners like menancing and malignant shadows, vaguely visible in the pale smoke-veiled light and the blood-red darting flashes of artillery and small-arms fire.

". . . The dry crackle of machine-gun and rifle fire was drowned by the solid, never-ending 'Hurrah!' of victory that filled the air. In a second . . . the cries of victory were already coming from the other side of the barricades." [7]

The struggle continued in the Winter Palace itself. Breaking down the resistance of the officer cadets, the insurgents reached the room where the ministers of the Provisional Government sat. At 2:10 A.M. the ministers were arrested and sent under guard to the Peter and Paul Fortress.

The plan of the insurrection had been carried out to the letter. All

[7] *Ibid*, pp. 105-106.

detachments of the revolutionary army had acted with coordinated precision. Step by step they had captured the vital centers and strategic places in the capital until the last stronghold of the government, the Winter Palace, had been taken by storm.

"In the middle of the night, surrounded by a strong escort of revolutionary workers and soldiers headed by Antonov, the historical procession of arrested ministers, entered the fortress," Grigori Blagonravov, who was commissar of the Peter and Paul Fortress, recalls. "By the light of a smoky oil lamp in the tiny guardroom, Antonov called the roll of former ministers. They sat soberly on the benches with scowls on their pale faces; they looked so insignificant and pitiful in the jubilant crowd of workers and soldiers which surrounded them. With flashing eyes in faces black with mud and smoke, the representatives of the insurgent people stood rifle in hand. What an astounding contrast! Antonov concluded the formalities and the prisoners were taken to their cells. The heavy door of the Trubetskoi Bastion clanged shut behind them." [8]

So ended the last government of bourgeois-landowner Russia. The uprising, in which only a very few people were killed, was over.

While the insurgents were streaming through the Winter Palace, the Second All-Russia Congress of Soviets had opened in Smolny, at the other end of the city. Its 625 delegates represented all the working people of multinational Russia. They were the envoys of more than 400 Soviets of Workers', Soldiers', Peasants', Sailors' and Cossacks' Deputies. More than half the delegates were Bolsheviks; the rest belonged to other parties or were unaffiliated.

A small group of delegates, those who most frankly wanted a compromise with the bourgeoisie and were frightened by the uprising, refused to participate. Despite that, the congress clearly expressed the will of the majority. About 70 per cent of the delegates brought the mandates of their electors who demanded that the Soviets take power. The congress met with an ovation the news that the Provisional Government had fallen. At 5 A.M. on October 26 a resolution was adopted that the congress take power. Only two delegates voted against, 12 abstained. The slogan of the Bolsheviks, "All power to the Soviets," was thus realized, and the workers and peasants of Russia became the country's masters.

The next day, on Lenin's proposal, the Decrees on Peace and Land were adopted. The Congress called upon "all the belligerent nations and their governments to start immediate negotiations for a just and democratic peace." Landed estates and czarist lands totalling more than 370 million acres were turned over to the peasantry. John Reed, an American journalist attending the congress, reported that the peasant delegates were tremendously elated.

The congress elected a government headed by Lenin. Since representatives of other parties refused to join the government, it was formed only of Bolsheviks; they were not afraid to assume responsibility for the country's destiny. Shortly afterwards, seven of the Left Socialist-Revolutionaries who supported the October Revolution and its major decrees joined the government. At the same session an All-Russia Central Executive Committee of Soviets was elected, composed of 62 Bolsheviks and 39 representatives of other parties.

At 5:15 A.M. of October 27 the congress closed. Its delegates left for various parts of the country, bringing news of the victory of the revolution and its first steps. The Soviets were taking power everywhere. In three months the revolution marched triumphantly from the Baltic coast to the Pacific and from the Caucasus Mountains to the Arctic Circle. Of the 84 big cities in Russia only in 15 was force required to break the resistance of the counterrevolutionaries and place the Soviets in power.

The victorious revolution began to rebuild the country on new, socialist lines, an enormous pioneering effort. The enemies of the revolution hoped the socialist government would flounder. "The best gun cannot replace a rickety typewriter and the bravest sailor, a modest clerk in a governmental department," a hostile newspaper wrote.

And indeed an entirely new brand of people were at the helm of state. Turner Mikhail Kalinin was elected Chairman of the Petrograd City Council (Duma). Worker Dmitri Pavlov became a member of the collegium of the People's Commissariat of Industry. Sailor Nikolai Markin was appointed office manager of the People's Commissariat for Foreign Affairs. Second Lieutenant Nikolai Krylenko was appointed Supreme Commander-in-Chief, and sailor Pavel Dybenko, Commander of the Navy. These are a few of the many thousand such examples.

In the first 75 days, the Soviet Government issued 250 decrees which laid the foundations of the new system. All national privileges and restrictions were abolished. Workers' control of production and distribution was instituted, economic management agencies were set up and the banks nationalized. The educational system was reconstructed. A new life was opening up for the young republic of workers and peasants.

But the reactionaries would not reconcile themselves to the loss of their prerogatives. They fought back bitterly. Counterrevolutionary organizations which hatched conspiracy, sabotage and assassination sprang up like festering boils on the body of the young state.

The very next day after the victory of the revolution, General Pyotr Krasnov moved the Cossack Corps under his command against Petrograd. They were defeated, and Krasnov, who was taken prisoner, was released after pledging his word never to take up arms against the revolution. But half a year later he was once again leading counterrevolutionary forces in Southern Russia. General Alexei Kaledin rose up on the Don, General Alexander Dutov in the steppes at the foot of the Urals, and General Dovbor-Musnitsky in Byelorussia. The revolution which was won almost bloodlessly was not permitted to carry through its program in peace. The country became embroiled in a fierce civil war.

The Soviet state had to set up its defense agencies: militia, court, the All-Russia Extraordinary Commission for Combatting Counterrevolution and Sabotage (VECHEKA). The revolution had to meet force with force. Lenin explained to a United Press correspondent that after the revolution even the hostile bourgeois newspapers were not shut down, and there was no question of resorting to terror. "We released not only many of Kerensky's ministers, but even Krasnov, who fought against us. Only after the exploiters, that is, the capitalists, started their resistance on a large scale did we begin to crush it systematically." [9]

"The Guard Is Tired"

The struggle grew especially sharp in January 1918. The Constituent Assembly became the banner of the enemies of the new system. Prior to the fall of the Provisional Government, the Constitutional-Democrats, Socialist-Revolutionaries and Mensheviks on various pretexts postponed convening the Constitutent Assembly. Now, however, they insisted that it be called immediately, hoping to use it as an instrument to topple the Soviet Government. They had grounds for the hope. The All-Russia Election Committee, which had been set up as far back as August 1917 and consisted mainly of Cadets and Right Socialist-Revolutionaries, had a decided counterrevolutionary majority. The slates had also been chosen before the October Revolution when the Right and Left Socialist-Revolutionaries were formally still in one party. Now votes cast for the Lefts could be claimed by the Rights as theirs. Moreover, in the brief period which had elapsed since the Socialist Revolution many people, especially the peasants, had not had a chance to realize its importance. For example, the Decree on Land, sponsored by the Left Socialist-Revolutionaries and the Bolsheviks, had not yet reached many districts of the far-flung country.

All this notwithstanding, the Bolsheviks, even after coming to power, did not refuse to convene the Constituent Assembly. On the third day of the revolution, October 27, Lenin signed the relevant decision. The elections were called for November 12, and the opening of the assembly, for November 28. The Bolsheviks reasoned as follows: if the Constituent Assembly recognizes the power of the Soviets and the decrees of the new government, then it will act as an organ of the revolution and be accepted as such by the people; should it refuse, it will thereby openly set itself against the majority of the nation.

The local election commissions, which consisted mostly of Cadets, Socialist-Revolutionaries and Mensheviks appointed by the Provisional Government, falsified the voting lists. Whole villages, factories or army units known to sympathize with the Bolsheviks were left off. In many cases, voters were not given Bolshevik ballots. Many peasants, especially in out-of-the-way places, were voting for the first time in their lives and did not understand the procedure or the difference between the ballots of the various parties. This was taken advantage of by the Socialist-Revolutionaries who listed their candidates on the Bolshevik ticket.

The elections gave the Socialist-Revolutionaries a majority: 58 per cent of the votes. The Constitutional-Democrats and other parties of the bourgeoisie and the landowners polled 13 per cent. The Mensheviks suffered a resounding defeat, getting only 4 per cent. Twenty-five per cent of the votes went to the Bolsheviks.

The Socialist-Revolutionaries won chiefly in remote districts and rural provinces. Moreover, by election day the party had split into Right and Left. On the ticket, however, they were listed as one party. Many peasants who sympathized with the Left had to vote for a single ticket, thereby actually electing Right Socialist-Revolutionaries.

The part of the nation that had fought the revolution—the workers of Petrograd, Moscow and other industrial centers and the soldiers at the most important fronts—voted for the Bolsheviks.

The leaders of the counterrevolution wanted the Constituent Assembly to open with a minimum number of deputies, well aware that many of them would not be able to reach the capital on time because of the chaotic transportation situation. The government countered with a decree, adopted on November 26, that the Constituent Assembly could be convened only if no fewer than 400 delegates were present. The Constitutional-Democrats and Socialist-Revolutionaries then decided to open the Constituent Assembly on their own. On November 28 several thousand armed officers seized the Tavrichesky Palace where the assembly was to meet. The apparent objective was to subject the assembly to counterrevolutionary pressure. The challenge was clear. Revolutionary detachments disarmed the officers and arrested several of the Constitutional-Democrat leaders. The government approved the decree "On the Arrest of the Leaders of the Civil War Against the Revolution," proposed by Lenin.

[8] *Ibid*, p. 211.

[9] Lenin, *Complete Works*, Vol. XXXIX, pp. 113-114. Moscow, 1963. Russian edition.

The news of the uprising in Petrograd reached Moscow on the afternoon of October 25. The Moscow Soviet of Workers' Deputies immediately formed a Revolutionary Military Committee. But instead of making a strong offensive, the committee spent two days negotiating with the commander of the Moscow garrison, who was trying to gain time until counterrevolutionary forces could get to the city. On the morning of October 28 detachments of cadets seized the Kremlin and shot the soldiers supporting the Bolsheviks. Fierce fighting erupted. Slowly the Red Guards worked their way to the center of the city and surrounded the Kremlin. At dawn on November 3 the officers and cadets entrenched there surrendered.

The opening of the Constituent Assembly had therefore to be delayed, and it was set for January 5, 1918, by a new government decree. At the same time, the decision was made to convene the Third All-Russia Congress of Soviets of Workers' and Soldiers' Deputies and then the Third All-Russia Congress of Soviets of Peasants' Deputies. The intent was to contrast the Constituent Assembly, which did not represent the majority of the nation, with a true people's parliament, the Congresses of Soviets.

The Constitutional-Democrats, the Right Socialist-Revolutionaries and the Mensheviks were violently opposed. The people, they knew, would stand with the Congresses of Soviets and not the Constituent Assembly. They organized a vicious campaign to prevent the congresses from convening. The Right Socialist-Revolutionaries set up a secret terrorist organization with orders to "cut down the Bolshevik top group." [10] Shortly afterward terrorists fired on an automoblie in which Lenin was returning from a meeting. Fritz Platten, a Swiss Socialist who was sitting next to him, was wounded, but Lenin escaped injury.

The Constitutent Assembly opened in the Tavrichesky Palace, as scheduled, on January 5. At four in the afternoon 80-year-old Vladimir Shvetsov, a Right Socialist-Revolutionary, took the rostrum: the parliamentary tradition was for the oldest deputy to open the meeting. In that critical situation, it was hardly an advantage for the counterrevolutionaries. The old man, who had been completely unknown until then, sounded empty and foolish. The workers and soldiers in the gallery interrupted him with shouts of "Down!"

Shvetsov kept ringing the bell, but the tumult did not subside. Yakov Sverdlov, Chairman of the All-Russia Central Executive Committee, came up to the rostrum and picked up the bell. The hall was silenced at once. In calm, firm tones Sverdlov proposed that the first point for discussion be the "Declaration of Rights of the Toiling and Exploited People." The declaration embodied the basic structural principles of the Soviet Republic. It was a legislative expression of the demands the revolution had been fought for.

"This document," Sverdlov said, "must be the basis for any action by the Constituent Assembly."

Pandemonium broke loose. The counterrevolutionary majority of the assembly flatly refused to discuss the declaration. It became absolutely clear that they would also reject all other decrees of the Soviet Government. The Bolsheviks thereupon walked out of the assembly. They were followed by the Left Socialist-Revolutionaries. The Right Socialist-Revolutionaries, Cadets and the delegates of smaller bourgeoise parties who remained in the hall constituted a minority of the Constituent Assembly. The Bolshevik delegates met in another palace room. On Lenin's proposal, they decided not to return and to dissolve the assembly when the session ended.

That night the excitable Pavel Dybenko ordered sailor Anatoli Zheleznyakov, who was in charge of the palace guard, to eject the delegates remaining in the hall. On learning of the order, Lenin had it rescinded and gave this instruction: "No violence must be employed against the counterrevolutionary part of the Constituent Assembly. All people should be freely allowed to leave the Tavrichesky Palace, and no one should be admitted without special orders." [11]

The night was drawing to a close, but there seemed no end to the talking. It was after four o'clock when Zheleznyakov came up to Victor Chernov, the Socialist-Revolutionary who was in the chair, and told him: "The guard is tired."

The session adjourned, the deputies left. But the next day they could not get into the Tavrichesky Palace—the doors had been locked.

The night of November 6 the government by decree dissolved the Constituent Assembly which "now would be a step back and shatter the entire October Workers' and Peasants' Revolution." No one made any defense of the assembly. The people had come with demands for peace, land and Soviet power, but when they learned the assembly had no intention of meeting these demands, they approved its dissolution. Resolutions supporting the government's decree were adopted everywhere.

A few days later the Third All-Russia Congress of Soviets opened in the same hall of the Tavrichesky Palace. The picture this time was entirely different. The hall was filled with workers, peasants, soldiers and sailors—envoys of the working masses. Some 1,600 delegates elected in all parts of the country came to Petrograd to voice the will of the people. One after another they took the floor, voicing their complete support of the revolution and Soviet power. The voices of the Mensheviks, seeking to spread doubt, were lost in this atmosphere. Delegates of the workers' parties of Switzerland, Poland, Norway, Rumania and Sweden greeted the Russian revolution. John Reed spoke. The victory of the proletariat in a powerful country, he said, was no longer a dream. He promised to carry the story of revolutionary Russia to people in his own country.[12]

The congress unanimously endorsed the actions of the Soviet Government and its program of struggle for peace and socialism. It adopted the "Declaration of Rights of the Toiling and Exploited People" rejected by the Constituent Assembly.

The first point of that historic document read:

"Russia is hereby declared a republic of Soviets of Workers', Soldiers' and Peasants' Deputies. All power centrally and locally belongs to these Soviets."

Russia embarked on the road to socialism.

To follow: "Peace"

[10] *The Revolution and Civil War Reminiscences of the White Guards: A Collection*, p. 358, Moscow, 1926. Russian edition.

[11] Lenin, *Collected Works*, Vol. XVIII, p. 46, Moscow, 1931. Russian edition.

[12] *Third All-Russia Congress of Soviets of Workers', Soldiers' and Peasants' Deputies*, p. 14, Moscow, 1918. Russian edition.

YAKOV SVERDLOV

FIRST PRESIDENT OF SOVIET RUSSIA

LIFE FORCED HIM into the struggle early. In school he wanted to know more than was taught. For instance, why his father, an engraver, had to work from morning till night to keep his family fed and housed while factory owner Pavel Ryabushinsky sat back and clipped coupons. For asking such questions he was sent out of class and then expelled from school altogether. But he was determined to know the truth. He loved to read, and his favorite heroes were fighters for justice—Spartacus, Stepan Razin, Giuseppe Garibaldi. Exiled revolutionaries, of whom there were many in Nizhny Novgorod (now Gorky), told him that equality for all people could be won only if the social system were changed and that would take a revolution.

At 15 he chose his vocation, he became a revolutionary. He gave up his right to have a home, to time of his own, to use his own name. His fiancée did not know his real name until a year after they met, when they were both arrested. Because he was in exile, he did not see his son until a year and a half after the child was born.

He studied and he learned to be strong. One third of his life he spent in prison. Prison became his university: a 10-hour working day, books, physical exercise, books. He learned to give nothing to the enemy. On police records buried in archive dust, we find his handwritten: "I refuse to testify. Yakov Sverdlov." And underneath that: "Investigation discontinued because the defendant refuses to talk. Colonel Karinkin."

He valued devotion and friendship highly. Once he escaped from exile, crossed hundreds of miles of taiga and suddenly presented himself to the gendarmes: He had found out that his escape had made things worse for others. He was sent off still further, to the solitary expanses of the Arctic, a place where people, deprived of books, newspapers, companionship, work, either went mad or sank to the lowest depths. From there he wrote his wife: "My dearest! Do not be anxious for me, I shall not break, I shall not become a cripple—neither physically nor morally. I shall return to freedom alive in the full sense of the word." And he escaped once more, making his way across the Siberian wilderness.

His Talent

"The proletariat has no other weapon in the struggle for power but organization," Lenin liked to say. Sverdlov was an organizer, that was his talent.

He knew how to bring order out of the turmoil of emotion and passions that are a character of revolution. In the Urals in 1905, he organized workers' detachments to fight czarism. Even the authorities put a high price on his organizational gifts: the secret police promised 5,000 gold rubles—a worker's earnings for 40 years!—to anyone who would betray Sverdlov.

Organization means, before everything else, the right choice of people. Sverdlov had an extraordinary flair for choosing the right men. Perhaps it was because he had lived and worked with all sorts of people under the most difficult circumstances—in the underground, in prison, during revolution—when a man showed himself as he really was and not as he would like to appear. Sverdlov believed that there was no such thing as an incapable man, the problem was to find out *what* he was capable of doing.

In 1917 the Party came out from underground. Its membership had to be expanded. The Party had to be prepared to take power and that meant finding hundreds, thousands of people devoted to the revolution, capable of becoming Party leaders in factories, in army units, in cities and villages. Sverdlov was then head of the Party Secretariat. Today, he might be nicknamed "the computer," then he was "the Party's memory." Once the Party was in the open, it took only a few months for the network of legal Party committees to cover the country. There was no party in Russia that could compare to the Bolsheviks for organization. When the decision was made to hold a demonstration in Petrograd, it took the Secretariat, consisting of five men, only a few hours to call out half a million workers, soldiers and sailors. The enemy dubbed Sverdlov "the black, steel devil," because of the black leather coat he wore.

If the Party by the time of the October uprising had grown from 20,000 to 400,000, if in decisive moments it acted with a single will, that was largely because of the organizational work Sverdlov had done.

Chairman of the All-Union Central Executive Committee

The All-Union Central Executive Committee of the Soviets served, until 1936, as the country's highest legislative body between congresses of the Soviets. Two weeks after the October Revolution Sverdlov was elected its chairman. "His candidacy," wrote Nadezhda Krupskaya, "was put forward by Lenin. The choice was an extremely fortunate one. There was a job of tremendous scope to be done—a state of an entirely new type had to be organized, and to do it an organizer of the very largest scope was needed."

Before, his talent had been directed toward destroying the state machinery. Now he had to create it. The new power had to be set up on a territory stretching from the Baltic Sea to the Pacific Ocean. Every day 30 to 40 men walked out of Sverdlov's office with mandates he had signed.

An organ of people's power had to be entirely unlike the old bureaucratic bodies. For every one of the men under him, Sverdlov laid down this rigorous rule: "Not a single worker, not a single peasant is to leave your office without an answer to his problem."

Now, when the foundation for a new governmental structure was being laid, he wanted more than anything else to make certain that the deputies, the leaders, would be conscious of their responsibility to the people who

elected them. One of the first decrees he signed empowered constituents to recall deputies who had not carried out their mandates.

For the same reason he started the practice, as Secretary of the Central Committee, of having the highest Party leaders report regularly to meetings of working people. He sent notes telling each of them where to report next. Though they were all loaded down with work, Lenin, Dzerzhinsky, Lunacharsky, Uritsky, Sverdlov and the other members of the Central Committee made these reports at regular intervals.

The Burden of Responsibility

In the summer of 1918 the counterrevolution attacked. Moisei Volodarsky, the favorite speaker of the workers, was killed in Petrograd, as was Moisei Uritsky, a member of the Party's Central Committee. On August 30, Fanny Kaplan wounded Lenin with poisoned bullets.

The workers, exhausted by hunger, sabotage, mutinies, murders and the war, demanded: "For every one of our men—a thousand of yours." Sverdlov was the only member of the Party Central Committee then in the capital. By himself, he made a decision of the greatest moment. He knew that the enemy would raise a furor, that the Western powers would be hypocritically indignant. But he had a compass by which to check his actions: the will of the people. And standing by the telegraph, he dictated his historic appeal:

"To All Soviets of Workers', Peasants' and Soldiers' Deputies, to All Armies, to Everyone:

"A few hours ago a villainous attempt was made on the life of Comrade Lenin . . . .

"To attempts made on the lives of its leaders the working class will answer . . . with merciless mass terror against all the enemies of the revolution.

"Calmness and organization! Everyone must remain staunchly at his post! Rally our ranks!

"President of the All-Union Central Executive Committee,

Y. Sverdlov"

A day later, at Sverdlov's suggestion, the All-Union Central Executive Committee passed a decision on red terror, and on September 3 Fanny Kaplan was shot.

These were measures forced on Sverdlov—retaliatory measures. No one could reproach him for cruelty. He was fully conscious of the value of human life.

He Gave All of Himself

He was always self-possessed, composed and collected, reminding one of a tightly wound spring. He used to scold Nikolai Bukharin, the leader of the Left Communists who visited him frequently, for his bedraggled appearance: "You think that if you walk around with buttons torn off, you will be getting closer to the workers?"

But behind his outer reserve and distance lay a surprising gentleness and consideration for people. From far-off Siberia he wrote to his wife who was carrying their child: "How it pains me that I am not with you, that even by my presence, by my care, by the strength of my feeling for you I cannot relieve you at least a little of your sufferings. But what can I do, my darling?"

He lived in the Kremlin in a four-room apartment. Two rooms were for the family, the other two rooms were always occupied by friends who had come to Moscow for a few days from the frontlines or from other cities. A hot samovar and herring were always available to them. Bread and sugar they had to bring themselves: the Chairman of the All-Union Central Executive Committee got the same ration everyone else did.

In winter he wore an old spring coat. Pavel Malkov, the commandant of the Kremlin, once saw him addressing a meeting of soldiers on a bitter cold day, wearing only a jacket. Malkov went to the Moscow Soviet and wangled a good winter coat from the stock of things that had been requisitioned from the counterrevolutionaries who fled the country. When, very pleased with himself, he rushed into Sverdlov's study with the warm coat, his reception was colder than outdoors. "We commandeer surpluses from the bourgeoisie," the Chairman told him, "so we can dress our Red Army men, our people, not our officials."

Food in the capital was scarce. Friends who came to Moscow always tried to bring Sverdlov something nourishing. They knew that prison life had not improved his health. The day after their visit Sverdlov was always seen with the parcel, bringing it to someone who was ill or had a large family.

After the attempt on Lenin's life, Sverdlov's little son asked him: "Can you also be killed?" Sverdlov answered very seriously: "Yes, my boy. But you must not be afraid of that. When I die, I will leave you the most valuable thing there is—the stainless name and honor of a revolutionary."

He fell ill in Kiev, where he was speaking at a congress of Ukrainian Communists. Influenza was sweeping the country, and it caught up the Chairman of the All-Union Central Executive Committee. On the way back to Moscow he was very weak, but at every station the train was surrounded by peasants who wanted to know when the Civil War would be over, when there would be bread. Sverdlov had a temperature of 102, yet he stood in the cold wind, dressed in his invariable old spring coat, and talked to them about the new life for which this struggle was going on. And they left him, cheered by his belief and his energy.

The doctors could not save him, his body had been too weakened by prison, strain and hunger. On March 16, 1919, he died at the age of 34.

He was the first leader of the revolution to go. His life was unjustly brief. He gave it completely to the revolution.

THE YOUNG COMMUNIST LEAGUE

AS SEEN BY LENIN

From the speech delivered at the Third All-Russia Congress of the Russian Young Communist League, October 2, 1920

. . . The tasks of the youth in general, and of the Young Communist League and all other organizations in particular, might be summed up in a single word: learn.

Of course, this is only one word. It does not answer the principal and most essential questions: what to learn and how to learn? And the whole point here is that with the transformation of the old, captalist society, the teaching, training and education of the new generations that will create communist society cannot be conducted on the old lines. The teaching, training and education of the youth must proceed from the material that has been left to us by the old society. We can build communism only on the basis of the totality of knowledge, organizations and institutions, only by using the stock of human forces and means that have been left to us by the old society. Only by radically remolding the teaching, organization and training of the youth shall we be able to ensure that the efforts of the younger generation will result in the creation of a society that will be unlike the old society, that is, in the creation of communist society.

How to Learn Communism

. . . What do we need in order to learn communism? What must be singled out from the sum of general knowledge to acquire a knowledge of communism?

. . . If the study of communism consisted solely in imbibing what is contained in communist books and pamphlets, we might all too easily obtain communist text-jugglers or braggarts, and this would very often cause us harm and damage . . . .

. . . It would be extremely wrong merely to absorb what is written about communism in books. No longer do our speeches and articles merely reiterate what used to be said about communism, because our speeches and articles are connected with our daily work in all fields. Without work, without struggle, an abstract knowledge of communism obtained from communist pamphlets and books is absolutely worthless. . . .

It would be still more dangerous to start imbibing only communist slogans. Had we not realized this danger in time, and had we not directed all our efforts to avert this danger, the half million or million boys and girls who called themselves Communist after studying communism in this way would only occasion great damage to the cause of communism.

Here the question arises: How should we combine all this for the study of communism? What must we take from the old school, from the old science? . . .

The old school was a school of cramming: it compelled pupils to imbibe a mass of useless, superfluous, barren knowledge, which clogged the brain and transformed the younger generation into bureaucrats regi-

mented according to one single pattern. But you would be committing a great mistake if you attempted to draw the conclusion that one can become a Communist without acquiring what has been accumulated by human knowledge. It would be a mistake to think that it is enough to learn communist slogans, the conclusions of communist science, without acquiring the sum of knowledge of which communism itself is a result. Marxism is an example of how communism arose out of the sum of human knowledge.

. . . If you were to ask why the teachings of Marx were able to capture the hearts of millions and tens of millions of the most revolutionary class, you would receive only one answer: it was because Marx based his work on the firm foundation of the human knowledge acquired under capitalism. Marx studied the laws of development of human society and realized the inevitability of the development of capitalism toward communism. And the principal thing is that he proved this precisely on the basis of the most exact, most detailed and most profound study of this capitalist society, by fully assimilating all that earlier science had produced. He critically reshaped everything that had been created by human society, not ignoring a single point. Everything that had been created by human thought he reshaped, criticized, tested on the working class movement, and drew conclusions which people restricted by bourgeois limits or bound by bourgeois prejudices could not draw.

. . . You can become a Communist only when you enrich your mind with the knowledge of all the treasures created by mankind.

Basis of New Society

We do not need cramming; but we do need to develop and perfect the mind of every student by a knowledge of fundamental facts. For communism would become a void, a mere signboard, and a Communist a mere braggart if all the knowledge he has obtained were not digested in his mind. You must not only assimilate this knowledge, you must assimilate it critically, so as not to cram your mind with useless lumber, but enrich it with all those facts that are indispensable to the modern man of education.

. . . You all know that, following on the military tasks, those of defending the republic, we are now confronted with economic tasks. We know that communist society cannot be built unless we restore industry and agriculture, and they must not be restored in the old way. They must be reorganized on a modern basis, in accordance with the last word in science. You know that electricity is that basis, and that only when the entire country, all branches of industry and agriculture have been electrified, only when you have achieved this will you be able to build for yourselves the communist society which the older generation will not be able to build. Confronting you is the task of economically reviving the whole country, of reorganizing and restoring both agriculture and industry on modern technical lines, based on modern science and technology, on electricity.

. . . That is the task confronting every class-conscious Communist, every young person who regards himself a Communist and who clearly understands that by joining the Young Communist League he has pledged himself to help the Party build communism and to help the whole younger generation create a communist society. He must realize that he can create it only on the basis of modern education, and if he does not acquire this education, communism will remain merely a pious wish.

Principles of Morality

. . . You must train yourselves to be Communists. The task of the Youth League is to organize its practical activities in such a way that, by learning, organizing, uniting and fighting, its members should train themselves and all who look to it as a leader; they should train Communists. The whole object of training, educating and teaching the youth of today should be to imbue them with communist ethics.

But is there such a thing as communist ethics? Is there such a thing as communist morality? Of course there is. It is often made to appear that we have no ethics of our own; and very often the bourgeoisie accuse us Communists of repudiating all ethics. This is a method of shuffling concepts, of throwing dust in the eyes of the workers and peasants.

. . . We repudiate all morality drawn from outside human society and classes. We say that it is a deception, a fraud, a befogging of the minds of the workers and peasants in the interests of the landowners and capitalists.

We say that our morality is entirely subordinated to the interests of the class struggle of the proletariat. Our morality is derived from the interests of the class struggle of the proletariat.

. . . And what are classes in general? Classes are what permits one section of society to appropriate the labor of the other section. If one section of society appropriates all the land, we have a landowner class and a peasant class. If one section of society possesses the factories, shares and capital, while another section works in these factories, we have a capitalist class and a proletarian class.

. . . The old society was based on the principle: rob or be robbed, work for others or make others work for you, be a slaveowner or a slave. Naturally, people brought up in such a society imbibe with their mother's milk, so to speak, the psychology, the habit, the concept: you are either a slaveowner or a slave, or else, a small owner, a small employee, a small official, an intellectual—in short, a man who thinks only of himself, and doesn't give a hang for anybody else.

If I work this plot of land, I don't give a hang for anybody else; if others starve, all the better, the more I will get for my grain. If I have a job as a doctor, engineer, teacher or clerk, I don't give a hang for anybody else. Perhaps if I toady to and please the powers that be I shall keep my job, and even get on in life and become a bourgeois. A Communist cannot have such a psychology and such sentiments. When the workers and peasants proved that they were able by their own efforts to defend themselves and create a new society—that was the beginning of the new, communist training, training in the struggle against the exploiters, training in alliance with the proletariat against the self-seekers and small owners, against the psychology and habits which say: I seek my own profit and I don't give a hang for anything else.

This is the reply to the question how the young and rising generation should learn communism.

. . . The basis of communist morality is the struggle for the consolidation and completion of communism. That too is the basis of communist training, education and teaching. That is the reply to the question how communism should be learned.

Show the Right Road

. . . You know that communist society cannot be built in an illiterate country. It is not enough for the Soviet Goverment to issue an order, or for the Party to issue a particular slogan, or to assign a certain number of the best workers to this task. The younger generation itself must take up this work. Communism means that the youth, the young men and women who belong to the Youth League, would say: This is our job; we shall unite and go into the rural districts to abolish illiteracy, so that there shall be no illiterates among our rising generation. . . . Being a member of the Youth League means devoting one's labor and efforts to the common cause. That is what communist training means.

. . . The Young Communist League must be a shock force, helping in every job and displaying initiative and enterprise. The League should be such that any worker may see that it consists of people whose teachings he may not understand, whose teachings he perhaps may not immediately believe, but from whose practical work and activity he could see that they are really the people who are showing the right road.

. . . We want to transform Russia from a poverty-stricken and wretched country into one that is wealthy. The Young Communist League must combine its education, learning and rearing with the labor of the workers and peasants, so as not to shut itself up in its schools or confine itself to reading communist books and pamphlets. Only by working side by side with the workers and peasants can you become a genuine Communist. Everyone has to be made to see that all members of the Youth League are literate people and at the same time know how to work.

Work Side by Side

. . . In the old society work was carried on by separate families, and nobody united their labor except the landlords and capitalists, who oppressed the masses of the people. We must organize all labor, no matter how dirty and arduous it may be, in such a way that every worker and peasant may say: I am part of the great army of free labor, and I can build my life without the landlords and capitalists, I can establish the communist system. The Young Communist League must train everybody to conscious and disciplined labor from an early age. In this way we shall be sure that the problems that now confront us will be solved.

6 OUT OF 23,000,000

Natasha versus Jacqueline. Not in the sky, higher than the sky. Forty-two items of risk. To break them—that's what records are made for.

THE FOLLOWING entry can be found in the *Journal of Theoretical Preparedness.*

"Prokhanova, N. A., born 1939, education: incomplete higher; member of the YCL; profession: flying instructor."

In the next item: "Types of planes piloted," 11 are listed.

Now there are 12. And it is this difference that for a time made up the whole of Natasha Prokhanova's life.

Studies, flights, studies, flights—there seemed nothing capable of breaking this vicious circle which she had purposefully drawn around her personal world. And now the only dimension in the world that exists for her is height.

At first the traditionally male body of trainees at the flying school was inclined to grin at the girl who had been admitted to their ranks.

Nothing new for her.

When she was in seventh grade and lived in the village, there was a structure some 20 feet high right next to the river. The boys would dive from it and tease her: "I dare you!"

Without a word, she climbed up and dived.

Takeoff

She stood in front of the DOSAAF (Voluntary Society to Assist the Air Fleet, Army and Navy) central committee chairman, clenching her fists and pursing her lips. Her short braids stuck out militantly.

"My father lost his life in the war and you won't take me. You must, that's all!"

"Was your father a flyer?" the chairman asked to quiet her down.

"Father?" She didn't remember her father. But he was not flyer. He was barely literate. Same as mother. He was a good mason. And a soldier, too. He was killed in the war.

"What's the difference? You take me or I'll sit down and I won't budge."

"That's childish talk. You've got to understand. Now if you were a boy. . . ."

But she made it by hook or by crook, and this entry appeared: "Prokhanova, Tambov Air Club trainee, assigned to the Central DOSAAF Flying School." The next entry, two years later, read: "On completing the course, she earned the rank of flying instructor."

Speeds grew with every new brand of craft that she mastered.

Then came the first group of future flyers she was to train in her own flying club. The eyes of all seven of them popped when she came in. They had expected a "sky wolf," not a stylish hairdo, a sun-tanned face, decisively curved eyebrows and—pretty. But she was their instructor, so they had to listen and take notes on what she told them.

Natasha was nervous. Teaching others is a far cry from flying yourself. Later there was the citation: "For the excellent training of seven flyers, the club expresses its appreciation to instructor N. A. Prokhanova."

Shortly thereafter she became a student herself, at a teacher training college.

"Life means pressing the gas pedal down to the floor and keeping it there," says Natasha. "If you lose speed, you lose altitude."

The time: 1962; the event: the first aerobatics contest. Of the 30 competing, Natasha Prokhanova is the only woman. And the only representative of the fair sex is the winner.

1963: A contest of the best women flyers of the Soviet Union. Prokhanova makes the national team and wins the title Master of Sports.

Higher than the Sky

Prokhanova had already flown 900 hours in piston-engine planes when is was suggested she retrain for jets. The famous Mig. Faster than 600 miles an hour! And with a catapult under the seat.

Until recently there was only one name on the list of women's world records for jet planes —the American flyer Jacqueline Cochran. For long years she had held all the women's world jet-plane titles. One of the most difficult to match was for peak altitude, set in 1961. After reaching maximum speed, the aircraft is shot upward, as if by an invisible sling. The American aviator had climbed to 17,091 meters. A great achievement. Natasha planned to surpass it.

She had her own scale of human values: "I like people of action, not windbags. Windbags only want to promote their own popularity. People of action are demanding of themselves and others and answer for what they do."

Natasha's instructor saw that he was dealing with an exceptionally gifted flyer.

Split-second reaction ("We recognize 42 special kinds of possible surprises that may occur in flight; all of them have to be kept in mind all the time").

A rare ability to distribute attention ("Speed in excess of Mach 2, which is twice the speed of sound, so many instruments the eyes don't know which way to turn").

"A rare blend of all the best flying qualities" was how her teachers appraised Prokhanova. "An on-the-job state" is how she described it.

The word "risk" is not in their vocabulary. Yes, if you don't maintain the regime, the engine flies apart, the vanes fly off, "stripping" the aircraft, and that means the cabin depressurizes and the blood boils. The same holds for all 42 "special kinds." They do not think of them as risks but as the normal hazards of their trade.

Prokhanova only had to lift her craft a mere 500 meters higher than Cochran for FAI to register the record. But she also knew that no sooner was the record registered than Cochran would have her turn. So when her instructor asked, more for form's sake than anything else, "Well, and what record should we try for?" Natasha parried with an unsmiling joke, "The sky's the limit."

Night was just waning. Crystal-clear silence. The last medical checkup. Parachute. High-altitude gear. "Just like a knight of old."

"May I fire away?"

"You may."

"All clear for taxiing to the starting position?"

"All clear."

"Do I have permission for takeoff?"

"Go ahead."

Brief reports from the command post: "You're on course." "On the line, on the line." "On time, on time." Radar tracked her from the ground. Then the command:

"Go into the turn!"

This meant she was already in the "speed base" area, where her craft was being tracked by the sensitive instruments called cinetheodolites. The vault to peak altitude had to be performed within the range of the instruments or the record would not be registered.

Altitude according to schedule, speed, too. Overload normal. The instruments have "zeroed in". . . . Now!

Altitude 17,500 meters; 18.000, 20,000. "More, it can do more!" 21,000, 22,000 23,000! Not many could see it. It was not in the sky. It was higher than the sky.

"Mission fulfilled. Request landing."

"Landing permitted."

The final result: 24,336 meters. A world record!

To break them—that's what records are made for.

"LIFE MEANS PRESSING THE GAS PEDAL DOWN TO THE FLOOR AND KEEPING IT THERE."

Igor Kuznetsov is the leader of the crew that put up the last tower of the longest power transmission line ever built beyond the Arctic Circle. He tells this story.

THE PTL-110 is 320 miles long. PTL stands for power transmission line and, as for PTL-110, why it joins two populated places in Magadan Region: Pevek and Bilibino.

On its way, PTL-110 crosses a score of rivers (counting only those you can find on the map), thousands of brooks, any number of mountains and dozens of miles of bog.

My YCL team strings wires over impenetrable bog, through biting blizzard and minus 40 degree frost. These wires will bring power to the mine YCLers have built in a newly discovered gold-bearing region. We live in temporary huts, sleep on hard bunks and wash ourselves with snow.

At first we found it difficult, very difficult. We would return to the hut, a bowl of hot soup our only wish. We'd light the stove and prepare our meal. As soon as we warmed up, we'd go back to work. The fellows knew how badly the miners needed the power. They passed the test of time, and hardships only brought them closer.

In summer the holes we dug filled with water, and the table flat tundra turned into impassable swamp. The fellows did not want to give in, so they worked all summer long, putting the doubters to shame.

How did we manage to get through it? Well, we had some allies:

LOVE OF ADVENTURE. When the temperature drops to 94 degrees below zero, you can hear the "rustle of the stars." That's when the moisture in your breath crystallizes as you exhale.

We are proud of this land where sounds freeze up and spoken words turn into ice crystals. We are proud that we are helping to light electric suns beyond the Arctic Circle.

FRIENDSHIP. At first there were four of us: Vadim Gorbunov, Sergei Cherespolosin, Grigori Kamin and me. Then others came. We were soon being called "the old guard" because we worked as though we were in battle and were as good pals as soldiers in the same trench. The fellows in our team were all different, but our common motto was: Man has to pr
stronger than th
polar night.

The tundr
record: no
the old-tir

tundra-sickness, that those who have been here will listen to it calling them back as long as they live.

You want facts? Fine. Take Vanya Chirov, a tractor driver. Twice he quit the PTL, and twice he returned. And Lyosha Mordovin? He had been a sailor and even mumbled about the sea in his dreams. Three years he had been expecting to return to the water, but the tundra wouldn't let him go. When I went home on leave, it was bruited about that the team leader would not be returning. But I did, and I even brought along a friend from Moscow. Now there are five Muscovites in our team.

Once we got into an argument about whether work on the PTL could be regarded as a calling. Yuri Karasyov said no. I said yes. Makarov was against and Sanya Ivkov for. We argued back and forth and up and down, then I said: "Listen, fellows, let's postpone the argument until we get this PTL finished. I've heard that next year they're building a line from Bilibino to Zelyony Mys. If we go back to work in the tundra again, I suppose we'll have to regard it as a calling. All right?"

Just for your information, the fellows did go back.

COURAGE. The tundra is all soggy and practically impassable. Just bogs, pools, streamlets. The delivery of supplies has stopped. If you are caught napping, the holes dug for the towers fill with water. Heat. Swarms of mosquitoes. But worst of all is the shortage of fuel, and what good are we without tractors? The fuel was brought to us on drags. It's not easy to haul the drags loaded with barrels through thousands of bogs, streams and rivulets. But still we got it.

This is what happened once.

Zhenya Ivanov and I drove up to fill our tanks. That's done automatically. You just stick the end of a hose into the barrel of diesel oil, rev up a bit and take it easy. That is just what Zhenya did.

After filling up, we started off, but there seemed to be something wrong with the diesels.

"Hell!" exclaimed Zhenya. "They've brought us oil mixed with water. We'll have to drain off the sludge."

He jumped out of the cabin, his cap tilted back and a cigarette in his mouth—a regular ace of a tractor driver. He opened the drain cock of the tank, and what do you think came out? Gasoline! Some idiot had gotten the barrels mixed up, and they had brought us five barrels of gasoline instead of diesel oil.

The gasoline ignited before Zhenya had a chance to do anything. The flames enveloped the tank and the wooden, sun-dried cabin. Zhenya jumped back into the cabin, shifted into high and began a fiery race across the tundra. The flames shot up. The heat in the cabin was unbearable and his hair was getting singed. And then the engine stalled!

Zhenya jumped out, slapping his thigh in disappointment. The machine would burn up!

"Get away from there!" we yelled to him. "The tank's going to blow up!"

He didn't seem to hear. He jumped up on the caterpillar tread, opened the hood and tried to start the engine.

The engine did start, and he jumped back into the cabin.

"He'll get
But
i

"THOSE WHO HAVE BEEN HERE WILL LISTEN TO IT CALLING THEM BACK AS LONG AS THEY LIVE."

6 OUT OF 23,000,000

Emilia Belkevich is a famous cook in Riga. She is also a student of the Institute of National Economy. She likes to repeat these lines by Rasul Gamzatov:

I drink every new day bottoms up
To feel the thirst again,
For which life alone is but to blame.

THIS IS A RECORD of one day in the life of Emilia Belkevich, supplemented by her own personal observations.

6-7 A.M.

How much time does a girl need to jump out of bed, do her daily dozen, breakfast and admire herself in the mirror—if nature has endowed her with a pretty face and lissom figure and some amount of playful pertness, while life has accustomed her to do everything neatly and quickly?

7:15-7:30 A.M.

Got the answer? That's it. So at 7:15 A.M. you see Emilia seated in the third coach back of a prewar steam engine, commuting from the suburban town of Olaine to Riga. As the train puffs ahead, morning grows brighter and Emilia plans her day.

First she must answer Martha Hrkava from Bratislava. The letter she received had no address. After wandering around the post offices in two countries, it finally reached Emilia, all by reason of its laconic address: "To the best cook in the USSR."

"This couldn't be for anyone but you," said the postman.

Some of the questions written in a scribble filling two pages were: "How did you become [illegible] the secrets of your skill? Do you have a boy friend? Can you send the recipes of some of the dishes you have thought up? What was the happiest day in your life?"

The happiest day? Indeed, what was the happiest of the 9,490 so far?

7:30-8 A.M.

But it's time for some cramming. The "commuting" task today is 20 pages of biochemistry. Yesterday it was microbiology, and the day before, technology. Examinations are coming soon. And so is Riga. You haven't much time, Emilia!

8-8:20 A.M.

The Molochny restaurant in Riga's busiest spot opens at noon. However, it's already steaming inside, and though nothing is sizzling yet, everything is bubbling, literally and figuratively.

8:20-12:15

The head chef's day begins with a tour of inspection. She has plenty to supervise. Under her are the cooks preparing the meats, vegetables and desserts in the pantries and two kitchens.

And so she darts up and down from floor to floor to discuss a New Year's party reservations with the manager, berate the supply agents who have forgotten the cumin again—"How could you have forgotten it!"—ask the bakers whether they'll have enough cakes for the Saturday display, and then answer another call for help from the kitchen or pantry—"That Figaro song is really about me."

The cooks put their heads together, joke, and plan exactly what everyone should do and what they need in the way of food products, spices and equipment. They get their products —300 different items, from a side of bacon to honey—go over the menu again with its 20 appetizers, 18 soups, 24 meat and fish dishes, and 14 desserts, and rush back to the kitchen where it really is sizzling by now.

12:15-1 P.M.

The restaurant opens its door for the first customers. Emilia can take it easy now. The first thing she does is step out for a breath of fresh air. She makes for her favorite haunt, Lover's Hill, past the Rainis monument. Her two loves are the winter frost and the poet Rainis.

Down the hill a throng of urchins ride their sleds, bottoms and bellies. Emilia climbs up.

Now to buy a theater ticket. There's a new show on at the Rainis theater and she never misses a new show. She buys tickets for herself and her girl friend Via. She must remember to call Via, who went out at noon to prepare a spread for a Young Communist League conference at the House of Political Education.

It's lunch break. Bakulis, a deskmate from the Cookery School, the recently elected Secretary of the District YCL Committee, steps up to congratulate Emilia, who a few days ago was elected delegate to the Latvian YCL Congress.

"Remember how you wanted to quit school?" he reminds her.

Recollection No. 1

It was quite true. She had wanted to quit the cooking school a month after entering. They had started with a study of recipes and how to estimate the cost of dishes. She didn't like it very much, it didn't seem lively enough, and she only scraped through.

"What will you do instead?" her friends asked.

"I'll be a trapeze artist at the circus! Or maybe a painter!"

However, when they got down to the actual cooking, she made top marks. During her vacations she cooked at a Young Pioneer Camp. Doting mamas came to scrutinize the pots and pans and admonish:

"Now don't forget that my little boy can't stand eggs! And make sure the meat balls are juicy."

But when the summer was over, they said the children had been fed better than at home.

Could that have been the happiest day in her life?

Recollection No. 2

It was a USSR contest of young cooks, confectioners and waiters. Teams had been entered from all 15 republics and from the cities of Moscow and Leningrad.

The first day Emilia and her five friends merely observed. They walked around the Moscow Prague Restaurant to figure out how to spruce things up when their turn came. They were horrified to learn that the jury was simply going wild, asking the waiters all sorts of tricky questions like "What spoon do you use when food is served in a casserole?" "What wine goes with partridge?"

Then their turn came. They seemed to have anticipated everything. They had brought their own cooking implements, pine twigs, flowers, small candles, name cards. Suddenly a snag. Somebody had to figure the cost. That was a tough assignment, and the girls didn't know what to do. Meanwhile, the seconds inexorably ticked by.

Then she stepped out like a smelter, say, protecting his workmates from the flaming metal, or like a test pilot taking up a new plane. Now, you may think such comparisons a bit overdone, but it is a fact that great deeds begin with little ones.

The strict judges praised the quality, the way costs had been figured and the brilliant organization of the Latvian team.

A newsman dashed up.

"Future plans?"

"I'd like to manage a restaurant."

The newsman was bewildered. Is this sarcasm? Cockiness? Or simply a happy day in her life?

6-9:30 P.M.

Four times a week these are the hours Emilia takes fourth year classes at the Technology Faculty of the Plekhanov Institute of National Economy. "How am I going to manage everything, what with all those drawings I have to do? And then you can't always get the textbooks you need in Riga. I'll surely flunk the exams!"

Tomorrow she has the day off and can stay in bed in the morning. But at three in the afternoon she has a YCL assignment—inspecting the dining rooms in the district. After that there's an evening out at the theater. Which means she has two nights for her drawing. It should be enough.

As she does her drawing, she wonders how to answer Martha.—"On my word of honor, I really don't know what to say. It's a tricky question. Each day is both happy and ordinary!"

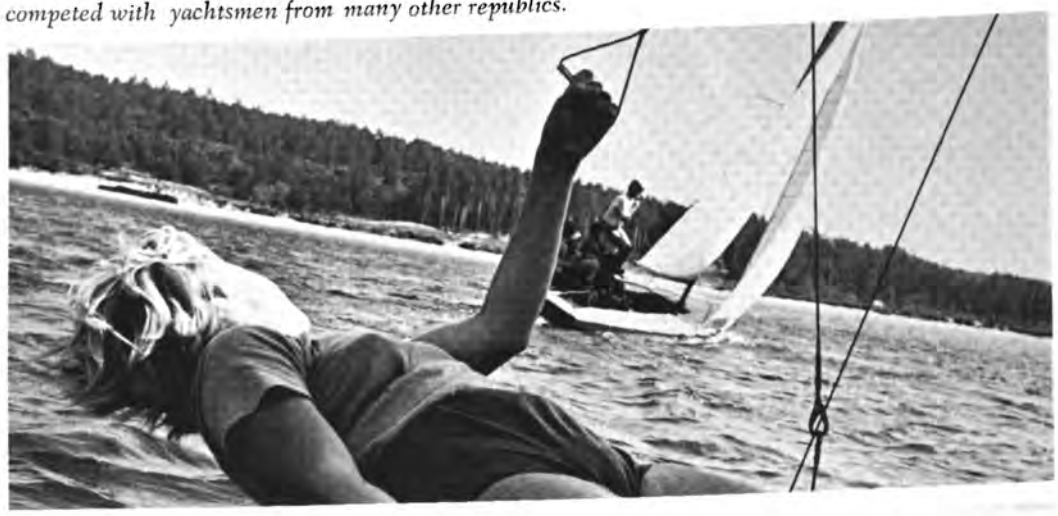
"P.S. Congratulate me, I've passed all my exams. Microbiology was the toughest!"

"I DRINK EVERY NEW DAY BOTTOMS UP."

YOUTH—
THE NATION'S
HEARTBEAT

In the flow and sparks, their visors pulled down, these welders resemble legendary knights battling and subduing fierce dragons of steel. Indeed, there is some fairy-tale magic in the way skyscrapers and factories go up, in the way power stations and TV towers rise on what was once wasteland.

Wherever there is a sheet of water big enough, you are sure to see white sails billowing in the breeze. Yachting has gained favor even with "landlubber" Muscovites. There are now some 2,500 enthusiasts and 700 yachts in the capital. The best entered the USSR championship regatta on the Gulf of Riga and competed with yachtsmen from many other republics.



For the YCL volunteers working in the Arctic this is just an ordinary day. But it takes far from ordinary individuals to meet the hardships of the North. These young people have that extra "something" it takes to break through the ice and build towns, mines, theaters, even sports arenas.

6 OUT OF 23,000,000

Kuvandyk Abdurazzakov is a cotton grower from the Hungry Steppe. He says: "If all men sat in their gardens, who would plant new ones? We are grateful to our father and grandfather for our garden. I want others to be grateful to me for the garden I grow."

THE COTTON GROWERS of Uzbekistan have a holiday they call *Pakhta Bairami*. That day, to a flourish of the *karnai* (horns), the gray-haired *aksakaly* seats those who picked the most cotton in places of honor at the *dostarkhan* (festive board).

This was Kuvandyk Abdurazzakov's fifth autumn in the Hungry Steppe and the fourth time he was sitting with the honored.

That February day they left Samarkand for the Hungry Steppe is not one Kuvandyk is ever likely to forget.

The poplars were breaking into bud, and the children were playing hopscotch on the sidewalk. The sky above the city was a pure, innocent blue.

Kuvandyk had looked at his father.

"Shall we go?" he asked.

Abdurazzak-ata had nodded in silence, his eyes glued to the cracked adobe hut that had been home. Behind the house were peach trees and grapevines, things familiar and dear, the fruit of the toil of generations of Abdurazzaks.

"Let's go."

In the labyrinth of streets in that legendary town he left his childhood behind. Ahead lay the *chul*. The Mirzachul—the Hungry Steppe.

In Uzbek, a *chul* is a desert, a synonym for thirst. And Mirzachul means the Desert of Literate Man.

Yes, the desert called upon literate and brave men to come and cultivate it.

Only a month before, Kuvandyk had graduated from an agricultural school and had decided to go to virgin country, to the Hungry Steppe.

His father had been doubtful. Hardly surprising, he had lived in Samarkand all his life. If not for Kuvandyk, the family would never have taken to the road.

All around there was nothing but salt earth, a purple sky and a horizon wrapped in haze. Perhaps they had been wrong.

"Son, perhaps we should have stayed home?"

"We shall see the end of the road at the end of the road, father."

There it was, their new home.

Ragged stains of snow in the wormwood growth. Gray-brown earth like Morocco leather. Biting gusts of wind.

Gaping windows in half-built houses—the Gherman Titov State Farm.

That was Abdurazzakov's first independent step. He was 17 years old and it was 1961.

The state farm director would not entrust the youth with a cotton harvester all at once. Kuvandyk drove a tractor and looked to the day the cotton plants would don their wedding apparel and he would ride out to them on a blue cotton harvester.

Meanwhile the director kept saying:

"Put the rug of impatience into your trunk of waiting."

Kuvandyk chafed at the answer. His father said:

"You must prove to him first that you can operate a harvester."

At night, when the harvester operator went to bed, Kuyandyk became captain of the "blue ship."

A big triumph is built of a great many small ones. The first year he picked 61 tons, then 100, and, finally, 200.

Is that a lot or a little?

If we were speaking in the language of the consumer who sees cotton only when it is cloth, we would say that 250,000 suits can be made of the cotton Abdurazzakov picks every year. One man keeps a whole town in clothes.

At home Kuvandyk Abdurazzakov has a suitcase full of newspaper clippings, prize diplomas and photographs.

Kuvandyk at the wheel. Kuvandyk at banquets. Kuvandyk with friends.

"A MAN CAN'T LIVE LIKE THE CAT WHO WALKED BY ITSELF."

Here he is, laughing eyes under arched eyebrows. In a white shirt, bright tie and the latest thing in jackets.

"Is it hard to grow cotton?"

"Not very."

But cotton growing involves at least 10 very laborious operations. And in the blazing sun, which sends the mercury up to 122° F. And for 18-hour days during the season!

And he says, "Not very."

"A man can't live like the cat who walked by itself," is Kuvandyk's favorite saying. He meets men halfway, with an open heart. And they reciprocate.

He has first-rate teachers, Hero of Socialist Labor Valentin Tyupko among them. From Tyupko Kuvandyk learned how to understand, how to work with the earth, to use its powers.

Kuvandyk is on the famous Inobat Akhunova's team. They arrived in the Hungry Steppe almost at the same time, but she became his team leader and has been ever since. That does not bother him, he remembers that she promised to bring in 200 tons of cotton a season, and she kept her promise. It is an honor for a man to work with such a team leader.

The team is responsible for 260 acres. With mechanical pickers they figure on 3,500 pounds per acre.

"Kuvandyk, why did you decide to be a cotton grower? Weren't there other trades and professions to choose from?"

"Of course. But people need cotton. Think of all the things we make out of cotton. Besides, in our family we're always grown cotton. My granddad and great granddad grew cotton. In Emir Muzaffar's time, and in Emir Alim-Khan's time, and Timur's time. . . ."

He smiled.

"In Timur's time, too. They did grow cotton in his time, didn't they?"

And he answered himself:

"Of course they did. People have been growing cotton for 4,000 years. And you talk of other trades and professions!"

"Why don't I leave these parts? But I've settled down here, found my wife here. My home and work are here. These are the things that make for happiness. I found them here."

Gratitude for kindness shown him is one of man's more admirable human qualities.

A man is grateful to his mother and father for having brought him up.

A man is grateful to teachers for having taught him. A man is grateful to his work for having made a man of him.

The *chul* had added salt to Kuvandyk's life, the salt of the earth without which one cannot mature.

"There, I was a child. Here, I became a man. If all men sat in their gardens, who would plant new ones? We are grateful to our father and grandfather for our garden. I want others to be grateful to me for the garden I grow."

And Abdurazzak-ata added:

"The meaning of life is children, those who come after you. A man does not live only for himself."

Writers long ago coined a phrase for this sage philosophy: leaving your mark on the earth.

Isn't that what men live for?

"HAPPINESS IS YOUR WORK—WHEN YOU LOVE IT."

Friends once asked a poet how long it took him to write a poem. He suggested they note the time. Half an hour later he recited a new poem. When his wondering friends asked how he had managed to do it so quickly, he said: "It only took me half an hour and all my life."

From Narratives About Mikhail Svetlov

THE FIRST of the newspaper clippings is a short item from the Bolshoi paper *Soviet Artist.* It says that production of the ballet *Vanina Vanini* to music by Nikolai Karetnikov, based on the book by Natasha Kasatkina and Vladimir Vasilyev, who are also the choreographers, started May 4, 1962.

As a rule, it takes many a long month to stage a ballet. But in this case, by May 23, only 20 days later, the curtain went up on this first choreographic interpretation of Stendhal.

There were encomiums galore in the press. "Success!" "Brilliant Debut for Young Choreographers!" "Fresh!" some of them read.

Only 20 days to rehearse such a superb production? What was the secret? Divine inspiration? Or something else?

Plus All Their Lives

Little Natasha was determined to be a ballerina when she was so high. She wanted to know what she had to do and when she could start. Her mother told her she had to wait until she was nine to join the ballet school.

However, when she finally did come to be nine, she was far from Moscow, a war evacuee in the Urals. Children matured quickly in those years. First-grader Natasha knew that to ask for the unattainable would only pain her mother. And so she kept her dream to herself.

Later, back in Moscow, she enrolled at the Bolshoi Ballet School without her parents knowing. She was apprehensive—after all she was more than nine now—and also hopeful—after all, it wasn't her fault that her family could not come back to Moscow until 1945.

She was fortunate though. At the time, the school's experimental classes were still accepting over-nines. Natasha was placed in the fifth grade and in four years made up for lost time. At her graduation she was praised as "an interesting classical ballerina."

A member of the company, the young dancer was offered a try at the oriental dance in *Crimson Sails.* She was somewhat doubtful of her powers since it was a character role. But she rehearsed hard, and her debut ensconced her firmly among the top character dancers. She did the Hungarian and Spanish dances in *Swan Lake,* danced the slave girl and second wife in Asafyev's *Fountain of Bakhchisarai,* Phrygia in Khachaturyan's *Spartacus* and the mad woman in *Le Sacre du Printemps.*

* * *

Vladimir says he joined the ballet school quite by accident—because it meant a better food ration book.

That bitter 1943 his brother had come home excited with the news that the Bolshoi school was open for enrollment. Major item of interest in the announcement was that students got extra food rations.

Vladimir, or rather his mother, decided to try. They asked a rather severe-looking lady whether the school could use a well-built boy of 13 with a good ear for music. The school could. And so Vladimir Vasiliev joined the experimental class to become a Bolshoi dancer five years later.

* * *

They met each other in the company. When they announced that they were going to be

married, everyone thought it a very good match—the reserved Natasha and mercurial Vladimir—different enough to be good for one another.

They started learning to be producers from the very first day. They wanted to know everything that had the remotest connection with Bolshoi history, the ballet or stagecraft. They pondered on the music and trained themselves to think in dance images. They were very earnest, very serious and worked very hard at learning.

Looking in One Direction

They say that lovers do not look at one another, they look in the same direction. Whether this is always true is a question, but it does seem to hold for this pair. Theirs is a surprising harmony of outlook, plans and wishes.

"Come on!" Vladimir laughed outright. "You just see us writing the book or working out a *pas*. We fight like mad!" Maybe, but they seem to fight about the right things.

The couple saw the 1960 New Year in at home all by themselves. On the table, in addition to everything else supposed to be there at this time of good cheer, was a volume of Stendhal and their first rough draft of the book for *Vanina Vanini*.

Two years later they had their first night of a new production, Nikolai Karetnikov's *Heroic Poem*.

In 1965 came Igor Stravinsky's *Le Sacre du Printemps*.

Half a century ago its first performance in Paris—it was produced by the famous Russian dancer Nijinsky—was received coldly. The composer said then that he had not invited the dance plot and did not want it. Thereafter only the music was played. Later several modern ballets were staged around it, none successfully.

Natasha and Vladimir evolved their own approach. Stravinsky had given his ballet the subtitle, "Scenes of Pagan Russia." So they delved into the archives, visited museums and traveled around the country. Afterward an authority on old Russia said he couldn't tell them anything they didn't know, that they were better informed than a good many historians.

Stravinsky's striking, unusual music demanded a totally new approach, new movements, new rhythms, new compositions.

"We wanted to understand the essence of Stravinsky so that we could translate his music faithfully into the language of the dance," the two say.

And they produced a ballet that foreign dailies applauded the morning after the première with such headlines as "Stravinsky on Russian Stage Again After 50 Years!" and "Completely Novel Interpretation of *Le Sacre du Printemps*."

* * *

Some said: "Why the rush? You are still so young!" It's not that they intend to rush. It's the way they are. Dedicated people work and live to quite a different tempo.

"What is happiness? Well, we often discuss that," Natasha says. "Happiness is your work —when you love it. We rest up from work by working. When the curtain comes down, we go home to the many other things we're busy with."

YCL TODAY

The role of the YCL in Soviet life is best shown by facts and figures. This is what YCLers did in the four years between their Fourteenth and Fifteenth congresses.

The Young Communist League assumed responsibility for priority construction jobs and built 750 industrial projects.

At the call of the YCL more than a million young people went out to settle unpopulated regions.

YCLers and young people generally helped build Bratsk, Rudny, Divnogorsk and other new towns.

More than half a million young men and women volunteered through the YCL for jobs on construction sites.

The Central Committee of the Young Communist League of the Soviet Union listed on its Roll of Honor 143 persons and 35 YCL organizations.

Among the deputies to the local Soviets are 141,000 League members.

At factories and offices, the YCL helped organize 16,000 design groups and 14,000 economic analysis teams. All of them do volunteer work without pay.

YCLers helped teenagers find and pursue interesting spare-time occupations in the thousands of councils set up for the purpose.

The many YCL proposals adopted by the Party and the Government include:

—additional vacation time for after-work students of vocational and technical schools;

—special arrangements and privileges for young workers and farmers doing after-work study;

—examinations at times convenient for correspondence students;

—cash bonuses for those who lead the socialist emulation movement on YCL patronized, priority construction jobs;

—shorter hours and vacation and health resort accommodations for working teenagers;

—additional assistance for young people looking for jobs.

CHESS CHAMPIONS AND CHESS KINGS

By Grandmaster Mikhail Tahl,
Former World Champion

THE WHOLE WORLD of chess is still spellbound by the recently ended Tigran Petrosyan versus Boris Spassky match for the global crown. Experts everywhere are still arguing feverishly about what would have happened had Petrosyan played this way and Spassky that. And there is no indication that the fever is subsiding. This passion generated by matches for the world championship is a comparatively recent phenomenon.

To me, the term "chess crown" is a journalistic cliché or, more charitably, an anachronism. It signifies a triennial phenomenon I find hard to get used to.

Every third year the king's post is declared to be vacant and is filled by a contest (which is out of character for a monarchy, of course). Not so long ago things were different. There used to be a small group of absolutely the strongest chess players in the world, and each of them, at least for the duration of his reign, stood head and shoulders above the rest.

What skeptic would have dared to suggest that, say, the Emanuel Lasker of the early 1900s, the José Raoul Capablanca of 1921, the Alexander Alekhine of 1927-33 and the Mikhail Botvinnik of 1948 were not the absolute top men. However, since approximately the fifties that very idea has begun to take hold. The solemn rites of the chess coronation have been replaced by typical election commotion. Today the world champion and his challenger have completely even chances. And the microscopic advantage of either cannot be weighed even on the most precise apothecary scales. They both have approximately the same number of admirers who, to continue the analogy, put on a very active election campaign to construct a halo around the head of their favorite.

For obvious reasons the chess players themselves do not participate directly in the campaigns; they do not make a tour of cities with placards appealing to voters to cast their ballots only for Grandmaster A and no one else. They are more like military leaders drawing up plans for future battles in their fortified tents. Sometimes they turn into archive worms digging ino the yellowed books in search of a new or long-forgotten move that is fated to be rejuvenated precisely in the given match.

That is why, it seems to me, it is not quite fitting to talk of chess kings. The times of chess kings are gone. Now we have many chess players with quite different styles but approximately equal strength, each of whom has not only the moral but the factual right to wield the marshal's baton.

Take a look at the titanic accomplishments of Boris Spassky before his match with Petrosyan—victory in the semifinals of the USSR championship, victory in the finals, victory in the zonal tournament, tie for top place in the interzonal meet—four triumphs in a row. And without every preceding one there would not have been the one to follow. But this was only the overture. Then Paul Keres, Yefim Geller and Mikhail Tahl were felled by Spassky in that sequence. But believe me, each one of us would have played against Petrosyan for the world title with the greatest pleasure and, given a certain amount of luck, could have counted on the match ending in his favor.

The list of players who got lost in the labyrinth of the world championship could be continued. Add also Vasili Smyslov and Victor Korchnoy. Robert Fischer, by the way, preferred not to enter the labyrinth. Why? Perhaps he will supply the answer himself.

So, no more talk of chess kings. Long live the chess republic! For to be the world champion is in itself a sufficiently high honor.

But why then did there used to be so big a gap between the class of play of the small group of patricians and, excuse me for the expression, the rabble? And now this incredible crush at the top of the chess Olympus?

I offer here two chess contests for comparison. The first is the game between Alexander Alekhine and Frederick Yates, one of the outstanding masters of the twenties.

International Tournament
London, 1922
White—Alekhine Black—Yates
Queen's Gambit

1. P-Q4	Kt-KB3	7. R-B1	P-B3
2. P-QB4	P-K3	8. Q-B2	R-K1
3. Kt-KB3	P-Q4	9. B-Q3	PxP
4. Kt-B3	B-K2	10. BxP	Kt-Q4
5. B-Kt5	0-0	11. Kt-K4	P-KB4?
6. P-K3	QKt-Q2		

A serious and hardly remediable mistake. It seems that Black underestimates the fact that Pawns cannot return to their initial position. Now the important K4-square is beyond the reach of Black's Pawns, and White's pieces occupying this square will be invulnerable. Practically any other move would have been stronger.

12. BxB	QxB	13. Kt(K)-Q2	P-QKt4?

In the same pseudoactive spirit. After this move gaping holes along the QB-file appear in Black's camp. Now we can say with certainty that strategically Black's position is hopeless. Alekhine's filigree work, easily and gracefully bringing home his advantage, is something to be admired.

14. BxKt	BPxB	15. 0-0	P-QR4

Quite a harmless demonstration.

16. Kt-Kt3	P-R5	17. Kt-B5!	....

The most convincing solution. First of all, Black's pieces that are the least bit active are exchanged.

17.	KtxKt	20. KR-B1	B-R3
18. QxKt!	QxQ	21. Kt-K5!	....
19. RxQ	P-Kt5		

Now we see how much stronger the handsome Knight on K5 is than the hopelessly "poor" Bishop doomed to idleness. Black's attempt to simplify the position after 21. .... R-QB1 would lead to the loss of a Pawn through 22. RxR, RxR; 23. RxRch, BxR; 24. Kt-B6 with the threat of either 25. KtxP or 25. Kt-K7ch.

21.	KR-Kt1	22. P-B3	....

White is getting ready to put his King into action.

22.	P-Kt6	26. K-Kt3	KR-QKt1
23. P-QR3	P-R3	27. R-B7	B-Kt4
24. K-B2	K-R2	28. R(1)-B5	B-R3
25. P-R4!	R-KB1	29. R(5)-B6!	....

Alekhine's pieces settle themselves comfortably, feeling completely at home in the camp of Black, who keeps saying "I pass."

29.	R-K1	31. P-R5!	....
30. K-B4	K-Kt1		

Ensuring the Knight a place on the KKt6-square, "just in case."

31.	B-B8	33. R-B7	....
32. P-Kt3	B-R3		

The start of the final act—a direct attack against the King.

33.	K-R2	35. Kt-Q7!	....
34. R(QB)-B7	R-KKt1		

Threatening 36. Kt-B6ch.

35.	K-R1	36. Kt-B6	....

The Knight is immune because of mate in one.

36.	KR-KB1

Now a simple but very elegant combination winds up the attack.

37. RxP	RxKt	38. K-K5	....

Nice, isn't it? The only chance of saving the Rook in one or another way is bound up with the KB1-square, but in that case all escape is closed to the King (after R-R7ch and R(QB)-Kt7). So Black resigns.

Alekhine's technical mastery is admirable. Everything is so simple, clear and logical.

Now we have an example of quite a different order. To be frank about it, I spent a whole week trying to comment on the game played by former USSR champion Victor Korchnoy and USSR champion Leonid Stein and failed in the attempt: the possibilities contained in this encounter are veritably infinite. Look at it closely and you'll get a big kick out of it. I won't distract your attention with my comments, except for this one: that somewhere around the 16th and 18th move Korchnoy should evidently have played Kt-K2, while the 32nd move led to immediate defeat. Was there anything stronger? Send us your comments, we will publish the best of them.

Here is the game.

Thirty-third USSR Championship
Tallinn, 1965
White—Korchnoy Black—Stein
King's Indian Defense

1. P-Q4	Kt-KB3	23. Q-Q3	P-K5
2. P-QB4	P-KKt3	24. Q-B3	B-KKt2
3. Kt-QB3	B-Kt2	25. Kt-KR3	Kt-Kt5
4. P-K4	P-Q3	26. PxKt	BxQ
5. P-B3	O-O	27. KtxB	Kt-B3
6. B-K3	P-K4	28. P-Kt5	Kt-Q2
7. P-Q5	Kt-R4	29. KtxP	Q-KB1
8. Q-Q2	P-KB4	30. B-B3	R-B6
9. O-O-O	Kt-Q2	31. B-Kt2	R-K1
10. B-Q3	PxP	32. K-Kt1	BxKt
11. KtxP	Kt-B5	33. BxB	RxB
12. B-QB2	Kt-B3	34. RxR	R-B8ch
13. Kt-B3	P-QKt4	35. R-K1	Q-B4ch
14. KtxP	B-QR3	36. K-R1	RxKR
15. Kt-QR3	R-Kt1	37. RxR	QxKt
16. P-KKt3	Kt(5)-R4	38. B-Q4	Q-Kt7
17. P-Kt3	B-Kt2	39. R-KKt1	Q-Q7
18. Kt-Kt1	P-B3	40. BxP	Kt-K4
19. PxP	BxP	41. B-B5	Kt-Q6
20. QxP	Q-K1	42. B-R3	Kt-Kt5
21. R-K1	R-B2	43. BxKt	Q-Q5ch
22. B-Q2	B-B1	44. K-Kt1	QxRch

and several moves later White resigned.

There is no doubt that Alekhine played the game faultlessly. And his concluding combina- was very pretty. By the way, you can find this game in any textbook. But hasn't his rival helped him greatly? Such moves as 11. P-KB4 and 13. P-QKt4 would not be made now by anyone at all familiar with chess literature. Alekhine himself said that such openings throw open all the windows and doors for one's opponent. Indeed, from the modern point of view White's job was not very difficult after the latter moves.

Not too long ago one came across many such games. Of course, no one doubts the strategic powers of Alekhine, Emanuel Lasker or Mikhail Botvinnik. But their opponents frequently sinned against elementary chess strategy. And quite frequently it was a duel between a slingshot and an atomic weapon. It doesn't happen nowadays.

As for the second game, it is very much in the spirit of modern chess.

Where then is the essence of modern chess? In the clash of the most diverse creative credos, but always substantiated, always fortified by great practical prowess and erudition. Among modern chess players we now have representatives of the so-called classic trend, headed, I would say, by Mikhail Botvinnik; of the technical trend whose leader is unquestionably Tigran Petrosyan; of rationalism—Robert Fischer and Vasili Smyslov; romanticism—David Bronstein; and impressionism—Victor Korchnoy. Who is the best? That we do not know. There are as many creative styles as there are chess players. The strongest? That is also unknown. There are as many different results as there are tournaments. And each of the participants could be king. But only if all the rest agree to become his subjects.

THEORY, EXPERIMENT, PRACTICE

No problem is too small or too great for today's scientists and engineers. Their projects range from kitchen gadgets to whole cities. They research man's oldest occupation, farming, and his newest industry, synthetics.

Once a rock gets into a hydraulic dredge, it acts like the proverbial monkey wrench tossed into the machine. Since so many dredges are used to dredge lakes and rivers, the damage from what is technically called "oversize occurrences" is very great indeed. A team of Moscow inventors has designed a branch pipe with rotor crusher installed in its lower section. The new device was put through its paces on the construction site of the Bratsk hydroelectric power project on the Angara. Revolving at a linear speed of 100 feet per second, the crusher cracks boulders like nuts. The device will pay for itself in six months.

An average-size oil refinery uses as much water for cooling as a town of several thousand people. The new chemical plants will need as much as 17.7 billion cubic feet of water annually, about what a city with a population of five million uses. Water, considered to be practically inexhaustible, was once the only coolant in heat exchangers. However, industrial growth and urbanization has led to a sober reappraisal of water resources. The full cycle from river through heat exchanger and back to river is quite complex. Water passes through all kinds of pumps, saltpans, purifiers, softeners, mile-long networks of pipes, condensor coils and exchangers. No matter how perfect the system, deposits of salt, scale and fur are inevitable. At the other end, lakes and rivers become polluted, fish die, forests are depleted, and pure water for the cities becomes a problem.

A Soviet oil equipment design institute has worked out a partial answer—a new type of air cooling for oil refineries and chemical plants. The system essentially reduces itself to powerful fans that blow air on finned pipes carrying a gaseous or liquid coolant.

The institute is now designing a plant which will handle six million metric tons of oil annually. Most of its systems will be using air as coolant. Simultaneously, the institute is working on the world's largest air-coolant refrigeration plant whose cooling surface will total 10.7 million square feet (many times more than the most powerful water-coolant refrigerator). Air will be supplied by a fan with 25-foot plastic glass blades. An automatic regulator will change the angle of the blades depending on the temperature of the system, thereby saving up to 50 per cent of power.

Thus, one aspect of the water shortage problem facing builders of large industrial centers is being solved.

The term "self-propelled chassis" is familiar to every Soviet farmer. It refers to a tractor which mounts a plow, sower, cultivator, or any other implement. The helicopter KA-26, designed by a team headed by Nikolai Kamov, is called the "flying chassis." The helicopter is intended for field work from the air, but it can, if necessary, carry passengers and freight. For this the bunker for chemicals and the system of dusters need only be replaced by a six-seat passenger cabin. A hatch in the floor of the cabin permits passengers to enter or leave the helicopter when it hangs very low over the ground. The KA-26 can also be used as a flying crane carrying loads on its outer jib. Two 325 horsepower engines are installed in nacelles on both sides of the helicopter, a feature which leaves the middle free for mounting equipment.

Incidentally, most parts of the helicopter are made of synthetics—the blades, for example, are of strong phenol epoxide resins. The KA-26 can stay in the air for three and a half hours, and additional fuel tanks that are easily attached can treble the length of its flight.

A modern jet or ocean liner is inconceivable without automatic control. Why should the tractor fall behind? A laboratory at the Institute of Cybernetics of the Georgian Academy of Sciences has designed an automatic device that replaces the tractor operator.

The inventors, Guran Machavariani and Shalva Bakhtadze, used the principles of photoelectric cells but with an essentially new approach. The tractor is controlled by an "eye" consisting of a photosensitive electron tube and an electronic system. A disc with a slit and a view mirror are installed on the shaft of the electric motor. Rays of light reflected off the cultivated field hit the vertical lens tube and are projected on the sensitive elements within the sensor. A revolving mirror scans the entire field. When it detects the line between plowed and unplowed areas of the field, a signal energized in the phototube triggers the electronic device for controlling the tractor. The automatic tractor put on a fine performance during a trial run on an experimental field in Georgia.

Every year the world population increases by some 40 million—another 40 million people to be housed. The figure demonstrates the importance of city planning.

The best city plan means better living for more people at lower cost. Thus far only isolated problems of city planning have been tackled mathematically. Obviously these are piecemeal solutions. Khillar Abben, a young Estonian who graduated only five years ago, and Lorents Khalyak, Chief Architect of Tallinn, Estonia, have worked out a mathematical model for the development of their whole city. Tallinn plans to spend more than one billion rubles on construction between now and 1990, so that even a few per cent saved would come to quite a sum.

Abben and Khalyak's model gives all possible variants of the general layout. An electronic computer will choose the best.

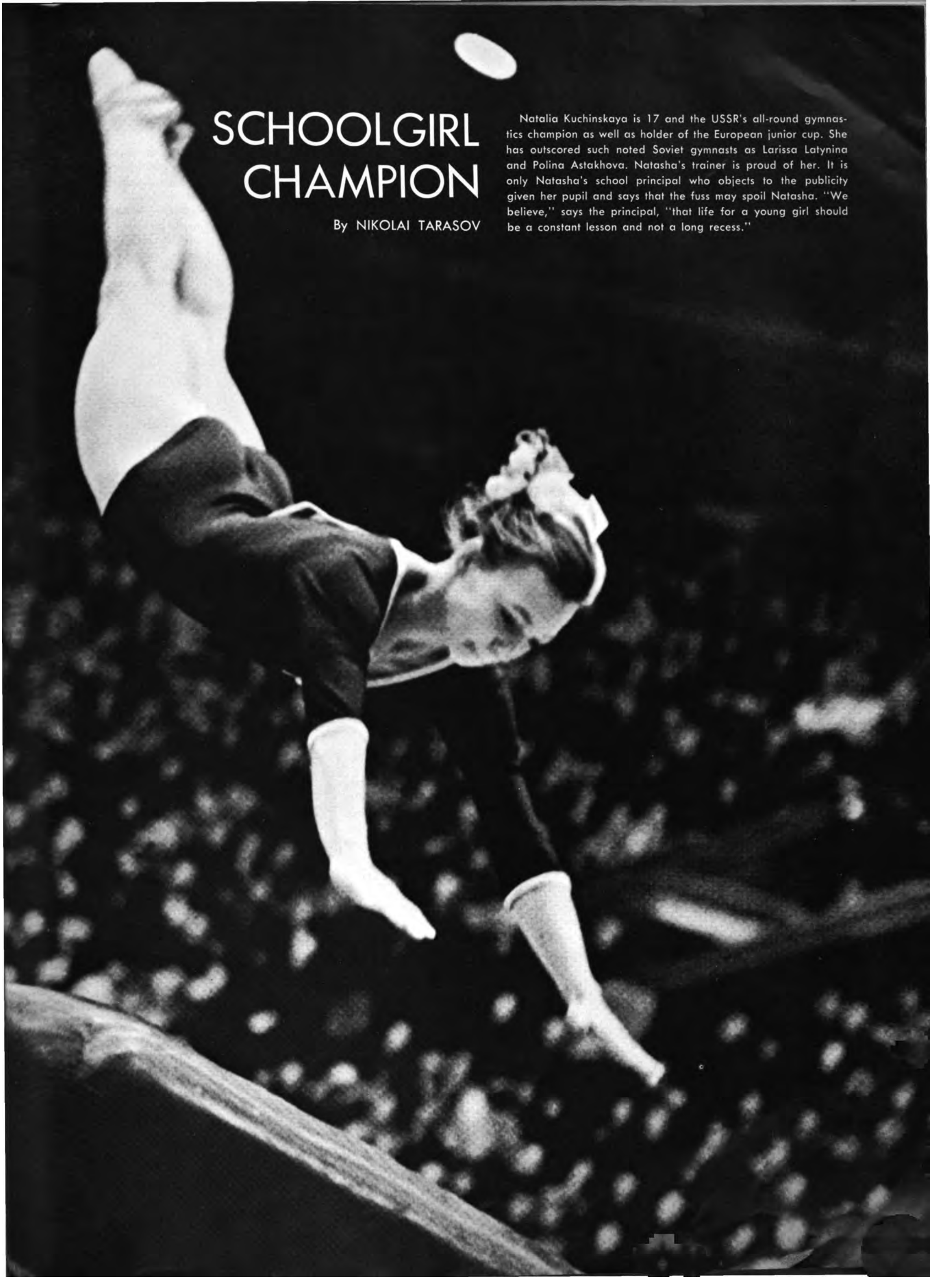
What is the best variant? The one which means cheapest and quickest building, other factors being equal. The variant must take into consideration the maintenance costs of housing and public buildings, the construction and maintenance costs of municipal works and transport facilities, etc. Among other things, the master plan has to consider convenience, for example, how much time a city resident spends to get to work. Earlier the designers recommended that housebuilding be concentrated in the suburbs. But the computer showed that it is cheaper to begin rebuilding the downtown part of the city, where there are more old houses. Calculations indicate that nine-, fourteen- and sixteen-story buildings will be the most economical in the center of Tallinn, in view of the price of land. The optimum variant worked out by the electronic computer has saved about 38 million rubles as against the preliminary variant, in addition to cutting long-term and maintenance expenses by something like two million rubles.

The application of mathematics to city planning has evoked the keen interest of architects in Moscow, Kiev and other large cities.

SCHOOLGIRL CHAMPION

By NIKOLAI TARASOV

Natalia Kuchinskaya is 17 and the USSR's all-round gymnastics champion as well as holder of the European junior cup. She has outscored such noted Soviet gymnasts as Larissa Latynina and Polina Astakhova. Natasha's trainer is proud of her. It is only Natasha's school principal who objects to the publicity given her pupil and says that the fuss may spoil Natasha. "We believe," says the principal, "that life for a young girl should be a constant lesson and not a long recess."



Natasha is much like other girls her age—has the same classes and homework—except that after school she trains for four hours with her coach Vladimir Reison, and sometimes gets the special thrill of giving autographs.

IT WAS during a class break. A girl in a dark school uniform, pinafore and blue stockings walked down the corridor so intent on an open book that she was practically oblivious to her surroundings. I followed her into the classroom and observed her at a math lesson.

Natasha is in the tenth grade of Leningrad school No. 239. When the teacher called her to the board, she promptly and tidily covered it with algebra equations.

I had tried before to make appointments to see her, especially during school holidays. But the answers were always the same—"Natasha is going out of town," "Natasha has just gone to Chelyabinsk," "Natasha is in Moscow." As soon as the answer to my call was "Natasha is back," that very morning I got to Leningrad and tracked down this famous sports star.

Her school happens to have a "mathematical bias," but in less than a year it also acquired what may be called a "sports bias." It had its sports stars before, but Natasha's arrival pushed the school directly into the limelight, and interest in sports mounted. Natasha was 16 when she came to the school and was already in the Master of Sports class.

When the principal, Maria Matkovskaya, admitted this daughter of two physical culture instructors, it was hardly likely she knew what she was in for. Natasha had come highly recommended from her previous school as a "quiet, modest, hard-working pupil with both mathematical and literary abilities." The recommendation added that she loved sports. But what was wrong with that so long as it did not affect her other grades?

It was at about this time that hopes ran high for Natasha at the Trud Sports Association to which she belongs.

"I was absolutely certain four years ago when I handed Natasha over to her new trainer Vladimir Reison that she would eventually carry off the USSR cup," said Klavdia Zherdeva, who had first coached the girl. "It was back in 1957 that her mother brought her to our class, just an ordinary little girl with a chubby face and not especially good posture. But she had pluck and grit, the qualities that can turn an ordinary child into a champion. As a matter of fact, I have never seen a pluckier little girl. She would go for the hardest jump or stunt with a sparkle in her eye and not the least hint of fear."

When I asked trainer Klavdia Zherdeva why she had given up Natasha when she knew the girl had a great future, she replied that she wanted her to have the best trainer available, somebody much better qualified than herself.

It is an interesting coincidence that the gym teacher in her present school has known Natasha since she was nine.

She, too, says that perseverance and pluck were her outstanding qualities. "And the will to win," she adds. "Natasha always had to be first or, at worst, second. And except for an accidental fall, her progress from one sports class to another has been consistent."

I did not get a chance to discuss Natasha with Vladimir Reison, her present coach, but I was able to watch her train. She puts in about four hours every afternoon after school. I saw the hard, step-by-step polishing up of every stunt which precedes her flawless performance on floor and beam. With a sparkle in her eyes, her whole face lighted up, she translates Liszt's music into consummate movement. Ulanova is Natasha's ballet idol. She tries to copy the illustrious ballerina's art of blending movement with music.

"Natasha is a wonder," said Larissa Latynina. "She has won against both Astakhova and myself, and yet she is still a child, doesn't even want to be grown-up. She would much rather play hide-and-seek than do anything else. Ask her."

"I do like that game," Natasha smiled. "But what I like even better is going fishing with Dad, playing basketball, running and jumping. My best times are those I spend in the gym. When I have to miss a training session—it happens two or three times a year—I always feel terribly upset."

"Do you feel cheated out of something?"

"I don't know. . ."

Natasha's answers were very brief, and the only time I really succeded in drawing her out was when we were waiting at the streetcar stop in Leningrad. I saw a funny-looking pup and quoted Yesenin's famous line—"Give me your paw for good luck, Jim!"

"Do you like Yesenin?" Natasha asked, lighting up.

We walked for two blocks talking poetry. "'In the garden, the mountain ash flames red. . .' Remember that line? I could go on repeating it all day."

Natasha, who was 17 last March 12, invited all her classmates to her birthday party. Many of them, Natasha included, belong to the Crimson Sails, the school's literary club. At the home of the USSR gymnast champion, they spent the day at their favorite literary pastime—reciting poetry. Romantic like most girls her age, Natasha read a poem she had written about Mikhail Lermontov.

Natasha may be a global star, a darling of the sports world with thousands of fans writing to her, but I can't think of her except as a young girl—no glamour, in a plain dark school uniform, walking down her school corridor.

Courtesy of Ogonyok

During a break at a recent competition in Leningrad, Natasha (right) has a chat with another young gymnast.

STUDENT GIFT

The modern-looking bui with wall frescoes at the yabr State Farm in Kazakhst is rather unusual amid the rust scenery. It is a school built, fre of charge, by students from th Moscow Higher Technical School when they vacationed in the vir gin lands.

WHALE RIDER

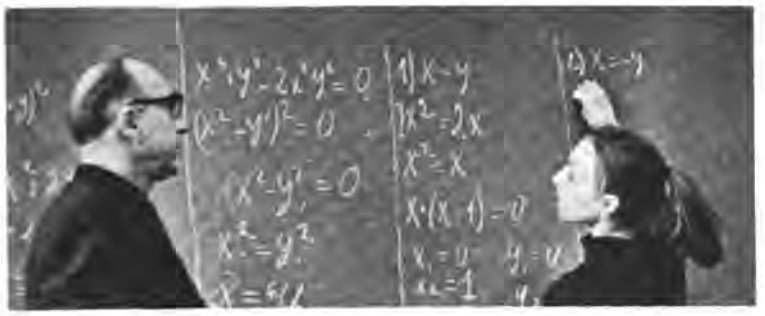
ough a storm was raging and deck was icy, the whaling *Staratelny* did not give its quarry. A bio

rs at the eningrad Higher School of Ship ngineers and often took the adets out on training cruises aboard the *Sirius* to teach them o man the sails, tie knots, splice ope and climb the masts in a gale. The old sea dog, much re- pected by the cadets, made all he visual aids in the tackle room y hand. He has also compiled an atlas on ship tackle, the third edition of which is to be published soon.

SPECK-SIZE MOTOR

Ukrainian craftsman Mikhail Maslyuk's latest wonder is an operating electric motor one-fiftieth the size of a poppy seed. Its sound can be heard only when amplified. He has also taken millimeter-size photographs with a size camera he made. His pic instruments are used tors in ex

In jac nadi P above River in S mission li Krasnoyar Kuzbas co in the Pacif Albert Mach eral years as which time h climbing ma quite a repu on the const giant transmis



Natasha is much like other girls her age—has the same classes and homework—except that after school she trains for four hours with her coach Vladimir Reison, and sometimes gets the special thrill of giving autographs.

IT WAS during a class break. A girl in a dark school uniform, pinafore and blue stockings walked down the corridor so intent on an open book that she was practically oblivious to her surroundings. I followed her into the classroom and observed her at a math lesson.

Natasha is in the tenth grade of Leningrad school No. 239. When the teacher called her to the board, she promptly and tidily covered it with algebra equations.

I had tried before to make appointments to see her, especially during school holidays. But the answers were always the same—"Natasha is going out of town," "Natasha has just gone to Chelyabinsk," "Natasha is in Moscow." As soon as the answer to my call was "Natasha is back," that very morning I got to Leningrad and tracked down this famous sports star.

Her school happens to have a "mathematical bias," but in less than a year it also acquired what may be called a "sports bias." It had its sports stars before, but Natasha's arrival pushed the school directly into the limelight, and interest in sports mounted. Natasha was 16 when she came to the school and was already in the Master of Sports class.

When the principal, Maria Matkovskaya, admitted this daughter of two physical culture instructors, it was hardly likely she knew what she was in for. Natasha had come highly recommended from her previous school as a "quiet, modest, hard-working pupil with both mathematical and literary abilities." The recommendation added that she loved sports. But what was wrong with that so long as it did not affect her other grades?

It was at about this time that hopes ran high for Natasha at the Trud Sports Association to which she belongs.

"I was absolutely certain four years ago when I handed Natasha over to her new trainer Vladimir Reison that she would eventually carry off the USSR cup," said Klavdia Zherdeva, who had first coached the girl. "It was back in 1957 that her mother brought her to our class, just an ordinary little girl with a chubby face and not especially good posture. But she had pluck and grit, the qualities that can turn an ordinary child into a champion. As a matter of fact, I have never seen a pluckier little girl. She would go for the hardest jump or stunt with a sparkle in her eye and not the least hint of fear."

When I asked trainer Klavdia Zherdeva why she had given up Natasha when she knew the girl had a great future, she replied that she wanted her to have the best trainer available, somebody much better qualified than herself.

It is an interesting coincidence that the gym teacher in her present school has known Natasha since she was nine.

She, too, says that perseverance and pluck were her outstanding qualities. "And the will to win," she adds. "Natasha always had to be first or, at worst, second. And except for an accidental fall, her progress from one sports class to another has been consistent."

I did not get a chance to discuss Natasha with Vladimir Reison, her present coach, but I was able to watch her train. She puts in about four hours every afternoon after school. I saw the hard, step-by-step polishing up of every stunt which precedes her flawless performance on floor and beam. With a sparkle in her eyes, her whole face lighted up, she translates Liszt's music into consummate movement. Ulanova is Natasha's ballet idol. She tries to copy the illustrious ballerina's art of blending movement with music.

"Natasha is a wonder," said Larissa Latynina. "She has won against both Astakhova and myself, and yet she is still a child, doesn't even want to be grown-up. She would much rather play hide-and-seek than do anything else. Ask her."

"I do like that game," Natasha smiled. "But what I like even better is going fishing with Dad, playing basketball, running and jumping. My best times are those I spend in the gym. When I have to miss a training session—it happens two or three times a year—I always feel terribly upset."

"Do you feel cheated out of something?"

"I don't know. . ."

Natasha's answers were very brief, and the only time I really succeded in drawing her out was when we were waiting at the streetcar stop in Leningrad. I saw a funny-looking pup and quoted Yesenin's famous line—"Give me your paw for good luck, Jim!"

"Do you like Yesenin?" Natasha asked, lighting up.

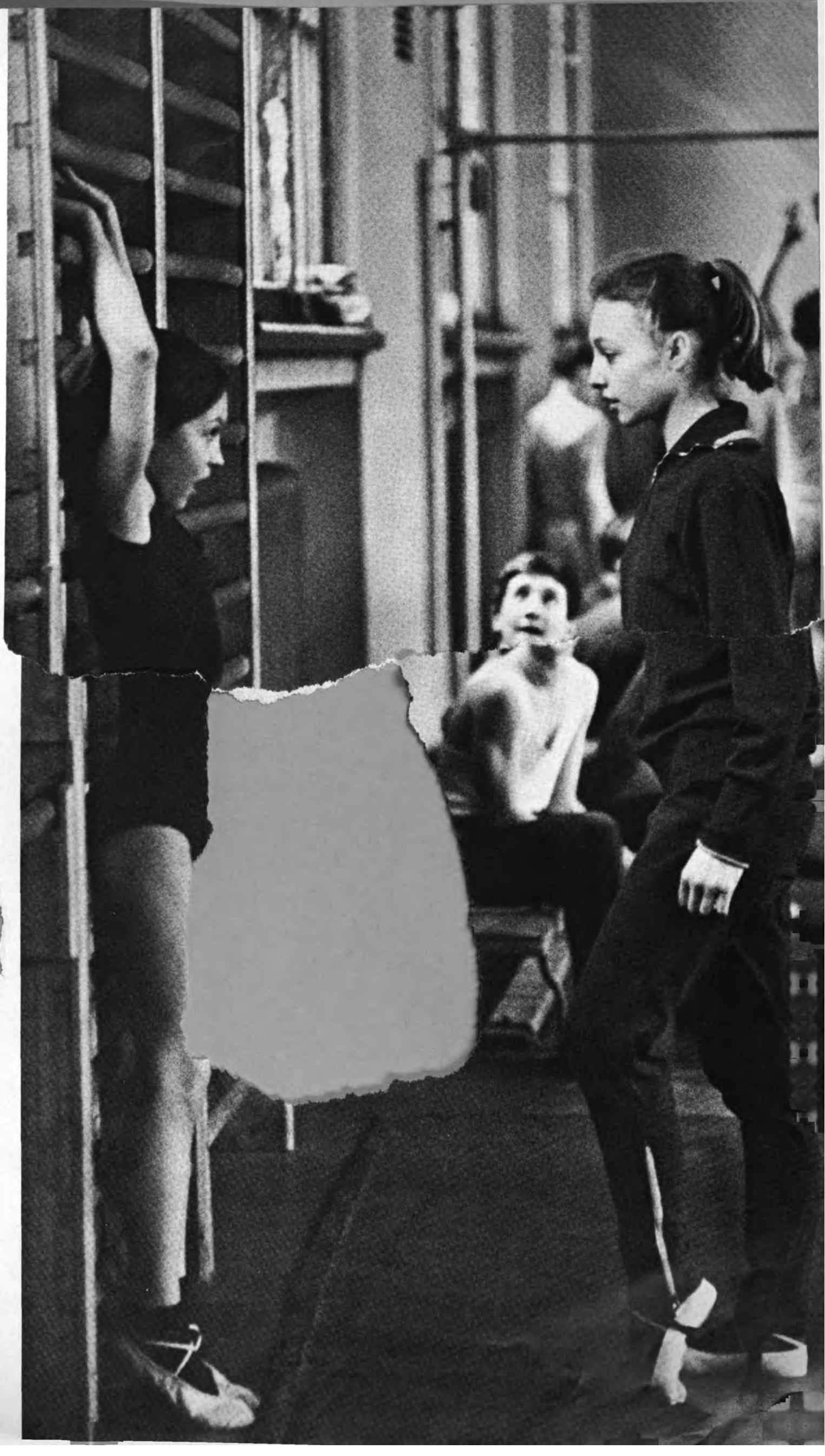
We walked for two blocks talking poetry. "'In the garden, the mountain ash flames red. . .' Remember that line? I could go on repeating it all day."

Natasha, who was 17 last March 12, invited all her classmates to her birthday party. Many of them, Natasha included, belong to the Crimson Sails, the school's literary club. At the home of the USSR gymnast champion, they spent the day at their favorite literary pastime—reciting poetry. Romantic like most girls her age, Natasha read a poem she had written about Mikhail Lermontov.

Natasha may be a global star, a darling of the sports world with thousands of fans writing to her, but I can't think of her except as a young girl—no glamour, in a plain dark school uniform, walking down her school corridor.

Courtesy of Ogonyok

During a break at a recent competition in Leningrad, Natasha (right) has a chat with another young gymnast.



AROUND the COUNTRY

DOYEN OF CABBIES

In this atomic age of ours wouldn't you like to ride in the carriage your great grandfather did? A great many people would, the reason 83-year-old Sergo Matua of Zugdidi in Georgia has to fend off passengers, especially on holidays. His ancient vehicle stands up well against stiff automotive competition.

A 250-POUND TOPAZ?

No oriental emperor ever had a gem this size. No semi-precious stone so large is described in the geology manuals. However, a topaz tipping the scales at 258 pounds was found recently at the Kolynsky deposit in the Ukraine. It is on display at the Moscow University Geology Museum, which claims to be the only collection in the world with such an exhibit.

FARM MACHINE DISPLAY

At the farm machine exhibition in Moscow spread over an area of 494 acres, some 700 foreign firms, including Ron Poulenc of France, Fiat of Italy, Komatsu of Japan and Allis-Chalmers of the United States, displayed thousands of items, from giant tractors to a miniature device for determining the fat content in milk. Many profitable deals were made during the run of the exhibition.

DUAL PURPOSE FISH

People at the Klasson power station in northwestern Soviet Union call the Ctenopharyngodon —otherwise known as the white Amur—their salvation. This fish, brought in by helicopter from the Far East on the advice of Moscow University scientists, helped rid the station's cooling reservoir of reeds; all other means had proved unavailing. Besides clearing out the reeds so that the station can generate more electriciy from the same capacities, the fish provides a tasty dish into the bargain. Reservoirs of the Shatura, Yaroslavl, Central Urals and other large thermal power stations have been populated with the white Amur, and plans for new stations now stipulate that it be bred.

NEW BALTIC POWER STATION

The 825,000-kilowatt five-turbine Pljavin hydroelectric power station on the Daugava in Latvia will generate an annual one billion kilowatt-hours. The dam is 98 feet high.

CENSUS TO BE TAKEN IN 196[illegible]

By decision of the Soviet Government, a nationwide population census is to take place in the USSR in January 1969.

The demographic picture of the country has changed considerably since the last census.

The population of the Soviet Union has been growing at an average annual rate of 3.3 million. It was 209 million in 1959. Since then many large new populated centers have appeared, the educational level has risen considerably, and the number of highly skilled specialists has increased.

[illegible] SUVOROV'S COUNTRY HOUSE

A famous village in Novgorod Region is Konchanskoye-Suvorovskoye, where the great Russian soldier Alexander Suvorov sper[illegible] the years between 1797 and 17[illegible] under the strict surveillance o[illegible] police of Paul I. He liked up Dubikha Hill to adm[illegible] scenery, and at his wish two-story structure with a gallery was built there [illegible] mer house. It burned 1920.

In 1940 the local opened a museum h[illegible] petuate Suvorov's me[illegible] wanted to rebuild t[illegible] house, but the wa[illegible] This year, in respons[illegible] from the many visito[illegible] of the villa was star[illegible] timers Nikolai Smirn[illegible] Krylov as consulta[illegible] member what the bu[illegible] like before it burned [illegible]

MAGIC LANTERN FACTORY

Film equipment used in metropolitan centers, on high mountain grazing land, in Central Asia, on fishing boats far out to sea, bear the trademark of the Odessa Kinap Factory. The film projectors it makes are popular abroad too. They are sold to 50 countries. Only recently a consignment of projectors with a 30,000 lumen beam went to Madras in India. The Odessa factory also makes universal projectors for 70 mm and ordinary film.

UKRANIAN CERAMICS

The Ukrainian village of Opishki has long been famed for its charming earthenware, a handicraft passed from generation to generation. Using traditional techniques, young artists produce new patterns and designs for their brightly painted vases, jugs, plates and toys. About 100,000 items a year are shipped to 27 foreign countries.

MODERN STRADIVARIS

Bolshoi violinmakers Alexander Kochergin and the Gorshkovs, father and son, took the top prizes at the hard-fought Moscow competition, where 163 violins vied for the honor of being exhibited at the Moscow Conservatory during the recent Third International Tchaikovsky Competition. Celebrated musicians and conservatory professors served on the jury.

[illegible] "sap of life." And it justifies the name. It is used in medications for serious ailments, especially those that afflict foundrymen, drillers and miners. It is also used in industry. At the Gorky Chemical Plant big reactors separate it into the turpentine and resin necessary for the manufacture of automobile tires, paper and perfumes. More than 300 different items produced by the chemical industry use the "sap of life."

EXPO[illegible]SHION

Soviet designs have carried off prizes at many international fashion shows. Russia has always been famed for its national costumes, upon which Soviet couturiers have drawn to fashion clothes well suited to modern tastes. Since it is far more profitable to sell garments than textiles, the USSR has decided to export clothing. At shows-cum-sales in Sweden, Norway and the Federal Republic of Germany 100 different lines of ladies' and children's cotton and linen lavsan (polyester) garments, by top Soviet designers, were exhibited.

WEATHERMEN OF WORLD'S NEWEST SEA

A floating hydrometeorological station has been set up on an ice floe in the world's newest sea, the manmade Bratsk reservoir in Siberia. The staff maintains a round-the-clock vigil to observe weather changes, air temperature fluctuations, currents and the composition of the water.

STUDENT GIFT

The modern-looking building with wall frescoes at the Oktyabr State Farm in Kazakhstan is rather unusual amid the rustic scenery. It is a school built, free of charge, by students from the Moscow Higher Technical School when they vacationed in the virgin lands.

WHALE RIDER

Though a storm was raging and the deck was icy, the whaling boat *Staratelny* did not give up chasing its quarry. A big whale was harpooned, but as the windlass creaked, the boat heaved and assistant harpooner Sergei Misechko was thrown overboard. A boat was lowered at once. The crew looked up to see their mate riding the whale. However, the whale, which was not mortally wounded, tossed the unwelcome rider off. Misechko kept his wits about him, dived under the leviathan and was rescued.

EMIR'S HOARD

Builders working on the Shafirkan power station in Turkmenia spotted two gold coins in the freshly turned earth. They were five-ruble pieces minted in 1895. Further search revealed another 120 coins. Old-timers say it was near Shafirkan that Red Army men captured Bukhara's last emir, Said Ali Khan, as he was making for the border. Apparently he buried part of his treasure and threw the rest into the river just before he was taken.

DESERT TV

The new TV relay line being built—with masts spaced 31 miles apart—across the desert along the Bukhara-Urals gas pipeline, will be used to control all compressor stations on the line from a central panel in Sverdlovsk. It will also relay TV programs from Moscow, Kiev, Leningrad and other cities to desert audiences.

CUSTOM-BUILT CARS FOR EXPORT

The Volga built for Nepal is markedly different from the product the Gorky auto plant makes for, say, Britain or France. In the Volga made for the tropics all metal parts are treated with special varnishes to prevent corrosion. For countries with left-hand traffic, the Volga model exported has left-hand steering. For Belgium, where gasoline is very expensive, the Gorky plant made a large consignment of Volgas minus engines so that buyers could install diesel engines. The Volga has earned popularity in many countries and is produced in 24 modifications.

SEA DOG

When spring winds blow from the Neva to the Baltic, 80-year-old ex-boatswain Vasili Gryaznov, a sturdy, silver-bearded ancient hurries down to the quay to give a parting wave to the three-master *Sirius*. Memories of his more than half-century association with the sea include Russia's first submarines and refloating the stranded icebreaker *Sibiryakov* off a reef. Before retirement he worked for some 20 years at the Leningrad Higher School of Ship Engineers and often took the cadets out on training cruises aboard the *Sirius* to teach them to man the sails, tie knots, splice rope and climb the masts in a gale. The old sea dog, much respected by the cadets, made all the visual aids in the tackle room by hand. He has also compiled an atlas on ship tackle, the third edition of which is to be published soon.

SPECK-SIZE MOTOR

Ukrainian craftsman Mikhail Maslyuk's latest wonder is an operating electric motor one-fiftieth the size of a poppy seed. Its sound can be heard only when amplified. He has also taken millimeter-size photographs with a pea-size camera he made. His microscopic instruments are used by Soviet doctors in eye and ear operations and by researchers to dissect minute insects. He recently arranged an "exhibition" of more than 100 of his unique microscopic items, all under a single watch crystal.

BOAR STEAK TO ORDER

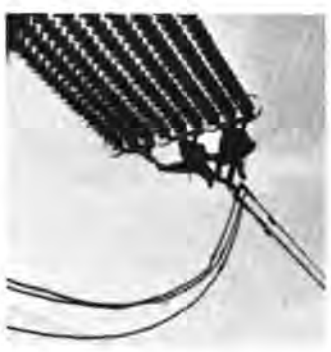
Where can one sample a boar steak without going to the trouble of shooting and skinning the animal? For several years now a shop in Moscow called Lesnaya Byl has been selling wild game bagged by hunters in Siberia, Kazakhstan, the Caucasus and the Arctic North. The chef at this shop—there are several like it in the capital—will roast a partridge for you or broil you a boar steak or shashlyk of Siberian deer, garnished with pickled cherries or salted cabbage.

HAMMERING OUT MUSIC

Noise is tiring. But can it be made to soothe as well? Can the noise of a machine tool be made to stimulate the operator to greater effort? Fourth-year engineering student Zaur Hetaguri of Tbilisi has proved that it can. He has designed a sound generator. A steam-hammer operator equipped with earphones attached to the antinoise device hears only pleasant sounds instead of the usual clatter. Many Tbilisi plants have commended the contraption.

TAIGA STEEPLEJACKS

In only 11 days, taiga steeplejacks Albert Machulin and Gennadi Peremitin, working 164 feet above the half-mile-wide Yenisei River in Siberia, strung up a transmission line to feed electricity to Krasnoyarsk Territory and the Kuzbas coal fields. After service in the Pacific Fleet, Moscow-born Albert Machulin worked for several years as a stagehand, during which time he contracted the cliff-climbing mania. He has earned quite a reputation now working on the construction site of this giant transmission line.



FIVE-SEA CANAL

The canal, four times longer than the Panama and twice as long as the Suez, is kingpin of the Volga-Baltic waterway, linking up five seas—the White, Baltic, Caspian, Black and Azov. It is estimated that by 1970 a total of 20.5 million metric tons will have been shipped, nonstop, along this waterway.

NEW IRON ORE DEPOSIT

Geologists have discovered iron ore deposits estimated at 35 million metric tons near the Baikal mines in the Southern Urals. The ore is near the surface and can be mined by the economical opencast method.

PUSHKIN POEM FILMED

A 70-mm stereophonic picture based on Alexander Pushkin's poem "Tale of Czar Saltan" has just been completed at the Mosfilm Studios by director Alexander Ptushko. This movie maker long ago earned himself the title "storyteller with a camera." Thirty years back he made a 3-D color film based on Pushkin's "Tale of the Fisherman and the Fish." Ptushko says the new picture is a tragicomedy and, except for a few scenes and episodes, sticks close to the text.

AROUND the COUNTRY

WHEN DADDY WAS LITTLE

Excerpts from the book

BY ALEXANDER RASKIN

Dear Children,

I want to tell you how I came to write this book. I have a daughter. Her name is Sasha. She is quite a big girl now, and she often says: "When I was little. . . ." Well, when Sasha was little, she used to get sick. She had either the flu, or a sore-throat, or an earache. If you ever had an earache, I needn't tell how painful it is, and if you never did—you wouldn't understand, so there's no use my telling you.

Once Sasha had a very bad earache. She cried all day long and couldn't fall asleep at night. I was so sorry for her that I nearly cried too. So I read to her and told her funny stories. I told her how, when I was little, I once threw my fine new ball under a car. Sasha liked that story very much. It was interesting to find out that her daddy had also been little once, that he used to be naughty, didn't behave himself and was often punished. The fact that for 25 years I've been writing anecdotes, parodies and epigrams for grownups is my personal problem, so at least my daughter thinks.

She always remembered that story, and whenever she had an earache, she used to cry: "Oh, Daddy, Daddy! I've got an earache again! Come and tell me about when you were a little boy. Quick!" And I used to tell her everything that you will find in this book. I tried to make the stories funny—because I wanted to amuse my sick little girl and make her forget the pain. And I also wanted her to understand how bad it is to be greedy, to brag and give oneself airs. But it does not mean that I used to be like that myself: I just tried to remember things that happened, and when I didn't have enough, I simply borrowed from other daddies I knew—since every one of them was little once upon a time. So, you see, these stories are all true.

Now Sasha is grown up. She seldom gets sick, and when she does, she reads big interesting books by herself. But I decided to write down these stories all the same: maybe some other children would like to know about one daddy when he was a little boy.

And that is all I wanted to say. No, one thing more, but it's a secret: This book is going to have a sequel. And the sequel will be different for every one of you—for every daddy can tell you what happened to him when he was little, and every mommy too. I should like to hear them myself.

Well, now that's really all. Good-by, children! I wish you happiness and the best of health,

Sincerely yours,
Alexander Raskin

HOW DADDY MADE A MISTAKE

WHEN Daddy was little, he drank milk, water, tea and cod-liver oil.

Cod-liver oil was very good for him, but so hard to swallow! Little Daddy thought there was nothing worse in the whole world than cod-liver oil. But he was mistaken.

One summer little Daddy was playing in the street. It was a hot day and after running around a lot, he wanted a drink. So he rushed home, but found everybody terribly busy baking pies, setting the table and waiting for guests to arrive.

Without anybody noticing, he poured a drink for himself out of a pitcher. He knew the pitcher always held distilled water, and gulped down half a glass before spluttering and wondering what had happened to the water.

Little Daddy thought he had swallowed a live porcupine! Then he decided that there was nothing wrong with the water, but that there was something wrong with him. He got scared and, thinking he would die, began to scream. The whole house came running.

Little Daddy coughed and choked, and his mouth burned. He felt awful but couldn't explain what had happened to him.

"He's sick!" cried Grandma.

"Oh, he's just putting on an act," said Grandpa.

But when Nurse came in, she understood immediately.

"He's drunk the vodka. Can't you see there's vodka in the pitcher?"

At this everybody began to yell.

"Call a doctor!" cried Grandma.

"I'll give you a spanking!" cried Grandpa.

"He's got to eat something right away," cried Nurse.

As Little Daddy munched a sandwich, he said:

"I suppose vodka is very good for you."

But then he began to feel still worse and sat on the floor. His head was spinning.

He didn't remember anything after that, but they told him that he slept all day. When the guests arrived and began to drink vodka, Little Daddy watched them from the couch. He felt very sorry for them. He knew how bad they would feel, and even told one of the guests:

"Don't drink that awful stuff!"

But the stupid guest only laughed.

The next morning Little Daddy felt better, but he never drank water out of the pitcher again. And whenever he sees vodka now, he always pulls a long face.

Daddy likes to tell that story, and always ends up saying:

"I have never taken a drop since."

HOW DADDY WENT TO THE MOVIES

WHEN Daddy was little, they wouldn't let him go to the movies for a long time. They told him: "You're too young. All in good

time. Movies aren't any fun anyway." That was what Grandma and Grandpa said. And Auntie would add: "The movies is just the place to catch something—measles, scarlet fever, whooping cough, not to speak of diphtheria."

After that Auntie would talk a long time about diphtheria.

In vain did Little Daddy beg to go to the movies. In vain did he say that all his friends went and none of them had caught the measles, scarlet fever or whooping cough, let alone diphtheria. But he always got the same answer:

"You can go to the movies all you like as soon as you go to school."

Little Daddy had to satisfy himself with seeing his older friends play movies. They showed him how Douglas Fairbanks jumped in his famous *The Mark of Zorro* and how he fenced and turned up in a black mask and defeated all his enemies. The boys played Charlie Chaplin with his stick, and funny Igor Ilyinsky, and long-legged Pat and short and plump Patashon. They tried their very best, jumping on one another to show what cowboy William Hart looked like.

Little Daddy also heard the grownups saying about Mary Pickford's smile: "It's simply radiant!"

"How does she smile?" he asked his friends. One boy began to show him how Mary Pickford smiled in *When the Snow Melts*. He tried so hard that the boys said he smiled much better than Mary Pickford. Especially since she had been smiling for many years and was paid for it, while he was smiling for only the second day, and for nothing, just for his friends.

Little Daddy realized that the boys wanted to help him. But that only made him want to go to the movies still more.

Finally the day arrived when he did. It was when Little Daddy began to go to school. On the very first Sunday the whole class went with Teacher to a children's show. The film was called *The Little Red Devils*. Little Daddy had read the book and wanted to see the young scouts and the terrible Ataman Makhno and all the wonderful things that happened in that fascinating story.

The movies were near Little Daddy's house. Even Little Uncle Vitya, Daddy's baby brother, knew that. He got there before Little Daddy did and made friends with the whole class and Teacher. When Little Daddy spotted his baby brother at the movies, he didn't say anything, but just grabbed him by the ear to drag him home. Little Uncle Vitya cried so hard that three candies fell out of his mouth at once. You see, the girls in Daddy's class had treated him to candy. And since Little Uncle Vitya was a very polite boy, he never refused candy when it was offered to him. Uncle Vitya cried so hard that the whole class took his side. Even Teacher said: "Let him come along. I'll be responsible."

So then Little Daddy let go of his brother's ear and everybody went inside. Since the seats were not numbered for the children's matinee, everybody rushed into the hall helter-skelter, with happy Little Uncle Vitya jumping ahead like a hare. Of course, he tripped and fell. And since Little Daddy was right behind him, he fell on top of him. The whole class, running behind them, tumbled on both of them. It was a pretty heavy pile. Especially for the ones underneath. And Little Uncle Vitya, who had jumped like a hare, now screamed like a hare does when a dog catches it. And Little Daddy began to yell too. But just then Daddy's Teacher came running in with two other teachers from another school. They stopped the rush and picked up Little Daddy and Uncle Vitya. Both Daddy and Uncle had black-and-blue marks and scratches. They were both sent home as casualties. When Auntie saw the black-and-blue marks and scratches, she said: "Didn't I tell you so?"

After that Daddy wasn't allowed to go to the movies for a long time. But finally they let him go, and he saw *The Little Red Devils*. And many other pictures. He likes the movies to this day. So does Uncle Vitya.

HOW DADDY COLLECTED SCRAP

WHEN Daddy was little, he used to collect scrap with the other kids. They knew that old paper and rags were made over into clean notebooks and interesting new books to read, and it is so nice to know you can help make at least one more notebook or even half a reading book. Even if it isn't too interesting. Even if the notebook is ruled for math, which Little Daddy never liked. And as for scrap iron!

If you know that a new locomotive, a real tractor or an honest-to-goodness airplane which can fly can be made out of an old leaky tea kettle, a broken kerosene stove or a rusty pot, you wouldn't mind sparing even a new kerosene stove! At least Little Daddy and his friends would have given everything for a plane. So, gathering after school hours, the Young Pioneers roamed their blocks for old scrap iron. They rang bells and knocked on doors, and did not miss a single house, doorway or apartment. They liked going around together, seeing different people and collecting odd things. They were given old candlesticks, broken toys, door handles, rusty wire, canary cages, irons and trays.

Then the funniest thing happened.

Little Uncle Vitya, Daddy's brother, who went along with him, always tagged behind. Because he was so small. Once, when the boys were running downstairs, an elderly woman came out into the hall.

"Come over here, little boy!" she called to Little Uncle Vitya.

"Are you collecting scrap iron?"

"Sure," said Uncle Vitya. "Iron and copper and steel and bronze. Metal. All kinds of old metal."

"I see," said the woman. "Call all the boys here and I'll give you lots of metal. It's new, but I suppose that doesn't matter."

When Uncle Vitya, Little Daddy and all the other kids walked into her apartment, they were terribly surprised to see her pointing to a huge brand-new iron bedstead.

"Here's your metal. Take it away quick."

The boys looked at one another, and Little Daddy said:

"But this isn't scrap. It's a whole bed."

"Please," said the woman. "You can break it up afterward."

The boys looked at one another again and dragged the bed out into the hall. Eight of them pulled and tugged with all their might—it was that heavy.

"Well, kids," said Volodya Zakharov. "We're certain to win first place in the district. This bed'll weigh a ton."

When they got the bed out into the street and stopped for breath, Shurka Lyubkov, First Group Leader said:

"I think this bed'll win us first place in the whole city. Only I don't know how we'll ever get it to the club."

The owner of the bed followed the boys down the stairs. When they pulled it through the door, she smiled happily and told Uncle Vitya, who was trailing behind the others:

"Thanks a lot." Then, after a moment's silence, she added: "It's my son-in-law's bed, the devil take him!"

Uncle Vitya found her words very strange, but he didn't say anything to the boys. Meanwhile they pushed and pulled and tugged the bed to the club. The next day a man with a bag came straight to the Young Pioneer Council and demanded the bed back.

"It's mine!" he said. "My mother-in-law gave it to you, and now I haven't anything to sleep on! It's a brand-new bed too."

Everybody laughed except the boys who had dragged the bed. The detachment leader said:

"Well, what do you say, boys? We'll have to give the bed back to this man. We're collecting scrap, not new beds."

Volodya Zakharov said: "Yeah, but what did we drag it all the way here for?"

Everybody laughed, and the man with the bag said: "I realize that, of course. So I've brought you some scrap iron."

Out of his bag came a new tea kettle, a new tray and two absolutely new irons. Little Daddy asked in a careful voice:

"Are these your things or your mother-in-law's?"

Everybody laughed, and the leader said: "We don't want new things, comrade."

The son-in-law put everything back into the bag, took the bed apart and went away. There was a long silence. Then Volodya Zakharov said angrily: "I'll scrap him too!"

And Shura Lyubkov added: "Together with his mother-in-law!"

And little Uncle Vitya said ever so quietly: "The devil take her."

The whole place broke into peals of laughter, and the leader could only wave his hands. For a long time afterward Little Daddy, Little Uncle Vitya and all the other boys remembered that, and whenever they lifted anything heavy, they used to say: "My son-in-law's bed, the devil take him!"

The detachment didn't take first in the district, it took third. Without the bed.

QUERIES FROM READERS

YOUTH ORGANIZATIONS IN THE SOVIET UNION

Several readers have asked us about youth organizations in the USSR, particularly about the Young Communist League of the Soviet Union.

QUESTION: What youth associations are there in the USSR?

ANSWER: There are very many. They include the Lenin Young Communist League; the USSR Youth Organizations Committee; the Lenin Young Pioneer Organization; youth commissions of the unions of Soviet writers, artists, composers and architects; youth sections of the Russian Theatrical Society; and youth sections of the Union of the Red Cross and Red Crescent Societies and of the All-Russian Society for Wildlife Preservation.

QUESTION: What is the YCL?

ANSWER: The Lenin Young Communist League (YCL) is a mass organization of which most young people between the ages of 15 and 28 are members. In 1966 the YCL had more than 23 million members.

Members of the YCL regard themselves as assistants to Communists. In October 1918 the First All-Russia Congress of Working and Peasant Youth Leagues declared its full support for the Communist Party. In 1924 the YCL was named after Lenin.

The chief task of the League, as it sees it, is communist education of young people in the spirit of collectivism, industriousness, patriotism and proletarian internationalism, and of the high moral principles of the new society.

QUESTION: What are the YCL's principles of organization?

ANSWER: The guiding principle is democratic centralism, which means that all leading bodies from top to bottom are elected; that they are accountable to their organizations; that there is discipline and subordination of the minority to the majority; that the decisions of higher bodies are binding for lower bodies and for all members of the YCL.

Centralism means that all activities of the League between congresses are directed by a Central Committee, which is elected at an all-union congress. Democracy means that all affairs are managed by the YCLers themselves, directly or through their representatives. Furthermore, all leading bodies are elected by secret ballot.

The YCL is composed of primary organizations which can be set up whenever there are three or more YCLers in factories, the armed services, farms, offices, schools and colleges.

QUESTION: What is the Youth Organizations Committee?

ANSWER: It is a public organization representing Soviet young people in the international youth movement. The YOC coordinates the activities of Soviet youth organizations; promotes friendship and cooperation with the young people of other countries and the extension of contacts with various international, regional, national and local foreign youth and students' organizations, movements and groups; ensures the participation of Soviet young people in various international activities conducted in the USSR and abroad.

Affiliated to the committee is the Students' Council (the coordinating organ of Soviet students' associations) and the International Youth Tourist Bureau called Sputnik, which organizes exchange of young tourists. The YOC is a member of the World Federation of Democratic Youth, and the Students' Council is a member of the International Union of Students.

QUESTION: Do youth organizations have their own publications?

ANSWER: One hundred and ninety youth newspapers and magazines are published in 25 languages in the USSR, with a total circulation of about 30 million—almost a copy for each YCLer and Young Pioneer.

Komsomolskaya Pravda, the YCL paper, has a circulation of more than 3 million. With the Central Council of the Young Pioneer Organization, the YCL Central Committee also publishes the newspaper *Pionerskaya Pravda*.

Youth and Young Pioneer newspapers are published by all the republican YCL organizations. The majority of territorial and regional YCL organizations also have newspapers of their own.

The youth press has grown considerably in recent years. In 1956 alone several new magazines were founded, among them *Yuni Tekhnik* (*Young Technician*), *Yuni Naturalist* (*Young Nature Lover*), *Kostyor* (*Bonfire*), *Veseliye Kartinki* (*Funny Pictures*). The YCL magazines *Molodoi Kommunist* (*Young Communist*), *Smena* (*Young Generation*), *Tekhnika-Molodyozhi* (*Technics for the Youth*), *Vokrug Sveta* (*Around the World*) are very popular among Soviet young people.

The biggest publishing houses are Molodaya Gvardiya (Young Guard), which has existed since 1922, and Detizdat (Children's Publishing House), founded in 1933.

QUESTION: How is glaucoma treated in the USSR? (Max Miller, Los Angeles, and Thomas Chambers, Long Beach, California)

ANSWER: (Professor Mikhail Krasnov, Doctor of Medicine, answers this question.) At an early stage, if the disease has not been neglected, we use such medicines as pilocarpine (two drops every half hour for acute pain), antisclerotic preparations, sedatives, and vitamins C and B.

Glasses with green lenses designed to lower the intraocular pressure are often prescribed.

However, if conventional treatment does not help, we may resort to surgery.

Until recently the surgeon would make an incision to allow the fluid which builds up the intraocular pressure to flow out of the eye. We found that on the average, two patients out of 10 would suffer from complications.

We have now developed a new method, a "directed" local operation which deals only with the affected part. The method is more effective and safer, since it permits the surgeon to perform several "directed" operations to cure the glaucoma. We have found that the patient is better able to sustain several "directed" operations than an iridectomy.

QUESTION: "What is the tax system in the USSR? How high are the taxes levied on the population?" (Ralph Kelly, Harrisburg, Pennsylvania)

ANSWER: Taxes make up part of our state revenue and are collected from both the general public and industry. The 1965 state budget revenue, which totals 99.6 billion rubles, includes the following: turnover tax from industrial and other enterprises—39.1 billion rubles, deductions from profits of enterprises —31.6 billion rubles, taxes from the population—7.3 billion rubles. Factory and office workers pay an income tax of 0.1 to 13 per cent of their incomes (the average is 7 per cent). Besides this, a childless family tax of 6 per cent is paid by men between the ages of 20 and 50 and married women between the ages of 20 and 45. This tax is used to help single mothers and mothers of large families and to provide various kinds of assistance to children.

QUESTION: What is the Moscow fire-fighting service like? (Fred Williams, Arlet, California)

ANSWER: There are fire-fighting stations in each city district, coordinated by a central station with a large electrified map of the city, divided into sections. Red lights mark the locations of the fire stations. When a fire alarm comes in, the controller passes the command on to the appropriate station.

Big factories and commercial enterprises have their own fire stations, with equipment and permanent personnel. All factories and offices have volunteer fire brigades.

Firemen are trained in a town set up for the purpose. In metal helmets and fireproof suits they race up ladders, walk on the edges of roofs, carry dummies out of smoke-filled buildings, and learn to use the fire-fighting equipment.

The Moscow fire-fighting service regards fire prevention as perhaps its most important task. No construction can be started or new building licensed without a complete fire inspection.

QUESTION: How many clocks and watches of various types do you manufacture yearly and export? (Frederick Lamos, Maryland)

ANSWER: Last year more than 30 million clocks and watches of various makes were manufactured. More than six million are exported yearly to 70 countries.

Sergei Gerasimov

End of Summer.
Oil. 1940.

March.
Oil. 1955.

SERGEI GERASIMOV died two years ago, at the age of 79.

I called on him toward the end. It was spring, the sky-blue spring you see in his loveliest paintings. There were blue shadows on the snow, melting but still white. The trees were bare but studded with buds about to open.

Sergei Gerasimov could not work any more, his hands lay helpless. Staring through the window at the woods already under the sway of spring he dictated the article that was actually his will. It was published when he died.

"The arts are sensitive to the slightest manifestation of indifference, mendacity and moral laxity," he warned. He called for creative honesty and fidelity to one's ideals.

The White Sea. Evening. *Oil. 1933.*

By Alexander Baigushev

Gerasimov had every right to make such an appeal for he never swerved from the truth himself. He was venerated by his fellow artists, and his authority was enormous.

"Born and reared in the purifying flame of the Great October Revolution, our new art addresses itself to the toiler, to the man of the people, to those working to transform the world," he declared in his final article.

Gerasimov wielded a master's brush even before the revolution. He made a critical assimilation of the values contributed by the eminent Konstantin Korovin and Sergei Ivanov and of all that had developed in painting by the late nineteenth century. Moreover, he was endowed with an astonishing feeling for color harmony.

Weeping Willow in Flower. *Oil. 1950.*

Novgorod the Great. The Sophia Cathedral in the Kremlin. *Oil 1944.*

Detail from ***Aspen.*** *Oil. 1957.*

After the revolution he was no longer content with portraiture alone. He was inspired by the social upheavel, by the transformation of the countryside, and searched for answers to the burning questions of his times. He painted the men and women of the village, creating his great *Partisans' Oath* (1932). It was a requiem to a friend who had fallen.

The partisan theme became his leitmotiv. During the Second World War he painted his monumental *Partisan's Mother*. The figure in the foreground is a Russian peasant woman. The fascists have seized her son, but she stands proud and unbending. Behind the fascists we see the flames and smoke of great holocaust; and behind the mother is a landscape so forcibly Russian that it assumes the proportions of a symbol of all Russia heartening and supporting the mother in that crucial moment.

Gerasimov turned to landscapes after the war, painting the shimmering rivers of Central Russia, the transparent melancholy of the aspen groves, and the luxurious flowering of late March. It was then that he created his inimitable landscape, the "Gerasimov" landscape as it was called.

But he could not confine himself to landscapes. Social themes stirred him again, and he turned to literature, illustrating the books of Maxim Gorky and Nikolai Nekrasov. He was attracted by Nekrasov's very real and yet half-symbolic peasant types, plain tillers of the soil bent on discovering "who lived well in Russia." His illustrations of Maxim Gorky convey the spirit of the whole epoch through two or three characteristic figures.

RUSSIAN BOOKS IN ENGLISH

Among the recent translations in English issued by Soviet publishing houses are:

LENIN, A BIOGRAPHY. Illustrated. Hard cover, 640 pp.

A comprehensive study of the life and work of Vladimir Ilyich Lenin (1870-1924), the organizer of the Communist Party of the Soviet Union and the founder of the Soviet state. The biography uses archival material and reminiscences of Lenin's relatives, comrades in arms and contemporaries.

GENERAL CHEMISTRY. By Nikolai Glinka. Hard cover, 511 pp.

A textbook for the college student who is not majoring in chemistry. A systematic treatment of the theory and practice of modern chemistry, with particular attention to chemical technology. A good text for self-study of the fundamentals of chemistry.

THE SIMPLE SENTENCE. By Vera Belevitskaya-Khalizeva et al. Hard cover, 160 pp.

Designed for foreign teachers of Russian and for students who have mastered the elements of Russian grammar. The several sections progress from simple observation-type exercises to those that require thoughtful interpretation.

FIFTEEN YEARS A WORLD WANDERER. By Vladimir Nasedkin. Hard cover, 108 pp.

In 1907 the author escaped from Siberian exile to Japan. From there he sailed across seas and oceans and tramped the highways and byways of Asia, Australia, South America and Europe. He describes the many places he lived in and the ways of life of the people he lived among. This account of the wanderings of a homeless Russian worker makes fascinating reading.

MINDIA, THE SON OF HOGAY AND OTHER STORIES. Illustrated. Hard cover, 250 pp.

Fascinating narratives about Georgia, past and present, by some of her young writers and such noted authors as Mikhail Dzhavakhishvili, Leo Kiacheli, Akaki Beliashvili.

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MORE ABOUT

BY ANATOLI AGRANOVSKY

IF I WERE the Minister of Higher Education I'd ask journalist Agranovsky to drop into my office, and I'd say to him: "That last thing of yours about college, you know, 'Candidate-Students,' was pretty lively." Agranovsky would drop his eyes in confusion, and I'd go on: "Yes, pretty lively. But superficial, you know. I don't think it will help the situation."

"You must agree it has some sensible ideas," Agranovsky would say. "That's what the people in Gorky told me when I was there."

"Gorky is just one city. What you don't see is the whole picture. Have you any idea how much we are expanding higher education?"

Or else, as the Minister, I would have taken a different tack. "I think it was a timely article," I would say to the journalist. "What that college in Gorky is doing is worth looking into. Of course, presenting a problem is easier than solving it. But I can assure you that we shall make a close study of the situation and take whatever steps are called for."

The one thing I would not do, if I were the Minister, would be to ignore Agranovsky's article altogether.

As a literary device the "imaginary conversation" is as old as the hills. Alexander Pushkin has a fine example of it. What is not imaginary, though, is that the Ministry of Higher Education did not react at all to the "Candidate-Students" article in *Izvestia*.

What was it about? For a long time now the Gorky Institute of Water Transport Engineering has been admitting candidate-students over and above its enrollment quota. This is a violation of Ministry rules. The Ministry knows about it but takes no action. It has made regulations but does not insist that they be carried out. My article said: "This is a case of people either refusing to stand up for what they believe in or of having convictions they refuse to state openly."

And so, no reaction from the Ministry.

The issue is not, of course, simply the "Candidate-Students" article. The writer might have been mistaken in thinking the idea was useful. But for more than a year now *Izvestia* has had a department to which many faculty members and rectors of prominent colleges and universities have contributed discussion articles. Yet the newspaper has not been able to print a single reply from the Ministry. The Ministry simply hasn't reacted.

"I have been following these articles with great interest for some time," Vasili Antisin, an assistant professor from Novosibirsk, says in a letter to the editors of *Izvestia*. "They contain a wealth of good ideas, generalizations and sensible suggestions based on the wide experience of their writers. But it is all a voice crying in the wilderness. I have the impression that the only ones interested in the discussion are those nice people you have on your staff and the paper's grateful readers. Not a soul has reacted to the articles, not a soul has presented an articulate objection. You journalists are partly to blame for that. Why don't you demand publicly that the Ministry of Higher Education or the Higher Accreditation Commission say something about the problems you raise? That is your right. And when you come down to it, it is also your duty to your millions of readers."

There is a good deal of justice in reader Antisin's criticism of the newspaper. Looking through the *Izvestia* mailbag once again, I find that the most interesting and worthwhile comments make up a folder of 300 letters (the editors forwarded copies to top Ministry officials). The surprising thing about the whole business is this: People in literally all the republics and regions of the country contributed to this discussion on higher education, but not even a comment from anyone in the Ministries of Specialized Secondary and Higher Education of the con-

CANDIDATE-STUDENTS

stituent republics or the USSR Ministry of Higher Education. Are they just not interested? Or are they so busy they have no time to read the papers?

You and I, dear reader, are busy people too. Let's have a look at how readers reacted to the article "Candidate-Students." We received 136 letters. Nine were against the Gorky innovation; 127 favored applying it generally.

"The actual situation called for the idea a long time ago," writes Professor Timofei Yeroshinsky, an Honored Science Worker and a Deputy to the Supreme Soviet of the Russian Federation. "When I was head of the Kuibyshev Medical College, I must admit that I also 'sinned' by admitting candidates. I am convinced that candidate-students, on whom the government does not spend a kopeck, are a useful reserve from which to replace loafers who get into college by accident. It is a crime to award a medical degree to someone who has only the barest smattering of knowledge."

The writers of practically all the letters agree that you cannot expect everyone who is accepted as a freshman to graduate. Yet some institutions of learning award bonuses to their staff for holding down the percentage of flunk-outs. Ivan Zherebtsov of Leningrad, who has a master's degree in education, feels that the failure to expel students who are not doing their work has a bad psychological effect. "There are not many of them, but other students stop trying so hard when they see us giving them passing marks they don't deserve."

"By nursing failures along, we fall down on our job of developing the students' strength of purpose and respect for authority," writes Boris Dogmatyrsky, an assistant professor at the Moscow Aviation Institute. "After finishing college, they work the same way they studied—just enough to get by. That's the way they build houses, teach children and treat patients."

The over-all conclusion the letters reach is this: The aim of the colleges and universities today is not simply to train more specialists but to train good specialists. Under the new five-year plan, college and university enrollment is to increase to 900,000 by 1970, a very big expansion. The plan also provides that "the quality of the training given specialists be improved."

The greater the number of young people seeking college admission, the more acute the problem of selection. As matters stand today, the admission of candidate-students is both practicable and productive.

Assistant Professor Alexei Labutin of Kiev writes: "I am willing to teach without additional remuneration the 15 per cent of candidate-students over and above the number I ordinarily get. I would rather put in more work in the freshman year than pull unsatisfactory students through all the years of college, which goes against my conscience and cheats the country."

What about the college in Gorky? It is following the sensible principle it adopted.

Forty-nine students who were failing were dropped from the freshman class, and the same number of candidates were enrolled as full-time students. Some were enrolled after the midyear examination period, and I am happy to report that one of them is Lida Kurenkova, the skipper's daughter (referred to in my September article), whose twin sister is in the same class. She passed all her exams, placed third among the candidates, and is now a fully matriculated student.

That is the situation today. Were those letters and the publication of the articles a waste of time and effort? Hardly. There has been an exchange of views, the faculties and student bodies of many colleges and universities have joined in the discussion, and public opinion is being formed. This means the paper has—to some degree—accomplished what it set out to do.

EDITOR'S NOTE

In the September issue of *Soviet Life* we carried Anatoli Agranovsky's *Izvestia* article "Candidate-Students" on college admission procedures. The article criticized the USSR Ministry of Higher Education for a pedestrian and inflexible approach to that complicated problem. The Ministry did not reply to the criticism, and a few weeks later *Izvestia* followed up with another article. "More About Candidate-Students." As we went to press with this issue of *Soviet Life, Izvestia* still had not received a reply from the Ministry. One of our reporters asked Anatoli Bogomolov, a member of the Board of the Ministry, to comment on the Ministry's reaction to the *Izvestia* articles.

"I have the feeling," Bogomolov replied, "that Agranovsky would not mind filling the post of Minister of Higher Education himself. We are preparing a reply. The *Izvestia* articles were discussed in the Ministry twice, first by the Board and then at a conference to which the Ministers of Higher Education of all the constituent republics were invited. Both these conferences opposed the candidate-students idea. The Ministers of all the constituent republics share that opinion. Here, briefly, are our reasons:

"Statistics show that college graduating classes are about 15 per cent smaller than the freshman class admissions. We take that into account in planning college enrollment.

"A second reason is the unequal status of candidate-students and regular students. Let us assume that a candidate passes the final exams with grades of Excellent, and a regular student barely gets passing marks. There are more reasons for the candidate to be considered a full-fledged student, but he is still an outsider, more or less. He will resent that and he should.

"Anatoli Agranovsky says the professors are willing to take on candidate-students in addition to their regular students. In a lecture course it makes no difference whether 100 or 115 attend. But what about classroom studies or seminars, where you sometimes have no more than two or three students? We would have to get more space, form new classes, and increase payrolls.

"Another point. Let us assume that a college admits only those applicants who make 20 credits in the entrance examination. Theoretically, applicants who make 18 or 19 credits, that is, the most capable of those who failed to make the grade, should be enrolled as candidate-students. But that is not the way it works out. Those who made no more than 10 credits are generally taken on as candidate-students, because those who almost get in usually apply for admission to another college, where they hope to make a better showing in the entrance examinations. On the other hand, applicants who barely passed the entrance examinations try to become candidate-students; they think this is their best chance.

"I could give you other reasons, but these are sufficient to warrant the Ministry's doubts about the advisability of such a category as candidate-students."

* * *

We have outlined the two opposing views on this rather important problem in Soviet college education. As the discussion proceeds, opinions will jell and change. We shall keep our readers informed.

CITY UNLIKE ANY

OTHER

PHOTOGRAPHS
BY
VSEVOLOD TARASEVICH

NORILSK: CITY UNLIKE ANY OTHER

the district in the shape of a 24-story pyramid to accommodate 1,200 people. Three of its slopes are apartment buildings and the fourth, the northern slope, is a giant glass panel. The inner courtyard houses a garden, a swimming pool, sports fields, stores, a kindergarten and a cafeteria. Alexander Popov, a 24-year-old engineer, did all the calculations for the project, and graduate students of the Institute of Climatology helped with the microclimate problems. The team calculated the optimum inclination of the side wall of the pyramid. The inclination they found to their amazement was 52 degrees: exactly the same as the Pyramid of Cheops.

The ancient Egyptians worshipped the sun, and the attitude of the designers of the Norilsk project approaches worship. They want as much sunshine as possible. The project—they called it "The Sun"—won a prize at a countrywide contest.

Norilsk has both advocates and opponents of the bold project. Shipkov, the city's chief architect, fights manfully in its defense. The debate is hot, sometimes caustic.

Physicians are opposed. Since you can't put all the mines, fisheries and factories under the same roof, people will have to leave this tropical paradise to get to their jobs, and the sharp climatic change, the doctors insist, will mean a higher sick rate. Economists and traditional architects also make a case against the project. However, the young believe in their star, or rather their "sun."

So far as production is concerned, the biggest snag is insufficient power. The main source is still coal, which is very expensive to mine in the extreme North. The answer would be local gas and oil. Geologists believe that both are to be found on the Taimyr Peninsula. Their hypothesis was recently confirmed when a powerful gas spout was struck 20 miles from Norilsk, in the lower reaches of the Kheta.

Any factory anywhere will take on an engineer from Norilsk. Their reputation for expertise is very high. When there was an epidemic of broken water pipes during an especially severe winter in Britain, London engineers came to Norilsk to study the local experience.

NORILSK: BATTLE FOR LIGHT

TWO AND A HALF MONTHS of twilight and another two months of darkness: that is fall and winter in Norilsk. Darkness is man's arch-enemy in the North. Even blizzards with snowflakes like furious metal filings are easier to take than the Arctic night.

Norilsk has a special municipal department to fight snowdrifts. More than 200 trucks stand ready for snow clearing. Placed end to end, the line of snow fences would stretch for 300 miles.

A Council of Good Cheer has been set up to counteract the boredom of Arctic nights. The council consists of community enthusiasts devoted to making leisure time activities more varied, stimulating and entertaining.

Few people can stand the solitude of the Arctic night without falling victim to the acutest form of melancholia. Norilsk citizens are, therefore, especially gregarious. No blizzards or frosts stop them from meeting at clubs, restaurants, parties, theaters, etc. The Norilsk Drama Theater is filled to capacity even when work stops in the mines because of blizzards or cold. Neither the amateur Musical Theater nor the University of Culture ever complains of poor attendance.

Municipal statistics say the average citizen has a personal library of 200 to 500 books and subscribes to from four to ten specialized and general magazines. The city has seven libraries. Engineers and scholars have set up a book club to keep abreast of the literature in their specialties and to compile lists of recommended books and periodicals. Books about fishing and hunting are especially popular—one of every four inhabitants is a member of the local fishing and hunting club.

There are no trees in the streets. They do not grow in permafrost. But there are flowers in almost every house. Heated swimming pools are another typical feature, and Norilsk ranks first in the Soviet Union for per capita consumption of hot water. When Nina Popova, swimming champ of the Russian Federation, was asked four years ago where she trains in the Arctic, her answer was, "In swimming pools."

Late in July one can see white splotches of yacht sails on Lake Dolgoye, and in the mountain valleys, white splotches of snow. This is the July snow of Norilsk. The Arctic is the Arctic after all.

Those who believe that caution is a virtue would do well not to settle in Norilsk. The discovery and extraction of Taimyr metal is a story of calculated risks. In 1919 a surveying party headed by Pavel Aliluyev, Nikolai Urvantsev and Alexei Vorontsov blazed the trail. On the strength of their report, a governmental commission in 1935 decided to construct a mining complex.

Avraami Zavenyagin, manager of the Combined Nickel Plant before the war, asked the designing office working on the project: "Why are you only planning for underground mining? Ore crops up in many places." The designers looked at him as though he were crazy. "This is beyond the 69th parallel," they said. "Whoever heard of opencast mining in these latitudes? The winter night lasts 47 days, not counting the days when the sun just shows itself for a few minutes. The mercury drops to 50 below, and the wind is often more than hurricane force. Snowdrifts pile up as high as telegraph poles. What sort of opencast mining are you talking about?" The commission suggested cutting the mining complex and the city growing around it down to a minimum and shipping the ore to be refined elsewhere.

However, Zavenyagin battled for his plan to build quarries and a full-cycle plant. He had studied weather maps, data on frost, wind and precipitation. He had also studied what available experience there was on snow fighting. He had economic and engineering data behind him, but, more than that, he had the courage to be stubborn.

Today Norilsk turns out metal as pure as the most finicky customer could want it, and millions of tons are mined from quarries.

NORILSK: YOUTH AT 50 BELOW

SPORTS are a vital component of life in Norilsk, more so than elsewhere because the average age is only 25. Many engineers and technicians came here straight from schools and colleges elsewhere in the country. Among them are the 30,000 volunteers from Moscow and Leningrad who came in response to a call from the Young Communist League in 1956-1957. Besides, the young city has already grown a generation of aborigines, born in Norilsk 18 or 20 years ago.

When they go to the Crimea, the Caucasus or the Ukraine on vacation, they compare every city with Norilsk ("Norilsk is better!") and the striking beauty of the southern landscape with the unobtrusive charm of the tundra ("The tundra is more interesting!"). "Up there in Norilsk" is a favorite phrase when they visit a southern city (and any city is southern with respect to Norilsk). Local patriots generate their own heat arguing the virtues of their town, something

of an achievement when the thermometer reads 50 below.

Pay rates here are two or three times higher to make up for the Arctic nights and the frosts and blizzards. Each pair of hands is treasured in Norilsk. Hence the most complete mechanization and automation available and the never satisfied demand for highly skilled workers and engineers. Unskilled people don't stay unskilled long.

The Norilsk Industrial Institute with its evening department gives courses in 200 professions. The local technical school is the largest in Krasnoyarsk territory. The city also has several vocational schools. All training is free, with scholarships, paid leaves and all kinds of encouragement. As a result, every third citizen studies.

As in any other city, work or study accounts for only a part of young people's time. The rest is filled with all sorts of things, including youth cafés. Each café has its own special character. Northern Lights helps students relax with jazz, the twist, and other wild dances. Youth Café is the place for high talk. And for a young man to take a girl to Polar Star is practically to become engaged. The Wedding Palace, where marriages are registered, has a busy time. Incidentally, the Norilsk birth rate is second only to Angarsk's.

NORILSK: YOUTH RECAPTURED

A NEW CITY, Talnakh, is under construction near Norilsk. "Talnakh" means "taboo." Having broken the taboo, 11 geologists found rich deposits of ore on the mountainous bank of the Norilka: the ore contained copper, nickel, cobalt, gold and, as one of the party phrased it, "the devil knows what else."

The new city is being built by Norilsk engineers in the Norilsk manner. They are not worried about permafrost any longer and put up large stone buildings, not temporary structures. In Norilsk as elsewhere, they find that temporary structures tend to become permanent.

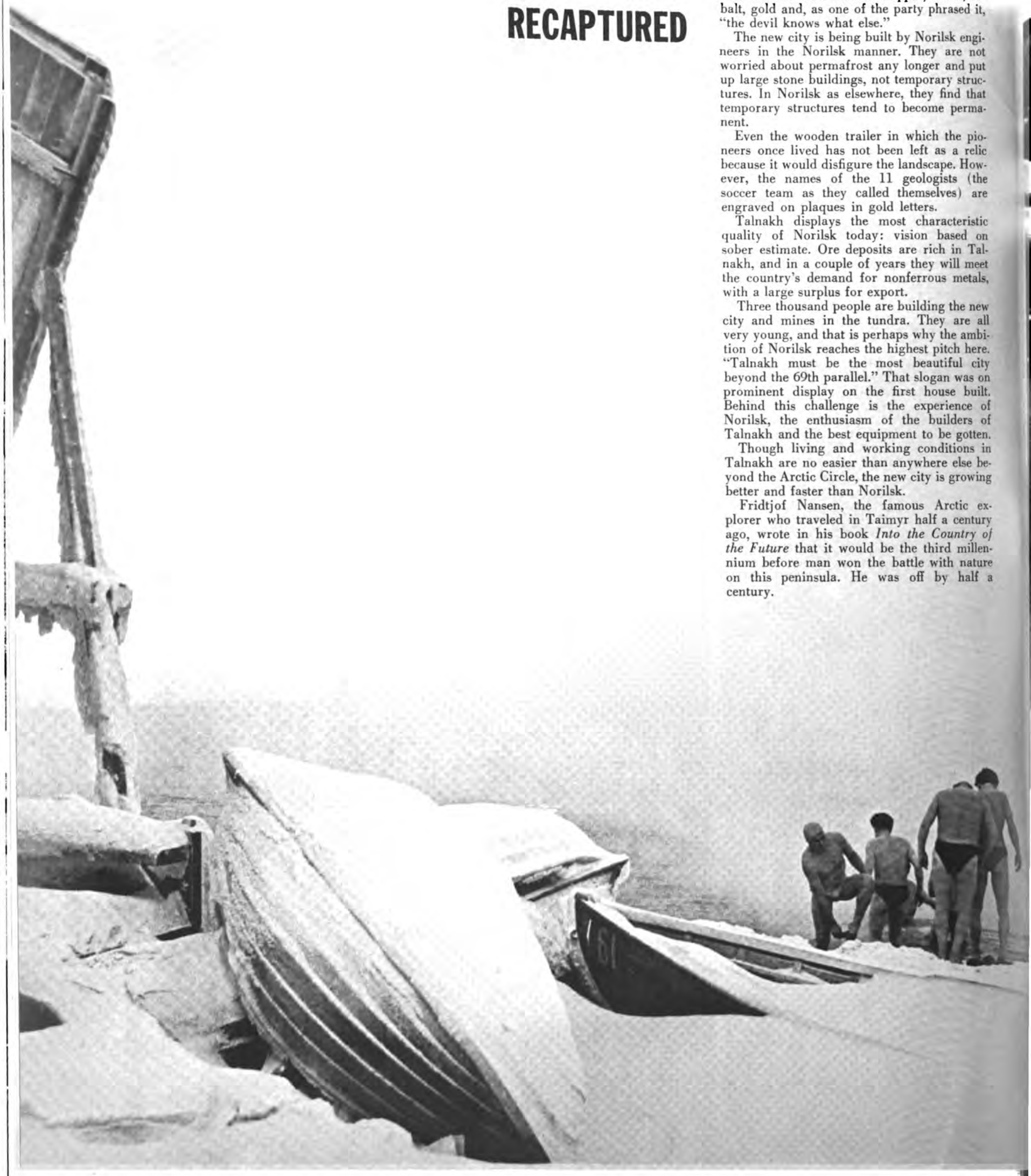
Even the wooden trailer in which the pioneers once lived has not been left as a relic because it would disfigure the landscape. However, the names of the 11 geologists (the soccer team as they called themselves) are engraved on plaques in gold letters.

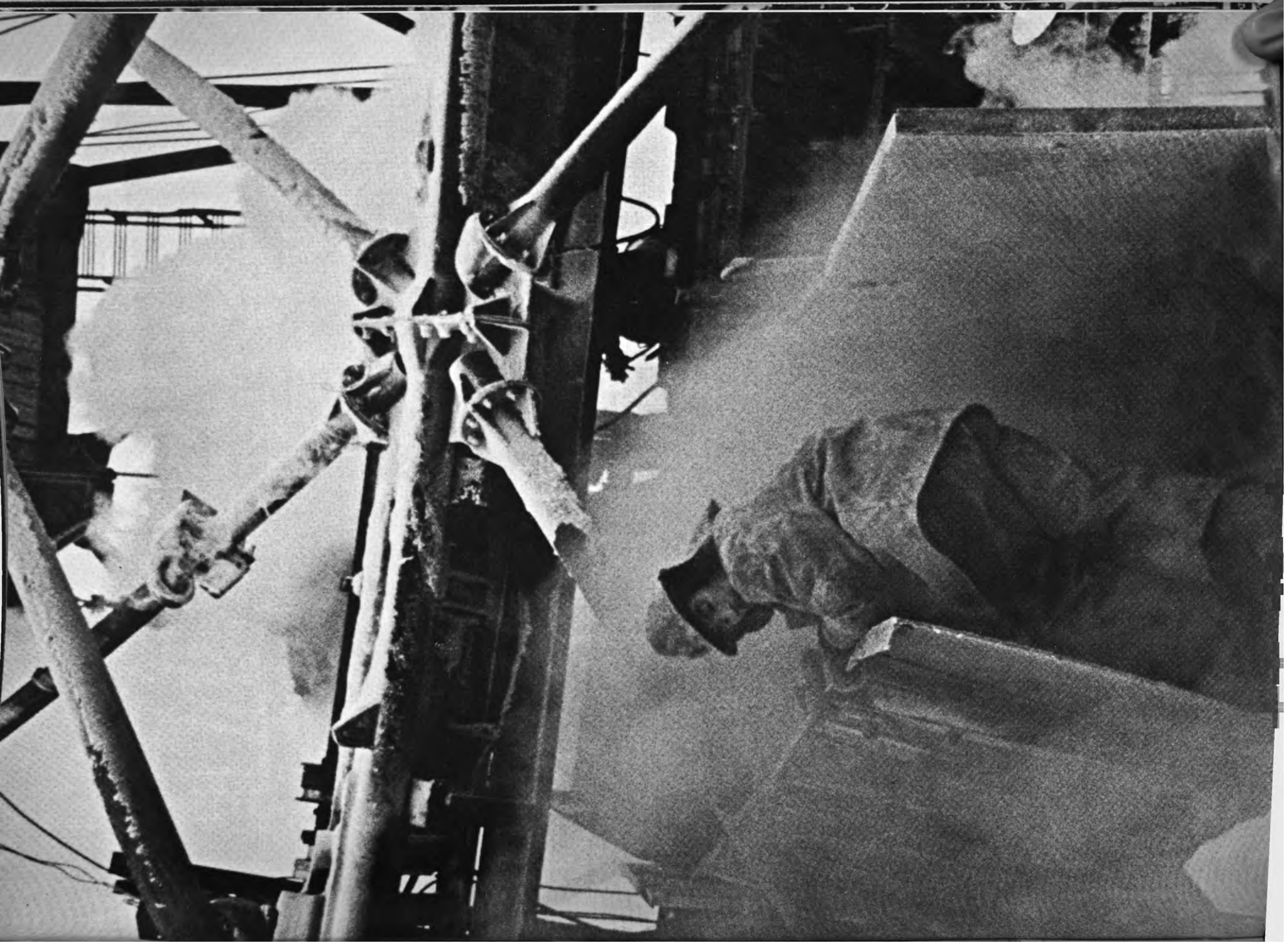
Talnakh displays the most characteristic quality of Norilsk today: vision based on sober estimate. Ore deposits are rich in Talnakh, and in a couple of years they will meet the country's demand for nonferrous metals, with a large surplus for export.

Three thousand people are building the new city and mines in the tundra. They are all very young, and that is perhaps why the ambition of Norilsk reaches the highest pitch here. "Talnakh must be the most beautiful city beyond the 69th parallel." That slogan was on prominent display on the first house built. Behind this challenge is the experience of Norilsk, the enthusiasm of the builders of Talnakh and the best equipment to be gotten.

Though living and working conditions in Talnakh are no easier than anywhere else beyond the Arctic Circle, the new city is growing better and faster than Norilsk.

Fridtjof Nansen, the famous Arctic explorer who traveled in Taimyr half a century ago, wrote in his book *Into the Country of the Future* that it would be the third millennium before man won the battle with nature on this peninsula. He was off by half a century.





A LIFE OF TRAVEL

BY MYUDA DEREVYANKINA

AMONG the stone buildings in the center of Norilsk stands a wooden hut. A plaque on the hut reads: "This is the first house in Norilsk built by the Nikolai Urvantsev expedition." The story of this man is closely linked with the history of the city. His is a lifetime of discoveries.

A Bag of Money and the Secret of an Old Mine

In 1920, when the Soviet Republic was fighting off innumerable enemies, when the yearly allotment for each individual of the underclothed and underfed population was less than a yard of cotton cloth and just over two pounds of sugar, the Council of People's Commissars allocated 50 million rubles to explore and develop the mineral resources of the Far North. The money was brought to the Petrograd science and engineering department in a big canvas sack.

The money also went to equip an expedition headed by geologist Nikolai Urvantsev. The ships plying the Northern Sea Route needed coal badly. Urvantsev found the coal on the Taimyr Peninsula. Not far from the coal field he found a deserted mine which he later learned had been worked back in 1870 by a Russian merchant who thought there should be copper near the Norilka River. But he had found the copper "poor," too "weak and white," and, in addition, the props and the mine itself were soon sucked into the permafrost. The riddle of the old mine gave Urvantsev no peace of mind. The "poor copper" obviously had admixtures of nickel. Where did it come from? Could there be a primary deposit in Taimyr? An expedition of 15 men was sent to investigate. Money was scarce. The 15 men had only 10 pairs of boots among them. Work in Taimyr tundra was a hardship even in summer: hordes of mosquitoes, rain without end, piercing winds. The men had to climb out of the shafts every 15 to 20 minutes to warm their frozen feet. But worst of all, they could find no ore. Only in the third summer, after a desperate wintering at 58 degrees below zero, did they strike a primary deposit. That is how nickel was discovered in Taimyr.

The expedition returned to Port Dudinka hungry, weary and ragged, hoping they had done the hardest part of the job. It turned out to have been the easiest part.

"Forward to Washington . . ."

Now a good route to the deposit had to be found. Closest of all to Norilsk was the Pyasina River. Should it prove navigable, then a short 12-mile stretch of narrow-guage railroad could be laid to it.

Without taking time off to rest, Urvantsev set out in a wooden sailboat along the Pyasina River. He was accompanied by two undergraduate students and the famous Arctic guide and hunter Nikifor Begichev, who by then had won a reputation for his luck. With reindeer he had rescued Andrei Vilkitsky's expedition, which had been trapped in the ice. He had also participated in the search for the mysterious Sannikova Zemlya.

The river that the four men sailed along was not to be found on any map. And, as often happens in such cases, it proved twice as long and had three times as many rapids as they expected. But still the Pyasina was navigable! Soon they were sailing along the shores of the Kara Sea. Two years earlier there had been a tragedy somewhere in the vicinity: two Norwegian sailors, companions of Roald Amundsen, had set off from the ice-bound *Maud* to Norway with the mail of that great polar explorer; they never arrived.

At one point Urvantsev saw something white on the shore. Since there was no snow, it could either be an outcropping of white quartz, or. . . . Urvantsev went ashore. He found two bags. One had been ripped open by bears and abandoned as inedible; the other was sealed and bore the inscription: "Forward to Washington, to the Director of the Institute of Terrestial Magnetism." The sailors had perished in a two-week snowstorm. The expedition buried their remains, which were found not far from the mailbags, and fired a salute over the Kara Sea. The mail was sent off and reached its destination—two years late.

An inquiry came from Norway asking how much Urvantsev wanted for the mail he had found. The geologist replied: "We did not take part in the search in the hope of financial remuneration but from an understandable desire to help Arctic explorers in distress as well as the Norwegian people."

The testimonial to Mr. Urvantsev from the Government of the Kingdom of Norway expressed profound gratitude for the assistance he had rendered in the search for the Norwegians Knudsen and Tessem, lost in Siberia.

While Urvantsev was exploring the Pyasina, the Norilsk ore was analyzed in Leningrad. In addition to nickel and copper, it had a high platinum content. A city was destined to grow up around the first house Urvantsev had built for wintering.

"The Man Who Counted Stars"

One of the people native to the region, a Nenets called Pyrerko, paid a visit to the astronomical station in the Norilsk taiga, where Urvantsev was working. He had come a long way to put a single question. "Tell me, man who counts stars, why do you count them?" Later, when Urvantsev was a university professor and the deputy director of the Arctic Institute, he remarked that that was the most puzzling philosophical question ever put to him.

The same age-old urge that made man count stars compelled Urvantsev to set out on an exploration of Severnaya Zemlya, the last sizable portion of our planet not yet mapped. Attempts to explore Severnaya Zemlya had been made by Norwegians, Germans and Americans. But it was still unknown country. Was it an island? A peninsula? An archipelago?

In August 1930 a group of explorers put ashore from the icebreaker *Sedov* on one of the small islands of Severnaya Zemlya. They were geologist and astronomer Urvantsev; head of the expedition, geographer Georgi Ushakov; and guide and hunter Vasili Zhuravlyov. A prefabricated log hut, a radio station (the Pyasina expedition had none!), 30 sled dogs, a two-years' supply of food and guns—that was all the equipment they carried.

Soon the polar night set in. To collect meteorological or magnetic data, they had to crawl along the ground against a biting, almost overpowering wind. Even the sled dogs suffered. They cut their paws on the ice and left a trail of blood behind them. "I don't know how far it is to the continent, but it's no more than half a mile to hell," Zhuravlyov once remarked bitterly. And he knew the northern void, if anyone did!

They marched 13 to 14 hours a day, recalled Urvantsev later. They had only two meals a day—morning and evening. The menu did not vary—they cooked a mess they called "dream soup": dried vegetables, grain, chocolate and anything else on hand went into the pot. Bears were a nuisance. Not to be surprised by a hungry animal, Urvantsev tied a seal carcass to his hut, with a rope running to a rattle on his table. When the rattle came alive, he put his ruler aside and picked up a gun. In one wintering alone he killed more than ten bears. In summer the well-fed bears were less aggressive, but then the mosquitoes plagued them. Sometimes by day they would hear a blood-curdling squeal—"bear hysterics," Zhuravylov called it—when a nervous beast, driven mad by the mosquitoes, would be banging its head against a stone and howling at the top of its voice.

Two years later a ship appeared on the horizon, the icebreaker *Rusanov* coming for them. The seamen admired the first map of Severnaya Zemlya—how badly they needed one to navigate these waters! A copy of the map was forwarded to the icebreaker *Sibiryakov*. With it the ship circumvented Severnaya Zemlya and completed the first cruise across the Arctic Ocean in a single navigational season.

The map of Severnaya Zemlya compiled by Urvantsev is still included in all world atlases.

Wheels and Devil's Boots

Many an expedition had traversed the tundra. It was obvious that this cold land was very rich. But still the door to the Arctic was not wide open, only slightly ajar. Explorers could not continue on foot—they needed some sort of transportation, wheels. "If we do not solve the transportation problem," wrote Urvantsev in one of his papers, "the development of our country's northern outskirts will be put off to some indefinite time in the future. It is impossible to cross the tundra by foot, or even by reindeer." By that time Urvantsev's geological papers were known in Norway and Canada and were published in the USA. For his studies of transportation in the Far North, Urvantsev was elected a member of the American Geographical Society.

There were not many, though, who knew of the practical work underlying his theory. Take, for example, the world's first expedition beyond the Arctic Circle by car. Three trucks were converted into cross-country vehicles.

There were three drivers, a topographer,

Nikolai Urvantsev (on the right) with a friend.

and Urvantsev, who served as geologist and head of the expedition. All problems—from lubrication and tires to footwear—had to be tackled in a new way. The men wore socks, then rabbit-fur stockings, then hose of sealskin with the fur inside, then reindeer boots with the fur outside, and on top of all that felt boots. "Devil's boots", they called them. "The footprints we left were so big," Urvantsev recalled, "it really did look as though the devil had passed through." They prepared thoroughly for the expedition, for each one knew that in the heart of that white desert it was easy to lose their wheels, also their heads.

But the trucks covered 600 miles of the Taimyr Peninsula in 20 days. It would have taken three months by reindeer. The expedition plotted geographical and geological charts and made astronomical and meterological observations. For this expedition Urvantsev was presented with a car, one of the first private cars in the Soviet Union.

Way back in 1935 he entered this car in the Leningrad-Moscow run commemorating the fiftieth anniversary of the invention of the automobile. It was driven by his wife Elizabeth, a well-known Leningrad surgeon.

Doctor Liza

When Urvantsev was refused funds to build a special boat he had designed during one of his first expeditions along northern rivers, his wife had it built and shipped from Leningrad at her own expense. She was a student at a medical institute at the time and earned the money by working nights in a hospital and washing clothes.

When the geologists were beset by scurvy and nostalgia during the endless winters, she gave them medicine and lifted their spirits with a cheering word. The natives were most respectful of the "woman witch doctor," who could cure all sorts of ailments and could find her own way about in the tundra.

"I even got married while on an expedition," Urvantsev said with a smile. "I was on my way to Krasnoyarsk, and the train was held up at a small station by snowdrifts. In a small railroad restaurant I saw a friend of mine, a mining student. Next to him sat a pretty girl with large round eyes in a medical student's uniform. My friend called me over and introduced us: 'Elizabeth, this is our famous polar wolf Nikolai Urvantsev.' We sat there for about half an hour. When what remained of the wine was poured, I raised my glass and said: 'I drink to the time Elizabeth agrees to be my wife.' 'Just look at him. He *is* a wolf!' Liza said indignantly. But a month passed, and then another. I wrote to her every day (I've never written as much since!) and finally won her. Now that we have already celebrated our golden wedding, I know that I've been lucky. Liza has been my best friend—a wife, sister and nurse, and in my roving life she has acted as doctor, custodian and commander in chief. More than once she saved my life."

"Doctor Liza," who was a surgeon at a field hospital in World War II, saved many lives. Here is a letter *Izvestia* recently printed.

"I read an article in *Izvestia* about geologist Nikolai Urvantsev and his wife. I would like to tell you the following about her. I met Elizabeth Urvantseva during the war. I was 20 years old and serving as a scout. On one of my missions I was badly wounded. I owe my life to her, for patients with fulminating gas gangrene seldom survive.

"I still have her letters to my mother, in which she described my condition day by day and consoled my mother as best she could. It was not easy for her to rescue me from the clutches of death. Thirty-six pints of blood were transfused into me, including her own blood.

"If possible, please convey my gratitude through your paper and tell her that I have a daughter we named Elizabeth."

Quite a number of rivers up North, where geologist Urvantsev passed, bear the name Elizabeth. There is a Revolution Island and a Nakhodka (Discovery) Valley, and even a peak "America" named by this Columbus of the North. Now, in the vicinity of Medvezhy Creek and Mount Schmidt, there are big settlements and rich mines. Names on the map are like footprints that this man left on his hard way.

God grant that this you never do . . . is a line from a poem he wrote. It goes like this:

God grant that this you never do:
Your youth, long gone, you never rue,
Do work for which you do not care,
Life with an unloved woman share.

Today the 73-year-old professor works at the Leningrad Arctic Institute. People in Norilsk look forward to his visit each summer to advise on new expeditions. When Urvantsev was interviewed in 1966 by a local radio reporter, this dialogue took place:

"Which of your awards do you prize the most?"

"The latest one—the medal for winning the 1966 Moscow-Leningrad auto run. Especially since I shared it with Liza—she drove on the way back."

"What sort of people do you and don't you like?"

"I don't like people who are afraid to dirty their hands, who are helpless when they are faced with a broken machine or have to pack a rucksack. What I like in people are resolution, loyalty and kindness."

"What do you like to do most?"

"Geology, and then hunting, fishing and traveling. This summer Elizabeth and I expect to drive down to Central Asia."

"What is your aim in life?"

"Happiness."

"What do you believe it consists of?"

"The right choices. That includes the choice of one's life companion, friends and work. In France one of my traveling companions remarked that the difference between a Frenchman and a Russian was that the former worked to live while the latter lived to work. I'm not a hypocrite and do not preach indifference to money and all sorts of earthly blessings, but I would be profoundly unhappy if my work was nothing more than a means of subsistence. I have not had too many comforts in my life, but I would gladly live it over again. But then, it's not finished yet—I still expect to find oil in Taimyr."

MAN—FACTORY—COUNTRY

BY ALEXANDER M. BIRMAN

Professor, Doctor of Science (Economics)

IN MOST FIELDS of human endeavor one can immediately spot what is behind the figures: a weather forecast, the trajectory of a flight, machine tools, rockets.

And what about economics? What is behind the figures there? *Relations among people.* Not all the aspects of their relations, of course. Only those belonging to the relations of people over things in production, in other words, production relations.

That is why, I think, in speaking of the economic reform now being carried out in the Soviet Union, one should begin exactly with the relations among people in the sphere of economic activity. Instructions, rules and norms are derivatives, despite all their tremendous significance of recording one or another production relation in documentary form.

Slightly more than 110 million people are engaged in socially useful work in our country. Their work may be analyzed at three levels: worker, collective of workers, collective of collectives. Let us proceed this way.

What changes are in store for every man—worker, foreman, engineer, director—in connection with the reform?

First, he becomes not only the subject of planning but its object as well. Perhaps it's wrong to say "becomes," for since the very beginning of our state, concern for the working people has been the most important aspect of the activity of the Communist Party and the Soviet Government. But I shall explain myself in a minute.

Up till now the interests of the worker were taken into account in a generalized form: so many apartments, so many schools and so many pairs of footwear were proclaimed to be necessary. It was also stated that so many assemblers of such and such a category were needed. Of course, real people got the apartments, footwear, schooling. But they got it not in the process of planning but as a result of the fulfillment of a plan.

Things are changing now.

First in Leningrad and then in other cities five-year plans of people's "transformation" began to be gradually compiled. Let us say that there are 17 people in a given team. What kind of a person does each one want to become by 1970? What can be done to help them achieve their goals? You can see that the method of approach is being changed: We proceed not from a generalized figure to concrete people, but from people's requirements to the targets of a plan.

I spoke about the reform at a big meeting in Alma-Ata recently. There were quite a few questions of the same character: how to change "the climate" at a plant, how to force a rude executive to be concerned with the well-being of each individual and the collective. These questions were not local. When the fluctuation of manpower was analyzed in Leningrad, many named the rudeness of management as a reason. When sociologists conducted a poll in Moscow, asking, "What do you treasure most of all at your office or factory?" the majority of those polled answered, "Comradely relations within the collective."

Have our economic managers grown particularly rude of late? No, they haven't. But the cultural standards of the working people and their self-awareness are much higher. A factory worker, a clerk, a group refuse to tolerate disrespect, neglect, arbitrariness.

But where does economics come in? See for yourself: When one person leaves a machine tool factory, for example, the factory loses about 100 rubles. Quite a few cases of production spoilage are caused by the nervousness, irritability or apathy of a worker. The worker's attitude toward work and his mood often affect the quality and quantity of a product quite as much as equipment and know-how. This is as true of the foundryman and designer as of the weaver and the scientist. It turns out that such things as the politeness of management, transportation facilities, the appearance of a waitress at a workers' canteen, and so on, also affect performance. Speaking quite prosaically, you could say that it is simply more advantageous for our national economy to have every worker provided with convenient transportation, with attractive and neatly pressed work clothes (kept in his own special closet); it will pay off if a worker does not hear rude expressions in the shop, does not have to wait on a long line in the canteen to get his lunch. The additional expense that will go into eliminating these and other annoyances will be more than repaid if spoilage is reduced even by only one hundredth of a per cent. This is how the relations among people are reflected in economics.

The Statutes of the Socialist Enterprise grant much bigger rights to the enterprises. Only a few general indexes come down from the center now. All the rest are being worked out and approved by the enterprise's personnel. This shows that the possibility of actually drawing *every one* into the management of production is realistic. And this is what Lenin considered a prerequisite for the transition from socialism to communism.

We have to devise and inculcate a system of collective discussion of plans and reports, even, perhaps, of choosing the manager or discussing the qualities of a manager after he has been appointed by a higher body. And all this must be combined with the principle of one-man management, with the personal responsibility of a manager, with strict discipline. A factory or a plant is not a stamp collector's club. Modern machines with their tremendous speeds, with their breathtakingly high or low temperatures, pressures and so on will not tolerate slackness or undue familiarity. The advent of technical esthetics in production must be accompanied by what one may call "social" esthetics.

Yet, the period (a rather short one, it is true) that has elapsed since the March and September plenary meetings of the Party Central Committee has affected the worker's position least of all. Factory and office workers read about the reform in the press every day; read that enterprises are going over to new forms of management; read even about the results of their work in the first quarter. We can see that these results are good, that more products have been put out, that higher profits have been made and that more bonuses have been given to workers for good performance. All this is very fine, of course. But is it really all? Can the economic reform be reduced to this alone? It seems to me that the time has come for putting this reform into practice in the social sphere. It won't do to pour young wine into old wineskins. Everything must be changed simultaneously: the distribution of profits and the position of the people creating these profits. Higher profits can be the only result of such an approach.

This is the real heart of the matter.

The main flaw in the administrative methods of management, which prevailed up to the last year, evidently lies in the fact that a socialist enterprise was viewed as a mere executor of directives sent from above. The only way an enterprise could display its initiative, this mainspring of socialist economy, was to carry out the plan ahead of time and to reduce production costs. In this area it could go as far as it wanted.

But that is not enough.

So long as it is not possible to distribute goods according to need, it is necessary to observe a strict balance between the quantity of work and the quantity of consumption. It is possible to observe this balance only if all economic relations are appraised through money and weighed through prices, that is, through the cost expressed in money. Hence the existence of commodity-money relations under socialism. But the administrative methods of management narrowed the sphere of commodity-money relations from different sides and disturbed the balance. That, mainly, is why economic accounting became a mere formality, as was pointed out in the decisions of the September Plenary Meeting of the CPSU Central Committee and the Twenty-third Party Congress.

The most important feature of the reform is that an end is to be put to arbitrary administrative methods of management. They are to be firmly replaced by scientific planning, by a scientific system of economic management.

The establishment and observance of correct relations between enterprises and economic bodies is, perhaps, the most difficult point of the reform.

It has become obvious by now that administrative ruling, turning an enterprise into an executor, has not justified itself. Shall we turn completely about-face? Abstractly speaking, one may visualize a situation when the property of every enterprise would be turned over to the total management of the staff of that enterprise. Such a scheme may look rather attractive at first glance. Indeed, the desire to make a bigger profit would encourage the workers to continually improve economic management. But this unquestionable boon would be neutralized by a multitude of much more important and powerful factors.

Let us start from the fact that if we were to adopt such a method of "distribution" of the national wealth, there would still be decided differences in the welfare of individual working people due to quite accidental circumstances: some would "inherit" a modern automobile plant, and others an old flour mill. It is quite obvious that such a distribution of resources would surely cause friction between various groups of working people. Besides, the

decisive factor in the profitability of an enterprise is not the workers' skill (though this matters a great deal, of course) but the enterprise's technical facilities. The most skilled shoemakers working by hand would lose a competition against a mechanized shoe factory, even if its equipment and personnel were mediocre. But all enterprises cannot be modernized at the same time. Society has strictly limited means for this. Thus, the workers of enterprises that would get subsidies first would be much better off than those to whom subsidies would be due in, let's say, five or ten years.

But even this is not all. The modern level of the development of productive forces is notable for the constantly changing composition of social production. Some industries and products surge ahead, pushing others aside somewhat, and are themselves relegated to the background some time later, making room for still others. This is a natural process. Under capitalism this process takes place as a result of tough competition, rivalry and crises, while in a planned economy it is preplanned. But if production resources were distributed among separate, totally independent enterprises, the possibility of improving production as a whole would be drastically weakened. It is unrealistic to expect that a group of miners deriving a good profit would spend part of it on prospecting for oil and gas in a different part of the country. It is even less realistic to expect that the members of a cotton-growing state farm would start using their profits for building synthetic fiber factories. To put it briefly, a complete 180-degree turn in the direction of total separation of individual enterprises is not the solution. Planned purposefulness would be replaced, in this case, by an inadequately guided movement of isolated bodies, even if they were all moving in the same direction. The conclusion is that independence should be wisely combined with a centralized state plan.

Lenin qualified the system of economic management under socialism as the system of democratic centralism and, practically speaking, this system has been applied for many decades in the Soviet Union. The only trouble is that it has had many formalistic features. It is only these features that are to be eradicated *now*, and not the centralized planned management of economy, as some commentators from among the bourgeois economists are "helpfully" hinting.

It seems to us that the *establishment of mutual material responsibility between the guiding and the guided* is essential for eliminating formalism. So long as the ministries and their agencies are not financially responsible to an enterprise for the assignments, funds and the size of capital investments they allocate (as is the enterprise under its contracts), economic accounting will not be free of formalistic features.

It must be pointed out at the same time that financial responsibility must not presuppose the paying of sums out of a special fund. The fines paid out of an enterprise's bank account have not prevented, as everyone knows, the pollution of lakes and rivers or the destruction of forests. The financial responsibility of an establishment, of an economic body must also include the responsibility of concrete persons, of all those Ivan Ivanovichs whose activity (or inactivity) has proved harmful.

And so, under the new system of economic guidance, a plant or a factory is a collective of working people to whom the state entrusts the management and utilization of a part of the national property. This collective gets four or five general indexes for its activity from a higher body. On the basis of these indexes the collective itself works out (for itself as a whole and all its sections, down to every individual worker) all indexes for its activity. Each plant or factory requisitions its own raw materials and other things necessary for the production process. The plant or factory also does its own marketing. It feels the pressure of the market (the socialist market!) and conducts its activity with an eye to this market. With this aim in view it probably builds up some reserves of manpower, production capacities and raw materials. The enterprise utilizes its funds for developing and encouraging good work, seeks and finds ways for uninterrupted technical and economic improvement, and exchanges its know-how with related enterprises in the Soviet Union and in other socialist countries. It turns out inventions and finds more efficient and economical methods of work, sets up experimental sections and laboratories, when necessary sends its people to other enterprises and countries to learn and share know-how, carries out research, issues books. In other words, its activity is many-sided, running the gamut from long-range technical research to sponsoring a soccer team.

It is no exaggeration to say that it is not even possible to calculate precisely the additional benefits the national economy will get from turning each plant or factory into an enterprise living in full compliance with the Leninist principles of democratic centralism.

What then will remain of centralized planning, of national economic management?

The most important, the vitally important task: working out and implementing an economic policy which will ensure the maximum growth of the country's national income. Concretely, it is to be achieved through the activity of the State Planning Committee and other national economic bodies. We must first of all learn how to determine the *optimum* parts of the national income to be used for consumption and accumulation. Circumstances compelled us to economize as much as possible at the expense of consumption, with a view to accumulating as much as possible for new construction. We had no other alternative. Even now it is not possible to fulfill the program of creating the material and technical basis of communism without allocating sufficient funds for new construction and increasing our reserves.

However, were it possible to expedite the rate of reproduction on an enlarged scale to the maximum by simply increasing the proportion of national income to be used for accumulation, the task would be comparatively easy. But the dialectics of this process lies in the fact that beyond certain limits the increase in accumulation begins to exert a negative influence on consumption, which leads, in turn, to limiting the rate of growth of labor productivity and curbing the possibilities of accumulation. We cannot claim that we have solved the task of the optimum combination of consumption and accumulation.

Another task arises from the first one: to find the best means of utilizing the portion of the national income allocated to new investments. Experience has shown that the national economy may operate more effectively with smaller capital investments and less effectively with bigger investments, depending on how the funds are distributed among the industries, regions, years, etc. We have accumulated extensive experience in this field, both positive and negative.

The efficiency of the economic management processes, although depending in a decisive manner on the organization of production, is nevertheless determined in many aspects by the rational organization of exchange. Insufficient knowledge of what is in demand and clumsy manipulation of resources often lead to a futile expenditure of labor: unnecessary things are manufactured and necessary things are not; some enterprises have it too easy and some too hard. The directives for the five-year plan of 1966-1970 have put an end to the lengthy argument over the question: to trade or to supply? It was stated quite clearly and precisely how to go over gradually from the strictly limited norms of supplying and financing each bolt and screw to up-to-date marketing methods, with all the diversity of its forms, of course: electric motors are sold in one manner and bathing suits in quite another.

Perhaps it will be national economic planning itself that will undergo the greatest change. Comparing the present methods of work of the State Planning Committee with those used for working out the GOELRO plan or the first five-year plan, one can easily notice that these methods differ vastly. Of course, the elements of concreteness, of a businesslike approach, have grown immeasurably, but so have, unfortunately, the elements of red tape and parochial attitudes. We no longer have those extensive all-union conferences and meetings of specialists, at which, long before the beginning of a five-year plan, problems of, let us say, fuel balance, the distribution of the productive forces, labor resources, etc. were once discussed. Many tens of thousands of prominent scientists in all fields of knowledge are centered at our higher educational establishments. What practical contribution do they make in working out the five-year plans? None.

Yet it is not hard to imagine how much the national economy could be benefited if, for example, in 1966-1967 hundreds of specialized departments of all the country's higher educational establishments would get assignments (related to their field of activity) to work out some specific problem for the future five-year plan. All the research institutes operating under the State Planning Committee, and the State Planning Committee apparatus itself, even if it included twice as many people as it does today, are not able with their forces and resources alone to thoroughly analyze all aspects of the country's economic activity and work out the best possible recommendations on economic development in the period under consideration. Such changes in the manner of work of the highest planning body will be beneficial to the entire economy.

In the past six months there have been many interesting quests for new methods of economic management in accordance with the reform adopted by the Party and Government. Things have noticeably livened up in the field of economics. There are gratifying results at enterprises operated in a new manner. All this is important but insufficient. The decisions of the Twenty-third Party Congress urge us to approach the problem of national economic management in a new manner. Not new in the sense that we should give up the Leninist principles of socialist economics, but in the sense that we must actually, not verbally, provide for their implementation at all levels.

Courtesy of Literaturnaya Gazeta

YOUR QUESTIONS ON COMMUNISM

WHY IS THERE ONLY ONE POLITICAL PARTY IN THE SOVIET UNION?

To answer that question we must make an excursion into history and review some of the events of 1917 and the Civil War.

In February 1917 the czarist monarchy was overthrown. Russia's political parties, including those that had arisen during the revolution, were now able to function legally. All parties had an opportunity to publicize their programs and to show by action whether they could meet the people's demands, which could be summed up in three words: peace, bread, freedom.

With the fall of czarism the Constitutional-Democrats came to power, its leaders holding the dominant position in the Provisional Government. This was a party of the big bourgeoisie, and it aimed at a constitutional monarchy.

Another influential right-wing party at the time was the Union of October 17, commonly known as the Octobrists. Under the czar the Octobrists were the loyal opposition in the State Duma, but they were, in fact, even more conservative than the Constitutional-Democrats. One of their leaders, Alexander Guckov, was named War Minister in the Provisional Government. The Provisional Government had the support of the petty bourgeois parties, in particular, the Socialist-Revolutionary Party and the right wing of the Russian Social-Democratic Labor Party, known as the Mensheviks.

There is no denying that the Socialist-Revolutionaries had a revolutionary program. They were for a division of the landed estates, and their speeches held out hope to millions of peasants. But if there ever was a party that was its own undoing, it was the Socialist-Revolutionaries. They opened their doors wide to anyone, regardless of his political beliefs. As a result, they lost whatever unity they started out with. Their right wing practically merged with the Constitutional-Democrats and their left wing with the Anarchists.

By linking their destiny with that of the parties of the big bourgeoisie and the Provisional Government—to which the Socialist-Revolutionary leader Alexander Kerens y was appointed so as to give it "revolutionary" coloration—the Socialist-Revolutionaries betrayed their own program.

The principal opponents of the left wing of the Russian Social-Democratic Labor Party—the Bolsheviks (as Lenin's followers were known)—were the Mensheviks. Like the Socialist-Revolutionaries, however, the Mensheviks were not a fully formed party. The Mensheviks disagreed with the Bolsheviks on many points, chiefly in their positions on the war and the revolution. The Mensheviks believed that economically backward Russia was not ripe for socialism and that consequently there could be no talk of overthrowing the capitalist system in Russia before this happened in the West.

The Mensheviks wanted Russia to keep fighting. They considered a peace with Germany betrayal. Yet in the spring of 1917 Russia stood on the brink of catastrophe, it had to get out of the war. The Menshevik position dovetailed with that of the bourgeoisie, which was making money hand over fist on war contracts.

In the period immediately following the February Revolution the peasants believed they would soon be given land. But time passed, and the Provisional Government took no action. It feared that the transfer of the land to the peasants would hurt the bourgeoisie it represented as well as the landowners.

It was the Communists, led by Vladimir Lenin, who expressed the aspirations of the working masses. The Communists believed that Russia should take the road of socialist revolution, and they proposed a radical program: that Russia pull out of the war immediately, that the landed estates be parceled out to the peasants; that political power be transferred to the Soviets.

The people came over to the Bolsheviks. In the critical days when General Kornilov's counterrevolutionary forces were moving on Petrograd to restore the monarchy, it was the Bolsheviks who organized the defense, not the Provisional Government.

In November 1917, when the workers and soldiers carried through the socialist revolution under the guidance of the Bolsheviks, the positions of the political parties polarized. At one pole were the Bolsheviks, at the other the supporters of the Provisional Government: the Constitutional-Democrats, Octobrists, Socialist-Revolutionaries (except their left wing) and part of the Mensheviks. The conflict between the parties and the classes behind them was won by the Communists.

Shots were still ringing in the streets of Petrograd when the delegates to the All-Russia Congress of Soviets, representing the majority of Russia's population, entrusted the Communists with the formation of the first socialist government. Lenin, its chairman, invited the Socialist-Revolutionaries and Mensheviks to join the government. The Right Socialist-Revolutionaries and Mensheviks refused categorically. "It is not our fault that the Socialist-Revolutionaries and Mensheviks have left," said Lenin apropos of that on the fourth day after the revolution. "We invited them to share power, but they prefer to wait until the struggle ends . . ." The Left Socialist-Revolutionaries, undecided, waited to see what the Congress of Peasants' Soviets would say. When the Congress supported the new government, the Left Socialist-Revolutionary leaders accepted Lenin's proposal and joined the government. They were given the posts of People's Commissars (Ministers) of Agriculture, Justice, Postal and Telegraph Services, Local Self-Government and a few others.

The collaboration did not last long, however. It was cut short by the actions of the counterrevolutionary forces, who unleashed a civil war, and by the foreign armed intervention. In the spring of 1918 the Left Socialist-Revolutionaries resigned from the government over the signing of the Brest-Litovsk Peace Treaty with Germany.

The policy of the petty-bourgeois democratic parties swung like a pendulum between several magnets—revolution and counterrevolution, pressure by foreign enemies of the Soviet system, the various strata of the population. In a country split by civil war the Socialist-Revolutionary pendulum could not continue to swing indefinitely. It shifted permanently to the counterrevolutionary magnet. In a number of regions the Socialist-Revolutionaries and Mensheviks overthrew the Soviets and formed governments supported by the bayonets of the White Guard armies and the interventionists. Boris Savinkov, a well-known Socialist-Revolutionary and terrorist, built up a conspiratorial armed center to fight the Soviet Government. The Socialist-Revolutionaries organized attempts on the lives of Communist Party leaders. On August 30, 1918, Fanny Kaplan, a Socialist-Revolutionary, shot and seriously wounded Lenin with poisoned bullets. That same summer the Socialist-Revolutionaries staged revolts in many Central Russian towns to cut Moscow off from the northern regions where Western interventionist forces were to land.

Thus the petty bourgeois democratic parties allied themselves with forces hostile to the socialist system. The Soviet Government retaliated by expelling these parties from all governing bodies.

As we see, the other parties vanished from the Russian political scene not because of "communist violence" but because of their attitude toward the revolution. Those are the facts that explain the development of the one-party system in the Soviet Union.

In general, though, the Communists have never claimed that only one party should guide a socialist society, or considered that a law of proletarian revolution. The experience of a number of other socialist countries—Poland, Czechoslovakia, the German Democratic Republic and Bulgaria, for example—has shown that Communists willingly cooperate with democratic parties that want to help the working people to transform their society along socialist lines.

At the same time it is evident that a society becomes increasingly homogeneous after the means of production are nationalized, as in the Soviet Union, where there are presently two friendly classes, the workers and the peasants, and also the working intelligentsia. A durable alliance develops among the working class, peasantry and intelligentsia at an early stage of socialist development. As time goes on the social-political unity of the new society becomes stronger and stronger. That is what has taken place in the Soviet Union.

In those conditions there is no social basis for political parties with different ideological and political platforms, let alone opposing platforms. The trend toward a one-party system is therefore quite natural in a socialist society. What is more, it has obvious advantages. Leadership by a single party consolidates and unifies the society. It enables a country to avoid the social cataclysms that inevitably waste productive forces, and to concentrate its energies on the important political, economic and cultural problems.

Question answered by Fyodor Petrenko

THE YEAR 1964 is especially memorable in Soviet sports history. It opened with the Ninth Winter Olympics. The Olympic flame burned in Innsbruck, the Tyrolean capital, for 12 days, from January 29 to February 9.

The Soviet Union commemorated the Winter Games with a seven-stamp issue. The first pictures the Olympic emblem, the next five symbolic figures of Soviet athletes who won at Innsbruck.

Lydia Skoblikova, the Chelyabinsk speed-skater, made a clean sweep of all four women's events, the first in the 40-year history of the Winter Olympics to do that.

A Soviet skier, Klavdia Boyarskikh, took home a pair of gold medals for the women's 5- and 10-kilometer cross-country races, and chalked up the best time in the women's 15-kilometer relay.

Another member of the Soviet team, Vladimir Melanin, captured the biathlon (20-kilometer flat skiing race plus shooting).

The Leningrad couple, Ludmila Belousova and Oleg Protopopov, won gold medals in the figure skating pairs competition.

Lastly, the Soviet ice hockey team took top Olympic honors, finishing a full four points ahead of their strongest rivals—Sweden, Czechoslovakia and Canada—and outscoring their competitors by 73 to 11.

The seventh stamp in the series shows an Innsbruck White Olympiad medal inscribed: "11 Gold, 8 Silver, 6 Bronze Medals—A Triumph for Soviet Sports."

The first five stamps in the set were issued in three varieties—with and without perforations, and with perforations plus overprints.

Sportsmen and sportswomen of 94 nations vied for global honors at the Eighteenth Summer Olympics in Tokyo.

The Soviet Olympians were ahead in total number of medals (96 to 90), but the Americans pocketed more gold medals (36 to 30).

The Tokyo Olympics were commemorated by a six-stamp set picturing the Soviet victors in weight lifting, rowing, fencing, gymnastics, high jump, and the pentathlon. The set was issued with and without perforations.

A single stamp commemorated the 1965 European figure skating championships, where Ludmila Belousova and Oleg Protopopov again won the pairs. Pictured at the bottom of the stamp is the Sports Palace in Moscow where the figure skaters competed.

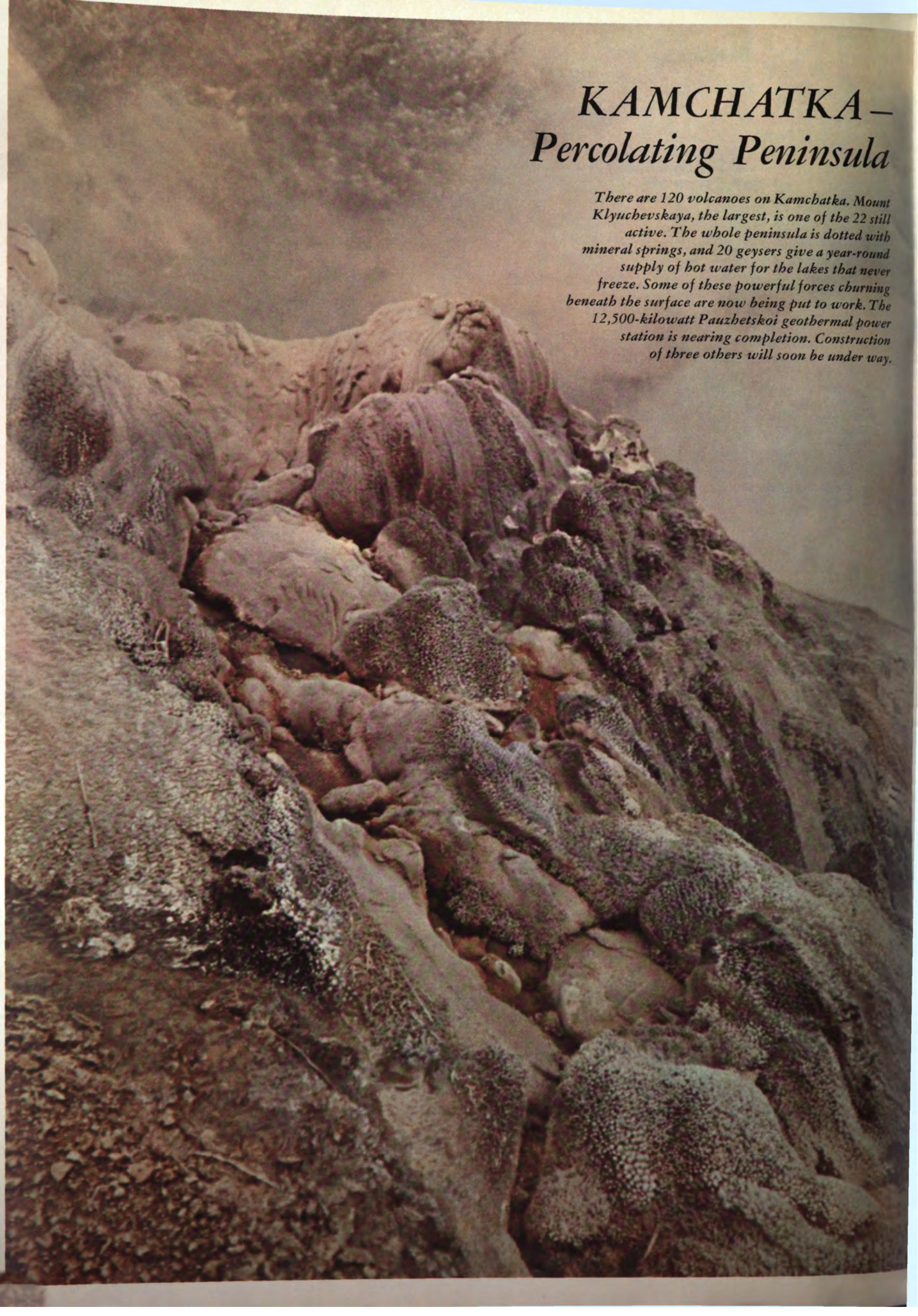
The seventh USA-USSR track-and-field annual was held in Kiev on July 31 and August 1, 1965. The American men's team, for the first time, came out at the shorter end of the points score. The aggregate final count was 181.5 points to 155.5 in favor of the Soviet Union (men's score, 118-112, women's score, 63.5-43.5).

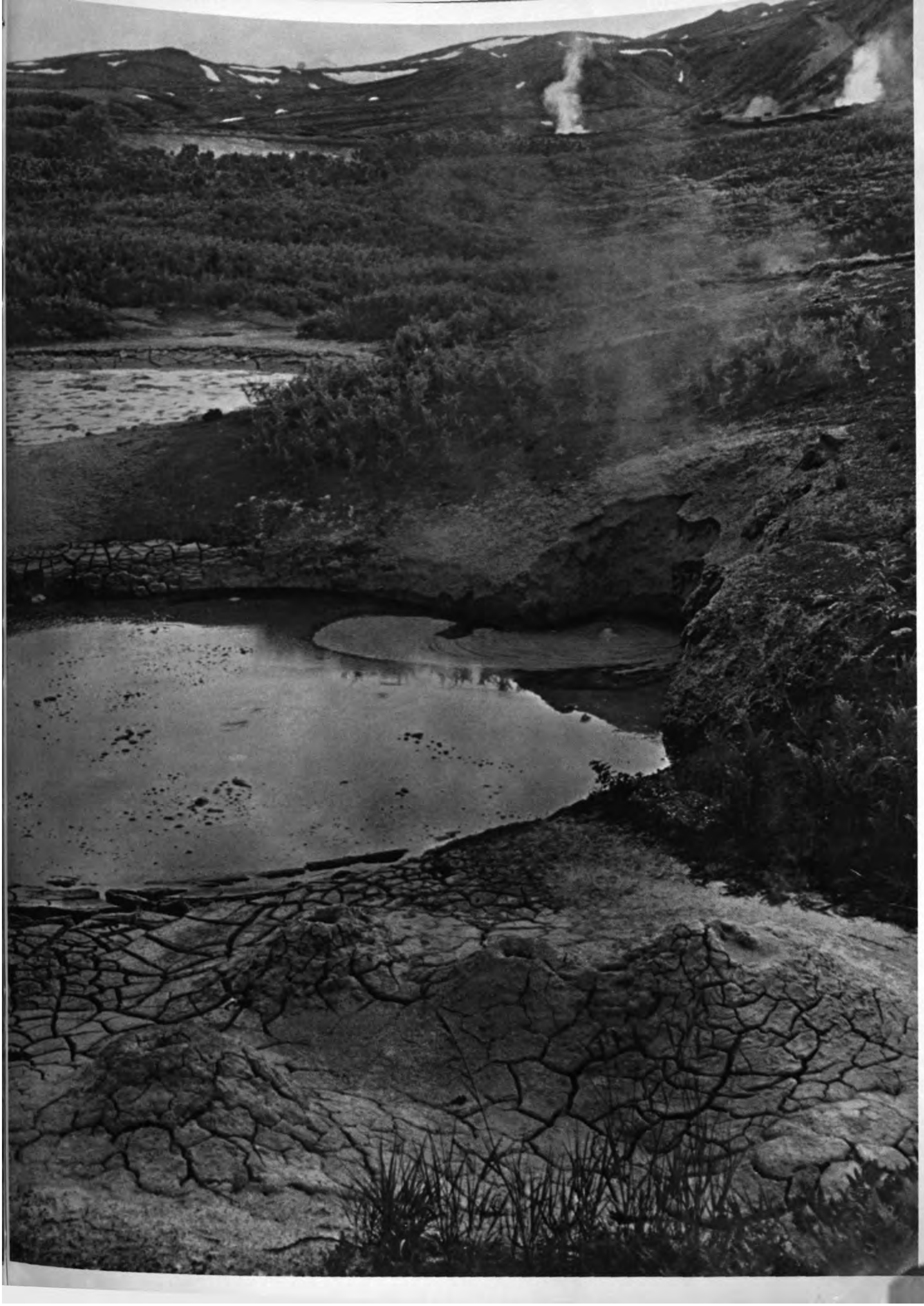
A three-stamp set was issued for the occasion showing the American and Soviet athletes (in white and red jerseys, respectively). The inscription on the oval, rimming the stadium field where the match took place, reads: "International Track-and-Field Meet," and inside the oval, "USSR-USA."

SPORTS AND STAMPS

KAMCHATKA— Percolating Peninsula

There are 120 volcanoes on Kamchatka. Mount Klyuchevskaya, the largest, is one of the 22 still active. The whole peninsula is dotted with mineral springs, and 20 geysers give a year-round supply of hot water for the lakes that never freeze. Some of these powerful forces churning beneath the surface are now being put to work. The 12,500-kilowatt Pauzhetskoi geothermal power station is nearing completion. Construction of three others will soon be under way.





SPORTS AND CYBERNETICS

The latest research indicates that in even the most grueling contests a top flight sportsman expends no more than a quarter of his power potential. Theoretically speaking, therefore, man is able to set records which seem fantastic today. But practically, a sportsman reaches the end of his tether training to break or hold a record. Ronald Clark runs about 120 miles a week. Should a sportsman out to break his record run 240 miles a week? If that is so, then sports, once an exciting and healthy recreation, may become arduous and health-killing toil. Are there more rational ways for sports to progress? For the answer to this question sports columnist Gerard Yelensky interviewed Vladimir Zatsiorsky, Assistant Professor in the Theory of Physical Training Department of the Central Institute of Physical Culture.

"The essence of all things is numbers." Pythagoras

How can we tap for sports the latent potentialities of the human organism?

More intensive physical training is certainly not the answer. Here we are very near the limit. Physiologists, biochemists, biomechanics, psychologists and coaches are looking for new ways to make progress. I think that the reserve on which we can still draw includes more efficient movement, better psychological preparation and better control of functions.

You mean Olympic or world champions have not yet achieved perfection in their movements?

Yes. If Valeri Brumel or Yuri Vlasov had developed to perfection all the muscles they use in their exercises and were doing the exercises perfectly, Brumel would have jumped 7 feet 8½ inches and Vlasov topped 1,323 pounds in the weight-lifting classic long ago.

Some five years ago Vladimir Dyachkov made a thorough study of the strongest high jumpers for his doctorate. He discovered that some of the muscles mainly responsible for jumping were underdeveloped in the case of Robert Shavlakadze, the Olympic champion!

At 27, when many jumpers quit, Shavlakadze began training his weak muscles, and three years later jumped 7 feet 1 inch. He would have done much better if this training had started at the proper time.

There are many such slips in training. Why? Chiefly because we have no adequate equipment to register the tension of certain muscles and follow their development. Therefore, the coach has no practical way of gauging the performance of some muscles, nor can he spot mistakes in movement unless they are in plain sight.

We shall not be able to control the muscles and hence the development of motion habits unless we understand the complex mechanisms of motion. Cybernetics is our only hope.

Cybernetics deals with the control of complex dynamic systems. This is what the human organism is. And to control it, we must develop a mathematical model of each movement.

Could you explain to the layman what the mathematical model would look like?

Let me give you this example:

The brain controls hundreds of thousands of functions, but we are interested in one specific function. We leave out of consideration all the other processes and concentrate on the one that interests us. In this way we study not the entire brain but only a simplified construction or model of a particular section. So, too, in the control of the organism as a dynamic system, we do not study all of it, but only a certain movement.

Take, for instance, an exercise called horizontal bar circles. The technique of this apparently simple exercise can be expressed by the following system of differential equations:

$$\text{I.}\quad \left[To_1+Tc_2+\frac{P_2}{g}(l^2+2ls_2\cos b+s_2^2)\right]a''+\left[Tc_2+\frac{P_2}{g}(s_2^2+ls_2+\cos b)\right]a''=(P_1s_1+P_2l)\sin a+P_2s_2\sin(a+b)+M_1$$

$$\text{II.}\quad \left(Tc_2+\frac{P_2}{g}s_2^2\right)b''+\left[Tc_2+\frac{P_2}{g}(s_2^2+ls_2\cos b)\right]a''+\frac{P_2}{g}ls_2a'^2\sin b=P_2s_2\sin(a+b)+M_2$$

On the basis of these equations and using an electronic simulation unit MN-7, Vladimir Nazarov of the Riga Polytechnic Institute has developed an electronic functional model.

How does it help training?

We already have ample evidence to show that training with electronic coaches can be very helpful. Each electronic coach embodies the mathematical model of a certain system of motion.

The procedure is roughly as follows. The group of muscles involved in an exercise is studied. Its mathematical model is developed and used to program a computer. The program is transmitted as codified electric signals to one input of a comparing device, its other input receiving signals from the sensors fixed to the sportsman's body. If he does the exercise correctly, the device gives the corresponding signal, the extent of correctness being expressed by its varying tonality, brightness or frequency. The device quizzes the sportsman; his answers are his movements. The learning machine tells him how correct his answers are.

The coach can spot only a fraction of a ski jumper's movements. The ski jumper is now trained more and more by reproducing his movements in a gym.

On a platform fitted with sensors he takes the proper stance and watches the screen on which the head-on slide is flashed. As the edge of the slide table approaches on the screen, the sportsman simulates a jump, and the oscillograph registers the shift of his center of gravity, the vertical component of his effort as he pushes off, and the synchronous shots of the film. After each attempt the coach receives over-all information on the performance and traces the cause of a too late or too early push-off, asymmetry in the push, superfluous movements, etc.

Another example. Usually it takes a whole season to work out a proper balance in canoeing. Victor Shchadrin of Kazan University developed an automatic coach that reduces the training to five three-minute exercises!

Do you think a model is possible for psychological and tactical training?

To a certain extent, yes. Although this is quite a problem.

With each year we have a growing number of aspirants for world titles. The physical capacity and skill of many of them are just about equal, and so those who have better control of their nerves have the advantage.

Psychological training obviously implies a sportsman's ability to grasp a situation and make correct decisions. However, there is another, even more important aspect—his ability to be at his best regardless of what we might call environmental factors, including complex situations or struggle. The psychological training must be suited to the sport. We can use electronic programming devices to pose complex psychological problems, for example, a sportsman's response to various emergencies in a duel or game.

Here is an illustration. A basketball player, ball in hand, fights his way to the backboard. The process consists of a multitude of different situations demanding instantaneous tactical and technical solutions. Should he ram through or pass the ball to a teammate? To which teammate? His tactical plan having been adopted, he tackles technical problems: How should he dodge to get rid of his opponents? With what force should he toss the ball to score? etc. In each case different muscles will work differently. Mathematically, this is a highly complex problem. The brain can solve the problem intuitively, but intuition depends on the sportsman's intellectual and psychological training.

Here we encounter the problem of training creative thinking in sports. Some of its mechanisms can in principle be simulated. This brings to the fore a new field of cybernetics: heuristics, exploring the rules of complex psychological activity and its control. However, the research is still in its initial stage.

Do you think control of functions is feasible?

We have made substantial progress. A sportsman's ability to cope with his exercise depends on the rate at which waste products are eliminated from his working muscles. Biochemist Nikolai Volkov has developed mathematical models describing oxygen exchange and the production of lactic acid in muscle activity. The model reflects the different rates of energy exchange under the influence of various psychological factors. The study opens a way for influencing metabolism in a sportsman's organism. The coach gets another sensitive lever for training control.

Last November the Central Institute of Physical Culture held a conference on Cybernetics and Sports. Apart from the research personnel of educational and physical training institutions, the conference was attended by researchers from the Academy of Sciences, universities, polytechnic and mathematics colleges and computing centers. It was a nationwide forum on cybernetics applied to sports.

The 40 papers read at the conference provided ample food for thought and put forward many new problems. They made clear that what has been done so far is only a pioneering effort in programmed training and other new techniques.

LETTERS TO THE EDITOR

MAN AND NATURE ISSUE

Dear Editor:

Your special August issue Man and Nature was simply superb. Those who took the pictures and composed the text showed a deep appreciation of the natural wonders that abound in the Soviet Union.

Conservationists in this country have been following closely the fight which scientists, artists and conservationists in your country are making to keep Lake Baikal unspoiled. I had the good fortune of spending a day on Lake Baikal in 1962, and agree that it is a masterpiece of nature that fully deserves the worldwide concern that is being expressed over its future. Oleg Volkov's article eloquently states the case for preservation, and we hope your planners will succeed in making it the Soviet Union's first National Park.

A few of the finest unsullied lakes in this country such as Yellowstone Lake in Wyoming and Crater Lake in Oregon are already protected in National Parks. Lake Tahoe in California, perhaps our most beautiful high mountain lake, is now involved in a water pollution crisis similar to that confronting Lake Baikal. In recent months a plan has been perfected to collect the sewage and pump it outside the Lake Tahoe drainage basin. This plan has not been carried out, but it does demonstrate that science and technology can save places of natural beauty if we demand that development not destroy other values.

The Soviet Union and the United States each possess vast continents endowed with rich resources and unique irreplaceable natural wonders.

I was heartened in 1962 to note an upsurge of conservation sentiment in those parts of the Soviet Union I visited. For the sake of unborn generations, let us hope that the conservation plans that look to the future are carried out by the people of both countries.

Sincerely,
Stewart L. Udall
Secretary of the Interior
Washington, D. C.

Gentlemen:

Every issue of your magazine SOVIET LIFE is interesting and very informative.

My August issue is especially a classic. Its articles on Lake Baikal, wildlife and nature are as the saying goes, out of this world. It all vividly portrays the mind and poetic moods of a great people.

These articles give a reader a very clear and distinct picture of the Russian mind that is pure and humanitarian. One need have no fear of meeting such people after dark.

Mankind could take some timely lessons from our bird and animal world. . . .

Thank you very much for the fine job of publishing and editing SOVIET LIFE

Sincerely yours,
Victor Kronquist
Graham, Washington

Dear Sir:

You are to be congratulated on the extraordinary edition on "Man and Nature."

My one regret was that this outstanding issue contained virtually nothing on the famed Soviet chernozem, or other Soviet soils, for that matter.

O. W. Bidwell
Manhattan, Kansas

Dear Sir:

For many years I have been an interested reader of SOVIET LIFE and as fellow worker in the graphic arts, have always enjoyed your presentation of material. However, I think the August issue dedicated to "Man and Nature" must be the best of a splendid series.

And you are to be commended in placing natural resources above parochialism and the limited vision of "theoreticians."

Paul A. Schrader
Toledo, Ohio

Dear Sir:

I enjoyed reading your August issue of SOVIET LIFE entitled "Man and Nature." I wholeheartedly support the efforts of the Soviet government and people to conserve the soil, water, plants and wildlife of their land. . . .

Antoine S. Grayib, M.D.
Topeka, Kansas

YOUR ARTICLES

Gentlemen:

I am now resubscribing to SOVIET LIFE because, just when I had decided to terminate the subscription, the August issue arrived and renewed my enthusiasm. That issue has reversed my growing conviction that the magazine generally lacked interesting ideas, vital subjects to explore, and perceptive writing which would give a depth of insight into the people whom SOVIET LIFE attempts to describe.

Perhaps my criticisms would be clearer if organized into two categories of laudatory and uncomplimentary remarks.

(1) I will begin with the aspects of SOVIET LIFE which I have enjoyed. First under this heading fall those articles concerning the ideas — social, political and economic—which form the basis of modern Soviet society. Two of these articles which have given me new insight into Soviet culture were: "Are We Flirting With Capitalism?" July, 1965, and "American Doctor Comments on Soviet Psychiatry" December, 1965. Secondly, my knowledge has also been increased by articles about the organization and methods used in various aspects of Russian living. . . .

(2) Despite the many valuable articles which I have discovered between the covers of SOVIET LIFE, other aspects of the magazine have seemed to me to be poorly handled.

The overall tone and writing style has created an atmosphere of superficial, childish idealism which obscured the complex and often incompatible factors of actual living. I often had the distinct feeling that the author was writing for simple-minded children; children who are as yet naïve enough to believe that people can be categorized easily, or that they are all basically identical. . . .

Also, I have considered much of the art printed in SOVIET LIFE to be perfectly disgusting. With a few exceptions, such as the work of Antanas Zmuidzinavicius, published in July, 1965, it didn't appeal at all to any of my esthetic senses. Although I thoroughly enjoy many works of art which portray recognizable scenes, I feel that the desire for "realism" which appears to control much of Soviet art, has resulted in many works which are "realistically" correct, but artistically meaningless.

Could you, at some time, print an article explaining current Soviet attitudes toward art and artists?

With my renewed subscription, I am looking forward especially to the series on the Bolshevik Revolution. . . .

Most sincerely yours,
E. S.
Poulsbo, Washington

Dear Sir:

July 3, Sunday, I went to the Opera House in San Francisco. One by one, Russian dancers from the Bolshoi arrived and I got their autographs on the cover of SOVIET LIFE.

I wasn't able to buy a program, but when the Russians saw your magazine with Bessmertnova on the cover, they felt right at home.

An American Ballet Student,
Tina Kristin
Pacifica, California

КРЫЛОВ
ИВАН АНДРЕЕВИЧ

IVAN KRYLOV (1769-1844)

Ivan Krylov was a fabulist who happily combined the wisdom of Aesop, the grace of La Fontaine and the pithy humor of the Russian peasant. The famous critic Vissarion Belinsky called Krylov "the honor, glory and pride" of Russian literature. Some 200 of his fables are gems of popular wisdom. Many of the types prevalent in the officialdom of his time are easily recognizable in his characters. The fable served him, among other things, as the medium for caustic criticism of real events. For example, in The Quartet *he ridicules the misgovernment of the State Council. The closing line—"You, friends, may change your chairs, but it won't turn you into players"—is often quoted. Krylov's fables have so taken hold that many of them have become proverbs. Even in his lifetime he enjoyed general respect and affection as a true poet of his people.*

For his great felicity of style, Krylov is considered one of the founders of the modern Russian literary language.

МАРТЫШКА И ОЧКИ

Мартышка к старости слаба глазами
стала;
А от людей она слыхала,
Что это зло еще не так большой
руки:
Лишь стоит завести очки.
Очков с полдюжины она себе
достала;
Вертит очками так и сяк:
То к темю их прижмет, то их на
хвост нанижет,
То их понюхает, то их полижет;
Очки не действуют никак.

«Тьфу, пропасть! — говорит она, —
и тот дурак,
Кто слушает людских всех врак:
Все про очки лишь мне налгали;
А проку на-волос нет в них».
Мартышка тут с досады и с печали
О камень так хватила их,
Что только брызги засверкали.

К несчастью, то ж бывает у людей:
Как ни полезна вещь, — цены не
зная ей,
Невежда про нее свой толк все к
худу клонит;
А ежели невежда познатней,
Так он ее еще и гонит.

КОЛЬЦОВ
АЛЕКСЕЙ ВАСИЛЬЕВИЧ

ALEXEI KOLTSOV (1809-1842)

Alexei Koltsov, a gifted poet, lived an unhappy life. A sensitive and accomplished writer, he was forced to occupy himself with the business affairs of his father, a bigoted and unfeeling petty bourgeois in the small town of Voronezh. Koltsov was on terms of intimacy with the leading metropolitan writers but was terribly oppressed by the stifling provincial atmosphere in which he had to live.

His poems have been published in 150 editions, and many have been put to music. He has a special place in Russian literature as the poet of the literary folk song. His work was profoundly democratic. He knew peasant life well, both its sorrows and joys. The Russian of the soil—courageous, largehearted, expansive—was his hero. His poetry was steeped in folklore, inspired by the now vigorous, now serene rhythms of folk songs, with their pungent and often traditional imagery.

ПЕСНЯ СТАРИКА

Оседлаю коня,
Коня быстрова;
Я помчусь, полечу
Легче сокола.

Чрез поля, за моря,
В дальню сторону:
Догоню, ворочу
Мою молодость!

Приберусь — и явлюсь
Прежним молодцем,
И приглянусь опять
Красным девицам!

Но, увы, нет дорог
К невозвратному!
Никогда не взойдет
Солнце с запада!

THE MONKEY AND THE SPECTACLES

A Monkey in old age from weak eyes
suffered;
But was told by people
That such a hardship was no calamity:
One need only get Spectacles.
The Monkey got itself a dozen pairs;
It turns them over and over:
Now presses them to its temple, now
slips them on its tail,
Now smells them, now licks them;
The Spectacles still don't work.
"Damnation!", says the Monkey, "He's
a fool
Who listens to the ballyhoo of humans:
This spectacle business is just a bunch
of lies;
There's not a hair's worth in them."
Then, from vexation and sadness, the
Monkey
On a stone dashed them so
That only splinters sparkled.

Unhappily, the same thing happens to
people:
However useful a thing may be, not
knowing its worth,
The ignoramus speaks of it deprecatingly;
And if the ignoramus is of higher rank,
He'll even go on to persecute it.

OLD MAN'S SONG

I will saddle a steed,
A fleet steed;
I will soar, I will fly
Light as a hawk.

Over fields, over seas
To a far-off land:
I will overtake, bring back
My youth:

I will array myself—and appear
As the youth I was,
And once more please the eyes
Of fair maids!

But—alas—no path leads
To things past recall!
Never will the sun
Arise in the West.

IN THE NEXT ISSUE

The cloverleaf structure towering over the Novoarbatsky Bridge, one of the spans across the Moscow River in the Soviet capital, is the new headquarters of the Council for Mutual Economic Assistance. Member countries are Bulgaria, Czechoslovakia, the GDR, Hungary, Mongolia, Poland, Rumania and the USSR. CMEA was founded to build such joint investment projects as international oil pipelines and an international socialist bank, among other things. This building perhaps symbolizes the success of the economic cooperation of the socialist countries of Europe. See the article in the coming issue for more detail.

In Antimatter our correspondent writes, "For a moment I was transferred to another world, the antiworld, strange, uncanny. Antimatter was within my reach. I could see it on the TV screen. A microscopic galaxy, a peewee antiworld was racing around the accelerator ring almost as quickly as light." To the man-in-the-street the concept of antimatter is inconceivable, but the research going on in the USSR, the USA and elsewhere to harness this science fantasy come alive opens incredible energy possibilities.

The Origin of Russian is an article for those who know the language, those who do not and those who would like to know it. Indebted to both the East and the West for its richness and flexibility, Russian has absorbed the invasions of Mongols, the refinements of Byzantium, the "westernization" of Peter the Great.

Science has opened hitherto closed pages in early Russian art history. The almost miraculous techniques chemistry has developed are used to restore icons painted hundreds of years ago. Whole overpaintings and fragments of overpaintings are transferred to new grounds. Organic solvents strip off time-blackened layers of oil to reveal the glowing saints and angels of the ancient Rus masters.

Some of the other articles in the December issue:
Contemporaries —excerpts from two diaries, one kept by a member of the royal family, the other by a worker in St. Petersburg, both describing one and the same period; Maxim Litvinov —noted Soviet diplomat, ambassador to the United States and one of the most colorful personalities the Socialist Revolution produced; Sculptor— about Vladimir Zimmerling and his search for artistic direction; Passion with Order —on the recently held Third International Tchaikovsky Competition, which gave awards in piano, violin, cello and voice, and a look at the contestants, the judges and the audience.

NOVOSTI PRESS AGENCY

SOVIET LIFE

Gorky Street — Moscow's main thoroughfare starts at Red Square and ends near the Gorky statue. It has its ebb and flow, like the sea.

Soviet Dramaturgy — The first of two articles analyzing the Soviet theater today. Its tendencies and problems and most representative figures.

Reactor Community — Obninsk, where the world's first atomic power station was built, where amazing researchers are doing amazing research.

COMING SOON

By Masha Rolnikaite

AT THE SAME TIME that Anne Frank was keeping her diary, another girl of almost the same age was keeping notes in the Nazi-occupied city of Vilnius. Masha Rolnikaite and her family lived in the ghetto where a hundred thousand persons were shot or tortured to death. Her mother, little brother and sister were also led away to death. It was the end of everything human and humane. Perhaps it was the need to preserve something human within herself that impelled her to keep her diary. She wanted the world to know how her people had suffered. First she jotted down her notes in an exercise book. When the ghetto was demolished and she was sent to a concentration camp, she wrote on scraps of cement bags. And when even that was lacking, she simply memorized what she wanted to write. The bitter and ironic "Stutthof Hymn," which she composed, was sung by the inmates despite the Nazis' ban. One of its lines ran: "They broke trees, they broke cities, they broke our arms and legs, there is one thing they cannot break, they cannot break our souls." Her diary is a soul unbroken, unconquered. It is the record of great agony and great perseverence. It is also an indictment and a warning.

Masha Rolnikaite was saved by advancing Soviet troops. She returned to Vilnius and some time later began to restore her notes. Part of her diary was found in the ghetto.

The diary was published in the Soviet Union and abroad, and excerpts of it were printed in the April 1965 issue of *Soviet Life*. It has met with a wide response, and *Soviet Life* asked the author to describe some of the letters she has received from her readers.

> Dear Masha,
>
> Excuse us for calling you just Masha. We are now the same age as you were—16 years old—when you braved all that. We wanted to write "all that hell," but thought better of it. Hell is for sinners, and what have you done to deserve it? Your tragic book made us determined to fight against nazism and cruelty, to be kind and considerate. Your book made us realize how valuable human life is and what great care it deserves. . . .
>
> Liya Ivanova and
> Anya Smirnova
> Students of the Teachers College

This is how my book began to return to me. Every person, even if he is no writer, may write one book: the story of his life. And each author is nervous when he parts with his manuscript. I was doubly nervous. My notes penned more than 20 years ago must tell people about the ghetto and the concentration camps, about the life and death, agonies and struggles of those who cannot tell about it themselves. Will the reader hear in my story the echo of shootings in the forests? Will he see the bodies of children and adults falling into pits? Will he revere the doomed who challenged their executioners? Will he understand the agony of those gasping for air in the gas chambers? Will he sense the nauseating smoke filtering from the ovens? Perhaps the reader will be indifferent, detached? Perhaps he will reproach me for reminding him of those horrors of war?

The diary was first published in Lithuanian, then in Russian in the Leningrad magazine *Zvezda* and some six months after that as a separate book.

Though many influential periodicals like *Novy Mir* and *Druzhba Narodov*, newspapers in Moscow, Leningrad, Vilnius, Riga, Smolensk, Rostov-on-Don and other large cities, and the foreign press carried favorable reviews, the thing most precious to me is not the praise of the critics but the reaction of ordinary readers.

The letters arrived in waves. The first wave rolled in after the diary was published in Vilnius. An old lawyer from Vidmantai, a Lithuanian village, sent me a deeply moving letter. Paulina Yurkunaite, a young physician from Kaunas, who was not in the war or the occupation, wrote the following:

> Thank you for a view far removed from humdrum trifles, for a deeper insight into life. My petty troubles have dwindled to nothing next to your great tragedy. I would like to do something for those ghetto victims. Enclosed is my modest contribution for the monument. That is for the dead. As for the living, we must do everything we can to prevent it from happening again.

Asya Kadochnikova, a worker and a mother of two children:

> This is what I think (please don't laugh if it sounds childish): Those people who suffered so much, whose lives were crossed out, who were deprived of childhood . . . they ought to be given another life to live.

Professor Maks Shats, a well-known literary critic, lawyer and public figure in Latvia:

> Reading your book inspires a deep faith in the spirit of man, his ability to resist evil whatever the cost. . . . Your diary has a noble goal: to help clear our planet of all nazi scum, old and new.

I was especially stirred by a letter from Yelena Rubinsonas who lives in Paneryai, where mass shootings took place:

> My dear girl,
>
> I am an elderly woman from Paneryai, a little Lithuanian town whose name has become synonymous with the greatest of tragedies. Every day I go to those moats which became a vast tomb, every day I lay flowers at the monument to the dead. For me every day is a Remembrance Day. All my large family lies in that tomb. I survived by a miracle—and I don't know whether for better or worse. My three sons, three of my boys, died. The eldest was 12. I keep thinking of what their lives would have been like. They were gifted and each so different. . . . Do you know what your book has taught me? Courage.

At first my mail was a trickle (which did not make it any less precious!). But when the book was published in Russian in the magazine *Znamya* and in book form—a combined edition of nearly a million copies—the trickle swelled into a river. On a map I pencil the places the letters come from, and the pencil lines link me with Chukotka, the Crimea, the Donbas and Tambov.

From schoolchildren of the Crimea:

> This summer our club is going on a hike along the Black Sea coast. We have tents and boats, and it's sure to be great fun. We invite you to join us—Mother thinks it will be very good for your health and nerves, too. Please write us how you are now.

From Mira Khavkina, Dnepropetrovsk:

> You simply had to tell us about it. The book is staggering because it is all factual. For several days I have been thinking about what you told me. Perhaps I felt this with such poignancy because we are of the same age, and everything that happened to you might have happened to me, too. My first name is the same as your sister's, Mira. I am a doctor, a pediatrician, and it is especially hard for me to believe that people can do this, that they can kill little children, giving it no more thought than a machine would.
>
> How are you now? I hope your health is good. How is my namesake Mira? You do not say in your book whether she survived. I'd be glad to help you in any way I can.

From Chukotka:

> Dear Masha,
>
> We are schoolchildren in the far-away village of Uelkal in Chukotka. We have read your diary. We are very far away from you, on the cold land of Chukotka, but we would like to receive a letter from you, to know how you are now. Your book teaches us courage, resolution, dignity. We are having a very cold winter, with deep snow, blizzards and a bitter frost, and it's already warm in Lithuania, but never mind and come over to us. You will join us in a hunt and see our beautiful northern lights, and our teacher says that deer liver is very good against TB. We are sending

LETTERS, MORE LETTERS

you a polar fox. Ivan Fandeyev of the sixth grade killed him. All our grade sends you love and greetings.

From Alexei Lobov, Moscow:

I fought my way through the war, was wounded several times, but my grimmest memory is the Maidenek death camp. I thought I was a seasoned soldier and nothing could shock me any longer, but I couldn't take the sight of those neat rows of skeletons. That is why I understand you so well. I had a terribly hard time. My father and mother died. Another brother of mine was missing in action. Perhaps you met him in the camp? His name was Vladimir. He was a tall, fair-haired man. . . .

The war ended long ago, but its wounds still smart. Many of my correspondents still hope to learn something about their relatives or friends. Perhaps I met them in the camp? Everyone who lost his dear ones hoped for a miracle. Unfortunately, there was a miracle only once.

How well I remember a beautiful Jewish girl of medium height from Poland. Her name was Rose. She sang very well, and her second name fit her quite nicely—Zhavoronok, which means lark. When my book was published in Poland, I received several letters. One of them contained a photograph. With difficulty I recognized Rose in the young schoolgirl in that picture. Was she still alive? Her sister wanted to know where she was now. I remembered that she was saved with me by Soviet soldiers and was taken to a military hospital. Later she married a doctor. The sisters found each other. I received a telegram from Rose and hope to see her.

The nazi hell to which we were confined was international. Girls from Poland, Czechoslovakia, France and Belgium died next to me. Some letters I receive are postmarked Paris (the book has been published there recently), Tel-Aviv and Warsaw.

From Anela Stefanovich, Warsaw:

When I saw your book (I work in a library), I put it aside. Hard stuff again, why should I upset myself? How often we avoid a distressing film and put aside a book with a tragic end—simply because we want to spare ourselves. Yes, that's it. Probably we shouldn't spare ourselves so much. For the sake of the dead, and for the sake of the living, too. If everyone spares himself so much and others so little, they pave a road for Nazis. . . . Remember that line in your diary: "What are they killing children, women, old men for? What for?" Alas, not "what for" but "who for?" As soon as a nation lets itself be persuaded that it is above others, that it can decide for others, there is war. (Remember *"Gott mit uns"* on the nazi soldiers' belt buckles? Even God sided with them and no one else!) When the Germans were talked into believing that they were above the Jews, Slavs and French, the compatriots of Goethe set up the ghetto. It was hard for you to write that book. It was hard for us to read it. But you had to tell this story, and we had to listen! In the Federal Republic of Germany they also must read it. There they have recently pardoned your executioners. And in Austria, too, where Murer lives and in the United States where the modest bank employee Impulyavichus works. They all must read it—so that this will never happen again.

Letters keep coming, and each letter is like the visit of an old dear friend.

From Ivan Nikolayev, a welder, Smolensk:

Good for you. You did not let them browbeat you and wrote this book. I respect people who pay their debts, large or small. Your book repays your debt to those who died next to you. Not everyone who went through all that can find the strength to tell about it. This book calls for a retribution to all those who have not been paid in kind for their death-dealing. Alas, this is not only the past. The hand that killed your mother and brother is perhaps drawing a swastika on the walls of the synagogue in Cologne. That hand may still rise against mankind.

From Irma Dorina, Leningrad:

I am 18. I know the war only from books. There are no war victims in our family, though my father and grandfather took part in the fighting. It often seemed to me that my old folks were too fond of reminiscences simply because (I thought) they found it pleasant to recall their youth and bravery. It seemed to me that all that was so long ago—before I was born! And here I have read your diary (I would not say "your book" because the diary is not fiction and I don't think anyone can write fiction like that!), and I saw all those people as though they were alive, the people of my nation (I am Jewish, too). For several days the terrible pages about the assault on the ghetto were before my eyes. "At dawn the only woman left alive was found lying near the gate. She was giving birth to a child. I saw her dying. And the baby, healthy and screaming, was taken into a house and called Ghetta." Is that girl alive? Perhaps you know?

I would like to know how you've been living after those events.

What was my life like after those events?

After I was discharged from a hospital in Vilnius, I went back to school. I felt awkward sitting next to children many years younger, but I forced myself to. I wanted to be educated and do what I had dreamed of when I was a little girl—to spite that crazy war I took to writing. Oddly enough, I wrote short, humorous stories, very lighthearted and cheerful. It was probably a reaction to what I had been through. Then I graduated from the Literary Institute and got married. I had a number of good friends. Still, I felt a hundred years older than people of my age. It was a hard job to learn how to live and enjoy life. The dead—my mother, brother, sister and the thousands shot and tortured to death—haunted me. How could I help them? A Lithuanian teacher Ionaitis brought me my diary. It had been found in the ruins of the ghetto. That started me on my book, the book of my life. And then it was published and is now returning to me in thousands of letters.

In almost all of them my new friends are worried about my health (the children from Chukotka even diagnose TB). I am sorry to destroy the romantic image which they have formed of me, but the fact is that the healthy 38-year-old woman does not at all resemble the emaciated girl a soldier lifted like a baby. I am quite healthy. Except that my heart aches. It aches for no apparent reason—"just because it's going to rain," and it aches from compassion and sympathy. I am showered with letters from those who went through all the circles of the nazi inferno, who lost their family and friends.

Rudolf Yevilevich, a teacher from Kuibyshev, was wounded and lost his sight during the Second World War. He did not succumb to his tragedy. He teaches his children to be human, and after reading, or rather listening to, my book, he wrote:

This book is vital today as well. The world has no moral right to call itself civilized as long as there are dark forces trying to bring to life the mortally wounded nazi snake. To ignore it means to aid and abet these forces. That's why your book is so vital. It reminds everyone that nazism is still on trial, that the world remembers its barbarism and will never forgive the Nazis, old or new.

Some letters are addressed to the publishers or the Union of Writers or simply the city in which I live. I receive them all. They reach not simply my house, but my heart as well. I haven't had a better reward than the words in one of the most recent letters—from Valentina Kozlova, an engineer, from Tashkent:

Your diary makes people determined to do everything possible to avert war.

These letters are now my greatest solace.

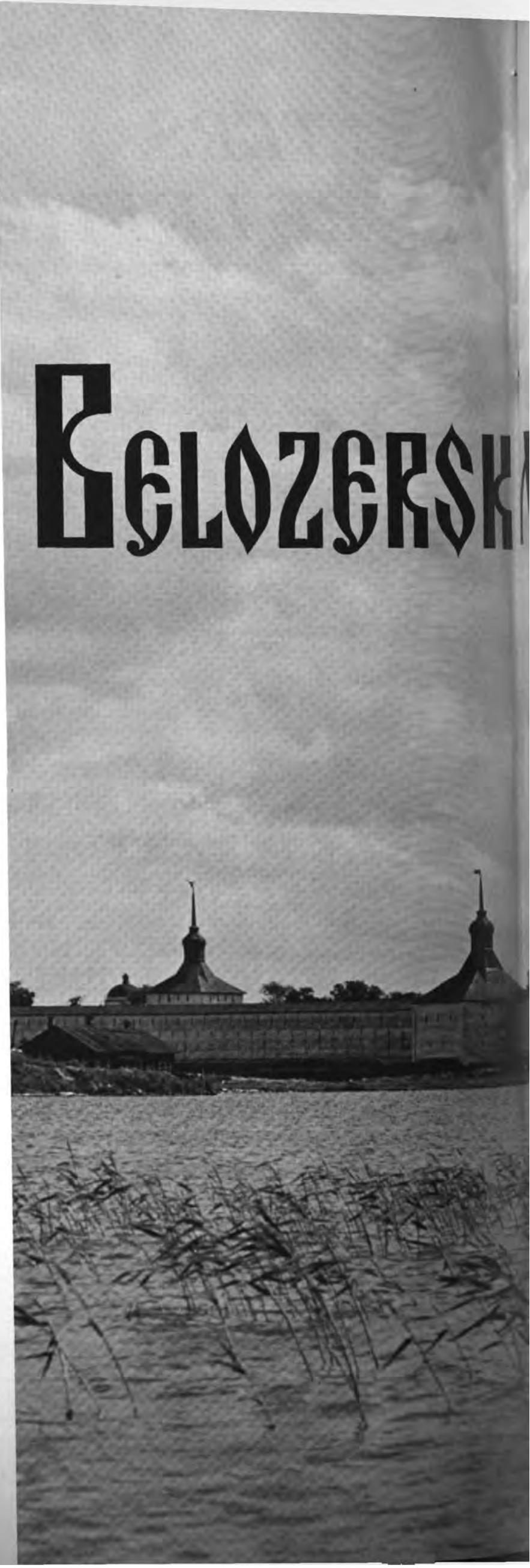
(Top) Called Vologodskaya, the tower is one of twelve fortifying the massive walls put up around the monastery in the seventeenth century.

(Right) An invincible fortress situated in the midst of dense forest, the monastery became a convenient prison for enemies of the throne.

(Center) Though designed by different architects, the churches of the Assumption, the Epiphany and St. Vladimir are a harmonious ensemble.

(Bottom) St. Cyril, a disciple of St. Sergius, founded the monastery in 1397. This rather ornate study in silk and gold was done in 1587.

Belozerskaya



BY YURI OVSYANNIKOV

Photographs by Alexei Alexandrov

MONASTERY OF ST. CYRIL

IN 1397 a monastery was founded on the shores of limpid Lake Siverskoye in a dense forest 310 miles north of Moscow. Cyril, its founder, was a disciple of the celebrated St. Sergius of Radonezh, first abbot of the big Troitse-Sergievo Monastery. The new monastery came to be known as the Belozersk Monastery of St. Cyril—after a nearby lake and its founder.

The small dugout which was Cyril's first chapel may still be seen. It has the massive wooden cross which the abbot himself put together from two tree trunks.

This religious outpost in the North soon became famous for its severity and its missionary zeal. Nil Sorsky, the famous fifteenth century Russian writer and theologian, spent most of his life here.

The monastery was held in great esteem by Grand Prince Vasili III, who went there to pray for an heir. Ivan the Terrible was also a frequent visitor. Planning to move his capital to Vologda, he wished to elevate this monastery to court status, and it grew rich from his gifts.

The monastery's first stone building, the Cathedral of the Assumption, was built in the late fifteenth century, in the time of Grand Prince Ivan III. Another four stone churches—St. John the Baptist, Archangel Gabriel, St. Vladimir and St. Sergius—were erected in the sixteenth century.

Czar Fyodor Ioanovich, the son of Ivan the Terrible, continued as patron of the monastery and was responsible for the two-storied refectory and the Church of St. Irina, named in honor of his wife, the Czarina Irina Godunova. He ordered the first stone wall with nine round and quadrangular towers constructed in 1586. Some 20 years later the wall was beleagured by combined Polish and Lithuanian invaders. After a long siege the monastery was stormed and the 200 years of wealth it had accumulated was plundered.

As the years passed, this faraway monastery became a prison for high-placed offenders. Thus, Prince Ivan Vorotynsky and Prince Vasili Shuisky were incarcerated there for life with the grim-visaged monks their warders. In the 1670s the ambitious Patriarch Nikon, who sought to raise clerical authority above secular power, was imprisoned there. Unfortunately, his wooden chambers no longer exist. However, the small Church of St. Joachim, where he said his daily prayers, has survived.

Shortly after Nikon's arrival, new and more formidable walls that had been started in 1633 were completed. These 2,500-foot-long brick ramparts were fortified at the corners by 12 strong round and quadrangular towers. Inside the walls are three tiers of arched galleries so wide that a truck can drive comfortably along the top tier.

The towers and walls rise up straight from the water, which makes them seem still more formidable and austere. Each tower is topped by a decorative frieze of ornamental brickwork or green tile, which gleams jewel-like against the white background and accentuates rather than relieves the sense of impregnability.

Both towers and walls have machicolations and platforms for heavy ordnance. The cellars held arms, gunpowder and dangerous criminals.

Today the monastery is a museum, a graphic illustration of two centuries of Russian architecture—the late fifteenth to the late seventeenth. Specimens of the wooden architecture of old Russia, including a church and windmills, have been moved here from surrounding villages.

The former refectory and main cathedral display old Russian icons, sixteenth and seventeenth century jewelry, pottery, gold and silver artifacts, ironware, and old, beautifully illuminated and bound manuscripts. The monastery library was once Muscovy's biggest, with 12,000 manuscripts.

Unchanged by 300 years, the Belozersk Monastery of St. Cyril is a unique historical and architectural monument.

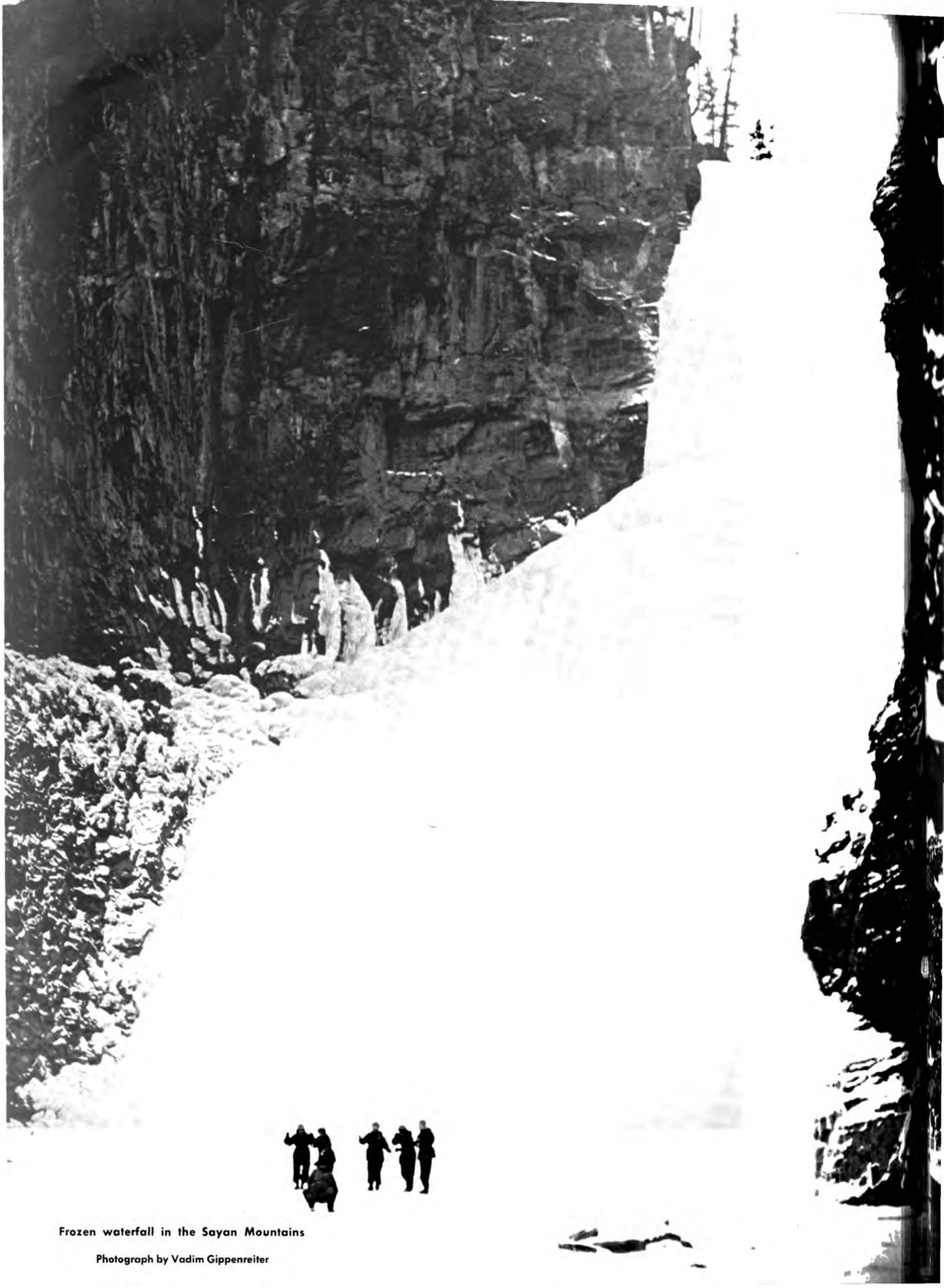
(Left) The interior of the Cathedral of the Assumption. Built in the late fifteenth century, it was the monastery's first stone structure.

(Top right) A detail from the fresco decorating the main entrance to the monastery—St. Michael the Archangel guarding the sacred gates.

(Above) The stone walls rise straight out of the water and are so thick that a truck could drive comfortably on the top tier inside the walls.

(Below) The windmill, dating from the fifteenth or sixteenth century, is part of the collection of old Russian architecture at the monastery.

(Bottom) This church, an excellent example of fifteenth century Russian wood architecture, was brought here from the nearby village of Borodav.



Frozen waterfall in the Sayan Mountains

Photograph by Vadim Gippenreiter

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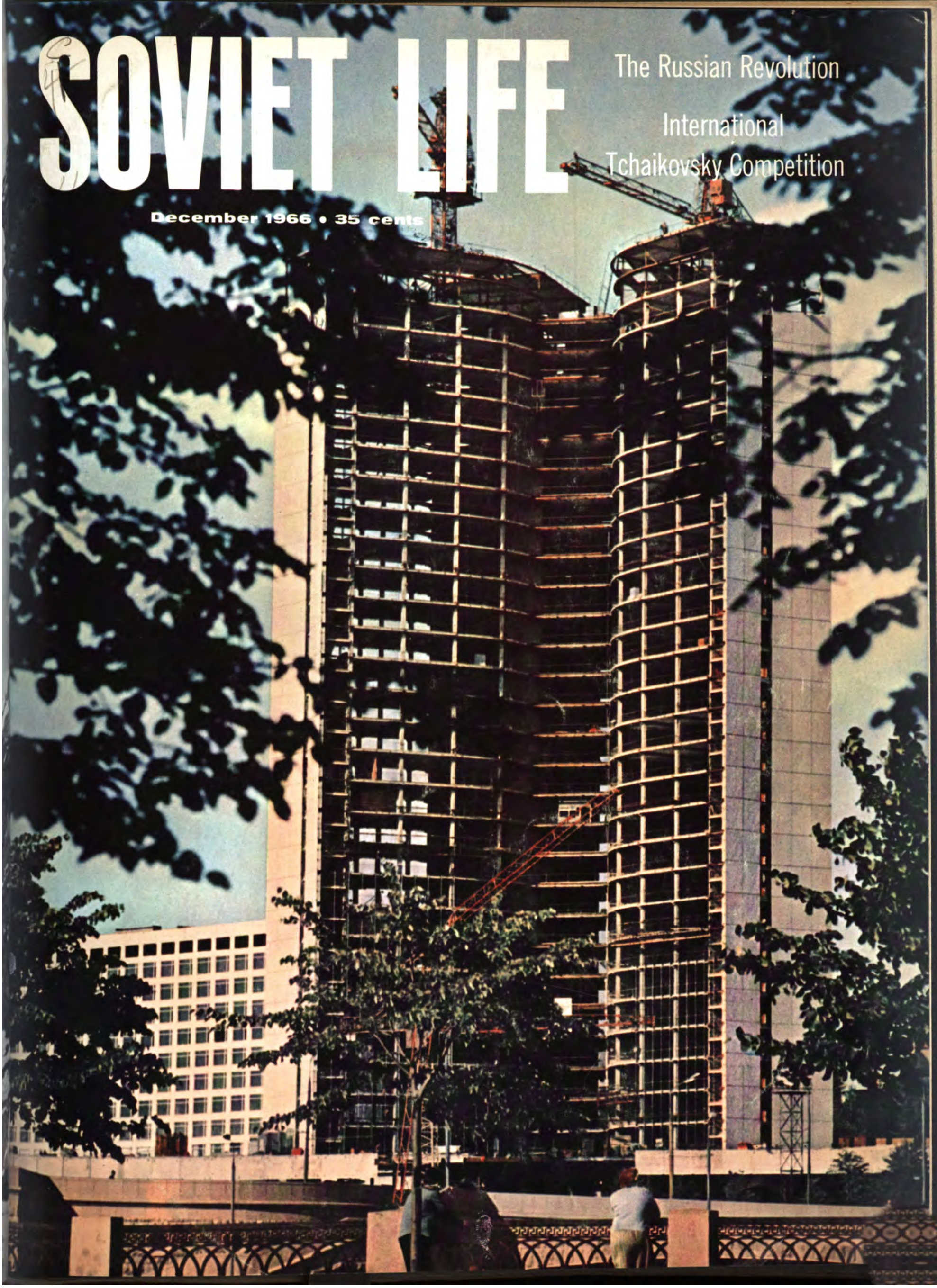

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Front Cover: Construction of the new CMEA headquarters in Moscow nears completion. *See story on page 22*

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Circulation Manager
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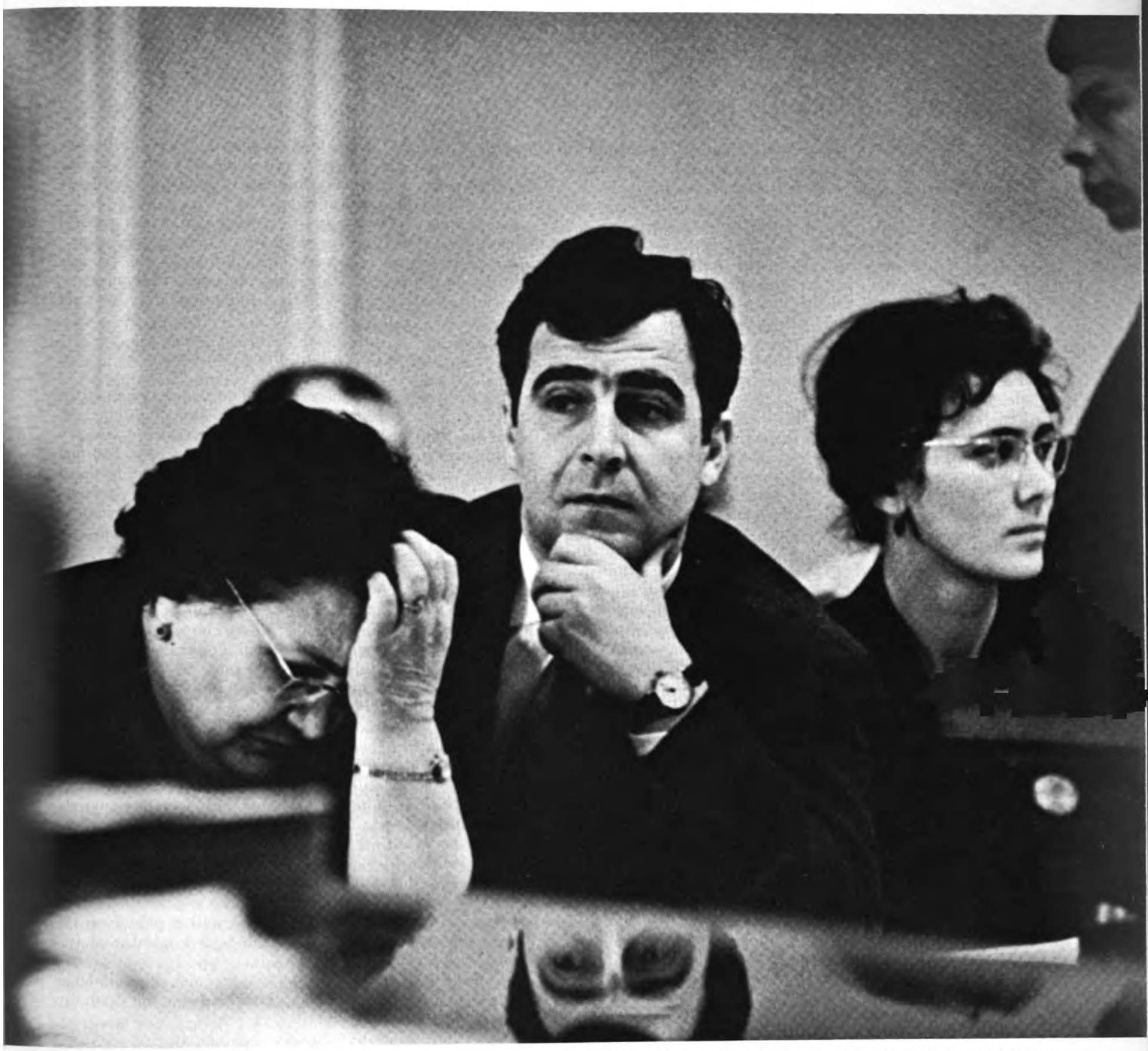


Lawyers Maria Zharova, Georgi Kadgarduzov and Marina Androsova (left to right) in a Moscow court defending a group charged with several robberies.

LEGAL DEFENSE

Paul Tannenbaum, a New York reader, asked for an article on Soviet lawyers.

BY ARKADI VAKSBERG
Master of Science (Law)

SEVERAL YEARS AGO the worker Vladimir E. was arrested in Taganrog, Southern Russia, and charged with murder. He asked Taisiya Lempert, a Moscow lawyer, to defend him. A short time before that she had conducted a vigorous and effective defense at a trial in Taganrog. Incidentally, she is one of thousands of Soviet women lawyers.

It was a troublesome case. The charge was murder with intent to rob, and Vladimir had confessed during the preliminary investigation. Only later did the lawyer learn that the actual murderer had threatened to do away with Vladimir's family if he did not confess.

Although the evidence looked plausible and the defendant had confessed, the crime was strangely unmotivated—only 20 rubles were missing, and there was no other possible motive.

The duel for a human life began, and ironically the person whom the lawyer was trying to save was no help. The defendant was convicted and sentenced to death, but the case was appealed and the sentence reversed by the Supreme Court of the Russian Federation. Taisiya Lempert managed to establish a relationship of trust with the defendant, and the man finally told her the name of the murderer, who was duly tried, found guilty and sentenced.

The right to legal defense is guaranteed by the Constitution. A defendant can choose his own lawyer. In one case a judge, anxious to hear a case without delay, persuaded the defendant to take another lawyer since the one he had chosen was on vacation. The Supreme Court reversed the sentence on the grounds that the defendant's freedom to choose his lawyer had been tampered with.

His Role Is Sometimes Decisive

The defense counsel remains a vital protagonist in the battle to establish the legal truth.

Soon after the 1917 Revolution the old legal system was abolished, and justly so. It had degenerated into an instrument of violence and oppression. The bar was abolished along with the system. When the new legal system was set up, it became clear that no justice was possible without legal defense. The new bar was proposed by Vladimir Lenin, who was himself a lawyer. In recommendations for a draft decree on court procedure he emphasized the importance of associations of "professional counsels for defense" who would be paid for their service.

The Soviet bar has not undergone any essential organizational changes in the 40-odd years since, except that professional requirements have risen steadily. Today, no person can be called to the bar unless he has a complete law school training bolstered by court experience. The Moscow collegium, for example, will not admit a lawyer until he has had three years' experience in court, a prosecutor's office, the legal department of an industrial or business enterprise or state institution, or as assistant to a practicing lawyer.

Lawyers are members of regional or republican collegiums. Moscow and Leningrad lawyers are members of the collegium in their own city. Every lawyer who is a member of a collegium may plead cases before any court in the country.

The collegiums are self-governing associations. They elect their presidium by secret ballot. The presidium is composed of lawyers who are active professionally and have the esteem of their colleagues. It is the function of the collegiums to guard and supervise the ethics and standards of the profession.

Each collegium has several offices in the area, city or region. Lawyers specialize in criminal law, family problems, inheritance cases, labor relations, patent rights, etc.

Counsel for the defense is free to choose any tactic, method or means he thinks appropriate for an effective defense, provided, of course, it does not violate the law. A lawyer who acts in bad faith, violates a law or shows professional incompetence may be expelled from the collegium and hence forfeit his right to practice.

If a Defendant Does Not Pay

Obviously, the real value of legal defense is not simply the right to defense but the actual possibility for using the right. When Mr. Plotkin, a New Orleans attorney, visited a lawyer's office in Moscow a few years ago, he was surprised to find that no fewer than a third of the clients were getting professional advice without charge. This is typical. Besides, professional service in court is also free in some instances, in labor relations cases (for example, if an employee sues an enterprise for unwarranted dismissal), alimony suits, etc.

The head of a law office may also accept a case without fee if the client cannot afford to pay. The collegium will then compensate the lawyer who pleads the case from a special fund set up for the purpose. Each member of the collegium contributes 18 per cent of his earnings to this fund. For example, the Moscow collegium recently paid a lawyer more than 3,000 rubles for a long and laborious case.

Fees are uniform. For example, the defense of a comparatively simple criminal case costs 50 rubles or less. A case requiring special training and complex reference work costs up to 100 rubles. A defendant may be charged an additional 5 per cent of the plaintiff's claim to be paid to the plaintiff's lawyer. Claims are often considerable, especially in copyright and patent right cases. A lawyer in Moscow recently won a case in which his client, an inventor, was awarded 20,000 rubles from an enterprise which had used his invention.

It should be noted that a lawyer is charged (though comparatively little) for office space, reference and library service, assistants and secretaries. But the whole bill is paid from the aforementioned fund of the collegium he is a member of (no contribution is made by the state).

The general labor laws cover lawyers, and, like all other citizens, they are entitled to temporary or permanent disability grants and old age pensions.

Apropos One Debate

One duty of the collegium is to see that lawyers defend the legal rights of their clients without becoming what Fyodor Dostoyevsky called "servants of crime." The use of legal knowledge and experience to justify injustice, deals with conscience and the like have given many laymen a decided bias against the profession. Poorly informed people are inclined to look on lawyers as a legal corporation for delivering criminals from just retribution.

Even some people familiar with juridical practice regard lawyers as obstacles to crime investigation and an honest trial. This attitude is undoubtedly a carry-over from the period when the principles of socialist legality were seriously violated in our

country. The point of view is reflected in the press, as it naturally would be.

Literaturnaya Gazeta, for example, castigated one lawyer for trying to persuade the court not to sentence his client, who had been charged and convicted of murder, to death. Essentially, the lawyer's plea was very moderate since he could have asked the court for a shorter term of imprisonment than the maximum. Still, the newspaper waxed indignant because the lawyer asked for clemency without any legal reason. However, the newspaper overlooked the fact that the defense, not the prosecution, made the plea and that it is the duty of the defense counsel to plead in his client's behalf as long and as hard as he can.

Unreasonable perhaps, but such views are quite common. Those who hold them do not realize that just retribution for crime does not rule out careful legal inquiries but, on the contrary, requires the strictest observance of all guarantees of justice. Without legal defense these guarantees are worthless. That should be axiomatic.

Professor of Criminal Law Ilya Perlov wrote an article for the newspaper *Izvestia* characteristically entitled: "In Defense of the Counsel for Defense." At a session of the Supreme Soviet of the USSR Professor Ivan Kairov noted that "the attitude that lawyers interfere with the proper administration of justice . . . has not yet been eliminated; this attitude has nothing to do with the genuine aims of Soviet justice."

Such statements, and they are numerous, point to the tendency to strengthen the legal system and democratic process. For the free development of legal defense is an important guarantee of the individual's rights.

Truth Is Worth Time

Legislative bodies are sensitive to the need for enhancing the prestige of the bar and extending its area of competence. The new criminal and procedural codes of the union republics and the statute of the bar adopted in recent years broaden its legal range.

Specifically, a lawyer and his client may study the case before it is presented to the court, when the investigator considers the collection of evidence complete and proceeds to draw up the indictment. If a defendant is under age or cannot independently exercise his right to defense because he is handicapped physically or mentally, the lawyer is admitted at an even earlier stage, when the accused is charged. And, of course, a lawyer can study all evidence collected by the investigator, request additional investigation and take part personally in the investigation, see his client without witnesses, advise him, etc.

Many lawyers and legal scholars believe that this is not sufficient and that the defendant's rights cannot be fully guaranteed unless the lawyer is available to his client as soon as he is apprehended.

The problem is being discussed in the literature and at conferences.

Some investigators and prosecutors are opposed to any further extension of the jurisdiction of the counsel for the defense. Their objections boil down to these: It would mean additional time lost during investigation; it would complicate the investigator's work; it might even help the criminal escape a just penalty since an unscrupulous lawyer would try to confuse witnesses before the trial, destroy evidence compromising his client and fabricate counterevidence. If a group of people were accused (charged with embezzlement, for example), a lawyer might get the defendants to stick to the same fraudulent story.

However, the proposal to extend the lawyer's competence at the investigation stage has been supported by such distinguished figures as Mikhail Strogovich, corresponding member of the USSR Academy of Sciences, and Professor Boris Nikiferov. They believe that the truth is worth any amount of time, that a charge must stand up against any defense and that each argument in favor of the defendant must be carefully studied and taken into account. "Better to acquit ten guilty persons than to condemn one innocent man."

Perennial Problems

The right to legal defense is secured by readily accessible legal counsel and by other guarantees which the law stipulates. One of these guarantees is the principle that a lawyer who has taken up the defense in a criminal case cannot abandon it, he must see it through to the end. Another important principle is that a lawyer must under no condition violate his client's confidence; to do so is a penal offense. The law also forbids the examination of the defense counsel as a witness.

Another perennial question is whether a lawyer must follow the tactic his client has chosen or whether he can choose his own if he thinks it more effective. This is a moot point, but most lawyers are inclined to think that on no account can the lawyer be at variance with his client. If a defendant does not plead guilty, a lawyer cannot admit his guilt no matter how justified this may seem to him tactically. Actually, that would violate the constitutional right to legal defense.

Lawyers are often asked what their attitude should be if they are certain their client is guilty. The answer is that the defense counsel is neither judge nor prosecutor and must present only those arguments which favor the defendant. It is up to the court to decide whether the arguments are plausible.

Traditionally, Russian lawyers have always been conscious of their important social obligation and have held to high professional standards. Attorneys like Nikolai Karabchevsky, Oscar Gruzenberg, Fyodor Plevako and Sergei Andreyevsky are still names to conjure with, decades later. In the period after the 1917 Revolution we had a constellation of lawyers who combined subtle analysis and deep psychological insight, searching cross-examination and great eloquence (the names of Ilya Braude, Nikolai Kommodov, Matvei Otsep and Sergei Kaznacheyev come to mind).

The number of clients is, perhaps, the best sign of a lawyer's competence. It is the lucky client who gets the services of men like Vasili Samsonov, Alexander Kaminsky, Boris Zolotukhin, Mark Kisenishsky, Yakov Kiselev and Yevgeni Zaitsev.

Sometimes the public expresses approval (in spite of the fact that it is strictly forbidden by court rules) when a lawyer is especially effective. Marcel Gorodissky of Kiev wound up for the defense this way: "The sentence on which the defendant's freedom and honor depend *must* be correct, for there is no greater injustice than condemnation of an innocent man, and there is no heavier burden on the conscience than doubt of his guilt." There was a outburst of applause though the presiding judge pressed the button frantically. An hour later there was another outburst, but this time the presiding judge only watched with a smile as well-wishers shook the lawyer's hand: the defendant was acquitted.

AROUND *the* COUNTRY

JUVENILE DRIVERS' SCHOOL

You might, not unreasonably, have your doubts as to whether a 12-year-old should be driving in heavy big-city traffic? You need have no fear when the 12-year-old is a graduate of the juvenile drivers' school run by Lazar Berman. This is the school's twenty-seventh year. On graduation days you are likely to see a bright red Moskvich on the city streets with a youthful driver sitting proudly at its wheel. Reaching a special automobile route, with the blasé expression of a weathered cabbie, he picks up several waiting passengers.

RARE STAMP

Stamp collector Victor Panin is the envy of philatelists the world over. A friend gave him an album he had found in the smashed headquarters of a nazi division somewhere in the Ukraine. At first glance the collection did not look especially interesting. But when Panin put some of the stamps in water to unglue their envelope backing, he saw a little stamp floating in the saucer. He looked at it through a magnifying glass and kept staring: it was the famous "Mauritius." Issued in 1847 on the island of the Mauritius, the plates were destroyed by the order of the local governor because the engraver had made a mistake. Only 23 stamps remained in circulation. The stamp collectors of prerevolutionary Russia had six of them. Specialists say that when the war broke out, there was only one such stamp in the country, owned by Doroshkevich, a Kiev collector. Apparently that was the stamp in the album of the nazi invader which came into Panin's possession.

COWS VERSUS TIGER

Stranger than fiction? Defenseless cows make the tiger, that formidable king of the jungle, bite the dust. It happened in the Ussurian taiga near the farm settlement of Lefinsky. Three cows and two heifers were quietly grazing in a meadow, unsuspecting that a tiger was hiding in the bushes nearby. The beast leaped with a roar on one of the cows. But the cow knocked the tiger off its back with its horns, and the other cows joined the fight to save their heifers. Seeing that things were getting tough, the tiger beat an inglorious retreat.

TEENAGE ACADEMICIANS

Just like the real Academy of Sciences, the Little Academy of Sciences has its own presidium and meetings at which research papers are read. The academicians, however, are seniors in the high schools of Simferopol, the capital of the Crimea. Many of them already have an enviable background in science. The members of the Little Academy are not child prodigies, but some of their productions would do credit to a very superior college student. Slava Voskresensky and Victor Kompanichenko, for instance, have developed an automatic machine which can read texts, a help in programming computing and controlling devices. The most popular sciences in the academy are mathematics, physics, cybernetics and astronomy.

OUTER SPACE FOR ALL

The new technology has introduced man to new sensations, like the feel of weightlessness and overload, but comparatively few of the many people who would like to experience these new sensations are ever going to be cosmonauts. Some young designers from Giproteatr Institute have decided to help these people out. They are working on a series of "outer space" side shows for recreation parks. When their work is finished, all those who wish to leave the earth will be able to make a "space trip" aboard a "space car," a basically new space merry-go-round and such other carnival rides.

CALENDAR CANE

Latvian scientists have long been interested in a very old cane in the Museum of History in Riga. Carved on its wooden handle are signs, figures and drawings. Deciphered after years of study, they are found to constitute an eternal calendar which can still be used, even in our sophisticated scientific era, for calculating weeks and the days of the new moon in any calendar system. The cane was made in the seventeenth century by some unknown Latvian master craftsman.

EXCAVATOR AIR LIFT

A group of construction workers went out on a job in the taiga village of Ust-Ilma. But before they could get started, an excavator had to be brought in, a large problem since the village was out of reach by rail and river. The crew of an MI-6 helicopter offered to deliver the excavator by air. It weighed 12 tons, and the helicopter could not lift such a cargo, so the fliers stripped off the shovel, the jib and the caterpillars and flew them in separately. The first trip took 90 minutes. Then the helicopter delivered the rest of the machine.

RADIO TELESCOPE BEING ASSEMBLED

A new radio telescope (of the RT-22 model) for the Crimean Astrophysical Observatory is being assembled on the Black Sea coast. The telescope is expected to register cosmic radiations with waves only 8-mm long. It was designed mainly for observations of the sun.

FLUTE MADE OF MAMMOTH BONE?

According to archeologists, primeval hunters and fishermen once lived in the Black Mountain in the Ryazan Region. Some 5,000 articles of stone, clay and bone were excavated from the site. In the lot were two unique flutes made of the hollow bones of some animal. Musicologists are much intrigued by their wide range of sounds. Though at least 4,000 years old, the flutes are in such good condition that they can still be played.

RARE PORTRAIT

The Leningrad Museum of Alexander Suvorov has acquired a rare portrait of the famous Russian field marshal from a private collection. The portrait is a colored print made by English court engraver Green. What makes the print so valuable is that it was engraved after a drawing by Lieutenant Friez of the Austrian Army, who drew the portrait from life in 1799, a year before Suvorov's death.

OLD CHURCH RESTORED

An ancient wooden church has recently appeared on the outskirts of Lvov. It was moved to the Ukrainian city from one of the distant villages to be preserved as an example of the old architecture. Lvov now has 194 and the region 700 such government-maintained architectural monuments built in the ninth through the nineteenth centuries. A state restoration studio, whose budget has grown to 70,000 rubles a year, looks after them.

INSTRUMENT IN A MATCHBOX

The extraordinarily sensitive thermometer in an instrument developed by Soviet agrophysicists registers the temperature of the human body at a distance of more than three feet. It records with vigorous accuracy the temperature and humidity of a plant leaf and the temperature of an insect. The instrument is no bigger than a matchbox.

FOREST SINGERS

Bird fanciers sponsored an unusual Moscow concert recently. The nightingale, acknowledged the finest singer of the woods, took first honors, but it had some very threatening competition—the local thrush which sings pleasantly in minor key, as well as the blackbird and lark. The nightingales were kept in cages covered with white paper because these freedom-loving birds are afraid of man and will dart madly around the cage when people approach. That is why forest nightingales are not seen —they are only heard. In a dark cage they readily gave their prize-winning performances.

MASTER ARTIST

Nikolai Sokolov is known all over the country. Every Soviet citizen is familiar with his portrait of Vladimir Lenin on Soviet currency and has seen his medals commemorating historical events and outstanding men of Soviet and foreign science and culture.

Sokolov has been working for many years at the Leningrad Mint. He and his pupils designed the pennant which was planted on the moon.

OIL FROM THE BOTTOM OF THE SEA

Geologists doing a deep probe of the bottom of the Caspian Sea have found rich deposits of oil some 12 miles from the shore. A second offshore settlement of oilmen—the first is Neftyanye Kamni—is now being built in the area of Sangachaly More. Derricks are being set up on trestle bridges, and scores of wells are already operating. Every 24-hour period they extract a trainload of oil from the sea bottom.

TWO IN A WELL

This item comes from the village of Kulchi-Bulak in the spurs of the Pamir-Alai Mountains. A mule, running away from a wolf, fell into an old well. Hot in pursuit, the wolf jumped in after the mule. It all happened at night, and in the morning the mule's owner heard it braying. Apparently the mule had spent the whole night standing quietly in the well while the wolf had to swim round and round so as not to drown. The wolf was shot and the mule pulled up safe and sound.

SHARKS' TEETH RESEARCH

Are sharks' teeth informative? Soviet biologist Leonid Glikman says yes. He has collected about half a million of these curios. By studying the teeth of prehistoric sharks, he explains, one can determine the age of various geological formations. Sharks' teeth also help in forecasting and prospecting for mineral deposits.

NOISE-TRAPPING DEVICE

The nerve-racking clatter of pneumatic machines can now easily be neutralized with a simple noise-trapping device developed by the Rigaselmash Plant. The device consists of a small metal tube ringed with four rows of small holes. Inside the tube are several cylinders, also full of holes. As the noise travels through these many holes, it grows weaker and weaker, until it is finally lost completely. The device can be fitted to any noisy instrument or machine.

MODEL SHIP BUILDER

Captain Herman Tynissoo has been pensioned for several years now, but this old Estonian salt still sails, albeit model ships. The skipper uses his long and expert knowledge of seamanship to build vessels of an earlier day. From rare drawings he recently reproduced in miniature the caravel Santa Maria on which Christopher Columbus reached America.

RIVER OR CANAL?

The Karasu River flows through the Zeravshan Valley in Uzbekistan. Engineers who have studied the behavior and the banks of the Karasu have come to the conclusion that it is not a natural river but a man-made canal dug a thousand years ago. The 30-mile-long canal gets its water from the many springs in its bed. The ingenious way in which it was built has been copied by engineers to design modern irrigation units.

RIGA-MONTREAL

The huge letters spelling USSR in several languages will soon light up the Soviet pavilion at the world exposition in Montreal.

Craftsmen from the Maksla Industrial Designing Plant in Riga, Latvia, have begun to assemble the 16-foot-high letters made of metal and decorative glass and fit them electrically.

The Maksla plant is also turning out badges and souvenirs picturing the sights of Riga, Sigulda, Ventspils and other cities in the Latvian Republic.

SEAMAN SAVES GIRL

The Bulgarian oil Tanker *Chumerno* was being loaded in the Black Sea port of Tuapse, and the local sampling specialist, a girl, was tapping off some oil for analysis, the usual procedure. Suddenly a hose tore off the pipeline and a jet of oil knocked her overboard. Before the valve could be shut a lot of oil had poured into the sea, and the rising fumes meant the danger of fire at any second. It was then that Adil Aliev, first mate of the Soviet tanker *Sabunchi*, jumped in to save the girl. A strong wind was blowing from the sea in a downpour of rain. Several times Aliev came to the surface for air and then went down again. Finally he managed to find the girl, tie her to his belt and bring her to the dock. The same day Aliev shipped out without even learning her name. On the high seas a cablegram informed him that her name is Valentina. We await future developments.

GINSENG GROWN

Ginseng is now being grown in Tiberda, North Caucasus. Researchers have learned to force the growth of this valuable herb by changes in temperature. Now about 80 per cent of the seeds produce shoots in the first spring. Usually it takes 22 months, and the shoots do not always sprout simultaneously.

With the accumulated experience special agrotechniques have been worked out. The roots, grown in an arboretum, will weigh between 1¾ and 2 ounces in six or seven years, some of them will weigh as much as 3½ ounces. Under ordinary taiga conditions, it takes the herb more than 20 years to grow that big.

The biological effect of the Tiberda ginseng is approximately double that of the Korean variety. The new plants produce a crop a year earlier than Chinese ginseng.

ICEBREAKER TO HUNT SEALS

Soviet shipbuilders are designing a big ocean-going icebreaker equipped to hunt and process seals. Carrying a three-month supply of fuel, water and food, the ship will be able to hunt in all seasons. The refrigerated holds and tanks will be able to handle 100,000 of these sea animals and the processed products.

The ship will have a hangar and landing strip for several helicopters.

DIAMOND TOWN

Until recently we thought our country, despite its great variety of mineral wealth, had no diamonds. We know now that we have unlimited deposits of this superhard stone. The difficulty is that nature has hidden them in places very difficult of access—Northern Yakutia, for example, where the winter is eight months long, the temperature falls to 85 below zero, the annual fluctuation of absolute temperature is more than 100°, and the earth is frozen several hundred feet deep.

Growing up in these inclement regions is Almazny, a town with a population of 5,000. The scale model for the development of Almazny shows white dwellings standing parallel to each other and joined by broad covered streets. In the center of the town is a school, kindergarten and nursery, all under a single roof. Running under the streets is a tunnel in which all the supply lines converge.

Almazny is a promising pilot project for Arctic town development.

THE TROPICS... IN MOSCOW

Preparations have been made for the construction of a new tropical section in the Moscow Botanical Gardens. A few years from now visitors will be able to roam along the shady and humid banks of the "Amazon" and walk under the hanging roots of its mangrove trees. These tropics will, however, be somewhat more amiable than Nature's own, without boa constrictors in the branches or crocodiles in the river.

AROUND *the* COUNTRY

ECONOMIC REF

BY YURI GRAFSKY

THE NEW SOVIET economic reforms affect planning, management and the pattern of material incentives offered to stimulate production. The changes are being made gradually. Since January 1, the new approach has been introduced at 43 enterprises. I visited one of them, the Fourth State Ball-Bearing Plant in the Volga town of Kuibyshev, when the reform was the big conversation piece.

New Point in Planning

The plan is still all-important. Before, a year ago, say, it provided for some 30 indexes, the first one being the gross—the output computed in tons and rubles. The plant was also told how many workers it would need to carry out the plan, what the average pay and production costs should be, etc.

Now the plan provides for fewer indexes, such as volume of sales, items to be produced, over-all wage fund, net profit and profitability (the ratio of profit to assets), payment to the state budget for the use of assets such as buildings, machinery, tools and raw and other materials.

The first among them is the volume of goods sold to and paid for by the consumer. This is a sensible approach, because only after sales can one really compute profit, profitability or anything else.

Since there was a lot of talk at the plant about profit, I made a point of finding out what it is.

What Is This Thing Called Profit?

In economic theory profit is the difference between the cost of production and the wholesale price.

Did the plant net profits before? Of course it did. Profits were planned and profits were netted. However, there was no direct link between profits and the material incentive for the worker. His pay and his bonuses, too, came from a fund limited strictly to that purpose. The plant did have a fund—the so-called factory fund—made up of deductions from profits, which was intended for expanding production and building clubs, nursery schools and housing to supplement what the state budget earmarked for these expenditures. This fund was also used for bonuses and cut-rate holiday and health resort accommodations.

Previously the factory fund was made up of 6 per cent of planned profits plus up to 80 per cent of profits netted above the plan. However, there was a ceiling—the fund could not exceed 5.5 per cent of the wage fund. The reason for this was not to leave too much money at the plant's disposal. The state treasury got the lion's share of the profits and portioned them out centrally and in the best interests of every citizen and of the whole country. It was from the profits netted by state enterprises that we were able to build up our industry and defense potential, and it is these same resources that are paying for the enormous volume of housing being built.

Does this mean we will no longer be portioning out centrally these resources acquired through profits? Not at all. We will go on building factories, power plants and houses. The difference is that the new system gives the plant more latitude with the rather sizable chunk of the profits remaining at its disposal. The plant's employees are now partners of the state in apportioning profits.

Under this year's plan, the plant is to net 12,810,000 rubles in profits. The following table shows where this sum will go.

For the use of assets—3,884,000 rubles
To the factory fund—3,723,000 rubles
For interest on bank loans—160,000 rubles
For payments to the state budget—5,043,000 rubles

Will the country as a whole benefit from this new system? No doubt about that. It will always get its share of the profits in the form of payment for the use of assets. And, if the enterprise does well, the payments to the budget will be considerable.

Does the employee benefit? Certainly. The bigger the profit, the more there accrues, in principle, to the factory fund—although indirectly, a point I shall consider later.

Finally, the enterprise also benefits, now being in the position to build and expand at its own expense. The point is that in the case of the Kuibyshev plant, for example, payment to the state budget—all of it—will go for capital construction. The plant will be getting a total of 10 million rubles for capital investments. If this is not enough, it can borrow more from the bank, but at interest. This means that it is to the plant's advantage to make larger contributions to the budget, since then it will need to borrow less, if at all.

The plant will use the money to buy equipment, for which purpose a special production development fund is to be set up. The plant will naturally spend this money so that it brings the best return.

This last-named fund is made up of part of plant profits, and its size depends directly on the main indexes of the plan, which, as we said earlier, are the volume of goods sold and profitability. For each per cent gained in sales (say, this year compared to last), the development fund will get the equivalent of 0.12 per cent of the cost of all assets, while for each per cent gained in profitability, it will get 0.052 per cent.

This year the development fund will come to at least 700,000 rubles. Now the management and the trade union committee, which has a voice in all decisions on the allocation of factory funds, will decide how best to use this money.

Employees Directly Interested

The plant has two other funds: a fund for social and cultural needs and housing—again, supplementing state budgetary appropriations—and a material incentive fund. The workers have a direct interest in both, and both come from plant profits.

For each per cent gained in sales and in profitability, the first fund gets the respective equivalents of 0.3 and 0.13 per cent of the total wage fund.

For the same gains, the second fund gets the respective equivalents of 0.7 per cent and 0.305 per cent of the wages of personnel engaged directly in production.

Why do not deductions for those two funds depend directly on the profits netted, instead of being tied to the wage fund? Because conditions in plants vary. Some have new equipment, some do not. Some make more profitable items, others less profitable ones. And so on. But workers are workers everywhere, and the same consideration must be shown to all. Consequently, bonuses for good work should be determined not only by the profit netted but also by the number of people who worked to make this profit. That explains why the wage fund is used as the basis for these deductions.

This year the factory fund for social and cultural projects will come to 915,000 rubles and the incentive fund to 2,108,000 rubles—several times more than the sum spent for these purposes out of the factory fund under the old system.

This also poses new problems. It is simple enough to apportion the money for social and cultural needs—to build housing, clubs, clinics and nurseries and to pay for cut-rate vacation accommodations. But how do you portion out the money in the incentive fund? Should it be shared equally? Should only the best workers get bonuses? And how do you decide who are the best?

Who Should Get Bonuses? How Much Should They Get?

This question was heatedly argued at the plant. At one of the many conferences held in the different shops and sections, where people from management, the trade union, the Party organization and the YCL spoke, Vasili Shilkin, instrument bearings shop superintendent, had this to say:

"Last year our shop showed a 15 per cent over-all increase and a 12 per cent increase in marketable items. Shouldn't bonuses be based on that?"

Victor Grishin, the plant's head planner, replied:

"That wouldn't be fair. The instrument bearings shop last year was in a special position. It got new equipment and more personnel. No wonder it showed an increase. But take the automatic lathes shops. Factory area wasn't expanded there, and there was no increase in output. But the plan was met, the staff did a fine

ORM IN ACTION

job and work organization is better there than in the instrument bearings shop. So why should they suffer?"

As a result, it was decided to keep the old method of bonus payment.

Each worker is to get a 20 per cent bonus for fulfillment of the plan and an additional bonus of two per cent of pay for each per cent over and above the plan.

Each engineer and technician is to get a 12 per cent bonus of his monthly salary for meeting the sales quota, another 12 per cent bonus for meeting the profitability quota, and 4 and 2 per cent of his salary respectively for each per cent over and above these two quotas.

It was also decided to set up a plant bonus fund from which the profits would be shared at the end of the year. Every worker with at least three years' service would get the equivalent of 10 days' pay. That is something new.

Alexei Rogachev, precision bearings shop superintendent, commented:

"This fund will give management a way to penalize absenteeism, shirking and spoilage, encourage good work and cut down on the drift from job to job. It will pay the worker to stay in one place instead of shopping around for jobs."

There was general agreement that the 10-day pay bonus at the end of the year would come to a tidy sum. But what about right now?

Rogachev suggested that something was needed to impress the staff with the advantages of the new system right away. Chief economist Alexander Kopytin agreed:

"In addition to a plantwide fund, each shop should have a fund for monthly incentive bonuses. Moreover, these bonuses should be over and above those given for fulfilling and overfulfilling the plan."

Shop superintendent Shilkin thought this fund should differ for the different shops. Kopytin suggested that the amount depend on the size of the bonuses earned by the engineers and technicians of the shop in question for cutting production costs, in other words, the net saving they make. He proposed that each shop set up a fund equivalent to 10 per cent of the total bonus earned by the shop's engineers and technicians. The bigger the economies, the bigger the bonus.

Kopytin suggested that the money come from plant profits, with an accounting at the end of the year. Elaborating on this point, he thought bonuses should be paid for economizing material, cutting production costs and spoilage, for suggesting work improvements, in short, for whatever the shop superintendent, the trade union and Party organization jointly thought advisable. They would also decide who got the bonuses.

This proposal was accepted.

Zadorogin's Headache

Everything settled? Not quite. Pavel Zadorogin, automatic lathes shop superintendent, had a real teaser. His shop does good work, without waste. The engineers and technicians make big bonuses. As a result, his shop fund will be bigger. And how is it to be portioned out if everybody does good work, if everybody deserves a bonus? "Come, come," I hear you say, "that just can't be." Well, judge for yourself.

At this shop every worker tallies the number of bearing rings he makes, guarantees their quality and fills in the appropriate slip. which goes without any checkup at all to the bookkeeper. The worker's pay is figured from this slip.

Skeptical? Suppose I tell you this honor system has been the practice for all of 15 years now?

I won't say there isn't any control at all. What there is, is not done by management, however, but by the trade union and the YCL. But I will say that in 15 years there hasn't been one serious violation.

How then do we tally spoilage, saving of metal and other relatively minor points, if everyone in this model shop—so far the only one at the plant—does a good, careful job?

Kopytin advised Zadorogin, who was wondering how to handle the matter, to set up a shop fund for bonuses anyway. He added that it would probably be necessary to increase the shop's share of the annual profits to 12 or 15 days' pay instead of the 10-day average. But the matter would have to come before the trade union first.

Questions Solved on the Spot

Incidentally, I noticed that when anybody at the plant wants information on the reform, he make a beeline for the plant's head economist. Alexander Kopytin has all the answers. But the most interesting thing is that many questions are tackled and solved right on the spot.

"I should tell you," Kopytin informed me, "that we settled all the problems involved in the changeover by ourselves. We didn't have that much changing to do. As a matter of fact, far from discarding all the old rules, we found that many of them were essential."

"Which, for example?"

"Well, planning from below, for one. We ourselves drafted the plan by which the plant is currently operating. We weighed all the pros and cons before we introduced it."

I asked for details.

"It's all very simple," Kopytin explained. "We began with the employees. We totaled up what they got in bonuses last year, added a percentage for growth and incorporated the entire amount in the wage fund."

"Just like you did before?"

"That's it. Later on, perhaps, we shall award these bonuses from the incentive fund. But for the time being we have decided to let the bonus money stay in the wage fund. Because while this reform is all very well and good, it's still in the experimental stage and people have to feed their families. At any rate, they will certainly not get less than they did before."

"How do the engineers and technicians stand?"

"We also added up the bonus money going to them and put the figure down in this year's plan. However, we incorporated it in the incentive fund, which we think is right and proper. What an executive does and earns should depend directly on the over-all profit netted. We also incorporated in the incentive fund the bonus money that used to come from the plant fund. Then we started reckoning again and found that the end-of-the-year bonuses we were planning to award would not come to much. What we wanted was at least 10 days' pay."

"So what did you do?"

"We planned a higher increase in sales."

"And struck a balance?"

"Yes. Now we are personally interested in planning as much as we can."

"Why so?"

"Because for each per cent planned in increased sales, we allot to the material incentive fund a sum equal to 0.7 per cent of the wage fund. While for each per cent above the plan, we are allowed to allot only 0.49 per cent, nearly a third less."

"Does that also affect the fund for social and cultural measures?"

"Of course."

"What did you plan there?"

"Well, last year we built an apartment house and a nursery and started putting up a club and sports field. We decided this year to finish the construction started. Then we thought of collaborating with a Kharkov plant on a health resort on the Black Sea coast where we could accommodate at least 200 of our people at only a third of the cost to them. This all led us to the conclusion that we ought to raise the percentage for the increase in sales."

"And what happened then?"

"We sent our figures to the Ministry of the Automobile Industry in Moscow for approval, and they okayed everything to the last dot."

* * *

The new planning and incentive system is getting on its feet. Everyone is agreed, even this early, that it is better than the old system. Workers who have already received the first bonuses from shop funds under the new system (in addition to bonuses for plan fulfillment and overfulfillment) are particularly enthusiastic.

But the big dividends will come at the end of the year when that part of the profits intended for the employees is portioned out. As Kopytin says:: "Then everyone will get what he really should. You can't, after all, count your chickens before they're hatched."

A RAY FROM THE ANTIWORLD

Academician Alexei Naumov is representative of the "older" generation of Siberian physicists researching antimatter.

BY VANDA BELETSKAYA

A CROWD AGAIN! Haven't you ever seen antimatter?" grumbles Alexei Naumov. "And how about getting down to work?"

I tell Naumov that I am not a physicist and have *never* seen antimatter. Naumov relents.

"Would you like a peep?" he asks.

"Of course!"

A science fantasy come alive. For a moment I was transferred to another world, or rather the antiworld, strange, uncanny. Antimatter was within my reach. I could see it on the TV screen. A microscopic galaxy, a peewee antiworld, was racing around the accelerator ring almost as quickly as light.

I had visited the Siberian Branch of the USSR Academy of Sciences when work on the new idea was getting under way. The idea was bold, ingenious, and intrigued every physicist on the team. In Andrei Budker's study three to four pieces of chalk would be used up in an evening ("Evening is a relative concept and sometimes it ends at dawn," they would say). Position and place in the scientific hierarchy were ignored, and an ex-student would cross out his professor's formulas while a famous doctor of science would tinker with the instruments himself.

As I sat in the control room, I could hear muffled rumblings like the groans of a tired giant. That was a high-voltage pulse hitting electrons and making them move along the paths the experiments marked out.

I also saw failures. The installation had tantrums, the electrons would not run the way they should. "Now what's happening with that damned beam?" Alexander Skrinsky, who was in charge of the installation, would mutter angrily. Then someone would suggest an old but on the whole good recipe: "Let's switch it off and start it over again." And start it all over again they did. But then another voice would pipe up: "Let's try the old conditions, they're more stable." Days lengthened into weeks and weeks into months.

They would forget the movies at the local club. Lunch would get cold on the desk. Not without a tinge of bitter irony their wives suggested they take cots to work and spend their nights in the laboratory, too.

Now what was the idea that had such powerful appeal? Roughly this. Researchers want to know the structure of matter. For that, they hunt elementary particles and build giant accelerators. In an accelerator a particle, sped up to almost the velocity of light, strikes a fixed target. Now suppose two beams of moving particles have a head-on collision. Head-on car collisions, as everyone knows, are especially violent. The same applies to particle collisions, with the important difference that the interaction energy is not four times greater as in a car smashup, but thousands of times.

Reduced to this naked form, the idea is simple enough. However, its technical realization is something else again. The difficulties were indeed so formidable that at first almost everyone was skeptical. The project was too bold, unexpected, contradicting the view of most authorities.

Concurrently with the Siberian Branch, a similar experiment was started by a joint Stanford-Princeton team in the United States and somewhat later by a joint Italian-French team. Formidable competitors, but the young team of Siberian physicists accepted the challenge. They proposed to build an instrument in which matter and antimatter would collide.

It appears that a collision of these apparently almost identical, but essentially opposite particles of matter is one of the sharpest conflicts known in nature. Just like an author tries to bring his characters into conflict to show us their inner worlds, so the physicist looks for critical collisions in order to disclose the subtlest workings of matter.

Antimatter harnessed will open inconceivable energy possibilities, and the importance of energy for mankind can hardly be overestimated. It is only experiments like those being done in Siberia that will harness antimatter, give us its governing laws.

News from the Siberian Branch was brief and technical.

"The Siberians are experimenting with electron collisions," which meant that a new type of accelerator, more effective, more powerful, providing another clue to the mystery of matter, had been built.

"An intense beam of positrons has been accumulated," which meant that positrons, these rare visitors from the antiworld, coming to our planet along with cosmic rays, had been produced and organized artificially. The investigators had accumulated a great volume of positrons and had made these short-lived particles survive for hours and even days, as is required for the experiment.

"The instability of the beam has been overcome at the Institute of Physics," meaning that the Siberian team had solved another major problem. Controlled thermonuclear fusion has been held up for years by the instability of plasma. Therefore, many physicists are intimidated by plasma. When a beam of electrons and positions had similar tantrums, there was much talk to the effect that the realization of the idea would have to be postponed indefinitely.

The experiment almost collapsed when the beam of electrons and the beam of positrons were brought together. The electron beam had a stronger magnetic field and suppressed the visitors from the antiworld. At first it simply maimed the positron beam (which "grew ears," as the Siberian said) and a stronger current simply destroyed the positron beam. It took a long cycle of experimental and theoretical studies to understand the process and straighten things out. The Siberians found a working answer and proved that even coexistence with the antiworld is possible.

The first stage of the investigation is finished. That, however, is only the point of departure for a new round of research. Now experiments can be made with equipment that physicists did not even dream of not so long ago. Today the research institute attracts physicists from Moscow and other cities. I saw a letter from a professor of one of America's leading universities asking whether he could come to work for a year with the colliding beam installation.

The institute also gets a good many non-researching visitors these days, agents from an industrial outfit called Isotope, for example. While the complex installations for investigating the mysteries of matter were being developed, some instruments that had immediate practical importance were designed as by-products. They are being put to profitable use by the government and the institute itself. The Siberian Branch is now building small accelerators yielding a large volume of cheap and safe radiation for industrial use. They will soon be employed in metal making, farming, chemical production and canning.

The wine-making trust Massandra made the institute a business proposition—apparently small and therefore safe doses of radiation cut the maturation period of wines by years. I saw the process at work at the Institute of Nuclear Physics in Ulugbek, Uzbekistan. Re-

A ray from the antiworld, a naturally luminescent beam of antimatter particles—positrons.

fore radiation the wine had a sharp, rather unpleasant flavor; minutes afterward it had the noble mellowness of an old wine. The Siberian team made only one stipulation: The experimental consignment of wines produced by the Massandra trust is to be first tasted for quality at the Siberian Branch of the USSR Academy of Sciences.

In the control room I again heard that muffled rumble I remembered from three years ago. Now it was louder, or perhaps it sounded so because it was late and the institute was empty.

However, there was a knot of people around the installation. I saw two Alexanders—Alexander Skrinsky and his younger colleague, Alexander Kiselev. Their lunch was getting cold on the desk just as it had three years ago. Was it only three years ago?

Yes, three years ago this control room was not here (there were only unpacked crates with instruments). Nor was there the TV screen on which the pulsating torch now shows what is going on in the heart of the installation. Nor was the word "positrons" inscribed in India ink on the control board. An orange signal lamp now glows near the word. This means that on the TV screen. . . .

"Yes, we are accumulating antimatter," the experimenters seemed to have read my thoughts.

The instrumentation has changed. And what about the people?

The young people have made impressive progress. Alexander Skrinsky was not even a Master of Science then. Now he is a Doctor of Science (at 29!). His doctorate is there, behind the wall: the colliding beam installation. Outwardly he is the same thin, modest man with a calm reassuring appeal. He hasn't a grain of what they call "instinct for leadership." He never orders or demands, nor do things center around him, but for some reason or other all his coworkers do what he wants them to. Skrinsky is putting in a last few days on the installation: he is to take charge of a new laboratory where a still more complex instrument is being developed.

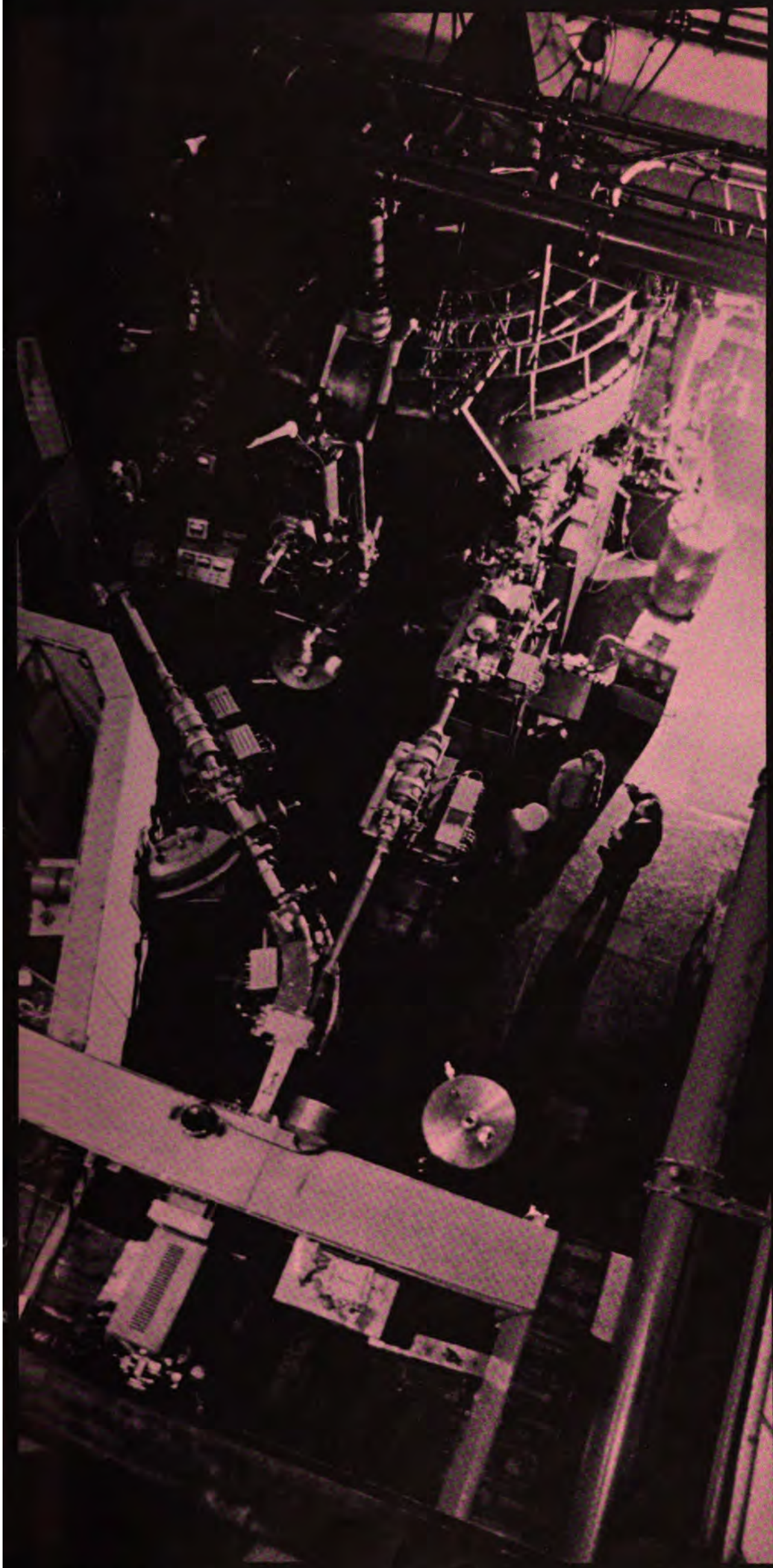
His younger colleagues Alexander Kiselev and Stanislav Popov (now Masters of Science) are also spending their last days on the project. Popov will have his electron-electron installation commissioned officially. Alexander Kiselev thinks there is still work to be done on the instrumentation. The system of switches triggering vast and complex currents within thousand-millionths of a second runs faultlessly, but he is impatient with those who tell him that.

Venyamin Sidorov has taken over. He is finally in his element. Unhappily for him, somebody discovered that besides being an excellent scientist, he also is a good organizer. He was to have done nuclear experiments on the new installation, but while the instruments were being assembled, his job was to eliminate the tricky organizational bottlenecks. At the institute he developed some interesting methods of observation, including the spark chamber, an instrument for observing particles of matter.

Characteristically, neither at the Institute of Atomic Energy in Moscow, where he worked, nor in Denmark, where he had done research under Niels Bohr himself, had Sidorov dealt with spark chambers, because other observation techniques were used. At the young Siberian institute, however, the introduction of spark chambers, which had appeared shortly before, was perfectly natural; everybody and everything else there was new and young and most recent.

But to return to the collision of electrons and positrons. How can their behavior thereafter be traced? What particles does their interaction produce and where do they fly? It is the spark chamber that helps the scientist to trace all this. A tiny lightning flash flies

Physicist Alexander Skrinsky helped create the instrument that shows rays from the antiworld.



It is in the bowels of this complicated machine, known as the VEPP-2, that the antiworlds meet.

after a particle, makes its track visible, and a photo device registers the track on film. The researchers get an enormous number of photographs (50,000 a month!), and each of them has to be scanned meticulously.

Perhaps those of the older generation, Andrei Budker and Alexei Naumov, who head the project, had changed less. I thought. Andrei Budker is now a member of the USSR Academy of Sciences and Alexei Naumov a corresponding member. At the institute they say of Naumov: "If an instrument meets his requirements, it's good for a thousand years!"

The control room was crowded. All eyes were on the TV screen, which showed a pulsating cluster of tamed antimatter. Naumov came into the room. He looked a little annoyed, though he said nothing. What he was thinking was obvious: "This is all very interesting, but it takes us away from the experiment, and we have no time to spare."

"Another five minutes," somebody said apologetically, "and then, honestly, we'll get down to work."

Naumov will not even think of another research problem until he has the electron-positron installation running perfectly.

On the other hand, Budker's interest in the installation has cooled, as it does in any of his research ideas as soon as they are transformed into metal. He has relegated the installation to others, his thoughts are already turned on another instrument, a ghost to everyone except himself. Budker and his research associates are contemplating a still more complex and fantastic installation.

Electrons and positrons are light particles accounting for only two-hundredths of one per cent of the mass of matter and antimatter. The Siberians are building an instrument in which the bulk of the mass of matter and antimatter—protons and antiprotons—will collide. This is a more essential step forward, both scientifically and psychologically speaking. It is much more difficult to build such an installation. The antiproton is approximately two thousand times heavier than the positron, and the energy of its production (and hence the capacity of the installation) must be much larger. Besides, it is far more difficult to produce and accumulate antiprotons. However, the new installation will be a more subtle instrument for investigating the structure of matter.

Budker probably speculates on the installation 24 hours a day. At 9 P.M. he rushes into his study, taking off his coat as he goes.

"Come in, I have an idea," he says loudly because he is sure that in spite of the hour his associates are still working.

His study immediately fills with people. He has just come from a regular session of the Presidium of the Siberian Branch at which organizational and economic problems were discussed. But while listening to the speakers and using every opening to get something for the institute (personnel, instruments, etc.), he was thinking of the new installation which does not even have a name yet. Three hours later I hear him saying from the doorway to his colleagues:

"Think it over, please do!" (Of course, he has convinced everyone first and now begs them to "think it over.")

I am waiting for them to finish their conference so that we can leave the institute together. But in the control room I again hear the words: "Switch it on!" There it is again, that muffled rumble like a tired giant groaning. I was not mistaken: it is much louder. A more powerful pulse is required to produce positrons.

As I leave, I can make out in the darkness the blank wall of a building under construction. That is the proton-antiproton accelerator, the new instrument born of the bold imagination of these Siberians.

Courtesy of the magazine Ogonyok

"In October 1917, after the Russian workers had overthrown their imperialist government, the Soviet Government of the revolutionary workers and peasants openly proposed a just peace . . . a peace that fully guaranteed equal rights to all nations. . . ."
Vladimir Lenin "Letter to the American Workers"

"PEACE!" NEW RUSSIA'S FIRST WORD

BY MIKHAIL SONKIN
HISTORIAN

THE EVENING of October 26, 1917,[1] bonfires were still burning in the streets and squares of Petrograd. The Winter Palace, residence of the czars and then the headquarters of the Provisional Government, had been captured the day before, but the city was still an armed camp. The revolutionary power had to defend itself so that it would not be strangled at birth. That same evening Lenin was making his now historic speech on peace to the soldiers, sailors, factory workers and peasants who were delegates from all parts of the country to the Second All-Russia Congress of Soviets.

"The workers' and peasants' government created by the revolution of October 24-25 and backed by the Soviets of Workers', Soldiers' and Peasants' Deputies," Lenin said, "calls upon all the belligerent peoples and their governments to start immediate negotiations for a just, democratic peace."[2]

Lenin spelled out what he meant by a just, democratic peace—a peace without the forced annexation of foreign territories and without indemnities. Negotiations between states must be public, there must be no secret diplomacy.

Lenin then proposed that the congress make public and declare null and void all secret treaties made with other states participating in the First World War, treaties that the Provisional Government had confirmed.

At 10:35 P.M., the Decree on Peace was put to a vote. It was approved unanimously.

That document was the first statement of Lenin's policy of peaceful coexistence of states with different systems.

"Suddenly by common impulse, we found ourselves on our feet, mumbling together into the smooth lifting unison of the *Internationale*. A grizzled old soldier was sobbing like a child. . . . The immense sound rolled through the hall, burst windows and doors and soared into the quiet sky. 'The war is ended! The war is ended!' said a young workman near me, his face shining."

This is how that moment was described by John Reed, an American journalist who was in the Smolny.[3]

That outburst of emotion had long been pent up.

Let us go back to 1914, the very first weeks of the war. The trenches on both sides of the frontline were flooded with leaflets explaining why the war was being fought, each country urging its soldiers "to defend their home and their fatherland." There was no aggressor: if these leaflets were to be believed, all the countries were only defending themselves.

But there were men who saw the real causes of the war. Lenin, in exile at the time, wrote in his articles that the slogan "Defense of the Fatherland" was a fraud, that the war had been anticipated in secret agreements to redivide the world and seize foreign territories. The Russian Bolsheviks and the Leftwing Socialist Parties in the West called for unity of the international forces of the proletariat around a common program of struggle against the unjust war.

The rulers of the belligerent states did everything to throttle the advocates of peace. Czar Nikolai II condemned the Bolshevik deputies who spoke up against the war in the State Duma to hard labor in Siberia. When Jean Jaurès, leader of the French Socialists, tried to lift the curtain of secret diplomacy to prevent the war in 1914, he was assassinated. No sooner did the German working class leaders Karl Liebknecht and Rosa Luxemburg begin to expose the militarists of their country than they were imprisoned on the pretext that they "had sold

[1] All dates prior to February 1918 are in the Old Style (Julian) Calendar.
[2] Lenin, "Report on Peace," *Selected Works*, Vol. II, p. 228, Moscow, 1947.
[3] John Reed, *Ten Days That Shook the World*, Modern Library edition, p. 132, New York, 1935.

The Council of People's Commissars with Lenin as chairman constituted the first socialist government of Russia. One of its earliest decrees, the Declaration of the Rights of the Peoples of Russia, proclaimed the equality and sovereignty of all nations and national minorities, their right to self-determination, even to secession; the abolition of all national and religious discrimination. The revolution had been won, the next order of business was the building of a new society. There were tremendous problems to be solved: people were starving, industry was at a standstill, the war was still on.

themselves" simultaneously to France, Britain and Russia. In the meantime, the czar and his ministers signed secret agreements on Russia's behalf.

The soldiers sent to the trenches knew that in front of them were the rifles and the bayonets of the enemy, and at their backs the gendarmes and the Cossacks of "their own" czar. There was no way out. But in February 1917 the czar was overthrown, and the Russian soldier began to think: "Why must I stay in the trenches and fight for agreements the czar made? Why do I have to sacrifice my life for obligations he assumed that mean nothing to me?" And with each passing day more soldiers demanded an end to the war.

It was in these circumstances that the Provisional Government addressed a note signed by Foreign Minister Milyukov to the Allied countries solemnly declaring that it would carry out the obligations assumed prior to and during the war by the czarist government. Russia would continue the war until "decisive victory over the enemy."

The note stirred up a fury. "The movement," Lenin pointed out, "flared up spontaneously; nobody had cleared the ground for it. The movement was so markedly directed against the government that one regiment even appeared fully armed . . . to arrest the ministers."

This was on April 20, 1917. Soldiers and workers demonstrated at the government chambers with demands that the secret treaties be made public. They called for Milyukov's resignation. The government answered with Cossacks and artillery, adding fuel to the fire.

The Provisional Government then changed its tactic. It issued an official "explanation" that decisive victory over the enemy should be understood as "enforcing a lasting peace" on the enemy.

But verbal gymnastics did not help, and the demonstrations continued. The government had only one recourse, to try to give the impression that the "demands of democracy have been taken into account." To this end Foreign Minister Milyukov was removed and his post taken by a member of the same Constitutional Democratic Party, Mikhail Tereshchenko, who came from a family of millionaire sugar refinery owners. With the fate of his predecessor in mind, Tereshchenko began by posing as a proponent of an early peace.

"What is your attitude to secret treaties?" the new Foreign Minister was asked at a press conference.

"I know this question is arousing passions," Tereshchenko replied. "Russian democracy is afraid of being bound by old treaties that will compel it to serve the aggressive aims of other countries." But then he continued:

"We must not hurry. The immediate publication of the secret treaties

First and foremost the war had to be ended. Following a historic speech by Lenin, the delegates to the Second All-Russia Congress of Soviets adopted a decree on peace. It was broadcast to the world by the Petrograd radio—a call to all belligerent peoples and their governments to start negotiations for a just and democratic peace. The capitals of Europe listened unbelieving to this unheard-of diplomatic document. Berlin tried to jam the broadcasts. In the trenches leaflets with the call for an end to the bloodshed were passed on from hand to hand until they fell to pieces.

In that area between the trenches marked off by barbed wire, a no man's land pitted by shell holes and strewn with bodies, the soldiers of Russia and Germany began to fraternize. This was something that had never happened before in any war. Both sides were equally tired of the slaughter and very quickly found a common language. Although the period of peace was short and the penalty for fraternizing was court martial, the few minutes when there was no war and no enemy were not forgotten.

would be tantamount to a break with the Allies, and this would isolate Russia in the face of the enemy. A different way must be chosen. At the present time it is important to show that Russia is scrupulously living up to its obligations of joint struggle and mutual assistance."[4]

The government issued an order for an offensive, demanding that the war be waged with greater vigor.

"We will fight only when we know what is in the secret treaties," soldiers declared in resolutions at meetings held at the front. Their voices had the ring of an ultimatum: "There is only one course of action for us—to present our resolutions on bayonets!"

To pacify the people, the Provisional Government began to publicize the forthcoming conference of the Allies in Paris, claiming that there "Russian democracy will proclaim its understanding of the aims of the war, and a way to a peaceful outcome will be found." A vociferous campaign was launched in the press and at meetings to formulate the "mandate" to Foreign Minister Tereshchenko, who was to go to Paris. But even before he packed his bags, it became clear that the Paris conference was a smoke screen. The newspapers published statements of British and French spokesmen that made it plain the Paris conference was to discuss methods of waging the war, not its aim or its peaceful outcome.

But a workers' and peasants' revolution was already knocking at the doors of Russia.

David Francis, U.S. Ambassador in Petrograd, was perhaps the last foreign diplomat to see Tereshchenko in his office. Francis called on the Russian Foreign Minister on October 25. Tereshchenko was expected in the Winter Palace, where the Provisional Government was holding an emergency meeting, but he had stayed on to receive the American ambassador.

Tereshchenko was a changed man. He was chain smoking, his voice shook, and his smoothness and wit were gone. Before leaving, Francis asked him, "Whose soldiers are those out there?"

"They are our soldiers," Tereshchenko said. "I would not be surprised if we had an outbreak tonight."

"Can you suppress it?" Francis asked.

"I think so."

"I hope it will take place," Francis said, "if you can suppress it."

"I hope it will take place," the Minister replied, "whether we can suppress it or not, because I am tired of this uncertainty."[5]

When Francis left, Tereshchenko went to the Winter Palace. In less than 12 hours, on the night of October 25, he was arrested with other ministers of the Provisional Government and confined to the Peter and Paul Fortress.

Secrets of the Armored Rooms

A sign "Central Archives" hung on massive iron doors in one of the corridors of the Foreign Ministry in Palace Square. Behind the doors were the so-called Armored Rooms where the most important diplomatic documents were kept in safes. Each safe had several sections, and each section its own key. Top secret papers in code were in specially sealed folders.

The morning of October 27, some 36 hours after the Winter Palace had been stormed, a swarthy smallish man in a leather coat and hat and wearing pince-nez came to the Foreign Ministry. He was Moisei Uritsky, a member of the Military Revolutionary Committee and one of Lenin's closest aides.

The Ministry had already been taken over by Red Guards. Uritsky walked into the office of Anatoli Neratov, former Deputy Minister.

In contrast to Tereshchenko, Neratov was a career diplomat, a man well on in years who had been in favor at the czar's court. After the February Revolution he managed to hold on to his post in the Foreign Ministry. They said of him that he was more of a diplomat than all the other Russian diplomats combined.

Uritsky was surprised to see Tereshchenko's First Deputy there as

[4] *Izvestia Petrogradskogo Soveta*, May 10, 1917, No. 62.

[5] From the testimony of David R. Francis at hearings before a subcommittee of the U.S. Senate Judiciary Committee of the Sixty-fifth Congress, as recorded in the *Congressional Record*, February 11, 1919 to March 10, 1919.

though nothing had happened. "Does he want to tell us that he is ready to work for the new government?"

That was not the case at all. Neratov was guided by other considerations: the counterrevolutionary Cossack forces of General Pyotr Krasnov had started an offensive on Petrograd. The Deputy Minister was waiting it out. The situation might still change.

Uritsky told Neratov that he hoped professional diplomats would cooperate with the new government by preparing the secret agreements for publication as soon as possible.

Neratov replied:

"I know neither the composition nor the program of the new government. The publication of diplomatic documents is a very serious matter."

It was clear that the diplomats would not easily surrender the archives. The next day the old officials began sabotage. The government took action.

First of all the keys from the Armored Rooms had to be obtained. They were probably held by Neratov, Boris Tatishchev, chief of the ministry's chancellery, and Baron Konstantin Taube, head of the coding department. Red Guards were sent to their apartments, they were empty.

The Smolny commissars then announced that all officials of the ministry were to be present on November 4, otherwise they would be dismissed immediately and without pension rights.

All the chandeliers were lighted in the Assembly hall. It looked as though a big reception was to be held. The impression was heightened by the fact that all the diplomats deliberately came in their dress uniforms and took seats in the hall strictly according to rank.

Three men representing the People's Commissariat for Foreign Affairs —Ivan Zalkind, Yevgeni Polivanov and Nikolai Markin—came up to the table in the center of the hall.

Ivan Zalkind, a native of St. Petersburg, joined the revolutionary movement at an early age, was hounded by the czarist authorities and had to leave the country long before the war. He graduated from the Sorbonne and then lived in Spain and Algeria. He returned to Russia after the February Revolution and took part in the October Revolution.

Yevgeni Polivanov, a linguist (subsequently a noted scholar), was a young man at the time. He was not a member of the Bolshevik Party, but was one of the intellectuals who had decided to throw in his lot with the people and their revolutionary government.

Nikolai Markin, a 25-year-old sailor in a leather coat with a pistol in his belt, had gone through a thorough revolutionary schooling. He had worked underground, had taken part in the October uprising and had served as commissar of a special detachment for fighting counterrevolution. Now he was secretary of the People's Commissariat for Foreign Affairs.

Ivan Zalkind spoke first:

"The Workers' and Peasants' Government invites everyone present here to cooperate. In the interests of the country, in the interests of an early peace, not a day, not an hour must be lost. The publication of the secret treaties is a most pressing matter. Officials of the ministry must hand over to representatives of the new government the keys of the archives and also of the desks and files of current documents. The People's Commissariat hopes that the diplomats will assist in preparing the secret treaties for publication."

Among those present in the hall were Alexander Petryayev, second Deputy Minister; Vladimir Lopukhin, director of the West European department; heads of departments and other officials.

Petryayev spoke up:

"The decision of the ministry officials remains unchanged. We cannot serve the present government."

Markin then stepped forward.

"Publication of the secret treaties," he said, "is awaited by millions of soldiers who are still in the trenches. It is awaited by the entire people. It is high time to nail to the pillory the men guilty of starting the war. The new Russia is setting an example—it proposes to begin peace negotiations and, as proof that its intentions are honest, has decided to make the secret treaties public. Is this so hard to understand?"

Markin ended abruptly.

"In the name of the Council of People's Commissars, put the keys on the table!"

For peace Germany demanded Lithuania, Latvia, Estonia, the Ukraine and a part of Byelorussia. Turkey demanded the Caucasus towns of Artagan, Kars and Batum. Russia had no choice. To continue the war was to gamble with the very existence of the newborn Soviet republic. Many Communists were opposed to the government accepting this plundering ultimatum. The Party leadership was split. Trotsky's actions at the Brest-Litovsk negotiations gave Germany the pretext to break the armistice and resume the offensive. Lenin demanded the peace terms be accepted or he would resign. By a slim majority the Party Central Committee voted with him, a decision that saved both the country and the revolution.

Deputy Minister Petryayev rose and demonstratively headed for the door. He was followed by Lopukhin and other high officials.

But the doors were barred by Red Guards with bayonets crossed. Petryayev went back to his seat. Others followed his example.

Markin declared:

"You have one day to think things over, and now you may leave. Citizen Petryayev and Citizen Lopukhin will remain."

When everyone left, Markin told the two men:

"Please come along . . ."

They went to Neratov's former office.

"I repeat: Put the keys on the table!"

"This is a violent and arbitrary order!"

Markin parried:

"You are ordered to do only what you should do voluntarily. Since you have refused to serve the new government, you no longer need the keys."

Petryayev and Lopukhin handed over the keys to their desks, files and safes with current correspondence and financial documents.

"Where are the keys to the archives?"

Lopukhin suddenly became compliant and said he could not be sure but probably Neratov, Tatischev and Taube knew where the keys were. The reason he so readily named these men was obvious: they had fled.

The Petrograd Military Revolutionary Committee issued a warrant for their arrest. Staff members of the Revolutionary Investigation Commission searched Petrograd and its environs. The morning of November 6 Markin was called to the phone, given a few code words and an address. He went there by car with a detail of Red Guards and soon reported to Lenin:

"The keys and the codes have been found. We are beginning to select the documents."

Decoding clerks from the Naval General Staff were summoned to Palace Square. After the documents were decoded, they were translated into Russian from English, French, Japanese and German. This was done

At 4:30 A.M. on February 24, 1918, the All-Russia Central Executive Committee accepted Germany's ultimatum and two hours later Lenin notified Berlin, Vienna, Sofia and Constantinople that a Russian peace delegation was leaving for Brest-Litovsk. The delegation was headed by Georgi Chicherin, later People's Commissar of Foreign Affairs. At 2:30 A.M. on March 3 the treaty was formally concluded. Chicherin, his face pale and haggard, signed quickly and nervously, then Grigori Petrovsky, another delegation member, then the German, Austrian, Bulgarian and Turkish delegations.

by Zalkind and Polivanov, who knew foreign languages, with the assistance of Petrograd University students.

Publication of the secret diplomatic papers began on November 10 and continued for several months. The texts were published in the newspapers first and then in book form, with Markin acting as editor. Included were the British-French agreement made in 1904 for the partition of Egypt and Morocco; the Russo-British treaty and convention of 1907 on the division of Iran and Afghanistan; the London agreement of 1915 between the Triple Entente and Italy; documents on the Petrograd activities of the ambassadors of Great Britain, France and other countries to prevent Russia's withdrawal from the war; and other important papers exposing the secret moves of Allied diplomacy. Altogether more than 100 treaties and other important papers were made public.

The newspapers and books sold out immediately. The world press was full of the sensational news from Russia. Foreign diplomats sent cables from Petrograd to their governments reporting that the Bolsheviks had made public state agreements of top importance. Millions of people all over the world found out what had been so carefully concealed from them, and the warnings of Jean Jaurès, Karl Liebknecht and Rosa Luxemburg were now confirmed by documents signed by emperors, kings, presidents and ministers.

Simultaneously with the publication of the secret agreements the Soviet Government announced officially that these treaties were not binding on the new Russia.[6]

The Soviet press called the publication of the secret treaties the beginning of a trial of the war criminals by the nations. Millions in Soviet Russia and in the West began to realize that a workers' and peasants' state was an entirely new type of social order, with no predatory ambitions. Soviet Russia was striving for new international agreements based on equality and mutual cooperation. The first step in that direction was immediate peace talks.

The Brest Drama

As early as November 7, 1917, the Soviet Government ordered the commander in chief of the Russian army to get in touch with the enemy military command and "at once make a formal proposal of an armistice to all belligerent countries, both Allied and those engaged in hostilities against us." Within 24 hours a note was sent to the ambassadors accredited in Petrograd inviting their governments to immediately sit down to peace talks.[7]

The order to establish contact with the enemy command was addressed to General Nikolai Dukhonin, who headed the GHQ on the Russian front. But he was a man from the upper crust of old Russia who had not given up hope of crushing the Soviets, and he refused to carry out the order. The government then dismissed Dukhonin and appointed lawyer and historian Nikolai Krylenko the new commander in chief. A well-known Bolshevik who had worked with the soldiers, Krylenko was elected the first People's Commissar for Military Affairs.

On November 11 Krylenko left for the front at the head of a delegation. Two days later he sent representatives to the German side. The answer: The German Command was ready to negotiate an armistice. It was agreed that representatives of both countries would meet in Brest on November 19.

The first Soviet diplomatic mission left for Brest on November 18. The All-Russia Central Executive Committee of Soviets appointed Pavel Obukhov, a worker; Roman Stashkov, a peasant; Nikolai Belyakov, a soldier; and Fyodor Olich, a sailor, to negotiate with the German representatives. The delegation was headed by Adolf Joffe, a member of the Central Committee of the Bolshevik Party. The character of the delegation was a shock to the diplomatic world. Roman Stashkov, a graybeard wearing homespun, especially attracted the attention of the European press. The delegation represented those for whom it was to speak in Brest—the revolutionary workers, peasants, soldiers and sailors.

A day before the diplomatic mission left, troops commanded by Krylenko were sent from Petrograd to Mogilev. Their purpose was to take over GHQ and reinforce the "rear" of the diplomatic delegation. On November 20 Krylenko's units entered Mogilev.

But it was not only Dukhonin's GHQ that stood in the way.

The new Russia wanted general peace talks. It had so declared in a number of documents, including the note of November 7. But all its offers had remained unanswered. The next step was taken when Krylenko's delegation returned from behind the frontline. On November 14 Lenin signed another note addressed to the peoples and governments of the belligerent countries by the Soviet Government: "All governments, all classes, all parties of the belligerent countries are hereby called upon to give a definite reply to the question: Do they agree, together with us, to begin on November 19 . . . negotiations for an immediate armistice and general peace? Yes or no?"[8] At the same time Russia warned the Allied powers that if they did not send their representatives, Russia would be forced to conduct separate negotiations in Brest. There was no answer this time either.

By refusing to take part in general peace negotiations, the Allied powers not only hoped, but were doing everything possible, to keep the Russian army from pulling out of the war. The young Soviet Republic had this choice: either to negotiate with Germany and make peace, or

[6] *Documents on the Foreign Policy of the USSR*, Vol. I, p. 21, Moscow, 1959. Russian edition.

[7] *Ibid*, pp. 15-16.

[8] *Ibid*, pp. 28-29.

to continue the war against the will of its own people. It is clear what the choice would be.

On November 19 delegates of revolutionary Russia signed the armistice in Brest. The guns grew silent,and the diplomats began to negotiate the peace.

The government of militarist Germany was expecting to get by negotiation what it would otherwise have to fight for with guns and bayonets. Moreover, it hoped that as time went on, exhausted Russia would be prostrate at the feet of the kaiser and then, of course, an end would be put to Soviet power. Germany offered terms which Lenin characterized as highway robbery.

The most critical stage of the Brest drama began.

To reject the German demands and leave Brest, slamming the door, would jeopardize the chance for the early peace the Soviet Government had pledged to the army and the country. It would also mean a resumed offensive by German armies that needed no more than two or three days to reach Petrograd. But to accept the terms would mean heavy sacrifices.

The government dragged out the Brest negotiations as long as it could to expose to the world the predatory demands of German militarism. But as time went on, it became clear that onerous concessions were inevitable.

Russia was between the hammer and the anvil. On the one side was Germany, on the other her former allies. Some of them publicly and some privately declared her an enemy—she had chosen an antibourgeois system and refused to fight for the booty stipulated in the secret treaties.

Not to take all this into account meant refusing to look at the gravest danger.

It would be nice to talk peace to the German generals, holding the Decree of Peace and the abrogated secret treaties in one hand and guns in the other, said Lenin. But the Soviet Republic had very few guns left, nor did it have an army ready for action. In the three years of war, the Russian forces had suffered colossal losses. After the October Revolution many of the regular officers fled to the counterrevolutionary generals, who were starting rebellions in the borderlands; others refused to be commanded by soldiers' committees and simply went home. The soldiers, wearied to the bone by the war, began to clamor for demobilization at the very first news of negotiations. The country was in economic chaos. A civil war was flaring up—the overthrown classes were bent upon gaining revenge. The Soviet state had to have its hands free to fight internal counterrevolution.

Early in January 1918, Lenin came to the conclusion that further procrastination was impossible, that the sacrifice would have to be made. A peace treaty would give the young republic a respite, time to gather strength, build up a new army and consolidate the Soviet system itself.

When the delegation left for Brest for another round of talks at the end of January 1918, its instructions were to hold out until an ultimatum. Only after a German ultimatum was it to sign the treaty.

This time the Soviet delegation was headed by Leon Trotsky, who was then People's Commissar for Foreign Affairs. Inclined to make decisions by himself, he disregarded the government's directives and in Brest declared: "I will not sign an annexationist peace." He announced that Russia had unilaterally proclaimed the state of war ended and had ordered a general demobilization. In a word: "neither peace nor war."

Debate was sharp within the Soviet leadership and throughout the country. Various answers were offered to the question of how to resolve the Brest dilemma. Lenin proposed the sacrifice be made to preserve what was most vital, the Soviet Republic. The so-called Left Communists (Nikolai Bukharin and others), replacing political realism with phrasemongering, demanded that a "revolutionary war" on Germany be declared. The Left Socialist Revolutionaries who were still in the Soviet Government insisted on the slogan:"An end to the war between states, for a guerrilla uprising behind the German lines!" Trotsky offered the formula: "Neither peace nor war." He claimed that the German army would not be able to mount an offensive, that a revolution would soon break out there, and that then Soviet Russia would be able to make peace, not with the German militarists but with the German Soviets. However, there was no revolutionary situation in Germany, and Trotsky's program was as reckless and as fraught with disaster for the young republic as the plan for a "revolutionary war."

The Germans took advantage of the wrangles within the Soviet leadership and, even more so, of Trotsky's "sudden decision" and on February 18 moved their armies on Petrograd. The Russian troops, in process of being demobilized, began to flee the front in panic.

In these critical hours Lenin sounded the call: "The socialist fatherland is in danger!" In place of the fleeing soldiers of the old army, hastily formed workers' detachments and volunteer groups of revolutionary soldiers went into action. These detachments displayed marvels of heroism, and the February battles against the Germans on the approaches to Petrograd became the birthday of the new socialist army, whose mettle was so valorously displayed in the Second World War. But in February 1918 the conflict with Germany could not be resolved by military means.

The morning of February 24 the Council of People's Commissars, on Lenin's insistence, sent Berlin a radio message that "the Russian Soviet Government is prepared to accept the German peace terms." In reply came a new ultimatum with even harsher terms. This was the consequence of "Trotsky's tactic."

The German troops continued to attack.

And what of the Allies? Their governments now began to play a double game. After bitter diatribes in November and December, the Western press now insisted that the friendship of the Allies for Russia was unchanged, that Russia was endangering its very existence by an agreement with Germany, that it was in the interests of Russia itself to stay in the war on the side of the Allies. Moreover, they asserted, regardless of its form of government, Russia could count on the support of the Allied countries. But the facts show the evil intent these words concealed. Promising "support," the governments of the Allied countries actually had a different objective: let Russia fight with Germany, the Soviet Government would collapse under the blows of the Germans, and simultaneously German forces would be diverted from the Western Front. It would thus be easier for the Allies to defeat Germany.

On March 3 the Soviet representatives initialed the Treaty of Brest, a bitter but inevitable step. It now had to be ratified. On March 5 the Soviet Government asked the United States what support the Soviet Republic could expect from the United States—military equipment, transport facilities, subsidies and food—if hostile actions of Germany, prior to or after ratification of the Brest Treaty, compelled the Soviet side to resume military operations.[9] The answer came only at the moment when the special Congress of Soviets which had to ratify the Brest agreements opened in Moscow. There are indications that the opening of the Congress was postponed twice in expectation of Washington's answer.The opening of the Congress was originally scheduled for March 12, but it opened two days later. President Woodrow Wilson, in his message to the Congress, confined himself to expressions of sympathy for the Russian people and to general phrases that were in no way binding.[10]

The Congress ratified the peace treaty.

The Brest peace was criticized by Western politicians and diplomats. They accused Soviet Russia of dishonesty for concluding a separate agreement with Germany. Rejecting these accusations, Lenin wrote: "The very capitalists of those countries which could have turned the Brest negotiations into general negotiations for a general peace are now our 'accusers'! . . . They accuse *us*, the Bolsheviks, who proposed a just peace to all countries, they accuse *us*, who tore up, published and exposed to public disgrace the secret, criminal treaties. . . ." [11]

Not only Lenin, but people in other countries who looked at the facts admitted the Bolsheviks would not have made a separate peace with Germany had Russia not been forced to it by its former allies.

History has justified that temporary retreat. By giving ground at that most critical moment, the Soviet Republic was able to gather its forces for another grave ordeal, the Civil War and foreign intervention.

To follow: "New Economics in the Making" and "Hostile Whirlwinds," continuing the series on the Russian Revolution which started in the September Issue.

[9] *Russian-American Relations*, March 1920, pp. 61, 82, New York.

[10] *Documents on the Foreign Policy of the USSR*, Vol. I, p. 212. Russian edition.

[11] Lenin, "Letter to the American Workers," *Selected Works*, Vol. III, pp. 48-49, Moscow, 1961.

THE VILLAGE OF YARUGA

By John Weir

YARUGA, a farm community on the Dniester River in the Ukraine, deserves special mention in the annals where the deeds of valor of the Soviet people are recorded. The Yaruga people themselves do not claim to be heroes. They did what they had to do, they say.

Yaruga has been there for many centuries, its whitewashed cottages dotting the riverbank and scattered about the ravines. The arable land of the village is on the plain atop a steep hill overlooking the Dniester. That is where grain and other large-scale crops are grown. Down the winding gulleys and along the riverbank are fruit and walnut trees, vegetable gardens, tobacco plots.

In the seventeenth century a settlement of Jewish handicraftsmen and small traders grew up beside the village. By all accounts it was very much like one of the little towns on the periphery of Russia described by Sholom Aleichem. Then, in 1835, a change took place in the fortunes of the "Jewish" Yaruga. The czarist authorities granted Yaruga Jews permission to engage in viticulture. Soon most of them were raising grapes. That venture proving successful, they began to make wine. Their grapes and wines found a ready market.

Both the Ukrainian and the Jewish Yarugas welcomed the October 1917 Revolution. As early as 1922, the villagers got together and sent a letter to the government asking for an instructor to help them organize cooperative farming. It was not until 1929, however, that producers' cooperatives were set up. The Jewish collective farm, named for G. I. Petrovsky, specialized in growing grapes, and the Ukrainian collective farm, Peremoha (Victory), in grain and dairy farming. Both did well.

When Hitler attacked, the Soviet Government took immediate steps to protect its Jewish citizens. The evacuation of people of Jewish nationality to areas beyond the reach of the invaders was given priority. Some of the Jewish families from Yaruga managed to get away in time and spent the war years in Uzbekistan, on the other side of the Ural Mountains. But the majority had gotten only as far as the town of Tulchin when German bombers and swift troop thrusts closed off the escape route.

The refugees held a meeting to decide what to do. The decision was unanimous: to return to their homes.

Yaruga is quite prosperous. The farm is doing so well, in fact, that it recently spent 150,000 rubles to enlarge its Palace of Culture and add farm offices, a museum, a lending library and a reading room.

Farmers Kuzma Bachinsky and Leib Waisman have been friends for 70 years.

After the war the Jewish and Ukrainian farms joined with a neighboring village to form one farm covering nearly 500 acres. Ivan Bortnik (left) is one of three staff doctors in the 35-bed hospital built by the farm. Septuagenarian Moisei Serson (right) was among the first to join the farm in 1929. Vintner Hersh Berkis (far right) can twist a horseshoe into a shapeless hunk of metal iron.

"Our neighbors will help us," they said. And their neighbors did.

They found Yaruga badly damaged. Bombs had leveled many of the buildings. The village had been looted by German and Rumanian soldiers. Their homes were stripped bare; all the windows had been smashed. Their neighbors gave them food, bed linens, utensils, whatever they could spare.

Soon after, an SS officer called all the Ukrainian farmers of Yaruga together, told them the Germans were going "to liquidate the Jews" and demanded that they cooperate.

The Nazis drove the Jews into a ghetto they had set up outside the village, preparing to ship them off to the death camps. The mass murder of men, women and children from the area began. Even now, nearly a quarter of a century later, the accounts of those nightmarish crimes leave the listener dazed and sick to the stomach.

Fellow villagers smuggled food to the people behind the barbed wire of the ghetto and helped in other ways. But how to free them? The local underground committee, which was in direct touch with the underground regional leadership, thought of a way.

"Chief" Krishevsky informed the German occupation authorities that the Yaruga vineyards were being ruined because the Ukrainians, he said, did not know how to take care of them. He asked for the "temporary" release in his custody of 25 Jewish "specialists" and their families to work in the vineyards.

The request was granted. Then it developed that each "specialist" had a "family" of 12 to 15 people. The ghetto was quickly emptied—and from then on every precaution was taken so the Jews would not be picked up again. The "chief" knew when a raiding party was under way. The location of the village made surprise raids practically impossible. The villagers were most ingenious in devising hiding places. For example, one mother and her child were hidden in a specially constructed barrel when the Nazis were around. Another family made its way into a cave via a doghouse, over which the dog stood guard.

Jewish refugees from other areas were also sheltered. The houses—and when the alarm was given, the hideaways—were packed tight. Feeding all these people was a problem, until the underground managed to divert some of the supplies that were being shipped to Germany. A secret storehouse was set up and everybody put on strict rations.

During the whole fascist occupation only four Yaruga Jews lost their lives, and those were accidental deaths from bombings! (This does not include deaths at the front: 163 Yaruga men, 64 of them Jews, were killed in action; of the 51 villagers decorated for valor in battle, 26 were Jews.)

Thus, thanks to the cooperation of people of the two nationalities—Jews and Ukrainians—the whole Jewish community survived. That cooperation has continued to this day.

Yaruga is even more prosperous now. The two prewar collective farms joined with the neighboring village of Ivonika to form one big farm with 300 acres of grapes, 185 acres of orchard, wheat, corn, sugar beet and other crops, and a fine herd of cattle.

Many families, both Jewish and Ukrainian, have moved away from this picturesque but somewhat out-of-the-way village on the Dniester. Farm machinery has reduced the human labor needed. When you consider that since the twenties more than a thousand Yaruga people have become teachers, engineers, doctors and the like and that only a few of them have remained in the village (schoolteacher Mendel Borivker is one), you get a picture of how much the population has diminished. In many cases parents have followed their children to other parts of the country. In its heyday there were some 400 Jewish families in Yaruga, now there is only a third that many.

The prosperity of the farmers can be judged from the fact that over 70 have their own cars and television sets and that practically every house has a refrigerator, washing machine and other modern appliances.

The Palace of Culture, with a seating capacity of 500, originally built by the Jewish members of the community as a memorial to the longtime chairman of the collective farm, the late N. E. Nudelman, has now been expanded to house the farm offices, a museum, a lending library and a reading room. Librarian Vera Kolodynska has 8,450 books on her shelves; they are read by 860 subscribers.

The fine 11-year school with 28 teachers has a large lending library of its own. The new hospital, built in 1961, is staffed by 25 doctors and nurses.

There are no national divisions in Yaruga. Ukrainians and Jews work together without a thought to national differences, let alone antagonisms. There are farmers of both national origins on the collective farm board. Ukrainians are now grape growers also, while the best milkmaid is Jewish Freda Vinnitsky. Yiddish folk songs are heard along with Ukrainian and Russian songs at village concerts. Religious Jews observe the rites of their faith, as do Orthodox Christians, in complete freedom and with every respect.

I looked through the school album and saw pictures of girls and boys in clubs, teams and other activities. The names were Bilinsky, Goldschmidt, Kiforenko, Kesselman—Ukrainian and Jewish intermixed. I was told about the people who built this united Yaruga: Klimchevsky, Fleider. . . . I read the names of those who were decorated for bravery at the front: Antoniuk, Barenboim, Boyko, Goichberg . . .

I visited a home where the Taranovskys, Kapitners, Mrachkovskys and Dinises were dining together.

"You are good friends," I commented.

"We're practically one family," they replied.

What countries does the Council for Mutual Economic Assistance represent? What are its aims and practical activities?

The International Bank for Economic Cooperation, an agency of CMEA, uses transferable rubles, a new unit with a gold content of .987412, to settle accounts. Each of the member-countries has one vote, regardless of its share of the bank's capital. The photo shows the seventh session of the Board of Directors.

COUNCIL FOR MUTUAL ECONOMIC ASSISTANCE

THE COUNCIL for Mutual Economic Assistance (CMEA) was set up in 1949. It is an organization for economic cooperation based on the principle of complete and sovereign equality of the countries participating, the same principle of proletarian internationalism on which all relations between countries of the socialist community are based.

Present members are Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, the Mongolian People's Republic, Poland, Rumania and the USSR.

Consistent with the policy of peaceful coexistence of states with different social systems, the Council for Mutual Economic Assistance is open to all countries that subscribe to its principles and wish to participate in large-scale economic cooperation with its members.

The Council may invite countries which are not members to work with any of its agencies on terms agreed upon. For instance, by an agreement concluded in 1964, Yugoslavia cooperates within the CMEA framework on questions of mutual interest in foreign trade, currency relations, ferrous and nonferrous metallurgy, machine building, industrial chemicals, electronics and the coordination of scientific and technical research. Cuba, the People's Republic of China, the Korean People's Democratic Republic and the Democratic Republic of Vietnam choose to participate in the Council as observers.

The purpose of CMEA's economic and scientific-technical cooperation is to make the most rational use of natural resources and to accelerate the development of productive forces to serve the interests of each of the participating countries and the socialist community as a whole. It makes recommendations for economic relations of member-countries which follow from their national economic plans and assists them in drafting joint activities in industry, agriculture, transport and other areas.

The economic relations of CMEA countries take such diverse forms as the mutual granting of credits, trade exchange, the delivery of machines, equipment and raw materials, and technical and scientific cooperation. In recent years large industrial projects have been built in several of the countries with the participation of other CMEA members.

The results of specialization and cooperation in production among the CMEA countries have been very promising. This form of cooperation offers large and reciprocal economic advantages. As of now, for instance, the manufacture of some 1,800 types of machines has been specialized.

The goals of CMEA are to raise the level of economic development, labor productivity and living standards of its member-countries. That is why the coordination of economic plans is a prime CMEA activity. That job has largely been completed for the 1966-1970 period. Plan coordination covers the manufacture of the major type of goods in the main branches of industry and agriculture. The coordination is done bilaterally by consultation of national planning bodies, and multilaterally in the various organs of the Council.

The CMEA organs are: the Session of the Council, the Executive Committee, the Standing Commissions and the Secretariat. The Session of the Council is the highest CMEA body, with delegations representing all member-countries. The Session is convened by turn in the capitals of the member-countries. The head of the delegation of the country in which the Session meets acts as chairman. The Session outlines the direction of activities of CMEA agencies, receives Executive Committee reports and considers problems of economic and scientific-technical cooperation and major organizational matters.

The Executive Committee consists of representatives of member-countries at assistant head of government level. It meets at least once every two months and acts for the Council between sessions. The Executive Committee has a bureau for summary economic plans in which each country is represented by an assistant chairman of its national planning body. The bureau's function is to prepare proposals on coordination of national plans and to assist the planning bodies of the member-countries.

The Standing Commissions have that same function in their specific economic fields. There are 21 commissions for construction, chemicals, coal, oil, the light and food industries, metallurgy, machine building, power engineering, agriculture, transport, etc. They work on the coordination of development plans in their specific areas, the most efficient use of resources and production capacities, research and design. As a rule, countries are represented on the commissions by the ministers of the corresponding branches of their economy. The commissions are accountable to the Session of the Council and to the Council's Executive Committee.

The recommendations of Standing Commissions are frequently of large scope. For instance, the commissions on power engineering and agriculture prepared a comprehensive plan for the exploitation of the hydroresources of the Danube.

Council recommendations are subject to approval by the governments and other responsible bodies of the member-countries. The principle of sovereign equality is guaranteed by equal representation in all organs of the Council and by the requirement that all recommendations and Council decisions must have the approval of the countries participating. Recommendations and decisions are not binding on countries which declare that they are not interested in one or another project. However, they can at any time subscribe to a decision the other countries have agreed upon.

The Secretariat is the economic and executive-administrative organ of the Council. It has branch departments with major specialists from all member-countries.

In the course of economic cooperation valuable experience is gathered which requires analysis and evaluation. High-level representatives of the Council member-countries meet periodically to discuss questions which come up. Recommendations worked out at these conferences are turned over to the Council for consideration and action.

A train carrying freight to Poland and the Soviet Union crosses a bridge over the Oder near Frankfort in the German Democratic Republic. In 1963 the CMEA countries set up a pool of 100,000 freight cars.

COOPERATION OF EQUALS

By Nikolai Syomin

IN THE PAST five years (1961-1965) the CMEA countries have made very considerable economic progress. In 1960 these countries produced 406.6 billion kilowatt-hours of electric power, 161 million tons of oil and 86.5 million tons of steel. The corresponding totals for 1965 were 677 billion kilowatt-hours of electricity, 257 million tons of oil and 120 million tons of steel. The machine-tool industry moved ahead at a faster pace than other industries.

This larger output resulted in increased supplies of consumer goods and foodstuffs and a rise in retail and foreign trade.

The Growing Exchange

The actual trade turnover between the CMEA countries exceeded the levels fixed by the agreements. Goods exchange between Hungary and Czechoslovakia in 1965, for example, was 25 per cent more than had been foreseen. The average annual increase in Polish-Rumanian trade between 1961 and 1964 was 12 per cent instead of the contemplated 7 per cent. Soviet trade with Hungary and the German Democratic Republic in the same period was nearly 17 per cent above the figures expected. Trade between the Mongolian People's Republic and other CMEA countries rose by 19 per cent over the five years.

These facts point to substantial headway in the economic cooperation of the socialist countries. They also point to the greater attention paid to two important factors: first, relating the form and content of cooperation to national and international interests; and second, making fuller use of the advantages of an international socialist division of labor to create additional possibilities for reciprocal and mutually advantageous trade exchanges.

Larger deliveries of machinery and equipment have become a major feature of trade between the socialist countries within the framework of CMEA. During the five-year period, deliveries of this type increased by 81 per cent, and deliveries of raw materials and metals by 31 per cent. Presently, CMEA cooperation is concentrating on machine tools.

The fact that industrial equipment is becoming increasingly important in the trade of the CMEA countries is due not only to expanded production in the industries concerned but to the greater intersectoral specialization in production among these countries and to reciprocal consultations on national economic plans.

Another feature of the trade between CMEA countries is the steady increase of the share of machinery in exports from the less developed socialist countries—those which inherited a backward economy from the presocialist stage of development—to those relatively more industrialized. What this indicates is the tendency for the gap in economic levels to narrow.

The tendency is accelerated by the growing division of labor and the consequent rise in labor productivity. The socialist countries accordingly are devoting much attention to pooling efforts to develop their raw materials and fuel industries and to expand their areas of specialization and cooperation in production. As a result, the import needs of the CMEA countries in the main kinds of fuels, raw materials, machinery and equipment, as well as consumer goods, are largely satisfied by reciprocal deliveries. According to Polish estimates, reciprocal deliveries met 58 to 96 per cent of the import needs of the CMEA countries in 1964 for coal, coke, oil, oil products, power equipment, generators, and metal-cutting machine tools.

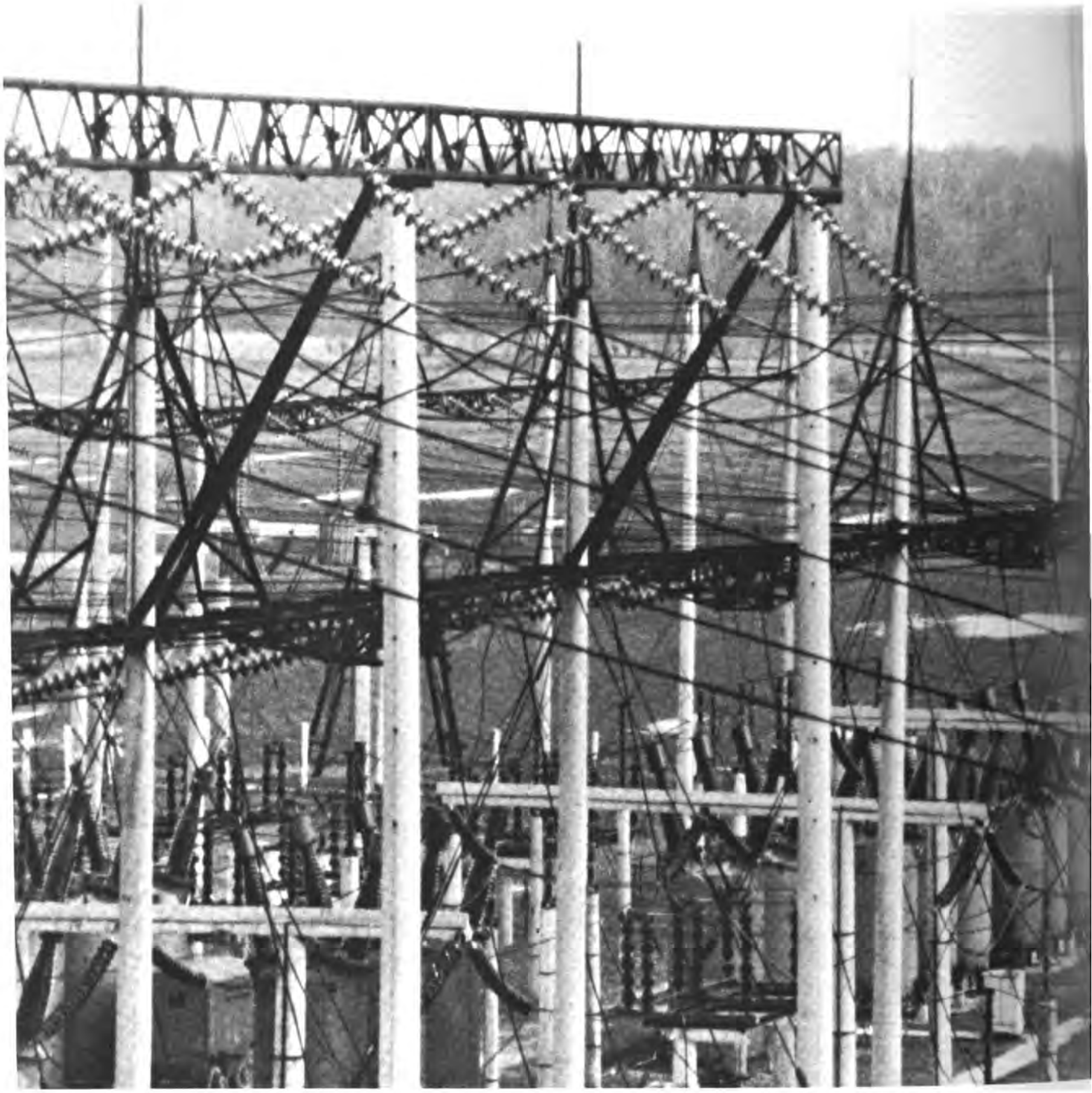
In its economic ties with other countries, those of the West included, each member of CMEA retains complete independence. Where one or another CMEA country finds it profitable to trade outside the Council, it does so.

The more a CMEA country covers its needs by imports, the more do national economic plans depend on the kind and volume of foreign trade. Trade between the socialist countries has become an integral part of planned and balanced intersectoral and, what is even more significant, intrasectoral division of labor. Consequently, extended reproduction in the socialist countries is beginning to take on an international character.

Whether trade agreements are met to the letter or not depends on how much improvement there is in all sectors of the economies of the CMEA countries. This is the aim of the reforms these countries are now introducing in economic planning and management.

Intermetal and Other Organizations

For more rational and efficient cooperation, the CMEA countries have set up a number of new agencies such as Intermetal and the



Common Freight Car Fleet. The power systems of fraternal countries have been linked and a Central Distributing Board established. Multilateral settlements are made through the International Bank for Economic Cooperation.

These CMEA agencies can already credit themselves with notable achievements. For example, members of Intermetal exchanged some 950,000 tons of steel products in 1965 alone. As a result, reciprocal deliveries of some Intermetal countries specified by long-term agreements were raised 25 per cent. The activities of this agency make it possible for member-countries to use the capacity of their rolling mills more efficiently and to concentrate on production of rolled stock.

The Druzhba (Friendship) Oil Pipeline, the biggest in Europe (it runs from the banks of the Volga to the western border of our country and then branches out to Poland, the German Democratic Republic, Hungary and Czechoslovakia), has cut the cost of transporting oil to a fraction as compared with rail transport. This means a big saving for all CMEA countries served by the pipeline. Czechoslovakia alone, its experts estimate, will save 1.5 billion korunas on oil transport costs by 1975.

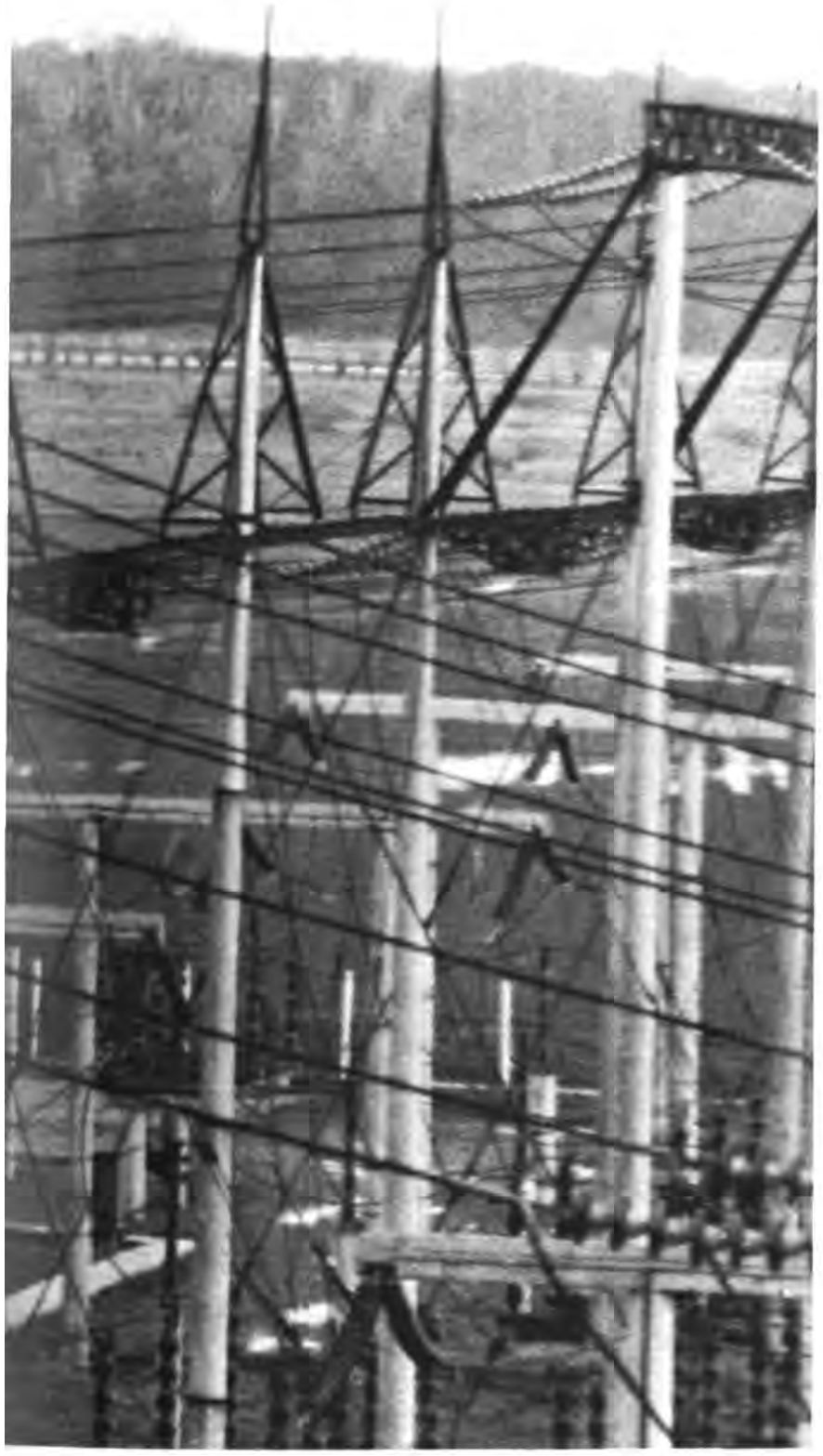
Linking up the national power systems has likewise been very profitable for the countries concerned. In 1965 the Central Distributing Board of the Mir (Peace) Power Grid distributed six billion kilowatt-hours of electricity, 30 per cent more than in the preceding year. The savings much exceed the investments.

The Common Freight Fleet, which makes very good use of economic incentives, has cut down on empty runs and speeded up the turnaround time. As a result, the total number of cars needed to carry foreign trade freight has been reduced by 20 per cent.

These examples demonstrate that the new forms of multilateral as well as bilateral cooperation introduced on CMEA recommendations are of substantial benefit to everyone concerned.

Specialization

Progress in cooperation among the CMEA countries is illustrated by these examples of pooled effort.



The Mir (Peace) Power Grid links up intra-CMEA transmission lines. In 1965 the grid distributed six billion kilowatt-hours of electricity. Savings have been far in excess of the funds invested. This is the Striy substation in the Ukraine.

The nearly 3,000-mile Druzhba (Friendship) Pipeline carries Volga oil to Poland, Czechoslovakia, Hungary and the German Democratic Republic. It went into operation in 1962 and has since piped 2.8 million tons.

Bulgaria built its Medet Mines in cooperation with the Soviet Union, the German Democratic Republic and Czechoslovakia. The mines yielded 2.2 million tons of copper ore in 1965. Their capacity will be raised to eight million tons by 1967, thus substantially augmenting the copper stocks of the CMEA countries.

The Soviet-Hungarian agreement to exchange the raw material for the finished product saves Hungary the outlays for building power plants to generate the large amounts of electricity needed to produce aluminum. Furthermore, by using the Soviet Union's cheaper electric power, the aluminum can be produced approximately 25 per cent cheaper than in Hungary. The agreement grew out of CMEA recommendations for raw material development.

Specialization and cooperation in production among the CMEA countries offer great possibilities for saving labor. There has not been sufficient time as yet for all the values of CMEA recommendations to materialize. Most of them have been adopted since 1962 and involve both the construction of new capacities and the expansion of old ones. But certain benefits are already evident.

Hungary, for example, its experts figure, is now exporting one-third of the goods it specializes in manufacturing. In 1964 the share of specialized goods made by its metallurgical and machine-tool industries came to about 40 per cent of all such exports. In the case of instrument making, it was 84 per cent, and in equipment for the food industry 95 per cent. Deliveries of machinery and equipment in which Poland specializes account for nearly 17 per cent of all exports of these goods.

The share of reciprocal deliveries of specialized goods has risen notably in Soviet-Czechoslovak trade. From 1963 to 1965 the value of Czechoslovak deliveries to the Soviet Union came to about one billion korunas, or nearly half the value of all exports of specialized goods from Czechoslovakia to CMEA countries.

Typical of the growth of production specialization among the CMEA countries is the nearly 19 per cent reduction in the number of type-sizes of ball bearings manufactured in

MAJOR CONSTRUCTION PROJECTS

Some of the major industrial projects being built in the socialist countries in 1966-1970 with technical assistance from the Soviet Union

BULGARIA

Electric Power Stations

Maritsa-Vostok-2-600,000 kilowatts
Maritsa-Vostok-3-600,000 kilowatts
Varna-600,000 kilowatts

Metallurgy

Kremikovtsi Metallurgical Plant

Oil

Oil refinery
Installation for catalytic reforming of gasoline

Chemical Industry

Nitrogen fertilizer plant
Cellulose and artificial fiber mill

Engineering

Plant with an annual capacity of 15,000 trucks
Automobile assembly plant with an annual capacity of 15,000 cars

HUNGARY

Electric Power Stations

Dunamenti-450,000 kilowatts

Oil

Oil refinery with an annual capacity of two million tons

Building Materials Industry

Five prefabricated housing plants

DEMOCRATIC REPUBLIC OF VIETNAM

Electric Power Stations

Thac-Ba-108,000 kilowatts
Expansion of the Wong-Bi station from 48,000 to 98,000 kilowatts

Coal

Enlarging the capacity of open-cast and underground mines to five million tons of coal a year

Chemical Industry

Caustic soda and poison-chemicals mill
Pharmaceuticals factory

Machine Tools

Diesel engine plant
Shop to manufacture high-pressure pumps
Expansion of the Hanoi machine-tool plant

Transport

Expansion of Haiphong port to increase its capacity for cargo handling from 3.2 to 5.5 million tons a year

Agriculture

Supplying machines to 19 new and 27 presently operating state farms

GERMAN DEMOCRATIC REPUBLIC

Electric Power Stations

Tierbach 800,000 kilowatts
Boxberg 3 million kilowatts

Metallurgy

Expansion of the Ost Steel Works

Chemical Industry

Automobile tire plant

the CMEA countries, while their exports have more than doubled. The labor saved is nearly 15 per cent. In 1970 specialization in electric motor production will make it possible to reduce labor expenditure by 64.3 per cent, on the average, as compared with 1963. And concentration on the manufacture of textile equipment resulting from specialization will make it possible to expand deliveries by 150 per cent between 1963 and 1970.

Poland, the German Democratic Republic and Czechoslovakia specialize in the production of electronic tubes. As a result, the number of types produced in Poland has been reduced from 55 to 29. Half the tubes manufactured in Poland are intended for export. Polish economists estimated that in 1962 the cost of providing the country with such tubes was some 20 per cent less than it would have been without production specialization.

Other factors, too, in particular the unequal development of industry in those countries, argue for pooling national efforts. Moreover, some of the CMEA countries do not need enough of the many different types of machines to warrant large-scale production. Another consideration is the uneven spread of natural resources. For example, according to Hungarian estimates, 95 per cent of the surveyed reserves of bauxite in the CMEA countries (not counting the USSR) are concentrated in Hungary. Bulgaria and Poland have 76 per cent of the lead and 82 per cent of the zinc ore reserves (again not counting the Soviet Union). At the same time these countries have little or no deposits of other valuable minerals.

To develop the extractive industries takes very big capital investments. That is why CMEA countries importing raw materials, for example, Czechoslovakia and the German Democratic Republic, contribute by providing the necessary plant and other goods on credit, to be repaid by deliveries of the respective raw materials. This kind of pooling has been valuable and will probably be amplified.

Problems

The progress thus far achieved does not, of course, mean that all problems have been solved.

To a certain extent, the economic plans of the CMEA countries for the current five-year period have been coordinated particularly with regard to the supply of raw materials and fuel, and the delivery of machinery, equipment and consumer goods. The related problems will have to be grappled with between now and 1970 and after. The CMEA countries will have to exert fresh efforts to meet their growing requirements in some raw materials. They will have to find ways of improving their production specialization and of coordinating their capital investments.

Of fundamental significance is the fact that, at the present stage, production is not limited purely by the domestic requirements of individual CMEA countries but that it has become objectively international. Hence the growing importance of coordinating national economic plans. Coordination is vital because in building socialism, each country has its specific problems arising from its special conditions of historical development. Coordination of plans for 1966-1970 has been the major piece of business of the Council for Mutual Economic Assistance recently.

By coordinating their plans, member-countries can progressively enlarge the scope of their division of labor and pool their production efforts efficiently. It is a manifestation of the planned economic development on an international scale which Marx foresaw when he wrote that the working class would arrive at the "harmonious national and international coordination of social forms of production."

Coordination gives countries a more real-

Fifteenth session of CMEA's commission on iron and steel. Participants are Hungary, Poland, Czechoslovakia, the German Democratic Republic and USSR. Intermetal coordinates their production plans.

istic base for their economic plans and a better balance between production and consumption. It takes the foreign market into account, provides for mutual deliveries of major groups and types of machinery and equipment and the output of other industries, indicates the main trends in specialization of production and coordinates investments.

In the course of consultations on economic development plans for 1966-1970, important problems relating to the economic growth of the fraternal countries have been brought to light, and to some extent possibilities have been outlined for solving them by the joint effort of the interested countries.

Prospects

Coordination has also created the prerequisites for optimal planning with an eye to long-term projects. As a result of coordinating economic plans to 1970, conditions have been created for developing in Bulgaria several industries with optimal capacities, for example, shipbuilding, manufacturing of certain types of instruments and farm, textile and other machinery.

A corner of one of the busy offices of CMEA's International Bank for Economic Cooperation.

At the end stage of the plan coordination, the CMEA countries signed a number of trade and other economic agreements that will help to mobilize resources, distribute efforts and save funds and labor. For example, the consumption of pig iron is growing in all the socialist countries. This would seem to require the expansion of blast furnace capacities. Thanks to the plan coordination, however, the German Democratic Republic and Hungary do not need to build new blast furnaces. Their pig iron needs will be met by imports from other CMEA countries where production conditions are more favorable.

Poland and Hungary agreed on deliveries of Hungarian alumina in exchange for aluminum in 1966-1970, which will free Hungary from the need to build additional power capacities. To renovate its light industry, Hungary will import from Czechoslovakia machines and looms for textile, leather, footwear and printing plants. From 1966 onward, the Czechoslovak Kohinor factory will supply all the needs of the German Democratic Republic for drafting, copying and colored pencils. This will also serve to concentrate production and conserve funds. The Polish-Hungarian agreement on cooperation in automobile manufacture calls for deliveries amounting to 200 million currency zlotys in 1966-1970. This will permit Poland to limit its investments in heavy industry. Hungary's engineering industry will, in turn, be able to shift capital investments elsewhere.

The Soviet Union and Hungary will collaborate in producing buses. Hungarian output will increase from 2,400 to 7,000-8,000 buses annually. The Bulgarian-Soviet agreement on building the first atomic electric station in Bulgaria with Soviet assistance was reported by the Bulgarian press as a major event; in 1974 this station will provide about 15 per cent of the country's entire output of electric power.

Trade agreements between the CMEA countries for 1966-1970 foresee big increases in mutual goods deliveries. Soviet agreements with other CMEA countries call for a rise of approximately 64 per cent as compared with the level set for the preceding five years. Poland's trade with the Soviet Union is to go up by 63 per cent; with Hungary, by 70 per cent; with the German Democratic Republic, by 46 per cent; and with Rumania, by 61 per cent.

The new trade agreements anticipate a substantial rise in the delivery of machinery and equipment, raw materials and consumer goods. The Soviet Union is to get from Hungary 215 diesel locomotives and equipment for 90 cheese factories. The imports of Hungarian medicines, fruit and consumer goods will also rise markedly. Bulgaria will deliver to the USSR 150,000 tons of tobacco, 416,000 tons of fresh and canned fruit, 545,000 tons of grapes; deliveries of Bulgarian machinery and equipment will increase by 140 per cent as compared with the preceding five years. Poland will provide 20,000 freight cars, quantities of knit goods, fabrics and furniture. The German Democratic Republic will supply a number of complete chemical factories and consumer goods. Soviet imports from Czechoslovakia will include 957 electric locomotives, equipment for the textile and food industries, 120 million pairs of shoes, and knit goods and clothing.

By reason of the division of labor, the new agreements foresee larger deliveries of machinery and equipment from the less developed to the more industrialized countries. This type of goods will make up about 50 per cent of all Czechoslovak imports from Bulgaria. The German Democratic Republic is to increase the share of machinery in its imports from the CMEA countries from 14.5 per cent to 25 per cent in 1970. The pooling of efforts to meet raw material and fuel requirements will be given more attention in the next five years.

The types and methods of economic cooperation of the CMEA countries are so diverse that they cannot always be immediately expressed in concrete figures. That is why the examples presented earlier cannot give all the advantages accruing from the coordination of plans and long-term trade agreements. But what they do show beyond question is that these mutually beneficial agreements contribute to the steady economic growth of the CMEA countries and their rising living standards.

Courtesy of the magazine International Affairs *(abridged)*

KOREAN PEOPLE'S DEMOCRATIC REPUBLIC

Electric Power Stations

Pyongyang station 400,000 kilowatts
Puchan station 600,000 kilowatts

Steel

Chongching mill

Oil

Oil refinery

Chemical Industry

Ammonia plant with an annual capacity of 50,000 tons

CUBA

Steel

Reconstruction of three pit iron refining plants

MONGOLIA

Coal

Open-cast coal mine in Sharnygol

Machine Tools

A repair plant for construction machines and equipment with a shop manufacturing building tools

Light Industry

Knit goods mill

Food Industry

Candy factory
Dairy plant

Communications

TV station with a radio-relay line

Agriculture

Supplying machines to 10 large farms mainly engaged in animal husbandry

POLAND

Electric Power Stations

Pontnow thermal electric station

Metallurgy

Lenin steel mill
Warsaw mill for alloy and hard steel
Bierut metal works
Shop for aluminum strip rolling
Copper smelting plant in Glogow

RUMANIA

Electric Power Stations

Iron Gates hydropower station system on the Danube
A 400,000-kilowatt heat and power plant
Expansion of the Bucharest-South heat and power plant to 200,000 kilowatts

Metallurgy

Metallurgical plant in Galatz

CZECHOSLOVAKIA

East Slovakia metallurgical plant

YUGOSLAVIA

Electric Power Stations

Djerdap hydropower and shipping system in the Iron Gates district
Five heat and power plants

Metallurgy

Expansion of the Zeljezare-Zenisa steel mill to 2.65 million tons a year
Metallurgical plant in Smederevo

Engineering

Bus plant

AFTER THE CHESS MARATHON

By Grandmaster Mikhail Tahl
Former World Champion

FRANKLY, many experts rated the challenger's chances very high, and they had good reason. The world sovereign had divorced himself somewhat from chess matters in the past three years and had given no scintillating performances in the interim. Boris Spassky, on the contrary, had brilliantly trod the thorny path of a semifinalist in the Soviet championships to a victory in the Challengers Tournament. Only in the semifinal of the Soviet title tourney did he finish runner-up. In all his other appearances he either shared top honors (national championship and Interzonal Tournament) or won them all (elimination matches with Paul Keres, Yefim Geller and Mikhail Tahl). To this list of Spassky's chessboard achievements, we can add his splendid win in the Belgrade tourney and a tie for first place in the premier Hastings International.

But it is not only a matter of his match results. Spassky's opponents respect (and possibly have even been hypnotized) by the way he racked up these victories, especially in the concluding knockout matches. In each of these three clashes, Spassky, under the tutelage of his trainer Igor Bondarevsky, employed a different style. It should also be mentioned that the aspirant to the world chess throne demonstrated greater stability. He showed that he could finish strongly in the concluding games and make up for losses in the early stages.

The opening games disclosed that defender Tigran Petrosyan and his coach Isaak Boleslavsky had not been twiddling their thumbs but working very hard indeed. Most of the experts were inclined to believe that if Spassky succeeded, his chances of donning the world crown would soar. However, the initial rounds showed that the infighting was not exactly shaping up. I believe that the thoroughly conceived system of openings was aimed, above all, at cutting short any attempt to sharpen play swiftly. Incidentally, everybody knows that "Tiger" Petrosyan avoids extremes when he deploys his chess forces. He does not speed things up unless he has to.

Spassky's consent to calm measures at the start of a world title match came as a surprise to many. He did not shy away from simplification, evidently counting on his fine technique. I even got the impression that while he had begun his match with Petrosyan, he was actually continuing his match with me by inertia. But though in Tbilisi his desire to give the games a technical slant (something I was absolutely unprepared for) brought Spassky a wonderful victory, his technique against the title defender brought him no laurels at all. Petrosyan had long earned a reputation for virtuosity in the ending stage.

Thus, in the first games, with a slight exception, Petrosyan enjoyed a certain advantage. Although the scorecard at this stage—eight draws and only one win for the world champion in nine games—did not say much, Petrosyan's superiority was tangible. This rather modest score is probably explained by the nervous start and, to a certain degree, also by the world champion's insufficient tournament practice before the all-deciding contest.

I can let you in on a secret now and say that this last is not altogether correct. Shortly befor the match, Petroysan *did* compete in a small practice tournament with five other strong grandmasters. His score of 8 points out of a possible 10 speaks for itself. But a practice tournament where one can cooly experiment and take risks is one thing, a match for the world crown is something else again.

In other words, the first three games were drawn, with Petroysan holding the advantage. If David Bronstein is right when he half-seriously proposes that the active party in a "positions of strength" draw be awarded three-quarters of a point instead of one-half, then in these games the world champion would have built up a sizable lead.

It seems to me that the last traces of Petrosyan's uncertainty vanished in Game No. 5, where Spassky, to my mind, moved brilliantly into a winning position. But a second of hesitation and timidity enabled Petrosyan to build up adequate counterplay in a most incredible way. This game also saw the point halved.

The explosion took place in the seventh game, which Petrosyan himself considers the best in the match. Although all the attributes of sharp rivalry were present, it was one of the most Petrosyan-type contests in his entire chess career. Alexander Alekhine once wrote that it takes the greatest skill to find the simplest solution to the most complicated situation. Petrosyan showed in Game No. 7 that he had this skill.

The tenth game was another win for Petrosyan, and some people began to talk of the beginning of the end, that any more fight by his rival was waste motion. Indeed, if we recall that Petrosyan lost only three of the more than 80 games he played between 1960 and 1963 in his successful bid for the world title, that seemed reasonable enough. Spassky had to inflict these same three defeats on his opponent, but he had only 14 games remaining to do it in. Yet this practically impossible thing almost became possible.

I think that, starting with the tenth game, Spassky decided to change the character of play radically and try his luck with infighting in a "return match" effort. Unfortunately, another disappointment awaited him in the tenth game—the discovery that there was a big difference between "he does not like to do this" and "he does not know how to do this." Petroysan does prefer tranquil positions, but when a critical situation arises, he orients himself brilliantly, as was most convincingly borne out by Game No. 10. The moral of this game might well have been "Sow the wind and reap the whirlwind." It was really an esthetic pleasure watching Petrosyan's concluding counterattack, in which he generously sacrificed the exchange twice and also his queen.

I don't know whether I'm quoting him exactly, but this is the sense of what Mikhail Botvinnik once said. "When Tahl makes a sacrifice, accept it; when I make a sacrifice, think about it; when Petrosyan makes a sacrifice, reject it right off." Petrosyan offered several Greek gifts in the match and lived up to up to Botvinnik's characterization, but Spassky frequently had to accept them, because there was nothing else he could do.

The setback in the tenth game did not break Spassky's spirit. Instead, in my opinion, the victory made Petrosyan a bit too sure of himself. Petrosyan gained a considerable advantage in Games No. 11 and 12. But in a position showing chances of a win in the eleventh game, he offered to call it a draw, while in the next one, after carrying out a splendid, camouflaged combination, at the last moment he changed the order of moves and instead of achieving an effective win, again had to force a draw with a perpetual check.

Of course, these drawn games, from a match viewpoint, did not worsen Petrosyan's position, but the disappointment at a clever scheme's falling through can spoil one's mood. This marked the beginning of the "Spassky era" in the world title match.

Starting with Game No. 13, Boris took the initiative and held on to it for quite a while. He used different tactics. With Petrosyan's strong and dangerous tactical blows in mind and remembering the tenth game, Spassky did not work toward a swift crisis but tried to keep the situation on the board tense as long as possible. Acute play can only begin in the final stage of the game, somewhere between the thirtieth and fortieth moves, when Petrosyan is having time trouble. Meanwhile, Spassky avoids out-and-out risks.

These games give a dual impression. On the one hand, the fine strategic play of both men commands respect; on the other, it is clear that the games are being played with greater mutual caution.

Lastly, there is the nineteenth game, which opened another stage of the match, the concluding and, I might add, very entertaining, stage. Subtly taking advantage of Petrosyan's hypertrophied caution, Spassky goes on to achieve a better ending, and the world king's oversights in time trouble help him make it a winning ending. The score is tied, but psychologically it now seems that the bidder for world laurels holds the advantage. All he needs is one more point.

Naturally, giving advice is far easier than playing yourself, but it seems to me that Spassky took the wrong approach in the opening stage of Game No. 20, allowing his opponent to build up an active and sound position. In other words, Spassky was bent on getting a draw, thinking perhaps that Petrosyan, upset by the previous game, intended the same. However, Tigran racked up a fine win and once again set the challenger a difficult task. The reigning king of chess confidently and easily picked up 1.5 points in Games No. 21 and 22, which meant that he would be wearing the crown for another three-year period. That worry out of the way, the "unshackled" aspirant won the twenty-third game in fine style and drew the last.

I should add that this match was more tense than any I have seen, at least in the past decade, but to speak only of its match aspect does not do it justice. From a creative viewpoint, the world champion looked much better than his rival in this drama-packed marathon. While Spassky demonstrated his skill fully only when he defended himself in difficult situations and in the ending stage of several games,

Petrosyan was at his best in the opening stage, in strategic clashes, and in combinational complications. I believe that a comparison of the games won by the two would also favor Petrosyan. His victories in the seventh, tenth, and, lastly, twenty-second games, and his brilliant scheme in the twelfth will be remembered for a long time to come. As for Spassky's achievements, Games No. 19 and 23 merit special praise.

In Game No. 20 we see an excellent sample of the world king's training in opening systems. In a well-explored variant of the Nimzowitch Defense, which Petrosyan employed 10 years ago, he discovered a stronger continuation for White and forced Spassky to solve difficult problems on the move.

Petrosyan likewise coped handsomely with the main problem of elaborating reliable opening systems for Black. He made good use in the opening half of the match of the Caro-Kann Defense, and when it began to crack in the thirteenth game, he switched to the Sicilian Defense, and toward the end of the marathon, to the French Defense.

At the beginning of the play the positions the two men fought for reflected their respective philosophical approach to chess, their individual temperaments and lastly, simply their mood at the moment. I felt that Petrosyan was more certain more often of what he wanted.

In addition, "Tiger" was more physically fit for the grueling test. He spent his strength and energy thriftily, and in Game No. 22 there was no telling that two months of tiring chessboard warfare lay behind him.

It also seems to me that the experience of the world title elimination matches were no help to Spassky. In the past year he played three matches, more than Petrosyan had played in his entire chess career. But the difference was that these matches lasted for from eight to eleven games, while he needed quite another timetable for the world title marathon.

Psychologically speaking, Petrosyan had the advantage also. He did have the easier job, of course. He had to prepare for one rival—the strongest and worthiest of all, but still only one. Spassky had to face four Grandmasters, and he had to do a great deal of preparation for each of them. Whatever the reasons, Petrosyan managed to force the play the way he wanted.

A hot discussion developed during the match, with many high-ranking players, feeling that the standards of the title duel were not as high as they should have been. Others, on the contrary, thought that Spassky and Petrosyan played stronger than Alekhine with Capablanca. I don't want to pour oil on this fiery debate. Rather than attack Alekhine and Capablanca, I much prefer to be a defender of Petrosyan and Spassky. What gives me the right is the fact that I played on the world title stage twice and, in the course of match play, read odes and pamphlets. There is no denying it: Petrosyan and Spassky were not at the top of their form, but there are large extenuating circumstances.

They both were constantly aware that regaining lost points was far from easy, that they had many games to play, and that they had to preserve their strength for the drawn out competition. And, as a matter of fact, the string of drawn games was followed in the concluding stage of the match by wins in practically every game.

I don't think I need to prove that Petrosyan and Spassky love the game as much as their most demanding admirers. I am also certain that if it were not a battle for the world title and a case of the vanquished having to wait another three years for the next bid for the crown, we would have been rewarded with far more brilliant games by Petrosyan and Spassky.

A VERY SUCCESSFUL STAY

The Astrophysical Observatory of the USSR Academy of Sciences in the Crimea, Europe's biggest, has a worldwide reputation. In the last few months alone astrophysicists from the German Democratic Republic, Hungary, Czechoslovakia, Britain, Sweden, India, the United States and elsewhere have visited Nauchny, the mountain community near Bakhchisarai, to see the equipment, get data and make joint studies.

One such visitor a few months back was Professor Mahinder S. Uberoi of the University of Colorado, who came to the USSR under an exchange agreement between the American and Soviet academies of sciences.

Correspondent Sergei Shantyr interviewed Professor Uberoi.

Q.: What are your impressions of your stay in the Soviet Union?

A.: I'm having a very successful stay. I've visited the Moscow University, where I lectured twice to students in the Faculty of Mechanics. I've been to the computing center of the Academy of Sciences and to the Institute of Atmospheric Physics, and among the prominent scientists I've met are Academician Leonid Sedov and Professor Gorimyr Chorny, an expert on hypersonic speeds. In the Crimea I lectured at a session of the observatory's academic council on certain exact solutions for magnetohydrodynamic problems in their application to astrophysics and had an interesting talk with Andrei Severny, corresponding member of the USSR Academy of Sciences, who is the director of this observatory.

Q.: What did you talk about?

A.: Andrei Severny is a specialist on the structure of the sun's magnetic field. And I have some theories on the origin of solar flares. We exchanged views to establish closer ties between theory and observation.

Q.: Were there any differences?

A.: No essential ones.

Q.: Does that mean you did have some differences?

A.: Yes, but we were able in some degree to work them out during our talk.

Q.: What are these differences, specifically?

A.: The theoretical aspect is simpler. I suggested my own models of gas flow and configuration on the magnetic field which may result in solar flares. Professor Severny agreed generally but had partial objections based on observation. We went into detail, drew graphs and wrote equations, and this went on for a couple of hours. I met the professor several years ago in Italy at a symposium on cosmic gas dynamics, when we talked for three hours, just as fruitfully as now.

Q.: Have you visited the USSR before?

A.: This is my third visit. In August 1964 I attended a conference in Leningrad on the transfer of heat by emission in the earth's atmosphere. In the autumn of 1965 I came as a tourist. This time I shall spend four and a half months here on a very intensive program in Yerevan, Tbilisi, Leningrad, Riga, Novosibirsk and possibly Tashkent, besides Moscow and the Crimea.

Q.: What do you think of scientist exchanges between our two countries?

A.: I think it a very good form of international scientific contact. Both countries have done plenty of good scientific work, and scientist exchange helps to promote science generally.

Q.: Finally, what is your opinion of the Crimean observatory?

A.: The Astrophysical Observatory in the Crimea is a well-equipped scientific establishment which, in addition to other things, also measures the sun's magnetic field. It has an experienced staff that is doing a great deal of valuable work. I wish Professor Severny and his colleagues continued success in their scientific investigations.

Feast of the Intercession of the Holy Virgin. *Detail.*
Fifteenth century. Suzdal Museum. Restored by Adolf Ovchinnikov.
Once the most revered relic at the Intercession Monastery,
this icon was among newly discovered works of the Suzdal school.

RESTORING EARLY RUSSIAN PAINTINGS

By Saveli Yamshchikov
Art Historian and Restorer

IN RECENT YEARS many finds have been made that give us a deeper insight into the work of the old Russian icon painters. The Novgorod, Moscow, Pskov, Vladimir and Suzdal schools were characterized by their humane aspirations, their search for spiritual beauty and their variety of styles. Our study of the history of early Russian painting has been much assisted by the development of restoration techniques. Every painting freed of its dark layers of dried oil and overpainting, every new find made in the process of restoration give us priceless information about the work of the ancient Rus masters.

The old Russian icon painters made their own colors. They mixed mineral pigments with egg yolk and laid on the ground with a brush. The egg emulsion used to bind the paint to the ground hardened with the years, and the layer of paint stayed firm. When the icons were finished, however, the damp and sunless church interiors they were placed in were anything but favorable. The drying oil filmed over the surface of the painting to throw the colors into relief darkened very quickly. The smoke and soot from the candles hastened the destruction of the film coating, and in 60 or 70 years the original painting was hardly discernable.

In the old days there was no restoration in the present-day sense of the word. The church communities would commission an artist to "renovate" an icon. Sometimes, for convenience and speed, he would scrape off the old painting, thus destroying the original or, at best, paint a new image over the darkened drying oil. This renovated painting also darkened with time, and was again repainted. So that on some icons we find several paintings made at different times, with the later ones much different from the originals in technique and artistry.

Restoration demands the most painstaking care. The slightest mistake can destroy pictorial fragments irremediably.

Restorers have long been discussing the merits of simple solvents and the detrimental effects of traditional cleaning methods. Experiments made by the chemical laboratories and Department of Ancient Russian Painting of the Grabar State Restoration Workshop demonstrated the advantage of organic solvents. A case in point is the restoration of the seventeenth century icon *Sergei Radonezhsky in Life* from the collection of the Yaroslavl Museum. Its left side was cleaned by the old method, and the right side with the new organic solvents. The old method did not preserve the fine gradations of tone and highlight, the cinnabar letters and the gold shadings; the organic solvents did.

The icons of a particular school, master or period each have their distinguishing characteristics of technique and tradition. You do not find pigments of Pskov origin on the palette of the Suzdal masters. The Novgorod icon painter, accustomed as he was to thick pasty strokes, would rarely borrow the complex system of tone and shade used by the Central Russian masters. The thick uneven films of drying oil so favored by the Northern painters would have seemed crude to Moscow iconographers. These differences are very important in choosing solvents. The experienced restorer does not look for universal cleaning compounds. Laboratory experiments tell him which solvents to use in each instance to strip off the unwanted layers with least damage to the original painting.

Restoring an icon is much like archeological digging. Every brush stroke, every trace of old repair work, every bit of old repainting is a find. It fills in the gaps in our knowledge of the art of early Russian icon painting.

Often, restoration will reveal that theme and composition have been changed beyond recognition by time and the brush of later renovators. An icon depicting the fiery ascent of Prophet Ilya was brought to the restoration workshop from Pskov. This mediocre nineteenth century picture covered a superb Christmas scene by a sixteenth century master. Stripping off the overpainting turned into a unique demonstration of modern restoration techniques. The top layer was easily removed, revealing the old Pskov icon in all its original beauty.

"The more science moves ahead, the more scientific knowledge we gather, the more first-class examples of early Russian iconography we add to our collections. Restoration, the technique of disclosing original

МАЛЪ ѲИСЪНЪ
САЛЪТАСАРЪ
МАСПАРЪ

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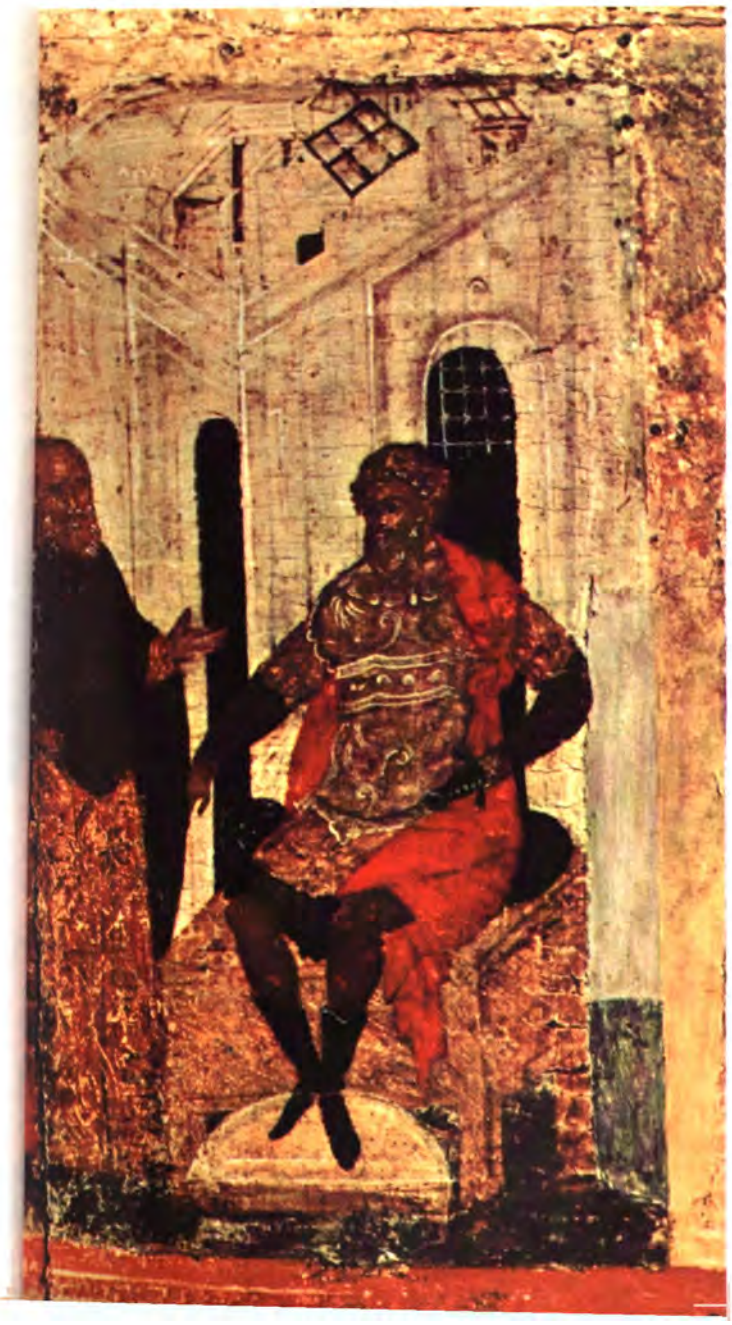

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1. ***Birth of Christ.*** *Detail. Sixteenth century. Pskov Museum. Restored by Vladimir Bazhanov. The Pskov school is the least studied of old Russian art. Only a few icons have been cleaned, which shows the special importance of a recent find of Pskov easel paintings.*

2. ***Earthly Life of Christ.*** *Detail. Fifteenth century. Novgorod Museum. Restored by Iskra Gromova. The art of Novgorod the Great is noted for its plain, strong wall, stripped of intrusive pattern, with towering silhouettes and vigorous masses painted in vivid colors.*

3. ***Life of St. John the Divine.*** *Detail. Sixteenth century. Vologda Museum. Restored by Saveli Yamshchikov. This icon furnished valuable data on the work of Dionysus, a Vologda master craftsman who had considerable influence on the local painters.*

works, is simultaneously perfected. As a result, we are confronted with new tasks and responsibilities. The most immediate challenge is to find a way of separating one layer from another. Success there would bring us a veritable revolution in the practice of restoring paintings. Just imagine the vistas that would open to us if we were able to strip off layer after layer and preserve each on a special panel instead of destroying the top layers." These words, spoken by Academician Igor Grabar 20 years ago, have not remained mere wishful thinking.

The use of solvents and refinements in technique make it possible for us to separate off a segment of a painting, or the whole painting, if it has artistic value, and transfer it to a new ground. Now there is nothing at all unusual about stripping off layers of colors from the film of darkened drying oil underneath. Even microscopic layers done in tempera and firmly bound to one another are separated by the softening solvents.

The separation method is based on the selective action of organic solvents. The film of paint is softened with a compress and a fine sheet of tissue paper pasted over it. Carefully wielding his sharp scalpel, the restorer separates off the fragment which is then pasted onto a specially prepared ground, and the dried paper washed off with warm water. This method, so reminiscent of children's picture transfers takes a great deal of training and skill.

In the collection of the Velikoustug Museum, restorers came across a large icon panel. The crude nineteenth century repainting covered an original. At first they thought that the icon had no special artistic merit. But the panel which had been shaped by an axe and fixed with hobnails showed the original painting dated back to the early school of iconography. An X-ray examination confirmed the fact. It would have been almost impossible to differentiate the several layers of the icon *Council of Archangel Michael* without the life-size X-ray print.

Museums depend upon X-ray photographs to tell them whether or not an exhibit needs restoring. The X-ray establishes the value of a work of art immediately. Before appearing on the restorer's table, an icon will be examined with ultraviolet rays and photographed in reflected infrared rays. With the X-ray prints the restorer can gauge the condition of the layer of paint he needs to strip off.

A partially restored miniature icon known as the *Quadripartite* (fourteenth century) and related to the school of Theophanes the Greek was long exhibited by the Tretyakov Gallery. The three beautifully executed scenes which had been restored stood out sharply against the dark spots of old dried oil which hid away the painting of the fourth scene, apparently for good. An X-ray photograph refuted the opinion that the original fourteenth century layer could not be disclosed. Filigree clearing of the minute fragments did the job. The whole work of a talented master was thus restored.

Ultraviolet rays and photography in reflected infrared rays are now solving many difficult restoration problems. Restorers discovered and brought back to Moscow icons painted by the Northern masters. Of special interest was an icon which had been broken in two, the parts found in different places. The naked eye could not distinguish the original painting, the film of disintegrated drying oil covering it was too black and thick. However, a photo of the painting in infrared rays showed the main details and the parts which had been destroyed.

This joint work of restorers and scholars has shown how valuable modern scientific techniques can be in filling the gaps in our knowledge of the history of art.

A POET'S THOUGHTS ON POETRY

By Yevgeni Vinokurov

TRUTH to me is an oft-pondered word with amazing depth. In Russian, at any rate, it connotes both an objective apprehension of a thing and a passionately subjective moral sensitivity. (". . . There is no truth on earth, nor is there truth on high." Pushkin.) Justice shares the abode of truth. This example of one word's breadth of meaning leads me to believe that language is no mere instrument of human intercourse but a phenomenon of infinite wisdom, pouring forth vitality and thought.

The more so poetry. Verses divested of truth turn into a vapid technicality, a rhythmic pattern, a honeycomb without the honey. Verse and poetry are two different things. There are verses from which poetry is absent. A poet's worth is in the number of "nutritive substances" in his work and not in a flair for arranging rhythmic patterns. There would be no need to repeat these common truths were not the aptitude for versification, alas, too often taken for poetry.

Poetry and Verse

There may be poetry whose essence is the rhythmic pattern alone. When that pattern is dispensed with, nothing but a void remains. It is not so with poetry that is first and foremost a perception of the world, for even when divested of its technical attributes, albeit important ones, it retains its worth.

Metrical verse may be mediocre and yet pass for poetry of a sort. But unrhythmic and unmetrical verse must have lasting worth if it claims to be poetry. Poets with a gift for versification rather than poetry create verse that is like an empty train rumbling aloud at every bend in the road. Such poets command the secret of their craft without fathoming its mystery. The technique of versification sometimes creates an illusion of depth. A trite poetic work may dazzle the indiscriminate reader with its semblance of brillance.

True poetry penetrates the very bloodstream of the reader, quickens his pulse, sends new life coursing through his veins.

I have little faith in the poet whose work finds an immediate response from the public. It seems to me if his poetry does not merely skim the surface but probes important depths in new and unaccustomed ways, it will require time to be digested.

Unfortunately the indiscriminate reader all too often prefers smooth and decorous verse and gives the cold shoulder to poetry which he cannot appreciate without straining his mental powers.

And yet what a stimulating experience it is to read poetry which strikes out for new pastures, explores new avenues, springs surprises on us, bursts forth from an unexpected direction; it is like Magellan awaited in the West and appearing from the East. Unlike the humorous sketch which penetrates in a flash, new thought in poetry needs time to be fully grasped.

The poet does not seek to communicate a fact but to reveal the philosophy and emotion behind that fact. Raw water from a running tap can flow aplenty, but it is not the sap of poetry.

In our mechanical age manual skill still prevails in one field of endeavor—in the arts. No conveyor system here!

No poet can be satisfied with being merely a recorder. He sees a fact or a happening with his own vision of the world. And, like a plane, to be in his element, he must soar and not merely taxi on the ground.

There is a Russian saying that one talks most about the things nearest his heart. I think the saying is true of all people except versifiers who talk about everything but the thing nearest their hearts. That is something they do not want or know how to talk about. They grow so absorbed in the very feat of versification that they become long-winded and lose their own personality and mission as poets in a welter of verbiage. Their verbosity is like abuse of the adjusting device of a pair of binoculars. The result is a blurred or distorted image.

Poets infatuated with the mechanical side of verse are apt to adopt, too, a mechanical attitude to the world. In our country such poets divide people into philistines and nonphilistines. They themselves claim to belong to the latter category. To them frequently a manifestation of philistinism is to lead a settled life, and of nonphilistinism to roam from place to place. The former are tied down to their worldly goods—the refrigerator, the cozy parlor—the latter prefer to race about in trains, cars or planes. But to my mind his traveling at speeds from 30 to 300 miles an hour does not turn a philistine into a nonphilistine. Philistines may themselves be put into two categories, the "static"' and the "dynamic." When I find a poet vehemently attacking a philistine. I cannot help thinking that a "dynamic" philistine is hauling his brother, the "static" philistine, over the coals.

It seems to me that the philistine's sin is a mechanical attitude, an intrinsic void, an absorption in "objects," in "the shell," and not in his fellow man's happiness or anguish. not in poetry's depth, but in the verse pattern.

Expecting the Unexpected

"The unraveling of mystery is beyond the reach of him who does not expect the unexpected."
Heraclitus

The reader picks up every new book with an air of expectancy. In a volume of poetry he rediscovers something that had long been dwelling in the recesses of his own mind, something he vaguely suspected and which now at last he is happy to find corroborated in the poet's work.

Rarely does a single poem, albeit of the highest order, reveal the poet to us. We really need to read a collection of his poems to form an opinion. A volume of collected works is a test of the poet's integrity. If the separate poems, though satisfactory in themselves, are like a crowd of strangers, jostling, disturbing and contradicting each other, the volume reveals a lack of integrity. But when the poems are not disjointed and fall into one harmonious picture, we know that they are cemented by the poet's personality.

Every poet lives in a world of his own. This distinguishes him from other poets. We do not judge a poet by a single work but by the depth and originality of his world. When we open a volume written by a great poet, we open the door to his world, a three-dimensional world, as true as the world in which we live.

The world of the mediocre poet is flat.

To create his world, the poet does not have to pile up one prodigious work on another. The long poem is too often born of an ocean of vanity and but a drop of inspiration. A short poem, on the other hand, may contain a wealth of meaning, be a miniature from which genius springs.

A floundering poet is beyond redemption. Faith in his taste is all-important to the poet, for taste is his compass, without which to undertake a voyage is to court certain disaster.

The Narcissan poets infatuated with their own image and the poets deeply concerned with universal problems are engaged in a mute dialogue, calling to mind what Bernard Shaw said about poets talking among themselves and the world eavesdropping on them.

Poets think in terms of music and painting. Their verse may be likened to painting in motion and music in thought. They admonish rather than preach. Pushkin, for example, achieved an ideal harmony of three elements: thought, rhythm and music. There are, however, many distinguished poets whose work is dominated by but one of these elements.

The rejection of metrical verse by many Western poets seems unjustified to me. Meter has a self-disciplining effect and can be of great assistance to the poet in projecting his thought.

The best poetry rests on the solid brickwork of precise and meaningful language and perfect balance of phrase in which not a single attribute can be exchanged for another. But when verse lacks that deep harmony, it can be likened to a meccano in which one part can easily be substituted for another and the lines lengthened or shortened at will. Its worth is then merely in the number of felicitous lines. It is a brickwork in which part of the masonry lives at the expense of the whole structure.

The charm of verse is in its undercurrents, in its depth. I like an elliptical end so that I can supply the final line myself and turn the poem into a parable.

A puritanical stiffness in the verse sets me on guard. And the question of simplicity in the style of poetry is not simple at all. Diversity of poetic figures and idioms cannot be reduced to mere intrinsic embellishments. To dispense with such elements as metaphor, hyperbole and simile is to bleed the verse white. Nor can this be compensated for by terseness or conciseness of style. Terseness in poetry is more akin to the perfectly timed grace of the dance than to the efficient economy of movement practiced by the porter in delivering a suitcase from point A to point B.

The great poets were not only painstaking craftsmen, excelling in their art. Emotional exultation was the vehicle of their art. They were not guided by common sense but wrote with all the power of their reason, with their whole beings. The greater the poet, the more profound have been his thoughts and emotions. Many of them wrote hundreds of years ago, yet their poetry still delights and inspires us. However, it is often to the poets of our own time that we turn with a tremulous expectancy, a vague hope that here at last we shall find the answers we seek.

The Poet's Individuality in Poetry

We accept as a matter of course many great new ideas in science because we have been prepared for them by centuries of thought. The most obvious fact often escapes our notice because its very obviousness prevents us from fully grasping its significance.

It is the same with poetic ideas. We strike upon a new thought during that lucid moment when we break through the armor of our habits of thinking.

No true artist is out to startle his readers by novelty at any cost. He wants to be true to himself—and to do that is a feat in itself. Édouard Manet, the founder of Impressionism, a movement which brought a new Renaissance, wrote this about himself for the catalogue of an exhibition in 1867:

"Monsieur Manet had no intention of protesting. On the contrary, others protested by taking sides against him. . . . Monsieur Manet always recognized talent where it was and never claimed that past art should be destroyed or 'new' art created."

It sometimes seems that a poet does not write new verse but merely rediscovers what has already been written before him. His task is only to polish this old verse so it sparkles. The poet therefore must be extremely sensitive to reality, to the essence of things. He must react honestly and subtly at the same time.

When there is living personality in the poetry, that must be apparent in its development. There are poets, however, whom we can see only in profile. Once they assume that position, they keep it to the end of their lives, so that we do not know if the other side of their face exists at all.

There are half-dazed poets who indulge in endless verbiage, groping in the dark with never a beam of light in sight.

Imagine a friend phoning you in the middle of the night, imploring you to meet him at a certain street corner because he has something urgent to tell you. You dress, get out into the snowy street, and reach the appointed place to discover that his only business with you is to show you a snapshot of himself taken at a summer resort. You are infuriated, just as one is on reading an insipid poem that in no line lives up to one's expectations.

Every form of art is made up of two components—the soul, and the art itself. Poetry is that art in which there is more "soul" and personality than "art."

In other words, every art presupposes *instruction*, which can be measured and planned, and the psychic side, which is the peculiar makeup of the artist himself. In music, ballet and painting the role of "art" is extremely important. We therefore have music schools and conservatories, art studios, schools and institutes.

For poetry there is nothing of the kind. It is almost impossible to teach one to write poetry. In poetry techniques do not count as much as they do in other arts. The poet is a self-created artist. His art knows no counterpoint, law of perspective or anything like the Stanislavsky method. The poet has nothing to fall back upon outside his own individuality—no musical instruments, no brushes, paints or canvas, no makeup, costumes or stage.

Along with meaning, an important element in poetry is music. There can be no poetry without musical language. "There is far more to the beauty of sound than those who are unfamiliar with poetry think," wrote Gogol.

Rhythmic language, the flow of words, the intonation, the power of alliteration, the pause and the inverted sentence compose the magical effects which so charm and enchant the reader of poetry. The polyphonic sound of certain verses that is akin to the music of the organ can stir the reader deeply and induce a mood without which the most profound verse will fail to impress.

In every genuine poem there is a melodious interplay of sound which gives tangible form to the meaning. But musical language alone is a poor substitute for real poetry. And the writer of verse which pleases only the superficial reader should recall Gogol's words—"A writer who toys with words does so at his own peril."

POWER FROM THE SUN

Science correspondent Boris Belitsky interviewed Academician Lev Artsimovich, the leading Soviet authority on controlled thermonuclear fusion, on this research that seeks to harness the H-bomb reaction for man's peaceful power requirements.

ACADEMICIAN LEV ARTSIMOVICH, 57, has been working on controlled thermonuclear fusion for 15 years, ever since the problem was first posed. A graduate of the Leningrad Physicotechnical Institute, he is—like Pyotr Kapitsa, Nikolai Semyonov, and so many other eminent Soviet scientists—a pupil of Abram Yoffe. He has been a member of the Soviet Academy of Sciences since 1953, is a Lenin Prize winner (1958), took part in the 1964 Geneva Atoms-for-Peace Conference, is active in the Pugwash movement of scientists for international peace and cooperation, and was this year elected to honorary membership in the American Academy of Arts and Sciences.

Throughout these 15 years he has been studying that highly elusive state of matter which is known as plasma. The first questions I asked him were therefore about plasma—what is it, what are its properties, and what are its uses?

Academician Artsimovich defined plasma as a highly ionized gas. This state of matter is most widespread in outer space. Our own sun and the countless other stars are gigantic masses of superhot plasma. The earth's ionosphere, which makes possible the propagation of radio waves over great distances, is likewise an envelope of plasma. Further, beyond the ionosphere, lie the radiation belts, layers of plasma containing highly charged particles. These are now regarded as one of the chief hazards in manned space flights to the moon and planets.

Practical application has always been the dominant stimulus in plasma research. At first plasma was of interest to physicists as a conductor of electricity and as a source of light and heat. It was these properties that accounted for its applications in electrical engineering (in discharge tubes, rectifiers, and so forth).

Today the prospect of controlled nuclear fusion has elevated plasma to what Artsimovich described as a "high pedestal."

Controlled fusion would open the way to harnessing the practically inexhaustible sources of power in the nuclei of the lightest chemical elements. Deuterium, which can be obtained from ocean water, is one of the types of this new nuclear fuel that would solve all of man's power problems for the next million years and more.

But to kindle the controlled fusion reaction in deuterium, the substance must be heated to a very high temperature, on the order of hundreds of millions of degrees. Only then can the deuterium nuclei, on encountering one another, overcome their mutual electrostatic repulsion and react. The problem of controlled fusion can therefore be solved only by devising methods of obtaining a high-temperature plasma and of conserving its thermal energy.

And this, the academician said with a smile, is where the snag lies. It is not easy to produce an artificial sun in the laboratory and even harder to contain it. As far as the theoretical aspect of the problem is concerned, there is substantial progress to report; experimental work is not nearly so advanced.

Asked what the major difficulty is, he explained that the high-temperature plasma, once obtained, has to be insulated from the walls of the vessel containing it. Otherwise, the enormous thermal conductivity of the plasma would make it impossible to heat it to even a temperature of several hundred thousand degrees, since all the energy imparted to it would immediately be transferred by its swift-moving particles to the walls. A very efficient method of heat insulation is needed to prevent contact between the plasma and any surrounding substances. This means the plasma has to be enclosed by a vacuum.

But how can the plasma be kept from expanding into the vacuum? Only by magnetic heat insulation, a principle discovered by physicists working independently in the Soviet Union, Britain and the United States. The plasma, it was found, can be kept from expanding only by means of a strong magnetic field whose lines of force surround the plasma on all sides. If the lines of force are parallel to the boundaries of the plasma, the field creates something like an invisible barrier through which the charged particles cannot escape. Without such magnetic heat insulation it is futile to attempt to heat the plasma to a high temperature.

I asked the academician to describe some of the practical embodiments of this idea. He said that many devices have been suggested. Roughly, they can be divided into two types. The first are the so-called open magnetic traps, in which the plasma is confined in a certain region of space inside a magnetic field with open lines of force. The containment of the plasma in such a trap is based on one of the laws of the movement of particles in a magnetic field. Charged particles traveling along the lines of force are reflected from regions of higher field intensity, which act as magnetic mirrors in this case.

The second type are magnetic systems of "doughnut" shape with closed-ring plasma cords. In Britain the Zeta assembly was such a system. Incidentally, throughout all the excitement over Zeta in Britain in 1957-58, Artsimovich insisted that the neutrons registered were *not* evidence of a thermonuclear reaction. He had dashed similar false hopes in his own laboratory as far back as 1952.

The plasma is a most capricious substance and seeks in every possible way to shake off the fetters of magnetic heat insulation and to escape from every kind of magnetic trap. Therefore the major problem today in the physics of high-temperature plasma is devising methods to deal with plasma instability. Experiments have confirmed theoretical predictions that the specific form of plasma instability observed in the simpler open traps can be eliminated by somewhat altering the structure of the magnetic field. The magnetic field intensity should rise in every direction from the region occupied by the plasma. Experiments with magnetic systems satisfying this condition were carried out in the Soviet Union in 1961-63. The experiments made it possible for the first time to achieve the stable confinement of the plasma heated to about 40 million degrees (concentration of particles 10^{10} per cm^3) for 0.1 second.

Asked about Soviet experiments with "doughnut" traps, Academician Artsimovich said they had been going on for some years. By means of a series of consecutive improvements in the design of the installations, the temperature and life span of the plasma has gradually been raised. At the present time, in the Tokomak assemblies of this type, it has been possible to obtain a plasma without signs of pronounced instability that has a maximum electron temperature of 8-10 million degrees and survives for several milliseconds. In this interval of time every electron in the plasma covers a distance of several dozen miles, that is, manages to travel the length of the chamber tens of thousands of times.

Academician Artsimovich believes that it will be possible to increase the temperature and life span of the plasma in closed magnetic traps considerably more. "We are," he said, "making steady progress and overcoming the obstacles nature has placed in our path. It would be wrong to underestimate what has been accomplished. In our laboratories we are now able to produce "solar substance," but it is not yet dense enough and cools too quickly. Once these difficulties are overcome, humanity will have a man-made sun to satisfy all its power requirements."

The scientist also mentioned one other possible breakthrough of plasma physics into the engineering of the future—a plasma engine for spaceships on distant flights. A plasma engine is a device ejecting a stream of plasma into space at a very high velocity (tens or even hundreds of times greater than the velocity of the jet in engines using chemical fuel). Since for one and the same thrust fuel consumption is inversely proportional to the velocity of the jet, plasma engines are far more economical than the conventional types. This is a very important factor in long-distance flights that involve prolonged maneuvering in space.

CRAFTSMEN, ONE AND ALL

By Konstantin Semyonov
Photographs by Igor Vinogradov

IN TRANSCARPATHIA a boy will generally learn to use a chisel earlier than a pencil. A first-grader told to draw a bird or a cat is likely to carve his first sketch on birchbark.

Visit a Transcarpathian home and you will invariably find hand-decorated dishes and ashtrays, vases and boxes. Ask your host where he got them and chances are he'll tell you the work is his or his father's or his son's.

Mikhailo Tulaidan, a well-known Carpathian craftsman, showed me objects carved by his father, grandfather and great-grandfather. When I admired the workmanship, he said:

"It's not nearly so hard to carve as to see."

To see, he wanders through woods and meadows and observes the fanciful patterns made by the trees and bushes, their play of light and shade.

"Where did this come from?" I asked, pointing to a painting on the foot of a vase.

"The green and silver comes from leaves coated with hoarfrost."

"And this drop of blood here?"

"It was a berry that held out until wintertime," he told me. "It stood out beautifully against the sky and curling leaves. So I put it down that way."

It is not surprising that so many of the young people of the region study at the Uzhgorod School of Applied Arts. The school also draws students from Armenia and Azerbaijan. It has an enrollment of 200 and offers courses in carving and inlay, ceramics and fresco.

Carpathian craftsmen also do interesting work with tree roots, as a hobby. They carve the gnarled wood into animals and plants. Each object is unique, the pattern depending on the shape of the root itself. That is true of all their creations—the wine goblets, caskets and figurines are all individual. No piece is like another, though it is made by the same hands. That's craftsmanship!

MAXIM LITVINOV

By Academician Ivan Maisky

MAXIM LITVINOV, who would have been 90 years old on July 17, 1966, was one of the Soviet Union's most distinguished diplomats. A man of great wisdom and foresight, strong-willed and enormously energetic, he had a very clear understanding of the international situation and a realistic awareness of the conflicting forces that lay beneath the surface. He was capable not only of planning a diplomatic move but of skillfully carrying it through, utilizing every favorable social, political and personal factor. His discerning grasp of the psychology and aims of his opposite numbers in negotiations enabled him to present arguments they found impressive. As head of the Soviet diplomatic service for many years, Maxim Litvinov was responsible for the success of several diplomatic projects of major importance.

He did not enter the diplomatic service until late in life. In his youth he was a revolutionary, one of Lenin's first pupils and followers; and he remained true to Lenin's precepts to the end of his life. He played an active part in the First Russian Revolution of 1905. After it was crushed, he spent almost 10 years in exile abroad, chiefly in England.

His diplomatic career began unexpectedly. The Soviet Government, with Lenin at its head, was founded November 8, 1917. On January 4, 1918, Litvinov, who was still in England, received a telegram from Petrograd informing him that he had been appointed to represent the Soviet Government in Great Britain. Although the two countries had no diplomatic relations at the time and Britain was actually waging a secret war against Soviet Russia, Litvinov immediately announced his appointment to Foreign Secretary Arthur Balfour. That put Balfour in a difficult position. Several days later, however, he replied that he was prepared to maintain contact with the Soviet representative de facto through a specially designated official of the Foreign Office. The official was Rex Leeper, later to have a brilliant diplomatic career. Leeper turned out to be an acquaintance to whom Litvinov had given Russian lessons.

There is a simple explanation for Balfour's courteous attitude. Sir George Buchanan, the British Ambassador to the czarist government, had been recalled, and Prime Minister Lloyd George wanted to send a younger man of lower rank in his stead. Litvinov's appointment to London made that easier for him to do. Soon afterward, on January 14, 1918, Robert Bruce Lockhart, the former British Consul in Moscow, who had returned to London some months earlier, left for Russia.

Meanwhile, Litvinov had embarked on a vigorous program aimed at maintaining peace among all nations and, first and foremost, between Britain and Soviet Russia. Peace was a basic tenet of Lenin's teaching and a cornerstone of the Soviet Government's foreign policy.

On September 3, 1918, Robert Bruce Lockhart was arrested in Moscow for counterrevolutionary activity. In reprisal the British Government arrested Litvinov on September 6. He was confined to Brixton Jail. All contact between London and Moscow was broken off.

The British Government wanted to exchange Lockhart for Litvinov. Leeper came to see Litvinov in prison and asked him to communicate with Moscow on how this could best be done. "If you want me to communicate with my government," responded Litvinov, "you will have to set me free. I refuse to send any telegrams to Moscow from jail." Several days later Litvinov was released, and shortly thereafter he was exchanged for Lockhart.

The idea of peace which inspired Litvinov's work in England underlay all his later diplomatic activity.

In 1919-1920 Lenin sent him to Copenhagen to negotiate an exchange of war prisoners with the British representative, Labor M.P. James O'Grady. It was a difficult assignment since relations between the two countries were very strained. What is more, there were very few British prisoners in Russia and a great many Russian prisoners in Britain and other countries of the British Empire. Litvinov conducted the exchange talks masterfully. Not only were all the Russian prisoners released, but the British Government agreed to send them to Petrograd at its own expense and with a shipload of food.

Subsequently Litvinov conducted Anglo-Soviet talks leading to a provisional trade agreement between the two countries, signed in London in February 1921. The agreement had more than economic importance. It played an important political role by breaking the diplomatic blockade with which hostile forces had ringed the young country.

Aware of Litvinov's extraordinary diplomatic abilities, the Soviet Government decided to utilize his talents in foreign affairs exclusively. On his return from Copenhagen, he was appointed to a high-ranking post in the People's Commissariat of Foreign Affairs, and carried through a number of major diplomatic missions.

In December 1922 he presided at a disarmament conference in Moscow. The conference yielded no direct results because of the attitude of the Western participants, but it did demonstrate clearly the spirit of peace that characterized Soviet foreign policy.

Litvinov first went to Geneva in 1927 as a member of the League of Nations preparatory disarmament commission. For the next five years he waged a long and stubborn struggle, first in the preparatory commission and then at the world disarmament conference, for complete disarmament, and when that was rejected by the conference, for partial disarmament, which was also not accepted by the Western powers.

Although Litvinov's work in Geneva produced no practical results, it had great political significance. It showed the world that the Soviet Union was a consistent champion of peace.

At the end of 1928, on the initiative of U. S. Secretary of State Frank Kellogg, a pact renouncing force in international relations was signed by many states. Since some of the states delayed ratification, Litvinov on December 29, 1928, proposed to Soviet Russia's Western neighbors that a special protocol be concluded for the Kellogg Pact to take effect ahead of time. Despite resistance from reactionary forces in those countries, Litvinov's efforts were successful. In 1929 the Moscow Protocol, as it came to be called, was signed by the USSR, Poland, Lithuania, Latvia, Estonia, Turkey and Iran.

In 1930 Litvinov was made People's Commissar of Foreign Affairs.

The establishment of diplomatic relations with the United States in 1933 was an event to which Litvinov made a major contribution. He was sent to Washington after President Franklin D. Roosevelt proposed that the Soviet Government appoint its representative. The negotiations were far from smooth, but all obstacles were finally overcome, and the two sides exchanged ambassadors.

In 1934 the Soviet Union joined the League of Nations. This had been a long and involved process since there were opponents of Soviet membership in the League. Litvinov had acted with great skill and tact, and the Soviet representative took his rightful place as a permanent member of the League Council.

In the mid-thirties "Western security" was a concept very popular with the ruling circles of Britain and France. The idea was to provoke war between Nazi Germany and the Soviet Union and then, after both sides had been weakened, dictate peace terms advantageous to Britain and France. The Soviet Government vigorously fought the idea. Litvinov showed conclusively that no matter where a war started, it would inevitably grow into a world war. His famous phrase, "peace is indivisible," became the slogan of all advocates of peace and progress.

In May 1939 Litvinov was relieved of his duties in the People's Commissariat of Foreign Affairs. Soon after Germany attacked the Soviet Union, he was appointed Soviet Ambassador to the United States, where he cooperated with President Roosevelt in consolidating the antinazi coalition.

Upon his return to the Soviet Union in 1943, he was appointed Deputy People's Commissar of Foreign Affairs and helped to draft the terms of Germany's unconditional surrender.

Litvinov died in Moscow of a heart attack on December 31, 1951. On his death bed he told this writer:

"If I recover, I shall ask the Soviet Government to use my energies and experience to resolve international tension and, first of all, to improve relations between the Soviet Union and the United States. I would like that to be my swan song."

Fate decreed otherwise. Nevertheless, Maxim Litvinov is a man we shall always remember as a courageous fighter for peace and world security.

Winter PHOTO OF THE MONTH **by Yan Tikhonov**

Passion with Order

THIRD INTERNATIONAL TCHAIKOVSKY COMPETITION

By Natalia Lagina
Photographs by Oleg Tsesarsky and Yevgeni Umnov

THE late Soviet pianist Henrich Neuhaus wrote in one of his last articles:

"In the First Tchaikovsky Competition stormy emotions reigned. The second gave us food for thought. The future alone will show what the third will yield."

The future of which he spoke is now the past. In what way did the third competition differ from the two preceding ones?

Introduction

The First Tchaikovsky Competition, held in Moscow in 1958, was for pianists and violinists alone. Four years later, cellists joined in, begetting what Gregor Piatigorsky, Pierre Fournier and Mstislav Rostropovich called a "renaissance of cello playing." The third competition featured vocalists as well. Who knows but that conductors, ballet dancers and chamber orchestras will contend in the coming contests?

To cite a few figures, in 1958 there were 61 musicians from 22 countries competing, in 1962 there were 160 from 33 countries, and in 1966 some 250 from 36 countries. Each new contest has been highlighting new names, individualities and interpretations of familiar pieces, let alone hope for a new Van Cliburn.

The repertoire of the latest competition was built to give the entrants every chance to display their talents, the range ran from Locatelli and Bach to Stravinsky and Shostakovich. And though Tchaikovsky remained the heart of the program, the contest did not reduce itself to a bout among interpreters of the great Russian composer. Tchaikovsky, however, proved to be the "hardest nut" to crack for the pianists, violinists, cellists and singers from both the foreign countries and the Soviet Union.

Still another requirement tended to make the Tchaikovsky Competition a really international event. Each contestant had to perform the work of a modern composer of his own country, thus introducing listeners to such composers as Samuel Barber, George Gershwin, Mitio Miyachi, Marcel Rubin, Lukas Foss and Aaron Copland.

The Tchaikovsky Competition placed ultramodern pieces on a par with the classics. There were elements of the dodecaphonic (Vyacheslav Ovchinnikov's *Sonata* and Arno Babadjanyan's *Poem*), of atonality (Gennadi Banshchikov's *Four Instants*), and of pointillism (Andrei Eshpai's *Sonata* and Nikolai Peiko's *Triptych*). These pieces, written especially for the competition by Soviet composers, were included in the obligatory part of the program.

The 1966 contest also differed from the two previous ones in the many 20-year-olds who took prizes.

Fugue on a Theme of Strings

"Instrument playing is the movement of fingers, and the performance the movement of the soul." These words by Anton Rubinstein have become the unwritten criterion for judging performance.

The contestants who appeared before the jury and Moscow's audiences divided themselves into two groups: the virtuosos and the artists. There were more virtuosos than artists, as is natural. "Nowadays young musicians ripen more quickly as virtuosos than as artists," David Oistrakh has said.

Very few of the contestants were insufficiently prepared technically. The same can be said of their artistry. As a matter of fact the "bouquet of talents" was so large this time that the jury was actually nonplussed, and an eminent musician said that he would never dare to vie with such strong competitors as these young people from 36 countries!

The battle was fiercest among the violinists: Oleg Krysa with his deep intellectuality; Charles Castleman with his exceptional virtuosity and warmth; Erich Fridman with his refined artistry; Oleg Kagan with his poetic exaltation; Masuko Usioda with his lyricism; the 16-year-old Yekko Sato and Emmy Verhey with their strong dynamic styles; Victor Tretyakov with his fiery emotionality; and Nikolas Chumachenko of Argentine with his subtle romanticism.

None were alike. Each displayed his highly individual approach toward music, his own style and personality. This quest for one's own understanding of music is notably characteristic of our time. It could be sensed in everything the young musicians played. Of course, only those who proved capable of harmoniously expressing all three of the major components of performance—intellect, emotionality and consummate technique—reached the final stage of the competition. They were Tretyakov (first prize), Usioda and Kagan (second), Sato and Krysa (third), Chumachenko (fourth), Fridman (sixth), Castleman (eighth) and others—14 in all, instead of the expected 12.

Finland was among the new countries represented in the cello competition. Second prize went to its Arto Noras. Here, too, as with the violinists, there were more prize and diploma winners than the Organization Committee had planned for.

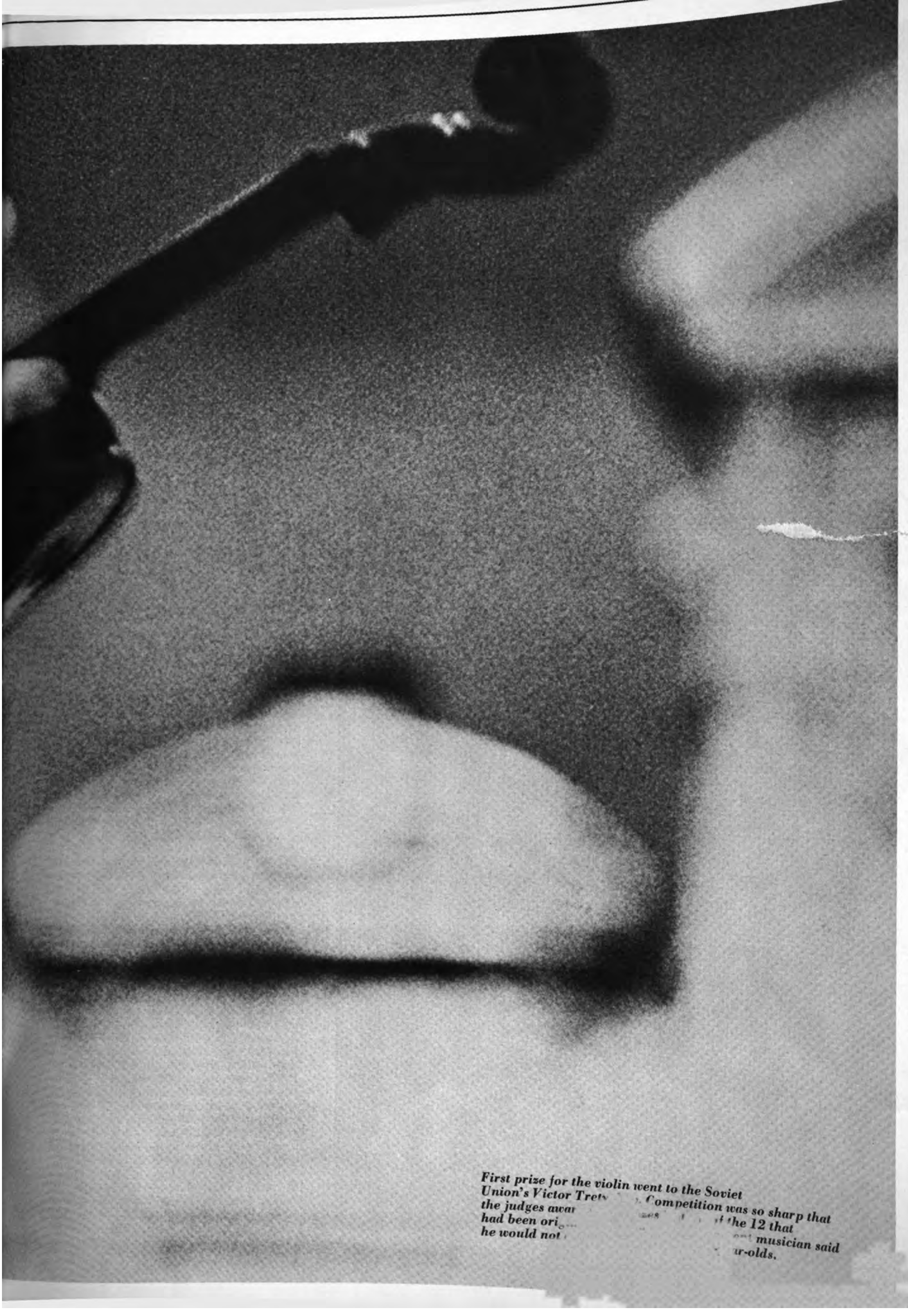
Gregor Piatigorsky brought three of his interesting pupils to Moscow—the impulsive Stephen Kates (second prize), the elegant and charming Nataniel Rozen (diploma winner) and the philosophical Lorents Lesser (fourth prize).

From the very first round Mstislav Rostropovich's 22-year-old pupil Karine Georgian of Armenia stood out for her rare taste, superb technique and lyricism. She took the first prize in the cello competition.

Piano Solo

The violinists and cellists moved from one round to the next more or less smoothly, but the pianists' progress to the finals was most dramatic.

Young musicians, 250 of them from 36 countries, including the United States, competed for international honors before large audiences and a distinguished panel of judges. Those who could not get into the concert hall, and there were many, had to get along with car radios.



First prize for the violin went to the Soviet Union's Victor Tret[illegible]. Competition was so sharp that the judges awar[illegible] of the 12 that had been ori[illegible] musician said he would not [illegible]r-olds.

Jane Marsh of the United States was a first prize winner for voice. This was the first Tchaikovsky contest in which vocalists competed. Her rendition of Tchaikovsky's romances and "Tatyana's Letter" from* Eugene Onegin *were called sensational.

The measured rhythm of the competition was broken, by *Sturm und Drang*, flights, falls and surprises. Of the 70 contestants only 28 reached the second round, and 14 the third and last. It was the pianists who provided the greatest number of virtuosos—"angry young men and women"—whose playing was at times reminiscent of the smooth operation of a rational electronic computer. One felt like reminding many of those who appeared on the stage of the wise words of the French cellist Pierre Fournier, "A musician should confess his feelings without insulting technique." Nobody forgot about technique. But some did forget about feelings, letting themselves be carried away by rhythms, tempos (often freely interpreted) and flageolet tones.

But the "electronic" players dropped out after the second round. It became clear that four musicians contended for first place: Misha Dichter of the United States and Victor Yeresko, Nikolai Petrov and Alexander Slobodyanik of the Soviet Union. Yeresho played Tchaikovsky's *Russian Scherzo,* and Liszt's *Mephisto Waltz* and First Concerto best. Slobodyanik staggered the audience with his rendering of Liszt's *Wilde Jagd* and Chopin's *Fantaisie-Impromptu.* Petrov was a veritable fireworks with Stravinsky's *Petrouchka,* Ravel's exotic *Gaspard de la Nuit,* and Babadjanyan's colorfully contrasting *Poem.*

As for Misha Dichter, he combined everything—lyricism, fervor, charm and conviction. After the first round, the name of the 20-year-old musician was on all lips. Everybody awaited the third and decisive round. The tension was great, for the chances of the four leaders were almost equal.

Suddenly, a whole series of surprises turned the tables. Petrov hurt his hand and dropped out of competition. Yeresko, who gave a splendid performance of Liszt's First Concerto, slipped in Tchaikovsky's Concerto. Slobodyanik, who had played Rachmaninoff's Third Concerto brilliantly, was less successful with Tchaikovsky's First. For the first time his flawless technique let him down. His nerves gave way.

Misha Dichter was terribly agitated. He was also very tired. This, besides, was his first competition of the kind, and he had had very little experience playing with orchestras. The technical faults of his rendition of Tchaikovsky's First Concerto were too clearly manifest; how explain his brief improvisation in the first movement? The jury was dismayed, and the audience upset. But soon everybody forgot the *faux pas.* The poetic thought, sincerity and depth of content of each sound were completely convincing; this was a very talented musician playing. Though his interpretation of Beethoven's Fifth Concerto was unusual, it persuaded the skeptics. As the critic of *Komsomolskaya Pravda* wrote:

"We heard a new Fifth Concerto. Dichter rendered it less heroical than philosophical, pensive, with extraordinary depth. The performance was greatly self-denying. We were made to feel Beethoven's power not in the thunderous claps but in the ideas. It was the power of ideas, the power of the spirit. . . ."

Although the jury gave a high rating to the American musician's performance, awarding him second prize, it was a pity that at the end Misha Dichter was not at his best. Two of his compatriots made smoother prog-

ress—the elegaic-minded Edward Auer and the "frenzied" James Dick, both of whom won fifth prize and the sympathies of the Moscow audience.

In contrast, there was a pianist who passed the first two rounds at a high enough level to top it off with a brilliant performance in the third, overwhelming those who had heard him last year at the All-Russian Pianists Competition (first prize), and later at the All-Union Contest (second prize)—Grigori Sokolov. This 16-year-old, ninth grade student at the Leningrad Conservatory's Music School is more than a consummate virtuoso, he is a great talent, radiant and energetic. In the third round of the contest he excelled in Tchaikovsky's First Concerto and gave a superb rendering of Saint-Saëns' Second Concerto. The jury unanimously handed him the gold medal.

While congratulating Grigori Sokolov on his victory, however, we cannot but wish him a deeper "problematic" approach to music. His triumph at the contest is a promise of future victories, but time alone will show whether the jury was right in giving first place to the 16-year-old boy. However, it has been said that the main thing in art is perspective. Sokolov, Dichter, Georgian and many other winners and less fortunate participants in the Tchaikovsky Contest have this perspective.

Vocalists and Coda

The competition for vocalists was very interesting. The jury, headed by Alexander Sveshnikov, Rector of Moscow Conservatory, was in difficulty, for it found itself confronted by a great number of participants (68!) of various degrees of training, diverse timbres and ranges, and by problems of chamber and opera ("quiet" and "loud") singing. Here, alas, there were far fewer gifts than the instrumentalists displayed.

Though the jury lowered the marks from 18 to 17, it would not lower its demands. Of six women only three, and of six men only five, received prizes. All the more meritorious was the victory of the 24-year-old American Jane Marsh whose rendering of Tchaikovsky's romances and "Tatyana's Letter" from *Eugene Onegin* was sensational, it earned her a gold medal. In general the American vocalists gave the best performances, but none of them took advantage of the power of sound as did some of the Soviet and Bulgarian singers. Other gifted singers were Veronica Tyler (second prize), Simon Estes (third prize) and Barbara Rondelli (diploma winner). The Soviet winners were Vladimir Atlantov (first prize), who has a dramatic tenor voice of rare beauty, Maria Bieshu (third prize), Nikolai Okhotnikov (second prize) and Vaclavis Daunoras (fourth prize). But the prizewinners and other participants in the vocalist competition alike showed that they were still on the way to mastering vocal discipline, technique and repertoire.

To conclude with the words of Gaspar Cassado of Spain:

"A competition is not merely a form of rivalry, but also a resuscitating spring giving rise to new artists and the stimulus for perfection."

(Top) Misha Dichter (USA), second prize for piano. (Above) Vladimir Atlantov (USSR), a first prize for voice. (Above right) Karina Georgian (USSR), first prize for cello. (Right) Veronica Tyler (USA), a second prize for voice. (Below) Grigori Sokolov (USSR), first prize for piano.

LETTERS TO THE EDITOR

Dear Sir:

. . . Why should I write critical letters to you? I'm tired of my country's propaganda, that Russia is a dreadful and backward place to live. It gives me immense satisfaction to discover that the Soviet Union, too, is living in the twentieth century! That the populace doesn't gather mushrooms in the heart of Moscow....

What do I care if your articles often read like a ninth grader's composition. I think 97% of your art is abominable! If you want to glorify and adore Hemingway, that's up to you. Am I to criticize you because your life is not a duplicate of our exemplary civilization? Because your rationale often conflicts with ours?

Two civilizations as dissimilar as the United States and Russia do not lend themselves easily to comparison, much less to criticism. To criticize, one must judge and define according to certain standards. We do not work with mutual semantics and it strikes me as unethical to ignore this fact and to use our own values and standards as a measurement of your country, regardless of negative or positive results.

When I read your magazine, I do it to understand better our differences. When the contrasts disappear, so will my interest, and then will arise my censure. Please, always remain different, intriguing and individualistically Russian!

Sincerely,
Mrs. W. J. Fries
Indiana, Pennsylvania

This letter is in response to a reader in Armenia, Mkrtich Gevorkyan.

Soviet Life strives to promote good will and understanding between our two countries and welcomes any constructive criticism and discussion of its articles.

Editor

Gentlemen:

The August 1966 issue of SOVIET LIFE—Man and Nature—is superb. To the naturalist it offers an insight into the fauna of a great part of the world. The wealth of information presented should enlighten each of your readers on the tremendous strides being made in the field of conservation in the Soviet Union.

I hope that in some future issue of SOVIET LIFE you might be able to present additional photos and information regarding the rarer animals and birds, and measures being taken to preserve them.

Yours truly,
Leonard L. Lorge
Ishpeming, Michigan

THE OLD WOMAN AND THE SEA

WHENEVER you pass her house, in the evening or early in the morning, there she is, an old woman as big as a man, sitting on her porch. Though she has a long name—Tiina Miina Linda, nobody ever calls her by a shorter one. It is always Tiina Miina Linda.

Every afternoon last year she sat on a bench in front of the post office and waited until everybody had picked up their mail. Only then did she go up to the door, leaning heavily on her cane, and stop there. And though she asked no questions, she was told:

"Nothing for you today."

The next day she came again. And the day after . . . .

Once I asked the post office clerk:

"Is she waiting for letters?"

"Yes, for 13 years now."

"And does she still go on hoping?"

"Yes. She has two sons somewhere."

"No news of them?"

"No."

This summer she no longer turns up at the post office. She just sits on the porch of her empty house eaten away by rot and termites, surrounded by thickets of goosefoot, yarrow and brier rose.

Everything is blooming.

The gray rocks lie close to one another on the beach, and all around their cold bodies wild strawberries blossom.

The sea is also ablossom. Its deep-blue lap is full of fragrant blossoming isles that rock on the waves.

Tiina Miina Linda knows all that very well, but she is angry at the sea and now sits with her back to it, her chin resting on the gnarled juniper cane.

She does not want to watch the gull stalk the smooth surface of the sea and drop down onto the water like a stone to snatch up its victim and soar into the blue again. Or to see the purple and white potato furrows that run right up to the sea.

She does not want to look at the sea and will not go to the post office any longer.

"Why?" I ask the telephone girl. "What has the sea done to her?"

"She says it ruined her sons."

"Are they dead?"

"For Tiina Miina Linda they are."

"Did she get the sad news?"

"Yes. Both sons are married to rich Swedish girls. One owns a cheese store, and the other a hat shop."

"Did they write to tell her that?"

"No. She hasn't received a single letter from them. And she doesn't want to receive any. She just shook her thick juniper cane at the sea and turned her back to it."

I pick up my mail and start home. The sky is gloomy, and the sea gulls cry and wail like children. I stop to watch shaggy little Rolly getting his sea bath. He pulls back with his hind legs planted in the ground, like a goat. The dog's face is sad and helpless. Step by step, he is dragged into the sea on a rope, and now stands anchored in the water, the very incarnation of misery.

But on the way back home, to land, he bounds gleefully, rejoicing that it is all over.

Tiina Miina Linda sits with her back to the sea and does not see how happy Rolly is to return to land.

Lightning flashes over the sea like knives. The sky is full of booms and rumbling. The storm clouds spread open, and rain comes pattering down onto the leaves. There is not a single bird in the sky—the rain would have beaten it to death, but from the potato patch, so purple and broad, comes the smell of honey, especially strong just now.

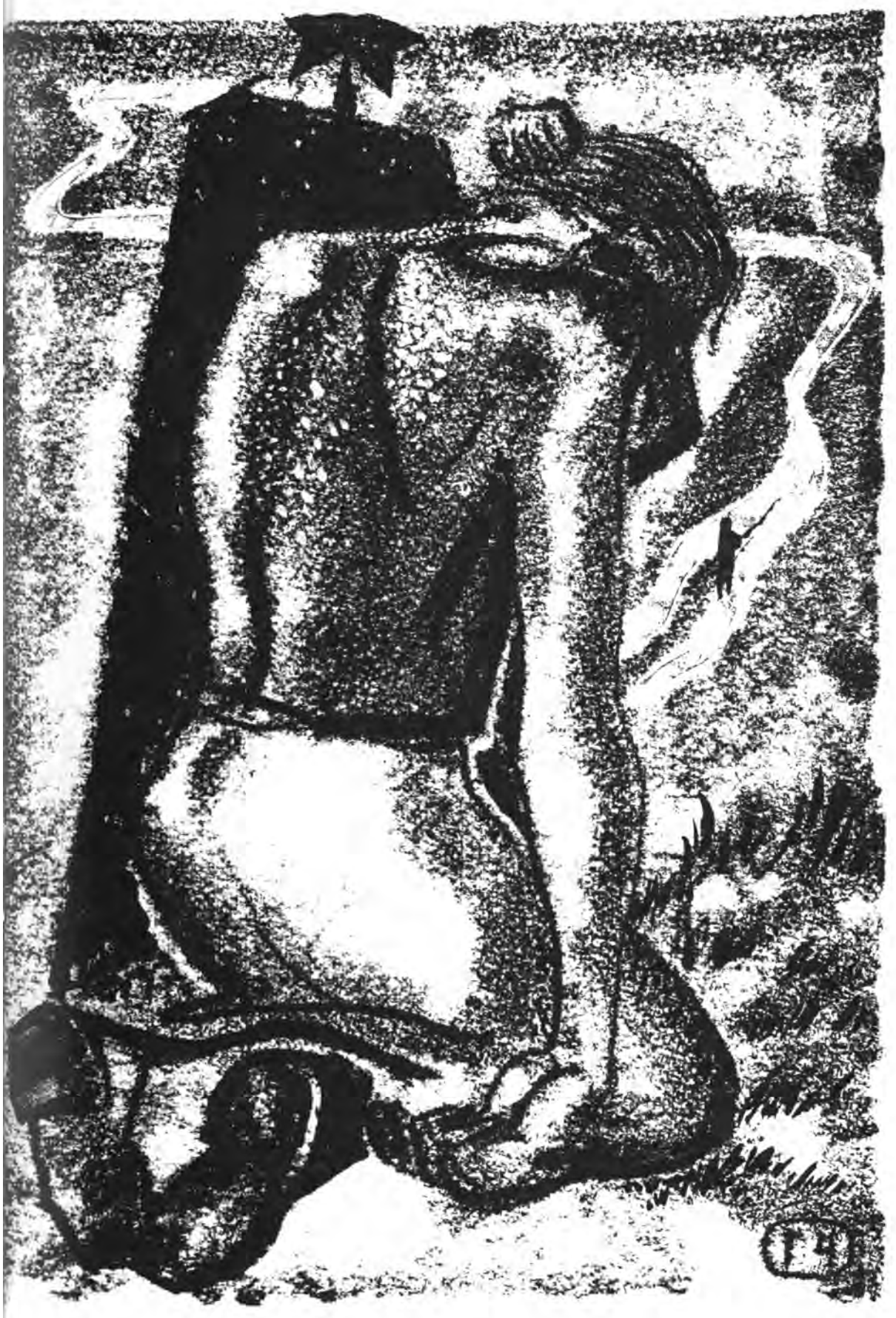
By evening the rain stops, and the shore grows pink. Nature is quiet and sad. The sea is tired, humble and gentle, and the damp gray silence is torn by the crowing of cocks.

Tiina Miina Linda, as big as a man, comes from her house and sits down on the porch, her back to the sea.

TWO SHORT STORIES

By Lilly Promet

Lilly Promet was born in 1922. Her father was an artist. After graduating from high school, she studied at an arts and crafts school. In 1955 her first story, "Servants of a Sacred Art," appeared in a Tallinn publication, followed by "The Lonely One" and "Mecca." In 1958 she published a book of short stories **From Pure Love Alone** ***which won her a place with Estonia's finest story writers. A collection of her tales,*** **Water Colors of a Single Summer,** ***appeared in a Russian translation. These two stories are from the collection.***



MATER DOLOROSA

TWO women are walking in the thick mist of November. They do not know each other, but their road is the same.

It is a gray road, misted gray.

Only a few things can be seen through it: the wingless bodies of windmills, the red chimneys of the state farm beyond the limes, and the dark tiny leaves of red bilberries. Chickens loom white against the autumnal furrows, and a lonely leaf flutters on top of a birch on the roadside. Visible too are the boulders lying with eternal patience on the edge of the pasture.

The two elderly women, both reticent, walk down the road, but they are not lonely. This is their land, so near and dear, and yet so eternally new. How can they feel lonesome?

The yellow grass of yesteryear, the tender green winter crops and the black strips of plowed up earth are like a carpet woven by an Estonian village woman.

"A horse coming," says one in warning.

Both move aside at once. A cart slowly climbs the crest of the road. A man with a long, unshaven face eyes the women. The colt swishes its tail, and in a moment everything grows hazy and gradually disappears like a dream.

Again there is nothing but the road.

Two stunted birches appear, one leaning to a side, and the other bent away from it. Again the wingless body of a windmill looms up and, farther away, amid the plain, a single row of dark gray aspens.

"Everything looks alike," says the first woman.

"Aye, it seems so," the second agrees.

In the mist everything is the same gray—rocks, the clusters of houses and the sparrows.

Ducks wade in the roadside ditches. A jackdaw flies low over the road. Sheep stand motionless in their fold.

On one side of the highroad is a nameless mound with a five-pointed star on the tapering top of an obelisk. It glows red even in the mist. The grave of an unknown soldier.

Without a word, one of the women walks off the road. Pausing thoughtfully, she picks up the skirts of her coat and jumps across the ditch. She stops near the obelisk and drops to her knees.

For a long time she kneels like that, the *mater dolorosa*, then rises to her feet, and with wet eyes returns to the road where her companion waits for her.

Half the road is traversed, it seems like half a lifetime, and both feel that something important has brought them together.

Again there is nothing but the road.

"Was it a son?" the one who waited finally asks.

The other woman nods.

A good soul can share your trouble with you, but nobody can share a mother's grief.

Was that the grave of her son, up there on the hill?

"My boy was killed at the approaches to Luki," says the mother.

The golden disk of the sun can be made out through the thick veil of the mist. Two women are walking down a road.

CONTEMPORARIES

By Mikhail Koltsov

This article was printed in* Pravda *on the eve of January 9, 1928, the day called Bloody Sunday in the annals of the Russian Revolution. On this date in 1905 the czar ordered his guard to shoot down a peaceful demonstration of Petrograd workers and their families who went to the Winter Palace to present a petition. More than 1,000 people were killed and 5,000 wounded.

TODAY I TOOK two diaries out of my desk and I am now looking through them. They were kept by two men named Andrei. One was Andrei Romanov, the other Andrei Shmelyov.

Each one found time every evening to record the events of his day.

What an admirable habit! If everyone were to do the same, were forced to do so by law, the country would use up a bit more paper, perhaps, but we would have an intimate picture of hundreds of millions of lives from which to study the time in which they lived and its passions and suffering. The diaries would help us uncover crimes and perilous secrets.

They would be very different, of course. The diary of a thief would be as good as any thriller, while the diary of a clerk would offer nothing special. He sat in his office, had lunch, took a nap, went back to his office, had dinner, took a nap, played dominoes and went to the bathhouse. The average man rarely has mysterious adventures with which to astound the world or lofty emotions to record.

A book could be written about the long and involved way through which Andrei Romanov's diary fell into my hands. Andrei Shmelyov's diary was brought to me by his son Ivan, who thought I might find it of interest. The two diaries lay in a drawer until the other day when, on the eve of the anniversary of Bloody Sunday, I took them out and, deciphering the illegible handwriting with difficulty, compared them date for date.

Both diaries are fairly monotonous. Both men did the same things day after day.

In May 1904 Andrei Shmelyov writes:

May 6. Got up at five, helped Katya around the house, then left for the factory. The weather is getting hot. Read the paper lunchtime. Not much news. Took the children to the Narva Gates for a walk in the evening. To bed at nine.

May 7. Got up late—6:30. Just about had time to get to work. More talk of a strike. They say we'll get a raise. Mounted police stationed outside the factory. The Alexeyevs dropped in after work. To bed at 10.

May 8. Sunday. Wanted to go into town for a walk but Ivan is sick. Has a fever. Thought of calling the doctor, but the wife and I decided to wait until tomorrow. Took a walk to Ismailovo Avenue in the evening. Everything quiet in the city today.

May 9. Got up as usual but did not feel well. Must have caught the fever from Ivan. Hard to work. Cut my finger besides. Watched fireworks in the evening. They say the workers want to form a union again, this time without the socialists and revolutionaries. Shall join if they do.

May 10. Got up early. Read a pamphlet the fellows gave me. Am amazed at how correctly things are put. An exact description of how we live. It must have been written by someone who knows. There was talk at the factory that there may be a constitution soon. To bed at 10.

May 11. Heavy rain from early morning. The workers made toy boats and sent them sailing across the big puddles in the factory yard. Uncle Anton came from Kursk Gubernia this evening with some fine salt pork. Wants to get a job at the factory. The peasants in their village talk of setting fire to the houses and barns of the big landowners. Uncle Anton persuaded many of them not to. He is afraid the stewards may take revenge on the peasants.

May 12. The police were at the factory again today. Arrested 12 men. Collected money for them after work—quite a lot. Ivan is still ill, but we think we'll manage without a doctor. There was a big fire somewhere in our district but I could not find out where.

The record kept by Andrei Romanov for the same period is just as uneventful, but in quite a different way:

May 6. Drove to Mass with the family at 10:20. Was home by two. Then went by automobile to Misha's and from there to Krasnoye Selo to look at our country place, and back to Tsarskoye Selo. Was back in town by 5:36. Dined with Mother and Kirill at eight.

May 7. Rose at 8:30. Stopped in to see Father and Mother at 10:30 and then went to the Academy. Academy friends who are completing the course lunched with me at 12. After lunch sat on the veranda drinking wine. Rather jolly. Kirill had tea with me at five. Dined with Father and Mother at eight. Was home by 10 and in bed by 12.

May 8. Rose at 8:30. Jules came at 10 to shave me and trim my hair. Aide-de-Camp General Dubasov arrived at 10:45. Went to Mass at 11. Lunched at home. The whole Academy, together with the professors, had their pictures taken at one. Two pictures taken with the professors and two without. Then I went down to the launch and took a ride on the Neva. Home by three. Dined with Father and Mother at eight. Home by 10. Malia came at 11. Was in bed by 12.

May 9. Rose at nine and went for a walk. Part of the graduating class, 19 fellows, lunched with me at 12. They left at four. Was at Volleson's at 4:30, then took a ride down the Neva in the launch. Was home at six. Dined with Father and Mother at eight. In bed by 11.

May 10. Rose at nine. Terrible toothache. Took a walk for a whole hour. Had lunch with Father and Mother. Attended a Requiem for the infant of Natalia Konstantinovna at two. Home by three. Took a nap. Kirill dined with me at eight. Was home by 10. In bed by 11.

May 11. Rose at 8:30. Went for a walk at 10. Home by 11. Visited relatives whose name-day it is. Lunched out. Home by two. Chartoriisky was here at one. Went for a walk at five. Dropped in at Volleson's at six. Took a shower at seven. Dined with Father and Mother at eight. Went home at nine. Read till 12, then to bed.

May 12. Rose at eight. Was at Mother's by 10. Went to Marble Palace at 11 to see Natalia Konstantinovna. Took Misha to the cathedral on the launch. Served Mass at the cathedral. Lunched at home at one. Was at Volleson's at six. Kirill and I dined at the Ernest Restaurant with fellow graduates at seven. Home by 10:30. To bed at 12.

These two men, both named Andrei, lived side by side in the same city. Neither was at the center of the important events there. Both stood to one side of them. But now comes the crucial year 1905, its reflection falling on the diaries of both men, but falling in a different way. Both men were minor characters. But Andrei Romanov was a "minor" Grand Duke, a member of the ruling house, even though a little-noticed member, while Andrei Shmelyov was a rank-and-file worker in the Putilov Plant.

On the Sunday in May when Andrei Shmelyov sat at the bedside of his sick son with no money for a doctor, Andrei Romanov was riding up and down the Neva in his launch.

And on January 9, Bloody Sunday, of the following year?

Again we have a picture of two lives taken by the light of the January volleys, by the flash of Cossack sabers, to the accompaniment of the groans of the dying and the music of court balls.

January 6, 1905. Rose at nine. Went to Mass with Father at the Palace and then had breakfast at home alone. Did not attend the court ceremonies because am not over my cold yet. Visited Father at three. He told me of a frightful incident in Jordania. Few details known. Was at Malia's by four and home by six. Dined at seven. Many people at Malia's. Went to bed at 12.

January 7. Went to the Academy at 10. G. M. Kuzmin-Karayev explained the coming practical lessons in a few words. Then went home. Lunched with Father and Mother at 12. Was at Grippenberg's by four. The workers' strike has deprived me of electricity. A noisy crowd marched down Galernaya calling for work to stop at the printshops of the Ministry of Finance and the Senate. Dined and went home.

January 8. Rose at 9:30 and studied for a while. Lunched with Father and Mother at 12. No newspapers or placards. All the men on strike. What devilish times! Not a single factory or a single artisan is working. They're all on strike! Martial law is to be proclaimed in St. Petersburg tomorrow. The Peterhof garrison has arrived. The Pskov and Novgorod have been summoned. The day passed quietly. Dined with Father, Mother and Boris. Was at the Mikhailovsky Theater by nine for a benefit performance of the ballet. Excellent. Malia had supper with me at 11. In bed by one.

January 9. Was awakened at nine and told that a unit of the Guards had arrived to protect my house. I rose quickly and went out to review and billet them. A whole company of the Guards was posted in Zamyatinsky Lane. I went over to invite the officers to have something to eat. The entire city is under guard. There are guards on the bridges. At the corners, too. Went to Mass at 11. The Winter Palace surrounded by troops. There is a company stationed on the Embankment at the Palace Bridge and another at the Troitsky. About two companies with cavalry are bivouacked on the square. The workers were supposed to gather in front of the Winter Palace at two o'clock and ask His Majesty to re-

ceive them. Big crowds of people were moving toward the square from all parts of the city. They were asked to disperse but refused. Up to 10 volleys were fired, killing many. The crowd scattered. The crowds on the Nevsky, Morskaya and Gorokhovaya were also greeted with volleys. The crowd near Alexandrovsky Park did not want to disperse either, and there was shooting. Rifle butts were used too. The firing went on late into the night. Then everything settled down. The workers were prevented from reaching the Winter Palace, and the different groups were not given a chance to unite, so we achieved our aim. It is difficult to say how many were killed and wounded because the crowd carried off the bodies of the wounded and dead. But since more than 40 volleys were fired, each one accounting for 40 wounded or killed, the total is probably around 1,600 or more. They say the figure is much higher, though. I visited Father during the day. Dined at home with the commander of the second company. The entire company is billeted in my shed and stable, 130 of them, plus my guard of 22, making 152 men besides four officers and Commander Fyodorov. Went to Malia's at 11. The two of us had supper at Trefilova's at 12. A very pleasant evening. Home by four and in bed by five.

January 10. Everything quiet all day. The troops had the day off. They said there was going to be a demonstration, but nothing happened. The eighth company of the Guards is still at my place. Had breakfast at home with the officers. Misha dropped in and we roamed about the house. The day was quiet but nerve-racking. Half the company was sent to the main telegraph office for the night. There were rumors of looting. Went to bed at 11 with everything quiet.

January 11. All quiet for the third day. The second company of the Guards is still billeted here and is not planning to leave. Friends from the Academy gathered at my place at 10 and we had a "mock session" but nothing much came of it. Just chatter most of the time. At 12 we left for lunch, taking my officers and a police officer with us. Before we finished the second course, the news came that cavalry grenadiers had arrived in Zamyatin Lane. Invited them to lunch. It turned out they were summoned by the police officer. But they were soon allowed to leave since there was no need for them. Visited Father and Mother during the day and learned that the chief of the Moscow city police had been appointed Governor General of St. Petersburg and Fullon is in his suite, that is, got it hot. I saw Trepov. He makes a very pleasant impression. Has definite views and convictions. Dined with Father and Mother and was home by nine. Busied myself a bit, then went to Malia's. Afterward stayed and talked with her a while. Home by one. All quiet.

January 12. Rose at nine, took a bath, and then went to see my officers. They have been living here for four days now. Had slept well and felt fine. Went to Mother's at 11. Lunched at home at 12. Went to see Father at three. Home by four. At 6:30 my company left. The officers were very pleased and so was the command. Had dinner at Mother's at seven. Was home by 10 and in bed by 11. All quiet.

During the days when Grand Duke Andrei Vladimirovich, guarded by 152 soldiers, five officers and one police officer, was enjoying himself with his Malia, Andrei Shmelyov was living through the same events. His diary has survived and 23 years later lies side by side with the Grand Duke's on my table:

January 6, 1905. Have been on strike for three days now. Yesterday the Semyannikov factory went on strike and so did the Shtiglits, the cotton mill on the Okhta, the Obukhov factory and many others, too many to list. Yesterday Tvorogov and Andrianov went to the board of directors, as was agreed the day before, for an answer. They were told other owners had to be consulted. As for a raise, they seem to have agreed to it. They say the union paid 70 kopecks to every family man today. Katya and I walked around the streets all day and went to the meeting at the Narva Gates in the evening but could not get in because of the crowd. Uncle Anton was there. Says an appeal to the czar was read aloud.

January 7. Got up at six and we all left the house. Walked around until evening. Our legs ached so we could hardly get home. The gas works and the electric station on Vasiliev Island are on strike. The streets were dark this evening. Many carriages carried torches. Got my strike money today.

January 8. Someone from the railway repair shop said Sergunin and Subbotin are being taken back but not Ukolov and Fyodorov. But that is not the important thing. It's been decided to go to the Winter Palace tomorrow carrying pictures of the czar and a petition. All the workers are going. Father Gapon will lead us. Some of the speakers warned there would be shooting, but all of our people say that is only to frighten us. We've all decided to go no matter what happens. Alyosha saw Father Gapon, who said that if the men did not go with their wives and children, nothing would come of it. If the czar saw there were only a few people, he would turn them back, saying too few had come. We're taking Ivan with us. Went to bed very early.

January 9. I do not want to write this evening, but I will try to do my best. Otherwise, what is the use of keeping a record of my life for Ivan if I leave out days like today? We rose at six, Katya, Uncle Anton, Ivan and I, and went to the Narva section. Reached there about seven. There were already many people. We all had to wait until after 10. Then icons and banners and portraits of the czar were brought up. Father Gapon arrived. He asked if anyone had weapons and told a few of the men, who had revolvers, to leave. Then we lined up and set out, singing a hymn. We all took off our hats. I put mine on Ivan to keep him warm. Many people we passed took off their hats, and I saw policemen and police officers take theirs off in respect for the banners and the procession. Before we reached the Narva Gates cavalry arrived and started galloping back and forth through the crowd, but the crowd kept on singing hymns and advancing. Then the cavalry galloped back, but almost no one was hurt this time either. Uncle Anton picked up Ivan and we were getting ready to move over to the sidewalk when a volley was fired. Katya fell right at my feet.

Everyone began running every which way. The screams of those who were hit were frightful. I tried to pick Katya up."Get up," I said to her. "Don't be afraid." But she said nothing so I knew she had been wounded or killed. There was such confusion I lost sight of Anton and Ivan completely. Two workers helped me carry Katya over to the side. I still don't know how we managed it. The firing went on, and people died right in front of me. I shall never forget it. There's the czar's mercy for you. I'll remember it as long as I live. We carried Katya into a drugstore on the Narva. It was frightful inside. I dashed here and there begging people to help her. Katya still said nothing, and that frightened me most of all. It turned out she had been hit in the stomach. She was taken to the hospital on Novosivkovsky Street. It was filled to overflowing and something awful. Later they asked me what Katya's name was in the office. I said I was her husband, but they told me to go away at once and not to come until tomorrow. I was certain that my son had been killed or trampled underfoot. But when I got home I found Uncle Anton and Ivan there safe and sound. Uncle Anton had rushed to a gate. Although it was locked, he had pressed up against it and shielded Ivan with his body. I'm afraid Ivan may fall ill from the fright or may have caught cold. My wife is in the hospital in critical condition. That is how we celebrated the czar's birthday today.

January 10. It is quieter today. They say firing is still going on over on the St. Petersburg side. Nikolai Kuzmich Lavrentiev was killed and so were Brandukov, Kuzmin and Konstantinovsky from our shop. Petya Vinogradov and his wife were killed and so were many other comrades. It is still hard to find out about all of them. There is sorrow in our home. I was not allowed to see Katya at the hospital today but simply told she is in very critical condition. Stayed at home in the evening. Ivan behaved very well. He and I played with his blocks. Went to bed at 10.

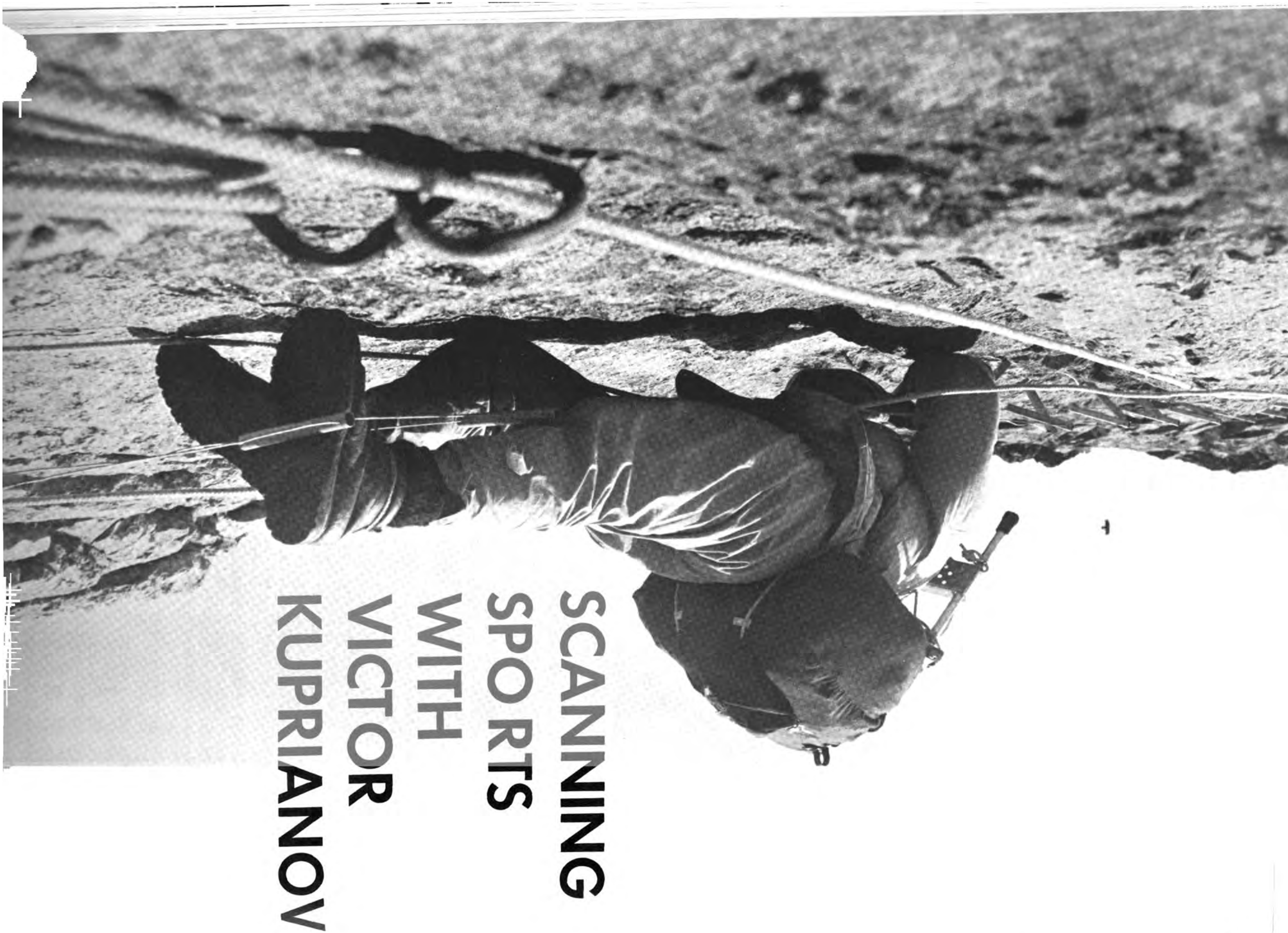
January 11. Everything was fairly quiet today. I went to the hospital and waited for a short while in the office until the doctor came and told me Katya had died at 3:40 in the morning from a wound in the stomach. I must think about the funeral. They say all those who were killed will be buried together, but I don't know what to do. I told Ivan his mother had gone to visit Grandmother in Luga. Ivan is quiet but jumps at the least noise and screams in his sleep. The city is quiet.

Both Andrei Romanov and Andrei Shmelyov continued to keep diaries.

Those January 1905 weeks are followed by other weeks, months and years. Grand Duke Andrei attended Senate meetings, went to see Malia, and commanded a regiment of body guards. Andrei Shmelyov simply went on working at the machine in his shop and brought up his son Ivan. He died of typhus in 1920, leaving behind a son who was a Communist. Andrei Romanov, like many of his relatives, managed to escape the firing squad and get away abroad, where he runs a fashionable dress shop. He is a brother of the emigré "emperor" Kirill Vladimirovich and dreams of riding down the Neva in his launch and of faultless machine-guns for the working class.

Of both these men, contemporaries, only their diaries remain. One is a well-thumbed book, some of its pages stuck together, the other a splendid affair bound in blue Morocco with edges still freshly gilded. But history has judged the two men irrevocably, or rather, the classes that gave birth to them. The sentence is final, without right of appeal. This sentence is the merciless defeat of the Russian nobility and bourgeoisie, wiped forever from the face of the earth they once ruled. Solemnly, each elderly worker repeats this sentence to himself on the anniversary of Bloody Sunday, January 9, 1905.

Courtesy of Pravda



SCANNING SPORTS WITH VICTOR KUPRIANOV

WITH November and December winds blowing in another winter, it is time to talk about outdoor sports. Once there was practically no talk required—it was all very simple. In winter outdoor sports went indoors, and that was all there was to it. But then coaches began to say that moving indoors wasn't always the best thing.

In track and field the indoor variety is recognized as a major sport in its own right, yet not always is the runner who has been burning up the boards ready to burn up the cinder track when the time comes to run outdoors. Track-and-field coach Gavriil Korobkov has suggested that he would be happy to see things move farther south. If boys, say, in Odessa, could be gotten interested in running, they could train outdoors virtually all year round without being cooped up in modern, air-conditioned arenas pounding callouses on their feet.

In sculling what to do in the winter is also a problem. Our singles man, Vyacheslav Ivanov, has managed to win the gold medal at three Olympics (1956, 1960, 1964). He is prepared to go on winning. But with skill mounting the world over, he'll be needing better training methods.

In the past Ivanov, a Muscovite, would have had to train indoors for about five or six months. That would involve weight lifting and gymnastics to build up muscle. Now the coaches feel that in addition to muscle, an oarsman needs endurance. There are various ways of building up stamina—one is by having the athlete run in mountain terrain, and in particular, run uphill with ski poles. That's a fine way of building up back and shoulder muscles simultaneously.

The Soviet Union's senior rowing coach Yevgeni Samsonov explained in an interview that even this wasn't enough. There are other considerations no less important. When a sculler works indoors for any length of time, or if he is only able to work out in a training pool, he loses his coordination, the sense of balance and feeling of movement of the boat. It takes him a good deal of time to get it back.

This year Soviet scullers decided to start their boat workouts in January. Azerbaijan was the place chosen—it is sunny and warm enough there. Results were good, and we believe the pattern will be continued.

But is this enough to develop potential winners? No, say the scientists. You need physiologists to tell the coaches which exercises to use and which to avoid. And you need psychologists to help the coaches develop the will to win and solve the numerous little problems that crop up, such as deciding who sits where in an eight. Why is it that when A sits behind B the crew never wins, but when A sits in front of B everyone's performance is better? The psychologist is the man who knows the answer. Incidentally, the team psychologist will soon be as important a figure as the team coach.

In track and field Irina Press, of hurdles and pentathlon fame, is tackling the problem of psychological priming of athletes for the Mexico City Olympics. It appears that merely getting the athletes to live together in Olympic Village takes lots of thinking and know-how. "To appreciate the problem," one sports mogul told me, "just try stuffing three cats into one sack and see what happens." I did. That is why I now feel competent to write on the subject. For those interested in repeating the experiment—it takes about three weeks for the scratches to heal.

Getting athletes to live together is one poser. Keeping them from getting homesick is another. This may become a major-sized headache for a Soviet team psychologist since so many of the athletes have children. Of course, grandma back home knows how to cope with that situation, but still. . . .

Building up an athlete's confidence is another herculean job. At the USSR Gymnastics Championship I saw a bevy of youngsters perform—each of them a potential giant-killer. Yet when they had to compete alongside those giants, many of them got cold feet and were defeated by their own lack of confidence. One athlete who possessed the enviable trait of being able to compete against anyone was Valeri Brumel, the high jumper. Said his coach: "If I told Valeri to go in and jump against a bunch of kangaroos, he wouldn't bat an eyelash but would go right in and do it."

Worry is another thing the coach has to combat. Here, again, he can best be helped by the psychologist. I once asked a headline sprinter, "What's the most difficult part of the race?" "The first couple of seconds before the starter's pistol goes off." The film made of the Tokyo Olympics shows the athletes on their starting blocks waiting. Those expressions of suspense and anguish could just as easily have come from a James Bond thriller.

One of the things that has been perplexing the coaches is the slow start of sprinters. With sprinting speed what it is, records can only be scored by quicker starts. Armin Hary (West Germany) proved that. Here, too, the psychologist can be helpful.

In short, getting an Olympic team together and making it perform in top gear is no easy business. As we see it, scientific know-how will soon be as important as athletic ability.

A new sport that seems to be taking Moscow by storm is rock scaling. Since Moscow has no rocks worth scaling, the fans move out to the suburbs. Actually, there is nothing impressive to scale there either, but what nature failed to provide—imagination fills in. I have seen boys and girls on the bank of the Moscow River, a little bit away from the Moscow University campus, training with mountain climbing gear and practicing all the safety knots.

When I was a kid we used to climb the high bank of the river in sneakers. It never occurred to us that we needed special gear. Now the spirit of make-believe has moved in, and the boys and girls like to pretend they're mountain climbing. However, the university mountain climbers do use this as a training ground prior to moving out to the Caucasus or any other range they might be tackling that particular year.

Many people who shudder at the thought of matching skill with a mountain peak will risk a huge rock that may be even more difficult. The Soviet national championship in rock scaling is held a few miles out of Yalta, in the Crimea. This fixture attracts more and more enthusiasts. That was what prompted the Muscovites to hold a championship tournament of their own.

Another attraction for the younger generation is cross-country riding on anything that moves. This is the season for grueling cross-country tests on motorcycles, trucks and cars. The cross-country "bugs" feel happiest when the going is toughest, when they have to cope with water, mud, ice and snow. That seems a strange combination, but Moscow is one of the few places in the world that can provide all of them in November. The first snow has fallen, a thin layer of ice binds surface water, but underneath is mud galore waiting to be churned up by madly revolving wheels. Snow may also collect in hollows. That is one of the weirdest sensations I have ever experienced. Your motorcycle races into one of these snow pockets at top speed and suddenly stops. If your grip isn't tight, you're thrown. But even if you keep your seat, you find that the faster the wheels rotate, the faster you move—not ahead but down! The snow gradually turns black, as does the mood of the rider who has been thusly trapped.

Down in the southern parts of the country where they don't have these opportunities, they have devised a game to quicken any man's pulse—soccer on motorcycle. The air turns blue with the exhaust, but the boys on the motorbikes are oblivious to it all. This game is as exciting as the real thing. I once watched a situation arise not foreseen by the rule book: the referee's motorcycle stalled, and all the players had to dismount to help get it started. Ordinarily soccer on motorcycle is one of the noisiest sports ever devised. I found myself shouting for a week after that game.

YOUR QUESTIONS ON COMMUNISM

DIDN'T MARX MAKE MANY MISTAKES AS, FOR INSTANCE, IN SAYING THAT THE FIRST SOCIALIST REVOLUTION WOULD TAKE PLACE IN ENGLAND, BECAUSE THAT WAS THE MOST INDUSTRIALIZED COUNTRY OF HIS TIME?

Marx did indeed think the first socialist revolution would take place in the more developed capitalist countries, including England, of course. But it did not happen that way. The revolution took a different, more complicated course, and so what Marx said was wrong. Why did the first socialist revolution not take place where Marx thought it would?

Marx took as his point of departure the premise that the social, political, economic, and other forms a society adopts are determined, in the final analysis, by the level of development its productive forces have reached. Feudalism replaced the slave-owning society, and capitalism replaced feudalism, not by historical chance but because technical revolutions are inevitable and lead logically to revolutions in the entire pattern of social relationships.

Is capitalism also subject to this law? Or is it the crowning accomplishment of man's social wisdom and therefore immortal? Prior to Marx the latter was considered self-evident. Marx moved beyond the limited understanding of his time to prove that capitalism was a transient stage in history.

One must also bear in mind another point that Marx made in a letter to Friedrich Sorge on September 27, 1877. "The revolution will begin this time," he said, "in the East, thus far counterrevolution's unassailed citadel and reserve." In the early twentieth century the epicenter of the world revolutionary movement did indeed shift from West to East. Russia, Lenin wrote, forged Marxism in half a century of unprecedentedly difficult travail. No country had so much revolutionary experience as Russia.

History is fond of paradoxes. To preserve themselves from Marxism, the bourgeoisie's idealogists adopted John Keyne's interpretation of Marx. To salvage capitalism they were compelled to use ways and means that were not at all capitalist by nature. The state's vigorous, ever-increasing control of economic processes through planning, regulation, production programming and social legislation is today's variety of state monopoly capitalism, a capitalism which has adapted itself to the new conditions and has been pressured by the working class movement into reforms that would have horrified its nineteenth century orthodox idealogists.

Back now to the mistake Marx made. Where did he go wrong? He underestimated the flexibility the bourgeoisie of the well-developed capitalist countries would show. He did not think the ruling classes there would make the concessions they have to stay in power, nor did he foresee that the scientific and technological revolution would provide at least the material possibility for these concessions. John Strachey, the well-known theorist of the British labor movement, notes correctly that in the West it was the struggle for democratic reforms that saved capitalism.

IS IT TRUE THAT YOUR BREAK WITH STALINISM AND CONDEMNATION OF THE PERSONALITY CULT MEAN A DEPARTURE FROM MARXISM BOTH IN THEORY AND PRACTICE?

To answer this question we must first of all discriminate between the points of departure—Marxism and "Stalinism." We use the quotation marks to emphasize the incompatibility of the two concepts and also the purely pragmatic way in which Stalinism is defined in the West.

Marxism is an all-inclusive concept incorporating the economic and political aspects of social living, the philosophy of history and the philosophy of nature. What is its sum and substance? Firstly, that objective laws of social development govern what seems to be the chaos of history. Secondly, that man can learn these laws and by adjusting to them change his environment for the better. Thirdly, that the aim of the social reforms Marxism suggests is to end social injustice and inequality, to develop all of man's capacities, to make him the real master of his fate.

Marxism is humanistic. This is, moreover, no utopian humanism envisaging an abstract perfect society and an abstract perfect man. Marxism is tangible humanism aware of the full complexity of the goals it has set. Its task is not to provide a universal recipe for happiness but to direct the energy of the masses to create a decent way of life for everyone.

Now about the term "Stalinism" as Western sociologists use it. Although they give it various shades of meaning, as a rule they say that "Stalinism" is an inevitable feature of a Marxist society, that "Stalinism" is Marxism in action.

If we accept that point of view, then, of course, the break with "Stalinism" is a departure from Marxism. However to equate "Stalinism" with Marxism is absolutely wrong.

Stalin distorted several principles of Marxism. This can be explained—but not justified—by conditions in the early stages of socialist construction in the USSR. Stalin believed that the harsh class struggle inside the country, the very unstable world situation outside, and the critical need for modernizing industry as soon as possible all justified rigid discipline at every level and in every part of the social organism, that it even justified wholesale repression. Marx once said of Peter the Great that the Russian Emperor had used barbarous methods to pull Russia out of barbarism. In some measure this can be said of Stalin too. Thus, in governmental practice Marxism was often deprived of its humanistic essence—in no small degree because of Stalin's personal traits, his paranoia.

Stalin was unquestionably a great man who contributed much to the Russian revolution and the construction of a socialist state. While we condemn certain of his actions, we see his good and his bad sides. We try objectively to assess the first and to free ourselves of any hangovers of the second.

So to sum up: Our break with "Stalinism" and condemnation of the Stalin cult is not a departure from Marxism but a confirmation of Marxism's humanistic substance.

The incompatibility of the personality cult and Marxism was reaffirmed at the Twenty-third CPSU Congress, at which Nikolai Yegorychev, First Secretary of the Moscow Party Committee, said:

"Our Party has jettisoned the personality cult and its violation of Leninist standards and principles of Party Life and socialist law, in short all that impeded our progress. We shall never return to that past!"

Questions answered by
Boris Alexandrov

"Your Questions on Communism" first appeared in the December 1964 special issue devoted to questions on Marxist-Leninist concepts of the development of society and on communism. Since then many more questions have been sent in, and the column has been made a regular feature in the magazine. This year it was carried in the January, February, May, June, July, October and November issues.

The editors welcome your questions. They will be answered by Soviet economists, philosophers and political scientists.

SOGDIANA: A KINGDOM REDISCOVERED

BY LUDMILA KAFANOVA

WHEN WE SPEAK of the ancient Asian civilizations, the reference is usually to China, India or the Achaemenid Empire. Very few people know that there was a state with a highly advanced culture on what is now Soviet territory—the Zeravshan Valley. The Greeks called it Soghd or Sogdiana.

Soghd is mentioned for the first time in an inscription the Persian King Darius had hewn on a rock in the sixth century B.C. Enumerating the possessions of the Achaemenid kings, Darius listed Soghd. Herodotus made mention of Soghd in his history 100 years later. A hundred years after that Soghd was invaded by the army of Alexander the Great of Macedonia. Chinese chronicles contain descriptions of Soghd in the first centuries of our era. They delight in the art of Sogdian craftsmen and wonder at the wealth of their traders, who controlled the most important stretch of the Great Silk Route from China to Byzantium. Much of the Central Asian population spoke the Sogdian language, and Sogdian writing was known far beyond the confines of that kingdom.

Soghd was conquered by the Arabs in the seventh to eighth centuries. Forcing Islam on the local population, the caliph's soldiers destroyed the Sogdian monuments and leveled their towns. The destruction the Arabs began was completed by the Mongolian invasion. Soghd ceased to exist as an independent state, and its language was supplanted and forgotten.

Despite this, modern scholars were able to learn both the spoken and written Sogdian. Manuscripts written in the language were found in Eastern Turkestan, a former colony of Soghd, early in our century. But in what was Soghd proper, not a single text was found—until an unexpected discovery.

A forbidding mountain rises above the Tajik village of Hairabad. It has been called Kala-i-Mug (Fortress of the Magi) from time immemorial. Its abrupt drop on two sides is washed by the raging Zeravshan, and a third side by the raging Kum. A single narrow trail leads to the summit and the ruins of an ancient castle. The people of Hairabad never climbed Mt. Mug, believing it was the haunt of evil spirits. But in the spring of 1932 three young shepherds risked the taboos. They were men of the new generation and had discarded the old superstitions.

"Looks like fine meadow," they said, "all that tall grass. Let's drive our goats to the top and have a look around in the castle for that famous treasure."

One fine morning the shepherds climbed Mt. Mug with their flock of goats. While the animals were grazing, the young men began searching for hidden treasure. They dug for a while in one spot, then in another. They did find something—an osier basket covered with reddish, half-rotted leather. There was no gold in the basket, but there were scraps of fine, silky paper with writing.

The shepherds thought they might be passages from the Koran. They did not go to the madrasah and could read no Arabic. They picked out a sheet in somewhat better condition than the others, put it in a basket and took it to their village. The rest of the find they buried again.

They showed the sheet to the local mullah. He studied it for a long time and then said:

"The writing is definitely from the Koran, but it is so ancient that I cannot make it out. You had better take it to the city."

But nobody in the city could read the mysterious text either. The sheet was passed on from hand to hand, until it came to the attention of Abdulkhamid Puloti, secretary of the Zakhmatabad District Party Committee and a historian by profession. He realized immediately that the scrap was very ancient and brought it to the capital of the republic.

First Secretary of the Central Committee of the Tajik Communist Party David Guseinov heard Puloti's account. He ordered three photo copies made, gave one to Puloti, the second to Vladimir Vasiliev, Learned Secretary of the Tajik Branch of the USSR Academy of Sciences, and mailed the third to Alexander Freiman, a noted Leningrad authority on ancient languages and corresponding member of the USSR Academy of Sciences. The original Guseinov put in his safe.

Freiman took one glance at the photograph from Tajikistan, and this ordinarily staid scholar yelled out his excited delight. Reason enough for excitement! This was a photo copy of a document written in Sogdian.

An expedition was immediately sent to Mt. Mug.

"We left Dushanbe on October 31, when the shortest route to Zeravshan, via the Shutur-Gardan Pass, was already blocked by snow. This forced us to take the roundabout way, by train to Samarkand and then in carts, via Penjikent, to the spot where the negotiable road ended. From there we proceeded by the usual caravan trail along a narrow mountain ledge.

"The evening of October 8 we reached Mt. Mug without any adventures. We pitched camp on a natural platform some 50 feet below the ruins of the castle. Excavation was started two days later. We set out on our return voyage on November 23 in sleet and rain.

"The excavated building consisted of four rooms and an adjoining western terrace. We found manuscripts written on paper and leather in the southern part of the structure, in the second and third rooms. In the fourth room we found documents written on osier rods stripped of bark. All told, the expedition brought back from Mug 400 articles of historical value—leather objects, fabrics, arrows, household utensils and 81 manuscripts. They included 74 documents in Sogdian, one in Arabic, and one in the ancient Turkic language." This is the account of the expedition written by its leader Freiman.

Having learned that the Mug manuscripts were in Leningrad and that they included a document written in Arabic, the distinguished Soviet Arabist Academician Ignati Krachkovsky rushed to the library of the Academy of Sciences the very next morning. Alexander Freiman was already waiting for him in the manuscript department. He took a wrinkled piece of leather from an envelope and handed it to Krachkovsky.

"At first I felt completely frustrated," Krachkovsky relates. "I helplessly held in my hands a worm-eaten piece of leather and distinguished, as though through a red haze, separate Arabic letters that refused to combine into words. My first desolating thought was that I would not be able to make out anything. Gathering all my powers, I peered at one part of the document and then another, murmuring as I went along: 'Yes, the first sentence contains fragments of the usual formula—in the name of Allah. . . . Then, at the end of the second sentence, 'from the client of his Diva. . . .' What nonsense! There is no such name. The next sentence began even more strangely, with the word 'sitti,' meaning 'my mistress' in the colloquial tongue. But perhaps these are syllables of a word carried over from one line to another. If read together, it is Divasitti, Divasti . . ."

The lucky chance that attracted the scientist's eye to the strange word "Divasti," or as it is correctly read in Sogdian "Devashtich," threw light on the entire Mug collection of documents. Devashtich was an exalted Sogdian lord who lived in the first quarter of the eighth century. Krachkovsky found passages about him in the chronicles of the Arab historian Al-Tabari. As a matter of fact, all the documents found on Mt. Mug have to do with Devashtich. They are either ad-

dressed to him, or come from him personally or from his chancellery. Thus, the mysterious find could be related to a definite period, place and historical events. The end of the Ariadne thread was in the hands of the researchers. The painstaking work of decipering the Sogdian texts began.

Scholars discovered first that they differed from the Sogdian manuscripts found in Eastern Turkestan. Those were Christian and Buddhist religious texts, while the Mug find included letters, business records and contracts. The vocabulary of these documents, reflecting the everyday life of Soghd, had very little resemblance to the stilted language of religious books. So that the researchers had to relearn a language they thought they knew. Working on the Sogdian texts with Freiman were Olga Smirnova and Vladimir Livshits from the Leningrad Branch of the Institute of Asian Peoples and Leningrad University Professor Mikhail Bogolyubov.

The work was very tedious. The Sogdians, unmindful of the troubles they would give future researchers, had not written legibly. Different letters, especially those in the middle of words, looked much the same. A great deal of time was taken to establish the spelling and pronunciation of every word. Then it had to be compared with similar words in related languages, both existing and extinct, and its Sogdian meaning established.

There were geographical names, titles, and offices in the manuscripts. To put them straight, the scholars had to go through whole libraries of historical chronicles and documents in Arabic, Chinese and Persian.

Gradually the letters grouped into words, and the words into sentences. The documents, buried for more than 12 centuries, began to reveal their secrets. When you look today at the wooden rods, pieces of leather and scraps of paper, now cleaned, arranged and laid out neatly in glass cases, you marvel at how the scientists could have read sentences in which only a few letters had survived and guessed the meaning even of the parts of manuscripts time had not spared!

The Mug documents give a vivid picture of the economic, political and social relationships of Soghd. Its inhabitants come to life for us. Here is Fatufarn, a retainer whom Devashtich had sent on an important mission to Chach (Tashkent). Fatufarn could not return. The Arabs cut off his route home. "Oh, my master! I am all alone, without companions, and I dare not set out for home. My master, this is why I have returned to Chach, and I am very much afraid of you now," he writes to Devashtich.

Here is Dugdgoncha, a Sogdian lady, who is to marry the distingushed Turk Ut-Tegin. He undertakes to treat her "as a beloved and respected wife, to provide her with food, clothing and ornaments, as a nobleman should a noblewoman, his wife." The marriage contract includes this proviso: "If Dugdgoncha decides to divorce Ut-Tegin, she is free to leave him." A woman apparently had considerable status in pre-Islamic Asia. She could break the marriage bond at will!

It look almost 30 years to read all the Sogdian documents brought to Leningrad. But much was still unclear even then. And, first and foremost, it was not clear who Devashtich was.

In Arab sources he was called the "Panch Prince," the ruler of Penjikent. But all the Mug documents refer to him as the "King of Sogdiana, the ruler of Samarkand," the same title given to Gurek, who reigned in Samarkand, the capital of Soghd. The deciphered documents gave no explanation. But there was one more unread document, No. I-I, the sheet the young shepherds had brought to their village. But it had been lost and so had the three photo copies. Guseinov and Vasiliev had died by then, and Puloti's whereabouts were unknown.

Vladimir Livshits decided to try his luck just the same. He wrote to friends in Dushanbe and asked them to find out all they could about Puloti and his family. Nobody knew the name. A few months later, however, a letter arrived in Leningrad with word that a girl called Pulatova was working with a group of students on the excavation of Penjikent (prompted by the Mug find). She turned out to be the daughter of the much wanted Puloti, who had moved to Samarkand. Better yet, she said that quite recently her father had showed her a photo copy of the first document found on Mt. Mug.

Soon Livshits had Puloti's address.

"And so this was Abdulkhamid Puloti," Livshits recounts. "He was a tall man with a bushy mustache, very vigorous and cheerful. He brought out a little casket and took the photo out. But, alas, we were out of luck. All the Puloti family papers had been carefully stored in this box. The photo, however, had fallen out of it and had lain for several years on the barn floor. The text was absolutely illegible."

"Go to Dushanbe. Maybe you'll find the original or the second copy there," Puloti advised.

"I flew to Dushanbe. There I visited museums and archives, and talked to people. The manuscript custodian of the Tajik State Archive looked carefully at the photos of the other Sogdian documents I had brought from Leningrad and told me to come back the following day. And what do you think? The next day he handed me a photograph of document No. I-I in excellent condition.

"I read through the text eagerly, but I could not understand a thing. Somebody was cursing Devashtich and had written his own name above that of Devashtich, which meant that this 'somebody' held a higher rank than the 'King of Sogdiana, the ruler of Samarkand!' Who was it? I read the name Hmer. It was followed by another Arabic name of 20 letters.

"I translated the letter, but admitted in the commentary that I had failed to identify 'Hmer.' But the name did not let me rest. Later on, working on Khorezm documents, I noticed that the Arabic word 'emir' began with the letter 'h' in the Khorezm language. Immediately I remembered the name 'Hmer' and retranslated document I-I. The new version read as follows, 'From Emir Abd-al-Rahman ben Subha to the Sogdian King and Samarkand Ruler Devashtich.'"

We know from Arab and Chinese chronicles that early in the eighth century Soghd was ruled by a king called Tarchun. In 710 he concluded an agreement with the Arab Viceregent Kotaiba. His resentful nobles deposed him. One version says that Tarchun committed suicide, another that he was killed by Gurek, who took his place on the throne of Samarkand. It would seem that some of the Sogdian nobles refused to recognize Gurek as the lawful ruler. They thought Devashtich had as much right to the Sogdian throne, even more since he was the guardian of Tarchun's two sons.

The Arabs were also unhappy with Gurek. They knew that he was working secretly for an alliance with their enemy, the Chinese emperor. Since they could not remove Gurek, they tried to undermine him by recognizing Devashtich's claim to the Sogdian throne. Even the Emir himself, the Viceregent of Khorasan, calls Devashtich the King of Sogdiana!

However, Devashtich proved to be an unreliable ally for the Arabs. Many documents from the Mug castle show that he entered into secret negotiations with the neighboring rulers in an effort to knock together an anti-Arab coalition.

But how did the documents of Devashtich, who lived in Penjikent, come to be in the Mug castle?

One document, a piece of leather which had been used to coat a sword scabbard, sheds light on the circumstances which made him leave Penjikent. The text was in very bad condition but still decipherable. It was a letter from the Arab Viceregent to the High Priest of Samarkand which said that the Sogdian case was hopeless and that the inhabitants should be made to understand that further resistance was pointless. We can assume that this letter was sent on to Devashtich, that he read it and decided to flee to the mountains together with his retinue.

The enemy attacked Devashtich's detachment at the Kum hamlet. The forces were unequal, and the Sogdians had to seek asylum in the Mug fortress. The Arabs offered them their lives if they surrendered. Since no assistance was forthcoming, Devashtich decided to surrender. Before leaving the fortress, the Sogdians buried or hid the documents they brought from Penjikent. It only remains to be added that the Sogdians were deceived. They were all slain as soon as they left the castle.

And so this manuscript, found accidentally by shepherds on Mt. Mug, lights up one more page of the history of the Sogdians, the ancestors of the modern Tajiks and Uzbeks.

QUERIES FROM READERS

QUESTION: Is it true that there is a shortage of medical doctors in the USSR? (Mark Merwin, Oakland, California)
ANSWER: No, not by our standards. We have 555,000 doctors, 23.9 for every 10,000 of the population.

QUESTION: When we were in Moscow last summer, we were told that there were some Americans buried near the Kremlin wall, just back of Lenin's tomb. Will you please tell me their names and something about them? (Arthur O. Rinden, Hartford, Connecticut)
ANSWER: Three Americans are buried there —John Reed (1887-1920), William (Big Bill) Haywood (1869-1928) and Charles Ruthenberg (1882-1927)—all active fighters against war, leaders of the American socialist movement who acclaimed the October 1917 Revolution in Russia.

John Reed, a founder of the Communist Labor Party of America, edited *The Communist*. He wrote *Ten Days That Shook the World* after a period as war correspondent in Russia during the revolution.

William Haywood, son of a miner and a miner himself, was a leader of the IWW and the American Socialist Party in the early 1900s. He was also a journalist.

Charles Ruthenberg joined the revolutionary movement as a young man and became editor of the *Cleveland Socialist* in 1912. In 1919 he and several others left the Socialist Party to found the Communist Party, of which he became secretary. While Reed and Haywood died in Soviet Russia, Ruthenberg died in the United States. To carry out his deathbed wish, his friends had part of his remains buried at the Kremlin wall in Moscow and part buried in Chicago, in the common grave of the American working-class leaders executed in 1886 for the Haymarket riot.

QUESTION: Is the 5-million-kilowatt Krasnoyarsk power plant your largest? (J. E. McGoran, Rathdrum, Idaho)
ANSWER: Such Siberian power stations as the 6.3-million-kilowatt Sayano-Shushenskaya and 7.5-million-kilowatt Salekhard, to mention two, will be bigger. The biggest will be the 20-million-kilowatt station on the lower reaches of the Lena.

QUESTION: What is the Comitas quartet? (Mrs. Anne D. Fries, Indiana, Pennsylvania)
ANSWER: One of the oldest string ensembles in the Soviet Union. It was started in 1925 and took the name of the well-known Armenian composer Sogomon Comitas (1869-1935) some 30 years ago. Currently it consists of Avet Gabriyelyan, Rafail Davidyan, Genrich Talayan and Sergei Aslamazyan, all bearing the honored title People's Artist of Armenia. The quartet plays Russian, Soviet and foreign compositions. Its fresh and dynamic renditions have won it a large audience. It was awarded first prize in the thirties at a USSR competition of string quartets. In its 40-year history, the quartet has given 5,000 concerts in the Soviet Union, the United States, Canada, Britain, Austria and Japan.

QUESTION: I would appreciate any information on the Molokans contained in birth, death and marriage certificates and passport registrations, if the records are still available. (Gregory Tolmas Irvine, California)
ANSWER: There are various groups of Molokans in the Ukraine and in Voronezh, Tambov, Orenburg and other parts of the Russian Federation. No records of membership in religious sects, including the Molokans, have been kept since the revolution.

QUESTION: Which cities have trolley coach operations? Streetcar lines? Number of miles of route? Approximate number of vehicles used for each system? (James Alain, Hancock, Michigan)
ANSWER: Last year 108 cities had streetcars and 72 had trolley coaches. Streetcar lines totaled 4,410 miles, and trolley coach routes 2,790 miles. There are 20,380 streetcars and 8,980 trolley coaches. It is planned by 1970 to increase streetcar lines and trolley coach routes by 90 and 1,800 miles, respectively, and to add another 10,000 streetcars and 11,000 trolley coaches.

QUESTION: Tell me about the Moscow Conservatory of Music. (Jacqueline Sarkin, Pikesville, Maryland)
ANSWER: The Moscow Conservatory, whose centenary was observed in September 1966, is world famous. It was founded by the celebrated nineteenth century Russian pianist Nikolai Rubinstein, and such illustrious Russian musicians as Tchaikovsky, Taneyev, Ippolitov-Ivanov, Rachmaninoff and Scriabin have been associated with it. It graduates annually 150 composers, conductors, musicologists, pianists, singers, and performers on string and brass instruments. Among its students are some 100 gifted youngsters from abroad.

An article on the Moscow Conservatory appeared in the October issue.

QUESTION: Where does the USSR plan to build monorail lines? (John Jey, Ohio)
ANSWER: First, in the biggest cities and health resorts—Moscow, Leningrad, Kiev, Riga, Tbilisi and Sverdlovsk—and along the Crimean and Caucasian coast. In Moscow, for instance, we plan to build a circular monorail line and several radiating lines to link up the central parts of the city with air and river ports and suburban recreation zones.

QUESTION: Do many foreign students attend your universities and colleges? Do they study in Russian or their native language? (Jerry Turpin, Jefferson City, Tennessee)
ANSWER: We have more than 23,000 foreign undergraduate and graduate students. They come from 120 countries. In the past 10 years our universities and colleges have trained 27,000 specialists from various countries. The Patrice Lumumba Friendship University in Moscow leads in the training of specialists for the developing African, Asian and Latin American countries. Currently studying there are 3,500 foreign students from 82 countries.

Tuition is free. Instruction is in Russian. However, in the Preparatory Department, where the students learn Russian, they may take an optional course, a historical and economic review of human development, in their native language.

QUESTION: Can your people insure life, property, etc? (Vincent Starbid, Iowa)
ANSWER: Yes, they can. They may insure life, home, property, crops, etc., for whatever amounts they wish and for a term of 5 to 20 years or more. Premiums depend on the amount and term specified in the policy and on certain other conditions. Insurance is a state monopoly in the Soviet Union.

QUESTION: How are blind children taught in the USSR? (Ed Sutherland, Uniondale, New York)
ANSWER: All blind children go to school. There are more than 100 special elementary, eight-year and complete secondary boarding schools, as well as several dozen special schools for children with very poor sight.

Maintenance and tuition at these schools are free. Our educators in the field believe that blindness can be compensated for by developing other senses. This is done in the process of study and work. Hence, schools for blind children follow the same curriculums and use the same texts as the regular schools. Nothing is modified; the curriculum includes even such subjects as drawing and drafting.

However, since Braille cannot be read so fast, the term of tuition is one year longer. Also, at these schools there are fewer students in each class, not more than 15. Like the general schools, those for the blind give polytechnical and vocational training.

Any blind child in the USSR, wherever he lives, is able to learn a trade or profession and get a secondary or higher education at state expense.

QUESTION: What per cent of your students who enroll as freshmen graduate from your colleges and universities? (Fanny Hurst, Fruita, Colorado)
ANSWER: An average of 85 per cent of the entering freshmen complete the five-year course given by Soviet colleges and universities and graduate.

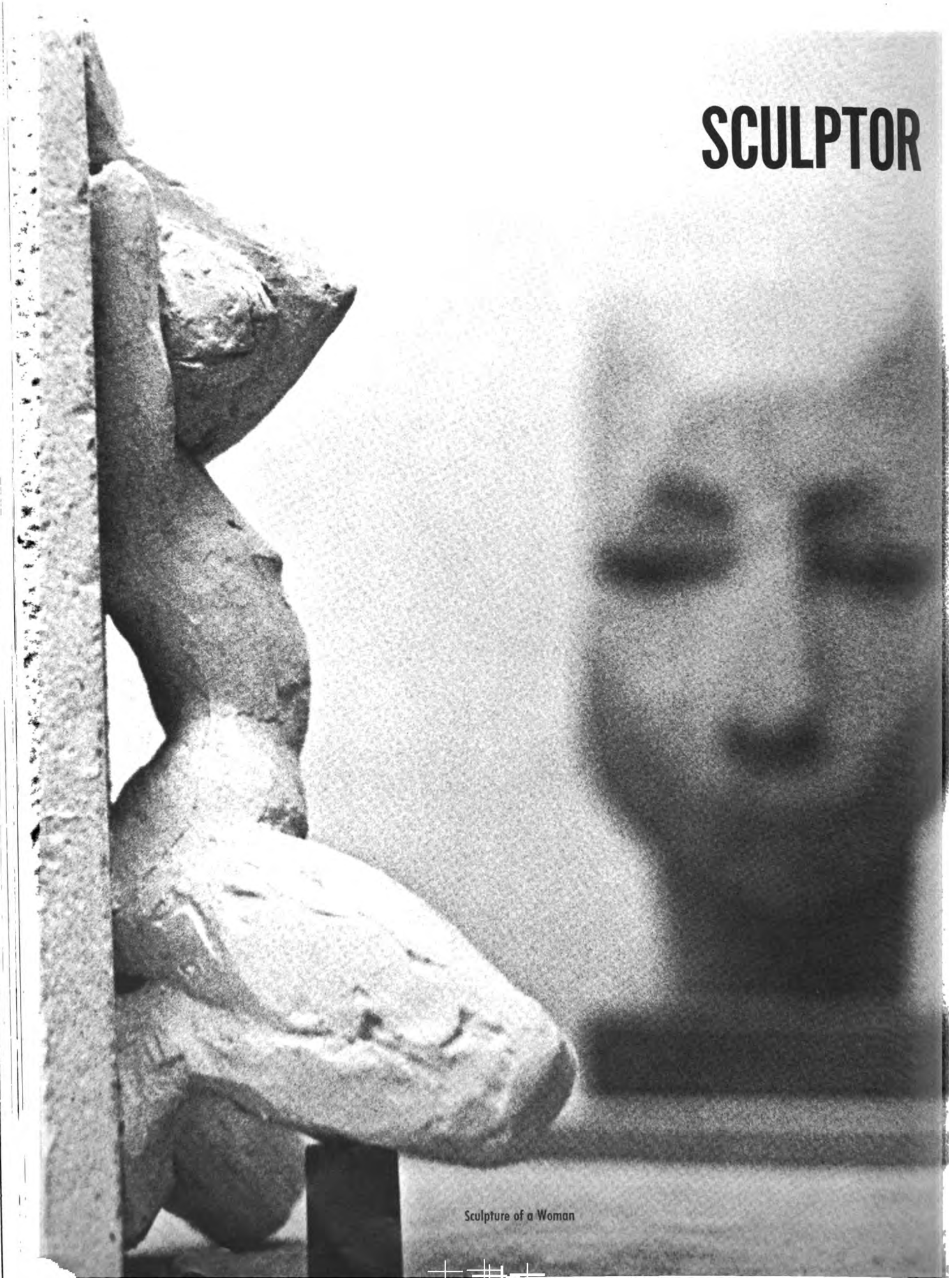
QUESTION: What are the populations of the individual union republics? (Albert Grams, Milwaukee, Wisconsin)
ANSWER: According to January 1, 1966, estimates, the Russian Federation was the largest of the 15 union republics, with a population of 126,600,000. The Ukraine had 45,500,000, Kazakhstan 12,100,000, Uzbekistan 10,600,000, Byelorussia 8,600,000, Azerbaijan 4,700,000, Georgia 4,500,000, Moldavia 3,400,000, Lithuania 3,000,000, Kirghizia 2,600,000, Tajikistan 2,600,000, Latvia 2,300,000, Armenia 2,200,000, Turkmenia 2,000,000, and Estonia 1,300,000.

QUESTION: How many bookshops in the Soviet Union sell American books published in the Russian language? (Albert Grams)
ANSWER: Books by American and other foreign authors published in Russian translation can be found in every Soviet bookshop.

QUESTION: What Western dances are popular in the USSR? (Stephen Kelley, Dresden, Tennessee)
ANSWER: Among others, the twist, the shake, the tango, the foxtrot, the waltz and the charleston.

QUESTION: Has Volgograd been completely restored? (Stephen Kelley)
ANSWER: In the past 24 years Volgograd, at the walls of which the greatest battle of the Second World War was fought, has been not so much restored as built anew. Before the war the city had a population of 400,000. Today it has a population of 720,000 and extends along the banks of the Volga for 43 miles.

SCULPTOR



Sculpture of a Woman

By Andrei Batashev

Vladimir Zimmerling, 38-year-old sculptor, small, broad-shouldered, wearing a gray sweater, pivoted his head this way and that and swung on his heels as he showed us around his "submarine." The "submarine" was his studio tucked away in the half-basement of one of Moscow's many-story buildings. He was very hospitable, energetically so. He put me in mind of a beaver showing off his fine stronghold, a very rational, very knowledgeable beaver.

Work

"Emotional power and reason are fused in the creative process," he said. "Emotional energy is bound to accumulate in the artist's work. A man can't add to his emotional power, he has what nature has endowed him with. But he can learn to think more rationally. That is what I try to do."

In Zimmerling's studio I saw a sculptured portrait of Bertolt Brecht, the German playwright. You felt the accumulation of emotional energy in the bust almost tangibly. It was made of plaster of Paris, the color of hammered copper. The slightly flattened face was deep-lined, and the eyes were implacable. There was something of the medieval monk's fanaticism in it.

Another bust was composer Béla Bartók, plaster of Paris, toned in old bronze. It was a portrait of a man in intense creative concentration, the eyes looking inward.

Zimmerling works from 10 A.M. to 5 P.M. daily. He thinks it irrational to work more than that. There are days, though, when he will be in his studio past midnight.

"My work moves along. It has its up and downs. Sometimes I think I have taken a big step forward, and the next morning it looks as though I have barely moved. I work hardest at times when I don't feel that I'm getting anywhere. I have to, otherwise I would fall into long spells of depression. When I am working, I feel sure that I alone am in the right. After finishing a job and wiping my hands, I become tolerant. I do not feel that these qualities exclude each other."

School

Self-discipline, a serious attitude to work—these qualities were bred in him from childhood. His father was one of the first Soviet scientists to tackle the problem of scientific industrial management. It rubbed off on the boy.

After graduating from the art school in Moscow, Zimmerling went to the Riga Academy of Arts. The Baltic masters have a long tradition of monumental sculpture. His teacher was Professor Teodor Zalkaln, a well-known sculptor throughout Europe who had lived in France and known Rodin. Zalkaln's motto was "finish every piece—the work you are assigned and the work you do for yourself."

Home

Zimmerling is married—his wife is a graphic artist—and has a two-year-old son. He considers himself a homebody. He does not even go to the movies very often.

At home he likes to do everything himself. His furniture is built after his own designs. In summer he and his wife go boating on the Nerl River in a canoe he made himself, so that he can study the monuments of ancient Russian architecture over and over again. In winter the Zimmerlings become ski fiends.

For Zimmerling music is a necessity. He has a large collection of tapes and records ranging from eighth century Gregorian chants to Stravinsky, Hindemith and Prokofiev.

"Every time I listen to music, I feel my world outlook clashing with the composer's. These clashes enrich me immeasurably. For me music, in a certain sense, is the ideal art form. But I can't listen to music when I work. It affects me too strongly, gets in my way.

"Some of us believe that an artist who thinks and feels things deeply must necessarily be in opposition to the world. I do not think so. For me the word "life-asserting" is not strained in the least. I believe that optimism, a joyful perception of the world, is as natural and organic as life itself."

Bust of Béla Bartók

Bust of Lev Landau

Bust of Bertolt Brecht

IS SEX EDUCATION FOR TEENAGERS NECESSARY?

By Artur Petrovsky
Master of Science (Education)

THIS IS a conversation I had with a colleague interested in sex education.

Me: As I see it, it's just a passing fancy. What I mean is the flood of articles on sex education. They won't change teenage attitudes. It's simply that after a long self-imposed taboo, everybody has started to talk about it, all at once and at cross-purposes. I don't think its importance should be exaggerated.

Colleague: You may have a point there, but it should not be forgotten either. You know this quote from Stefan Zweig's "Burning Secret": "They've got a secret they don't want me to know. I'm going to find out, no matter what. I know it must be the reason why grownups always shut the door in my face. It's what they write about in books and sing about in operas, when men and women stretch out their arms to one another, hug and then push each other away. I think it's all the same thing, but I don't know why."

It's like a baby teething, when the time comes, a child begins to ask about this "burning secret," the answer to which he will never, I repeat never, get, if he is not told.

Me: You think we should tell this "burning secret" to our children?

Colleague: Why do you assume I want parents to do the telling? That seems to be the current opinion of newspaper and magazine writers on the subject. One popular medical magazine even cited statistics to show that only 16.8 per cent of the teenagers got their sex information at school, another 6 to 7 per cent from their parents, and the remainder from casual sources. These statistics, said the article, showed how much the family and school were neglecting that critical aspect of education. I think the charge is completely unfounded.

As a matter of fact, has anyone ever proved that the sex information a child gets at school was any better than the information he might get from casual sources? If what we mean is that a "casual source" is more likely to be cynical, then what guarantees do we have that sex education given at home will not be tainted by the added information from these notorious "casual sources"? I, for one, wouldn't rush parents into telling their children the facts of life.

Me: Does that mean you prefer to fence-sit, to have no sex education at all?

Colleague: Why, no. I just don't want it vulgarized. Let me explain. First the age. I'm not concerned with the under-sevens, since I don't agree with Freud that three-year-olds have sexual urges. Their interest in sex is generally confined to their natural needs, to the differences they see in boy-girl anatomy and to speculation about how living things, themselves included, were born. The questions they ask are casual, and if the parents are sensible, the under-seven soon finds another object for his never-ending curiosity. The ones we're concerned about are the teenagers. I don't think there's any particular harm in parents sidestepping such questions. Wordy explanations are not necessary. I'll go even further. In principle, I'm against parents telling their children about sex. This is how I see it. The teenager may know the facts of life but not tell his parents that he does, and they, on the other hand, know that he is aware of the facts but pretend they do not. This tacit understanding is certainly more honest than sex "enlightenment."

A sharp line has to be drawn between giving children information on hygiene (plus a bit about sex, especially for girls) and this sex "enlightenment." The information on hygiene should be provided by doctor or parents without any special emphasis on sex. Not because it might pervert the teenager, but because it's premature. If the teenager has already acquired some knowledge from one source or another, there is nothing much you can do about it and, further, it's not so terrible if he has. What the teacher or parent should do is try to sublimate sex, to emphasize the beauty of real love. Then they will not be making a cynic out of the teenager, regardless of how much or how little he knows about sex and from what source he may have gathered the knowledge.

Me: That may be so, but you know very well that ignorance of the physiology and psychology of sex can be disastrous for young people. Can we let it wait?

Colleague: That's a different question. When the time comes for young people to marry—and I don't mean 15—sex education is essential. Both the ignorant and informed must be taught the scientific facts, the physiology and psychology of sex. This is the time for the specific and the concrete, for the lectures and the talks. This is where the doctor steps in. Everything in its time, they say. Well, this is the time.

Me: If I understand you correctly, you differentiate between telling children the general facts of life and direct sex education. From infancy through school sex is to be sublimated, teachers and parents are not to give specific sex education until children are really grown-up.

Colleague: That's right, though I don't mean to say there should be no exceptions in special cases.

Me: But what do you do with the boy who is terribly bothered because he can't learn the "burning secret"?

Colleague: For the time it will have to be one of the many secrets he can't know because of his age. Let us rather help him to grow up a man who will understand what to do with the secret, part of which can be known, another part of which remains forever a mystery.

WORKMEN'S COMPENSATION

By Georgi Pavlov

CHAIRMAN OF THE NOVOSIBIRSK
TURBOGENERATOR PLANT TRADE UNION COMMITTEE

EVERY MORNING Pyotr Bazunov, director of the Novosibirsk Turbogenerator Plant, gets a report from the chief engineer's office indicating, among other things, the temperature level in every shop. In addition, the plant's polyclinic follows a program of preventive checkups, and every employee is required at stated intervals to have a thorough medical examination, including X-rays. Foremen and shop superintendents are responsible.

But this, of course, is no guarantee against sickness, even at this plant which Walker Sisler, president of Detroit Edison Company, who headed a visiting delegation of American power experts, called one of the finest he had ever seen.

A key obligation of our trade union committee is to see that workers who get sick are provided for. For every day out sick the worker gets from half to full pay, figured on the basis of his average earnings. The money comes from the state social insurance fund, which is made up entirely of contributions from management, not a kopeck comes from the workers' pay envelopes.

Who is entitled to sick and temporary disability benefits? Every worker, even if he was fired the day he became ill.

Raisa Pashkova, a worker in our plant, was riding home on her husband's motorcycle. They had an accident on the way, and she wound up in the hospital with a fractured leg. Her shop trade union committee decided that it was an industrial accident, since she was on the way home from work. In conformity with the law she drew full pay, though, between the hospital and convalescing at home, she was out about six months. She is now back at work but prefers to go home by streetcar. Rumor has it that she is waiting for her husband to go off on vacation so she can get rid of his motorcycle.

Any injury incurred in the course of work is considered an industrial accident. That includes cutting a finger while machining a part, or taking a bad fall while walking to the plant cafeteria, or slipping on the street and breaking a leg while on the way from the plant to pick up a child at the kindergarten. The law calls all such cases industrial accidents, which means full pay for the incapacitated worker, regardless of his service record. If the illness keeps a person out for a lengthy period, the doctor may certify him for a disability pension. When he recovers, he gets his job back.

If a person gets sick at home, his sick benefit will depend upon his length of service. A trade unionist with less than three years' service draws half pay, a worker who is not a union member draws only a quarter of his pay.

Note, however, that all a worker has to do to join the union is to file an application, be voted on at a general membership meeting and pay the very modest initiation fee of one per cent of his earnings.

In the case of workers with three and more years of employment, the size of the sick or disability benefit depends on the service record, with workers who have more than 12 years of service drawing 90 per cent of their average earnings. A non-union worker will draw only half his earnings.

While the worker is undergoing treatment, his job stays open for him even though the medical commission may keep him on the sick list for several months. And in the case of a chronic illness, he will be granted a disability pension and, in the event of recovery, will get either his old job back or some lighter work.

Life has its surprises, not all of them pleasant. On one by no means fine day, as Andrei Tarasov was adjusting his machine, it cut off the upper phalanges of the fingers of his right hand. After consulting with the safety engineers, the social insurance commission reached the conclusion that there was no negligence on his part, that the accident was caused by a defect in design.

Tarasov had to change his trade. He is now a storekeeper, but he draws his old pay as compensation. In addition he gets a disability pension from the state as a partial (third category) invalid. As you see, the misfortune has not affected his standard of living.

This is the policy that our, and every other, Soviet plant follows with respect to workers who get sick. Both the factory and the state provide for the sick person and his family.

ЖУКОВКСИЙ
ВАСИЛИЙ АНДРЕЕВИЧ

VASILI ZHUKOVSKY (1783-1852)

Vasili Zhukovsky was one of the few Russian poets on whom fortune smiled. He enjoyed the favor of the court: from 1815 he was reader to the czarina and poet laureate and from 1826 tutor to the heir apparent, the future Czar Alexander II. Fifteen years later he retired much honored and spent the rest of his life abroad. Although not a radical himself, Zhukovsky used his influence to intercede for other writers who fell into disfavor.

He is one of the founders of the Russian romantic movement in literature. But in no sense is Zhukovsky the dark rebel of the Byronic type, he is the benign storyteller, eager to thrill his readers with some weird and mysterious romantic legend.

He excelled in the ballad ("Ludmila," "Svetlana," "The Cup," "Adelstan"). Most of his subjects are borrowed from folklore or European poets—Schiller, Robert Southey and others. But Zhukovsky was not an imitator. "Almost everything I write is taken from others or is about the work of others and yet I can call it all my own," he once said.

He broke through the rationalistic esthetics of classicism and, in the opinion of the critics, put "heart and soul" into Russian poetry. Zhukovsky unfolded for his readers a world of human passion and feeling which throbbed with mysterious tones and colors. His descriptions of nature are animated by philosophic content. His admirable translations gave the Russian reader an appreciation of the beauty of Homer's Odyssey, *and Schiller, Byron and many other poets.*

НОЧНОЙ СМОТР

В двенадцать часов по ночам
Из гроба встает барабанщик;
И ходит он взад и вперед,
И бьет он проворно тревогу.
И в темных гробах барабан
Могучую будит пехоту:
Встают молодцы егеря,
Встают старики гренадеры,
Встают из-под русских снегов,
С роскошных полей италийских,
Встают с африканских степей,
С горячих полей Палестины.

В двенадцать часов по ночам
Выходит трубач из могилы;
И скачет он взад и вперед,
И громко трубит он тревогу.
И в темных могилах труба
Могучую конницу будит:
Седые гусары встают,
Встают усачи кирасиры;
И с севера, с юга летят,
С востока и с запада мчатся
На легких воздушных конях
Один за другим эскадроны.

В двенадцать часов по ночам
Из гроба встает полководец;
На нем сверх мундира сюртук;
Он с маленькой шляпой и шпагой;
На старом коне боевом
Он медленно едет по фронту:
И маршалы едут за ним,
И едут за ним адъютанты;
И армия честь отдает.
Становится он перед нею;
И с музыкой мимо его
Проходят полки за полками.

И всех генералов своих
Потом он в кружок собирает,
И ближнему на ухо сам
Он шепчет пароль свой и лозунг;
И армии всей отдают
Они тот пароль и тот лозунг:
И *Франция* — тот их пароль,
Тот лозунг — *Святая Елена.*
Так к старым солдатам своим
На смотр генеральный из гроба
В двенадцать часов по ночам
Встает император усопший.

ВОСПОМИНАНИЕ

О милых спутниках, которые наш свет
Своим сопутствием для нас животворили,
Не говори с тоской: *их нет*;
Но с благодарностию: *были.*

THE MIDNIGHT MUSTER

Upon the twelfth hour of night,
From his coffin the drummer arises;
He paces back and forth,
And sprightly beats the alert.
And in the dark coffins the drum
Awakens the mighty infantry:
Up stand the courageous Chasseurs,
Up stand the grizzelled old Grenadiers,
From under the Russian snows,
From Italian luxurious fields,
From the hot sands of Palestine.

Upon the twelfth hour of night,
From his coffin the bugler arises;
He gallops back and forth
And loudly sounds the alert.
And in dark graves the trumpet
Awakens the mighty cavalry:
Up stand the gray-haired Hussars,
Up stand the bewhiskered Cuirassiers;
And from the North, from the South come flying,
From the East and the West come rushing
On light-airy steeds
The squadrons one after the other.

Upon the twelfth hour of night,
From his coffin the Commander arises;
His uniform hid by his surtout;
He wears a small hat and a sabre;
On his old charger
He showly reviews his army;
His Marshals ride behind him,
Behind him ride his aides;
And the army salutes.
Then he stands before it;
And with music the regiments
One by one march past.

Then all his Generals
He gathers about him in a circle,
And in the ear of the nearest
Whispers his password and slogan;
Then to the entire army
They impart that password and that slogan;
And *France*—that is their password,
That slogan is *Saint Helena*.
Thus for his soldiers of old,
For the grand muster,
Upon the twelfth hour of night
Arises from his coffin the dead Emperor.

REMEMBRANCE

Of those dear way-companions who gave our world
With their companionship new birth,
Say not with sadness: they are gone;
But say with gratitude: they were.

IN THE NEXT ISSUE

Fedoskino is more than the name of a village 20-odd miles from Moscow, it is the birthplace of Russian lacquer work. The famous Palekh boxes with scenes from folklore painted in glowing reds and golds on their covers are probably more familiar to non-Russians. Discriminating tourists have been purchasing them for decades as treasured souvenirs. But, say connoisseurs, the artists of Fedoskino have no peers as lacquer painters. Many of the secrets of the craft, handed down from father to son, had their origin in icon painting and go back many centuries. Some of the miniatures rank as museum pieces, unique examples of a demanding art. The younger generation use the traditional techniques for new themes.

The Bhilai Steel Works in India and the Aswan Dam in the United Arab Republic are two examples of about 600 projects in 30 developing Asian and African countries getting technical and economic assistance from the Soviet Union. Some 20 colleges, technical schools, and specialized and training centers are being built and numbers of technical personnel trained with Soviet help. A detailed discussion in the next issue.

The capital had a full week's festival of shows authored, directed and acted by students from universities and institutes in Leningrad, Odessa, Novosibirsk and other cities. They were almost all satirical revues. There were funny jokes and flat ones, strong actors and weak, rank amateur and almost-professional productions, but the best had a spontaneity, a free and easy charm and a bite and a sting that brought the house down. The troupe from the Moscow Aviation Institute won a first prize for a hilarious skit on a national economy drive to save eggshells.

Northern Russia is about lumberjacks in the heart of the northern forest, men who ride great logs down turbulent rivers. And about White Sea pilots who have navigated ships through treacherous seas since the days of Peter the Great. In this land of ancient Rus, a new generation is writing a fascinating chronicle of white nights and brave men.

Some of the other articles in the January issue:
Direction of the Main Blow—a noted economist looks at the current Soviet economic picture and the reforms recently introduced; Brecht vs. Stanislavsky? Extremes Meet—diametrically opposed tendencies (or so it would seem) in the Soviet theater and where they are headed; Medicine and Society—interview with the Minister of Public Health on present-day developments and problems; Hostile Whirlwinds—part of the series on the Russian Revolution, highlighting the struggle of Soviet power against intervention and counterrevolution; In a Jockey's Saddle—an ex-jockey rides again and tells us what it feels like; Experiment or Synthesis?—portrait of contemporary Azerbaijanian composer Kara Karayev; American Ballet Theater Scores Another Hit—a tour, and a very successful one, of the home of the ballet; Scythian Burial Mounds—an article on newly discovered artifacts of the ancient inhabitants of what is now Soviet territory.

NOVOSTI PRESS AGENCY

SOVIET LIFE

Union of Equals

The sovereign republics that agreed to unite in the USSR. The historical background of today's government structure.

Desert Without Mirage

Man, armed with machines, makes the sands blossom. The past, present and hopeful future of the arid Kara-Kum.

Jazz Festivals in Prague and Moscow

Jazz idiom embroidered on Russian folk harmonies brings praise from
like John Hammond and Wi

THINGS CULTURAL

By Natalia Chulaki

FOLK ART OF THE NATION

"Topornaya rabota" in Russian usually means a rough or clumsy job, and is derived from the word "topor" (ax). But the one exception to this definition is made for the art of ax-carving. For where but in Russia can one find the intricate window frames, the wooden bowls, dippers, spoons, and especially the marvelous toys, fashioned in a matter of minutes by the virtuoso artist of the ax? Such masters are now far rarer than they used to be (how many of our arts have vanished with the advent of modern life, mass production and television!), but thanks to curio-hunting tourists, as well as appreciative fellow villagers, the good word has finally gotten around and the "ax-handlers" are again coming into their own.

A number of villages in Northern Russia and a group near the city of Gorky produce a gay assortment of miniature toys based on traditional designs, but with a lot of individual variation. One of the tribe craftsmen is Sophron Ivanovich Sedov of Semyonovo. Working in front of the woodpile in his yard, his faded red sweater half hidden by an impressive beard, he sits almost motionless, with only his ax-hand pecking away at the wood in short, swift strokes. Chik-chik, and the little chips turn into boards and rungs, and handles and knobs. A little twine for sturdy joints, some more chik-chik as a finishing touch, and the set of doll furniture is ready to be dipped into its sunny yellow dye and painted with bright red flowers. Other days, Sophron Ivanovich might chop out a windmill with moving arms, a wooden horse in harness, a toy truck—and all so small that the whole lot, together the houseful of furniture, fits into a medium-sized market basket.

Craftsmen in neighboring villages turn out a variety of articles that include miniature balalaikas, push-toys shaped like roosters, wagons, sleighs, sailing ships, and a merry-go-round with all the trimmings. What a wealth of pleasure they bring, and all from just "a couple of chips"!

CHEERFUL CRAFTS

Why is it that so many folk arts and crafts, especially those of a high professional standard, are only now experiencing a comeback after years of relative obscurity? Actually, the reasons are many, but they boil down to the fact that modern times are often rough on the home craftsmen, whatever his field. It never was easy for most of them. Now, however, people are waking up to the fact that if some of them aren't saved—literally snatched from oblivion—the only place our youngsters will ever see the vigorous beauty that is their folk art heritage will be in a museum!

The government is aware of the necessity for developing folk arts; a program is being worked out to help them to grow and thrive by providing better conditions for the craftsmen, organizing a unified market system, and encouraging quality wherever it is spotted.

True, certain arts have suffered no decline, enjoying great popularity through the years. The lacquer miniatures on boxes and other articles made in the four Russian villages of Palekh, Mstera, Kholuya and Fedoskino are world famous, and justly so. From father to son, through many generations, came both subject—whether of storybook splendor or the poetry in the daily life of the peasant—and technique, with its characteristic brilliant reds and blues and greens against a glossy black background, all exquisitely touched with gold.

But lacquer work is a long and painstaking process, requiring slow, fine workmanship, as well as a genuine talent for the job. The same is true of bone-carving in the Far North and the Far East, the silversmithing and metal chasing of Daghestan and other regions in the Caucasus, the rug weaving of Central Asia, and the lacemaking of the Vologda region. Such work, when exhibited, is a source of admiration, even wonder; in the shops it commands fancy prices. But there are other crafts, requiring far less in the way of time and material, yet lending a cheer and brightness to your home that no machine-made ornament ever can! In addition to wooden toys that are a delight to the eye, though cheaply made, there are as many styles of simple pottery (the kind made without elaborate glazing procedures) as there are nationality groups in the Ukraine, Russia, the Caucasus and Central Asia combined. This is to say nothing of the common, though no less charming, variety of gold- and flower-painted wooden spoons and dippers, graduated in size from one convenient for eating your borscht to gigantic, punch-bowl dimensions to serve an entire wedding party! These are typically Russian.

BASHKIRS' DELIGHT

Or take the weaving art of Bashkiria, in the Ural Mountains. Here, living and working side by side with the Russians of this region, are a people with their own ancient culture and customs. They love color—and plenty of it! None of your thin and pale washes either. A typical hand-woven "tastimal" (towel) consists of bold stripes of pink, purple, bright green, not a timid combination in the lot. Every stripe has woven into it a dynamic geometric design that is harmonized with its neighbors. A "tastimal" or "sharshau" (cloth) could serve as a decoration in many a modern home, an exhilarating spot of real color against the "oatmeal," "wheat," "stone," or "no-color" of today's furniture tones that are subdued practically out of existence. But they must be routed out, popularized, encouraged. How many people know about these vibrantly beautiful works of art? Or anything about the few old women who still know how to make them?

The time has come for a nationwide talent search for masters of distinctive arts and crafts, most of whom do not live in large cities but are hidden away in many small villages, "auls" and "kishlaks," some of them remote, others right at the crossroads of suburban life yet somehow unnoticed or neglected in the hodgepodge of modern trivia.

One Moscow newspaper which has impressive circulation figures and reaches every corner of the country has published an appeal to readers for information, names and addresses, and particularly descriptions with photographs of applied art produced anywhere in the Soviet Union. When we know where conspicuously good work is done, or has been done, we will have a starting point from which to encourage and continue the traditional arts of our people.

ART SHOWS

Less than a year after the big Louvre show in Moscow's Pushkin Museum, we now have the first exhibition of French sculpture in the USSR. Theme—the late nineteenth and early twentieth century, into the twenties. The artists—Rodin, Bourdelle, Despiau, with Renoir, Bernard and one or two others as a bonus.

In a gift to the Hermitage Museum, the Government of India is sending to Leningrad a collection of fine and applied art objects, including sculpture, bronzes, manuscripts, drawings and folk art. Of special interest is medieval sculpture from various parts of the country and painted miniatures of the Rajasthan and Kangra schools.

JUST LOOKING

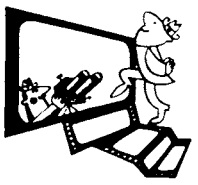
Another way of locating the artists you want is by simply going out and looking for them. This is what the local authorities have done in the mountains of Tajikistan. One of the talent scouts, a

landscape painter himself, has traveled from village to village, looking, "asking around," collecting addresses of people doing notable work in the applied arts. To date, he has found hundreds of potters, wood carvers, and men and women engaged in every sort of textile art and needlework. The pottery alone is worth enthusiastic mention. The freedom and monumental quality of the designs of Said Rasulov are typical, yet very personal.

But where do you find this sort of work on sale? Only at a village market in Tajikistan?

Applied arts in the Ukraine, Latvia, Estonia, and some of the smaller republics in transcaucasia are well organized. Marketing is attractive to both buyer and seller; subsidies are given where necessary, and as a result, thousands of people have the opportunity to enjoy this pageant of folk art. It is time the rest of us did!

TRAGEDIAN GONE COMIC



Yes, it's Innokenti (Hamlet) Smoktunovsky in a detective story twist on the old Robin Hood theme. **Watch Out for Cars** is the almost unbelievable tale of a lovable ex-taxi driver who purloins other people's cars out of the goodness of his heart. A gentle dreamer who lives his dream, he is surrounded by understanding people who don't know what he's doing, but are sure he wouldn't be caught dead doing it! Others, not so understanding, are living it up with money made on a variety of shady deals.

Things move fast as suspicions mount on both sides. There is even a grand chase on the cloverleaf highway, but it's all a mistake, and both "cop" and "robber" part friends. After a few more misunderstandings and an overwhelming number of clues, the hard-working detective is forced to the conclusion that Smoktunovsky is indeed the culprit, and besides, he has confessed. But when it turns out he always steals from the right people (the "bad guys," of course) then sells the car and gives away the proceeds, you begin to wonder whether he isn't just a bit cracked. Then again, is he really? What you finally decide probably depends on how you feel about life in general!

Directed by Eldar Razanov, with screenplay by Razanov and Braginsky, this film rates high in entertainment value, but you are almost sure to come out cogitating.

THE DYNAMIC SQUARE

Soprano Galina Vishnevskaya of the Bolshoi Opera stars in a screen version of **Lady Macbeth of Mtsensk,** Dmitri Shostakovich's opera based on the well-known story by Leskov. Lenfilm Studios is making this wide screen film in color.

Mosfilm Studios is making several motion pictures jointly with foreign studios this year.

Soviet director Mikhail Kalatozov **(The Cranes Are Flying)** is shooting the story of the rescue of the Umberto Nobile polar expedition in a joint Soviet-Italian-West German effort.

British actor and director Anthony Asquith is directing a Soviet-British film this year. It retells one of the most famous of the Hoffman tales, **The Nutcracker.**

James Aldridge is to write the screenplay of his own **Prisoners of the White Desert** for Gorky Studios, Moscow.

Mosfilm medals for the best motion picture of the year went to the following films: gold medal—**Just Ordinary Fascism,** directed by Mikhail Romm (who also got the best director award); silver medal—**Lenin in Poland;** bronze medal—**Open the Door,** which also took the best actor and best actress awards—Roland Bykov and Lena Proklova (aged sweet 16)—as well as the best screenplay by Alexander Volodin.

Two actors were awarded the Lenin Prize this year. They were Mikhail Ulyanov for his performance in **The Chairman,** and Sergo Zakariadze for his role in **A Soldier's Father.**

GO AND LISTEN TO THE PEOPLE SING

This time the people came to us, as Moscow's Composers House played host to four small groups of folk singers from Belgorod, Briansk, Ivanovo and Smolensk regions. In a concert that brought the authentic sound of the Russian countryside to town, there were slow, doleful melodies expressive of the heavy burden borne by the Russian peasant in the old days, there were joyful harvest songs, traditional wedding chants, and poetic moments when,

"Far away in the evening quiet,
We hear their voices across the fields."

It was an evening of old songs, sung as they have been for longer than anyone can remember.

Costumes, too, were old-fashioned, inherited from mothers' and grandmothers' holiday wear—heavy with embroidery and hand-woven textiles, and like the songs, harmonious.

A variety of regional styles, combined with personal sincerity of expression, put the music across with a vitality and poetic feeling not always felt in performances of professional artists.

With clear country voices, the singers whisked through the figured passages as if they enjoyed them. But it was in the long, sustained notes of the heartfelt ballads that the audience, sophisticated as it was, fell silent in a long pause before the applause began.

A women's quartet from Briansk sang a traditional invocation to spring, dating back many centuries. The unaccustomed modal harmonies and polyphony sound rather astringent to our ears today, but a remarkable feeling of ensemble reflected the perfect blend of lyrics and music that characterized everything sung that evening. This was an event, though not strictly, as some had expected, for the folklore experts and collectors. The plain farm folk are not competing with the big professional choruses; theirs is not a theatrical art. Yet when you want to hear the expressive voice of the land, listen to the people sing!

NEW GROUP

When three well-known musicians get together for some trio playing, it's a pleasant evening's entertainment. But when they stay together for a year or more, it graduates into something immeasurably better—a true ensemble. Especially when they are violinist Igor Bezrodny, pianist Dmitri Bashkirov, and cellist Mikhail Homitzer. Each has traveled much here and abroad. Their styles of playing are very different. Bezrodny with his singing tone is the poet of the group, Bashkirov a more fiery sort of romantic with a wide range of color, while Homitzer is known for his virtuosity. The happy combination of these qualities in a concert here this season resulted in some original readings of Mozart, Shostakovich and Tchaikovsky. Let us hope the solo concerts and teaching commitments of the three will not stand in the way of further ensemble performances.

TOURS AND EXHIBITIONS

The Leningrad Comedy Theater, better known here as the Akimov Theater, after its director, has come to Moscow with a full roster of productions, from Shakespeare **(Twelfth Night)** through the Russian classics and various other playwrights over the centuries to the contemporaries—Anouilh **(The Lark),** Jerome Kiltie **(Dear Liar),** and a spate of Soviet moderns.

Moscow seems to be enjoying a record number of visits from out-of-towners. The Sverdlovsk Opera and Ballet Theater has brought, among other things, a new ballet production of **Spartacus.** Drama companies from Tashkent and Tbilisi are playing to Moscow audiences this month.

Pop music groups from Poland, Germany and Czechoslovakia will follow singers Claudio Villa (Italy), Iovanna (Greece), and dancer Rita Devi (India).

Igor Moiseyev, of the globe-trotting Moiseyev Dance Troupe, is chief adviser at the first conference of teachers of ballroom dancing. The more than a hundred instructors from all over the Soviet Union who are teaching classes at Moscow's Gorky Park plan to talk about dances originating in this country, in the West, in Latin America. We expect that a few rugs will be cut in the course of the discussion.

Moscow, Ulyanov Street is the address of the big new home of the State Library for Foreign Literature, heretofore scattered in eight different parts of the city. Serving the public for nearly 50 years, its main treasure consists of three and a half million volumes in 127 languages. With special and general reading rooms, extensive audio-visual aids (including magnetic tapes in 36 languages), a spacious hall for film showings, lectures, conferences, record concerts, and so on, the new building will be an information and study center for the millions who now read or wish to learn foreign languages.

Visitors to the panorama view of the Battle of Borodino have passed the four million mark. Borodino, the beginning of the end for Napoleon in 1812, is a household word here, and sightseers have flocked to the new round building housing the famous painting ever since it was opened in 1962 to commemorate the 150th anniversary of the historic battle.

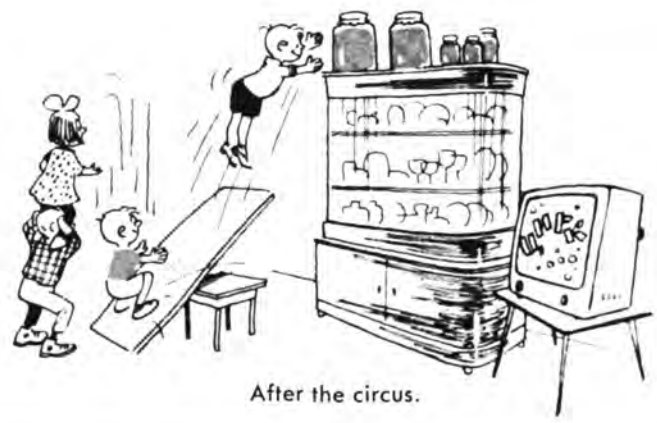
"Ya big bum!"

Photograph by Vladimir Minkevich

HUMOR

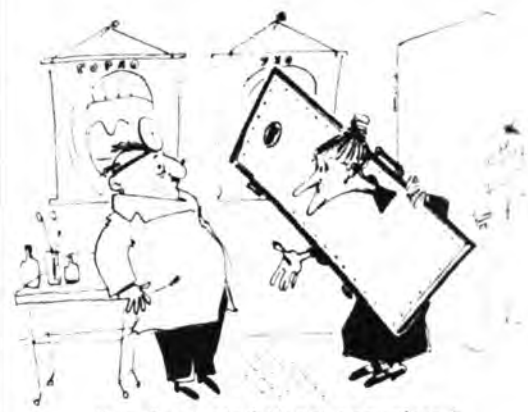
Love at first sight.

Some reputation!



After the circus.

"Darling, I swear I got her with a worm."



"I only wanted to get acquainted with our new neighbors."

"Now what the devil was it he sent me after?"

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