HAPPY NEW YEAR!

By Anatoli Sofronov

ONLY two years ago I visited the United States of America as a member of a delegation of seven Soviet journalists, and it is with pleasure that I recall the hospitality of the American people.

Our countries are divided by the Atlantic and Pacific oceans, and we have different social systems. In spite of this, we have a lot in common. Yes, our people are really very much alike.

I feel it at the moment these lines are being written the way I felt it at the time when we were crossing America by plane, when we met hundreds of people and learned something of the life of the country.

We heard the wish for peace and friendship between our peoples repeated time and again by Americans in all walks of life, from the Cleveland industrialist to the bricklayer from Salt Lake City.

I would like to meet again the farmer from Arizona who showed us his livestock farm and thoroughbred racing horses.

How good it would be to clasp the hand of the old ship's mechanic who more than once bathed in the icy waves of the North Sea during the war when he was convoying arms deliveries to the Soviet Union. He has retired on a pension, and we met him in San Francisco.

With the greatest pleasure would I talk to the San Francisco editor who received us in his home and proudly showed us his sleeping children.

Continued on next page

Anatoli Sofronov is a popular playwright and the chief editor of the magazine Ogonyok. *He has traveled through many countries and visited the United States in 1955 with a delegation of Soviet journalists. His articles on his trips abroad are read widely by the Soviet public.*

1958 MARKS THE FIRST YEAR OF THE SOVIET STATE'S FIFTH DECADE. ANNIVERSARY PARADES LIKE THIS, IN MOSCOW'S RED SQUARE, TOOK PLACE ALL OVER THE COUNTRY

People in America looked at us in wonder, their curious glances traveling over our suits, shoes, ties and watches. They found that many things were similar to those made in any other country. But most important, they found that Soviet people were made of pretty much the same stuff as themselves.

The year 1957 has departed, and the New Year has come. As the lights on the numerous fir trees are switched on and people gather around the holiday tables, they are in high spirits, looking forward to the new events the coming year is sure to bring, to new dreams and new plans taking shape in their minds.

We have good reason to feel happy and elated today. The year 1957 was a good year for us, and we gathered momentum for the future. I am not talking about the launching of the earth's first artificial satellites, a feat that crowned all of our scientific and technological achievements. The sputniks are the pinnacle, but the path leading to the top is paved with the remarkable achievements of Soviet scientists, engineers, workers and farmers.

The industrial enterprises of Moscow alone produced up to 190 completely new models of machines, apparatus and instruments in 1957. The country's farmers raised a good crop. And though the fields of the Urals, Kazakhstan and the regions along the Volga River suffered from drought, the nation was supplied with all the grain it needs.

Billions of rubles have been invested in housing construction and millions of families have moved into new apartments. Additional millions of acres of virgin land have been reclaimed for agriculture in Siberia and Kazakhstan, yielding their first crop of grain. Colossal hydroelectric stations have switched on myriads of new lights. Many new universities and institutes, thousands of schools and theaters have been opened. The movement for overtaking the USA in per capita production of meat, milk and butter has attained countrywide proportions. The world's most powerful synchrophasotron was set into action at the small town of Dubna, near Moscow. Shostakovich composed his Eleventh Symphony, which music lovers have called superb. Last summer Moscow threw open its doors to 34,000 young people from 130 countries who arrived at the World Youth Festival and experienced our hospitality firsthand.

New Year's Eve has always been a time for celebration the world over. But for the people of my country this year it was a double event—the beginning of 1958, of course, and the beginning of the fifth decade of the Soviet state.

I look back over these forty years with mixed emotions—pride in our achievements, satisfaction in the knowledge that what we have accomplished will be of help to all mankind, and a bit of sadness, too, in remembering the struggle of wars, the hardships and sacrifices of reconstruction. But everyone in my country knows that the spadework has been done now and that our past efforts will yield increasing rewards with each new year. That is why 1958 has special meaning for us.

A lot is expected of the coming years. It is hard to predict what new discoveries and inventions human genius will make possible. But of one thing I am sure—whatever good the years bring to my country will be of benefit to other countries as well. We don't view our accomplishments in terms of narrow personal advantage but rather those of general usefulness.

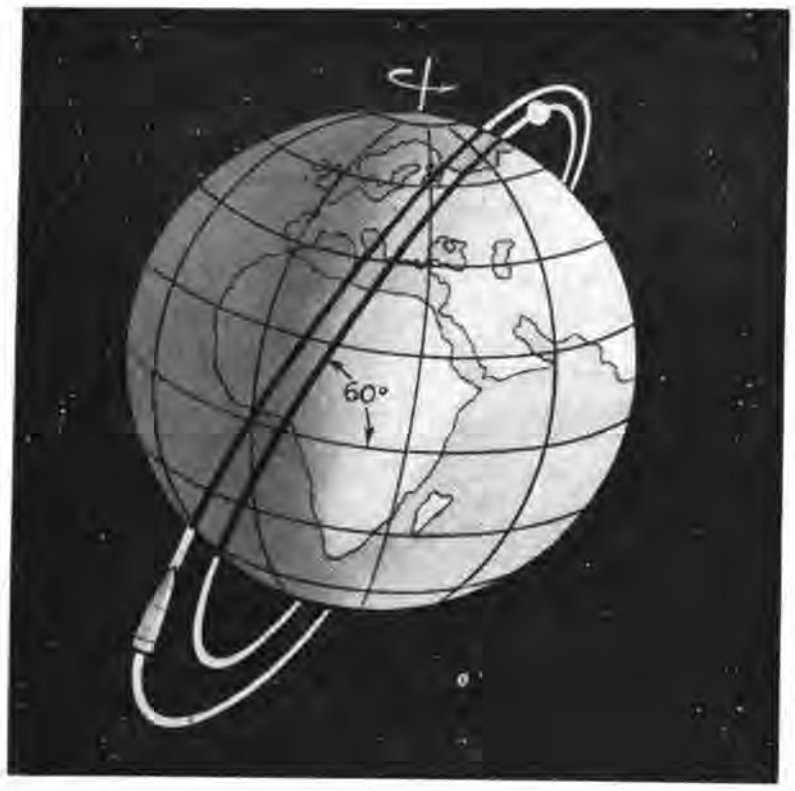
Now I don't mean to imply that the spirit of competition is not keen in my people. We do like to win and we get as much pleasure from being "first" as the next one, but never at the expense of good sportsmanship. Perhaps this example will give some insight into our character. Recently I made a trip to Krasnodar Territory, to the fertile Kuban. I heard the Kuban Cossacks say: "We'll surely get ahead of Iowa in the production of milk, butter and meat."

And I know that the people of the Kuban are true to their word. They have a high regard for the achievements of the Iowa farmers, and they want to bring their own farms up to these high standards. We have already made it known that we would welcome an exchange of visits between the farmers of Iowa and the collective farmers of the Kuban.

The fervent wish of the Soviet people is peace with all the nations of the world, mutual assistance and mutual cooperation. I am convinced that this coincides with the dreams and wishes of hundreds of millions of people throughout the world. And it is natural that this wish should be nearest our hearts at the start of 1958.

May this year become a landmark. May it become the happiest year for mankind, when economic and cultural relations among the nations of the world are strengthened and broadened in a spirit of international good will and confidence. ■

THE GAIETY OF THESE UKRAINIAN YOUTHS REFLECTS BOTH THE CONFIDENCE AND THE GREAT OPTIMISM OF THE COUNTRY AS IT PASSED ITS FORTY-YEAR MILESTONE



SPUTNIK II

Cosmic Fact-Finder

THE second man-made satellite was a larger, heavier and more complex version of Sputnik I. Its refinements were ordered by the fact that it was carrying a variety of complicated instruments and Laika, the first space traveler, whereas Sputnik I carried only relatively simple instruments.

The Instruments

Sputnik II was launched as a final unit of a multistage rocket. This simplified its visual observation. In tracking the first sputnik, observers found it easier to follow the course of the carrier rocket than the satellite itself because of its greater luminosity. The carrier rocket was brighter than the satellite by several stellar magnitudes.

In the forepart of Sputnik II a special frame enclosed the instrument to record short-wave radiation from the sun—the ultraviolet and X-rays. A spherical container resembling that of Sputnik I carried two radio transmitters and sources of their power supply, thermal controls and sensitive elements to register such effects as fluctuations of temperature. Also in the forepart of the rocket was the airtight cabin which housed the dog and the instruments to record its physiological reactions.

Mounted on the body of the rocket were instruments for the study of cosmic rays, radiotelemetering equipment to transmit all the data recorded on the satellite, equipment for measuring temperature on the satellite's outer surface and inside it, sources of power supply for the satellite's scientific and measuring instruments.

The total weight of all equipment, the dog and power sources was 1,120 pounds, six times as heavy as Sputnik I. The instruments and containers mounted on the rocket's frame were shielded from the aerodynamic and heat effects of the passage through the dense layers of the atmosphere by a special protective cone. After the satellite was thrust into its orbit the cone was jettisoned.

Satellites' Life

The speed imparted to Sputnik II by its rocket gave it an elliptical rather than a circular orbit. At its farthest distance from the earth it reached an altitude of better than a thousand miles, almost double that of the first sputnik.

The resistance of the earth's atmosphere tends to act as a brake on the movement of a satellite. This alters the size and shape of its orbit. It meets the greatest resistance at the point where it comes closest to the earth, what is called the perigee of the orbit. At the farthest point from the earth, the apogee, the satellite moves in cosmic space, outside the earth's atmosphere, which extends, theoretically, to an altitude of about 600 miles.

Because the satellite gradually slows down, its elliptical orbit becomes smaller and its path more and more circular. When the orbit shrinks to a height of about 60 miles, atmospheric resistance becomes so great that the heat generated burns the satellite up like a meteor.

Since the period of revolution of Sputnik II was greater than that of Sputnik I, it had less resistance to overcome. It could reasonably be assumed then that the second moon would traverse its orbit for an appreciably longer time than the first.

As a result of world-wide trackings of the two sputniks, science should be able to forecast with accuracy the length of life of future satellites. This is only one of the many invaluable findings which data from the sputniks will give us. *Continued on page 6*

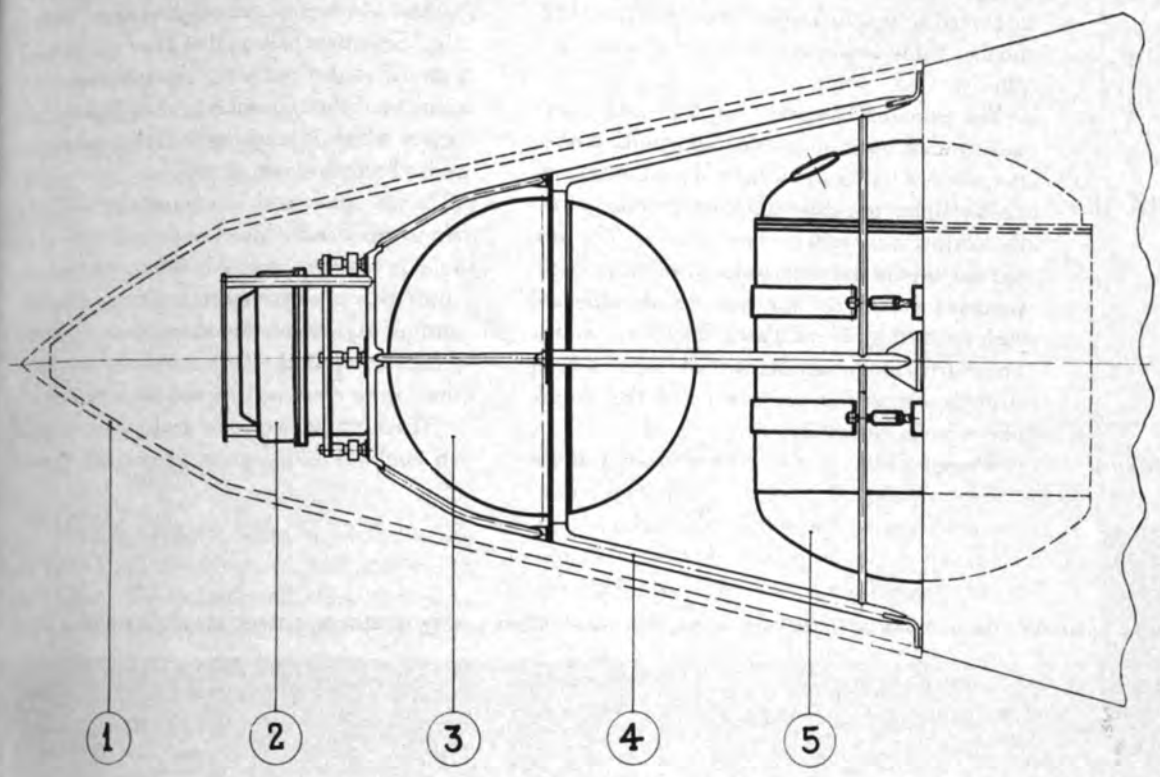


DIAGRAM
OF THE FORWARD SECTION OF SPUTNIK II

1—Protective nose cone jettisoned after the satellite reached its orbit.

2—Instruments for studying the sun's radiation (ultra-violet and X-rays).

3—Sphere containing two radio transmitters and other instruments.

4—Frame enclosing the satellite's scientific equipment.

5—Airtight cabin for experimental dog.

PHOTOGRAPH OF THE FORWARD SECTION SHOWN IN DIAGRAM ABOVE. THE WEIGHT OF EQUIPMENT AND DOG WAS 1,120 POUNDS—SIX TIMES MORE THAN SPUTNIK I.

SPUTNIK II

Cosmic Fact-Finder *Continued*

Sun's Short-wave Radiation

The data on the sun's short-wave radiation provided by Sputnik II are most important for further study in physics, astrophysics and geophysics.

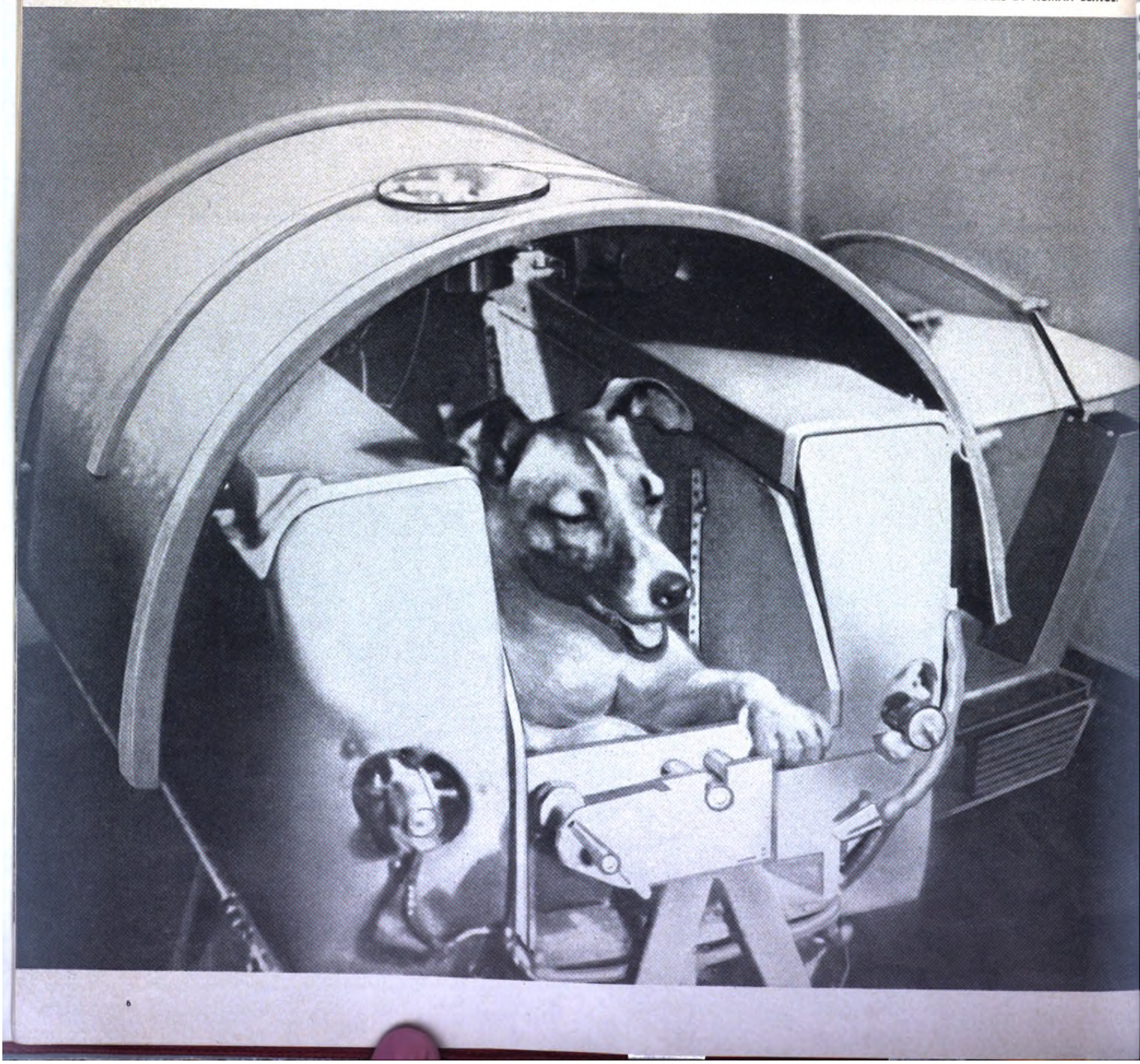
The amount of energy of the sun's short-wave radiation is comparatively small, tens of thousands of times less than the sun emits as visible light, but this radiation greatly affects the earth's atmosphere nevertheless. The reason for this is that short-wave radiation is extremely active. As the rays strike the air molecules, they break them down into atoms. These free atoms are known as ions and the strongly ionized upper layers of the atmosphere as the ionosphere.

The condition of the exterior layers of the sun—the chromosphere, the gaseous layer around the sun, and the corona, the luminous envelope which we see only during a total eclipse—is not constant. It changes continually. Scientists believe that there is a close link between solar activity, chromospheric eruptions, and the ionospheric absorption of radio waves which is responsible for interruptions in radio communication.

While the earth's atmosphere shields us from the deadly short-wave radiation of the sun, it has also made it impossible for us to study this vitally important phenomenon without getting outside the atmosphere. The instruments in Sputnik II measured the rays before they were absorbed by the atmosphere.

Three photoelectronic multipliers, placed at an angle of 120 degrees to each other, served

LAIKA IN HER CABIN PRIOR TO SPUTNIK II FINAL ASSEMBLY. DATA OBTAINED FROM HER FLIGHT WILL HELP ENSURE SAFETY OF FUTURE COSMIC TRAVELS BY HUMAN BEINGS.



as radiation receivers. The electric signals given off by the multipliers trained on the sun were amplified by radio circuits and transmitted to the earth through the telemetric system.

Along with data obtained by the sputnik instruments observations of solar radiation were made by the entire network of ground "sun-service" stations as part of the International Geophysical Year program. When all data are collected and organized, science will be able to draw its first significant conclusions as to the connection between solar short-wave radiation and the processes that take place in the outer layers of the sun and the state of the earth's ionosphere.

Cosmic Rays

The atomic nuclei of different elements are accelerated and acquire very great energies in the cosmos. The cosmic radiation that thus originates affords the opportunity of investigating outer space at great distances away from the earth and even the solar system.

As cosmic rays travel toward the earth from their birthplaces, they undergo the effects of the surroundings through which they pass. Due to various processes taking place in outer space, their composition and intensity change.

The number of cosmic-ray particles increases, for example, if there are intensive explosions on the sun and the conditions are created for accelerating atomic nuclei. There is reason to expect that in such cases only the number of particles with small energies increases, while the number of particles with high energies remains without change.

The sun is also the source of corpuscular radiation whose streams have intensive magnetic and electric fields. It is believed that the effects of this radiation on cosmic rays as well as fluctuations in the earth's magnetic field change the number of particles with both small and high energies.

In order to understand the nature of the transformations cosmic rays undergo in outer space, we must not only establish increases or decreases in the intensity of cosmic radiation, but also determine how the number of particles with different energies changes.

Cosmic-ray particles are strongly deflected in their passage through the earth's magnetic field. Only particles with very great energies will reach unhampered any spot on our planet. Thus the earth is surrounded in its way by an energy barrier which decreases in height from an equatorial peak as geomagnetic latitudes increase.

The number of particles in cosmic radiation and their energies can be established by measurements made at different latitudes. The dependence of the number of cosmic-ray particles on the latitude, the so-called latitude effect, determines the distribution of the particles according to their energies, or the energy spectrum of cosmic radiation.

The satellite, moving at a speed of five miles per second, crosses from one latitude to another in a very short time. Thus by satellite measurements of cosmic radiation we can determine the effect of the latitude and with this the distribution of the cosmic-ray particles according to their energies. The fact that a great number of these measurements have been made is of inestimable help. Therefore, the satellite data will help us trace the changes both in the composition of comic radiation and its intensity.

Sputnik II supplied data on cosmic radiation with two counters. After a signal was broadcast that a definite number of cosmic-ray particles had been counted, the particles were again recorded, with a new signal broadcast as soon as the same number was reached. Dividing the number of recorded particles by the time taken to count them, we obtain the number of particles the counter traps each second. In other words, we find the intensity of radiation.

Preliminary organization of the sputnik data on cosmic radiation shows that the counters functioned properly. The dependence of the number of cosmic-ray particles on geomagnetic latitude is clearly evident. Complete systematization of the measurements of the energy spectrum of primary cosmic particles will make it possible to investigate the changes that come with time in this spectrum and compare them with the processes which took place at that time in outer space.

First Space Traveler

Laika, the first living organism to travel for several days through cosmic space, gave science vital data on reactions under gravity-free, weightless conditions. Pulse-beat, respiration, arterial blood pressure and cardial biopotentials, temperature and pressure in the animal's cabin were recorded and radio-telemetered.

To regenerate the air in the cabin and maintain the proper air composition, highly active chemical compounds were used which provided the required amounts of oxygen and absorbed carbon dioxide and surplus vapor. The amount of compounds in chemical reactions was controlled automatically. The cabin was equipped with apparatus to feed the dog and eliminate wastes.

Laika went through a course of training. The animal was gradually accustomed to protracted stays in small hermetically sealed chambers, to the space suit, and to the attached impulse converters that recorded physiological functions. She was also trained to bear up under overstrain, and her resistance to vibration effects and other pertinent factors were tested under laboratory conditions.

The actual satellite flight was the culmination of experiments that had been carried on over a number of years by Soviet scientists with animals sent up in rockets to altitudes of 60 to 120 miles.

The physiological data received from Sputnik II are being carefully studied. But even now we can say that the dog behaved normally when the satellite was thrust into orbit and bore up well under the subsequent state of weightlessness. The data recorded indicate that the condition of the animal was satisfactory throughout the experiment.

It is apparent that the observations are of momentous importance for the future interplanetary flights and provide the basis for inventions and techniques that will make for safe cosmic travel by human beings.

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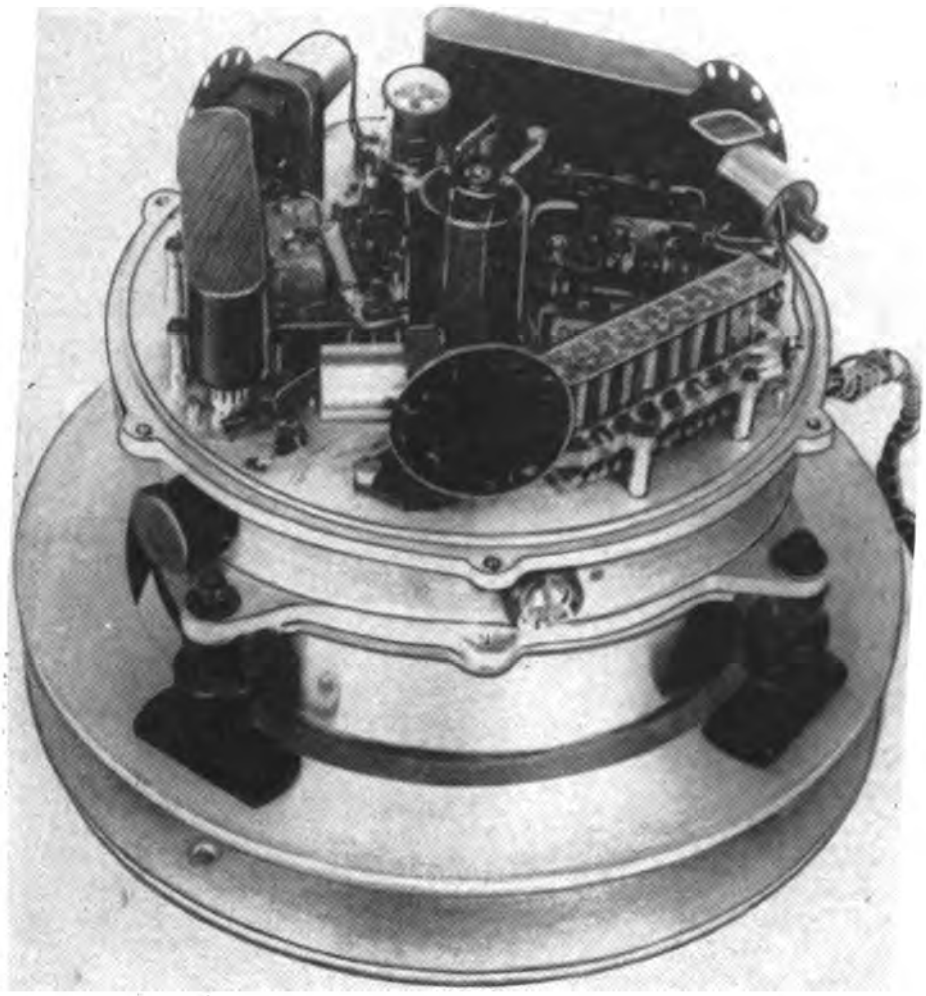
MEDICAL AND BIOLOGICAL DATA SENT BY SPUTNIK II

Key to Symbols:

CR—Cosmic rays.
SR—Solar radiation (ultra-violet and X-rays).
GO—Gravity zero (weightlessness).
R—Respiration.
C—Cardiac activity.
B—Blood pressure.



THESE INSTRUMENTS SENT DATA ON THE SUN'S SHORT-WAVE RADIATION FROM SPUTNIK II.

SPUTNIK II

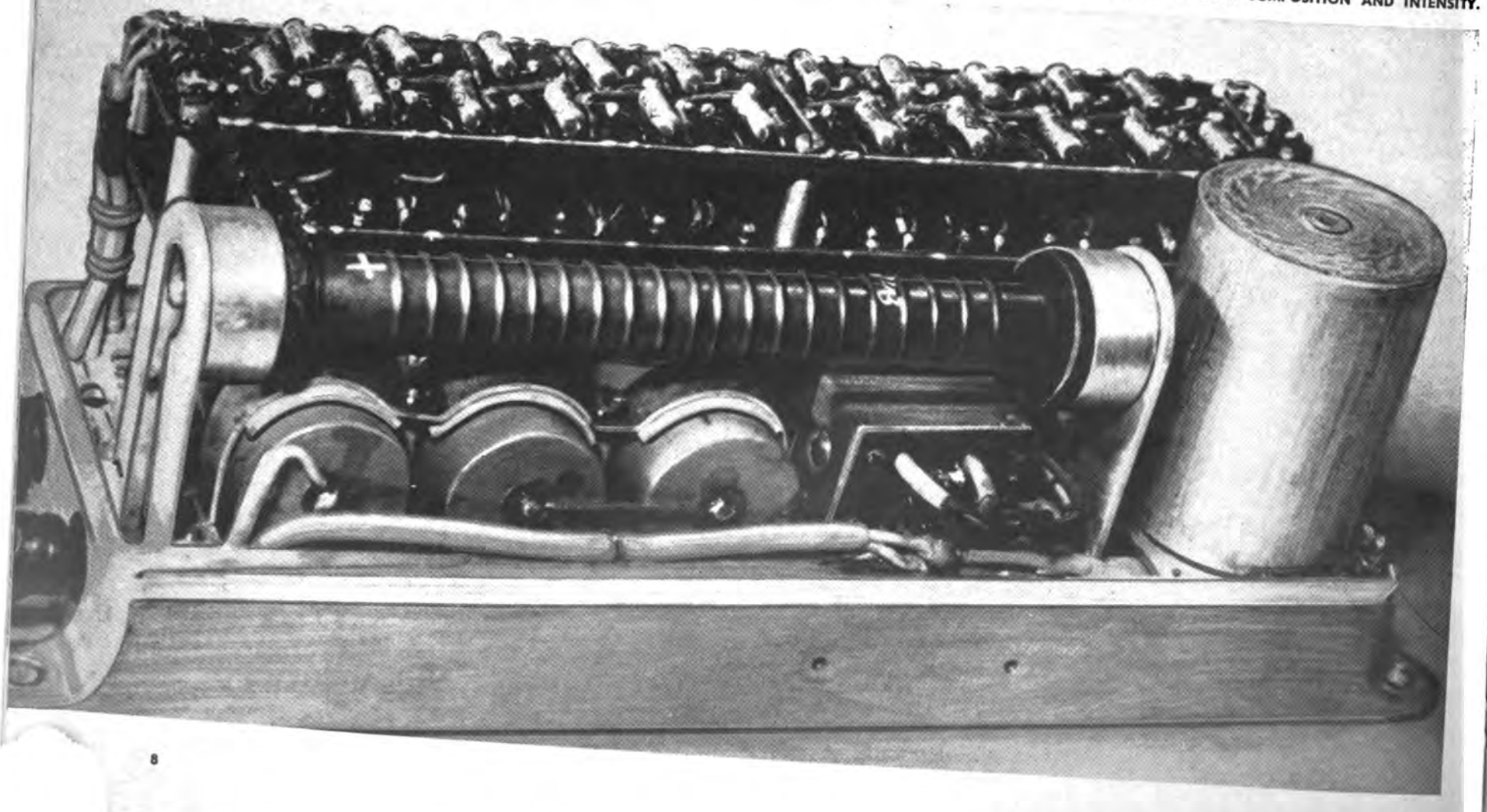
Cosmic Fact-Finder *Continued*

Tracking the Satellite

Sixty-six special optical observation stations and all the astronomical observatories in the Soviet Union, and scores of foreign scientific centers made systematic observations of the two satellites and the carrier rocket of the first sputnik. The brightness of the carrier rocket and the second sputnik also made it possible to use the visual observations obtained by meteorological stations with balloon theodolites.

Together with visual observation, the satellites were photographed. This helped define their orbits. Radio tracking also furnished important information. The broadest community of radio amateurs throughout the world tracked the sputniks along the stations specially assigned to this task. Complete analysis of radio observation will yield valuable data on the peculiarities in the ionization of the upper

INFORMATION FROM THESE INSTRUMENTS IN SPUTNIK II WILL FACILITATE TRACING THE ORIGIN OF COSMIC RAYS AND CHANGES IN THEIR COMPOSITION AND INTENSITY.



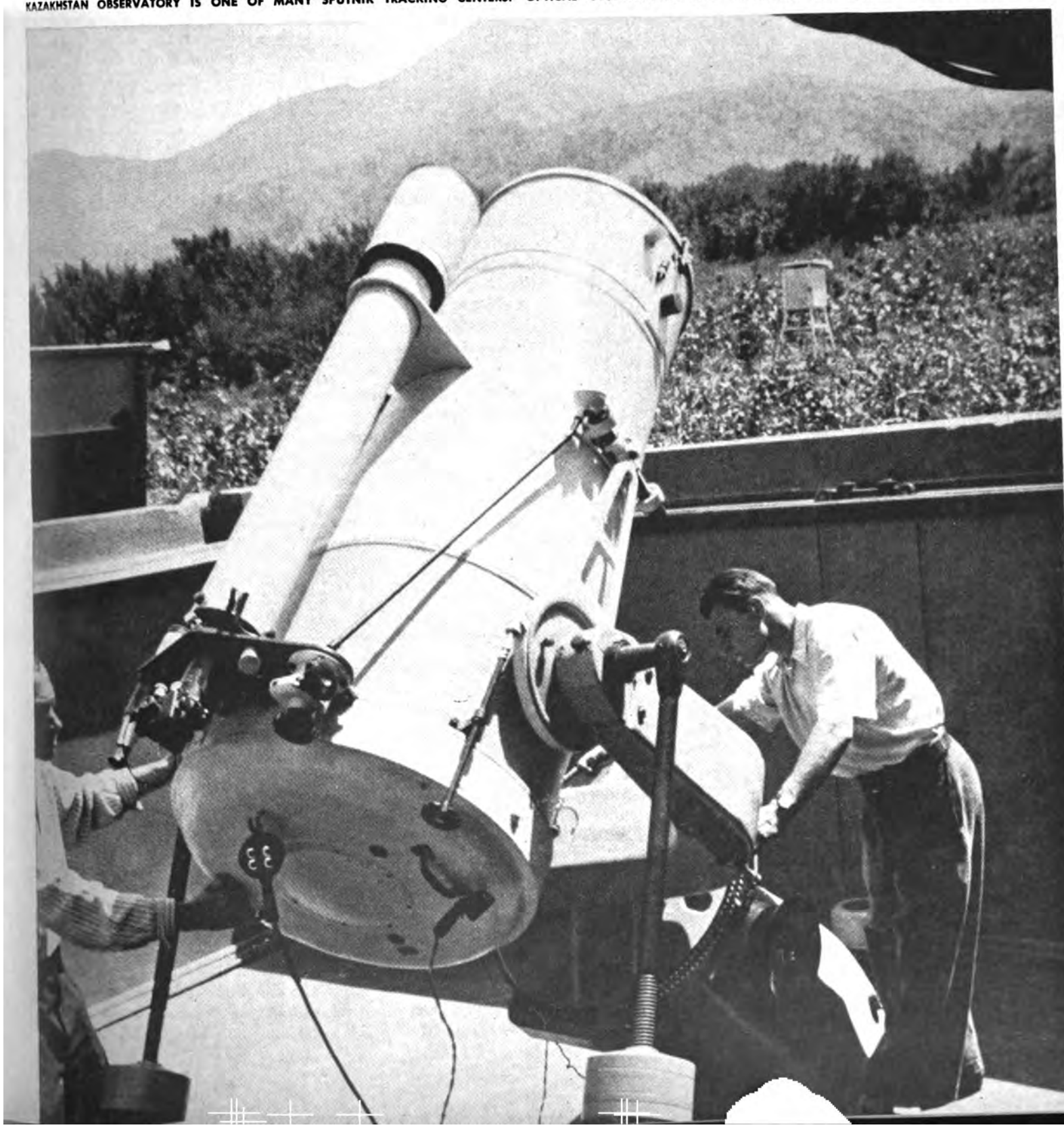
layers of the ionosphere and also of the absorption and propagation of radio waves.

An interesting phenomenon occurred in the passage of Sputnik II near the area of maximum ionization of the atmosphere, where conditions were particularly favorable for the propagation of radio waves through ionospheric channels. In several cases the radio waves reached the receiving stations not via the shortest distance, but after traveling around the longer side of the globe. There were a number of individual reports of world-round radio echo.

The duration of the research measurements by the second satellite's instruments had been set for a seven-day period. At the end of the scheduled period the radio transmitters and the telemetering equipment ceased to function. Further tracking of Sputnik II to forecast its flight and to study the upper atmospheric layers was continued by optical observation and through radar. ■

A METEOR TRACKER USED TO PHOTOGRAPH THE SPUTNIKS. PHOTOS HELPED DEFINE THEIR ORBITS.

KAZAKHSTAN OBSERVATORY IS ONE OF MANY SPUTNIK TRACKING CENTERS. OPTICAL OBSERVATIONS ARE IMPORTANT FOR FURTHER SCIENTIFIC RESEARCH.



FULL-SIZED MODEL OF SPUTNIK I DRAWS CROWDS AT MOSCOW EXHIBITION HALL.

EARTH SATELLITE: Link in Over-all Scientific and Technological Development

By Alexander Topchiev
Secretary, USSR Academy of Sciences

THE FIRST SATELLITE to be orbited around the earth was no accidental feat of Soviet science and engineering. Nor was it the product of any single branch of learning. Sputnik reflected the inevitable result of the development of the country's science and technology as a whole.

Theoretical and Experimental Physics

The greatest headway has been made in the physical sciences. Soviet scientists have done much in developing the theory of relativity, particularly in the aspects of non-stationary solution of Einstein's equation of gravitation and the problem of the law of movement of the system of bodies.

A considerable contribution was made to the development of modern quantum mechanics. An important landmark in this direction was Vladimir Fok's approximate method of resolving the problems of quantum mechanics of many particles.

Soviet scientists propounded the theory of the inception of nuclear forces as the outcome of the exchange of light particles which was essential for the development of our ideas about atomic nuclei. The development of the theory of nuclear forces was also greatly influenced by the liquid-drop model of the nucleus suggested by Yakov Frenkel which was further developed in the theory of fission.

One of the most significant achievements of the physical sciences is the discovery of the so-called Vavilov-Cherenkov effect that laid the

LEARNING MORE ABOUT OUR PLANET

By Mikhail Molodensky

Corresponding Member,
USSR Academy of Sciences

OBSERVATIONS of the man-made satellites will lead to important conclusions as to the precise shape of our planet. Even the moon's movement allows us to determine one of the basic features of the earth's structure, namely, the fact that it is compressed at the poles.

As Sputnik moves in its orbit, it reacts to every change in the earth's gravitational field, with the line of its flight indicating the irregularities. With this new data and the use of modern astronomical and radiolocation methods, the dimensions of our planet can be determined with infinitely greater precision than was previously possible because Sputnik is approximately 50 times closer to the earth's center than the moon.

The plotting of the trajectories of a number of artificial satellites will finally enable us to determine the exact configuration of the earth, an extremely important element in the study of the origin, history and structure of our planet. By knowing the satellites' speed we shall be able to calculate precise measurements of the distances between various points on the globe, thus making the present data more accurate.

Geochemists have found out much about the earth's chemical composition. But man-made satellites provide the means for many new findings. New data will be available on the chemical composition of the earth and the changes in this composition that are produced as a result of various cosmic radiations.

Sputniks open new avenues for research in all the earth sciences—gravimetry and geochemistry, geodesy and geophysics, seismography and hydrology. They will give us important information on the composition of the cosmic dust that floats through interstellar space. Science has thus far merely guessed at its nature and properties, but the satellite laboratory will afford the possibility of undertaking a study of this problem from stage to stage. The supposition that cosmic dust is the material out of which planets are formed testifies to the importance of such a laboratory. ■

foundation for the optics of greater-than-light velocities. The theory of this effect was worked out by Igor Tamm and Ilya Frank. They have solved the problem of the radiation emitted by the electron when moving with a velocity greater than that of light.

Signal advances were made in experimental physics, especially nuclear physics. Cosmic ray research by means of the Wilson chamber, started as early as 1924, developed later into a series of experiments to investigate the properties of elementary particles, split the atomic nucleus artificially, study artificial radioactivity and the machinery and laws of the formation of positrons.

In 1940 the spontaneous fission of uranium nuclei was discovered in the Soviet Union. Shortly thereafter it was established that by a small enrichment of a natural mixture of uranium isotopes with uranium-235 a chain process of fission was possible with ordinary water employed as a retarding agent.

Soviet physicists have solved a number of major technical problems involved in the peaceful use of atomic energy which helped to give our science one of the leading places in the world.

Vladimir Veksler's method of "auto-phasing" charged particles, discovered in 1944, made possible the construction of powerful accelerators. The world's biggest 10-billion electron volt proton accelerator, started in the Soviet Union in 1957, is based on this method which is now being adopted in other countries. In the making of accelerators, the basic instrument for investigating the properties of elementary particles, our scientists and engineers have attained the highest energies ever recorded anywhere in research laboratories.

Designing work is currently under way for the construction of a still more powerful 50-billion electron volt accelerator. When completed, it will give another great impetus to the advancement of nuclear physics.

Soviet scientists have carried out important investigations in the physics of reactors and other aspects of building reactors. This work was essential for the construction of a number of nuclear reactors for scientific experiments and power generation. One of them is our atomic power plant started in 1954, the first in the world.

The successful operation of this plant served as the basis for programming the construction within the next few years of several larger power stations run by atomic energy. At present work is being done to design atomic engines for transport, and the first atomic icebreaker will soon be on the way.

The construction of nuclear reactors has made it possible to begin production of radioactive isotopes, which are widely employed in research laboratories, industry and agriculture as radiation sources and "tracer" atoms. Radioactive isotopes helped disclose the essence of many complex processes occurring in nature and technology.

Among the investigations of fundamental importance for the peaceful use of atomic energy is the work done to attain a controlled thermonuclear reaction by means of high energy impulse discharges. This permitted us to obtain temperatures of over a million degrees centigrade, higher than any ever before reached under laboratory conditions. The investigation of high-energy gas discharges moves us nearer to the solution of the major task of present-day science, the elaboration

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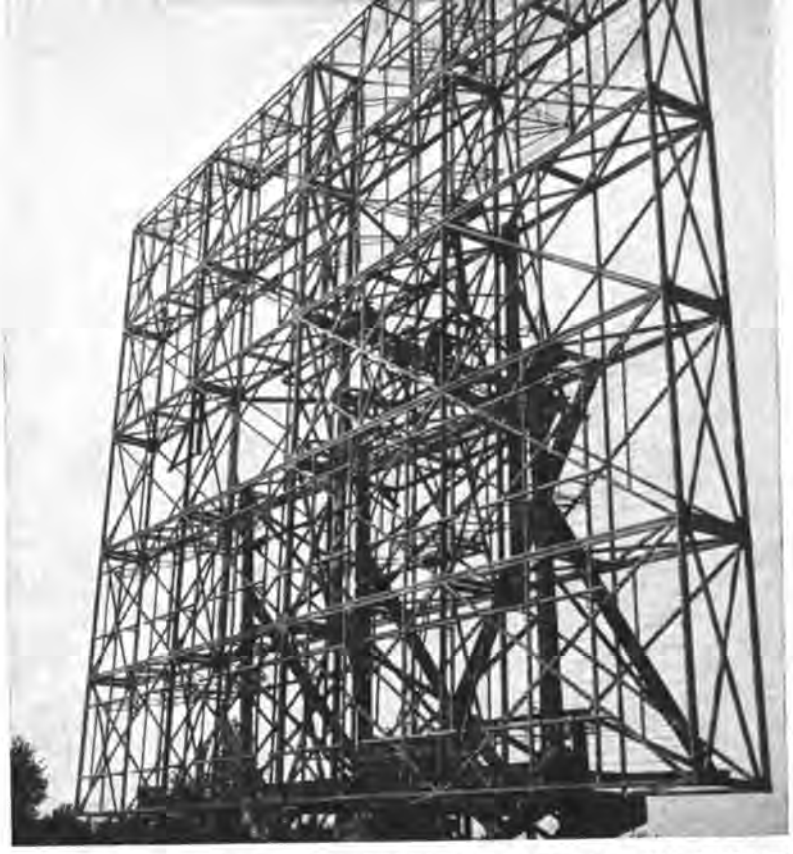

THIS STEEL LATTICE WORK IS THE ANTENNA OF A POWERFUL RADIO TELESCOPE.

ONE OF THE RADIO-ASTRONOMICAL CENTERS MAKING CELESTIAL OBSERVATIONS.

THE WORLD'S WEATHER

By Alexander Obukhov

Corresponding Member,
USSR Academy of Sciences

AIR MASSES that form above ocean areas often determine the weather of land areas. Unfortunately we know so little about these great wastes of water which cover two-thirds of the globe that we have no way to forecast devastating typhoons and tornadoes.

Because of the lack of meteorological data, the Pacific Ocean and parts of the Atlantic and Indian Oceans are not charted at all on synoptic maps which summarize observations taken over a wide region at about the same time. This is also true of the polar regions and of some mountain areas.

All in all, from the greater part of the earth's surface we obtain no weather data, and this cannot but help affect the accuracy of our forecasts. Little is known today about even so comparatively simple a question as the distribution of clouds over the globe and the distribution of air currents connected with them because of the difficulty of solving this question by "terrestrial" means only.

Meteorological rockets which are shot to altitudes of 50 to 55 miles above the earth provide valuable information but cannot answer all the questions. Immeasurably broader possibilities for study of the upper reaches of the atmosphere and of its lower regions where weather is made are opened by the creation of the man-made satellite. In its course around the globe it describes a very complex path which covers almost all the territory of the earth with the exception of the polar regions.

It will thus be possible to obtain detailed information about the movement and distribution of clouds throughout the globe and, consequently, of the air currents over most of its surface. That is of great value in advancing studies of the general circulation of the terrestrial atmosphere and creating physically substantiated methods for long-range weather forecasts.

To investigate the complex movements and changes in the atmosphere we must know the

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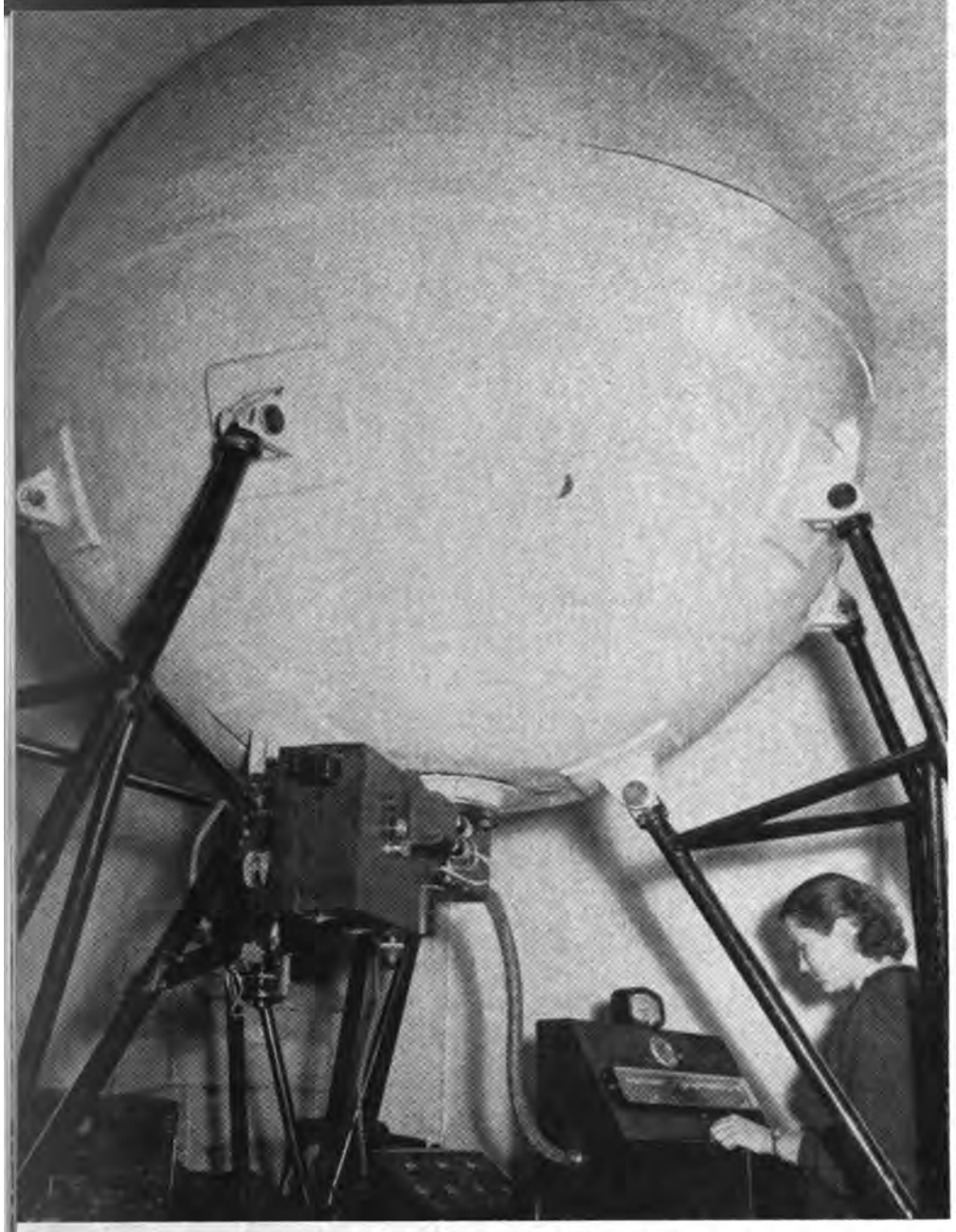


THIS IONIZATION CHAMBER RECORDS COSMIC PARTICLES PASSING THROUGH IT.

SOUND PROPAGATION THROUGH ATMOSPHERE IS STUDIED WITH THIS GENERATOR.

Scientific and Technological Development

Continued

of a reactor capable of working on heavy and super-heavy hydrogen (deuterium and tritium), and not on uranium fuel.

The work of Igor Kurchatov, Mikhail Leontovich, Lev Artsimovich and other Soviet scientists is tremendously important in the attainment of these objectives.

Mathematics and Mechanics

The vigorous development of modern physics and engineering has confronted mathematics with new tasks, since there is no sphere of theory or practice today that can progress without complex mathematical apparatus. Soviet scientists have introduced many original elements in the development of both theoretical and applied mathematics.

The combination of the classical theories with the new methods have completely changed the appearance of the theory of probabilities, algebra, topology and other branches of mathematics. There has been considerable development of new and highly important branches of mathematics, such as the theory of operators and mathematical logic. Along with the theory of differential equations and the theory of probabilities, the theory of operators has become a principal mathematical instrument in physics.

Peaceful uses of atomic energy, automatic regulation of production processes and jet and rocket techniques have set mathematics fundamentally new tasks. Soviet mathematicians are successfully working out new directions, such as the theory of information and the theory of programmation of electronic computing machines. The designing and construction of high-speed calculating machines has ushered in a new epoch in science and engineering.

Bordering directly on mathematics and making wide use of its methods is mechanics. Theoretical mechanics, based in its development on the accomplishments of mathematics, nurtures a number of subsidiary branches of mechanics, which in turn are directly connected with technology and make for its rapid progress. Technology itself, however, has set science many new problems, compelling it to solve a good many questions in a new way. An especially graphic illustration is furnished by aircraft rocket engineering, the development of which is closely connected with research in aero, hydro, and gas dynamics.

WEATHER *Continued*

earth's albedo, the quantity of energy the earth reflects into space. Satellite observations will supply us with this vitally necessary information. They will also fill in the very scanty data we now have on the density of air at high altitudes, the interaction of the atmospheric layers, and supply other such information with which we can accurately determine the laws of weather formation.

In addition to having satellites circle the earth at altitudes of several hundred miles, it is desirable to set them spinning at lower altitudes. While these laboratories probably will not function long, they nevertheless can furnish data on the atmosphere around the earth that cannot be obtained from any other source. ■

THE EARTH'S MAGNETIC FIELD

By S. Dolginov and N. Pushkov

Masters of Physico-Mathematical Sciences

MEASUREMENTS of the terrestrial magnetic field were made until recently either on the ground or with the help of aircraft and rockets. A mathematical analysis of the measurements led to the conclusion that the field should be considered as consisting of two parts: one due to sources within the earth, and the other to extra-terrestrial sources whose share is from one to three per cent.

The existence of the external sources is confirmed by the swift changes in the terrestrial magnetic field, known as diurnal variations of the earth's magnetism, magnetic disturbances and magnetic storms. These changes are closely interconnected with such extra-terrestrial phenomena as solar activity, the state of the ionosphere, the aurora borealis and cosmic rays. But the analysis of terrestrial observations can neither indicate the exact location of the external sources of the field, nor determine their nature.

Investigation of diurnal variations, magnetic storms and the phenomena connected with them led scientists to assume that the external magnetic field may be due to systems of electric currents existing beyond the earth.

The most likely place where such currents can originate is the ionosphere—those layers of atmosphere which contain a large number

RADIO OPERATORS TRACKED SPUTNIKS AND RECORDED ALL THEIR MESSAGES.

Radio Engineering

There would have been no satellite without present-day accomplishments in radio engineering. Communication with the sputniks would have been impossible without the long period of research in the propagation of radio waves, specifically in the ionosphere.

For a quarter of a century now work has been done in the Soviet Union to "sound" the ionosphere continually by means of special ionosphere stations. This made it possible to correctly pick the radio frequency for communication with the sputniks.

As far back as 1930 our scientists theoretically substantiated and practically accomplished the phasal methods of distance measurement by radio waves. The stations that tracked the sputniks are patterned on these methods.

Radar made it possible for man to peek into outer space long before the first earth satellite was launched. The measurement of distance to the moon by means of radar was one of the first accomplishments.

Radio astronomy, a relatively new branch of science, developed as a consequence of the success gained in advancing aerial engineering and in increasing the sensitivity of radio receiving equipment. Radio telescopes are now used to study the sun and investigate the so-called radio stars.

An important achievement was scored in the investigation of thermoelectric phenomena. This work, done under Abram Ioffe, resulted in the designing of thermoelectric generators transforming heat energy directly into electric power. A great future lies ahead of semi-conductor photo-elements which transform the energy of different radiations, as for example the energy of sunlight, into electricity.

Our scientists have elaborated the theory and investigated the electrical properties of semi-conductors. On this basis they have evolved samples of semi-conductor radio instruments, diodes and triodes.

ASTRONOMICAL STUDENTS ASSISTED SCIENTISTS IN PHOTOGRAPHING THE SKIES.

Chemistry

An eminent place in the general achievements of Soviet science which has made it possible to solve important problems of technical progress belongs to chemistry. Nikolai Semenov and his school, for instance, evolved the theory of chain reactions that is of great significance for world science. A study of a large number of model reactions has made it possible to bring out the basic laws of chain processes, to outline ways of investigating various elementary stages

Continued on next page

of electrically charged particles. The existence of sources of a magnetic field in the ionosphere has been confirmed by direct magnetic measurements made with rockets.

It is also assumed that currents may exist beyond the ionosphere. The source of extra-ionospheric currents may be the charged particles, corpuscles, emitted by the sun, captured by the earth's magnetic field and revolving around the earth in the plane of its magnetic equator.

During the International Geophysical Year the variations of the external magnetic field will be recorded uninterruptedly by a large number of ground stations. It is also planned to measure it from rockets and satellites.

Measurements made on satellites will help to verify whether the streams of solar particles are neutral or consist of electrically-charged particles of any given sign. Satellites will also help to verify the existence of extra-ionospheric currents, to obtain data on the ionospheric system of currents, and extend our knowledge of the main part of the magnetic field created by the sources within the earth. ■

OBSERVATORIES IN SPACE

By Victor Ambartsumyan

President, Armenian Academy of Sciences

IN STUDYING celestial bodies, we astronomers have always been enormously handicapped because our observatories and scientific stations are at the bottom of the air ocean which envelops the earth, an ocean hundreds of miles deep. We have dreamed of observatories outside the atmosphere and the sputniks have brought our dreams closer to reality.

Now we can confidently predict the construction of satellite observatories within a few years which will circle the earth at an altitude of several thousands of miles and transmit scientific data from interplanetary space.

One of the next steps is a rocket capable of penetrating beyond the sphere of terrestrial gravitation, of reaching the vicinity of the moon and of circumnavigating it. Such a rocket would give us a wealth of information on the nature of lunar terrain and the structure of the dark side of the moon that is not visible from the earth.

Continued on next page

A JET CARRIER USED FOR STUDIES IN UPPER ATMOSPHERE.

AN INSTRUMENT CHAMBER FOR ROCKETS.

PARACHUTE RETURNS A ROCKET'S INSTRUMENT SECTION.

Scientific and Technological Development

Continued

of the process and, what is more important, the method of controlling a developing chain reaction.

An outstanding part in producing industrial radium and natural radioactive elements as well as artificial radioactive elements belongs to the research of Vitali Khlopin and his followers. It was under his direction that the first Soviet radium was obtained. Vitali Khlopin discovered the law of quantitative co-precipitation which makes possible the theoretical calculation of new methods for the isolation of radioactive substances.

Of great importance are the achievements in such comparatively new fields of chemistry as biochemistry, biophysics and organic chemistry of elements. The theoretical and experimental research of Alexander Nesmeyanov and his school, for example, have led to the use of new methods in the organic synthesis of metals and elements and the production of a number of valuable new types of substances.

In A United Front

Solution of one of the greatest tasks ever undertaken by man—overcoming the power of gravity and entering cosmic space—would not have been possible without the creation of high-speed aircraft. In this field, too, our scientists and designers have made outstanding contributions.

More than a half century ago, before the birth of the airplane, Konstantin Tsiolkovsky laid the foundation for the theory of jet propulsion and worked out the design for a rocket to travel in outer space. In the late twenties our engineers began research in the actual problems of the physics and technology of jet propulsion. In the early thirties stationary tests of jet engines were conducted. In 1933 our scientists launched the first rocket designed for meteorological observation.

During the postwar years we began to construct ballistic and guided long-range missiles. Since 1947 instruments sent aloft by rockets have been in regular use for the study of the upper layers of the atmosphere and the processes that take place beyond its limits.

Radiation of X-rays by the sun was discovered, and information was obtained on the chemical composition of the atmosphere at an altitude of more than 60 miles. Our scientists explored the concentration of free charges in the ionosphere, which plays a key role in long-range communication by short-wave radio. Observations were made of living organisms under conditions of weightlessness.

Every step in the construction of the earth satellites and in the broad program of scientific observation and research after their launching was the product of an infinite number of hands and brains, the result of a united effort of a science that is highly developed in various fields and a technology that commands the most complex modern skills.

The progressive development of industry in the Soviet Union gives new food to science, setting forth new tasks. At the same time science influences technology and production. The strength of Soviet science lies in its bonds with practical work and life. Its main features are collective effort, research on a broad scale, connection with practice and selfless service to man. ■

OBSERVATORIES *Continued*

Development in electronic computers has reached a stage where we can design instruments for rockets or satellites which will not only make measurements, but will decide, without human guidance, what measurements need to be taken in relation to earlier ones made.

Development in radio equipment, moreover, makes it possible to relay earthward vast numbers of observations and measurements automatically, and with further research, to telecast what the satellite sees.

Every possibility exists for a relatively early launching of these observatories in space and, in a future not too distant, for the launching of manned space ships into the great reaches of the cosmos. ■

TRAILING COSMIC RAYS

By Sergei Vernov

Corresponding Member,
USSR Academy of Sciences

COSMIC RAYS travel for countless light years to reach the earth. The energy of particles of cosmic radiation can be expressed only in billions and tens of billions of electron volts. The energy of some particles is even millions of times greater.

It is believed that the primary cosmic particles gradually gain in velocity in some kind of electro-magnetic field near stars or in cosmic space.

Due to processes taking place in space, the composition and intensity of cosmic rays change. In particular, the number of cosmic-ray particles will increase if there are intensive explosions on the sun and the conditions are created for accelerating atomic nuclei to great energies. Thus, there arises an additional stream of cosmic rays.

Research on the how and the where of the original processes which result in creating cosmic rays should be conducted beyond the earth's atmosphere. Otherwise secondary cosmic radiation produced in the atmosphere can be mistaken for primary radiation.

Rockets help answer some of the questions, but they are ineffective because their flight is too short. By launching a satellite laboratory, continuous observations of cosmic

World's Hams Tracked Sputniks

By Andrei Ivanov

EXCEPT for the scientists in laboratories and observatories, the world's radio amateurs comprised the busiest group tracing the orbits of the sputniks around the globe.

One of them in Moscow was especially active. He is Valentin Vasilishchenko, but hams across the world know him best by his call letters: UA-3-EG. He is shown in the picture at the right with his son Sasha.

Valentin was kept on his toes when the first sputnik was launched. "UA-3-EG! Come in UA-3-EG!" came from amateurs in England, Germany, Yugoslavia, France and Spain. All wanted data.

Douglas Clock, a Britisher, called: "Much excitement about the moon. It's wonderful." But Clock couldn't bring in the signals and asked for help. Valentin obliged by relaying the "beep" by radio phone.

Thousands of hams in the Soviet Union had to supply their colleagues in other parts of the world with all kinds of information—the signals for identifying the sputniks, the schedule for their passage over various areas, data concerning their launching and equipment.

Three students in Tashkent, the capital of Uzbekistan, established contact with California, Japan and South America. Tokyo said, "Thanks, Tashkent, we hear it clearly."

An American operator pleased the Tashkent students by messaging: "Reception clearer since satellite launched. Hope world weather clears as quickly."

Every ham in the world seemed to be tracking the sputniks. An endless flow of reports streamed to Moscow's Sputnik Center to be compared, correlated and studied by scientists. ■

rays can be made over long periods of time.

The satellite laboratory will open new opportunities for study by eliminating the distortions produced by the earth's atmosphere. It will be possible to classify the cosmic rays in greater detail according to their mass and energy. This in turn will enable us to find out the mechanism of their origin in the far depths of the cosmos and in our solar system as well.

It is not unlikely that experiments conducted with the satellite as a vehicle for our instruments will lead to the discovery of new, unknown types of cosmic rays.

Various data received from the cosmic ray laboratory above the atmosphere can provide us with an incomparably greater knowledge of the universe than we now have. ■

AT SUCH A TENDER AGE, THIS NECESSARY HYGIENIC EVENT REALLY SEEMS TO BE ONE OF LIFE'S DARKER MOMENTS IN AN OTHERWISE PLEASANT KINDERGARTEN ROUTINE.

Loving Care for Children

By Olga Sokolova-Ponomareva

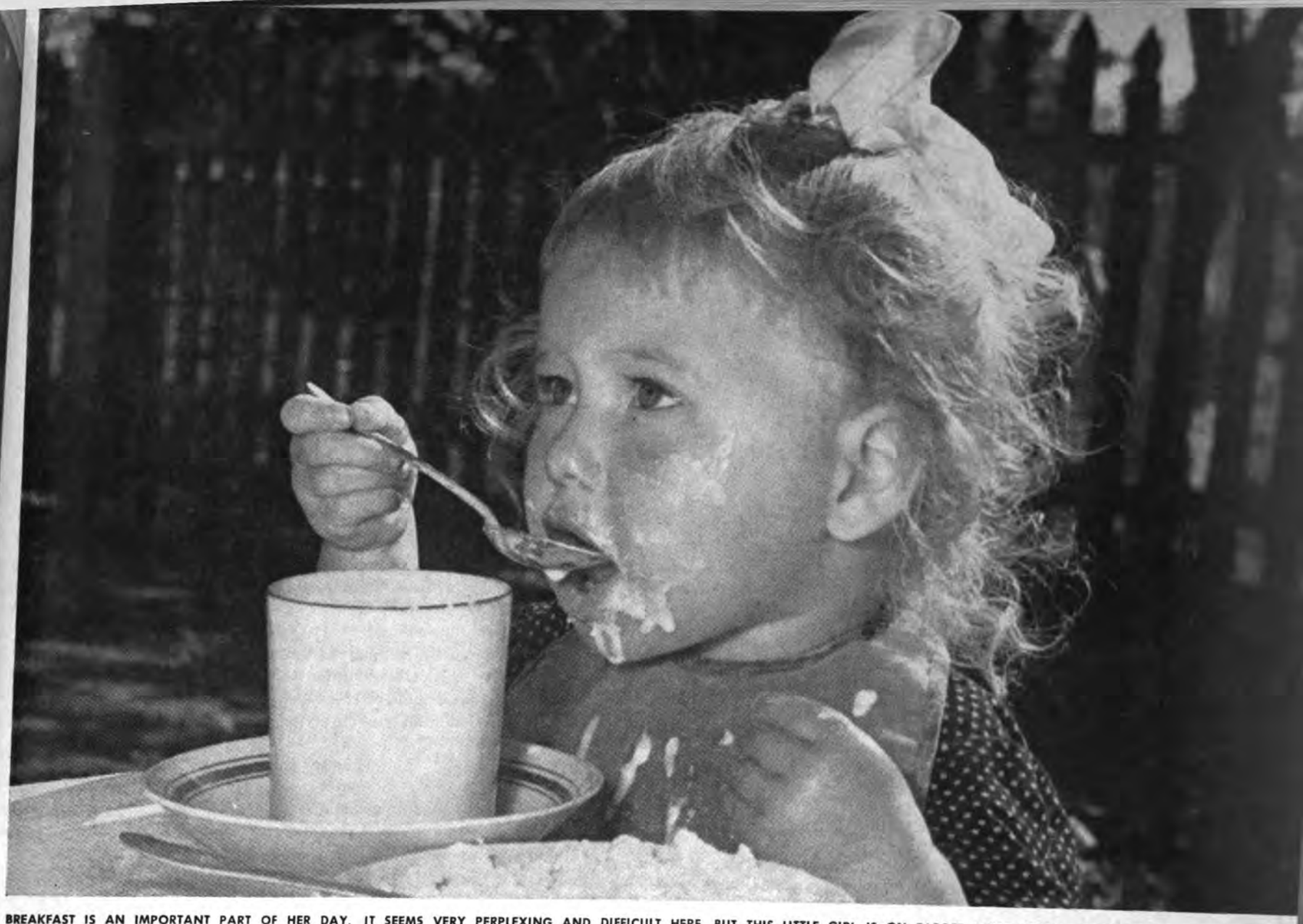
Director, Pediatric Institute of the Academy of Medical Sciences

Care of the child in our country begins long before birth. As part of our regular medical procedure, every expectant mother is under the care of the maternity center in her home district.

Every district in the Soviet Union, and this includes rural areas, has its maternity center staffed by obstetricians and pediatricians. There are about 13,500 such centers. Each region and city has a staff of specialists in children's diseases. All consultation and treatment for both mother and child is free, entirely at state expense.

At her district maternity center, the expectant mother is examined at regular intervals. There, too, she is taught how to bathe, feed and diaper the coming child, and how to furnish its room. Nurses demonstrate proper methods of massage and exercise for the infant and proper feeding procedures.

Our pediatricians do not subscribe to the practice, so common abroad, of substituting bottle feeding for breast feeding, either partly or completely, soon after birth. Our investigation and experience has shown that there is no adequate substitute for breast feeding. Mortality among breast-fed children is decidedly lower than for bottle-



BREAKFAST IS AN IMPORTANT PART OF HER DAY. IT SEEMS VERY PERPLEXING AND DIFFICULT HERE, BUT THIS LITTLE GIRL IS ON TARGET AFTER SEVERAL NEAR MISSES.

fed children. For those infants who, for special reasons, cannot be fed mother's milk, we have available a wide assortment of high quality baby foods.

The mother's health will determine the child's. To care for the child you must care for the mother, too. All expectant working mothers and mothers of unweaned infants receive special privileges.

Maternity leave of 112 days with full pay—56 days before delivery and 56 days after delivery—is established by law. If she wishes, the mother of the newborn child may add her annual vacation to her maternity leave to make a total of some five months, all at full pay. If necessary, she may take additional leave up to twelve months; this without pay. This gives the mother time to recuperate and rest after childbirth and to take care of her child during the early days of its life.

The day after the mother returns from the maternity hospital, she is visited by the district pediatrician and nurse. The center is notified by the maternity hospitals of the birth of children in their district.

Preventing Disease

The major emphasis in Soviet medical practice is prophylaxis—to keep people from falling ill. The best way of preventing disease is to strengthen the infant's resistance, to fortify his body. We consider physical culture the most important way of reinforcing the health of our children. Every nursery, kindergarten and school has a program of physical exercise, games and gymnastics planned and graded by physicians and educators.

We find that the children in our nurseries today are a half inch to an inch taller, weigh more by two or two and a half pounds, and have almost an inch greater chest expansion than comparable children before the war. We attribute this in part to our physical education program, although improved living standards of Soviet families and the greater number of children's summer camps available are also significant factors.

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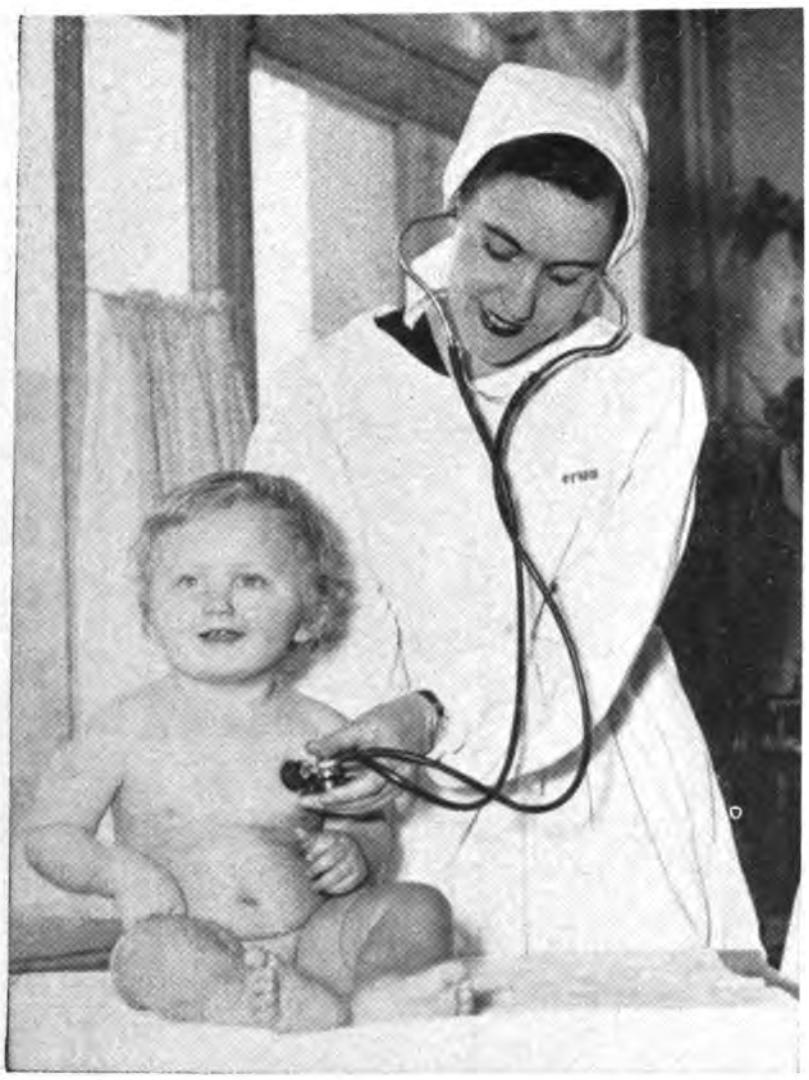
JUST BURSTING WITH HEALTH, GENYA POLYAKOV ENJOYS SUNLAMP TREATMENTS.

Loving Care for Children *Continued*



EACH PHYSICIAN AT THE MEDICAL CENTER EXAMINES ABOUT 20 CHILDREN DAILY.

Some six million of our school children spend their summers at camps. Younger children, of nursery and kindergarten age, are sent to country playschools. Our summer camps help build strong healthy bodies to withstand disease.

Another contributing factor in building resistance is vaccination against diphtheria, measles and other infectious diseases. We use the vaccine against poliomyelitis prepared by the method of the American scientist Salk. Although its use is relatively new in the Soviet Union, it has already become widespread. All newborn infants, as of the beginning of last year, are vaccinated against tuberculosis. Rickets is another disease which is being successfully attacked by Soviet pediatricians.

All these factors—the physical education program, the summer camps, the general use of prophylactic vaccination and the rising living standards—have had a beneficial effect on children's health. The incidence of tuberculosis as well as stomach, skin and other ailments has been sharply reduced.

Child mortality is definitely on the decline. In the Russian Federation, for example, which takes in better than 113 million of the Soviet Union's 200-million population, child mortality has been decreased by four times as compared with the pre-war period.

Hospital Environment

It is obvious that no amount of prophylaxis can completely safeguard a child against illness. Our children's medical centers and hospitals are constantly expanding, in number, in staff, and in equipment.

SOME HEALTHFUL BASKING ON THE BEACH, AT THE CHALPON-ATA, A LAKESIDE SANATORIUM FOR CHILDREN LOCATED ON LAKE ISSYK-KUL IN THE KIRGHIZ REPUBLIC.

We pay considerable attention to creating the proper kind of hospital environment for children. Children's medical centers are furnished to dispel, at least insofar as we are able, the average child's fear of doctor's offices and hospital wards.

In the Krasnogvardeisky District Medical Center of Moscow, the walls are decorated with lovely Russian fairy-tale frescoes. The waiting room of the Omsk Medical Institute's Children's Clinic in Siberia is full of pictures and flowers. One of the most important, and by far the most popular, piece of equipment in the dental division of Children's Medical Center No. 2 in Moscow is a bright, yellow canary.

Sanatoria and special rest homes for children in resort areas are most important elements in fighting disease. Our children's sanatoria now have room for 106,000 patients. Treatment is either entirely free or given at very low cost, depending upon family income. Youngsters convalescing from infectious diseases or suffering from tuberculosis, rheumatism, or the after-effects of poliomyelitis, spend from six weeks to six months in these country or seaside sanatoria, where they are given medical treatment and physiotherapy.

Some children's diseases, we are happy to note, have been practically eradicated in the Soviet Union. These days our pediatricians rarely get cases of extreme rickets, typhoid or blennorrhea of the eyes.

On a recent visit to the Soviet Union, Morris Pate, Acting Director of the United Nations Children's Emergency Fund, talking of world health problems, told us that "the most taxing and immediate problem is to conquer malaria, which kills half a million of the world's children every year."

Malaria no longer presents a problem to our physicians. Thanks to the nation-wide program of land reclamation, the draining of swamplands and to improved living conditions, malaria has disappeared as a mass disease.

Soviet public health efforts are now concentrated on eliminating tuberculosis. Since every child is under medical observation from the day of birth, and given a complete check-up periodically, we are able to catch the disease in its very earliest stages, or to diagnose tendencies long before the disease manifests itself. In either case, treatment is immediately instituted at home, in a sanatorium, or at a children's hospital.

A great deal of work is also being done to combat rheumatic ailments. Here, too, our children's sanatoria are most helpful aids. The hampering problem in rheumatism is the fact that science has not yet found the cause or agent for this incapacitating disease.

With regard to other common children's ailments, a great deal of research has been done on ways of reducing infant mortality from inflammation of the lungs. We use oxygen, antibiotics and physiotherapy, together with climatic cures in chronic cases. Our techniques for the prevention and treatment of acute stomach and intestinal diseases have had most encouraging results.

The Pediatric Institute of the Academy of Medical Sciences, which I direct, is only one of the very many agencies in our country which are working to keep our children strong and healthy. Every agency, in one way or another, is devoted to one phase or another of this vital job. We have no underprivileged children in the Soviet Union. Medical care, education and opportunity for mental and physical growth are available to all. ■

THIS GIRL IS GIVEN SPEECH CORRECTION AT A CHILDREN'S MEDICAL CENTER.

DENTAL CARE IS INCLUDED ALONG WITH COMPLETE AND FREE MEDICAL SERVICES.

TRAINING STARTS IN KINDERGARTEN WHERE SKILLFUL CHILD HANDLING PREPARES THE YOUNGSTERS FOR THE REGIMEN OF CLASSROOM DUTIES.

PEOPLE ARE WONDERFUL

By Ilya Kotenko

Photos by Sergei Kosyrev

THIS IS THE BOY'S MOTHER TATYANA FOKIN, SO HAPPY AFTER THE OPERATION.

THIS is a tale of a flagged express train, of a cross-country plane flight, of automobiles breaking speed limits—all because of a small boy who swallowed a large nut.

The story in capsule was told in a letter that Yevgeni Fokin wrote to *Pravda*, the Moscow newspaper, in which he thanked the brakeman, the locomotive engineer, the pilot, the doctors and all the other various and unidentified people who combined to save his child's life.

Tatyana and Yevgeni Fokin are a young couple, and Sasha is their first child. They live in the small town of Ludinovo. Yevgeni is a trade school teacher.

One afternoon last June, on the way home, Yevgeni bought a bag of nuts. It is the last bag of nuts, he underlines in his letter, that he intends ever to buy. After dinner the family sat around talking, mostly about Sasha and his new tooth—he had six then, and he was managing the shelled nuts very well with them. But Sasha prefers to feed himself. He kept reaching for the dish, and the parents kept pushing it out of arm's length.

Sasha has a mind of his own, however. With one twist he wriggled across the table, grabbed a handful of nuts and stuffed them into his mouth. He spit them out, a little tearfully, when he was scolded, but then he began to cough and choke. Yevgeni thumped his back, turned him upside down, but that didn't help. The child was choking, and the parents got panicky. Yevgeni grabbed the child and rushed to the hospital.

The young interne examined Sasha, who by this time had stopped choking although he kept coughing—and said the boy would be all right. Yevgeni took him home, thanking his lucky stars.

Sasha passed a quiet night. The choking had not recurred, although there was a wheeze when he breathed that worried the Fokins. Later in the day the wheezing got worse, and Tatyana brought the child in to see Dr. Nina Kuralova at the Medical Center.

Dr. Kuralova examined Sasha. "The child has to be operated on at once," she told Tatyana. "You must get him to Bryansk, and the sooner the better. The fastest way is by train."

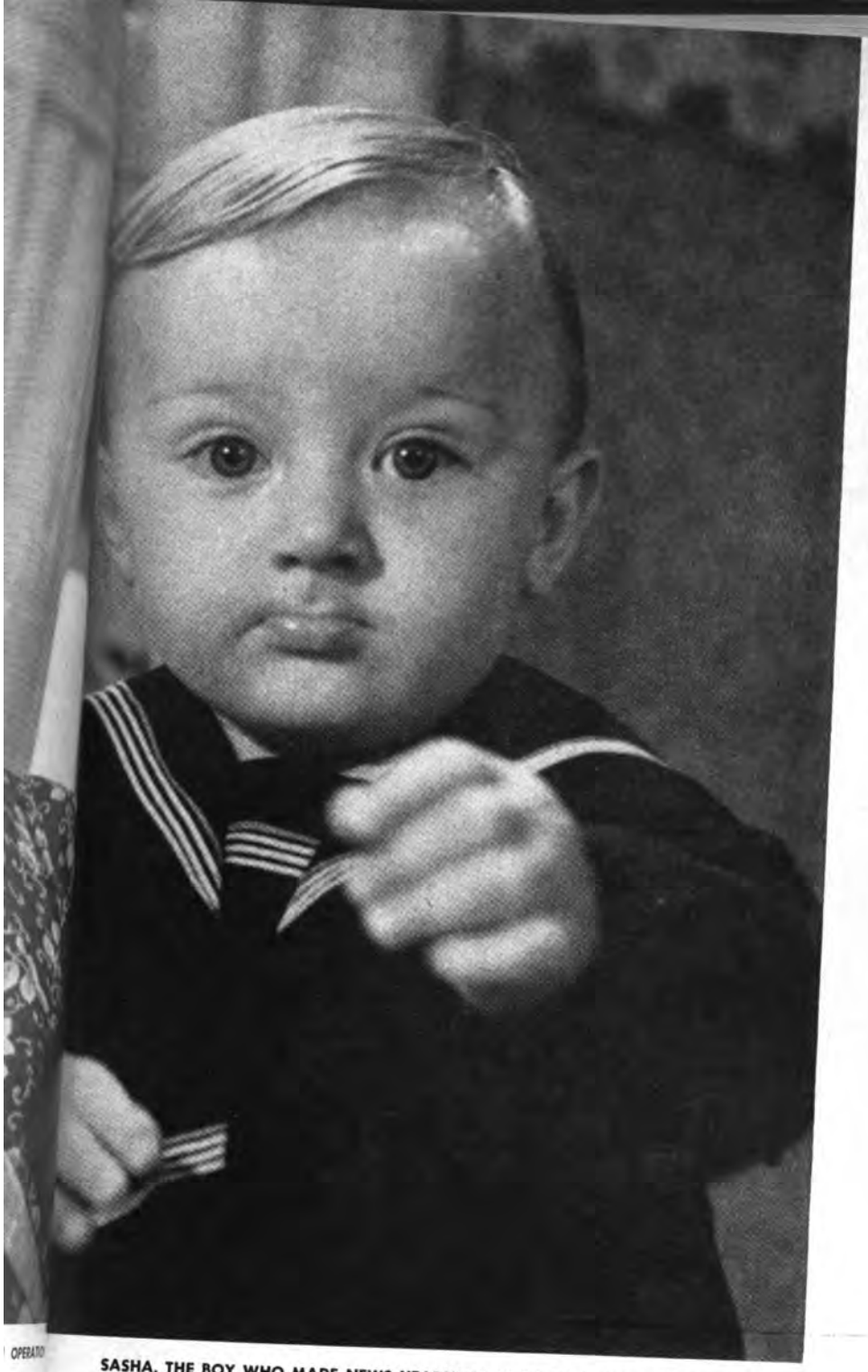
But there was no train to Bryansk for hours, the Fokins found when they got to the railroad station. They explained the situation to the ticket agent, who explained it to the stationmaster, who called the dispatcher, who flagged the non-stop fast express.

The Fokins clambered aboard the train, with stationmaster and ticket agent waving them good luck. They got to Bryansk, dashed across town in a wild taxi ride, and got to the hospital.

The doctor on emergency duty was Grigori Petukhov. He looked at the child and shook his head. Sasha had to have immediate surgery. The child would have to be gotten to Moscow—and fast, because the operation was complicated.

Much hurried telephoning up and back to the city authorities, another dash across town by car to the airport, this time with Dr. Petukhov, and they all boarded the plane waiting for them. The pilot, Victor Morozov, got off the ground immediately.

Dr. Petukhov asked how long it would take to get to Moscow. Moro-



SASHA, THE BOY WHO MADE NEWS HEADLINES WHEN HE CHOKED ON A LARGE NUT.

zov answered, "It's poor flying weather, overcast and with a side wind that will slow us down. I would estimate that it will probably take us three hours."

"You'll have to make it faster," the doctor told him. "The boy is in bad shape."

Morozov did. He said later that it was a flight he never wanted to take again, what with bad weather, racing against time, and trying to avoid air pockets. The doctor had told him that the ride had to be smooth. "If the boy is jarred, and the nut is dislodged and gets down here"—tapping his chest significantly—"I'll have to operate right in the plane." To give point to his warning, the doctor had his instrument case open on his lap, with scalpel and gauze napkin ready for emergency operation.

To the parents all this part of the trip must have been mercifully hazed. Tatyana says all she remembers of it is the jolt when the plane landed. An ambulance was waiting for them at the Moscow airport. In the ambulance, Dr. Petukhov asked the interne whether preparations for operating had been made.

"Don't worry," the interne told him, "everything is taken care of. Professor Shcherbatov has been asked to do it."

Dr. Petukhov turned to the parents. "Don't worry," he said, with his first smile in three hours, "the boy will be fine."

And he is, of course. One glance at Sasha dressed up to have his picture taken is evidence enough. As for Yevgeni and Tatyana, they end their letter of thanks with the phrase, "People are wonderful." ■

SASHA'S FATHER, YEVGENI FOKIN, IS A TRADE SCHOOL TEACHER.

STATIONMASTER PELAGEYA TRUTNEVA FLAGGED NON-STOP TRAIN.

DR. PETUKHOV WAS READY FOR EMERGENCY PLANE OPERATION.

PILOT VICTOR MOROZOV SAID THE FLIGHT WAS NERVE-RACKING.

The School

TEACHERS OF THE FUTURE. SOME MEMBERS OF FRESHMAN CLASS AT LENIN PEDAGOGICAL INSTITUTE IN MOSCOW.

Teacher

By Lydia Cherpakova, *Vice-Chairman, Teachers' Union*

TEACHING as a profession is regarded highly in the Soviet Union. In every part of the country trained teachers are much in demand. Compared with the 280,000 teachers of pre-revolutionary Russia, the Soviet educational system now has 1,811,000 teachers for its 213,000 schools.

The national budget for education keeps increasing year by year as school facilities are expanded, curriculum is enlarged, and new schools are built. The seven-year free school, long universal throughout the country, has been recently replaced by ten-year schooling in cities and towns. In rural areas the shift to ten-year schooling is well under way.

Teacher-Training

To keep pace with expanded schooling, the number of teacher-training schools has grown. There are now 905 pedagogical schools for various teaching levels. They require seven or ten years of general education for admission.

Graduates of teacher-training schools with the course of study of either three or five years are certified to teach the first four elementary grades.

Continued on next page

Vyacheslav Nedzelsky, young coal miner who has now become a teacher, is greeted by Dean Nadezhda Timofeyeva of the Moscow Pedagogical Institute.

A VERY WIDE CHOICE OF CAREERS IN TEACHING IS OFFERED BY PEDAGOGICAL INSTITUTES. THESE STUDENTS HAVE DECIDED TO BECOME HIGH SCHOOL HISTORY TEACHERS.

IMPORTANT MOMENT FOR THE NEW TEACHER. VALENTINA VANIFATOVA, GRADUATE OF THE LENIN INSTITUTE, CONDUCTS HER FIRST CLASS. SHE IS AIDED BY OLDER TEACHERS.

The School Teacher *Continued*

Senior grade teachers must be university graduates or graduates of pedagogical institutes.

The teacher-training curriculum, besides the required pedagogy and science courses, includes observation and practice teaching. Students lead extracurricular activities and assist the classroom teacher. In his second year the student will be assigned to a particular school class for his supervised practice teaching. He will usually stay with that assigned class until he graduates.

Tuition for future teachers, as for all students in the Soviet Union from elementary school through college and postgraduate work, is free. Those who make satisfactory grades, and that includes the great majority of students, receive monthly state stipends paid while at school and during the summer vacation period.

There are 800,000 students in attendance at the pedagogical institutes and the pedagogical divisions of universities. For those who have full-time jobs in other areas and wish to qualify as teachers, each institute has a system of correspondence courses. Correspondence students are given an annual month's leave from their jobs at full pay to appear for consultations and to take term examinations.

Wide Choice of Jobs

Upon completing his studies, the new teacher has a wide choice of job possibilities. The graduate teacher does not have to look for a job; the job seeks him out. Every pedagogical institute receives requests for trained teachers from all districts of the country. If the graduate should elect to take a teaching post a distance from his home, the department of education will pay his traveling expenses and will grant him a month's salary for necessary expenses.

Teachers are encouraged to continue their professional education after graduation. There are special summer institutes and forums, as well as many other methods to provide this training in most parts of the country. Those attending summer institutes receive full salaries and are provided with free transportation and living allowances.

All teachers in the Soviet Union, and especially the young teachers, are given every opportunity to widen their pedagogical knowledge and increase their qualifications. The new teacher just starting in a school always receives the friendly help of older colleagues and draws freely upon their experience.

There are many organizations that are designed to assist the young teacher. One such body is the Pedagogical Council in every school that is established to discuss educational problems, to exchange experiences and generally help those just starting in the field.

These councils consist of the school principal, his assistant and the teaching staff along with the librarian, school physician and the chairman of the parents' committee. The councils discuss plans for the school's work, the records of the various teachers, forms and methods of work with the parents and after-school activities of the children. They have been found most useful to the young teacher in addition to their over-all service to each school community.

Pedagogical rooms have been set up in towns, in school districts and in some schools. These are staffed to provide continuous assistance for teachers in their daily classroom work.

Another most important instrument in the raising of teachers' qualifications is the teachers' conference. These conferences are convened twice each year during the summer and winter vacation periods and

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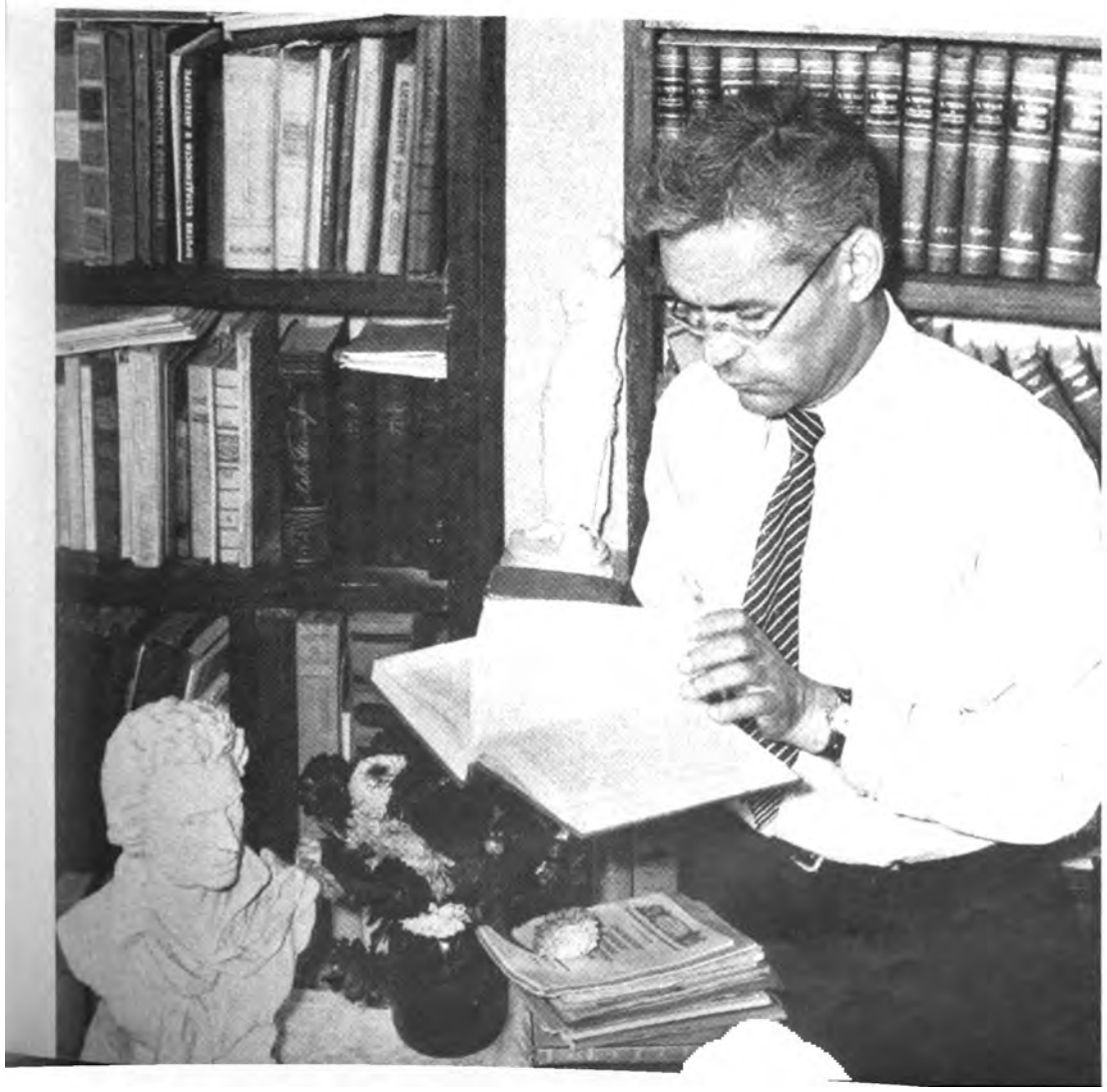
ALEXEI MASITIN HAS BEEN TEACHING FOR FIFTEEN YEARS. HE WILL BE ELIGIBLE FOR A RETIREMENT PENSION IN TEN MORE YEARS.



Alexei Masitin at home. Teaching these days requires keeping abreast of the latest literature on pedagogy and cultural developments generally.

WITH THE SCHOOL POPULATION INCREASING YEARLY, MANY NEW SCHOOLS ARE ADDED, LIKE THIS ONE IN THE TOWN OF PERVOURALSK, IN THE SVERDLOVSK REGION.

The School Teacher

Continued

An individual approach to each pupil is the backbone of Soviet teaching methods. It helps to bring out the children's aptitudes and abilities.

their program of professional training and interchange of experience is found of real value. Participants discuss mutual problems of education and their work. Reports are made on how various educational techniques are reflected in the grades of a class. The teachers' conferences are very helpful in the gathering and distribution of special pedagogical experiences.

The teacher-training organizations and conferences, continuing from year to year, keep classroom leaders in complete touch with the latest and best methods throughout their careers.

A considerable number of books and magazines devoted to education are published to help teachers keep abreast of current trends and methods. There are special newspapers for teachers in every Union Republic of the USSR, and many special pedagogical magazines are published to further broaden their professional understanding and contacts. The magazines include *The Elementary School, Soviet Pedagogy, Public Education, The Family and the School.* The Textbook and Pedagogy Publishing Division of the Ministry of Education of the Russian Federation, one of the fifteen Union Republics, alone issued 258 titles in 1956, in editions of from 10,000 to a million.

There are, besides, the publications of numerous educational research institutes which deal with educational psychology, methodology, curriculum evaluation and the like.

Schedules and Salaries

Teachers in the elementary grades teach on a twenty-four-hour-a-week schedule—four hours a day, six days a week. Upper grade teachers work an eighteen-hour-a-week schedule. Each senior class has several teachers for different subjects.

The salary schedule begins at 710 rubles a month as the basic pay. It is increased by 10 per cent after five years of teaching, and by another 10 per cent after ten years. The basic salary is purely for time spent in classroom teaching. For checking pupils' homework and compositions, the teacher gets an additional 60 rubles a month. For leading extracurricular activity on school grounds he gets another 150 rubles a month.

If the teacher works more than the regular hours—he may if he wishes—his salary is increased proportionately. Teachers who work in remote parts of the country—the Far North or the Far East—receive larger salaries: from 20 to 100 per cent more, depending upon the region and its distance from large centers of population. Every teacher is entitled to at least one month's annual vacation with full pay.

The law provides a pension of 40 per cent of salary for those who have taught for 25 years, irrespective of age at the time of retirement. However, many teachers continue to work and receive their usual salary plus a proportionate part of the retirement pension.

Actually, the income of the Soviet teacher is materially larger than his salary. His social insurance is financed out of the state fund. Like all citizens, he gets medical and dental care without cost, also at state expense. Teachers who work in rural areas and in industrial housing developments live in rent-free apartments or single family houses, with no charge for utilities. The village teacher receives his own kitchen garden without charge.

Teachers' organizations include the trade union, various learned societies and clubhouses. The Burevestnik Sports Society with a teacher membership of 340,000 has its own stadiums, swimming pools and gymnasiums.

Soviet teachers have a long tradition of services in a profession which is perhaps the most demanding of all for patience, understanding, skill and responsibility. A measure of the esteem and public confidence they hold may be gauged by the fact that 122,000 teachers were elected as representatives to the local, regional and national legislatures. ■

THIS YOUNG TEACHER'S FIRST CLASS IS THE BEGINNING OF A LONG PROCESS OF LEARNING, WITH CONFERENCES, PEDAGOGICAL COUNCILS AND REFRESHER COURSES TO HELP.

PROFESSOR ALEXANDER BAKULEV (CENTER) HAS BEEN ABLE TO EFFECT COMPLETE CURES OF VALVULAR AND OTHER CARDIAC DISORDERS REGARDLESS OF THE AGE OF THE PATIEN

The Next Fifty Years of Medicine

By Professor Alexander Bakulev

President, USSR Academy of Medical Sciences

IN the second half of our century some of the most familar and most dreaded diseases will virtually disappear in the Soviet Union. Tuberculosis, for example, will be eradicated as a mass disease within the next ten to fifteen years. This is not idle speculation, but hard-headed planning based on actual scientific progress in combating mankind's "white plague" that once decimated whole regions.

The answer for tuberculosis, as well as for most diseases affecting mankind, lies in the living environment of contemporary and past generations—housing and working conditions, hygiene, diet and the general well-being of the population. Cholera, which killed hundreds of thousands as it swept Europe during six great epidemics between 1817 and 1926, has been eliminated as a major disease by improved sanitation. Malaria is no longer a mass hazard in most countries due largely to swamp drainage and mosquito control measures.

In the Soviet Union the improvement in working conditions and the rise in the standard of living over the past forty years have contributed largely to reduce the incidence of the many diseases which develop from poverty, malnutrition and exhausting labor. Old natural breeding grounds for disease have been eradicated in the process of constructing new cities and reclaiming land.

As Soviet medicine sees it, the next half-century should see the elimination of both man-made and natural breeding grounds of disease. It envisages in the not too distant period the control of such killers as cancer, sclerosis, diseases of the heart and such incapacitating and widespread ailments as rheumatism.

The cause for rheumatism will probably be discovered in the next few years. Scientists are already agreed that the best way of preventing the disease is by hardening the organism, increasing its resistance. Medicaments will unquestionably be found for curing acute rheumatism and for preventing such serious complications as cardiac insufficiency which incapacitates so many of its victims.

Sclerosis of the blood vessels has been established as a metabolic disorder. No complete

cure has yet been found for this disease which most usually attacks the vessels of the heart and the cerebrum. The answer lies in rational nutrition. There is reason to believe that effective means will be found to prevent deposits of cholesterol on the walls of the blood vessels and to restore their elasticity and permeability.

There can obviously be no timetable for a cure for cancer and other malignant tumors but scientists are convinced that the second half of our century will rid mankind of these scourges. Indefatigable research in a number of directions has provided the beginning of a clue as to the origin of tumorous tissue. It is thought that the disease may be caused by chemical agents as well as viruses.

Scientists are studying the chemical transformations which tumor cells undergo and have found that the metabolic processes differ from those in healthy cells. When it is found exactly what chemical substances assist in bringing about these transformations, it may be possible to discover means of reversing the process in the desired direction. There are already available preparations which are fatal to some types of tumors.

The prospects of combating heart ailments are also promising. Although surgery on the heart and large blood vessels is relatively new in medical practice, no more than ten years old, thoracic surgery has made considerable progress in our country. Soviet surgeons, for example, have successfully operated on the heart in cases of congenital insufficiencies. Experimental work in this field has been going on abroad since 1954, but no operation has yet been attempted.

The principles underlying this type of surgery were developed on the basis of animal experiments conducted by Nikolai Galankin and Tigran Darbinyan at the Vishnevsky Institute of Surgery. Professor Yevgeni Meshalkin of the Institute of Thoracic Surgery was the first surgeon in any country to perform the operation.

The experience of Professor Pyotr Kuprianov with heart surgery in cases of unabated rheumatic processes is particularly noteworthy. Contrary to the opinions of some foreign medical men, Professor Kuprianov's experience and that of other Soviet surgeons leads to the conclusion that these operations induce speedier recovery.

Soviet science has done much to make surgery as painless as possible. Soviet designed instruments used for suturing blood vessels, the base of the lungs, the bronchial tubes, heart and nerves, insure a faster operation, a more reliable suture and permit the wide use of substitute blood vessels made of various materials.

The time is not too distant when surgeons will be performing operations on a bloodless heart, one temporarily shut off from the circulatory system. The heart surgeon will then be able to mend a heart completely, to stretch together all the unnecessary apertures in a case of congenital deficiency, to shift blood vessels to their proper places, to widen contracted passages, put in new valves, remove an injured vessel in the heart and replace it.

There are various instruments now available for sustaining blood circulation, some large and bulky, others no bigger than a water glass. Modern medicine has already tackled the problem of grafting tissues and replacing diseased organs with healthy ones—kidneys, spleen, gullet, heart, lungs, limbs. It may not be long before the surgeon will be able to transplant not only the heart grafted from a cadaver, but the lungs as well, in case of need.

Then there are the problems involved in longevity. Steps to prolong a man's life need to be taken at birth rather than at the onset of old age. Many childhood diseases leave lifetime traces.

We need not wait for the future to increase longevity. In our own time, a sharp decline in the incidence of scarlet fever, whooping cough, measles, diptheria, poliomyelitis and other childhood diseases will provide the basis for raising a healthier generation. An effective treatment for sclerosis will add ten to twenty years to the lives of sufferers.

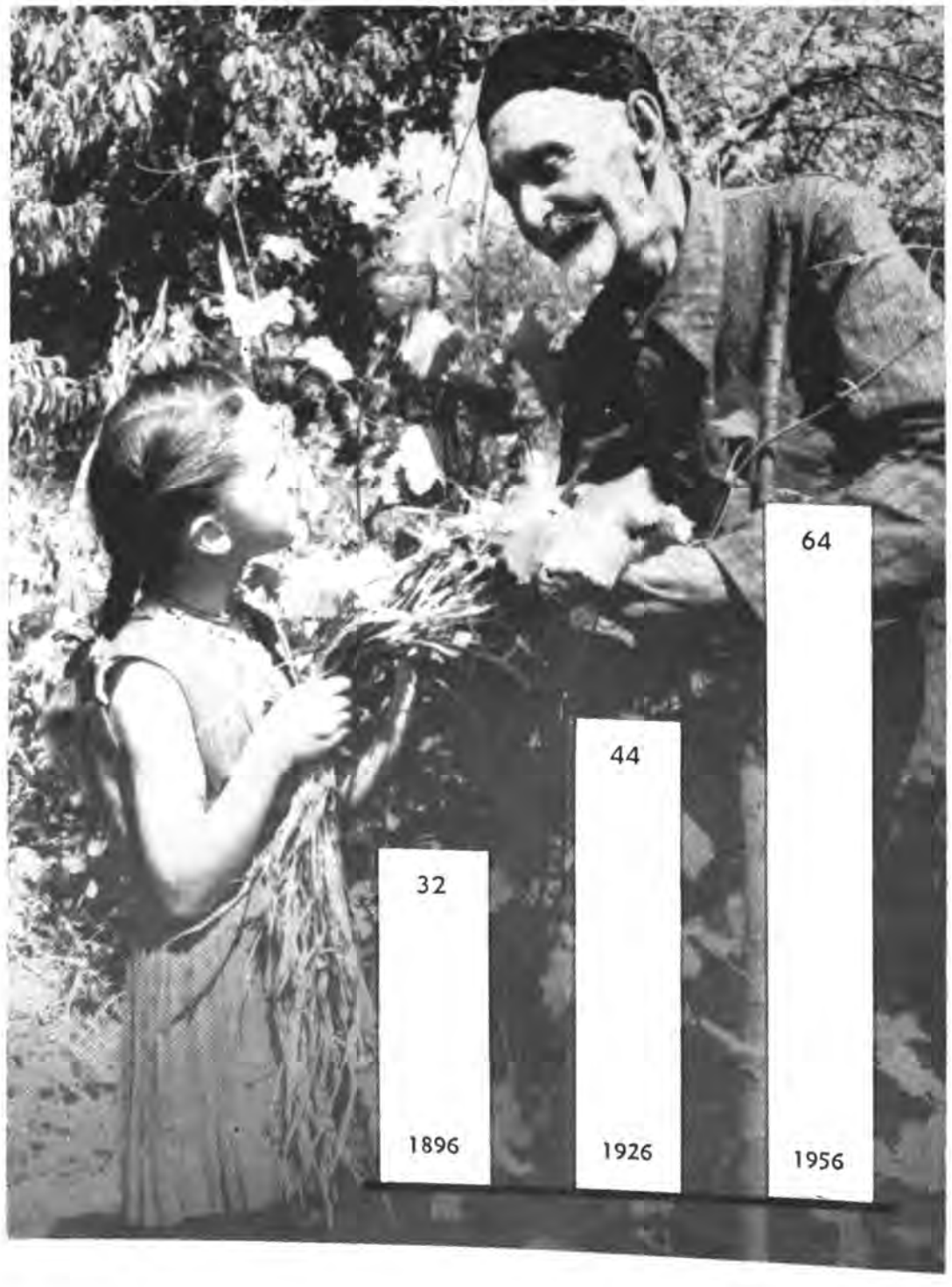
Physicians have already learned to control the functions of some of the internal secretion glands. There are synthetic hormones which compensate for the lost or failing function of natural glands. This whole field of knowledge is being constantly augmented by new findings, additional weapons for the fight against senility.

Medicine since its earliest beginnings has been dependent for its progress upon the natural sciences; today it also makes use of the remarkable achievements of the technical sciences. It is likely that directed streams of ultrasound will assist the physician of the near future in diagnosing defects in the heart partition and in other organs. By use of ultrasound it will be possible to dissect living tissues bloodlessly.

Supersensitive instruments will detect and trace the electric impulses of an organ or a group of cells to determine how they function. It will be possible to examine a patient by remote control, to hear his heart beat and to see it functioning on an X-ray television screen.

These are not fantasies; they will be future certainties in a world that those of us who are twenty or thirty years old today will be alive to witness. ■

CHART SHOWS HOW THE AVERAGE SPAN OF MAN'S LIFE IN THE COUNTRY HAS DOUBLED FROM 1896 TO 1956.



Values of Truth, Friendship and Courage Are Emphasized

By Nikolai Abramov
Script Writer

MY WORK gives me the chance to see a considerable number of new Soviet and foreign animated cartoon films every year, and to visit studios both at home and abroad. The production techniques used at the Soyuzmultfilm Studios, where Soviet animated cartoons are made, do not differ in essentials from those used in foreign studios.

The scene in all studios is the same—cartoonists drawing thousands of pictures of animals and funny little men, each frame varying by an imperceptible detail of movement. The pictures are shot, edited, the sound track is mounted, and the film is ready to show. Production is a taxing process that demands imagination, skill and endless patience.

Many of the stories for our animated cartoon films are based on whimsical and amusing folk tales and legends of Russia and other lands. The cartoon technique lends itself very naturally to popular science and to science fiction plots like the one used in *Flight to the Moon*.

Our cartoonists—there are 325 of them working in the Soyuzmultfilm Studios—turn to folk art represented in old Russian prints, national handicrafts and ornaments for their styles and ideas for cartoon representation. Many of our films use the graphic forms worked out by the best of the American cartoonists, Walt Disney in particular, whose

technique influenced the early development of Soviet animation. The rhythm of Soviet cartooning is just as energetic, the outline as vivid, the movement as smooth and the comic effect just as neat and convincing.

The special character of the Soviet animated film, however, does not lie in production techniques. It lies in the total background approach to a script—a philosophic approach, we might call it—that is social and life-asserting; that looks at nature and at people with warmth and optimism; that concerns itself with loyalty, courage, friendship, justice. A major function of a film, as we see it, is to instill in the viewer, children in particular, qualities that are socially desirable.

Take the film *Fedya Zaitsev*. A schoolboy draws a funny man on the classroom wall. When the teacher asks who marked the wall, he keeps silent and another boy is punished in his stead. The chalked funny man climbs down from the wall. Follows a series of adventures in which the boy and his chalk man are involved. Result: the boy confesses.

The moral here at first glance might seem too explicit. But the film has been running for years and is a prime favorite with children. In actuality, the moral is developed with a great deal more subtlety and finesse than this brief synopsis would indicate. We are quite aware, of course, that children do not like obvious moralizing.

In *The Little Girl and the Tiger*, the plot is simple. A little Indian girl takes pity on a trapped tiger and sets it free. Instead of being grateful, the tiger wants to eat the girl. "You bad tiger," she exclaims, "after I saved you. You're not fair." But justice triumphs and through a series of sequences the tiger is trapped again. The girl pities the tiger. Can she trust him a second time? Should she let him out again?

The alternative ending for this film was the subject for much heated discussion at one of the production conferences of the Art Council of the Soyuzmultfilm Studio that I attended. Everyone was aware that children are acutely sensitive to injustice, but the group of sophisticated film directors, artists and script writers gathered around the table were quite split as to the choice a child might make in this situation.

Finally, after much argument back and forth, the consensus was that a child would not free an unfair tiger a second time. The children's comments when the film was released testified that the Art Council had made their choice.

The Art Council is a characteristic feature of Soviet film studios. It is made up of film directors, writers, artists, critics, composers—some of whom do not work at the studio. Sergei Obraztsov, the famous puppeteer; Boris Yefimov, the cartoonist; and Boris Barnet, who directs feature films, are members of the Soyuzmultfilm Art Council, although they work elsewhere.

The Art Council is an independent group under the direction of the Studio. Although it is an advisory group—the director has the final say —its authority is considerable. Each script is discussed by the Council; sketches, music score, production plans, direction are all carefully scrutinized.

Soyuzmultfilm has recently made several full-length films—the Russian fairytale *Hunchback Horse*; Hans Christian Andersen's *The Snow Queen*; *The Bewitched Boy*, after Selma Lagerlof's story; *Twelve Months*, after a Slovak fairy story, among others. Many of them are being shown on foreign screens.

Now the studio is making serial films. Some have already reached the movie houses. The comic, *The Unusual Soccer Game*, and its sequel, *Old Acquaintance*, poke fun at the conceit of some champion athletes.

The first part of a serial, *The Adventures of Murzilka*, has also been released. The hero is a photo-reporter for a children's magazine. In the first installment he is shown searching high and low for a boy of exemplary behavior whose picture is to grace the magazine cover.

Some years ago the studio began producing puppet films. The most popular was Sergei Obraztsov's full-length *Heavenly Creature*.

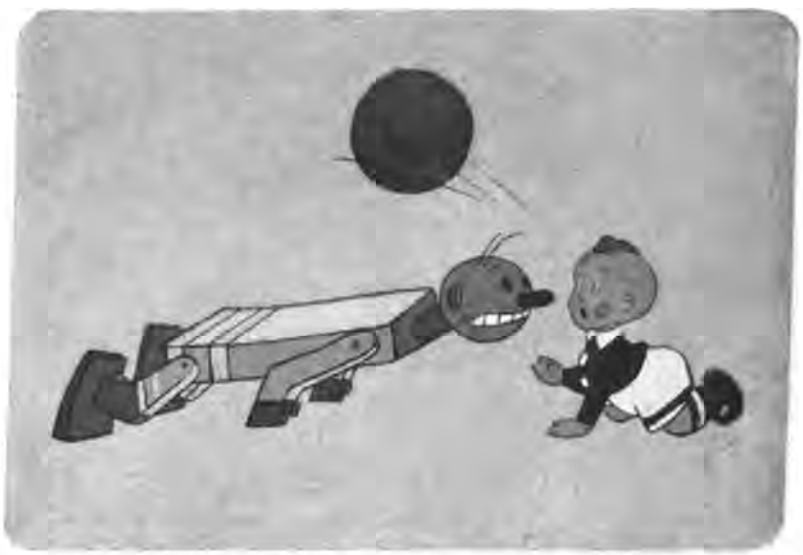
In the past twelve years Soyuzmultfilm has made about 180 color films. Twenty-one of these were awarded prizes and diplomas at international film festivals. Films like *The Unusual Soccer Game, The Golden Antelope, A Fire Burns in the Igloo,* and the full length *The Snow Queen* stand up to the best of animated films produced anywhere.

Many of the successes the studio has had are a result, at least in part, of the close contact it maintains with its young audiences. Each film is previewed by children in schools and clubs and the discussion which follows is very carefully listened to by the film people.

Animated films are exceedingly popular with Soviet audiences, young and old. Festivals of animated cartoon and puppet films were given in many Soviet cities last year. In response to public demand they will be given yearly.

More pictures on following pages.

The story of a schoolboy who lied to his teacher is the plot in *Fedya Zaitsev*. As might be expected, some amazing things happen to the lad that prove an exciting way to make a point.



There is real fun in *The Unusual Soccer Game*. It pits the champion wooden players against the title-hungry stuffed toys in a contest replete with thrills, spills and good, clean fun.

When *The Snow Mailman* undertakes to deliver a letter to Grandfather Frost, the Russian Santa Claus, he meets perils and overcomes them in a handy fashion so the mails go through.

Heavenly Creature, **a full-length puppet film, deals with a tenor whose fame is dimmed by unusual occurrences at a variety theater concert. Even those who dislike tenors enjoy this one.**

A full-length film entitled *Twelve Months* concerns a girl sent into the wintry forest by her cruel grandmother to hunt for Snow Flowers. The Months help her through many perils.

Animated Films Continued

The Marvelous Well **is an exciting story about two sisters, one industrious and the other lazy, who came to the magic kingdom of Grandfather Frost and received gifts from him.**

The Golden Antelope **deals with an Indian folk tale. It involves a peasant boy, an evil Rajah and a magic antelope in a series of adventures. The Rajah finds himself badly outmatched here.**

Prepared especially for the Moscow Youth Festival last summer, *Greeting Friends* offers an animated film concert by figures from many countries, and the film reflects the festival gaiety.

A Swedish tale is the basis of *The Bewitched Boy.* The original story by Selma Lagerlof is entitled *Nils' Journey on the Backs of Wild Geese.* Scandinavian children have long loved this.

The six panels on this page have been taken from the full-length cartoon film based on *The Snow Queen*, one of Hans Christian Andersen's beloved and most charming fairy tales.

The film delightfully tells the old story and the adventures of its principal characters, Kai and Gerda, who are shown together in this panel. Children everywhere quickly love them.

Kai is about to tie his little sled to the Snow Queen's sleigh to "hitch" a ride. The Snow Queen speeds her chargers and carries the lad off to her kingdom where he is held captive.

Left behind by this unfortunate tragedy, brokenhearted Gerda sets out on the long and difficult journey to find Kai in the strange Ice Kingdom, depending on her intuition to locate it.

The good black crows lead Gerda to a huge castle in their belief that the boy she is seeking is the prince who resides there in regal splendor. The prince is not Kai but proves gracious.

Gerda continues her search and is waylaid by a bandit gang. A friendly girl in the gang gives Gerda a deer. She then continues northward into more adventures and finds her Kai.

YOUNG PEOPLE ENJOY CELEBRATING THE NEW YEAR HOLIDAYS BY ATTENDING ANNUAL BALLS. HERE ARE STUDENTS OF THE MOSCOW CONSTRUCTION ENGINEERING INSTITUTE.

WINTER HOLIDAY

JANUARY marks the beginning of another year with all its challenges and hopes. And it is highly significant, too, for the month-long series of parties and celebrations.

New Year's Eve launches this season. Watch parties are the rule everywhere. Starting about 11 P.M. on December 31, the crowds begin gathering not only at individual homes, but also at factory clubs, trade union recreation centers and rural community halls. Many people have reservations at restaurants. But wherever the celebration may be, the stroke of midnight is tolled to the popping of corks amid repeated toasts of the merrymakers. Dancing and games follow until the crack of dawn.

As big and splendid as they are, these parties simply start the gay January festivities.

Elementary and high school students begin their winter vacations the end of December. The children come out in great throngs to the public squares and parks where decorated fir trees stand. The theaters provide special attractions for them, as do the concert halls

Continued on next page

One of the highlights of Moscow's New Year celebration is held in the Grand Kremlin Palace. Young workers and college students dance until dawn.

One-man band. Performing during intermissions, this musician dressed in an old Russian costume gets lots of laughs with his clowning for the crowds.

New Year parties for children are held in the best halls. This is a concert in the Kremlin.

This graceful and beautiful Dance of the Snow Flakes is being performed on the ice of Moscow's Sports Palace. With three daily performances during the holidays, it is seen by 15,000 children

WINTER HOLIDAY *Continued*

everywhere. The circus also arranges performances in line with the spirit of the holiday. Trade unions open up their recreation centers for children's parties and their programs include theatrical and musical performances by artists from many fields of the entertainment world.

At each of these many parties there is always the fir tree and presiding over all is Grandfather Frost. This jolly old gentleman, who could easily double as Santa Claus in both costume and purpose, is generally aided by a beautiful Snow Maiden. There are games and songs by the youngsters—and of course the distribution of gifts. There are toys or books, cookies and candies to delight their eyes and satisfy their appetities.

Outdoors the parks have been transformed into a veritable fairyland of ice and snow. There are the artistically made figures from well-known characters of folk lore and fairy tales. The old Russian troika—a comfortable sleigh drawn by three horses—is a favorite with the children. Nearby they find many ski slides and ample provision for sledding. The park lanes, playgrounds and stadiums are flooded and turned into skating rinks.

The holiday activities for school children continue for about a fortnight. Meanwhile college and university students are taking their mid-term examinations. But despite the demands of their studies, most of them generally manage to get in the early parties or dances. By the end of the fourth week, however, examinations have been concluded and the students begin their two-week vacation.

Coinciding with the student balls are the New Year affairs of the young people from plants and offices. After working hours and on the week-ends there are innumerable concerts and dances, special theater parties and

GRANDFATHER FROST PLAYS THE LEADING ROLE AT THE FIR TREE PARTIES. HE IS SHOWN HERE WITH THE SNOW MAIDEN AND SOME OF THE GUESTS THEY ENTERTAIN.

a host of outdoor activities for everybody.

Ice-skating carnivals under multi-colored lights are enjoyable and sometimes even romantic. There are cross-country ski hikes, sleigh rides, ice-hockey games and other sports events to keep the young people on the move in a continuing round of good times.

Another holiday observance of this period should not be overlooked. Members of the Russian Orthodox Church, still following the old Julian calendar, celebrate Christmas on January 7. Believers of the Protestant and Roman Catholic faiths observe their Yuletide on December 25.

The new vacation period starts in January and almost as many workers from shop, factory and office take their annual leaves during the winter as in summer. The network of winter resorts have long since been booked to capacity. There are hunting lodges, ski stations with well-laid out trails, and the ever popular ice-skating rinks. For hardy souls there is even fishing—through the ice.

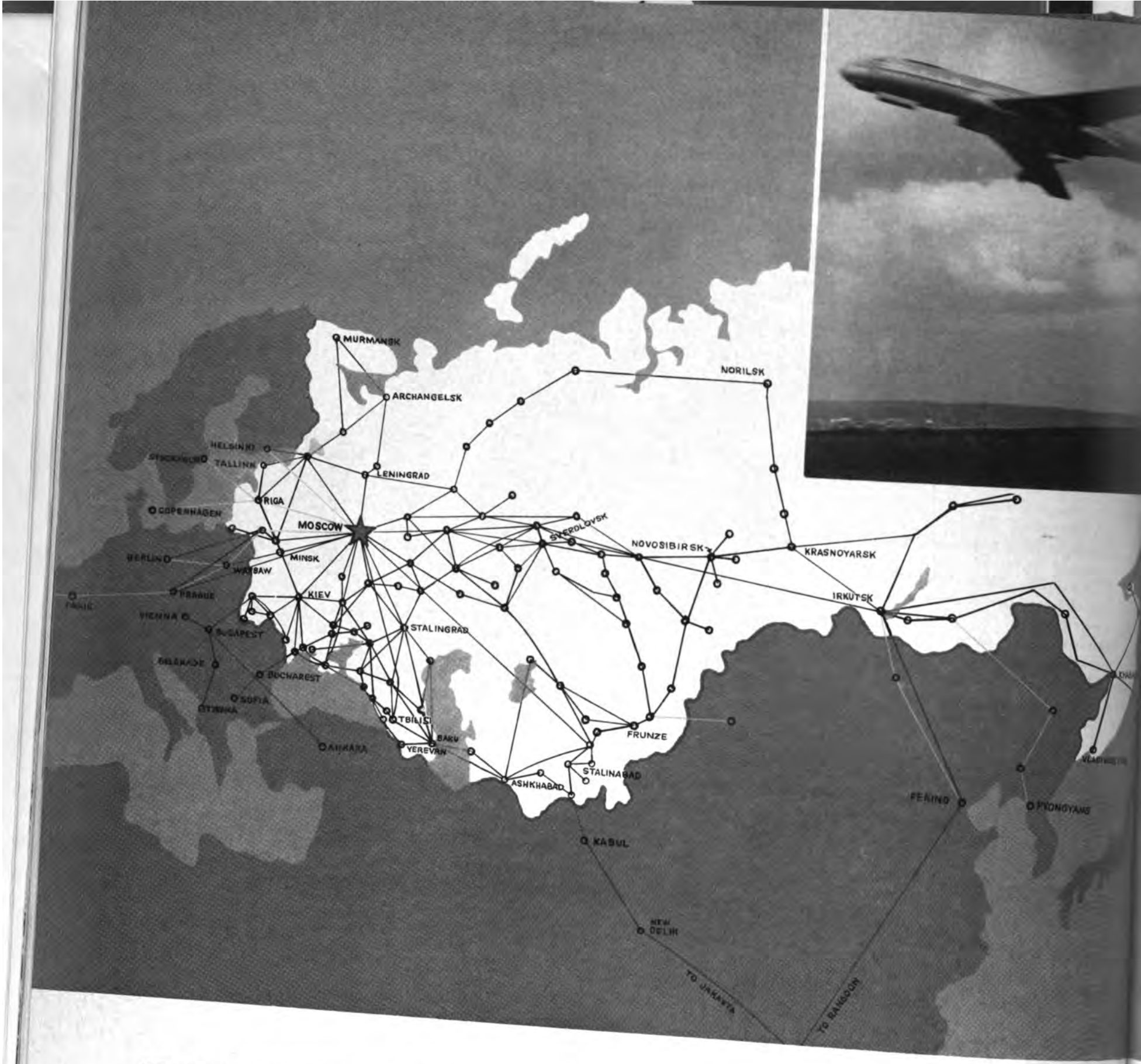
The snow by this time has completely blanketed most of the country, and no week-end would be complete without skiing excursions. Millions of ice skaters of every age fill the rinks every evening.

Regardless of one's particular interests and no matter where one may live in the Soviet Union, January is something extra special. Its events hold a real attraction for young and old. And they are universally agreed that they have started off the New Year in splendid fashion. ■

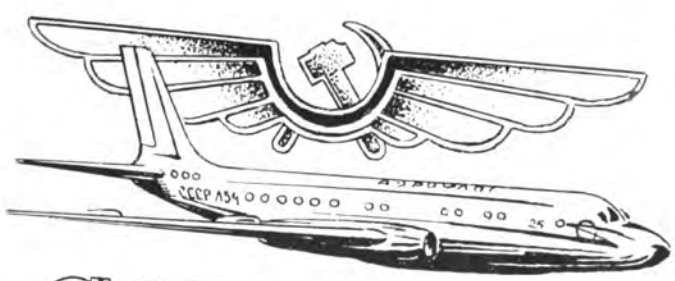
Playgrounds, parks and suburban areas offer slides, ice skating and ski trails for youngsters like these happy ones. This anticipated event occurs as January ushers in the carefree two-week school vacation.

Millions take to ice skating once winter sets in. They can find rinks on park lanes, stadium areas, and on apartment house and factory grounds.

College and university students find skiing a pleasant diversion between examinations held throughout January. They get their vacation later.



FLYING SOVIET AIR



By Pavel Zhigarev

Director of the Central Administration, Soviet Civil Air Fleet

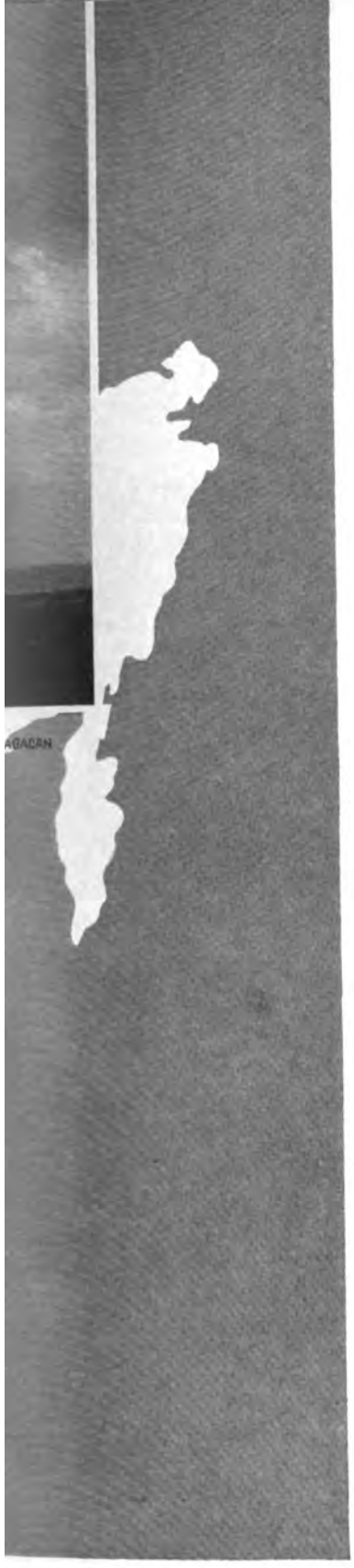
THE passenger and transport planes of Aeroflot, the Soviet Civil Air Fleet, wing their way north and south, east and west over tens of thousands of miles of our air lanes.

Each minute of the day and night finds passengers and rush freight en route to and from major cities, resort areas and construction jobs. We make regular flights to research stations adrift on the ice in the North Pole region and to scientific bases in the Antarctic. Aeroflot planes are on regularly scheduled runs to sixteen foreign countries.

The Soviet Union has surpassed all other countries in the length of its airlines. Aeroflot is constantly expanding its network and within the next three years we plan to almost quadruple our passenger traffic.

The rapidly growing popularity of air travel derives from Aeroflot's reputation for high speed, safety and comfort. The servicing of our skyliners is thorough and complete. The pilots, navigators and me-

Continued on page 40



VNUKOVO AIRPORT IS 17 MILES FROM MOSCOW. A NEW BUILDING WILL SOON BE BUILT FOR INCREASED TRAFFIC.

LANES

INSIDE CONTROL TOWER OF VNUKOVO AIRPORT.

THE TWO-ENGINE TU-104, SEATING 50 PASSENGERS, WAS THE FIRST JET-POWERED AIRLINER TO BE US

Oleg Antonov (at the left), the designer of the *Ukraina*, Alexander Eskin, the test engineer of this four-engine

SEATING 84 TO 126 PASSENGERS ACCORDING TO INTERIO

ANDREI TUPOLEV, DESIGNER OF MANY NEW TYPES OF PLANES.

PILOT GEORGI IVANOV IS CONGRATULATED ON HIS TWO MILLION MILES OF FLYING.

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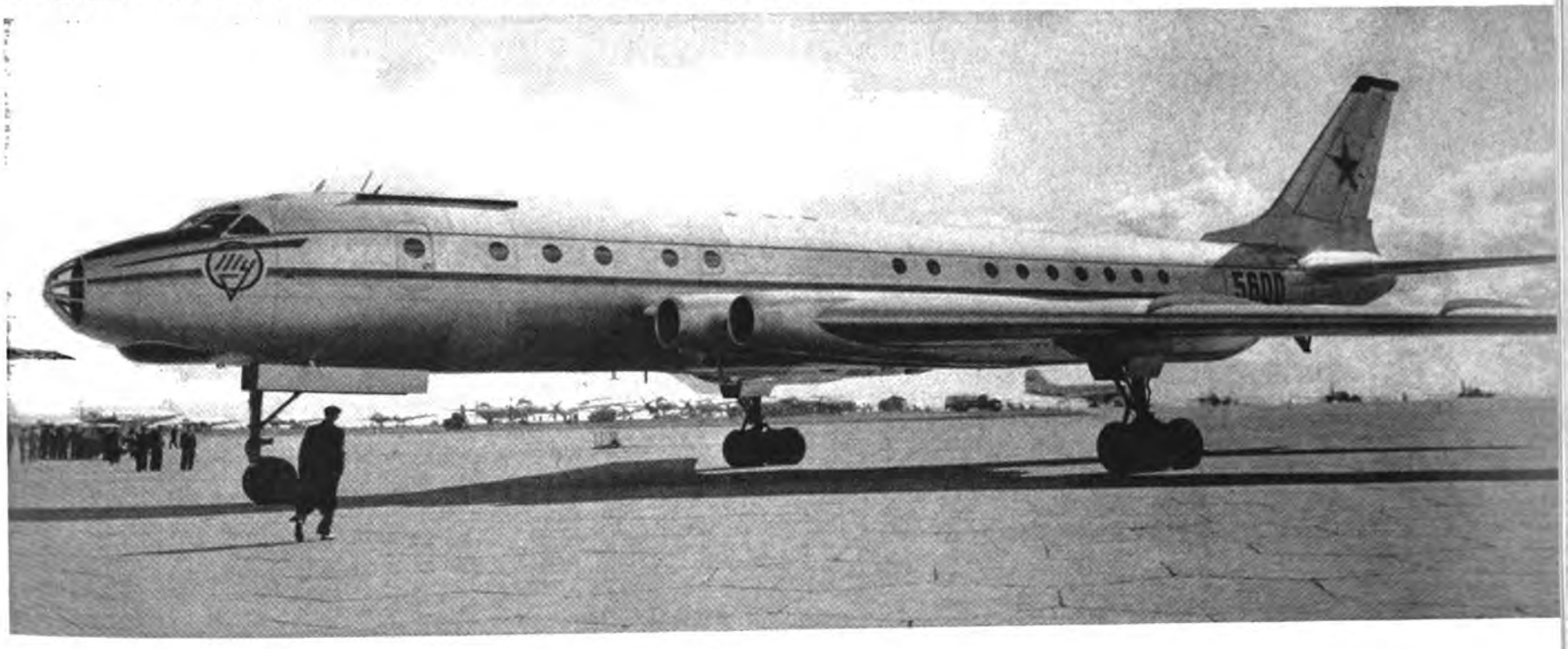
DEPENDABILITY, SAFETY AND COMFORT ARE SOME OF THE ATTRACTIONS OF THE TU-104. HERE IS SECTION OF THE PASSENGER COMPARTMENT.

ANOTHER TURBOJET AIRLINER DESIGNED BY TUPOLEV IS THE FOUR-ENGINE TU-110. IT SEATS ABOUT 100 PASSENGERS AND CRUISES AT SPEEDS IN EXCESS OF 620 M.P.H.



international airport insist that they set their watches by TU-104's arrivals and departures.

Bigger and Faster Planes

In 1957 a number of new types of airliners began coming off the assembly lines of their designers and builders. These were principally turbojet and turboprop planes.

The designing office headed by Andrei Tupolev completed the TU-104A. This is a modification of the TU-104 and is also powered by two turbojet engines. It carries 70 passengers and cruises at 590 to 620 miles an hour. Early last fall this plane flew from Moscow to New York. True, it had to stop for refueling, but the flying time was 11 hours as against the 63 it took Chkalov to fly from the Soviet Union to the United States in 1937.

Several types of new planes are even bigger. Tupolev's TU-110 is fitted with four powerful turbojet engines. It has room for about 100

Continued on next page

"YOUR ORDER, PLEASE," SAYS THE COOK ON A JET AIRLINER.

FLYING SOVIET AIR LANES *Continued*

Oleg Antonov (at the left), the designer of the *Ukraina*, is shown here with Alexander Eskin, the test engineer of this four-engine turboprop airliner.

passengers and has a cruising speed of better than 620 miles an hour.

Another plane designed by Tupolev is the four-engine turboprop TU-114 which can carry up to 220 passengers at a cruising speed of 600 miles an hour. The new airliner can make a non-stop flight from Moscow to New York in 10-12 hours.

The designing office headed by Sergei Ilyushin completed the IL-18 *Moskva* with four turboprop engines. This plane is built in three models: tourist, passenger and freight types. The tourist plane seats 100 passengers, the first-class passenger ship seats 75.

One of the objects of the designers was to produce a highly economical plane. And the *Moskva* really cuts the cost of passage to that of an ordinary railroad fare. With a cruising speed of above 400 miles an hour, it can cover more than 3,000 miles with a commercial load of 12 tons at an altitude of five or six miles, where atmospheric conditions have little effect on the smoothness of flight. The plane can take off and land at relatively low speeds, making it adaptable to almost any airport in the world.

Another new ship is the *Ukraina* produced by the designing office headed by Oleg Antonov. It has four turboprop engines and is built with three passenger compartments to accommodate 84 passengers. It has a specially equipped children's cabin. The tourist model of this airliner carries 126 passengers. The *Ukraina* performs nicely at an altitude of five miles and cruises smoothly at 370 miles an hour.

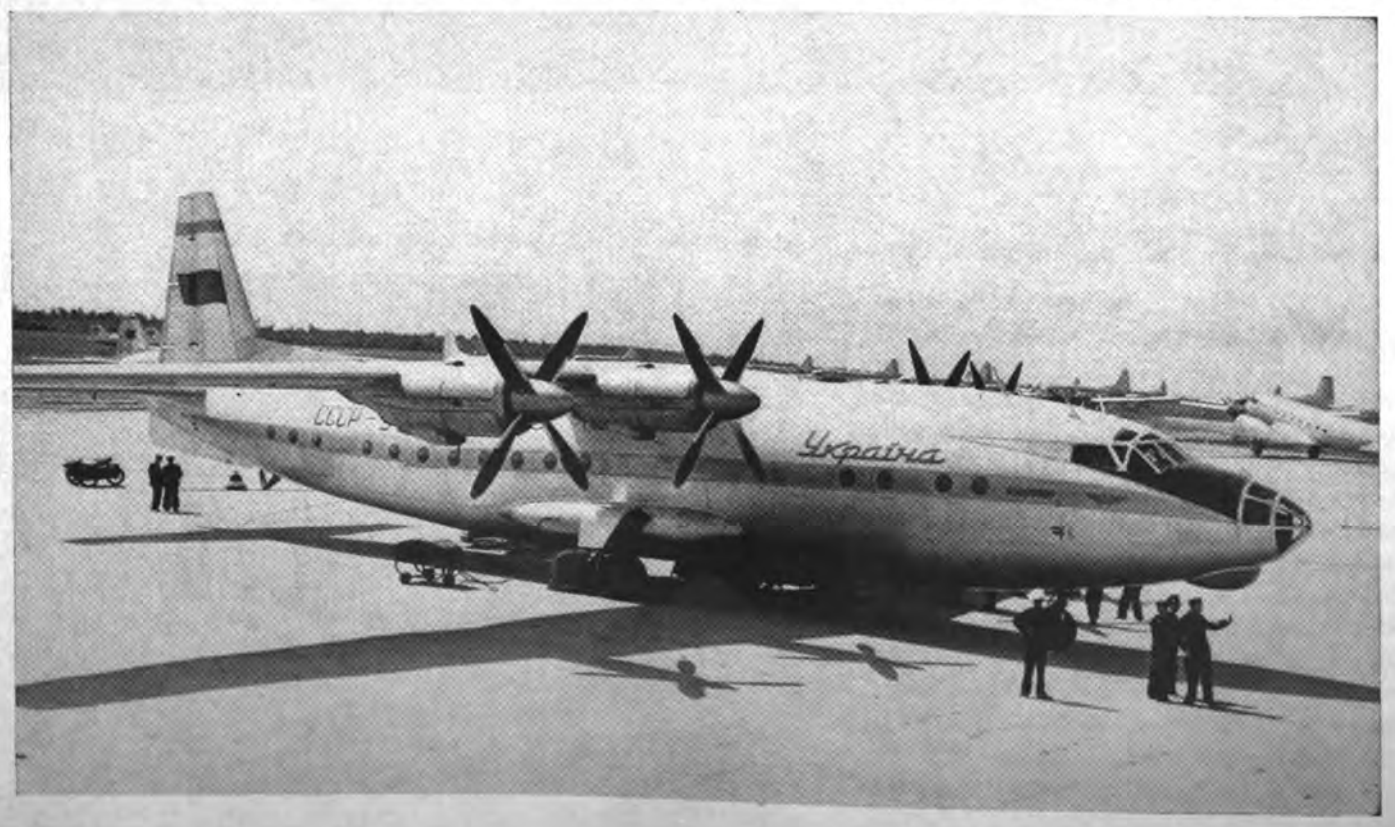
Antonov's engineers also designed the *Flying Whale*. This is a transport ship that can lift large machine tools and even small buildings or houses. Large enough to hold a regular city passenger bus, it is fast but can take off and land on very small fields. It is extremely economical to operate.

At the other extreme from these huge carriers of the sky is the *Little Bee*, also designed by Antonov. It carries seven passengers, and its speed can range from 25 to 125 miles an hour, which makes it similar to the helicopter in its take-off and landing qualities. Any small field, road or level spot 45 to 65 yards long suits it perfectly.

The *Little Bee* will be used to carry the mail and freight to remote areas and it can also be used for agricultural and medical services. The plane is simple to fly and can be piloted by any reasonably good automobile driver after a short flying course.

The civil aviation fleet will also soon be supplemented by turboprop helicopters for short flights. *Continued on page 44*

SEATING 84 TO 126 PASSENGERS ACCORDING TO INTERIOR DESIGN, THE *UKRAINA* CRUISES AT 370 M.P.H. AT 5-MILE ALTITUDES.



Flying Whale is a work horse in the Soviet Civil Air Fleet. This plane can hold a city passenger bus.

Sergei Ilyushin (center), who designed the *Moskva*, and two of his assistants—co-designer Vasili Bugaevsky and test pilot Vladimir Kokkinaki.

THE FOUR-ENGINE TURBOPROP AIRLINER *MOSKVA* CAN EASILY HANDLE 12-TON COMMERCIAL LOADS AT A CRUISING SPEED OF ABOVE 400 M.P.H. AT 6-MILE ALTITUDES.

STUDENTS OF AIRCRAFT ENGINEERING ARE TRAINED ON ALL TYPES OF MOTORS. THIS GROUP IS LISTENING TO AN ENGINEER'S LECTURE ON THE IL-12 PASSENGER PLANE.

FLYING SOVIET AIR LANES

Continued from page 42

A CIVIL AIR FLEET HELICOPTER FLIES A DOCTOR TO AN INJURED GEOLOGIST.

New Functions for New Needs

For Aeroflot's multiform services all types of planes are necessary and we do not junk our old model planes when newer ones are developed. The new jet planes, flying at supersonic speeds, as important as they are in cutting time and distance, obviously cannot replace the slower planes for such work as spraying crops or forest fire-fighting.

Many of the slower planes are equipped for special functions. One type, nicknamed the *Flying Prospector*, is an aero-geophysical laboratory used by geologists to prospect for mineral deposits with radioactive or magnetic properties.

Not long ago a Civil Air Fleet pilot, Mikhail Surgutanov, discovered one of the country's richest iron-ore deposits, the Sarbai fields in Kazakhstan. Other aerial prospectors participated in the long searches that helped locate the new industrial diamond deposit in Siberia ranking among the largest in the world.

Over our fields planes can be seen performing diverse agricultural tasks practically the year round. They serve to spread insecticides, give top dressing to crops, and destroy weeds. The most industrious farmer could never spray his vineyards as accurately, economically or as efficiently as the planes engaged in this work.

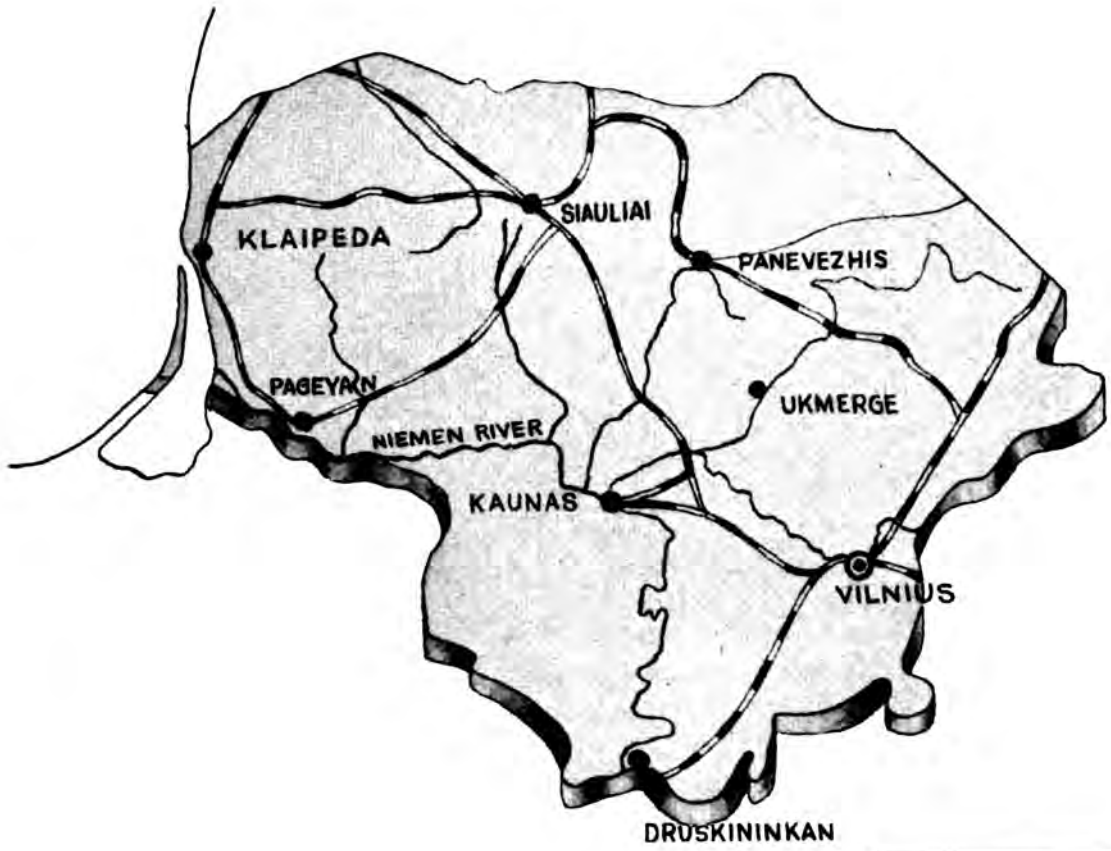
Another feature of the Civil Air Fleet's operation is the service it renders in bringing rapid medical attention to patients in remote areas, or picking up patients for transfer to medical centers. Pilots are trained to find a landing spot from the air and to fly doctors, patients and medical supplies in all kinds of weather. This function brings us no revenue, as medical service in the Soviet Union is free, but the work is given all the care and attention the other departments receive.

Aeroflot services are as varied as the needs of the country, and new services are provided as new needs arise. ■

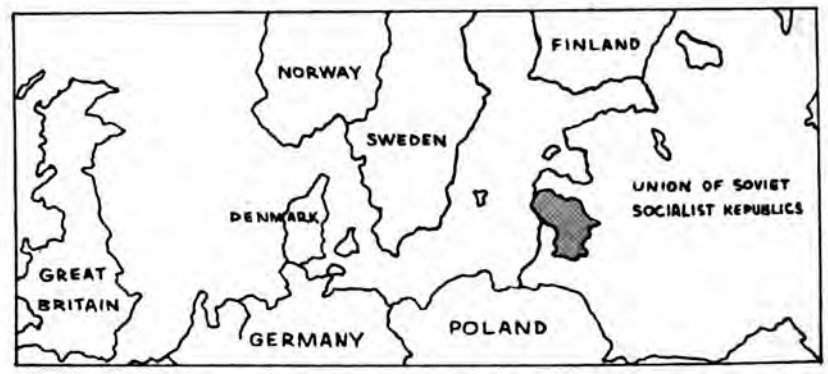
OLD MODEL PLANES ARE NOT JUNKED. THEY WORK IN AGRICULTURE, FOREST FIRE-FIGHTING AND IN MANY OTHER SIMILAR SERVICES.

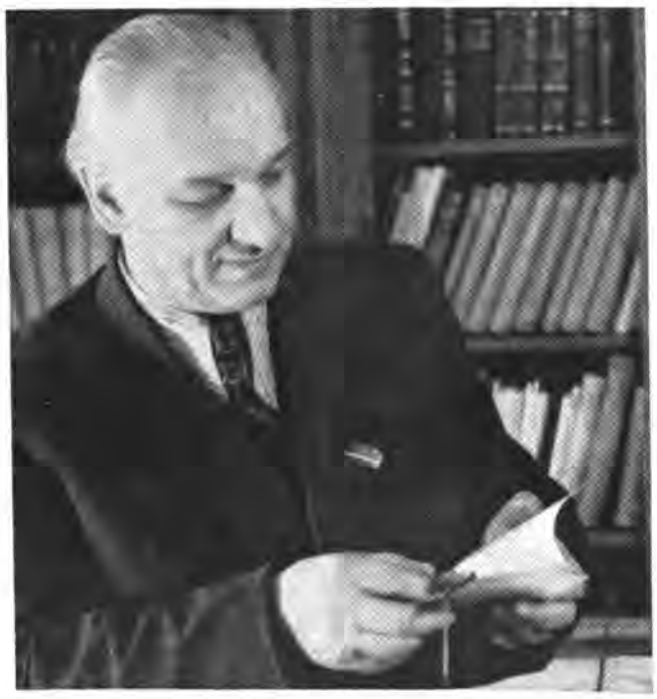
While drifting on Arctic ice, research station "North Pole 6" was serviced by Civil Air Fleet planes, which delivered mail and many supplies.

Helicopters assist fishing fleets in spotting schools of mackerel and other fish, and thus help the crews get large catches in less time.



FLOURISHING LITHUANIA





Justas Paleckis is President of the Presidium of the Supreme Soviet of the Lithuanian Soviet Socialist Republic—the republican legislature—and Vice-President of the Presidium of the USSR Supreme Soviet—the national legislature. He was born in 1899, son of a blacksmith, and was himself by turn student at the University of Kaunas, factory and office worker, schoolteacher and journalist. He was under attack much of his earlier life for his progressive views and political activity. In 1940, when Lithuania joined the Soviet Union, Paleckis headed the new republic.

By Justas Paleckis

ALTHOUGH we Lithuanians joined the family of Soviet nations eighteen years ago, in 1940, nine years were consumed with war and with repairing the damage of war. So that we have had only nine years of normal constructive life as a Soviet Republic.

It would be no exaggeration, however, to say that these few years have been more productive than as many preceding decades. The proof lies in the accomplishments, and these are plain to see.

Consider the last half-century of Lithuanian history in terms of its national and territorial integrity. Between the two world wars, the country was torn apart by its aggressive western neighbors. In 1920, Pilsudski, then virtual dictator of Poland, seized Vilnius, the ancient Lithuanian capital and its major industrial city. Later Hitler seized the Baltic seaport of Klaipeda, our only port city.

The ruling government of the country was quite willing to resign itself to the seizure of the capital city and the port, but the country's people were not. When the people declared Lithuania a Soviet Republic in 1940, both Vilnius and Klaipeda were returned as integral parts of the country. Today Lithuania, with its national boundaries intact, is a sovereign socialist state.

Lithuania Industrialized

It was not too long ago that Lithuania was one of the most economically depressed of Europe's many depressed countries. Factories were primitive. For the most part they were domestic craft enterprises employing from five to ten workers. The standard of living was miserably low, with school and health facilities correspondingly inadequate. Lithuania stood next to last among European countries in electric power

Continued on page 48

A residential street in Vilnius, capital of the Lithuanian Soviet Socialist Republic.

In the background are the lowlands to be flooded by Kaunas Hydroelectric Station.

MODERN TECHNIQUES OF MANUFACTURING ARE VERY MUCH IN EVIDENCE ON THE PRODUCTION LINES OF THIS SHOE FACTORY IN SIAULIAI.

CRANES MANUFACTURED IN VILNIUS ARE ONLY ONE OF MANY NEW PRODUCTS.

FLOURISHING LITHUANIA *Continued*

production. There were many towns, not to mention villages, which had no electricity.

The economic progress that Lithuania has made during the years of Soviet government is clearly visible to anyone who can make the simplest comparisons. Three hundred factories and mills have been built, many of them manufacturing products new to Lithuania—ships, turbines, instruments, and electrical equipment.

The largest factory in Kaunas, the Metalas, belonged to the Schmidt Brothers, a German firm, before 1940. It made locks and chains; most of its labor was manual. Today the factory, rebuilt and re-equipped with automatic machine tools since the end of the war, manufactures tractor cultivators, boilers for central heating systems, and flax-processing machinery, on a scale of production some thirty times greater than in 1938.

A large turbine plant, a factory producing reinforced concrete, and a silk plush mill, are some of the newer Kaunas enterprises. Altogether, the city's factories now manufacture four times as much goods as all of Lithuania did in the pre-Soviet period. And Kaunas is only one of several industrial cities in today's Lithuania.

In 1940, with a population of three milion, Lithuania had 115,000 unemployed. In a search for a livelihood, hundreds of thousands of our people had migrated to Western Europe, America and Australia before the First World War and after it.

There is no unemployment in Lithuania today. There is a great need for both skilled and unskilled labor and the tide of migration has reversed, with many Lithuanians returning to their native land from foreign countries.

Strazdas Fabionas is a lathe operator at the Zalgiris machine-tool plant in Vilnius.

Vladas Bucius is employed in the shoe department of a large factory producing leather goods of various kinds.

These sausages are being prepared for shipment in a Kaunas meat packing plant.

Making amber necklaces is a traditional skill among Lithuanian handicraftsmen.

The semi-conductor laboratory at Vilnius State University. Professor Povilas Brazdzunas is conferring with students.

Pronuskus Savickas, scientist, one of the most eminent biologists of Lithuania.

The Lithuanian Farmer

For the farmer in pre-Soviet Lithuania, making ends meet was a never-ending problem. Most farms were heavily mortgaged. The total of farm debts owed to the Agricultural Bank of Lithuania in 1936 was over 150 million lits. Between 1933 and 1937, 140,000 acres were sold for debt.

It was no simple nor easy matter to break with age-old traditions and ways of life. But collective farming has justified itself even to the most timid and fearful of farmers in the course of these last few years in very concrete terms of a better standard of living.

Small marginal homesteads have merged into big collective farms with resources for mechanized labor and large acreage scientific methods. By the end of 1956 about 20,000 tractors and 1,500 harvester combines were in use on the collective and state farms.

Large tracts of land have been reclaimed. More land was drained last year alone than in the twenty years before the war. Many thousands of experts in soil cultivation, fertilizing, livestock breeding and other phases of intensive farming have been trained.

The Lithuanian farmer today can see the difference in the daily facts of his life. His clothes are as good as those of people in the cities. His home is lighted by electricity and is comfortably furnished. He has no doctor, dentist or hospital bills—all medical services are free. His children are educated at free schools and colleges.

Free Education for Everyone

"If everyone gets an education, who will tend the pigs?"—that was the answer the Lithuanian people used to get in old times in response to petitions for extending public education, improving schools, bettering conditions for schoolteachers. The majority of Lithuania's population, both urban and rural, could not afford education and was illiterate.

Soviet Lithuania has universal compulsory seven-year schooling; in the larger cities 11-year schooling is the rule. Compared with 1940, there are now six times as many high schools and seven times as many children in attendance.

Before the war Siauliai, one of Lithuania's biggest towns, had only eight elementary schools and four high schools, and these were intended for the entire school population of northern Lithuania. With so few schools and with high tuition fees, it is evident that only the wealthy could afford an education.

Today Siauliai has 19 high schools, three seven-year schools, four primary schools, a teacher-training school, an institute for advanced pedagogy, a ten-year music school, an agricultural school and a school for nursing and obstetrics. About 9,000 Siauliai children attend school, four times as many as before the war.

In 1938 there were about 4,000 college students in the whole of Lithuania, with the number steadily declining. Today the eleven schools of higher education have a student body of more than 23,000. In numbers of college students per 1,000 of the population, Soviet Lithuania leads France, Italy, Denmark, Sweden and Norway, with all of the country's graduates assured of jobs in their chosen fields upon graduation.

Books and Readers

Another index of Lithuania's cultural growth is book publishing. Book editions, particularly in fiction and poetry, are now significantly larger to meet the reading needs of a literate citizenry. *Seasons of the Year*, a long poem by Donelaitis, a Protestant pastor and poet who lived in East Prussia in the middle eighteenth century, will serve as an example. Between 1919 and 1939, the poem was published in two editions

Continued on page 51

Harvester combines and other machines used in large-acreage farming have greatly replaced former dawn-to-dusk laboring.

FLOURISHING LITHUANIA

Continued

COLLECTIVE FARM PASTURE WITH A LOCAL BREED OF SHEEP. SCIENTIFIC FARMING METHODS ARE NOW USED THROUGHOUT THE COUNTRY.

The fishing industry is a major source of income. These cooperative fishing boats are at Klaipeda on the Baltic Sea.

LITHUANIAN FARM WOMEN PERFORM THE UKRAINIAN FOLK DANCE "SPRING" AS A PART OF ONE OF THE MANY DANCE FESTIVALS THAT ARE SO POPULAR WITH THE PEOPLE.

of some 8,000 copies. In Soviet Lithuania the poem has been published in eight editions in a total of 75,000 copies.

The work of Zemaite, a Lithuanian classic, was put out in a solitary edition of 30,000 copies before 1940. Since 1945, twenty-six books by Zemaite have been published with a combined total of 571,200 copies. Within the recent period, books by the distinguished Lithuanian writer Petras Cvirka have been published in a combined edition of 1.5 million copies. Shakespeare, Byron, Scott, Longfellow and Mark Twain have been published in translation, and among contemporary American writers, Theodore Dreiser, Upton Sinclair and John Steinbeck are widely read.

Theater and Music

Another way of measuring the temper and well-being of Lithuanian life is in terms of the growth of our national arts.

Lithuania now has ten theaters, as compared with the three before 1940—theaters which play to capacity houses. In pre-Soviet Lithuania concerts were the rare thing, even in the capital, but today the State Philharmonic Orchestra schedules regular concerts, not only in Vilnius and others of the larger cities, but in small, out-of-the-way towns which had never before heard a symphony orchestra or a chamber-music group.

The Lithuanian Chorus and the Song and Dance Ensemble perform at home and for audiences in other of the Soviet Republics. Operas ballets, symphonies and concertos written by contemporary Lithuanian composers are performed regularly to large and interested audiences. The works of Lithuanian composers like Dvarionas, Juzeliunas, Vainiunas and Korosas are played not only in Lithuania but everywhere in the Soviet Union.

Lithuanian folk music and folk singing has experienced a renaissance during the Soviet period. No less than 180,000 Lithuanians sing in amateur choruses, dance in folk dance groups and perform with theater groups. At the yearly song, music and dance festival held in the republic's capital, contenders from every city and district vie for prizes. In the last festival, 32,000 singers, dancers and musicians from every city and village participated.

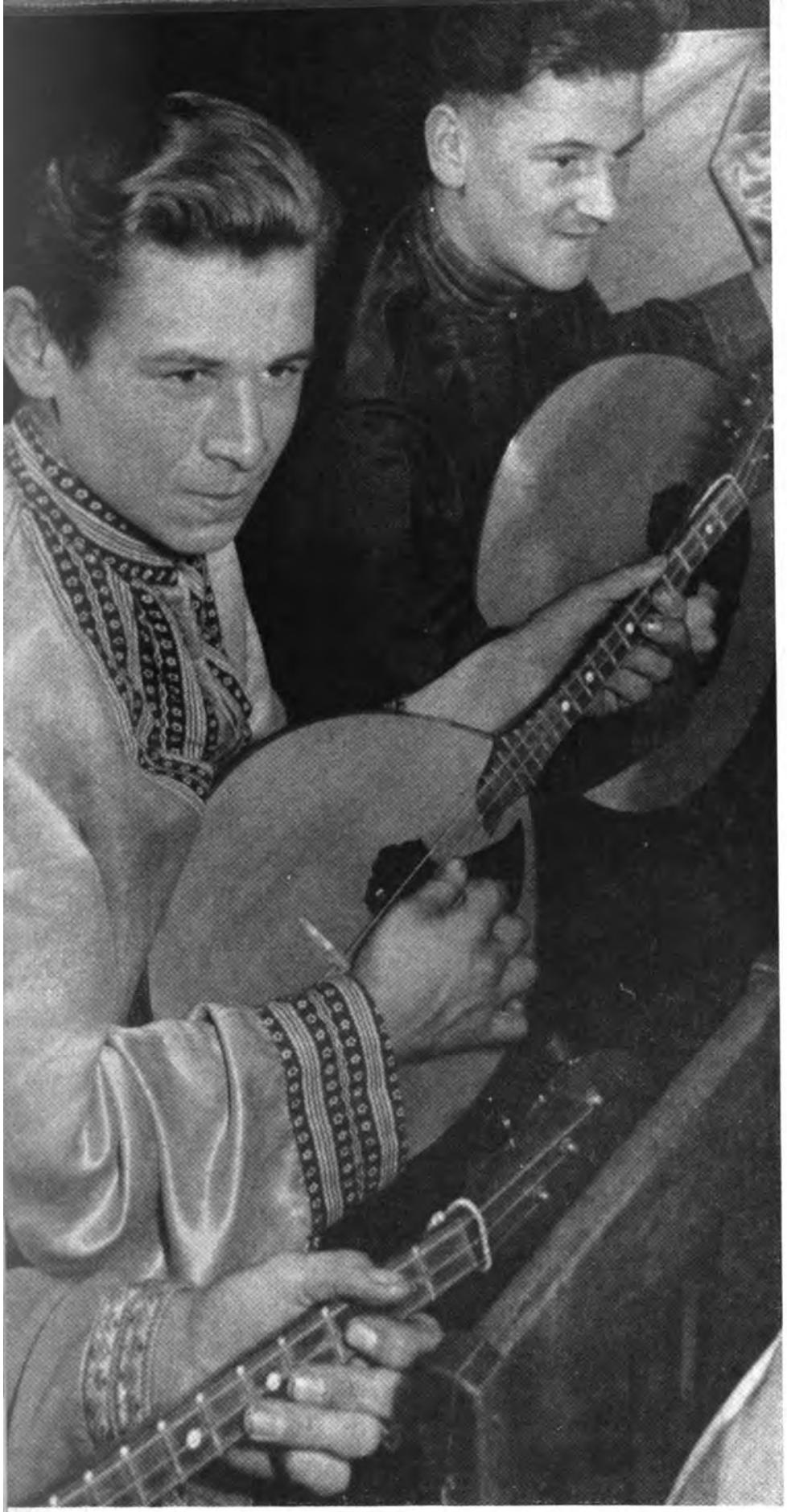
The People's Government

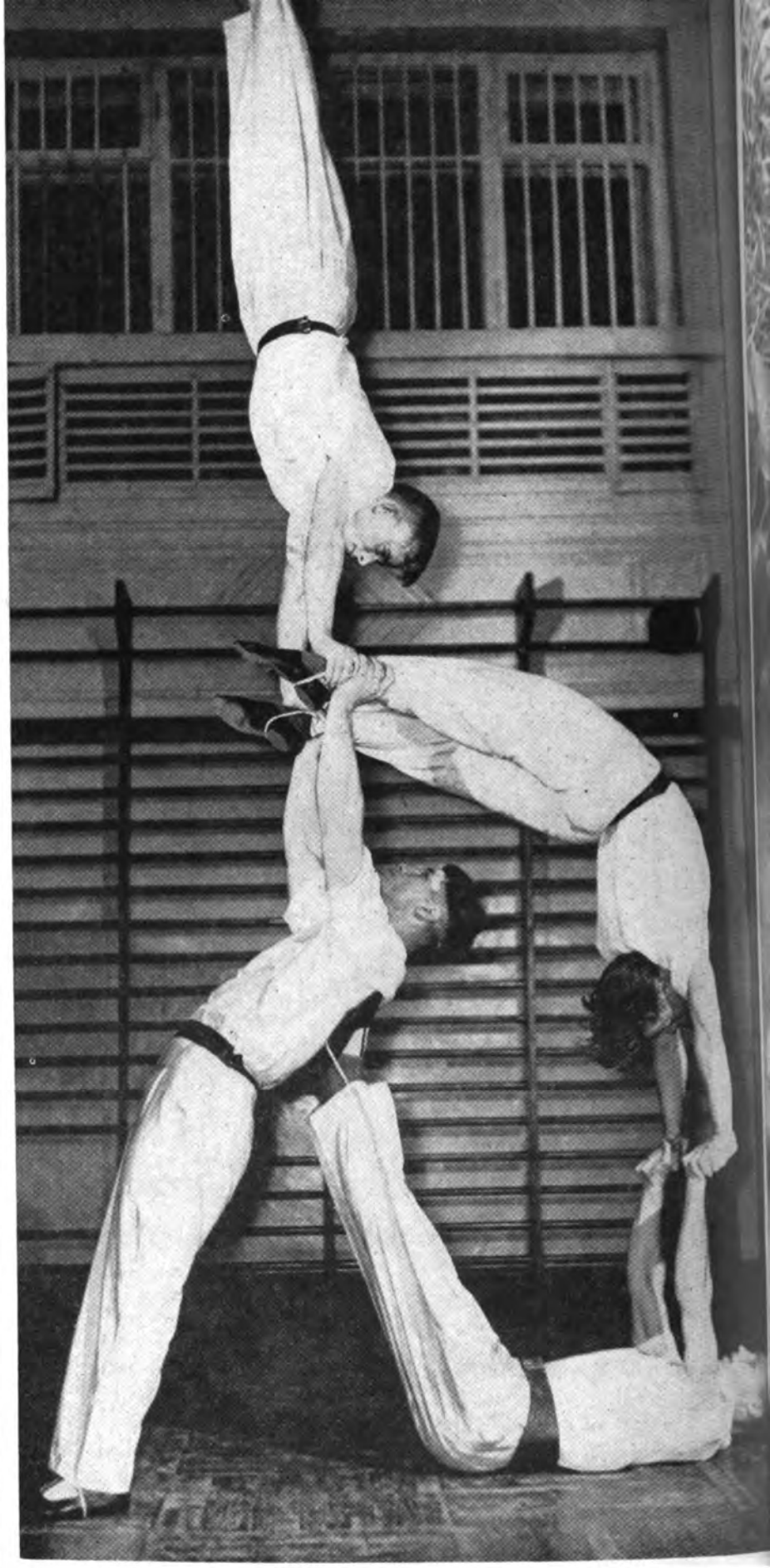
In Soviet Lithuania the governmental structure is based upon the people's ownership of the republic's wealth and resources, operated for the general welfare. The character of the republic's legislators reflects this principle of a socialist country.

Of the 26,383 deputies elected to local government bodies—village, town and city councils—almost 16,000 are workers and farmers, the remainder are intellectuals.

Sixty-two of the 209 members of the highest legislative body in our republic—the Lithuanian Supreme Soviet—are women. Among the deputies are 47 workers, 35 collective farmers and 127 schoolteachers, doctors, engineers, agronomists and other people in the professions. In the old Lithuanian Diet there was not a single worker.

In the Supreme Soviet of the USSR there are 35 Lithuanian deputies. Together with representatives from other of the Soviet Republics, they take their equal part in legislating and in assuring steady and confident progress toward a fuller and richer life for the whole nation. ■





EVERYBODY IN THE KUZNETSK METAL PLANT CAN FIND SOMETHING TO INTEREST HIM AT THE CLUB, WHOSE ACTIVITIES RANGE FROM STRING ORCHESTRAS TO ACROBATICS.

SOCIAL CENTER IN A

By Yuri Grafsky

Photos by Dmitri Chernov

HUMOROUS FOLK SONGS, VERY OFTEN ABOUT LOCAL PEOPLE AND EVENTS, ARE ALWAYS A WELCOME ADDITION TO ANY PROGRAM GIVEN AT THE CLUB.

SIBERIAN STEEL CITY

THE handsome, marble-fronted building of the metalworker's club in Siberia's steel city, Stalinsk, fairly hums with activity after working hours and on week-ends.

Two thousand metalworkers and members of their families are spare-time actors, musicians, artists, singers, dancers, acrobats, and whatever else you can think of in the way of avocations and interests.

The requirements to join any of the forty-odd amateur circles and twenty sport groups? Interest, nothing more. Facilities, equipment, musical instruments, theatrical costumes and teachers are all provided by the management of the Kuznetsk metal plant and the union. The outlay in funds for these purposes came to 900,000 rubles last year.

The theater studio has a membership of 40 hard-working amateurs who have six plays to their credit, among them *Marriage* by Gogol

Continued on page 55

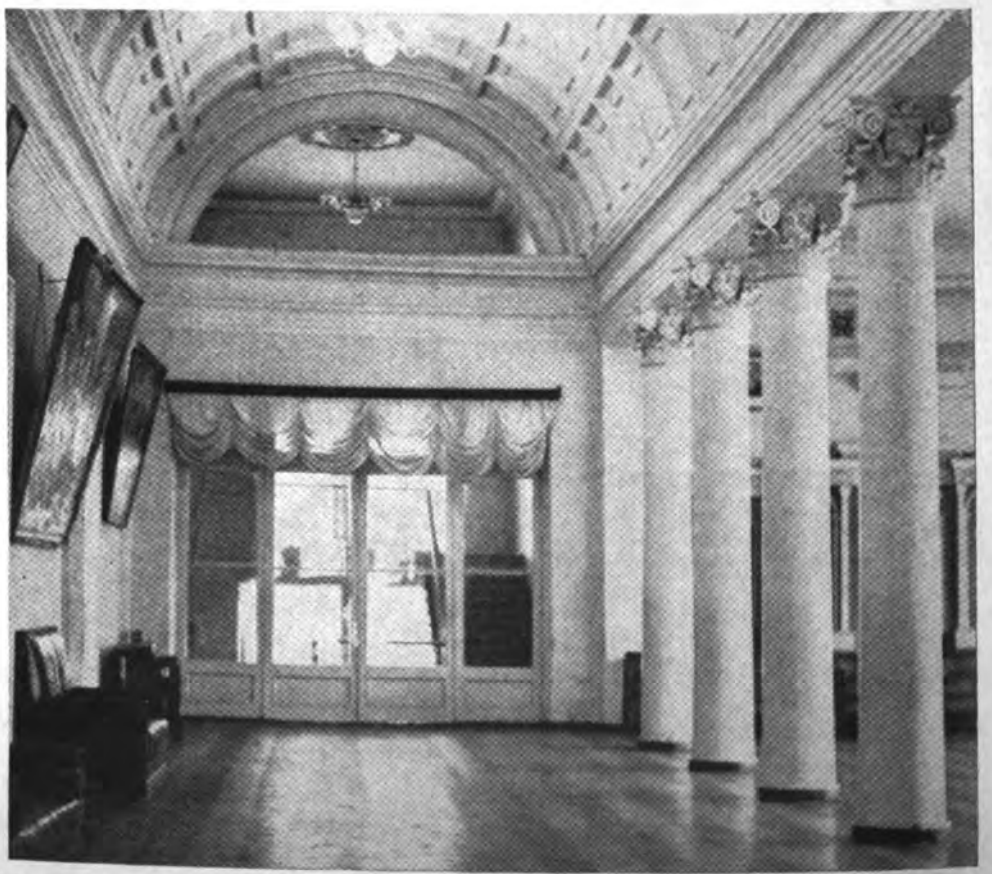
The club's industrial museum has exhibits tracing the plant's history. Visitors are often college students.

Mikhail Burkatsky is one of the regular users of the club's 163,000-volume library. A foundryman with years of experience behind him, he is now writing a book about his trade.

Open-air dances, concerts and carnivals are held in the beautiful park surrounding the club building.

SOCIAL CENTER IN A SIBERIAN STEEL CITY

Continued



In the evenings this hall is always the center of merry-making. Dances, parties and a host of other activities are arranged here for the young people of the plant.

More than anything, this six-year-old wants to be a soccer player when he grows up. A frequent visitor to the club's locker rooms, he listens eagerly to tips from his grandfather, who takes care of the sport gear.

and *The Zykovs* by Maxim Gorky. Under the tutelage of professional actor Alexei Konchevsky they are now rehearsing Chekhov's comedy *The Proposal*, with leading roles to be played by Mikhail Gubarkov of the blast furnace division, Victor Tanchayev of the transport division and Galina Melikh, head librarian of the plant's technical school.

For a two-day carnival held last fall in the park that surrounds the club building the literary circle wrote an original comedy for performance by the theater studio, the art circle designed masks, costumes and sets, and the club's band supplied the music for the pageant and for the big open-air dance which was the climax of the carnival. Between those who acted, danced, played or just looked on, there were 4,000 guests at the club when the festivities closed.

From time to time, workers in one shop will take over the club for some special occasion of their own—a big ball at which the young people who work in the rolling mill are host, or a literary evening put on by workers in the open-hearth shop.

Activity number one at the club is arguing life, love and literature. Listening to others argue runs it a close second. There is a regular schedule of debates with topics posted well enough ahead so that the large and usually vociferous audience can arm itself with background information.

The club has a reading room and a large library of general reading material beside literature on metallurgy. Some 600 readers a day use the library collection of 163,000 books. The range of interests of the library's 6,500 members is exceedingly wide.

Weigher Mikhail Kidyayev, for example, in the past few months has borrowed Russian classics—the works of Ivan Goncharov and Gleb Uspensky—and books on atomic power stations and the origin of the earth.

Metalworker Sergei Yudin has been reading Leo Tolstoy, Dostoyevsky, Galsworthy and Stendhal and the contemporary Soviet novels by Vyacheslav Shishkov, Vasili Grosman and Leonid Leonov.

Electrician Georgi Tolstikov has been concentrating on Theodore Dreiser. He has read in succession *Sister Carrie*, *The Titan* and *The American Tragedy*.

Foundryman Mikhail Burkatsky is one of the most regular of library readers. He is the three-time winner of the Order of Lenin, the highest of national awards, for his suggestions for improving production of steel. Now he is writing a book from the background of his many years of work.

Very frequently the library will arrange author-meets-reader meetings. The last such meeting was a talk with Vladimir Popov, author of novels about the steel industry *Steel and Slag* and *Smelting of Steel*.

During this past year the library arranged 26 readers' conferences at which the latest books of Soviet writers were discussed. There was a particularly heated exchange of opinions on the novels *Youth Is with Us* by Vsevolod

Continued on next page

A theater for the children offers them a chance to make puppets, build sets and act in plays.

PERFORMANCES GIVEN BY THE CLUB'S SONG AND DANCE ENSEMBLE ARE ALWAYS A POPULAR FEATURE.

SOCIAL CENTER IN A SIBERIAN STEEL CITY

Continued

Kochetov and *Not by Bread Alone* by Vladimir Dudintsev.

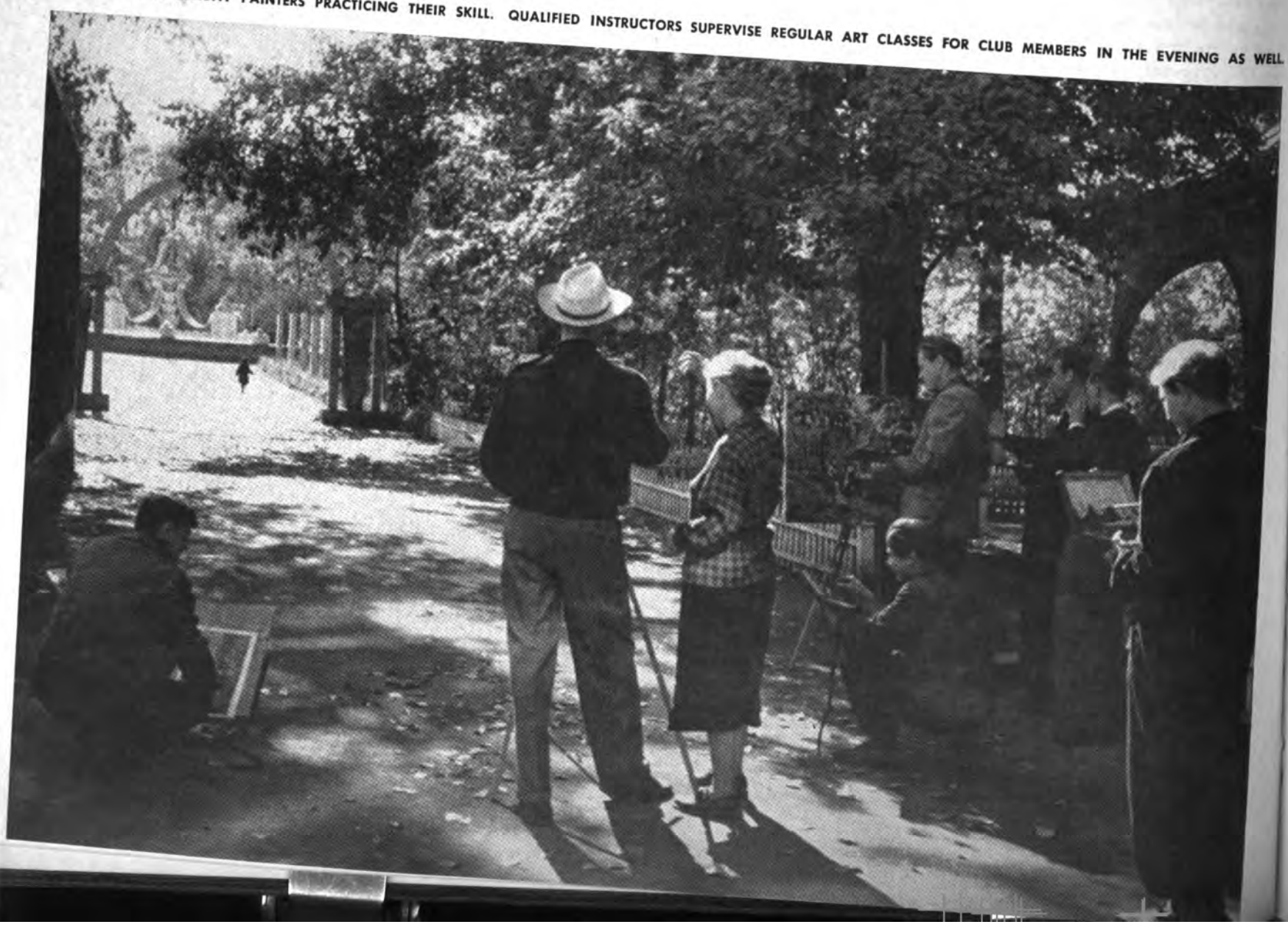
The musical life of the club is quite full too. Artists from the Novosibirsk and the Kemerovo regional philharmonic orchestras are frequent guest performers at the club. Ensembles and individual artists from Moscow and Leningrad also perform periodically. The famous pianist Emil Gilels played at the club shortly after he came back from his 1955 American tour.

Both the Kuznetsk plant and Stalinsk where the plant is located have been growing together. Stalinsk has new broad tree-lined avenues, a new theater, museum, motion-picture theaters and community centers. The new housing developments have spread so far beyond the old city limits that the club at the center of town, not too long ago within easy reach of plant workers, is now an hour's travel away for a good many of them.

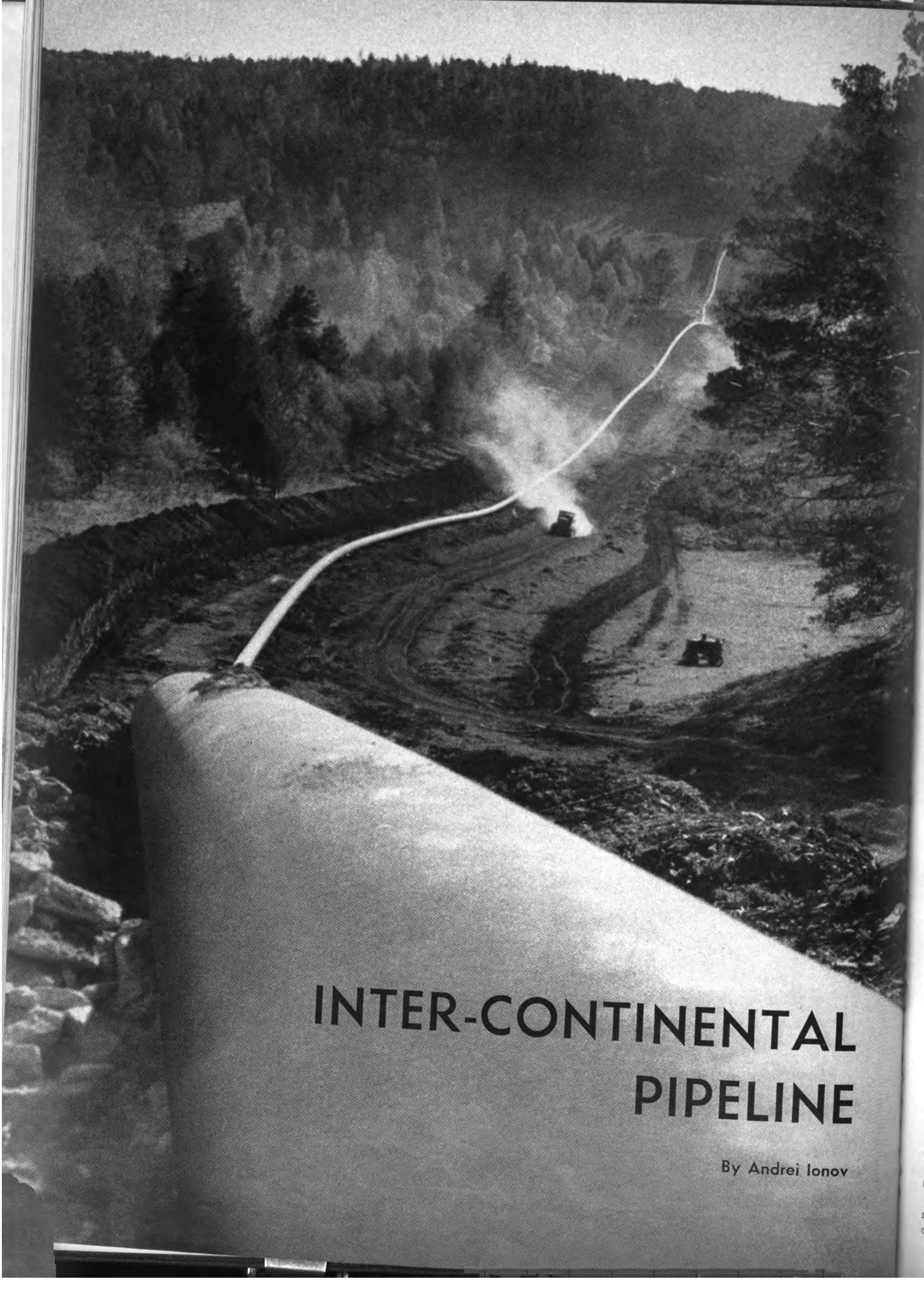
Out of discussion in shop and trade union meetings grew three new clubs in the past five years. They are now functioning in various parts of the city, with a fourth being built in a growing district.

Stalinsk is more than a steel town. It is a city of people learning, reading, debating, playing, singing in these busy centers of social and cultural life. ■

HERE ARE SOME SUNDAY PAINTERS PRACTICING THEIR SKILL. QUALIFIED INSTRUCTORS SUPERVISE REGULAR ART CLASSES FOR CLUB MEMBERS IN THE EVENING AS WELL.



WHEN SUB-ZERO COLD CLOSED SCHOOL FOR THE DAY, SASHA THOUGHT IT WOULD BE A GREAT CHANCE TO IMPROVE HIS HOCKEY, UNTIL A FORMIDABLE OBSTACLE AROSE.



INTER-CONTINENTAL PIPELINE

By Andrei Ionov

UNDER construction now is the world's longest oil pipeline. It will extend from the Volga River to Lake Baikal—2,315 miles of underground metal piping to carry oil between the European and Asian parts of the Soviet Union.

For the first 900 miles this new Tuimazy-Omsk-Novosibirsk-Irkutsk pipeline will parallel the present Tuimazy-Omsk line and then it will continue to run through the larger part of Siberia. On its way from the oil fields of Bashkiria it will cross the Ural Mountains and the marshes of the West Siberian plain and will be bedded under the Belaya, the Irtysh. the Ob, the Yenisei and other deep rivers. Through these thousands of miles of steel piping 28 inches in diameter, laid 6½ feet underground, oil will be driven from one powerful pumping station to the next—there will be 13 in all.

Men and machines are now chopping through dense forests, blasting mountain rock and digging river and lake shores. The sound and clatter of the big excavators and bulldozers ring through the great empty spaces of this primeval country.

To cut the path for this Eurasian pipeline, more than 25 million cubic yards of earth must be moved. Two hundred and fifty miles of the route must be cut through the steep slopes of the Ural Mountains, an undertaking of large dimensions by itself.

But the very difficulties of this gargantuan construction job seem to have developed the skill and ingenuity to meet them. Andrei Korobeinikov, an excavator operator, tackled the steep slopes of the Urals with his E-505 Soviet excavator and demonstrated that the machine could be used efficiently in mountain areas. Now the E-505's clamber up and down the slopes like flies on a wall.

Another excavator operator, Alexander Saprikov, fabricated a new type of bucket for rocky ground which cuts down sharply on wear and tear. Pyotr Bezrukov worked out a method of using his excavator to dig trenches in river beds without recourse to divers.

These and other ingenious techniques, devised not only by excavator and bulldozer men, but by insulation men, pipelayers, welders and assembly teams, have been widely publicized and have helped cut down time and labor. On all sections of the route, miles of pipe have already been put into place and covered over.

Rotary excavator cuts trench, partly through mountains, in which pipeline is to lay. The pipe sections are then welded by mobile automatic machines.

Network of Underground Carriers

Building oil and gas pipelines is new in Soviet construction, the youngest of its widely ramified engineering industries. It began to develop in earnest only as short a time ago as the end of the war. Lines were first built to pipe natural gas from deposits in the Ukraine and on the Volga to consumer areas, and to pipe oil to refineries from the fields in the Volga region.

Now many new underground pipelines supply cheap natural gas to towns and cities in various parts of the country. One of the longest gas pipelines in Europe stretches for 800 miles between Stavropol in the South and Moscow. The country's production of natural gas is expected to increase by 500 per cent between 1956 and 1960, to service 200 towns with a combined population of 40 million people.

Some 9,000 of the 15,000 miles of pipeline to be built during this five-year period will carry oil. The Eurasian pipeline from Tuimazy to Irkutsk is the longest, but only one of 30 being laid out. They vary in length depending upon function, from the 3-mile underwater pipeline recently built to bring oil from the Caspian Sea islands to the mainland, to the pipeline 65 times as long—195 miles—that runs through forest and plain and under rivers and canals from the Zhirnovsky oil field to the tanks of the newly-finished Stalingrad refinery. Stalingrad is now served by three gas pipelines. A new pipeline almost 500 miles long will soon supply Leningrad with natural gas from the South. The Jarkak-Bukhara-Samarkand-Tashkent 500-mile network of line will spread out from Uzbekistan.

New Oil Fields

The Eurasian line is being built to pipe oil from the new fields, discovered and tapped only in recent years, between the Volga River and the Ural Mountains. These rich fields have shifted the center of the Soviet oil industry from the long-famous Baku fields in Azerbaijan to Tataria and Bashkiria, which are autonomous republics within the Russian Federation, and to the Russian cities along the Volga banks.

In the prewar year 1940 the Russian Federation produced only 7 million tons of oil, while Azerbaijan produced 22 million. Today oil output of Azerbaijan remains at the same figure, while oil output in the Russian Federation has jumped to 61 million tons. Oil production has also been much increased in the Central Asian Republics—Turkmenia, Kazakhstan and Uzbekistan.

The fields between the Volga and the Urals and in other eastern regions now account for 65 per cent of all oil produced in the country.

The reserves of Devonian oil in Tataria, Bashkiria and the Volga region are unusually large. It is from these fields that oil is piped to Siberia for refining. An endless stream flows from Tuimazy to Omsk. transported via underground pipelines at one-seventh the cost of rail carriers.

Around Siberia's first refinery, at Omsk, an oil center of recent origin and considerable size has grown. From Omsk, diesel oil, gasoline, kerosene and lubricating oils are carried to all parts of Siberia. Southeast of Omsk, near the city of Pavlodar, another refinery is now being built.

There are no oil wells at Omsk or Pavlodar, or anywhere else in Siberia, as a matter of fact. Geologists are prospecting for Siberian oil deposits, and not without result. It may be that Siberia at some time in the future will not only pipe and refine oil, but will tap its own crude oil deposits. ■

Special machines like this one clear pipe sections of scale and rust and give them a protective coating before other machines put them underground.

RAMS OF ASKANIA-NOVA BREED YIELD ALMOST SEVENTY POUNDS OF WOOL EVERY YEAR. THE ANNUAL SHEAR FOR EWES OF THE SAME BREED COMES TO THIRTY POUNDS.

Askania-Nova Preserve

By Mikhail Alexandrov

Photos by Alexei Mokletsov

ASKANIA-NOVA is one of the great natural laboratories of the Soviet Union—100,000 acres of forest and wild grass plain set aside as an animal preserve in the Ukrainian Republic, north of the Crimean Peninsula. On its open pastures graze zebra, buffalo, eland, spotted deer. White swans glide majestically on its quiet ponds and pink flamingoes strut along its shores.

Here are birds and animals, plants and trees, many of them rare and exotic species collected from every climatic section of the globe. The European bison; the aurochs, now nearly extinct; the African gnu; the Australian emu. All are being carefully and scientifically acclimated. Many species like the saiga antelope and the steppe marmot that were fast disappearing are multiplying rapidly under these favorable conditions.

There are many such natural preserves in the varying geographical zones of the Soviet Union—in the Siberian taiga, on the Ukrainian steppes, in the Caucasus mountain country, and in the Central Asian deserts. As early as 1920, while the Civil War was still in progress and the country was far from stabilized, the Ilmen State Reservation was set up in the Southern Urals, the first of many large conservation areas. Under the old regime they were privately owned lands, usually stocked for hunting. Little attention was paid to conservation.

Before the Revolution Askania-Nova was the property of a large landowner. Some sporadic zoological research was undertaken there from time to time, but without adequate means or material. Large-scale and consistent research was begun in 1919, when the Ukrainian Soviet Republic declared it a national preserve. Since that time experimental stations and laboratories have been built for study of steppe flora and fauna.

But Askania-Nova is more than a zoological and botanical garden. The wild life conservation and study is correlated with the more im-

These South American ostriches feel quite at home at Askania-Nova. This natural preserve contains animals from every climatic belt in the world.

Zebra and Przhevalsky horse. Work is being done in Askania-Nova to domesticate wild animals. Antelope, deer and pheasants have been tamed here.

mediate function of Askania-Nova as a scientific laboratory for breeding domestic animals. The Mikhail Ivanov Institute for Animal Breeding at Askania-Nova, founded in 1932, has been doing original work in this most important and practical field of study.

The name of biologist Ivanov is intimately associated with the history and progress of scientific animal breeding in the Soviet Union. At Askania-Nova he developed a number of new breeds, notably the Ukrainian steppe hog and the Askania-Nova fine-fleeced sheep, which are now raised throughout the steppe regions of the country. This new breed of hog grows fast, reaches a weight as high as 704 pounds in sows and 990 pounds in boars, and is unusually fertile. The Askania-Nova breed of sheep yields large quantities of wool. The annual shear of ewes is 27.7 pounds, that of rams is 66 pounds and more.

Ivanov also founded an experimental zootechnical and pedigree breeding station at Askania-Nova. This was in 1925 when there were very few such Soviet stations. Now there are scores of them in every geographical region of the country. When he died in 1935 he left an important body of work behind him and incompleted research which is being followed through by such noted scientific workers in the field as Academicians Leonid Greben and Alexander Makeyev.

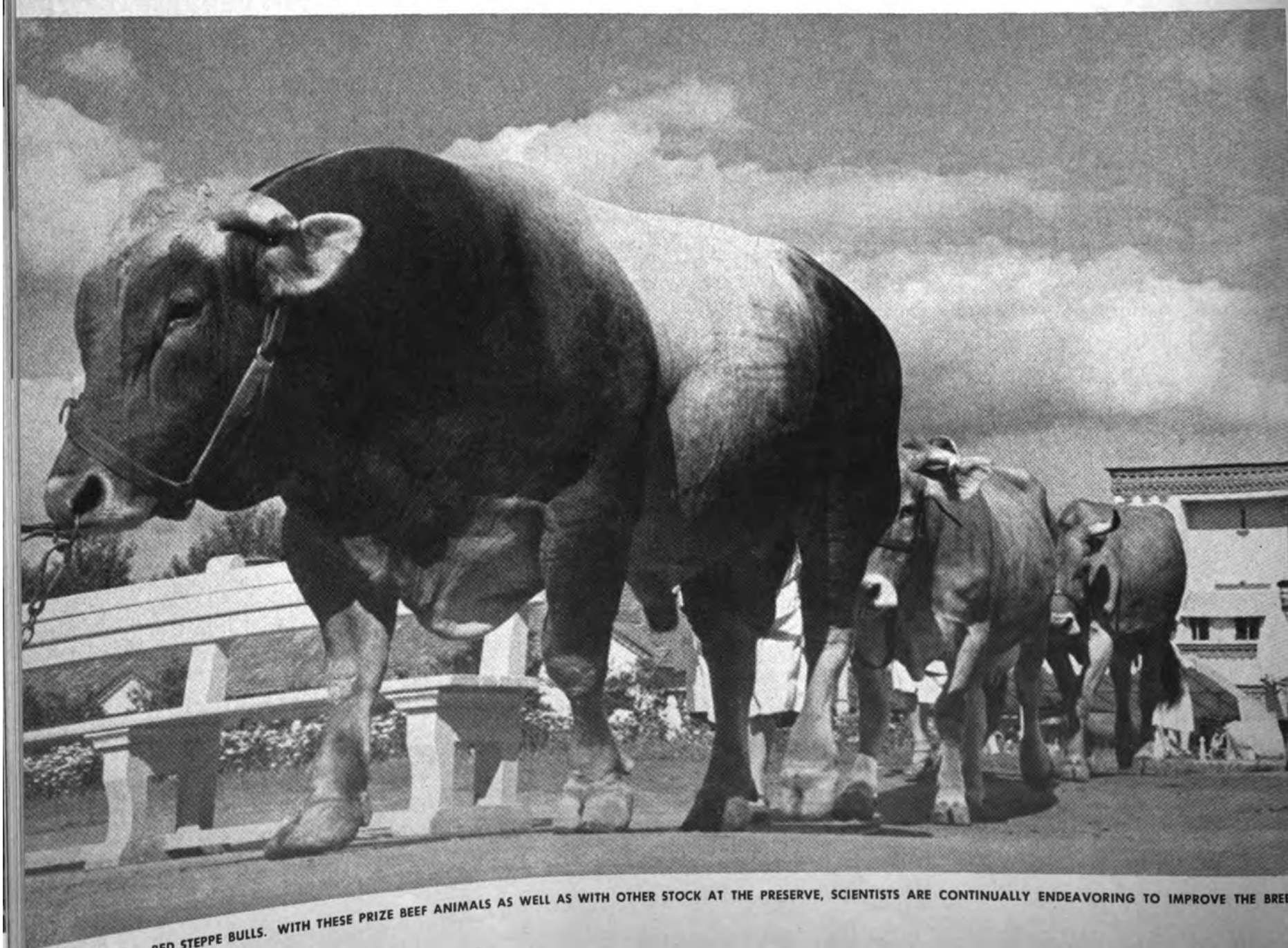
Work is being done to improve existing breeds and to develop new ones. Both the Ukrainian speckled hog and the fine-fleeced mountain merino sheep were developed at Askania-Nova. A particularly fertile breed of karakul sheep has been produced by cross-breeding with the Romanov coarse-wool breed. The ordinary variety of karakul sheep will give 110 to 120 lambs per 100 ewes, while those of the new bred variety give 165 to 170, and have given as many as 205. The new breed also yields karakul pelts of high quality.

Experimental work is under way to improve the Red-Steppe breed of milch cows, and a new type of milch and beef cattle is being produced. Through interspecies hybridization of the common cow with the

Continued on page 63

MANY NEW BREEDS HAVE BEEN DEVELOPED HERE. A COW CROSSED WITH A WILD ZEBU RESULTED IN THIS NEW BREED OF CATTLE WHOSE MILK HAS A HIGH FAT CONTENT.

THE VAST GRASSY PLAINS AT ASKANIA-NOVA SEEM TO STRETCH TO THE HORIZON, AND THEY PROVIDE A PASTURE FOR AFRICAN ZEBRAS AND OTHER GRAZING ANIMALS



RED STEPPE BULLS. WITH THESE PRIZE BEEF ANIMALS AS WELL AS WITH OTHER STOCK AT THE PRESERVE, SCIENTISTS ARE CONTINUALLY ENDEAVORING TO IMPROVE THE BREED.

Askania-Nova Preserve *Continued*

wild zebu, a new breed of zebu-like cattle which gives milk with a high fat content has been developed.

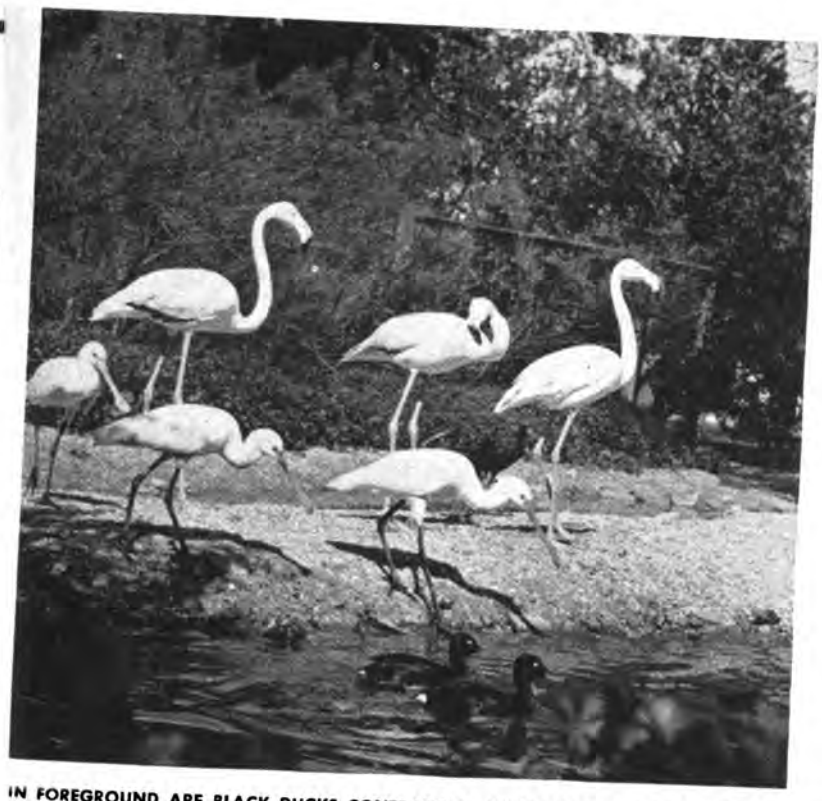
Askania-Nova also has a large, well equipped station for the artificial insemination of farm animals. It services the collective and state farms in the general vicinity and helps improve the quality of herds. Last year 44 of the station's pedigreed rams were used for the artificial insemination of 56,000 sheep.

During the Nazi invasion the flocks of the famous Askania-Nova sheep breed were practically wiped out. After the war, sheep breeders at the "Krasny Chaban" state farm and the "Zavety Ilyicha" collective farm, not far from Askania-Nova, undertook to restore the breed. Using methods worked out by Askania-Nova's scientists, they not only restored the flocks, but improved the breed in the process.

The work done at Askania-Nova, both with wild and with domestic animals, is followed with close interest by animal breeders in the country, who frequently visit the preserve to watch progress or to seek advice on local breeding problems.

Many thousands of excursionists also visit Askania-Nova every year. They come to see how nature is being transformed, wisely and patiently, for man's benefit. ■

THESE SPOTTED DEER SEEM TO BE HEEDING THE PHOTOGRAPHER AT RIGHT MOMENT



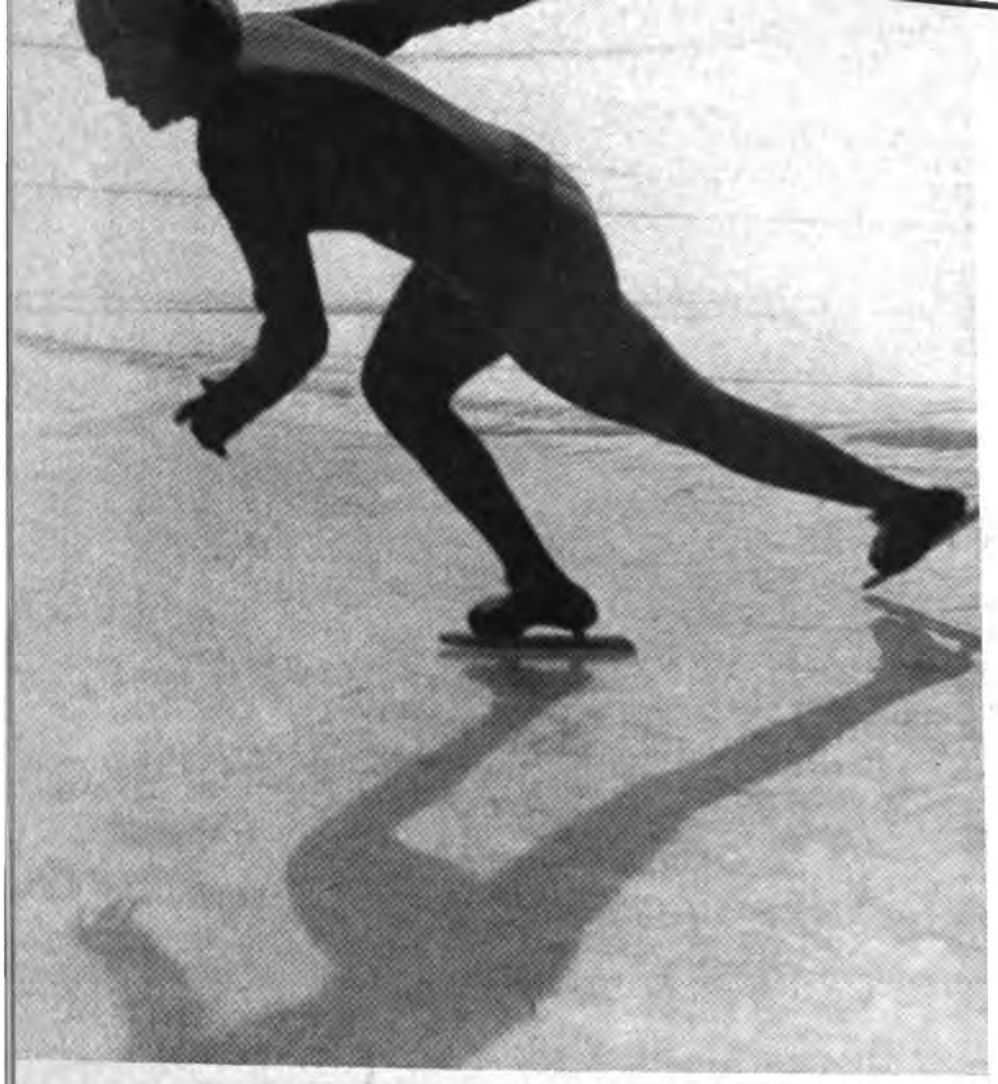
IN FOREGROUND ARE BLACK DUCKS CONTRASTING WITH PRETTY PINK FLAMINGOES.

THIS IS A HEAVYWEIGHT UKRAINIAN STEPPE HOG PRODUCED AT ASKANIA-NOVA

IN ALL THE PRESERVE'S 100,000 ACRES, NO ANIMAL IS FASTER THAN THE ANTELOPE. ALTHOUGH THEY ARE FAR FROM THEIR NATIVE AFRICA, THEY HAVE BECOME ACCLIMATED.

The World's Fastest Woman Skater

Inga Artamonova of Moscow



THE YOUNG SKATER'S STAMINA AND LONG STRIDE ARE HER GREATEST ASSETS.

By Victor Kuprianov

MEET INGA ARTAMONOVA, the world's fastest woman skater. Springing from the ranks of the unknowns, she outsped contenders from eight countries to win her crown last winter.

Inga first broke into print when she captured the USSR title two years ago. The skeptics regarded the performance as sheer luck. They argued that the favored skaters were off form because of the strain of the world championship that preceded the national event. Be that as it may, the Soviet title-holder said at the time, "Next year I hope to become the world champion!"

And she meant it more than her critics believed. A very determined girl, she applied herself with a will and worked hard throughout the year. She roller skated, rowed, ran in cross-country events and played volleyball to build up wind, muscle and technique.

A DETERMINED GIRL OF 22, INGA IS DEVOTED TO HER FAMILY AND HER HOME.

Inga is one of the few speed skaters who can skate practically standing up on outstretched legs. What that means is a longer stride—microscopically longer, perhaps, but all those microscopic trifles taken together give the margin that makes all the difference between winning and just taking part. Why then don't the other skaters skate that way? Yes, why don't they? That requires years of training and muscle building.

Our new champion has a winning smile and tremendous will power. Once she sets her mind on something—Grr-rr-r! She was that way at high school before the thought of a world title had even entered her mind. This tall girl decided she'd learn to swim. So she joined the Dynamo Sport Club and began training in their pool.

But Inga's grandmother had other ideas. She said NO! Now most grandmothers know that merely saying "no" is not enough. Decisive action is needed. Grandma Artamonova had her own method. She flatly refused to give Inga money for carfare.

In most cases that would be a pretty fair deterrent—especially when the pool is situated four miles from home. But not so for Inga. She set her jaws and hiked the four miles and back. And, in passing, it might be said that these long walks helped build up her stamina to championship caliber. So at present Inga belongs to the select group that can say, "Everything that I am I owe to Grandma!"

The question fans asked is: Is this a star of the first magnitude or merely a meteor that flits once across the sky and is gone? There are many who predict a long string of victories. One of them who should know is Maria Isakova, the famous speed star who wore the world crown for three years. She thinks Inga will reign supreme for at least a decade. It is a thrilling prospect for Inga, but just imagine what it does to the other girl skaters.

The world championship for women last year not only showed that Inga Artamonova was best at all the four distances contested—it also showed that the class of women's speed skating has improved noticeably. In the past the titles and records seemed to be a Soviet monopoly. But now we are seeing new names on the roll of honor. Miss Hutunen of Finland actually outskated Inga by the slim margin of about two seconds in the 3,000-meter race—the longest distance which usually makes or breaks champions. And the 16-year-old Finnish champion, Miss Sinvonen, ran second to Inga in the 1,000-meter event.

All of that is a reminder to Inga that she can not rest on her laurels this winter if she wants to keep her championship title. ■

ACTION PORTRAIT SEEMS TO REFLECT HER WILL TO WIN THE CHAMPIONSHIP. ▶

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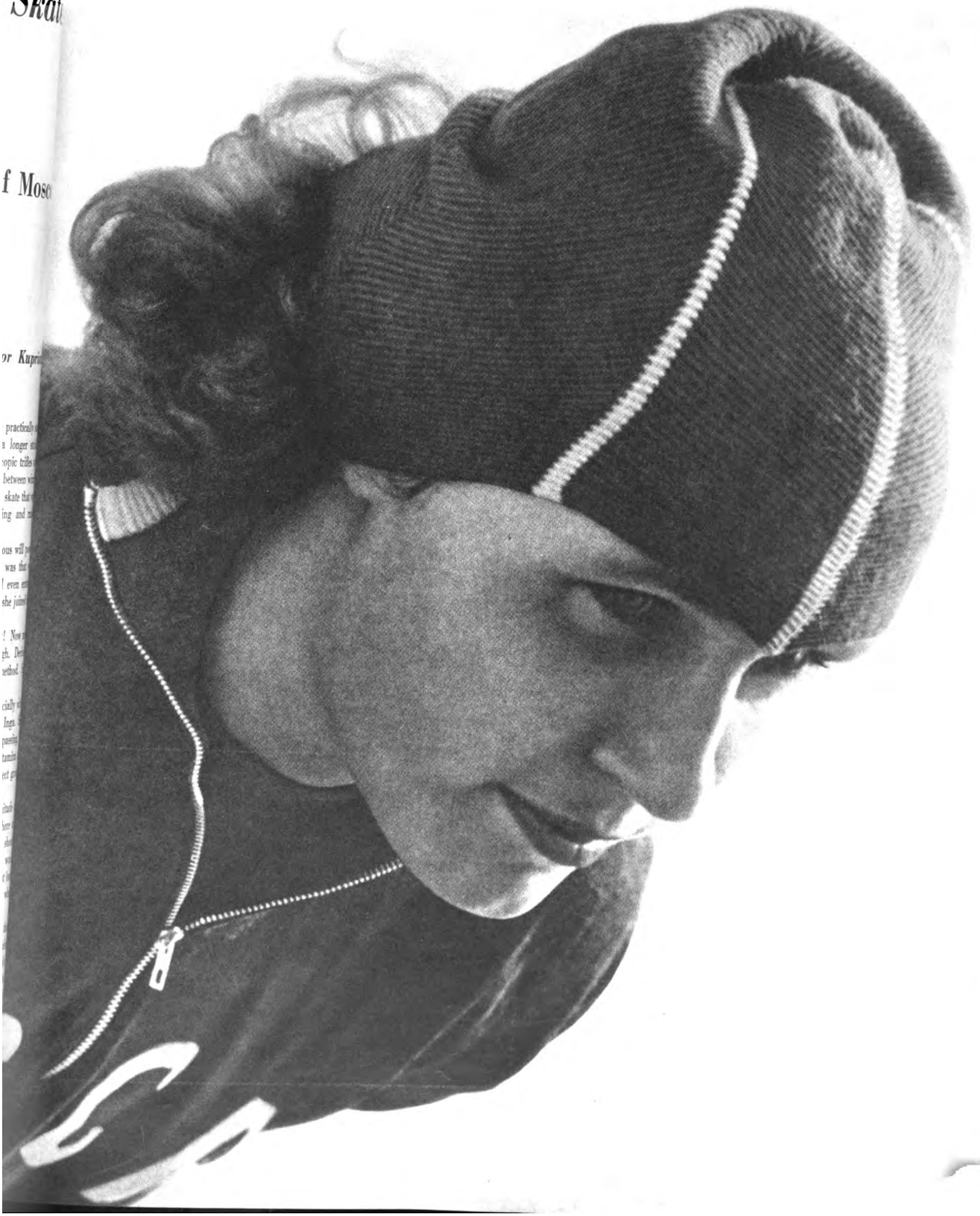

AN EVENING AT THE RINK. (See Picture Story on Pa

THE RINK (See Picture

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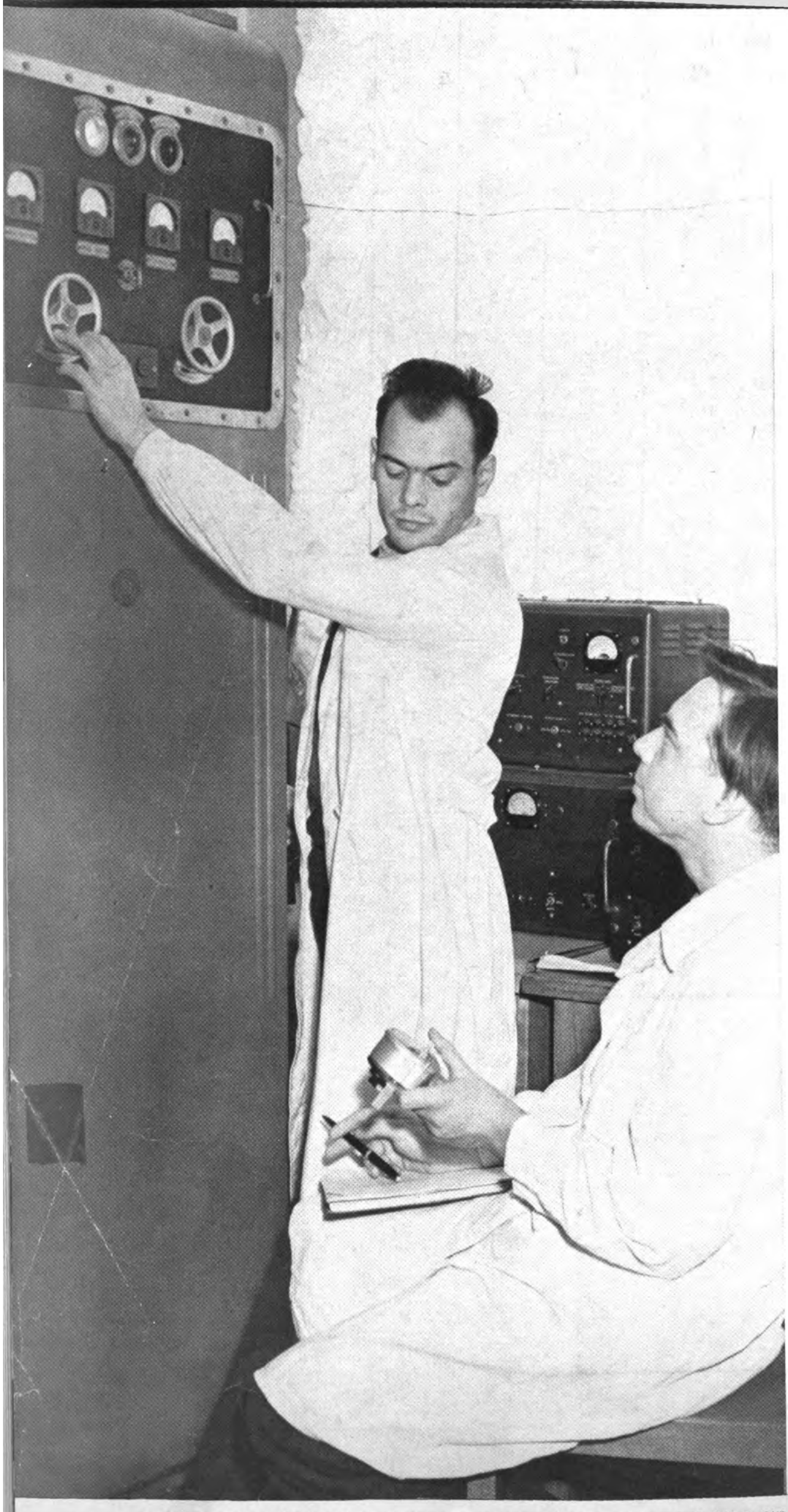

USING RADIOACTIVE ISOTOPES TO DETERMINE THE PROPERTIES OF METALS, RESEARCHERS DEVELOP NEW ALLOYS.

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Front cover: Anatoli Dmitrovsky, on the staff of the Biochemistry Institute of the USSR Academy of Sciences, typifies the country's younger generation of scientists.

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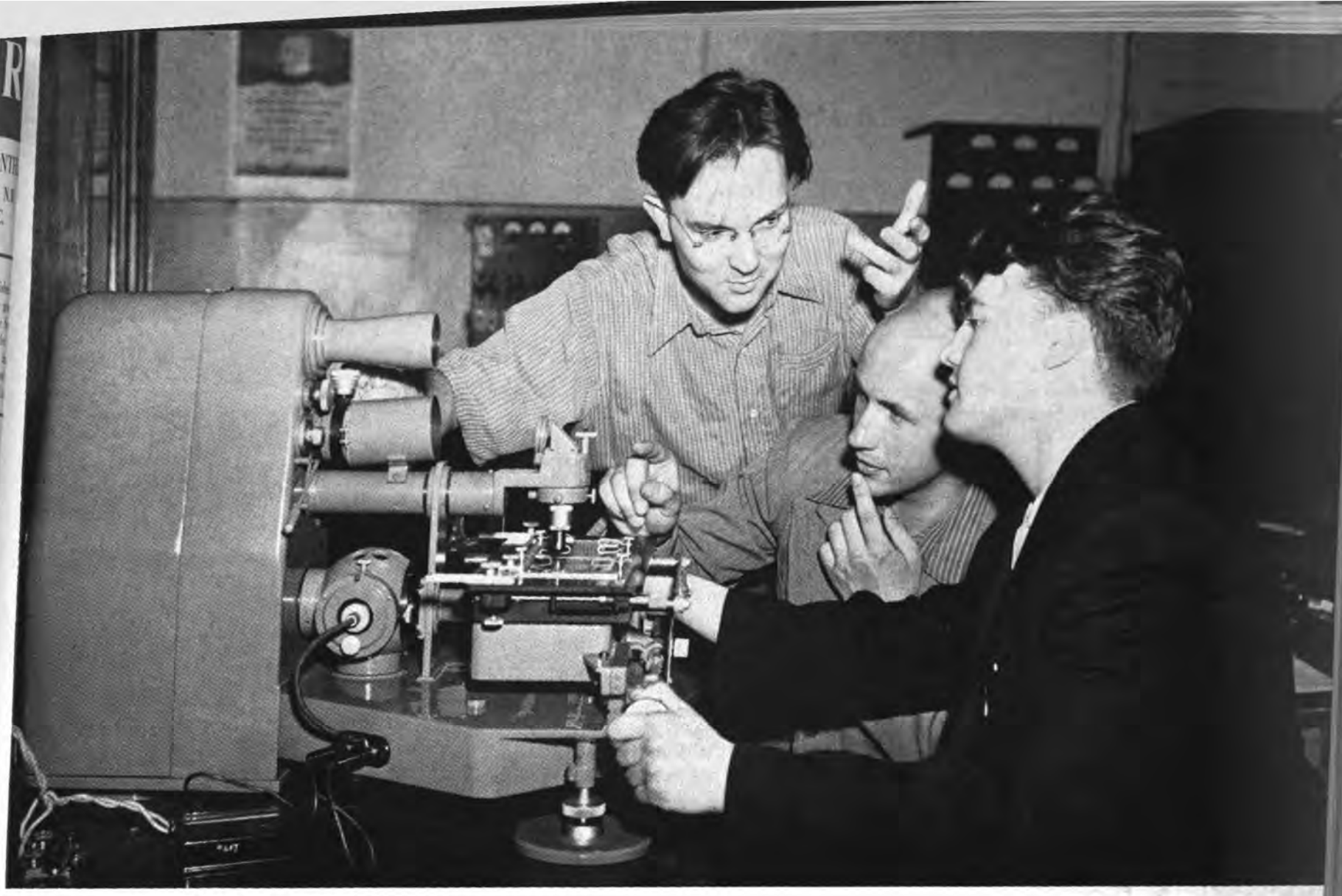

TRAINING SCIENTISTS

By Vyacheslav Yelyutin, *Minister of Higher Education*

THE ATTENTION which science education receives and the high regard in which scientists are held in our country is not of recent origin. It is as old as the Soviet Union itself. And reasonably so, since the utilization of modern scientific findings is a fundamental part of the Soviet system, of every aspect of the country's life. Scientists, therefore, have a limitless horizon of activity and are given every opportunity for research and unstinting funds and equipment to carry on their work.

We assume as a requisite for continuing economic expansion and social progress a highly literate population from which new creative scientists may be drawn. Fifty million people—one-fourth of the country's population—are studying in one or another of the elementary and high schools, specialized secondary schools, colleges and universities, in vocational schools or at on-the-job training courses.

Education from elementary school through college and graduate work is financed entirely from the national budget and is free to all students. The budget for public education has increased with each passing year. In the five years from 1953 to 1957 alone it grew from 61 to 79 billion rubles a year.

Soviet education operates on the premise that the future scientist must have a rounded background. The secondary school curriculum, mandatory for every student regardless of future specialization, includes study of the humanities as well as science and polytechnical training. The program is uniform for all schools and fulfills the general requirements for entrance into any of the country's colleges.

The Secondary School

The science course covers mathematics, biology, physics, chemistry and astronomy. It takes in both the theory and general laws of the science and is correlated with laboratory study and excursions to neighboring farms, factories, museums and exhibits. Among other things, the secondary school course is designed to provide each student with a basic general background in science, to acquaint him with the various fields of knowledge so that he may be equipped to select the work he wants to pursue, to foster independent thinking and working habits and to develop potential skills.

From high school the student may go on to advanced study at a specialized secondary school or college. Or, if he wishes, he may begin to work at a job for which his knowledge and preparatory polytechnical training in high school will have given him the basic background.

Potential skills and talents are carefully noted and helped to develop

Continued on next page

TRAINING SCIENTISTS

Continued

by teachers through classroom work and extracurricular clubs and circles. Neighborhood children's clubs, with their rich program of activities geared to stimulate the interest of every youngster, search out and direct talents which otherwise might go to waste.

A close tie is maintained between the secondary schools and the colleges and scientific institutes, with activities scheduled to foster latent abilities and to direct students to those fields of specialization for which they manifest interest and aptitude.

The Moscow State University, for example, holds an annual city-wide mathematics contest for secondary school students. This is an event of general interest preceded by lectures given by nationally known mathematicians and model assignments published in the press. The winners of the competition are awarded prizes.

The physics department of the Tbilisi Engineering Institute has been working with the city's secondary school pupils for some years now. The Institute professors lead specially prepared discussions in mechanics, molecular physics, electricity and optics, with appropriate laboratory demonstrations. The discussions are lively and almost always lead to consideration of science careers.

Contests and discussions are held in most fields of study—literature, languages, geography, the sciences. For the students who participate they provide a broader insight into a particular field of study and a test of abilities more demanding than that of the classroom.

During "Open Door Days," secondary school students are invited to visit the colleges and universities. The Leningrad Mining Institute "Open

Seventh-grade physics class in a Moscow secondary school. Soviet pupils are given a good grounding in the sciences as well as in the humanities.

Physics experiment by Armenian girls in a Yerevan secondary school. Work in the laboratory supplements the theory that is learned in the classroom.

Fifth graders in a botany class. This introduction to science coupled with the after-school scientific clubs led by teachers quickens the pupil's interest.

A lesson in electricity for tenth graders. Secondary school laboratories are equipped to provide the students with the solid background colleges require.

"Open Door Day" at the Siberian Timber Institute in Krasnoyarsk permits the transport department to show its laboratory to new high school graduates.

Door" program is fairly typical. The young visitors gather in the auditorium where the Institute director talks on the history of the school and its admission requirements. Then the heads of various departments describe their specialties. After this the students tour the school and ask questions, both general and personal.

College Education

Thus, to a large extent, the secondary school provides the basic elements for a career in science. College training develops these elements and brings them to maturity. The country's constant need for specialists, the availability of facilities and the consideration shown serious students are an incentive for young people to continue their education beyond high school.

For college entrance, the secondary school graduate must pass uniform competitive examinations in Russian language and literature, in one foreign language and in subjects pertaining to his chosen field. A future engineer, for example, will be required to pass examinations in mathematics, physics and chemistry; a medical student in physics, chemistry and biology.

The course of study ranges from four to six years, depending upon the field of specialization. The academic year begins on September 1 and ends on June 1, with a two-week winter vacation and a two-month summer vacation. Examinations are held between terms and at the year's end. Attendance at classes and lectures is compulsory. Twenty is the normal class size.

Tuition is free, and students who show good progress in their studies are given a monthly allowance by the government. Last year 79 per cent of all the country's students received such stipends. Textbooks are provided for the course without charge. Books in general are very inexpensive and any student who prefers to have his own personal collection can easily manage to buy what he wants from his stipend. Out-of-town students are boarded in college dormitories and have their meals at college restaurants at very moderate cost.

Generous budgetary allocations are made for college and university libraries, laboratories, scientific equipment and whatever else is required

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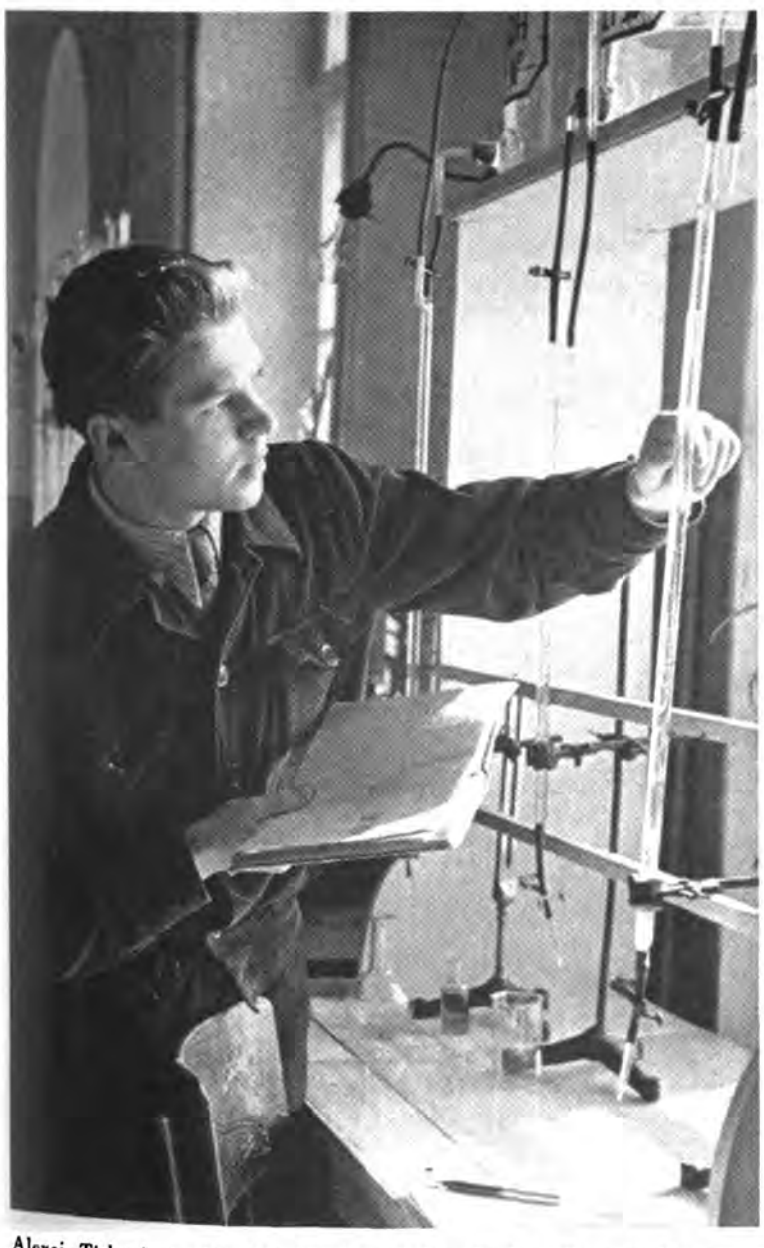
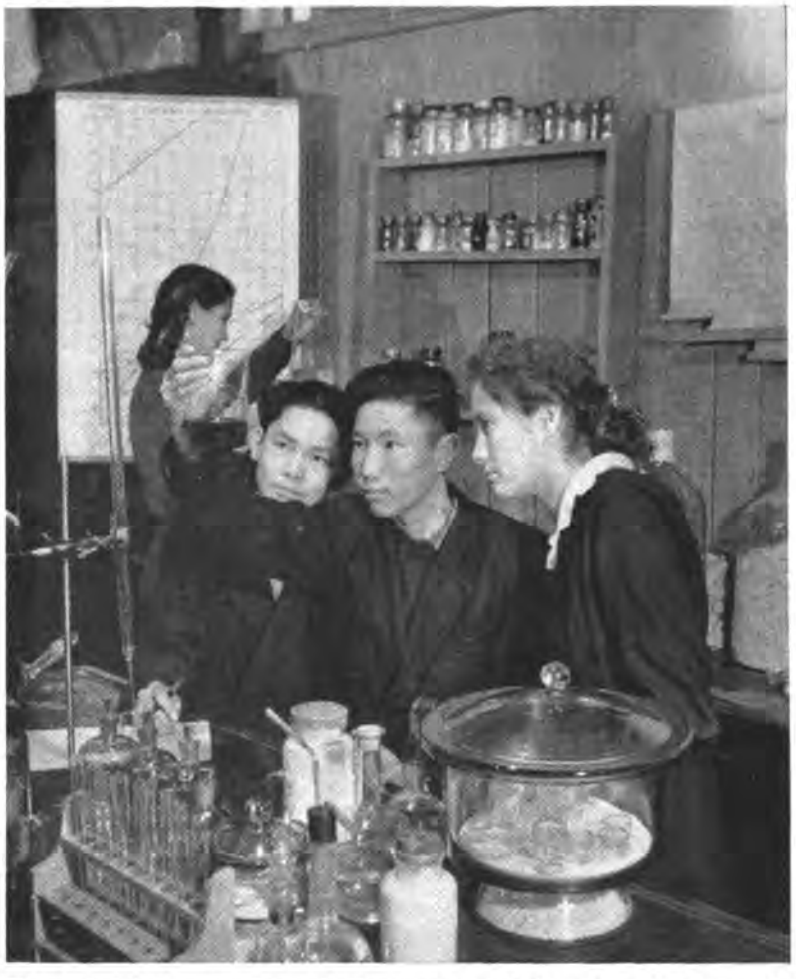


Alexei Tishenkov attended evening high school while working on a farm. After graduation he enrolled at the Moscow Agricultural Academy.



Chemistry lab for secondary school youngsters. Colleges keep in close touch with schools and help direct students to careers which they most desire.

TRAINING SCIENTISTS

Continued

to turn out well-trained graduates with a rounded general education.

Striking evidence of the great spread of higher education is the fact that all of the many peoples in our country, some of them primitive nomands before the October Socialist Revolution of 1917, now have their own scientists, trained in their own colleges and universities. In that great area which is now the Byelorussian, Lithuanian, Moldavian, Azerbaijan, Armenian, Kazakh, Uzbek, Turkmen, Tajik and Kirghiz Republics, there was not a single school of higher education in prerevolutinary times. Today these republics alone have 152 universities and colleges with 320,000 students enrolled. Of course, many additional thousands of students from these republics are enrolled in colleges all over the country.

It is worthy of note that by comparison with 1928, when only 28 percent of the students in colleges were women, the fiugure has now jumped to 50 per cent. In professional schools for the training of physicians, teachers, artists, musicians and writers, 70 per cent of the students are women. It would follow that the number of women scientific workers has also increased. At present it is 36 per cent of the total.

In addition to full-time schools, there is an extensive network of evening departments of colleges and universities. In many cases they function directly at plants and factories and provide the same course of

Alexander Nesmeyanov, President of the USSR Academy of Sciences, is among the many leaders of science who regularly lecture to university classes.

Geology class of an agricultural institute in North Ossetian Autonomous Republic. High academic standards are uniform throughout the Soviet Union.

The petroleum department of the Ashkhabad University in Turkmenia. Each national republic now has its own native-staffed scientific institutions.

Students of industrial crops department of the Byelorussian Agricultural Institute check in the laboratory what they have learned at lectures.

Moscow Power Engineering Institute students use computing panel to solve operational questions. The latest machines are available to all students.

Lecture on anatomy in the Azerbaijan Medical Institute. Attendance at all classes and lectures is mandatory for completion of undergraduate courses.

Radio laboratory in the Uzhgorod State University in Transcarpathia. All colleges and universities exchange ideas and experience with each other.

The class work of senior students is supplemented by on-the-job training. Factory visits start the first year and are continued until they graduate.

study as day school. There are also correspondence institutes that maintain consultation centers and libraries at industrial establishments in many cities where the worker-student may consult with instructors and attend lectures and lab classes. These centers also check tests, supervise students' projects and give examinations.

People enrolled in correspondence and evening courses are given an additional vacation of 20 to 30 days with pay by their place of employment to enable them to take their examinations. They are excused from work for four months to prepare their thesis and are also given a month off to take state examinations. During all this time they receive a state stipend.

The overwhelming majority of correspondence students take courses in line with their vocation. Thus, this type of educational institution is able to graduate specialists who can immediately occupy leading posts in production.

The College Curriculum

The function of college is to equip the student with a necessary body of theoretical and practical knowledge, to supply him with the tools for independent learning and research and to develop his capacity to think creatively.

The curriculum covers the sciences and specialized courses. In addition all students are required to take political economy and philosophy, which cover both Marxist theory and a study of classic and contemporary schools. Science students are encouraged to attend lectures in the humanities but are not required to pass examinations in these courses.

Teaching is done through lectures, laboratory work, practical exercises, term projects, thesis project and independent work. The lecture is the basic method of teaching, complemented by independent laboratory work under the instructor's guidance. Each college works out a

Continued on next page

Advanced medical students assist surgeons in the operating room as others look on. Following a case so closely gives them much valuable experience.

TRAINING SCIENTISTS

Continued

program of on-the-job training for its students at industrial or agricultural establishments, hospitals and the like. This is to acquaint the student with his specialty in practice and to permit him to apply the theory which he learns in class.

In addition to the faculty, outstanding people in various fields—science, industry, agriculture—are called upon to lecture and lead class discussions in order to integrate theory with practice. This integration is a vital part of the teaching process in all Soviet schools.

The course of study varies with the specialization but is uniform throughout the country for any given field. In a technical college, for example, it includes physics and mathematics, general engineering and the social sciences, organized to give the future engineer a solid background in his field plus a rounded general education. The subjects are grouped as follows:

Basic subjects which must be taken by all enginering students regardless of their specialty: mathematics, physics, chemistry, mechanics, descriptive geometry and drafting, technology of metals, social and economic sciences, a foreign language and physical culture; a group of subjects determined by the particular specialty; a group of elective courses.

Practical exercises are given in mathematics, theoretical mechanics, the theory of mechanisms, strength of materials and similar subjects to test the application of theory and to accustom students to solve problems independently.

Term projects will usually represent the student's first major effort to apply his theoretical knowledge to a practical engineering problem. The project is prepared independently, with the instructor available only for consultation. The student will ordinarily have completed

Physics students of Kazan State University in Tatar Autonomous Republic. The colleges, as well as research centers, conduct serious research work.

Geography students of Moscow University accompany scientific expeditions far from the campus. Actual field work is incorporated in all the courses.

Nuclear physics students at the Moscow Power Institute. More specialists are continually needed to fill jobs created by latest technological gains.

several term projects during his college course—on machine parts, in general engineering and in his specialty.

On-the-job training is an organic part of the teaching process. Skilled engineers, Soviet education says, cannot be trained solely within the confines of the college. However well-equipped the laboratories, however intimate lecturers may be with practice in a given field, it is impossible to train skilled engineers capable of adjusting to the changing needs of industry, construction, transport and agriculture without the direct participation of the student in the production process itself.

Training is not confined to the narrow craft skills, however. Its purpose is to give the student an engineering approach—a scientific approach—to problem-solving. In addition to its very great educational value, practical training has certain important moral values, since the student makes the transition from unskilled worker to skilled worker to engineer by proving himself competent to face real job situations. On-the-job training is usually confined to senior students, although visits to factories start in the freshman year.

In all colleges independent research work done by students under faculty guidance is one of the most important elements in the educational process. Independent work is fostered through student scientific societies. Problems of great theoretical and practical value have in many instances been solved by student research.

Annual conferences are held at the colleges at which student papers are read and discussed. City-wide scientific conferences review the best student papers for awards and certificates of merit. Nation-wide contests are held each year for the best scientific papers submitted by students. The winning papers are published and prizes awarded.

Work on the graduation project, or thesis, will conclude the student's college training. Some specialties—medicine, for example—require state examinations instead of a thesis. Some require both. The project

Continued on next page

Members of a student scientific society at the Byelorussian Agricultural Institute. Extracurricular development plays a major role in education.

Ukrainian astronomy students study oscillogram of a Sputnik's signals. Students are kept fully informed of all current developments in research.

Applying science to soil fertility is being tackled by these postgraduates of the Agricultural Research Institute in the Latvian capital city of Riga.

TRAINING SCIENTISTS

Continued

or thesis must be defended at a public convocation before an examining committee composed of the dean, professors and specialists in the field dealt with in the thesis. After defense of his thesis, or upon passing the state examination, the student is awarded a diploma of higher education.

Graduate Work

More than 6,000,000 specialists—engineers and technicians, agronomists and veterinaries, teachers and physicians, artists and writers—are now employed in the country. More than 4,000,000 students are being trained in colleges, universities and specialized secondary schools.

The number of persons with a higher education is constantly increasing. Before the war 109,000 specialists were graduated from the colleges each year; in the past two years the number increased to 259,000 a year. This is the group which is mainly drawn on for subsequent training of scientific personnel.

The best of the college graduates are admitted to the three-year graduate course leading to the Master of Science degree after they have had some years of practical work. Only in exceptional cases is the practical experience requirement waived. Students with a *cum laude* diploma may be accepted for graduate study in some theoretical fields directly after they graduate from college. Graduate work can also be done through evening divisions and correspondence courses.

Graduate students receive a monthly stipend from the government and an additional sum for the purchase of scientific literature. The stipend continues through the two-month summer vacation. Up to three months' paid leave is granted people who intend to submit their Master's thesis without discontinuing work.

To qualify for a Master's degree a candidate must pass examinations in four subjects: a subject in general theory that relates to his specialty; a subject related to his dissertation; a foreign language; philosophy. His dissertation must give evidence of thorough grounding in his field and must indicate a capacity of independent research.

To qualify for a Doctor of Science degree the candidate must hold a Master's degree and publish a dissertation which makes a new and significant contribution to the solution of an important problem in his field of study.

The thesis for both Master's and Doctor's degrees must be defended publicly before one of the scientific councils, which casts its vote for acceptance or rejection by secret ballot.

The Soviet Union has 240,000 scientists and college instructors, with 100,000 holding the degree of Master of Science and only 10,000 with the degree of Doctor of Science. It is evident that the higher degree is conferred only for distinguished scientific work.

Most scientists and educators obtain their graduate training in the universities and colleges. A considerably smaller number do their graduate work in the USSR Academy of Sciences, the Academies of Sciences of the Union Republics and the specialized research institutes. More than 18,000 students are now doing graduate work, with an annual 3,500 completing the requirements for advanced degrees.

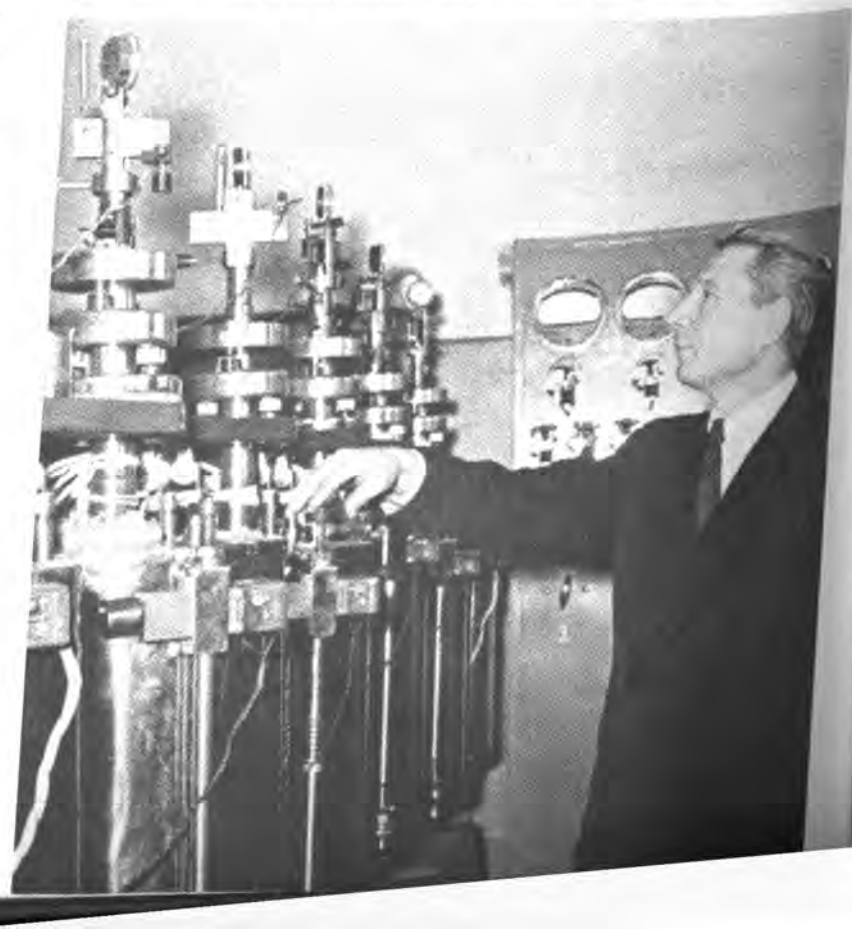
The great extension of higher education is best illustrated by comparing the fourfold increase in the number of workers and employees in the past 40 years with the 20-fold increase in the number of college-trained specialists and the 24-fold increase in the number of scientists with graduate degrees. The number of workers in the USSR Academy of Sciences alone has doubled in the past five years.

The increase in the number of scientists has been achieved by drawing the youth into science. The average age of workers in the USSR Academy of Sciences has decreased from 41 to 38 years, and among the Doctors of Science, the corresponding members of the Academy and even among the Academicians, we now find many young people, talented and well trained. Some of the leading institutions are predominantly staffed by young scientists, 50 to 85 per cent of them under 30.

A professional scientist, a young engineer and a veteran mechanic team up to collaborate on a project. This type of cooperation is common practice.

Women comprise 36 per cent of the country's scientists. Here are researchers in the Institute of Biology of the Armenian Academy of Sciences.

Like many other industrial workers, mechanic Nikolai Zaitsev took correspondence courses and graduated into scientific work through extra study.



Six million specialists are employed in the country, with four million more being trained in colleges and specialized secondary schools.

An Uzbek scientist works to improve native cotton. Scientific problems which are local in scope are usually solved at centers in the respective area.

New Tasks

The rapid development of the national economy and the tremendous growth in college enrollment have created problems which are now in the process of being solved. One involves directing students into fields of study which will culminate in specializations needed by the country. Another involves training professors and teachers who will be adequate to their task in both number and quality.

Of the total number of specialists graduated from schools of higher education, 37 per cent are trained for industry and agriculture; the remaining 63 per cent have majored in economics, law, education, medicine, art and other professions.

In recent years we have had an increase in the number of engineering graduates which testifies to the great spread of technical education. In 1950 there were 392,000 graduate engineers employed in the country. Today there are 721,000. But even this increase has been insufficient to meet the great demand of industry for trained personnel.

In order to train the numbers and kinds of specialists the country requires during a given period, it is necessary to keep in touch with all branches of the national economy and achieve a spread that will meet its needs and avoid disproportion. The major emphasis at present and for the foreseeable future, in view of the growing place which science occupies in our modern society, is for training in physics, mathematics, chemistry, biochemistry, biophysics, aerodynamics, automation, radio-engineering, electronics, semi-conductors and some other new areas of science and technology.

Comprehensive examinations for admission to the technical colleges objectively select the best of the applicants. The wide diversity of choice of specialty and of job possibilities in the country does much to avoid over-concentration in any one area. And the careful concern of vocational guidance agencies to direct secondary school graduates into specialties which they will find rewarding and which will tap their latent resources helps in large measure to avoid imbalance. But the basic guide must be this one: to direct the student into that field of work in which he himself feels he will be happy. That is the best guarantee for effective and creative work that will at one and the same time develop the individual and contribute to scientific and technological progress.

As for the problem of training the personnel that will train our scientists, we feel that only the teacher who himself contributes to the development of science has a moral right to teach in college. Scientific work is the principal condition for the training of scientists and for raising their qualifications. That is why college instructors and professors must participate in scientific work. In the final analysis it is they who hold the key to the fullest development of higher education, the training of scientists, and even science itself. ■

Boris Paton, renowned scientist in the field of electric welding, heads a Kiev institute. Special research centers are set up for specific problems.

Abram Joffe, 77-year-old head of Institute of Semi-Conductors, has trained a whole galaxy of scientists. Teamwork unites the young and old scientists.

SISAKYAN (LEFT) IS WORKING ON CONTROLLING THE RESISTANCE OF PLANTS TO HEAT, COLD AND DISEASE.

EDUCATION of a BIOCHEMIST

By Oleg Pisarzhevsky

ONE of the ornate halls of the USSR Academy of Sciences in Moscow, decorated in the flamboyant taste of the last century, was the setting for an international scientific congress on the origin of life held not long ago. Principal speaker at this symposium was the distinguished Soviet biochemist Norair Sisakyan, a member of the Academy and chairman of its international science exchange committee.

Sisakyan is an Armenian by birth, his ancestry marked by his speech and his effervescence. Otherwise he is the internationally-minded Soviet scientist of today. He is in his middle years, his hair touched with gray. Listening to him, one was struck by the curious disparity between the speaker and the tarnished gilt nineteenth century setting. And yet the setting was not far out of character, a reflection of the telling changes the past four decades have brought to the man, to his native Armenia, and to the world of science.

Sisakyan's own life is a comment on these changes. To visit his birthplace one would have to travel to the great Caucasian mountain ranges beyond the Black Sea in the remote southeast. It is a verdant land now—of crystal-clear mountain lakes, flowering pastures, fertile fields and fruitful orchards. It was an impoverished land in 1920, village and town ruined by civil war and foreign invasion.

Norair wanted desperately to study, but there was the more pressing necessity of a livelihood. He worked with his father in the fields, dreamed of school and study.

Through an older friend he learned of a study circle led by a university student, Ezras Asratyan. The university student later became a disciple of Pavlov, the great physiologist; now he is a professor and corresponding member of the USSR Academy of Sciences. Asratyan used to lead the study circle when he came home on holidays.

Norair was one of the most faithful members of the circle, but when it was finished he had neither the means nor the possibility of continuing his studies. Then a scholarship fell vacant in a school the government had founded for young people who had missed out on schooling. Sisakyan passed the entrance examinations and was admitted to the senior class.

The school emphasized science, and for the first time Norair looked into a great new world—the world of botany and biochemistry.

It was very early in his life, while studying at the village school, that Sisakyan voluntarily assumed the job of teacher. He led a study circle for illiterate young people. It was his way of reaching out a helping hand to others, a debt he felt he owed.

After completing the village school, he took the entrance examinations for the university, then newly founded in Yerevan, capital of the Armenian Soviet Republic, and won first place.

The best of the university students were then sent to Moscow for advanced study. He was one of the four chosen. Three of the four, Sisakyan included, spoke only Armenian, they knew no Russian. The Moscow professor of chemistry was unaware of this and early in the semester, after explaining an intricate reaction, he happened to call on Sisakyan to recite the sequence of formulae.

"Tell him," said Sisakayan to the single 'interpreter' in the group, "that I understand everything he wrote on the blackboard, all the formulae, but I can't speak Russian. Ask him if it's all right for me to write the reaction out on the board without speaking."

The professor nodded and Sisakyan proceeded to chalk up formula after formula. It was a brilliant, if silent, recitation.

"But you must know the language," the professor told him. "You can't go very far with the blackboard alone."

Sisakyan turned to the interpreter again. "Tell him that I intend to speak without an interpreter by the end of the semester." He did—in three months.

When he had finished the university course, he was invited to do graduate work at the Agricultural Academy under the agronomist Dmitri Pryanishnikov. Pryanishnikov was an old man, a distinguished scientist, one who abhorred the stereotyped and the dogmatic, was impatient with mediocrity, uncompromising in the search for the truth of science. In the short time he worked with Pryanishnikov, Sisakyan absorbed the old man's dedication to principle, his conception of nature as one great interdependent entity.

The young scientist went to work on enzymes, complex organic substances that act as catalysts in chemical changes that animals and plants undergo. At that time there was little known about these agents.

Sisakyan called them the springs of life, since without their action such elemental processes as digestion of food could not go on. These enzymes break down the complex molecules of albumen and other food components into simpler substances that the body can assimilate.

Sisakyan's research disclosed the function of these agents. His theoretical findings have had large practical significance. Through selection of fertilizer, the sugar content of beet plants can be increased; the proper fertilizer influences the enzyme that accelerates sugar production in the plant. His findings have been applied to the complex enzymes in flour, tea, wine and other foodstuffs.

Even the most highly theoretical of Sisakyan's experiments somewhere border on problems of vital and immediate practical interest. By study of the mechanism through which enzymes alter plant activity, he hopes eventually to grow plants artificially, not through slow selection and breeding but by direct alteration of the chemistry of their life processes, and thus to control such vital growth factors as early ripening, sugar content and resistance to drought. The work under way now in Soviet biochemistry is rapidly making the hope a reality.

Sisakyan's latest work, *The Biochemistry of Metabolism*, published by the USSR Academy of Sciences, repeatedly stresses the idea that biochemistry has advanced to the point at which it is possible to establish the chemistry of all the various phenomena which characterize the life process. It may be that this rapidly developing field of science will some day give us the biochemical clue to the creation of life itself.

Sisakyan's laboratory in the USSR Academy of Sciences has become a veritable school for training biochemists. These young people, with their university and graduate study paid for by the government, with the monthly stipend they receive for living expenses, have a much easier time of it than did the student of Sisakyan's youth.

Relieved of financial concern, they are able to devote themselves entirely to study and research. The scientific talents of such brilliant students of Sisakyan's as the young Byelorussian Alexander Vecher, the Georgian Georgi Beridze and the Russian Ivan Yegorov were fostered in this favorable climate. Vecher is professor at the Krasnodar Food Industry Institute. Beridze is director of the Institute of Wine Making and Viticulture in Tbilisi. Ivan Yegorov comes from the new generation of Sisakyan's students. He is working on the chemistry of wine. Irina Philippovich is doing research on the synthesis of albumen, and Nina Vasilyeva on the chemistry of the cell nucleus. Both problems are important for modern genetics.

With the young and promising biochemists of Armenia—Babken Afrikyan, Galust Sadunts, Rosalia Saakyan and many other of his pupils —Sisakyan maintains especially warm and close ties. For him these young scientists embody the transition his native land has undergone in these forty short years. ■

Sisakyan in the study of his apartment. Currently he is doing research to establish the chemistry of phenomena characterizing the life process.

Schoolboy Alexei collects badges aided by his father and his elder brother Yosif, who has now embarked on a scientific career as a physics student.

DMITRI SHOSTAKOVICH (RIGHT) GETS OVATION WITH CONDUCTOR YEVGENI MRAVINSKY OF THE LENINGRAD ORCHESTRA AT THE CONCLUSION OF THE SYMPHONY'S PREMIERE.

The Symphony of the 1905 Revolution

The Shostakovich Eleventh

By Marietta Shaginyan

THE new Shostakovich symphony, his eleventh, had its premier in Leningrad in November during the 40th anniversary celebration of the founding of the Soviet state. The theme of the symphony is the 1905 Revolution.

An unusual solemnity attended the performance. In the audience were people who had marched to the Winter Palace on that tragic January 9, with thousands of other workingmen, to petition the czar for bread. The czar replied with bullets that slaughtered a thousand defenseless people. The city answered with an uprising that was crushed by czarist troops. It was a bloody dress rehearsal for the 1917 Revolution.

The new symphony is in four movements. The first movement Shostakovich calls "The Palace Square," a musical arrangement of forces about to clash. The melody is evocative. It is a slow adagio. familiar but ominous. Memory turns back to 1905. Leningrad is once again old St. Petersburg. It is your native city, but you are not at home in it.

There is an oppressive feeling in the winter air on this early

morning. The palace square is empty, silent, shut off from the people, from you, by the iron gates, by the iron-faced sentry in his striped box, by the ox-eyed beefy policeman with his fixed stare. The precise step of a platoon marching is heard somewhere in the distance, and the sound of church bells—not mellow and rich, but thin and scraggly and disquieting.

This is the picture evoked by the opening phrases. In the same way that the hollow march-like theme from his Seventh Symphony has become inextricably associated for listeners with the fascist invasion during the Second World War, so will this long adagio become one with our recollections of czarism—an autocracy which holds this Russian city in its moribund clutch, disfiguring and deforming the people who had created the severe beauty that is the city.

But imprisoned beneath the adagio you hear the sounds of the city. The flutes pick it up, a simple melody that is not ashamed to be beautiful sings above the frozen desert of the dominant notes. Although this melody springs up unarmed, seemingly defenseless against the dead hand of negation—and this always happens with Shostakovich, his great human sympathy translated by great musicianship—the music develops his theme polyphonically to convince us of the inevitable and triumphant strength of this subdued melody.

The Positive in Shostakovich's Music

If I may be permitted to digress for a moment, it seems to me that those critics who hold that the "negative" in Shostakovich's music is developed more strongly than the "positive," are mistaken. Shostakovich's distinguishing quality rests not so much in the color of his melodies as in the unique way in which he develops his themes, in the originality of his "syntax," if I may compare music with language, the harmonious structure that he develops.

The character of this development, the way in which Shostakovich unfolds the entire potential of his musical thought, is so logical, so vigorously positive, that in any Shostakovich theme, even one which translates sorrow or death, the musical whole is profoundly optimistic, strengthening, inescapably positive.

In the Seventh Symphony, for example, victory, the epitome of the positive, is not merely expressed in the last movement, it arises out of the development of the negative theme of fascism. In the Eleventh Symphony, too, the positive, optimistic transformation of the second movement develops out of the tragic theme of the people shot down.

Slowly we hear—and see—the unarmed people gathering in the palace square. They carry icons, flags, pictures of the "little father," their czar. From inside the palace walls we hear the beginning of another slow theme. The people are unarmed, but there are many of them, and the number grows irresistably. The slow theme develops, grows. Fear of this living, moving mass penetrates through the gates, into the palace, into the heart of the regal butcher cringing against the richly tapestried walls. The shots ring out, the people fall, the square strewn with bodies, the quietness broken by lamentation.

Now, like a giant organ played by a Bach, the fugue rises above the tumult and the grief to proclaim the doom of the royal murderer. The heavy notes fall one by one, implacable as the future, passing the judgment of history on this regime of blood and of death.

A Revolutionary Requiem

The third movement begins with a compassionate funeral march derived from the revolutionary song, "You Fell in a Fatal Struggle." Shostakovich, who always quotes with great economy and then quickly transforms the melody he uses, seems here to be unusually deliberate and detailed. It would seem to me that he is pointing to the unique difference between this requiem and the classical funeral march.

Recall the sorrowing strains of Chopin or the repressed grief of the allegretto, the second movement of Beethoven's Seventh Symphony, so often played at funerals. The major theme is heavenly resurrection, a recognition of life on earth as transitory. But the grief in the revolutionary Russian song is a call to the living, not resignation to death's inevitability. It is a vow made to the dead that the struggle they fell in will be carried forward by the living.

This is what the composer seems to be saying as the lengthy quotation ends with a sharp change and the thematic development begins—that there is enormous revolutionary power inherent in this requiem, a great and tragic cry for an end to the old order and the beginning of a new. The song penetrates the czar's palace; the fugue drives before it the czar's ministers, his servants, his generals; the cries from the palace square rise again and again to drown out the fear and the foreboding of the first movement.

The fourth movement, a tocsin, evolves organically from the third. It fuses with great musical power the historic voices of this century and the revolutionary songs of the people.

Who knows how many songs, born of anonymous folk art, would have been forgotten and lost had they not been embodied in the great and immortal symphonies. And these that Shostakovich uses in his Eleventh Symphony—born out of war, revolution, exile, prison—who except people of my generation remembers these songs that young workers and students a half century ago loved and sang. Another half century and they would have been buried in oblivion, lost forever, if not for this symphony, which gives us a musical bridge from the past into the future.

The City Listens

It was a strangely quiet Leningrad audience which listened to the première. It was music out of their lifetimes; for the young people, out of their parents' lifetimes. One felt that the city itself, the physical city of brick and stone and pavement, the city which Peter the Great built on swampland, was listening and remembering not 1905 alone, but 1917—listening to the voice of Lenin from the top of an armored car, the salvos from the battleship *Aurora* that carried the sound of revolution from this city throughout Russia.

And then, with the symphony ended, there was a moment longer of silence, as though involuntary, and then a crash of applause and an ovation that Leningrad had rarely seen, as the city and the audience paid tribute to the composer.

The performance given by the Leningrad Orchestra under the baton of Yevgeni Mravinsky was superb—equal to the challenge presented by the new symphony. The four movements of the symphony were played without the usual intervals. The conductor made the musical transition from one movement to the next with consummate artistry and command. The orchestra played with precision, grace, and that added animation that comes with pleasure in its own performance—a performance as rare and as unforgettable as the symphony itself. ■

(Abridged from the newspaper *Izvestia*)

The composer and Nathan Rahlin of the Moscow Conservatory acknowledge warm applause of the audience after a first performance in capital.

MONEY IN THE BANK

By ARSENI ZVEREV,
Finance Minister of the USSR

"The rising living standard is reflected in the Soviet citizen's growing bank account," **says the Finance Minister of the USSR.**

DEPOSITS in savings banks are a fairly reliable index of living standards. This is true for a country as well as for a single family. Soviet savings banks have 40 million depositors—one out of every five persons. Another way of saying that practically every Soviet family has money in the bank.

Larger savings mean a rising living standard. Total deposits in Soviet savings banks have been increasing year by year from 7.3 billion rubles in 1941 to 18.5 billion in 1951 and to 53.7 billion in 1956. Now they are 73 billion rubles.

The average deposit has also increased four times over as compared with the prewar figure. The average rural depositor now has 1,200 rubles and the city depositor 2,000 rubles in his savings account.

More savings banks have been opened to accommodate depositors. Of the 52,000 banks serving rural and urban communities, 3,300 were opened during 1957. Now 70 per cent of all banks are in the city areas, the remaining 30 per cent serve country communities.

Families use their savings to buy furniture, cars, TV sets, more expensive clothing—generally speaking, items which are not considered necessities.

There is no need for people to save in order to carry over during periods of unemployment, since there has been no unemployment in the Soviet Union for more than a quarter of a century. Nor is there any need to put money away against illness, since all medical services are free. There no longer is any necessity to save for old age, since security is assured by universal old-age pensions. College education for the children of the family, which must be saved from earnings in other countries, is free in the Soviet Union.

How It Works

All savings banks in the Soviet Union, whether rural banks run by the local post office or big city banks with dozens of clerks and tellers and thousands of depositors, are part of the same national bank system. Depositors in every bank are issued the same kind of bankbook and make deposits and withdrawals in the same way.

Government guarantees cover savings bank deposits. Depositors may bequeath their savings to heirs and may grant power of attorney to others for deposits and withdrawals if they so choose. Information as to individual deposits is not revealed by a bank except at the specific request of the depositor.

There is no limitation on amount of deposit or length of time it is kept in a bank. The minimum is five rubles.

Reliable and Convenient

Two-thirds of savings accounts are call accounts. They can be withdrawn either in part or in full on demand. This type of account pays two per cent interest annually to the depositor.

The remaining third are time deposits. These are made in a lump sum and may be withdrawn only in full at the end of six months, at which time they draw interest at three per cent. The depositor may withdraw his money sooner, but if he does, he is paid only two per cent, as with call deposits.

There are also winning deposits, which make up a small part of total savings accounts. They differ from ordinary call deposits only in that interest is paid not in specified annual percentages but in winnings out of a pool. The total interest for all such deposits, figured at two per cent, is pooled, and then a drawing is held. Those depositors whose numbers are drawn win sums ranging from 25 to 200 per cent of the average sum they kept on deposit during the six preceding months.

Personal check accounts may also be opened at savings banks. These pay two per cent interest. Trust funds also pay two per cent. These are accounts opened by parents for children, for example, to be drawn on after they graduate.

Savings banks also issue traveler's checks, which may be cashed at any savings bank in the country. People who go on vacation or travel use them widely. The amount sold totals some 10 billion rubles annually.

There are no private banks in the Soviet Union. All banks are owned and operated nationally. Deposits are borrowed by the government for temporary use to build the economy and to extend social services. These are values which accrue to every citizen and are reflected in such recent benefits as the increase in pension payments, reduction in working hours without reduction in pay, lengthened maternity leaves, rise in the guaranteed minimum wage, lower taxes and reduced prices for certain consumer goods.

The mutual relation between the constantly expanding economy and the constantly rising living standard is reflected, too, in the Soviet citizen's growing bank account. ■

A section of the busy deposits division of the central savings bank in Shcherbakov. Most people prefer cash buying and accumulate money for major purchases in savings accounts.

On buildings in cities you can see signs like this saying: "Keep money in a savings bank, it's reliable and convenient."

Several employees count the currency and government savings bonds in the cashier's department of the Shcherbakov bank.

When Kazimir Bobrovsky, a retired army man, surprised his youngest daughter Sonya with a piano. the musically-inclined 13-year-old lost very little time in trying it out for tone.

IT'S NOT
RAINY

What Depositors D

BY GEORGI YURYEV

ONE out of every three people in the town has a savings account, says Lydia Poyarkova. She is head of the Central Savings Bank of Shcherbakov, a town on the upper reaches of the Volga River.

Shcherbakov has a population of 160,000—river diesel boat pilots and dock workers, factory workers, teachers, engineers, doctors, and the variety of occupations characteristic of a river town. It is a fairly typical town in most respects, growing fast, with more work to be done than workers to do it.

The new plants, a hydroelectric station and a large printing establishment are all products of the last few years of steady building. "All this building," says Lydia Poyarkova, "shows up in our deposits. So do rising wages, lower prices, and higher pension payments. It has all meant larger deposits and more depositors. In the past five years the number of savings accounts in our town has grown by 20,000. We have 55,000 depositors now, with close to 100 million rubles on deposit."

The Shcherbakov central bank has 25 branches that service about 1,200 people daily.

Continued on page 18

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ith Their Savings

Serafim Tukhtin, a chauffeur, cashes in bonds which he had been saving to buy his own car. These bonds pay three per cent interest annually and can be bought and sold at any time.

Farmer Sergei Sergeyev and his sons put a fence around the house built with the help of savings.

A few days later Tukhtin and his son were driving around town in a new "Moskvich." The family will now decide what their next big purchase is to be and start saving for it.

FINANCIAL HUDDLE: THE "COUNCIL" OF VENYAMIN DEGTYARYOV'S FAMILY IS DECIDING WHETHER TO BUY A TV SET OR FURNITURE FOR THEIR SON'S HOUSEWARMING.

IT'S NOT FOR A RAINY DAY

Continued

Alexandra Golubyeva, pensioned teacher, is a veteran depositor at the bank in Shcherbakov.

Twenty branches take care of the rural area around the town. They are located in the larger villages, on state farms and in local post office buildings. About 10,000 people are depositors at these country branches, and the deposits total more than 16 million rubles.

Who are these depositors and what are they saving their money for? The bank's clerks and tellers do not answer questions about depositors, even to writers of magazine articles, but Lydia Poyarkova introduces us to people who come to make deposits or withdrawals.

Depositors Tell Their Stories

Robert Gusikhin is a young man, just out of the electro-mechanical secondary school in the city of Gorky. He is now working at the Shcherbakov Scientific Research Institute for Polygraphic Machine-Building. He was recently married to Tamara, a cutter in a dress factory.

The joint income of these newlyweds is modest, as yet. They are both on their first jobs and hope to move ahead quickly. But even on their 1,300 rubles a month, they decided they were able to put aside 300 to 400 rubles every month. Robert was opening an account and making his first deposit.

Serafim Tukhtin is a chauffeur who opened his savings account in 1953. He had something very specific in mind—he wanted to buy a car. Tukhtin saved his money, not in a regular savings account, but by purchase of government bonds. These pay 3 per cent interest and can be cashed at any time and at any savings bank.

Tukhtin had just cashed 12,000 rubles' worth of bonds. He slapped his pocket and laughed, "Well, my 'Moskvich' car is in my pocket. I sold my motorcycle for 3,000 and the rest is right here."

Plumber Venyamin Degtyaryov and his wife have been putting aside from 300 to 500 rubles from their monthly income of 2,000 for a special housewarming surprise for their son, Valeri. The Degtyaryovs are a close-knit family and when Valeri married five years ago, the family decided to help build a house for the couple.

Valeri was given a plot of land and a home-builder's loan of 7,000 rubles at 3 per cent for

seven years by the machine-building factory where he works. Three thousand rubles additional came from family savings. The senior Degtyaryovs are now putting money away for furniture and a TV set for the new house. They have 3,000 rubles on deposit already, and soon they'll be shopping.

Sergei Sergeyev, a farmer at the Tvorchestvo Collective Farm, is another depositor who built a house with his bank savings. When his eldest son, Nikolai, got married, Sergei bought him a house as a wedding gift. Then he decided that he wanted to build a new house for himself near his son's.

Sergeyev and his younger boy, Anatoli, do field work on the collective farm. His wife, Anastasiya, looks after the horses. The three earned 7,000 rubles for their summer's work at the farm. They received additional income from the sale of milk from their own cow and surplus vegetables from their own garden. Every collective farmer has his own garden plot and animals.

Sergeyev made a regular monthly deposit, and little by little enough accumulated to start building. This past summer the framework of the new house went up alongside his son's with appropriate family celebration.

There is Kazimir Bobrovsky, retired army man who saw 30 years of service. He retired on a pension of 2,500 rubles a month. He has three children. The youngest, Sonya, is 13 and is musically inclined. Bobrovsky just bought her a piano, and now he is saving for the next big family purchase which hasn't been agreed on yet.

Or Margarita Runich, an actress at the local theater, and Vladimir Smirnov, her husband, an actor and director, both people in their early fifties. They came to the bank to withdraw 7,000 rubles from their savings account. To be used for what?

Cash on the Line

Margarita Runich explained. "We don't have to save for that rainy day that people used to talk about when we were young. Not with pensions. And unfortunately we don't have children to save money for. We both like to travel, and that's what we save for. We're going to make a trip south, to the Black Sea coast."

Reasons for saving are as varied as the individuals who save, whether in Shcherbakov or in any village or city you might name. People in the Soviet Union do not go in for installment buying. They like to pay cash on the line, whether for a house or a washing machine or a car or a trip, with money put away in savings. ■

High school student Nina Belyakova looks pleased as she examines the first entry in her bankbook.

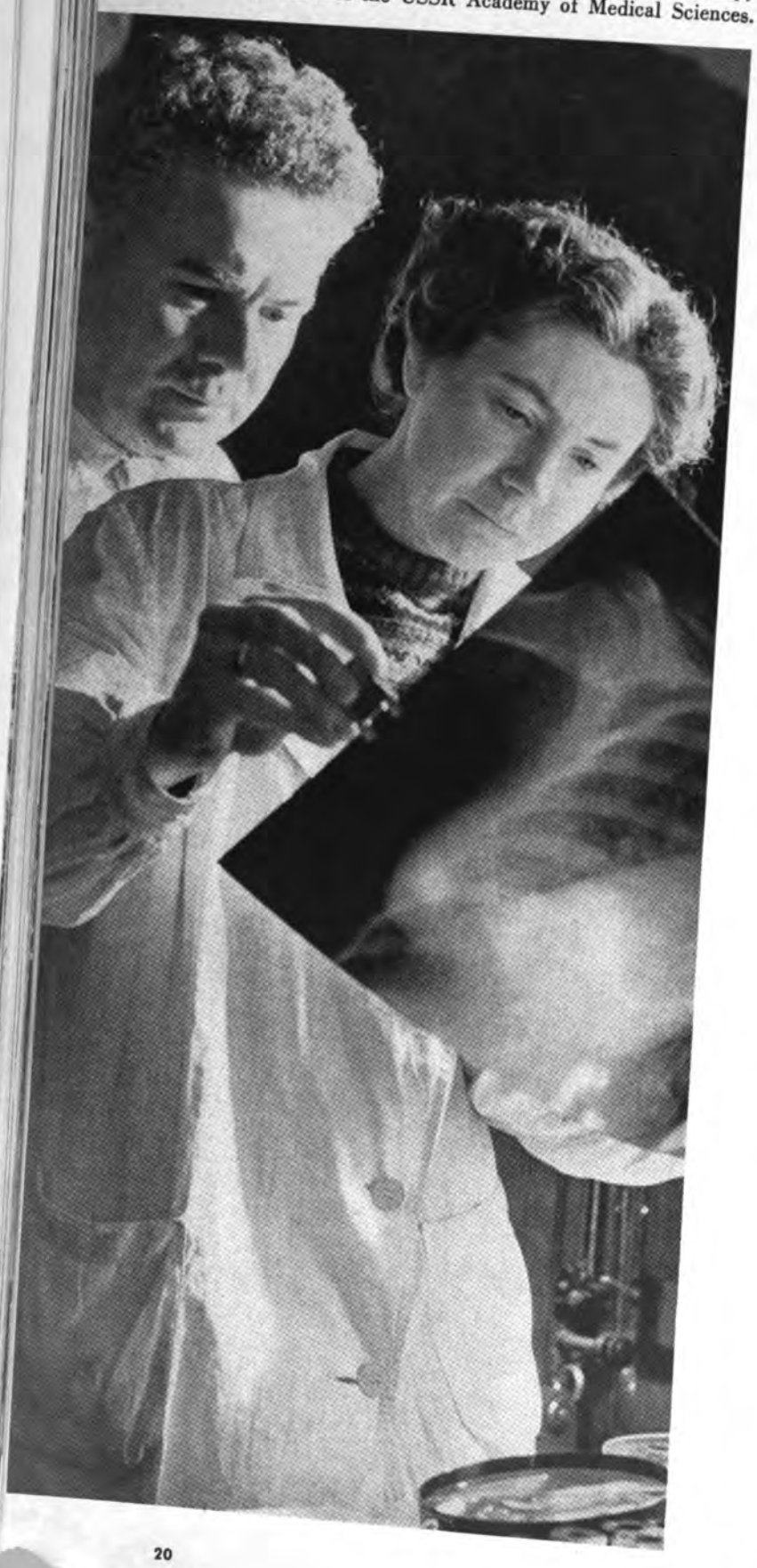
EACH DISTRICT IN SHCHERBAKOV HAS ITS SAVINGS BANK. THERE IS ALSO ONE ON MIR (PEACE) STREET, WHERE SEVERAL NEW APARTMENT HOUSES RECENTLY WENT UP.

LISTENING TO

BY IVAN SAVCHENKOV

Master of Science in Medicine

Ivan Savchenkov and his assistant at the Therapy Institute of the USSR Academy of Medical Sciences.



IT WAS a century and a half ago that René Laënnec, the French physician, invented the stethoscope. First used to study tuberculosis, it has remained an indispensable tool of the physician for auscultation of the heart. But in these hundred and fifty years, with the enormous widening of medical horizons and techniques, there have been no marked changes in the design of the familiar instrument or the method of its use.

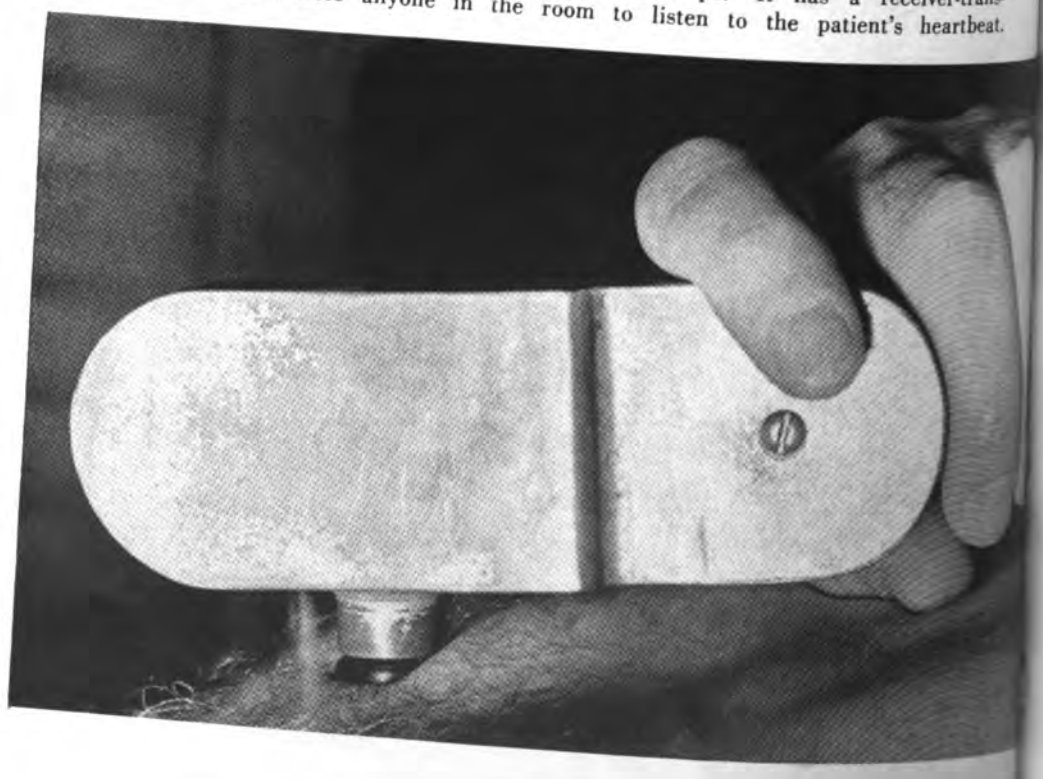
The stethoscope, as useful as it is, cannot be relied on for diagnosis by itself. One physician will hear one sound, another will hear quite a different one. There are cases in which even eminent heart specialists came to different diagnoses after auscultating one and the same patient.

There is the difficulty, too, of confirming diagnoses with other instruments. A physician may hear through his stethoscope the sounds characteristic of a certain heart defect; the roentgenologist, however, will find in his X-ray of the patient no changes in the configuration of the heart to confirm the diagnosis. Or the reverse may be true, the roentgenologist may find changes characteristic of a particular heart defect and the physician upon auscultation will detect no pathological sounds to confirm it.

Logic obviously leads to some diagnostic procedure which uses a combination of methods. This approach was the one adopted in a laboratory specifically designed for this type of research by the Therapy Institute of the USSR Academy of Medical Sciences.

The laboratory has in effect worked out the modern electronic equivalent of the Laënnec stethoscope. It has set up receiver-transmitter units which pick up and amplify the cardiac sounds. Not only the examining

Modern electronic equivalent of the Laennec stethoscope. It has a receiver-transmitter unit which enables anyone in the room to listen to the patient's heartbeat.



THE HEART

physician but anyone in the room, the patient included, can listen to the heartbeat.

The instruments used for auscultation are synchronized with an X-ray unit, so that the physician can at one and the same time listen to the sounds of the heart and observe it in action. The rate of heartbeat, the degree of activity of cardiac muscles and other helpful indices are registered on cine-film for study.

A miniature sound microphone was also constructed for this laboratory. It is simply and painlessly introduced into the esophagus, the trachea or even the stomach to transmit cardiac sounds.

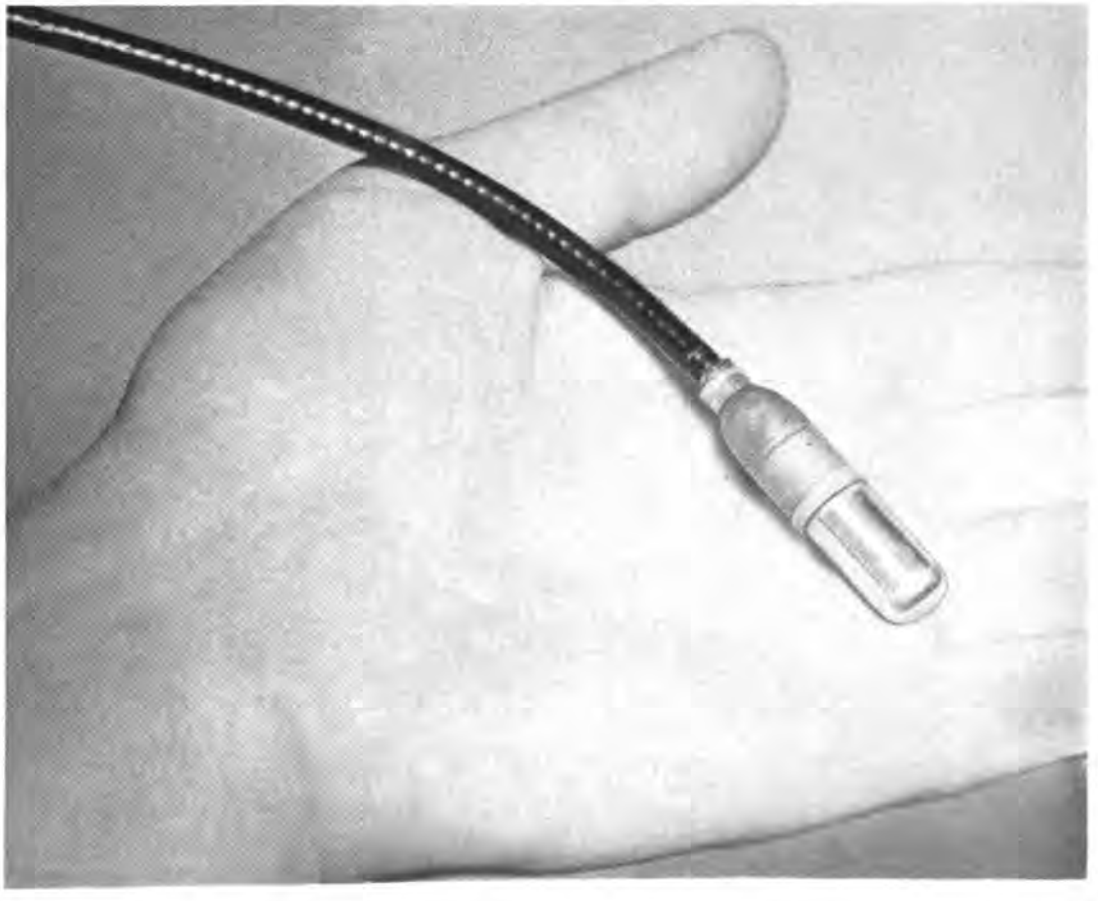
Clinical and surgical practice has demonstrated that this simultaneous method of investigation is of great value in diagnosis of congenital defects of heart and blood vessels, particularly in determining the length, level and the degree of constriction of the lumen, or passageways of blood vessels.

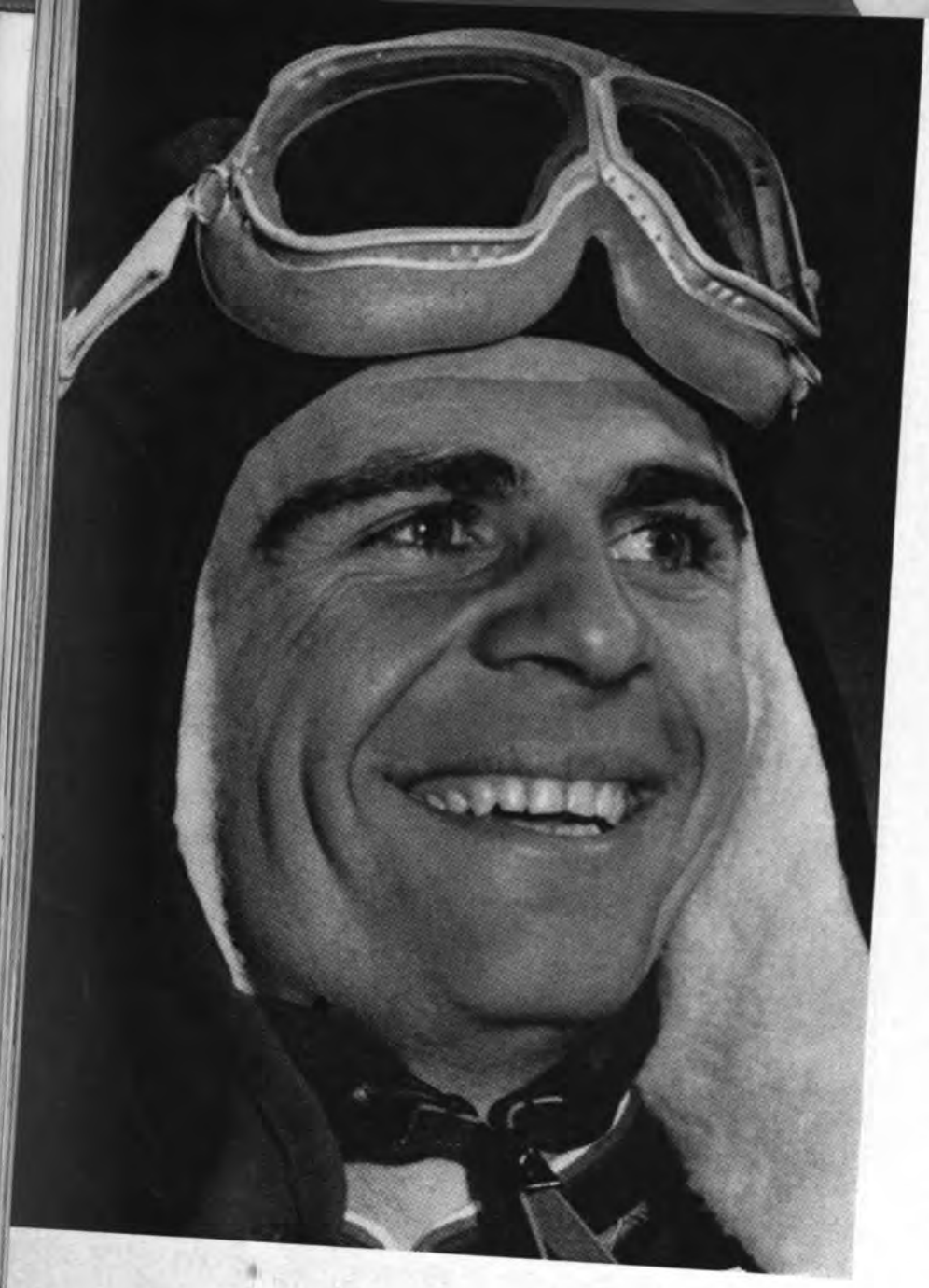
Sound roentgenology can reveal the early stages of afflictions of cardiac muscles and blood vessels at a period when the anatomical signs are not pronounced enough to be seen on the ordinary screen.

The method has also proved its value in consultations and in teaching at the medical institutes. All consultants listening to an auscultation hear the same sound with the same depth and intensity. Details which escape the stethoscope are amplified. The procedure opens valuable new approaches in heart surgery too, besides permitting more precise diagnoses and more accurate treatment. It is likely to prove of particular value in detecting incipient heart ailments early enough to prevent them, a vitally important factor in view of the very high mortality of diseases of the heart. ■

New method of auscultation picks up and amplifies cardiac sounds while the heart is simultaneously flashed on the viewing screen.

This microphone probe makes sounds of the heart audible directly from the alimentary canal. Instrument assists in the detection of various incipient heart ailments before anatomical symptoms are pronounced.





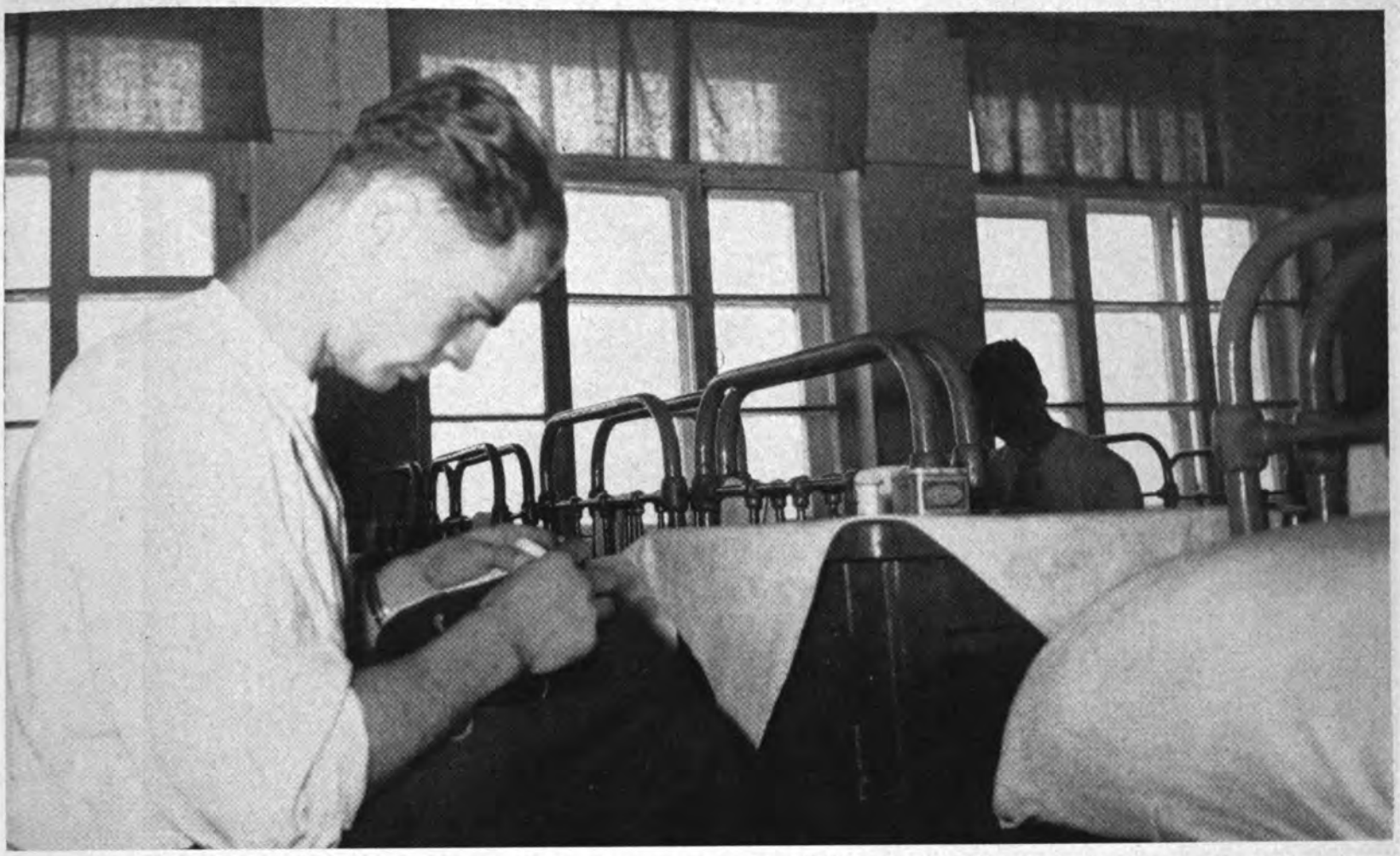
BACK TO CIVILIAN LIFE

Photos by Dmitri Chernov

GENNADI VLASOV entered the army in 1955 from the village of Borki on the Volga River. Now his service is about to conclude and he is ready to return to civilian life far better prepared to serve his country, his fellow men and himself.

Upon enlistment Vlasov elected a tank unit because he felt it would be most helpful in realizing his dream of becoming a tractor driver. In addition to his military training, he was taught many things that will prove useful, including the maintenance and repair of motors. He was also able to develop his cultural interests, hobbies and sports prowess.

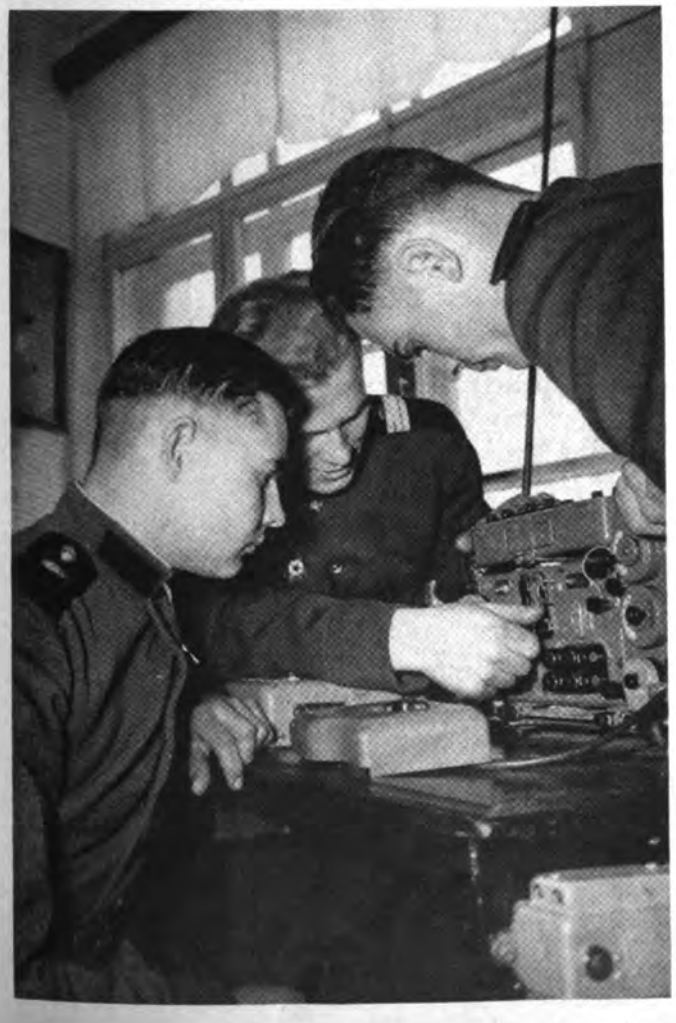
UP FROM THE RANKS TO BECOME A SENIOR SERGEANT, YOUNG VLASOV WAS SOON TEACHING MANY RECRUITS THE FACTS ABOUT MOTOR CARE AND OPERATION.



GENNADI AND HIS FRIENDS LOOK FORWARD TO LEAVE PERIODS. HERE THEY PREPARE FOR A SHORT HOLIDAY WITH RELATIVES. GENNADI SOON COMPLETES HIS SERVICE.

More pictures on following pages

In addition to becoming a professional driver, Gennadi acquired the useful sideline of radio mechanic and operator.



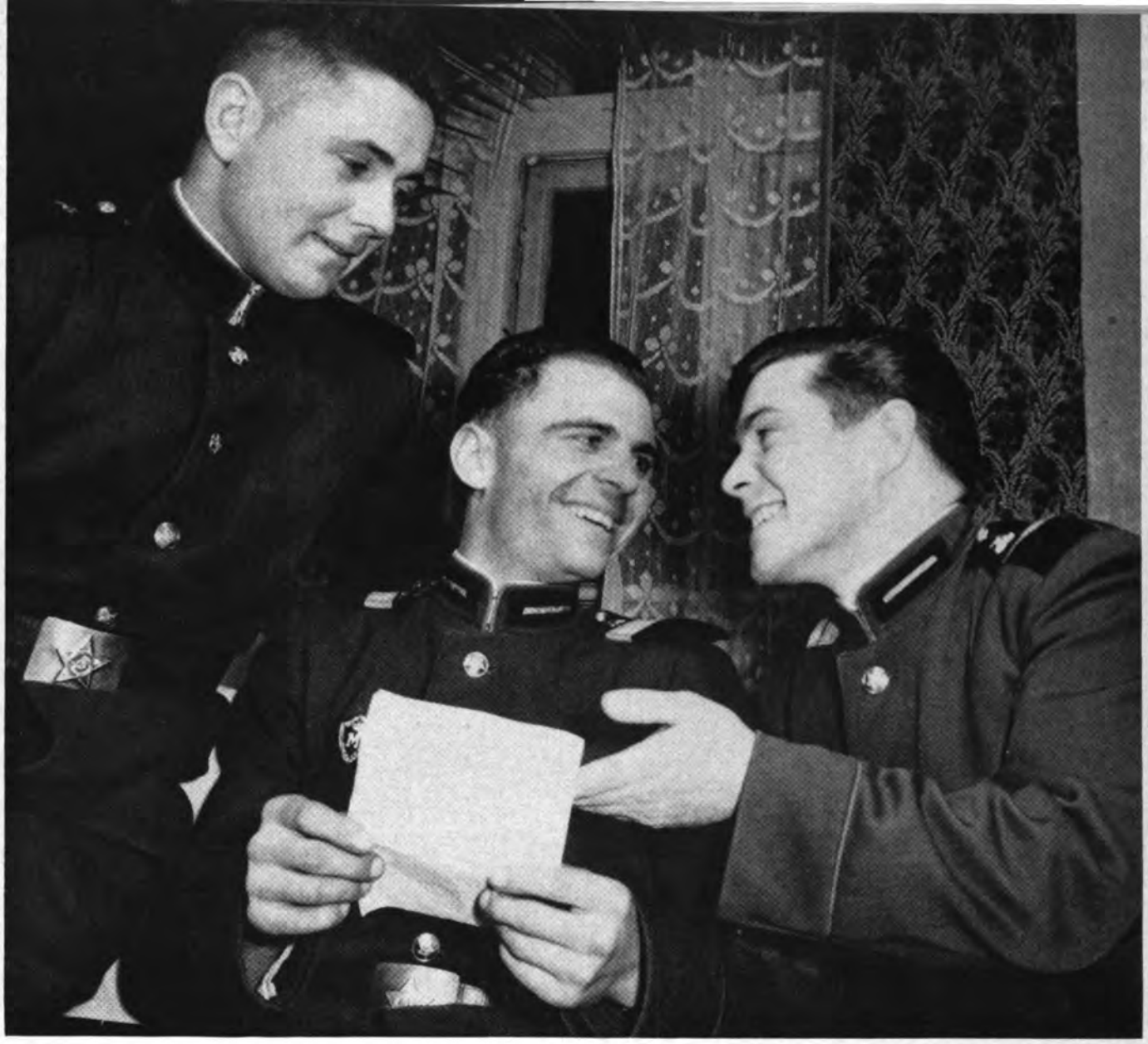
The regimental library's reading room offers a variety of literature, fiction and current magazines to meet a wide range of interests.

AFTER HOURS THE SERVICEMEN'S CLUB IS THE CENTER OF A VARIETY OF ACTIVITIES. THE ARMY ENCOURAGES THE INTELLECTUAL DEVELOPMENT OF ITS SOLDIERS.

Back to Civilian Life *Continued*

Vlasov's interest in machinery and agriculture, along with his recreational reading, has made him a popular patron with the witty librarian.

Proof that Gennadi and his friends are in good form is shown by their cups and trophies. Regimental teams play almost all sports.



KEEPING IN TOUCH WITH HOME FRIENDS, VLASOV RECEIVES A LETTER OFFERING A GOOD JOB AS TRACTOR TEAM LEADER AT ENLISTMENT END.

SENIOR SERGEANT VLASOV TALKS WITH FARM FRIENDS AND ANNOUNCES HIS ACCEPTANCE OF THE JOB THAT ARMY TRAINING MADE POSSIBLE.

State Hermitage Museum

By Yuri Sergeyev

Each year a million and a half people walk up the Jordan Staircase of the Winter Palace. At present it is the main entrance to the Hermitage.

ACCORDING to dictionary definition "hermitage" means "the habitation of a hermit" or "a secluded residence." This would have sufficed to describe the rooms in the Winter Palace which Catherine II set aside for her private recreation and entertainment. But today, to art lovers the world over, Hermitage means a place on the Neva River in Leningrad where thousands of people may, and do, gather to view and study the greatest art treasures of all times.

The metamorphosis of the word is interesting.

The history of the Hermitage collections starts with 1764, when Catherine bought many great works from Gozkowski, a Prussian merchant, and the Russian ambassadors to foreign courts were ordered to find and purchase paintings and sculptures "worthy" of the imperial Hermitage.

Several rooms of the Winter Palace were set aside for the Gozkowski collection, and that year construction was started on a pavilion next to the palace that was later called the Little Hermitage. It was large enough to hold the first collections, but as time passed two additional buildings were needed. They are connected with the first by passageways and are now known as the Old Hermitage and the New Hermitage.

The museum soon became filled with priceless canvases, drawings, etchings and prints; sculptures; mirrors, vases, crystal and porcelain; silver, gold and precious stones; books, coins and snuffboxes.

The French philosopher Denis Diderot, whom the Empress had rescued from financial straits, acted as Catherine's agent in purchasing 300 masterpieces from the famous collection of the Baron de Thiers. Among them were works by Rembrandt, Raphael, Giorgione, Titian, Rubens, Van Dyck and Poussin.

The Hermitage collection continued to grow under succeeding rulers. In 1914 the museum records showed 630,000 items. But although the Hermitage was nominally open to the general public, it was actually in reach of only a select few. Five hundred visitors a day was considered a record event.

From the very first days of the October Socialist Revolution of 1917, Red Guards took up posts in front of the Hermitage, for this Palace of

Art, like all the riches of the country, became the property of the people.

In November 1917 a board was set up under the People's Commissariat of Education to handle matters connected with the country's museums and the preservation of art treasures. The next year a special decree forbade "the export of objects of particular artistic or historical significance, representing a loss to the cultural treasures of the people." In order "to acquaint broad sections of the population as fully as possible with treasures of art and antiquity," the government issued another decree on the sovereign right of the people to the nationalized treasures.

From time to time trucks guarded by Red Army men would drive up to the Hermitage and unload works of art left behind when their owners fled abroad. Innumerable purchases and gifts increased the collection. The museum soon could not hold all its treasures, and the Soviet Government placed the entire Winter Palace at its disposal.

Exhibits Reorganized

For 150 years the Hermitage had been a lifeless collection of art objects of different periods and styles. True, it had been divided into sections, but not with any particular principle in mind. Although the picture gallery was grouped according to countries, the order of the rooms was haphazard. Size was often the only factor considered in determining the location of a canvas.

The Eastern section was the first to be reorganized after the Revolution. It was laid out by scholars who viewed the function of a museum in a new light and had a new conception of research within its walls. They sought for similarities in the cultures of different peoples and found them in societies which had attained the same level of historical development. They studied every item, every art object, and established the connection between monuments of different ages and peoples.

The new displays at the Museum are a truly scientific achievement. They present a vast and varied amount of material in a historical light, help the visitor to acquire a true appreciation of art monuments of the past and bring out the objective significance of the work and the artist, the ideas embodied in the work and the depth and mastery with which the artist reflected the life of his times.

Seven of the eight main sections of the Museum have their own exhibition rooms. They include 26 rooms on the History of Russian Culture, 22 rooms on the History of Primitive Culture, 22 rooms on the History of the Culture and Art of the Peoples of the Soviet East, 37 rooms on the History of the Culture and Art of Foreign Countries of the East, 19 rooms on the History of Ancient Culture and Art, 122 rooms on the History of West European Art, and a section on numismatics.

Continued on next page

French fine and applied art from the fifteenth to the nineteenth centuries is displayed in 39 of the 122 rooms that are devoted to West European art.

One of the many spacious halls in the State Hermitage at Leningrad. The guided tours through the museum may take anywhere from three hours for the viewer who makes just a general survey, up to 30 visits for a thorough study.

State Hermitage Museum

Continued

The collections are still growing with the help of contributions, purchases being made in the Soviet Union and abroad, and through the findings of archaeological expeditions. Since 1917 more than 1,700,000 rare monuments of art and culture have been added to the brilliant collections in the Hermitage Museum.

When representatives of factories, mills, collective farms, offices, universities and schools request guides at the museum's excursion bureau, they are always asked how much time they want to spend on the tour. A general survey is possible in three hours, but to make a systematic study of the various sections takes anywhere from six to thirty visits. To see all the exhibition rooms in the museum, which has 330 galleries and halls, a visitor must walk 15 miles.

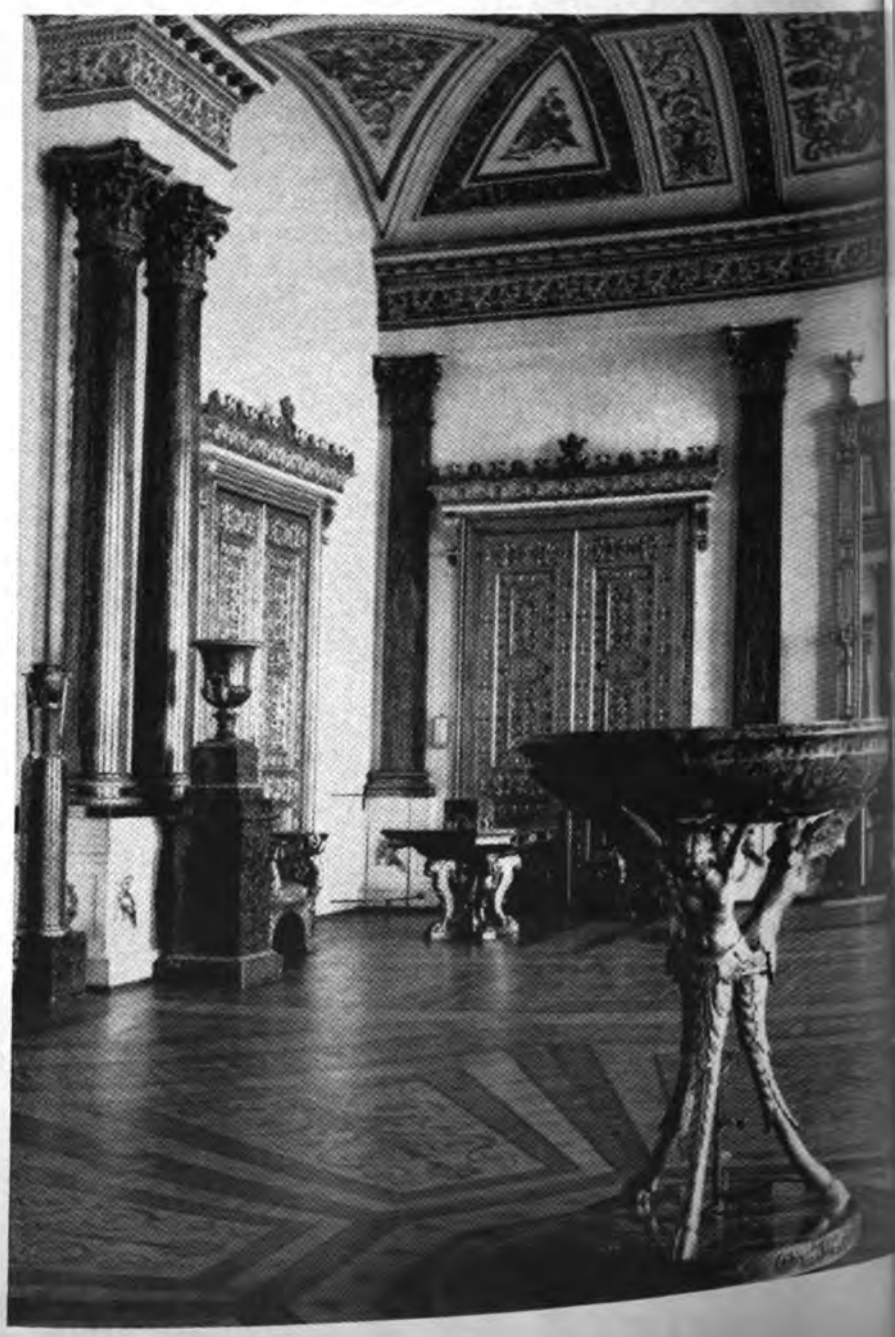
A million and a half people pass through the Hermitage each year. Two hundred forty groups are studying the basic stages in the development of culture and art, the work of the greatest artists of the past.

This is the way in which Soviet life has changed the meaning of the word "hermitage." This is how an exclusive archive museum grew into a popular national academy of art. ■

Exhibit on Roman sculpture contains this marble statue known as the Venus of Taurida. Acquired by Peter I, it dates back to 300 B.C.

A collection of various objects of art dating from 20 B.C. to the present era makes up this seventeen-room exhibit on the Culture and Art of China.

The columns, pilasters and fireplaces in this hall are all faced in bright green malachite, as are objects made by Russian masters on display here.



Leonardo da Vinci painted the *Madonna Litta* in 1480. It hangs with his *Madonna Benois* in the section on Italian art from the thirteenth to the eighteenth centuries.

Continued on next page

Perseus and Andromeda is one of Rubens' finest mythological paintings. Two rooms devoted to seventeenth century Flemish art include 18 canvases by Rubens.

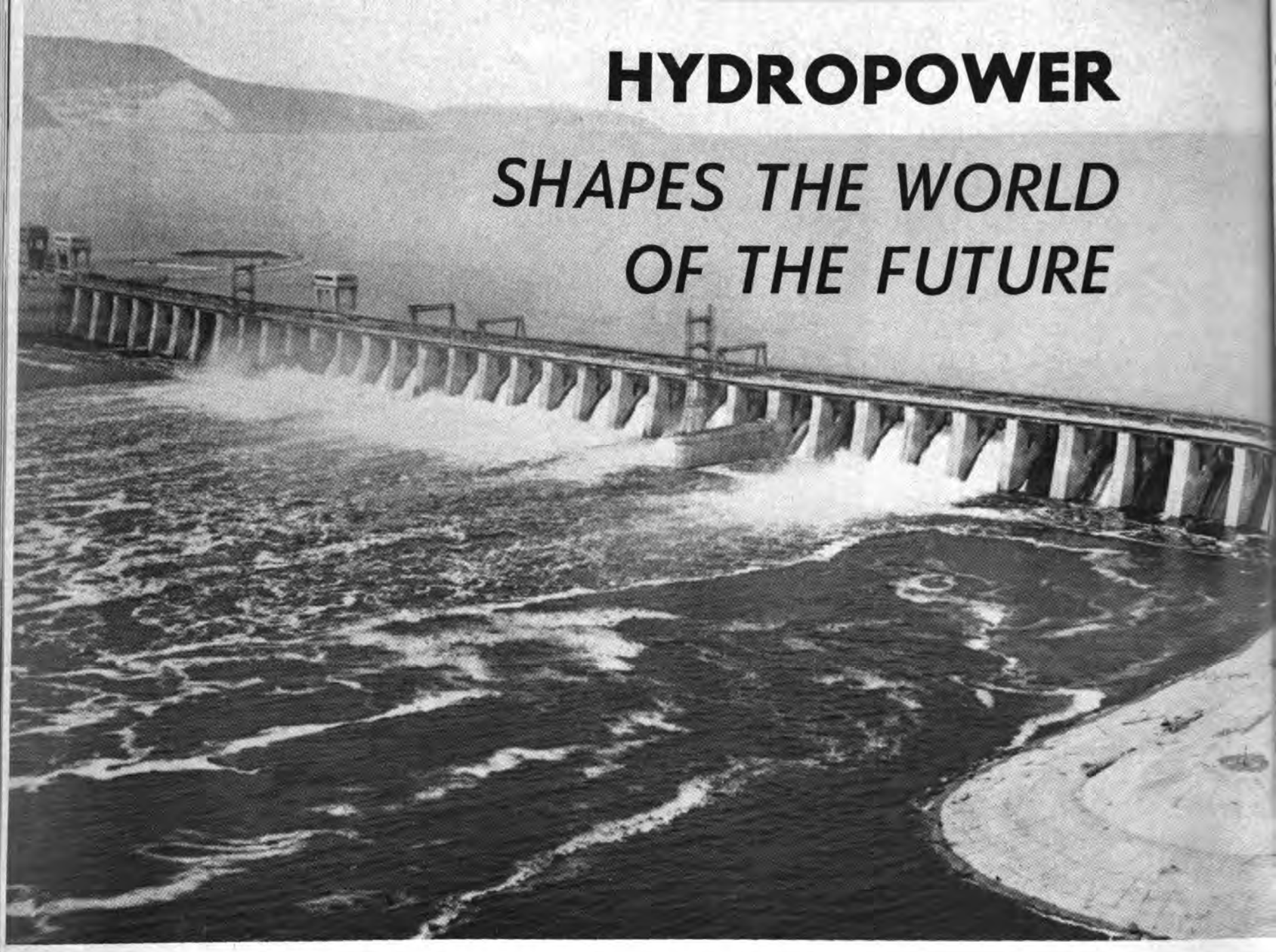
State Hermitage Museum Continued

The Repentant Magdalene was painted by Titian in the early 1560's. *St. Sebastian* and *A Young Woman* are among the other works of the Venetian master displayed in the Hermitage.

Rembrandt painted his *Danae* at the height of his talent. The museum has a collection representing the Rembrandt school in addition to a number of other canvases by the master himself.

Portraiture occupies the main place in eighteenth century English art. *The Duchess de Beaufort* was painted by Gainsborough, one of England's outstanding artists.

The Hermitage's collection of French impressionists is a famous one and includes canvases by its greatest exponents. This is *Girl with a Fan,* painted in 1881 by Renoir.



HYDROPOWER
SHAPES THE WORLD OF THE FUTURE

By Alexander Markin
Hydraulic Engineer

LOOK at a map of the Soviet Union. Its great land surfaces, one-sixth of the world's total, are crisscrossed by more than 100,000 rivers. Their length added would stretch for 1¼ million miles, five times the distance from the earth to the moon. The basins of three of the rivers—the Yenisei, the Ob and the Lena—are as large as the territory of the United States.

The Soviet Union has nearly 15 per cent of the world's total water-power resources, enough to generate annually 3,700 billion kilowatt-hours, twice as much as all the electric power stations in the world generated in 1957. How is this wealth of potential power to be used economically and rationally for man's benefit?

Much more is involved in this question than the production of cheap electric power, even on this gigantic scale. The answer must see far into the future. It must consider food, minerals, forest resources, soil fertility.

Long-Range Planning

Soviet hydropower planners are thinking in these larger terms. They are able to because the Soviet economy permits—more than that, it demands—this long-range comprehensive approach. Exploration covers not only single rivers and basins, but all the water-power resources as they will affect the total economy of the country. And this not only for the next 10 or 20 years, but for the next 40 or 50 years, to the year 2000 and beyond.

Does this seem like speculating on an unforeseeable future? Consider the problem of food alone. The population of the Soviet Union is growing. By the year 2000, according to estimates, it should have increased from the present 200 million to 500 million. How are the 500 million people to be fed? How is a surplus of food to be raised for export trade?

More must be done than to increase present soil fertility; land areas now unused must be placed in cultivation. One of these potential areas is the West Siberian lowland; another is the Caspian hollow and the Central Asian deserts. Ten times larger than the territory of Britain, they could become important granaries for the nation.

Large-scale irrigation and land reclamation work will have to be done, but in time the West Siberian lowland will yield as much farm produce as all of the United States does now. Central Asia, already important as a cotton-growing and sheep-raising region, will produce even more when water is brought to its deserts. The Caspian hollow will also become a flourishing farm area.

There have been proposals advanced by hydropower engineers who place emphasis on more electricity. Their plans to build power stations in the middle and lower reaches of the Ob, with dams and reservoirs, propose to flood portions of the West Siberian lowland. Such planning, in my opinion, would make huge areas unavailable for food growing and would be prodigal waste of the immense forest and mineral wealth of Western Siberia.

It seems to me that this is thinking with only the next decade in mind, or perhaps the next two decades. It is on a larger and grander scale that hydropower planning must be done.

An Inexhaustible Source

Water power is an inexhaustible, constantly replenished source of energy. To produce the same quantity of electricity a hydroelectric station needs only a fraction of the labor required by a thermal plant.

Thanks to available sources of cheap hydroelectric power, industries to produce ferro-alloys, aluminum, magnesium, nitrates, synthetic rubber—all of them large electricity-

consuming industries—have grown. Then, too, along with hydropower development new industrial centers arise in hitherto undeveloped regions. So that the power industry must expand at a faster rate than other industries.

The Soviet Union plans in the next few years to increase the output of electricity by 150 billion kilowatt-hours. This figure is equivalent to the total power output of Britain and France for 1956.

Almost 400 large hydraulic and thermal stations are now under construction. All this requires a volume of earth and concrete work that would be sufficient to dig eight Panama Canals. Work is also under way on the design and building of large atomic power stations.

A new Volga-Baltic waterway is being built with large hydroelectric stations, locks, piers and other installations. This 220-mile water artery—to supplement the White Sea-Baltic Canal which was opened for service in 1933—will provide access to ships traveling from the southern seas, via the Volga, to the Arctic Ocean and the Baltic Sea. By 1960 freighters will be carrying oil, wheat, and farm machinery northward, and Vologda and Karelian timber and paper and Leningrad-manufactured goods southward.

Hydro-engineering projects to irrigate arid and desert lands have been undertaken on a vast scale during these past years. Both irrigation and waterway projects have been combined with the building of new hydroelectric stations.

Chains of power plants make use in sequence of the water level drop along the whole course of a river. The Volga cascade, with its two mammoth plants, the Kuibyshev and the Stalingrad, are the most imposing of these projects for the complete utilization of a great river. Its significance may be measured by the fact that within the Volga's basin are 350 cities and towns, one-third of the country's population, contributing almost half of its output of manufactured and farm products.

Fully harnessed, the Volga and its tributaries will generate up to 60 billion kilowatt-hours of electricity annually. Within the next 10 to 15 years the water-power resources of the river will be fully utilized. The Volga will at the same time become a deep waterway throughout its entire length and will provide water for irrigating the arid area in the river's lower reaches.

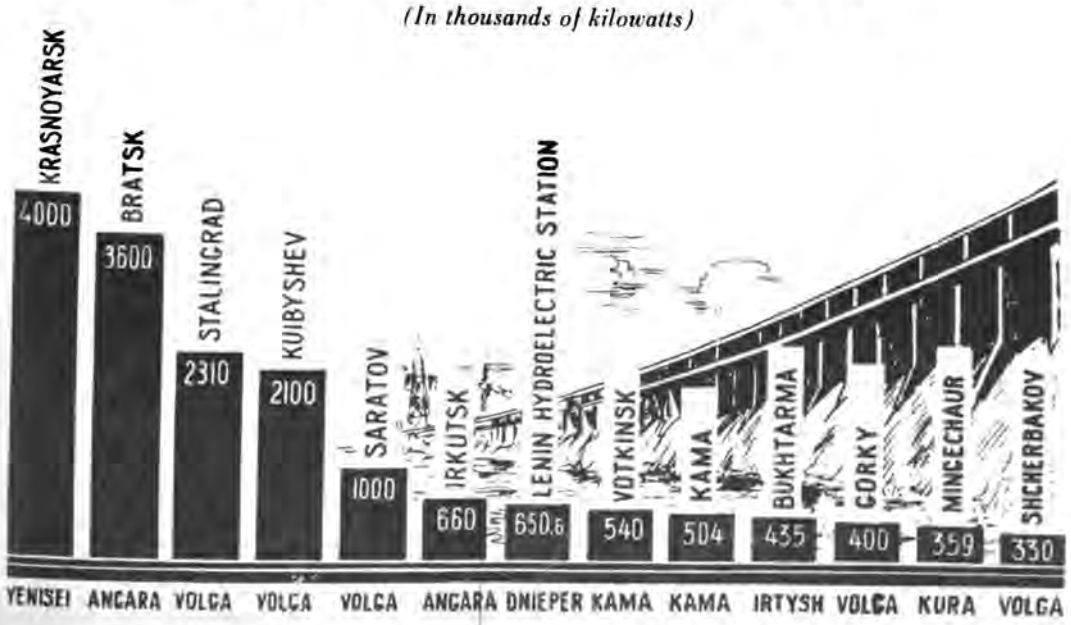
Throughout the country additional hydroelectric stations are in process of construction.

DISTRIBUTION OF HYDROPOWER RESOURCES OF THE USSR AMONG AREAS

(In percentages of the total)

BIGGEST HYDROELECTRIC STATIONS IN OPERATION AND UNDER CONSTRUCTION IN THE USSR

(In thousands of kilowatts)



Siberia

The future of the Soviet economy lies in the development of Siberia, an immense region with fabulous resources. In Siberia are 80 per cent of the country's water-power resources, 75 per cent of its coal, four-fifths of its timber, its main reserve of non-ferrous and rare metals, large deposits of iron ores and raw chemicals. Here also are great deposits of gold, platinum, diamonds and other precious minerals. Here are the famed Russian furs.

Within the past 30 or 40 years a stupendous transformation has taken place in Siberia. Various industries have been established and are growing, new cities have sprung up, and, more recently, Siberia has become a major grain-growing center of the country. Siberia's future will largely depend on the development of its eastern part.

Eastern Siberia is a great sunny land, where the sky is almost always blue and the air fresh and dry. It has twice as many sunny days a year as Moscow and almost as many as the Crimea, the world-renowned resort region. This is a favorable climate for the development of agriculture.

Planners say Eastern Siberia will in the next ten years become a major producer of coal and electric power. Heavily industrialized, it will supply the country with huge quantities of metals, chemical products, machines, lumber. Its farms will provide great wheat crops, butter and meat.

This perspective presumes a comprehensive hydropower program, part of it already fulfilled, much more in prospect. By 1960 Eastern Siberia will be generating 130 billion kil-

Continued on next page

HYDROPOWER
SHAPES THE WORLD OF THE FUTURE

Continued

owatt-hours of electricity, almost as much as the entire output of the Soviet Union in 1953 and equal to the combined output of Britain, Norway and Sweden in 1955.

The prospects for hydropower development are incalculably great. These are titanic projects being planned to harness the Siberian rivers.

On the Irtysh, the Ob and the Yenisei rivers some stations are already in operation or being completed; others are under construction or in the blueprint stage.

Then there is Lake Baikal and the mighty Angara River, unsurpassed anywhere in the world for its hydropower potential. The Baikal fills up a huge granite bowl with more water than is contained in the Baltic Sea. Some 336 streams flow into the Baikal but only one flows out. This is the Angara which cuts across East Siberia, flows for 1,150 miles and then empties into the Yenisei, forming with it a great stream of water that finally runs into the Arctic Ocean.

A master plan for the Angara provides for the construction of a cascade of six stations with an output of 70 billion kilowatt-hours annually. Together with stations on the river's tributaries, it will produce more electricity than France, Sweden and Belgium combined.

The great hydropower stations on the Angara and the Yenisei and large automatic thermal plants fed by the region's abundant coal supplies will be the focus of the unified power system of Central Siberia. Immense changes will be effected in these expanses.

The Angara-Yenisei area has resources of raw materials for heavy industry on a colossal scale, for production of iron, steel, aluminum, magnesium, nickel, calcium carbide, synthetic rubber, chlorine, machinery and a wide assortment of consumer goods. Two or three Ruhr basins—that is the scale of this future industrial region.

The extent of power development will allow for large-scale electrification of agriculture and rapid growth of consumer and food industries. Cheap electricity—Siberian power can be produced at a cost 50 to 75 per cent lower than in other parts of the country—will greatly reduce production costs of manufactured goods.

There is one other factor which is being considered in the specialization of Siberian industry—the relatively low density of population in Eastern Siberia by comparison with the European part of the country. Initial development, therefore, will concentrate on industries which rely heavily on heat and power but require less labor and capital expenditures.

In time a single power system will supply all of Soviet Asia. It will unify the hydroelectric stations of Central Siberia, the Lena Cascade, the stations on the big tributaries of the Lena, and the hydropower stations to be built in the icy Northeast. Transmission lines will tie in the power systems of various parts of Siberia with those in the European part of the Soviet Union to form a single power system for the entire country.

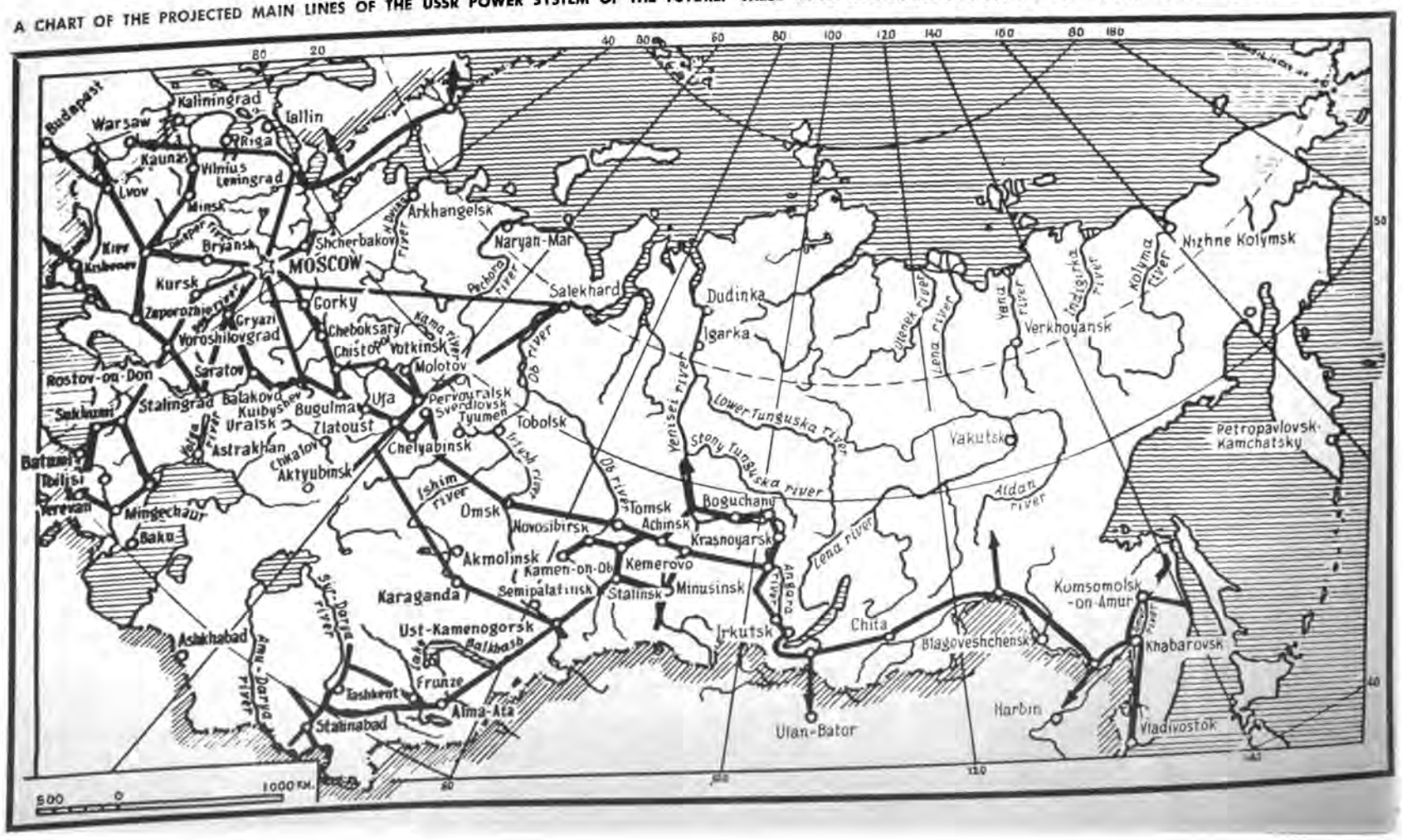
Projects for stations on rivers east of Lake Baikal and in the Far East are now in the planning stage. An over-all plan for harnessing the Amur, which serves as the frontier between China and the Soviet Union, is being worked out jointly by the two countries. In addition to power development, the plan is considering methods for doing away with the disastrous seasonal floods and for improving navigation.

What of the Future?

To plan forty years ahead, for the year 2000, it becomes apparent, is hardly idle dreaming. Forty years ago plans to harness the Angara and the Volga were thought daring fantasy. In 1920 when Lenin proposed the GOELRO Plan, designed to electrify the country in 10 to 15 years, it was considered by some to be grandiose, impossible in a country suffering from famine, epidemics, foreign blockade.

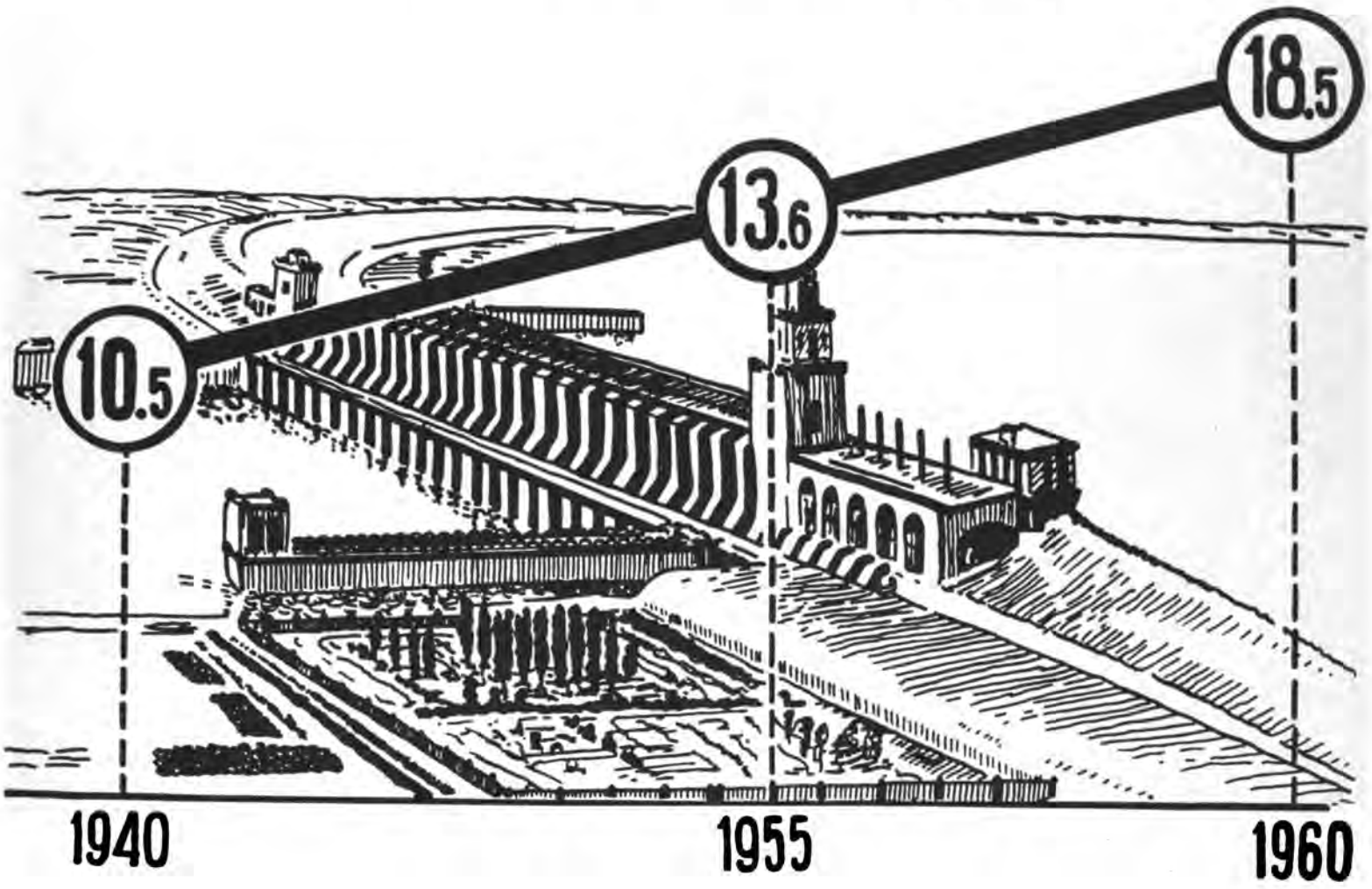
In 1921, H. G. Wells visited Lenin. They spoke of this plan for the electrification of the country. Wells wrote: "Can one imagine a more courageous project in a vast flat land of forests and illiterate peasants, with no water power, with no technical skill available, and with trade and industry at the last gasp? . . . . I can not see anything of the sort hap-

A CHART OF THE PROJECTED MAIN LINES OF THE USSR POWER SYSTEM OF THE FUTURE. THESE LINES WILL MAKE IT POSSIBLE TO EXPORT POWER TO OTHER COUNTRIES.



GROWTH OF POWER OUTPUT GENERATED BY HYDROELECTRIC STATIONS IN THE USSR

(In percentages of the total)



pening in this dark crystal of Russia, but this little man at the Kremlin can; he sees the decaying railways replaced by a new electric transport, sees new roadways spreading throughout the land, sees a new and happier communist industrialization arising. While I talked to him he almost persuaded me to share his vision. . . ."

The "visionary" plan was carried through in the minimal 10 years. By 1931 it had been fulfilled. Today the material facilities and the technical knowledge are available in infinitely larger measure to meet the demands of this greater plan—to build these chains of great hydroelectric stations, these thermal and atomic stations of enormous capacities, to create artificial seas, to shift the waters of the Siberian rivers southward to water the Central Asian desert, so that millions of acres of arid land become food-producing.

One can only make the roughest estimate of electric power production by the end of the century. But the guess is more likely to be short than long. By 1960 the Soviet Union will produce 320 billion kilowatt-hours; by 1972 the figure will reach 800-900 billion kilowatt-hours. By the year 2000 the country will be producing the astonishing total of 10,000 billion kilowatt-hours. With the concommitant rise in production of goods of all kinds, it will bring in an era of abundance.

The development of power in the USSR reflects general progress in this area on a world scale. Exchange of ideas and technical knowledge go on regardless of political differences. There is no country which has a monopoly of creative ideas, no country which can progress without drawing on the experience of others.

From its earliest days, the Soviet Union has been striving for broad scientific and technical cooperation because the vital interest of all nations demands it. It was as far back as 1921 when Lenin declared that modern advanced techniques urgently demanded the electrification of the whole country—and a number of neighboring countries—according to one plan; that such an undertaking was quite feasible. He proposed the idea of a railroad from London to Peking, via Paris, Berlin, Warsaw and Moscow.

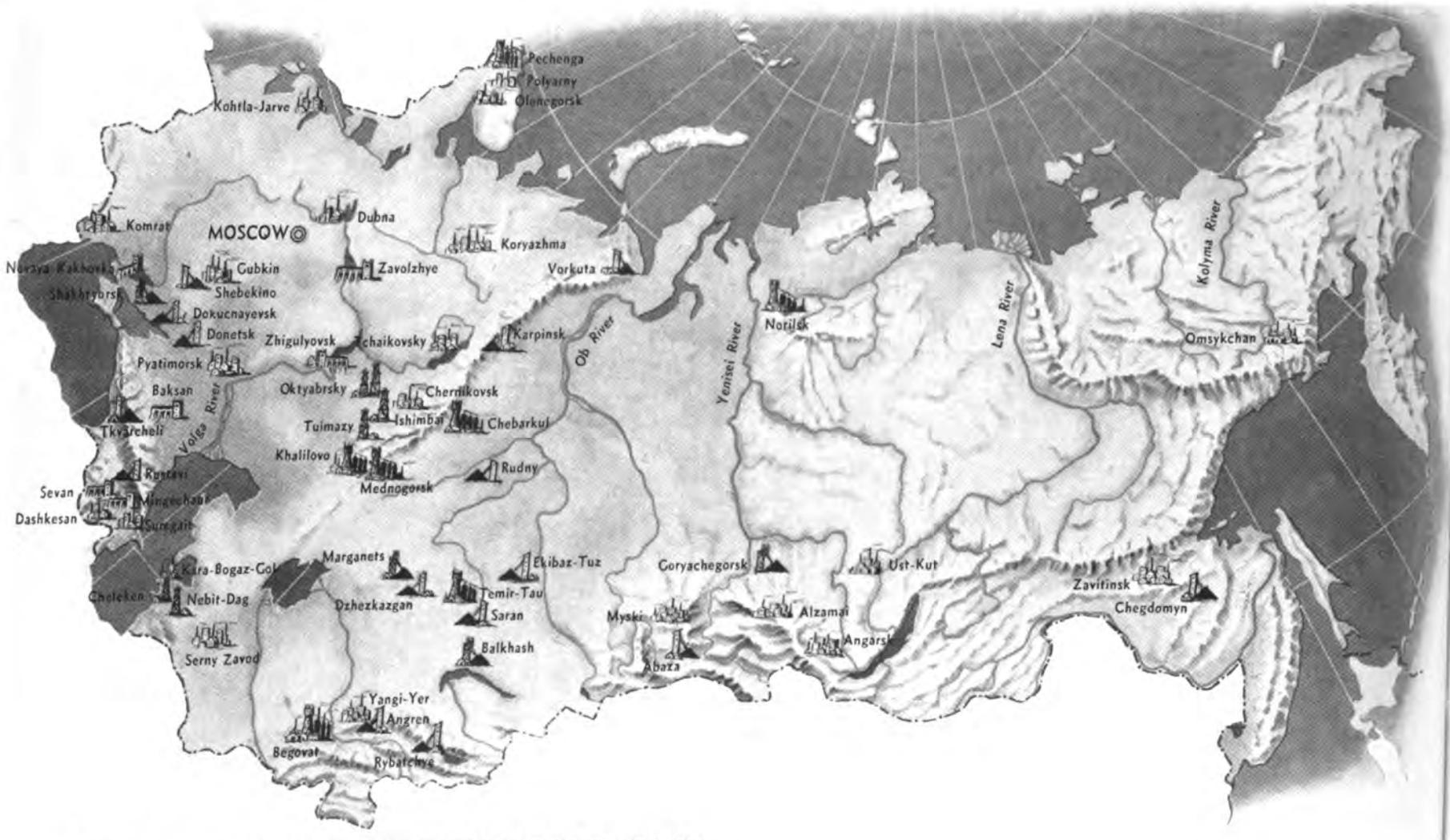
Present-day power engineering is able to transmit electricity for vast distances, to feed international electrified railways, industry and agriculture. Truly limitless prospects are open for international gas and oil pipelines and, in the future, perhaps for oxygen and hydrogen pipelines. There is, too, the ever-growing need of international water conservation planning and for international forest conservation, to consider only a few problems that are common to every country.

From the technical viewpoint there is nothing that stands in the way of cooperative international efforts in power development. There is, as a matter of fact, some advanced thinking already being done along these lines. Kilowatt-hours can become common currency in international trade.

The establishment of a single Soviet power system will reasonably bring about a junction of its eastern sector with the Chinese power system. In the West it will as reasonably merge with the power systems of the socialist countries of Europe. It would be of mutual benefit to tie in with the power systems of Finland and Norway. The first step in this direction has already been made with plans for joint exploitation of frontier rivers.

Possibilities are present for international flood control, for intercontinental waterways that would irrigate the Gobi Desert, the Sahara, arid lands in every one of the six continents. There is even the possibility of thawing the great frozen regions of America and Eurasia, of remaking climate and freeing the immeasurable natural wealth that is buried under Arctic and Antarctic ice.

The means are at hand, the knowledge is available. What is most necessary is the international will to joint labor for a common future that will forever end thirst, hunger, scarcity. ■



A FEW OF THE COUNTRY'S 900 NEW CITIES WHICH HAVE SPRUNG UP SINCE 1917.

THESE ARE THE FIRST LIVING QUARTERS USED BY THE FOUNDERS OF OKTYABRSKY.

OKTYABRSKY—

City of Black Gold

By Anver Bikchentayev, *Bashkir Writer*

OIL workers call it the "White City of Black Gold." It is an apt phrase for Oktyabrsky, the new oil center in the Bashkir Autonomous Soviet Socialist Republic in the southwest Urals, a radiating city with a population of 70,000 that grew up around a cluster of temporary wooden cottages built to house oil prospectors in 1938.

I remember this Bashkir country in my youth. It was a land of great and quiet expanses. One could ride horseback for hundreds of miles and see nothing but steppe, nothing but the golden eagle or the black kite winging overhead to break the emptiness of the desolate plain. It was a land of few towns, of nomad shepherds and grain farmers, of unchanging ways and ancient superstitions.

Bashkiria has been transformed over the years. The republic now has a population of more than three million. There are many industrial enterprises and the area is one of the most important oil sources in the Soviet Union.

A number of new cities have grown up, such as Ishimbai, Saran. Alzamai and Oktyabrsky. Most have been founded within the last few years and they demonstrate the rapid industrial progress of a once undeveloped area. The descendants of illiterate nomads have become industrial workers, engineers and doctors, schoolteachers, cultured farmers and agronomists.

The settlement of Oktyabrsky had no name in 1938, it was simply a number of wooden houses, a laundry and a bakery grouped together on the grassy plain. Six years later it was on the way to becoming a city.

Lake Akai-Kul, near the village of Zaitovo, according to an old folk tale, was devil-ridden. Satan himself lived on its shore, waiting to grab the unwary who walked there after dark. The lake was said to be bottomless and old people warned that a man who ventured on it would do well to prepare his will beforehand.

These old tales cropped up again with new improvisations when strangers arrived with tools and instruments about thirty years ago. To begin with, they erected a shack for their instruments and tents for themselves. They listened to the old stories about the "accursed" lake, smiled a bit and went on with their work, measuring and tapping and surveying the shore and the land about the lake. These were prospectors who sounded the depth of newly discovered Tuimazy oil deposits.

Continued on next page

ONE OF THE CITY'S 14 SECONDARY SCHOOLS. TOTAL ENROLLMENT IS NEAR 8,000.

OKTYABRSKY'S MAIN STREET IS NAMED AFTER IVAN GUBKIN, NOTED SOVIET SCIENTIST, WHOSE RESEARCH LED TO FINDING NEW OIL FIELDS THROUGHOUT THE COUNTRY.

OKTYABRSKY—*City of Black Gold*

Continued

THE MOST MODERN EQUIPMENT IS USED IN THE CITY'S BUSTLING OIL INDUSTRY.

Then other men came and built steel towers twice the height of the minaret of the village mosque. The tool shack was the first building in the still unnamed city of Oktyabrsky. Over the past 20 years the city has grown by leaps and bounds and it continues to expand. It is a comfortable city now, with electricity, modern plumbing, telephone and radio service. Building has proceeded at a steady pace, interrupted only by the war. Some 7,000 new housing units were erected within the past ten years alone.

Building of private houses has been encouraged with the help of long-term loans and materials. There are broad avenues there now lined with both one- and two-family houses in the western and southern districts of the city. Each of these houses has its own small orchard of apple trees, berry bushes and grape vines.

Oktyabrsky is an oil town and many of its 95 streets bear names relating to that industry. The oldest street is Devonskaya, derived from Devonian, the geologic age. Gubkin street is named for a noted Soviet petrologist and is the business center of the city. The favorite street for strolling is Sverdlov Street, with its wealth of greenery and flowers.

New Cities on the Map

How, where and why do new cities arise? They have been springing up because of the industrialization of the country and the harnessing of new areas to the nation's economy. The distribution of these cities is very instructive. During the Soviet period the number of cities east of the Urals has more than doubled.

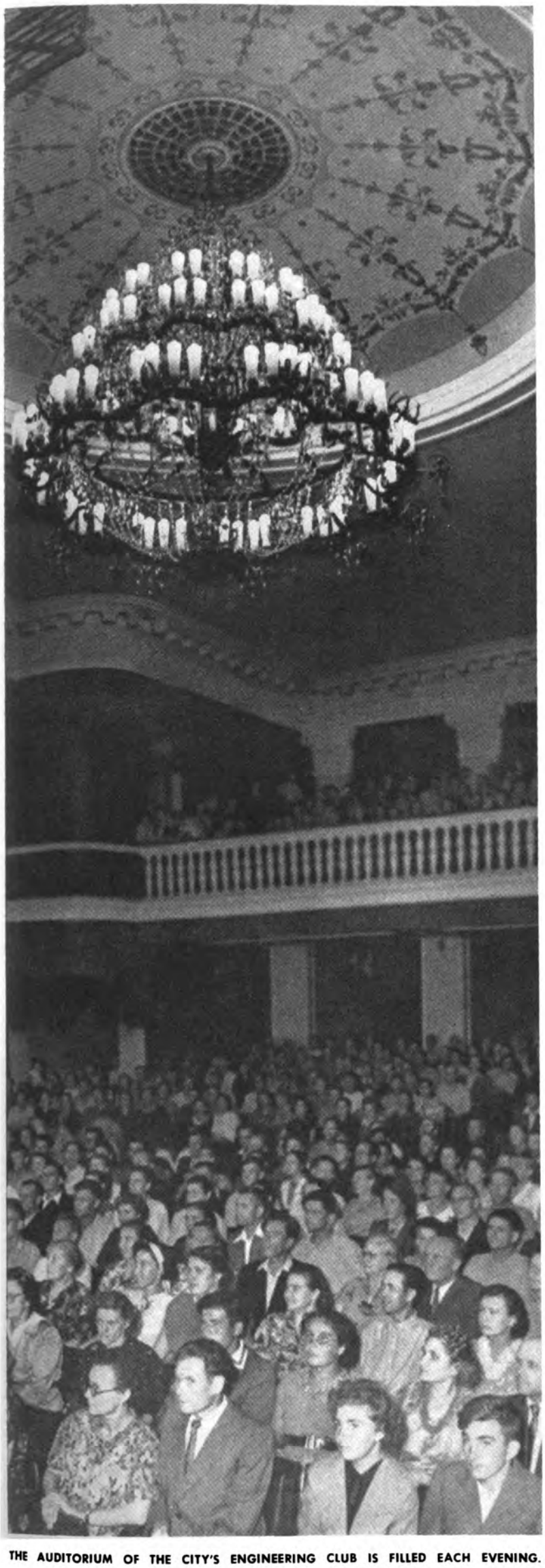
New towns rise near mineral deposits, at the sites of huge hydroelectric power plants, and on major river and sea routes. A geologists' camp that stood in the steppe near Kustanai two years ago has grown into the town of Rudny, whose inhabitants are developing its rich iron ore deposits. It is the same way everywhere: a steppe grain port, Volzhsky, rose on the Volga River; the lead and copper town of Almalyk in Uzbekistan; the oil town of Almetievsk in the Tatar Autonomous Republic.

The story of the new city of Oktyabrsky is also the story of the men and women who founded it. In my own case I have seen both Oktyabrsky and its people change right before my own eyes.

Let us take a few typical examples. There is the membership of the Oktyabrsky City Soviet which includes K. Saderdinov, a loader foreman, and M. Sipaev, a painting foreman. They sit alongside C. Batershin, a drill operator; N. Nabiev, a concrete worker; and N. Strekalov, a lathe operator. Each of these men, and hundreds of others like them, developed their skills and qualifications by studies in the technical and

Continued on page 40

RAISA PODOSENOVA, A CHEMICAL ENGINEER, WORKS IN THIS GAS RESEARCH LAB.



THE AUDITORIUM OF THE CITY'S ENGINEERING CLUB IS FILLED EACH EVENING.

THESE AMATEUR DANCERS PERFORM THE POPULAR BASHKIR DANCE, "THE GIFT."

OKTYABRSKY—*City of Black Gold*

Continued

specialized schools of the city or at on-the-job training courses.

These training courses are very popular in Oktyabrsky, and the various technical studies draw more than 3,000 workers into classes. Only recently a branch of the Scientific Geological Research Institute was opened in the city. It is busy today training skilled geologists who will soon join the working population to add to the city's steady, planned development.

Needs grow as a city develops. Not very long ago a single school, a dispensary and small library sufficed. Today Oktyabrsky has six clubs, 21 motion picture houses, 57 libraries and a school enrollment of almost 8,000 youngsters. A specialized secondary school for oil technicians has 1,500 students. There are eleven kindergartens and nine nurseries to serve the children. There are 70 medical units of various kinds with combined staffs of 560 doctors and nurses.

The House of Culture, which is a big community center, has two amateur theater groups presenting plays both in Bashkir and in Russian, besides all sorts of clubs for gymnasts, photographers and hobbyists.

It is startling to think of all the changes that have taken place in my own lifetime in Bashkiria, and I am not an old man. There was much that was instructive, interesting, and sometimes even amusing in the struggle against the survivals of the past.

I have seen old women who refused to move into the new houses, dreading the gas ranges. The samovar continued to be used in many homes although it was much easier to boil water for tea on the gas range. Old people forbade their children to go to the theater. Painting was prohibited by the Mohammedan faith, and the elders in some families did not allow any pictures to be put up on the walls. Twenty years have passed since then, and it all seems quite unreal now.

We take the changes for granted these days. Nobody even blinks an eye when there is talk about plans for controlling the weather. The dry southern winds churn up violent dust storms in the region. Oktyabrsky is planning to grow shelter belts of trees to block these devastating winds. And this in a region that was wild, thinly populated steppe no more than 20 years ago.

There is no easy explanation for all this remarkable growth. But a large part of it can be found in the character of the people themselves. From a nomadic past with all the superstitions and fears of generations, they have become an educated, industrial people. ■

SENIOR STUDENTS OF OIL INDUSTRY SCHOOL GETTING EXPERIENCE IN THE FIELD.

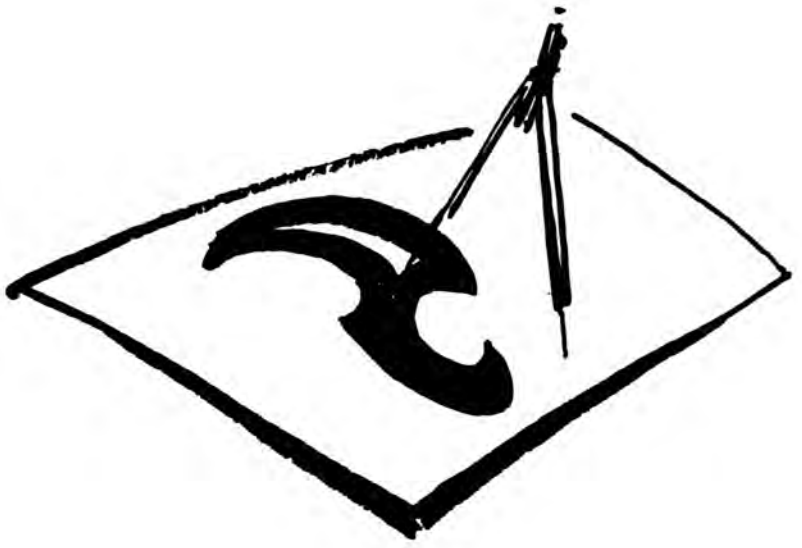
OIL WORKERS' CHILDREN LEARN TO PLAY AN INSTRUMENT AT A LOCAL MUSIC SCHOOL.

ENGINEER TUKHVATULLIN IS READY TO GO ON A FISHING TRIP WITH HIS SON.

TRADITION SAYS THAT TREES ARE TO BE PLANTED IN YARDS OF NEWLY CONSTRUCTED SCHOOLS, AND CHILDREN OF SUCCEEDING CLASSES PROVIDE THEM WITH GOOD CARE.

FOUR YOUNG SOVIET PEOPLE

These are four young people, a student from the Volga region, a geobotanist from Yakutia, a shoe worker from Leningrad, a farm girl from a village near Moscow. They have certain ways of life in common with the millions of other young people who have been born and brought up in the Soviet Union. Otherwise they are as different from each other as any four young people chosen at random anywhere else in the world.



STUDENT

Oleg Skobelev

By Vladimir Razumnevich

OLEG SKOBELEV is twenty-two. He is in his fifth year at the Kuibyshev Industrial Institute where he is taking an electrotechnical course. He likes the work he has chosen but this year of college before he gets his engineering diploma seems to be dragging.

He has any number of job choices but he has pretty much made up his mind to work at one of the Volga hydroelectric power plants after he graduates. He comes from the Volga region where several stations have recently been completed and more are under construction. He hasn't yet decided which one he wants to work at.

One definition of a student is: a person who never has enough time for all the things he wants to do. Besides lectures, classes and laboratory work, there is outside reading to be done. Oleg does considerable reading in his own field and in general literature. His favorite Russian writers are Tolstoy, Gorky and Sholokhov. Among the Americans he likes Mark Twain and Hemingway.

He is editor and staff artist for the student satiric magazine called *The Fillip*, and admires Picasso. Some of his friends think Picasso's work too abstract, and there are frequent arguments at the student club on the subject with Oleg holding forth. He is something of an authority on Picasso by virtue of a collection he has made of reproductions of the artist's paintings and a film on Picasso's work he saw in Czechoslovakia last summer on a vacation trip.

There are 97 men and 73 women in Oleg's class and a good deal of social life centers in the student club dances and get-togethers.

Oleg lives at home. His father is dead and he devotes part of his day to helping his mother keep house and prepare meals. He isn't a bad cook in his own right. When he doesn't eat at home, a good meal is available at the Institute restaurant at a very moderate price.

Oleg, like other students in the country, pays no tuition fees. Since he is making satisfactory progress in his classes, he gets a government stipend of 480 rubles a month.

Last fall Oleg, together with other Institute students, went out to Kazakhstan to help get in the harvest. What he found even more rewarding than the extra money he made was the rich experience of living and working with other young people from distant parts of the country.

GEOBOTANIST

Natasha Korolyova

By Semyon Sidorov

NATASHA KOROLYOVA is a member of one of the many scientific groups—geologists, botanists, meteorologists—a young woman in what might be called the "restless" professions who are on expeditions to places in the far corners of the world. Natasha is a geobotanist and is now working in Yakutia. Her work is absorbing but it demands great patience, energy and even sacrifice. For weeks and months sometimes Natasha is separated from her husband Yura by thousands of miles.

These are notes from Natasha's diary:

"And so my expedition has sent me to the Middle Kolyma region of the Yakutian Republic where I am to survey pasture for reindeer and horses on four large collective farms. I am to define the borders of these big pastures and check the kind and quality of feed they grow. I shall have to map 500,000 acres and to do this I shall be traveling some 400 miles. I am responsible for seeing that each collective farm gets pasture of quality and size required for the kind and number of head of stock it has.

"I can't stop marveling at the hugeness of this region beyond the Arctic Circle. It covers 1,158,000 square miles. We do our traveling by sledge and try to take advantage of every hour of good weather.

"This last trip out from the base took a month. There were four of us—Yura, our interpreter Kim, the driver and I. The liveliest of us was Kim who had just come from Yakutsk and gave us the latest news: The National Theater was rehearsing for *Romeo and Juliet*. Big news coming from Yakutsk considering that in the old days the Yakutians didn't even have a written language of their own. To underline the fact Kim told us that 1.200 Yakutians had just finished the first course of the university.

"Our sledges bumped over jagged rocks, doing terrible things to our backs and legs. We kept bouncing to the right and left, hardly managing to keep our heads and faces away from overhanging branches. The snow was dazzling and our eyes ached. My dark glasses came in very handy here.

"After days of this traveling, or weeks—you lose sense of time on a trip like this—we came to a huge stretch of brilliant ice, the river broadening near the estuary. It was difficult riding. We had to kick at the ice while sitting on the loaded sledges to help the reindeer keep moving. The banks and islands were covered with trees shining with diamond hoarfrost, and I felt as if we were flying over Swan Lake ballet scenery. The ice in spots was covered with water—a most unpleasant and dangerous thing for us then. In spite of the bitter cold, we got wet with perspiration and got our fur boots soaked as well.

"There was one day we could make only four and a half miles. Our destination was twice that distance from us. Suddenly we saw a small tent on the steep shore of one of the islands.

"It belonged to deer herders—Semyon Zabolotsky and his wife Maria. They were heaven-sent because it was getting dark and we were exhausted. The couple couldn't speak a word of Russian but with their hospitality we made out.

"The first thing to do was to clean up and wash. Our bathhouse was our tent. Clean and happy we took our places around the "table"—a big tin box covered with canvas.

"During the meal, after the warm exchange of greetings, there was lively talk in the Evenki, Yakutian and Russian languages: Semyon Zabolotsky was a Yakutian, his wife Maria and grandmother Agafia, Evenkis. Kim nearly lost his head, hardly able to translate one language into the other fast enough. He was constantly harassed with the demand: 'What did he say?'

"Then came tea and cookies, and pastry which had been saved for a special occasion. We were all very pleased. But the best of it was the amateur concert that followed.

"The first to volunteer was grandmother Agafia. She sang a song that went smoothly enough, the rhythm being tapped off very regularly as though it were a song that had been made up long ago. Actually, she made it up on the spot. Then came Zabolotsky's turn by popular demand. He set another very even and rather unchanging song going, but this time a Yakutian melody. His song, like grandmother's, was improvised at that very moment, but he went on and on hardly catching his breath, never hesitating.

"Then we, the members of the expedition—Yura, Kim and I—sang some Russian songs.

"We returned to the base of our expedition after making many surveys and collecting plants for study.

"The Polar night has set in and the wolves won't let us sleep. One night they seemed to be howling right alongside of our tent. It was the usual 'serenade.'

"We see the northern lights very often. They're different here than in the tundra, but no less splendid.

"I am preparing for a long trek and a life in tents with plenty of mosquitos around. What if my relatives are in Moscow and my husband, Yura, at the other end of Yakutia! I'm sure he thinks of me no matter where he is!

"There are some people who would like to commiserate with me for the profession I've chosen; they actually pity me. But they don't have to. There is nothing I can think of that I'd rather be.

"Yura and I have our 'own' star—Venus. When we are separated we look at it and think of each other. In his last letter Yura asked me if I keep looking at it. But how can I? We haven't any stars at all just now, because it is day all the time. What is a girl to do?"

Continued on next page

SHOE WORKER

Valeri Piskaryov

By Elena Doroshinskaya

VALERI PISKARYOV is a press operator in the Skorokhod Shoe Factory in Leningrad. He is the seventh shoemaker in his family, the first was his grandfather. Valeri hadn't intended to go into the trade. He had gone through secondary school and had taken college entrance examinations for the Leningrad Polytechnical Institute. The examinations are competitive, with places open for only 1,900 in the entering class. Twice as many took the exam, and unfortunately Valeri's marks were not high enough.

He could have gone into one of a dozen different trades. "Help Wanted" signs are plastered all over Leningrad. But talk in the family has been about shoes ever since he can remember, so that he went to work as an apprentice at the Skorokhod factory, the same one his grandfather had worked in.

It didn't take him long to learn his way around the huge shoe factory with its complexities of automatic tools. Inside of a month he was working a press independently, punching cardboard parts for shoes. He felt that he had the job well in hand and wanted to get on to work with leather. But the foreman thought he needed more training. Work with leather, he told Valeri, needed much more skill than working with cardboard.

Valeri now spends a good deal of time after work in the factory laboratory learning how to cut leather. He is making quick progress there and on his own job and has been getting bonuses for economizing on material.

Valeri is eighteen and like most teen-agers has an abundance of energy and a vast curiosity about things mechanical. He has just gotten through making up his own tape recorder. His mother has a notion—very likely it's so—that by the time Valeri had bought the parts, tools and incidental items, it had cost more than a bought tape recorder would have. But Valeri is convinced that his home recorder has a superior tone. Be that as it may.

Alongside that, he goes in for photography in a big way. Ever since he got his camera as a graduation gift, he has been taking pictures of anyone he can persuade to stand still long enough and spending hours in his improvised dark room—Valeri won his first public recognition when a group of photos of an overnight hike that he and some of the other young people took was displayed at the factory.

Hiking has long been one of Valeri's passions and he has managed to infect quite a number of other young people with his own enthusiasm. The factory sports council provides tents, rucksacks and cooking equipment and on Saturdays the boys take the train to a spot thirty miles from Leningrad and hike through the woods. The picture display was of a hike they took to the celebrated Korabelnaya Grove, woods planted, so the story goes, by Peter the Great way back in the early 18th century. Valeri is now on his latest enthusiasm, sailing on the Gulf of Finland.

Like most of the young people in the Skorokhod factory, Valeri goes in for sports. He inclines to volleyball which, incidentally, takes third place in national popularity after soccer and chess. He's not too bad a chess player and he rates as a good dancer at the factory balls.

Although Valeri proposes to continue making shoes—he is well on the way to becoming a skilled, high-paid worker—he hasn't given up his ambition to get a college education. He is planning to go ahead with his studies while working, either at the evening division of the Leningrad Institute for Light Industry or through the Industrial Institute correspondence course.

FARM GIRL

Nina Pylnova

By Alexei Grigoryev

NINA PYLNOVA graduated from secondary school two years ago, and she could either have gone on to college or taken a city job. Many of the girls in Timonino village where she lives do one or the other.

But Nina knew what she wanted. She had lived on a collective farm all her life and she liked farming. When she was small she used to tag after her mother to collective farm meetings and listen to talk about seeds, fertilizer, tools. It was all very much part of her life.

At first Nina toyed with the idea of going to work on one of the virgin land projects. Many of her friends had done it and it sounded like a real adventure. But her mother was old now, and she and Nina were very close. She had been both mother and father to the girl since her husband had died when Nina was not even two weeks old. Nina's mother had worked hard on the farm and everybody knew her here. Besides, she had not been well lately, and there could be no question of Nina's taking her along. So, reluctant to leave her mother, Nina decided to start working on the farm.

A few months after Nina had joined the collective farm and had become a full-fledged member, she was appointed leader of a field unit. At first, it was anything but simple. It's one thing to answer for yourself, quite another to be responsible for a group of people on a small job but one on which many other of the farm jobs depended. Nina was only nineteen then.

This kind of situation developed. The farm schedule called for sowing beetroot, but the weather was nasty—no sun, no warm wind. The farm management was getting nervous with time passing and planting not yet started. The very first sunny day Nina and all the other farm people got instructions to start sowing.

But shortly after they got to the fields, Nina started back with her team. One of the members of the farm board yelled after her angrily, "Where do you think you're going, running away from work?"

Nina has been brought up to respect her elders, even testy ones like the farm board member, and she explained politely and patiently that the soil was still frozen and that sowing couldn't be done yet. They would have to wait until it was warmer.

But the older man was edgy by reason of the time lost and he wouldn't have any of it. He told her to go back to work. It was far from an easy thing to stand her ground but Nina did. And when the matter was taken to the farm board, Nina's judgment was upheld and sowing was postponed until the warm winds started blowing from the south. The sowing was late but it was better than having the young shoots freeze on the stalk.

The important thing that Nina learned from this encounter was that she had better learn more about scientific farming. She hadn't been nearly as sure of her judgment as she sounded. She and her teammates, Nadezhda Novikova, Ludmila Agapova and Nina Sorina, stayed up half a night talking it over and all decided to take a correspondence course at the Agricultural Institute in nearby Balashikha, one of the best farm schools in the country.

But there was the boy friend—Volodya. With work during the day and study at night, there wasn't going to be much time for him. Volodya Golikov is a tractor driver at a neighboring machine and tractor station.

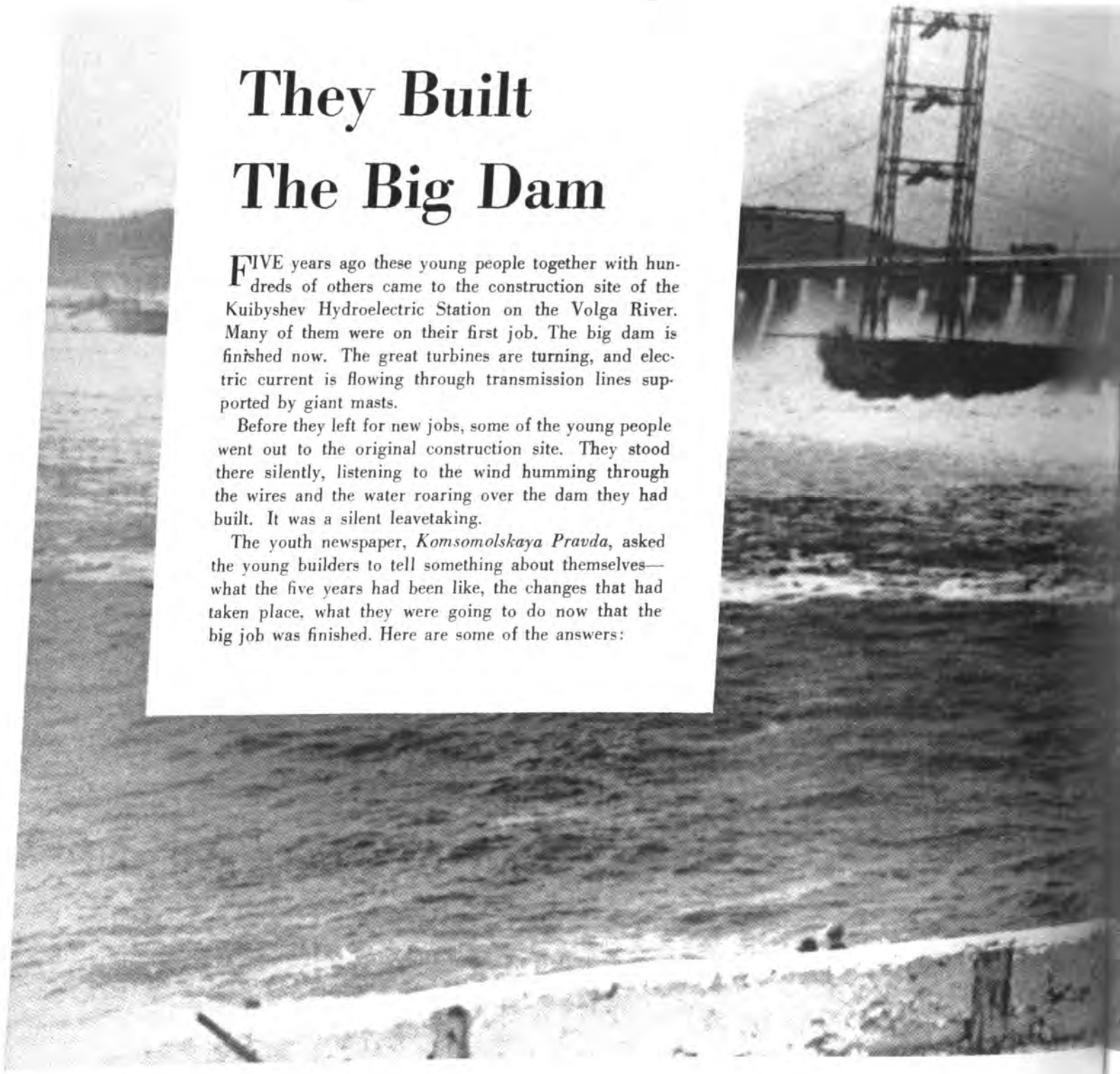
Now everything seems to be working out. There are a good many more hours in a week than people think. And Nina finds that there's time for work and study and Volodya and for the chorus she sings in and even for talk about clothes and hair-dos.

They Built The Big Dam

FIVE years ago these young people together with hundreds of others came to the construction site of the Kuibyshev Hydroelectric Station on the Volga River. Many of them were on their first job. The big dam is finished now. The great turbines are turning, and electric current is flowing through transmission lines supported by giant masts.

Before they left for new jobs, some of the young people went out to the original construction site. They stood there silently, listening to the wind humming through the wires and the water roaring over the dam they had built. It was a silent leavetaking.

The youth newspaper, *Komsomolskaya Pravda*, asked the young builders to tell something about themselves—what the five years had been like, the changes that had taken place, what they were going to do now that the big job was finished. Here are some of the answers:



"We've Been Happy Working Together"

"Changes in my life in these five years? Many of them. The most important one is connected with Tolya Vorontsov. We were married last year.

"I met him on the construction job here. He came out about the same time I did, an engineer. I was having problems then, working and studying at the evening division of the hydro-technical secondary school at the same time.

"It wasn't easy. Half a dozen times I felt it was too much for me and I was ready to give up. But Tolya wouldn't let me. He encouraged me, scolded me, helped me with my books and drawings night after night. We got married when I finally received my diploma as a hydrotechnician.

"The Kuibyshev Hydroelectric Station is finished and our job is almost over now. We're sorry and glad at the same time. Sorry because we'll be leaving the place where we've been very happy, glad because we're going on to a new construction job together."

—Maria Vorontsova

"Wherever Our Next Job Takes Us"

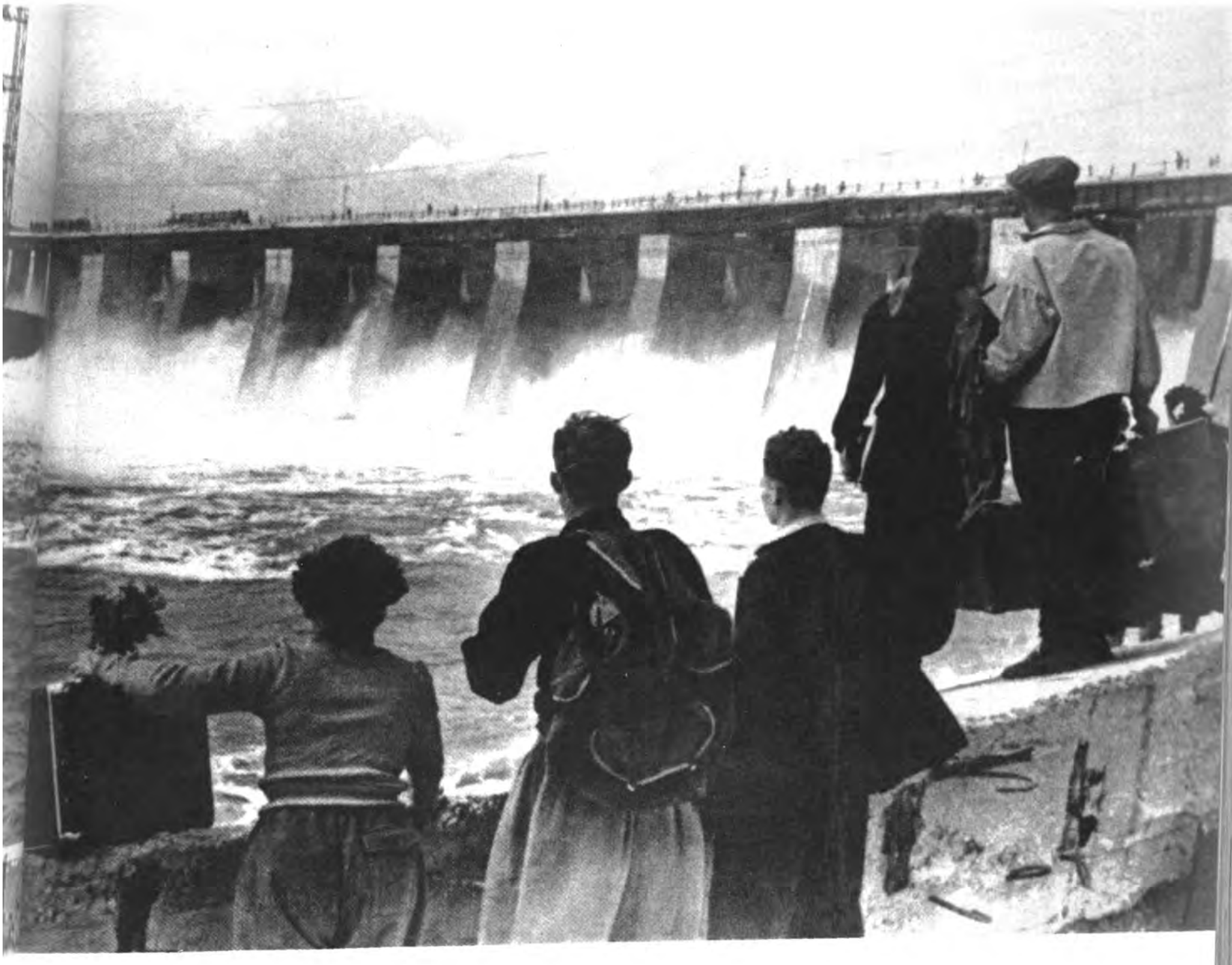
"My husband and I both graduated from the institute, married and took our first job on the Volga-Don construction together. We had no sooner settled down when the job was finished and we came here.

"These five years seem to have flown by so fast that it's hard to note the changes—there have been so many of them. Now our house stands in the center of a big new city. From our windows we can hear the roar of the Volga as it spills over the dam. It doesn't seem like five years ago that we used to go walking on the Volga banks to gather flowers.

"But I suppose it must be. Yesterday I noticed a gray hair on my husband's temple. And then there are our two boys growing up. Dmitri, the first, was born during our first job on the Volga-Don canal. Our little Sergei was born here in Zhiguli, on our second. And we're expecting a third—a girl we hope this time.

"Where will she be born? On the Yenisei, the Angara, the Amur? It's hard to say right now. Wherever our next job takes us."

—Alla Borisenko



"I Learned More Than A Language"

"When I came here to work five years ago, I knew only a few Russian words. I spoke only Lettish. I stood there in the superintendent's office the first day I came and tried to explain that I wanted to work but that I had no trade or skill. Now I don't have any difficulty with the Russian language. But I learned much more than the language in these five years. I studied in the evening division of the institute and soon I'll be through with all the work for my engineering diploma. I have already put in my application for an engineering job on the big Bratsk Hydroelectric Station going up on the Angara River."

—*Austria Balode*

"A Kind Of Rebirth"

"A few weeks before I graduated, the editors of the college wall newspaper asked me, 'What do you think you will be doing next year?' I answered the question by handing them a sketch I made on the spot—me at the North Pole in fur boots, with one foot resting an a polar bear.

"Came next year. It found me not at the Pole but in the streets of Yalta. I had a navigator's diploma in my pocket and a doctor's certificate in my hands which read 'due to poor eyesight, the bearer will be unable to work at his profession.'

"So much for my dreams. . . .

"How I came to work on this construction job? It's something I'll be eternally grateful to my friend Ilya Orlov for. When he learned what had happened, he wrote me, 'Perk up and come out here. We'll work it out. You can get started here on a job where your eyesight won't be a handicap.'

"I came out. Ilya took care of me like a brother. I began working as an apprentice at the power station and became an electrician. It was a new life for me. There was too much going on here to worry for long about the past. It was as if I began to glow again as the big dam grew, a kind of rebirth.

"I look at these mighty waters rushing over these great concrete walls and I think of it as the energy of the thousands of workers who helped build it—my share is in it too. It's something to be proud of."

—*Victor Razumov*

MULTI-BUCKET EXCAVATOR MAKES SHORT WORK OF TOUGH DIGGING AND SOON HAS A DRAINAGE CANAL COMPLETED TO RECLAIM ACRES OF RICH FARMLAND FOR CROPS.

Making Farms in Deserts, Orchards in Swamps

By Sergei Petrov, Hydraulic Engineer

WATER is a blessing, the people who live in the Central Asian deserts and the steppelands of Kazakhstan and the southern Ukraine used to say. In southeast Russia, folklore had it that to dream about water was an omen of good fortune.

In Meshchera, a great marsh in the heart of the central Russian plain, to dream about water is to expect bad luck. "Water is a curse," the old saying goes in Byelorussia, Lithuania, Latvia and the Kolkhida lowland in the Caucasus.

Nature has portioned out water with an erratic hand in the two-continent Soviet Union with its heterogeneous climatic zones. On the eastern Black Sea coast around Batumi, yearly rainfall is almost 100 inches; in Byelorussia it is 20 inches, in the plains east of the Volga River it is 10 inches and in the lower reaches of the Amu-Darya River near the Aral Sea it falls to a low 3 inches a year. Compare temperate United States with its range from 67 annual inches for Alabama, the wettest state, to 7 inches for Arizona, the driest.

Ever since man began to grow his food, he has been trying to correct the inequities of nature's water distribution by draining marshlands on the one hand and irrigating deserts on the other.

In pre-revolutionary Russia this redistribution was done on an insignificant scale. Nature's inequities were further aggravated by the fact that the very limited supply of water in the dry south was used largely by the wealthier farmers. In those districts which now form part of the Turkmenian Republic, a not inconsiderable part of the population was deprived of water for irrigation. In keeping with ancient custom, only married men had water rights. Since water was imperative for farming, this was equivalent to depriving the peasant of land too. And since the young poor peasant owned neither land nor water, he had no way of saving bride-money for marrying.

After the Revolution, the century-old irrigation systems in these primitive regions were modernized and expanded. Instead of the old method which merely flooded the fields, mechanical irrigation directed the water along furrows. In place of low capacity canal networks with ancient devices to regulate flow, various modern mechanisms were built.

Later, when farmers joined their small private land holdings into large collective farms, a new and more efficient type of irrigation was introduced, one using temporary canals. In this system only the major canals are permanent, the large crisscrossing network of small ditches are cut by big machines before the irrigation season. At the end of the season the ditches are plowed up again. This makes for better irrigation over a wider area with minimum use of labor power and maximum use of machine power.

New Water Sources

With more water available the cotton and fruit growers of these once dry southern regions began to increase the land under cultivation. This required new and additional water sources. The waters of many rivers were drawn off completely, down to dry bed, during the irrigation season. Rivers like the Tejden and Murgab in Turkmenia were directed through a great interlacing network of irrigation ditches to cotton fields miles and miles from the river sources. The tributaries of the Syr-Darya River in Uzbekistan were diverted to water the cotton plantations of the Ferghana Valley.

Big dams were built to tap the water for power and irrigation on the Syr-Darya and the Amu-Darya in Central Asia, on the Terek and the Rioni in the Caucasus and the Don and the Dnieper in the south. These major irrigation sources with their canals now stretch for hundreds of miles to water tens of thousands of acres of once bone dry land.

One of the largest in Central Asia is the 200-mile Grand Ferghana Canal that carries the water of the deep Syr-Darya River not only to 440,000 acres of old farmland but also to 300,000 acres of new cotton fields and 134,000 acres of Ferghana Valley land that had lain barren for centuries for lack of water. Hydroelectric stations have been built on the Syr-Darya and its tributaries, and a cascade of power stations stretches along the Chirchik River.

Great areas of the once aptly named Hungry Steppe in Kazakhstan and Uzbekistan have been reclaimed. Year by year the Kara-Kum Canal that carries water from the Amu-Darya River pushes further into desert land. The Vakhsh Main Canal now waters thousands of spreading acres of orchards and melon fields, once desert, in the Tajik Republic.

Where growers thought .28 to .32 tons per acre of raw cotton a good crop not so many years ago, they now grow 1.6 to 2.4 tons. The average cotton yield is better than a ton an acre. Comparable yields are true for rice plantations, orchards and vineyards.

Extensive irrigation systems have likewise been built in Kazakhstan, the Caucasus, southern Ukraine and the Crimea. The completion of the Mingechaur hydraulic project on the Kura River provided Azerbaijan with a reservoir to store enough water to irrigate some three and a half million acres. In southern Ukraine work in under way on an irrigation system channeled from the new Kakhovka Reservoir on the Dnieper River and the huge Crimean Canal now under construction. There is much being done also to irrigate land on the western shore of the Caspian Sea, in the steppes beyond the Volga and elsewhere.

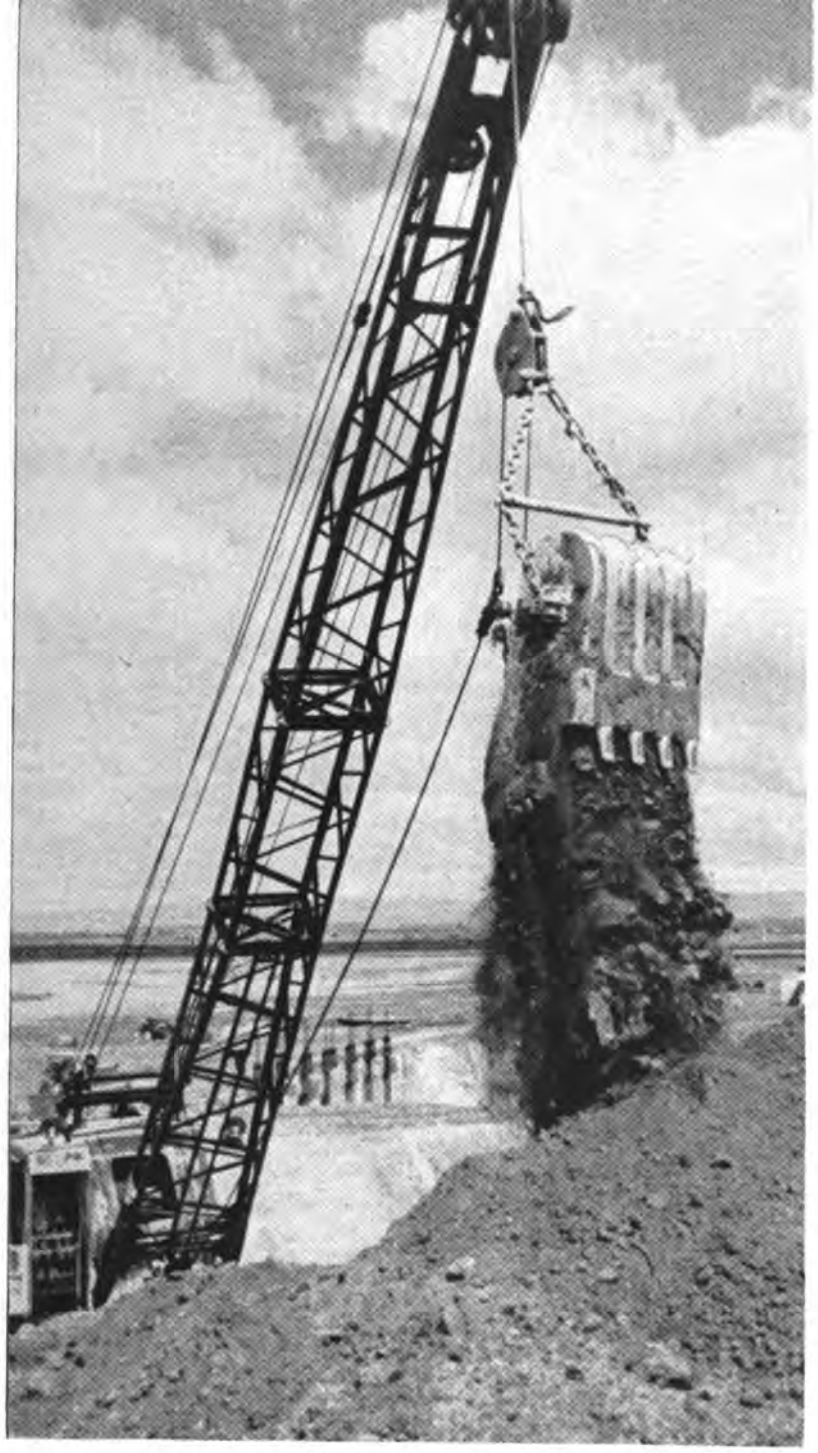
The sweep of this irrigation work is strikingly evident when one looks at progress in the individual republics. In the Uzbek Republic alone more than 800 irrigation systems have been built with a total canal length of 100,000 miles. In the small Armenian Republic whose

Continued on next page

SPECIAL MACHINE THAT SHAPES AND CLEARS CHANNELS EQUALS WORK OF 500 MEN.

THIS FARM CANAL WATER REPRESENTS REAL LIFEBLOOD FOR TAJIKISTAN CROPS.

FLOW GATES DIVERT WATER ACCORDING TO THE REQUIREMENTS OF THIRSTY LAND.



EXCAVATOR AT WORK ON A NEW IRRIGATION CANAL IN THE SOUTHERN UKRAINE.

Making Farms and Orchards *Continued*

total area is less than 12,000 square miles, 340 miles of main-line canals and hundreds of reservoirs and pumping stations have been built, sufficient to irrigate 520,000 acres.

Swampland Reclaimed

Frequently, within the boundaries of a comparatively small region, there will be work going on simultaneously to get more water to one spot and to drain water from another. This is true in the Georgian Republic with its dry central and eastern regions and its wet Black Sea coast. Sown land that is irrigated totals 850,000 acres, drained land totals 250,000 acres.

The lowland includes Kolkhida—ancient Colchis—a potentially fertile sub-tropical region but until recently inaccessible by reason of its malarial breeding marshlands. Many thousands of acres have been drained and in the highlands from which torrents of water rush down to the Black Sea below, reservoirs have been built.

The Kolkhida lowland had been raised above river level by using

EARTH-LEVELING MACHINE USED TO PREPARE DRY STEPPELANDS FOR NEW CROPS.

FIRST WATERING OF NEW COTTON FIELDS ON COLLECTIVE FARM IN FERGHANA VALLEY, UZBEKISTAN, REVITALIZES LAND THAT HAD BEEN UNPRODUCTIVE FOR CENTURIES.

THIS GIANT EARTH MOVER FOR CANAL WORK HAS A PLOW 10 FEET WIDE, A CAPACITY OF 1,960 CUBIC YARDS PER HOUR AND DUMPS ITS LOADS NEARLY 150 FEET AWAY.

the river itself to build up land areas. At those times of the year when the Rioni and other rivers along the Black Sea coast are full of silt, their waters are channeled to swampy areas. When the dykes are opened, the water drains off and leaves a layer of silt. This process, repeated year after year, has built up heavy deposits of top soil over great areas of the Kolkhida lowland. These made lands now grow citrus fruits and tea. Malaria has been eliminated as a mass disease and modern villages, their streets lined with eucalyptus trees, now dot this prosperous land which was stagnant disease breeding swamp no longer than a generation ago. New Kolkhida is one of the richest regions of the Georgian Republic.

Great regions in the central part of Russia, on the plains of Byelorussia, Lithuania and Estonia and in the floodlands of the Volga, Dnieper and Don Rivers were pestilential swamp and bog. From the distance they gave the illusion of velvety meadows, dotted with lakes and fringed by forest. But they had the silence of abandoned and treacherous places. For some time now men and machines have been draining the swamps, dredging the muddy rivers, clearing the land, cutting drainage canals and laying underground systems.

In Polesye, a region in southern Byelorussia and northern Ukraine, especially intensive draining has been under way. This is rich land, millions of acres of it, in the basin of the Pripyat, a tributary of the Dnieper. Wheat, sugar beet, hemp, flax, vegetables, potatoes and rich fodder for livestock feeding are now grown on the drained lands.

On the Lyuban Collective Farm in Byelorussia, one example, the greater part of the plowland is reclaimed swamp and peat-bog. Once barren land, it now provides large yields. The Nakotne Collective Farm in Lithuania, another example, more than doubled its yield of cereals, sugar beet and vegetables by draining reclaimed land. So too for collective farms in Latvia and Estonia, in West Siberia, North Russia and other parts of the country.

Mechanical Diggers

The labor on these huge projects is done by machines, many of them of new design. A unique machine to grade the slopes of irrigation canals was built by Ukrainian engineers. It does the labor of more than five hundred pick-and-shovel men. Giant walking excavators of Soviet design and make are at work in the Central Asian deserts, in the steppe-lands of the Don and the Caucasus lowlands. A suction dredge that digs 35,000 cubic feet an hour floats through the desert on water for which the machine itself has cut the channel.

For the big construction jobs Soviet industry turns out forty-ton dump trucks, automatic concrete makers, grader-elevators, scrapers, multi-bucket excavators and ditchdiggers. Shrub-cutters and stump-pullers are made for work in swamp woodlands. Marsh plows will cut through eight-inch stumps without any difficulty.

New machines are designed with the peculiarities of special regions in mind. Land in the Baltic region, for example, is strewn with granite boulders, leftovers of the last ice age. These boulders complicate stump clearing and plowing. Machine operators and Estonian Academy of Sciences people, working together, designed a plow that "sees" the boulders underground and by-passes them. These plows are now fairly standard equipment in Estonia.

Nearly 90 per cent of drainage and irrigation work in the country is mechanized, with some jobs completely mechanized. As a consequence, these immense projects that fructify hundreds of millions of once desolate and unproductive acres are carried through with almost incredible speed to change the face of the land. ■

DRAINAGE TILE IS BEING LAID UNDERGROUND IN SWAMPY LITHUANIAN FIELDS.

FINE QUALITY GEORGIAN TEA IS BEING HARVESTED ON FORMER SWAMPLAND.

PREPARING SOIL WITH TRACTORS IN A DRAINED SWAMP AREA IN BYELORUSSIA.

Soviet Union Pavilion Set for Brussels Fair

An artist's sketch of the USSR Pavilion for the Brussels Fair. Theater at the left seats 1,000.

By **Alexander Nikiforov,** Director, Soviet Exhibit

THE SOVIET UNION has accepted an invitation to participate in the World Fair to open in Brussels on April 17, 1958. The fifty-odd countries participating in this first postwar fair will exhibit a rounded picture of the momentous scientific, technological and cultural achievements of today and the promise they offer for a richer and more peaceful tomorrow. This is the grand theme of the Fair, one which the Soviet Union endorses most heartily.

In the twenty years since the Paris World Fair of 1937 and the New York World Fair in 1939—the USSR participated in both—Soviet growth in industry has been paralleled by growth in science, education, culture—in every aspect of human endeavor. The overall growth may be judged by the Soviet Union's share of present world industrial production—twenty per cent.

The USSR Pavilion

The Soviet Union will have its own pavilion at the Brussels Fair—it has already been designed—and will have additional exhibits at the various international pavilions—the "Palace of Science," the "Palace of Art," the "Atomium." It will also participate in theater, music and art festivals, the sport competitions and the scientific congresses.

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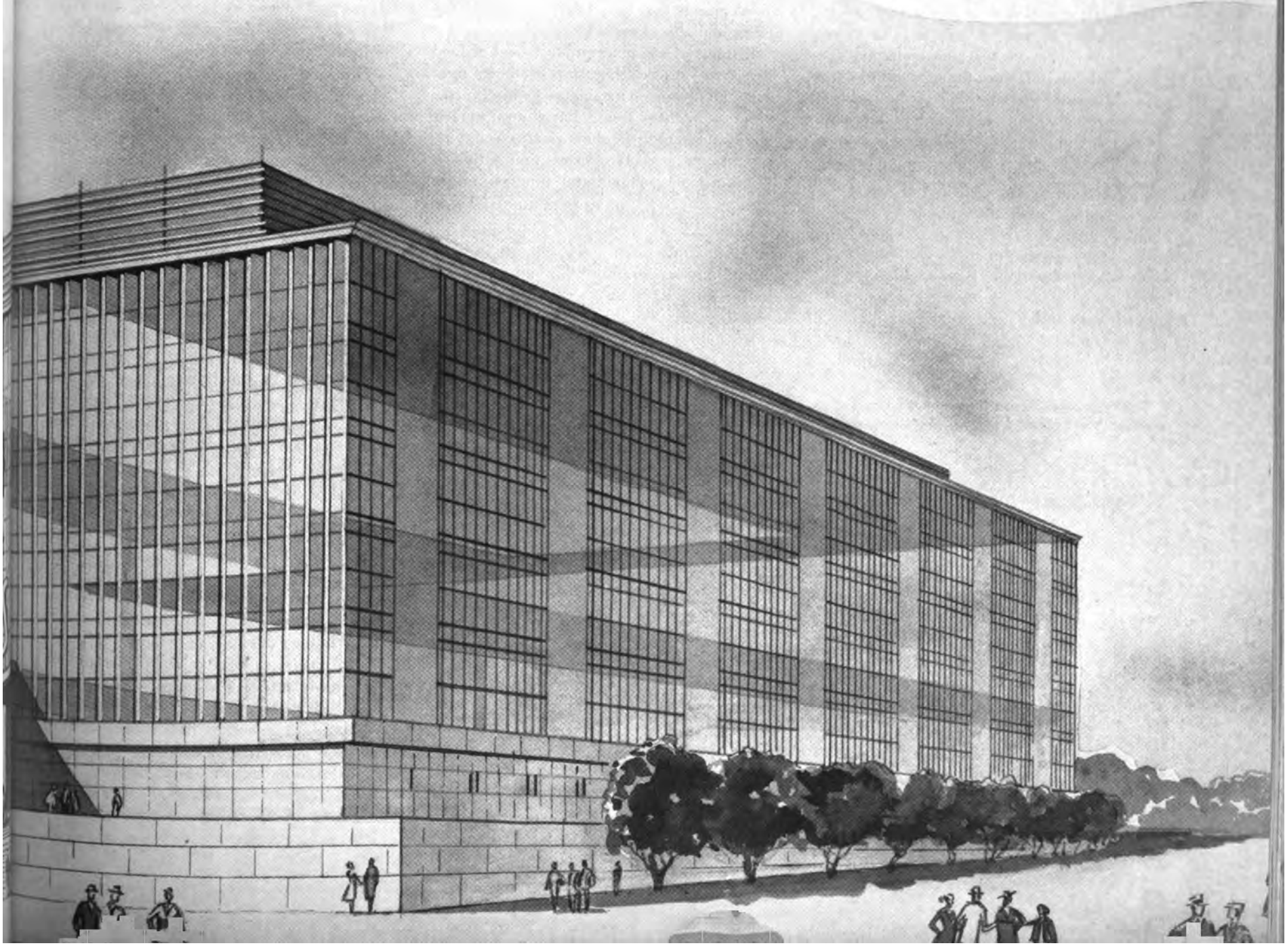
Director Alexander Nikiforov (left) discusses plans for the fair with Artist Boris Rodionov, while they carefully examine one of the many minutely designed scale models of a portion of the large Soviet exhibit.



Soviet Union Pavilion Set for Brussels Fair *Continued*

The Soviet pavilion is to be 490 feet long. 230 feet wide and 72 feet high, with floor space of 230,000 square feet. The open-air exhibit area will provide another 20,000 square feet. The pavilion will be shaded by silver firs, birches and other trees native to the country's forests.

It will be built largely of glass with polished aluminum girders and decorative columns, and designed in permanent units that can be taken apart, a novel feature from the architectural and engineering point of view.

A wide stairway will lead into the spacious first hall of the pavilion which will picture the social and political character of the Soviet Union. The guiding theme here will be peace and international cooperation through cultural exchange and international trade.

The next hall, the largest, will display the raw material resources of the country and its heavy industry. The many hundreds of varied exhibits will show how the great coal and metal bases were organized in the Urals, Siberia, Kazakhstan and other parts of the country; the exploitation of the new oil regions in the east, and the building of the newer industries—aviation, machine tools, automobile. Exhibits will show the progress of automation and the ways by which it has reduced working hours and raised living standards. This hall will also show developments in power engineering, telemechanics, electronics and the peaceful uses of atomic energy.

In an open area near the pavilion there will be a demonstration of an oil well drilling with turbodrills and electric drills of the most modern design. Licenses to make certain of these new drills have been sold by the Soviet Union to the United States and the German Federal Republic.

Here too will be demonstrated how the young miner Nikolai Tikhonov sank a mine shaft at the unprecedented rate of 790.8 feet per month in 1957 at a Ukraine mine, a feat which was subsequently duplicated elsewhere. In the Tula coal basin a team led by Nikolai Semyonov tunneled 4,280 feet of drift in one month.

A model will demonstrate descent into a mine to show the use of coal combines and safety devices. The entire cycle of coal extraction by machines and mechanisms, from hewing to loading, will be shown.

The agricultural displays will show the radical changes in farm operation—the great increase in sown acreage, the cultivation of virgin soil, the new irrigation and drainage developments that have provided larger crop yields and altered farm life.

Exhibits of consumer products and of food industries—textile, shoe, fur, clothing, meat and dairy, wine, vitamins—will display the progress in these areas. Panoramas, models and photographs will show visitors Soviet resorts, sports, and other leisure time activities.

Educational and cultural progress in the Soviet Union will be pictured with displays of industrial and scientific training and teaching of the humanities.

A special exhibit will show scientific research work, the ties of the Academy of Sciences with industry, and the major achievements of Soviet science and engineering in energetics, automation, telemechanics, and industrial processes.

A large display will be devoted to literature and art. Fair visitors will see Soviet ballet, opera, drama, circus, and puppet theaters. Works of Soviet composers will be played.

An exhibit will show how new villages and towns are born and old ones rebuilt and modernized. Another will demonstrate socialized medicine in practice, its emphasis on prevention and the sharp reduction in the mortality rate and the increase in longevity which results.

The final display in the pavilion will have the theme "Visit the Soviet Union" with appropriate material on touring.

Adjacent to the pavilion will be a movie theater and concert hall to accommodate 1,000 and a large restaurant which will serve national foods and wines.

Besides the displays in the Soviet pavilion proper, there will be additional exhibits in the international pavilions.

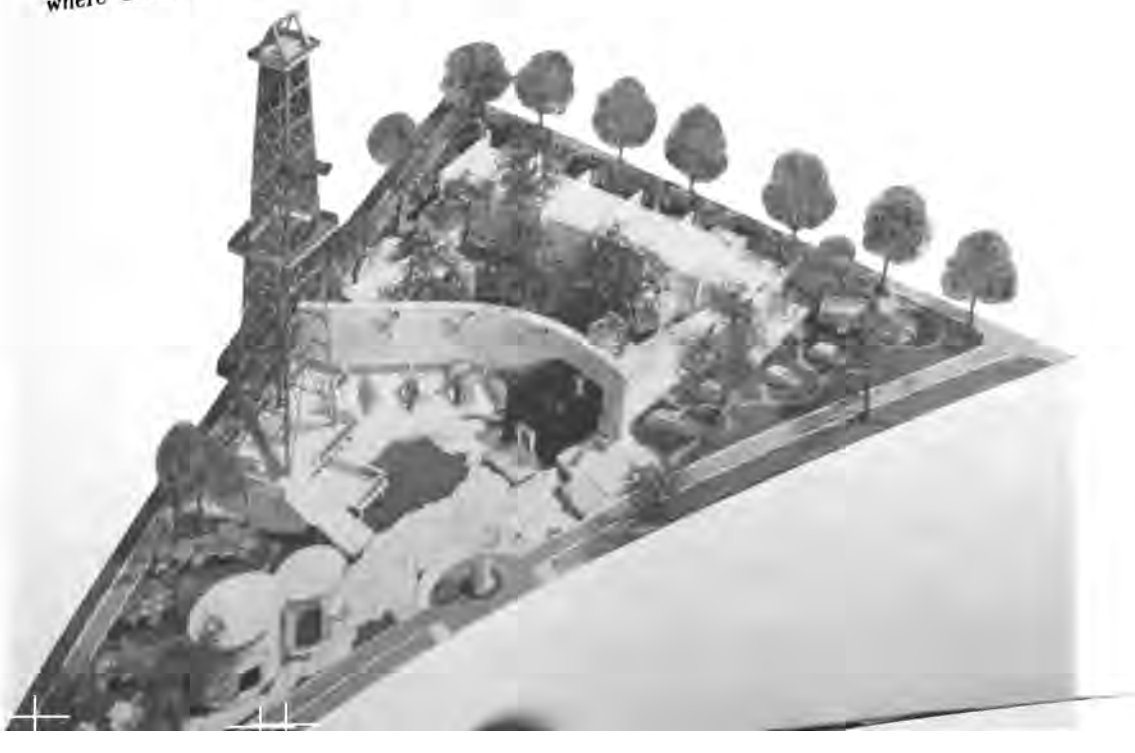
In the "Palace of Science," Soviet scientists will demonstrate the results of their research in twenty of the most important current scientific problems, among them studies in chain reactions, thermonuclear reactions and the physical properties of substances. The work of Nikolai Semenov, Nobel Prize winner, in chain reactions will be demonstrated, as well as that of Alexander Nesmeyanov in organic chemistry, of Alexander Vinogradov in geochemistry and of Andrei Kursanov in biology.

Soviet painting and sculpture of the 20th century will be on exhibit at the "Palace of Arts" from April until the end of July. For August a new show will be mounted around the theme "Man and Art."

In the "Atomium" Pavilion, the USSR will occupy one of the nine booths. Here Soviet physicists will demonstrate the solution of important technical problems in connection with the peaceful uses of atomic energy. Developments in industrial atomics, and the world's first atomic power station will be featured in the exhibit.

The Soviet Union has been assigned three "Days of Nations"—August 11th, 12th and 13th—for presentation of radio and telebroadcasts, films, concerts, dramatics and sport shows. The guiding theme here, as in all other of its exhibits and shows at this World Fair, will be the related nature of all art and knowledge, the need for greater mutual understanding among peoples. ■

This table model shows the grounds near pavilion where Soviet turbodrills will be demonstrated.



THE TU-114, A FOUR-ENGINED TURBOPROP, CAN FLY NON-STOP FROM MOSCOW TO NEW YORK IN 10-12 HOURS.

More New AIRCRAFT

SOVIET aircraft designers have kept world aviation buzzing with speculation about what they'll come up with next. This time they have a turboprop commercial airliner and a helicopter that's a veritable flying boxcar.

TU-114 Airliner

The sleek turboprop called the TU-114 was produced by the designing office of Andrei Tupolev. This same office was responsible for the two-engined TU-104 turbojet, its modified version, the TU-104A, and the TU-110, a four-engined turbojet, all three of which created such a stir in aviation circles.

In setting about to produce the TU-114, the designers sought to build an airliner with greater speed, increased carrying capacity and an even longer range of flight than the three previous creations. It was also directed to make the new plane's operating costs so low that air travel would be no costlier than first-class rail tickets without considering the obviously important savings in time and convenience.

The TU-114 meets the specifications outlined. It is a passenger ship powered by four smooth turboprop engines, and will carry passengers, mail and freight on intermediate and long-distance flights at speeds to make all present timetables obsolete.

On its intermediate flights the plane might operate from such points as Moscow to the Crimea or the equally famed vacation resorts of the Caucasian region. For long distance runs one might expect to find it operating between the Soviet capital and such points as New Delhi, Vladivostok, Peking, or perhaps have its manifest list the destination as Washington or New York.

The TU-114 will be able to take off from Moscow, fly over most of Europe, race across the North Atlantic and swoop down on a runway in the New York area in a matter of from ten to twelve hours non-stop.

This performance coupled with the exceptional capacity, convenience and comfort of the new ship will make it a very popular aircraft.

Completely pressurized cabins assure maximum comfort for all aboard even at its cruising altitudes of 30,000 to 40,000 feet. All cabins are air-conditioned.

The TU-114 is a multi-purpose craft with versatile characteristics. It can be utilized for at least three commercial purposes:

1) As an intermediate distance airliner it can transport 170 paying passengers with all the conveniences and facilities demanded by today's travelers.

2) As a long-distance cruiser it may be modified to carry 120, with the additional space devoted to de luxe facilities required for lengthier hauls.

3) As a carrier for relatively short-range journeys, the TU-114 can be set up to handle 220 passengers with even greater economies and still retain its unmatched speed and other features.

Suppose we take a quick glance at the TU-114 as set up for 170 passengers. Forward is the usual pilot's compartment with adequate space for all crew members. Back of this is a cabin for 41 passengers. The comfortably upholstered seats are arranged three abreast on each side of the center aisle.

Next comes a section arranged in the same manner but with every other row facing the rear and tables installed between each set of seats. This is the restaurant and here passengers may relax while dining on piping hot food sent from the two-chef kitchen on the ship's lower deck by twin electric elevators.

To the rear of the diner comes another passenger section for 54 persons, and back of it are four cabins. Each of the cabins is provided with seating for four in daylight flights and may be converted into full berths to sleep three at night. Another compartment for three persons is situated in the extreme aft of the plane. The lower deck holds freight and luggage and the kitchen.

The ship is manned by a crew of eight: two pilots, navigator, engineer, radio officer and three stewardesses on ordinary runs.

MI-6 Helicopter

The world's most powerful helicopter has recently made its bow as the latest aviation creation from the designing office of Mikhail Mil.

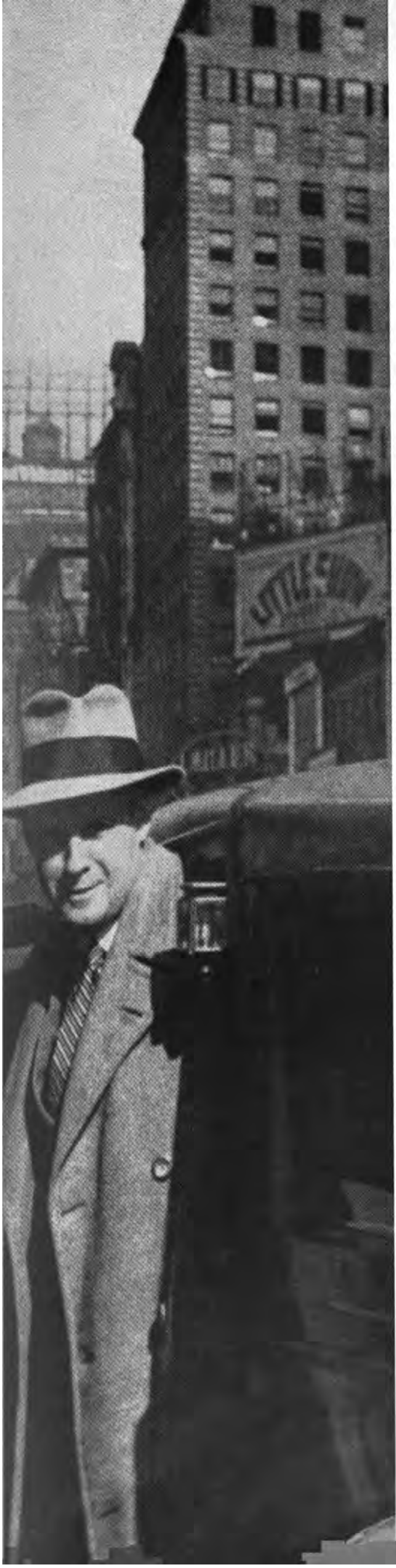
The plane is the MI-6, and its mammoth body easily accommodates whole bulldozers and huge tractors. It would even have room for two average size passenger cars or three of the smaller versions. All could be put aboard under their own power through the use of the helicopter's folding ramp.

Designed to carry some 70 to 80 passengers, the MI-6 was test flown with a payload of more than 24,000 pounds and easily lifted this cargo to the world record height of 7,874 feet.

The MI-6 has two turboprop engines and its main propeller has five blades. It will be used to deliver freight and supplies of all sorts to remote villages, to prospectors in the tundra and distant steppe areas, to explorers and scientists in the frozen arctic, or to construction sites far beyond established highways.

One of the special safety features of the helicopter is its ability to continue in flight with only one motor in operation. Another is its characteristic of being able to glide to a landing without any power whatever as the "whirly-bird's" great propellers ease it to the ground. ■

THIS GIANT OF A HELICOPTER EASILY LIFTED A PAYLOAD OF 24,000 POUNDS TO A HEIGHT OF 7,874 FEET.



Sergei EISENSTEIN:

Talented Movie-Maker

The cinema has produced many directors with great talent, but Sergei Eisenstein was one of the most daringly creative, one of the most wide-ranging of the world's movie-makers.

He served in the Red Army in 1918. In the early twenties he worked in the theater and in mass pageants and then moved into motion pictures. With the distinguished cameraman Eduard Tissé, he made the great silent films, *The Battleship Potemkin* (1925), and *Ten Days that Shook the World* (1928). Among his sound films were the memorable *Thunder over Mexico* (1932), *Alexander Nevsky* (1938), and *Ivan the Terrible* (1944-6). The death of Eisenstein in February 1948, at the age of 50, was an irreparable loss for Soviet films and for world art.

Grigori Kozintsev, Soviet film director, sketches a portrait of Sergei Eisenstein, his friend.

By Grigori Kozintsev

PAINTED on his ceiling are concentric circles in black and bright orange, like oversized targets in a shooting gallery. Why decorations on a ceiling? Why not? They startle but compel the eye, are strangely suited to the room and its owner, Sergei Eisenstein. He is a very young man still, twenty-two or three, so little known that he is not even "promising" yet, as they say in art circles. He strides restlessly about the room, his shock of hair standing on end above a bulging forehead, talking about his plans in a curiously cracking voice.

He walks over to a corner and lifts the cover of a huge chest. Such chests, bound with strap iron and trimmed with worn leather, are familiar furniture in Russian homes at the turn of the century.

But this chest does not store the usual fur cloaks and coats besprinkled with camphor. It is crammed with papers from top to bottom—color sketches, notes on torn copybook pages, clipped magazine articles heavily underlined in black pencil.

These are production projects. Schemes by the trunkload. They all have to do with the theater—direction, stage sets, working scripts, costume designs.

Squatting on the floor, Eisenstein talks of his plans, his ideas for the theater. Incredible ideas. For the production of a George Bernard Shaw play he wants to build a moving escalator in the center of the stage, like those in department stores, and at right and left stage, elevators in which the characters keep moving up and down during the dialogue.

And—pulling out another sketch—this character from a Jack London story, the hero, would be shaped like a cube; this one, the villain, like a ball, everything about him ball-shaped, his head, his nose, his body.

Papers in the hundreds pulled out of the chest—the vivid color, the plastic line of the drawing runs on in a rush of multiform impressions. Drafts—not yet worked up, but brilliantly inventive—insistently demanding to be brought to life on the stage.

A chest packed full of imagination, of fancy, of passion, straining at the worn-out sides until it seems as though the iron straps will give way, snap off.

An overfull chest of magic projections at a time when Eisenstein's artistic life had barely started. When he died ten years ago, the chest was still full, still brimming over. Only a few of these many projects left that magic chest before his life ended. There were such an infinity of things he wanted to do.

But what he did manage to get done was enough to fill a glowing chapter, not in the history of the motion picture alone, but in the history of our contemporary culture.

He was less than fifty when he died. And while the number of pictures he made was not great, his discoveries and original techniques have enriched the medium enormously.

SERGEI EISENSTEIN VISITED THE USA IN THE EARLY THIRTIES. THIS PICTURE WAS TAKEN IN NEW YORK.

A Universal Curiosity

Life is reflected in the work of every artist, but it is not a mirror image. The character of the work depends on the reflecting surface, the make-up of the artist.

Eisenstein was an erudite man, one of the rare people whose range of interest and knowledge embraces the whole world. He spoke several languages and lectured in the universities of many countries.

What was more—he was a unique individual. Singular. That was patent in everything about him, his work, the way he spoke, even the way his house was furnished. The moment you came into a room he lived in, there was no mistaking it as Eisenstein's. Everything carried his imprint. Everywhere, right from the entrance hall, books lay piled, on shelves in a double row, on tables, chairs, everywhere they could be stacked. Books on philosophy, painting, psychology, the theory of humor, history of photography, the circus, cartoons—to list the subject headings alone would make a fair-sized article.

His intellectual curiosity and wide knowledge were mixed in with a passion he had for funny invention, a kind of game which he had been playing ever since childhood. Lamp shades made of wicker baskets hung to cast weird shadows on the wall. A globe cut in half mounted in a huge gold rococo frame. A plaster cast of Pushkin jostles a delicate antique figurine from the Chinese theater. A lithograph by Daumier is neighbor to an old Russian wood carving.

His eyes were wide open to everything. Whether it was Marx or Pushkin or Chinese art or the Novgorod school of architecture, it was none of it academic study. He related it to art, he integrated its pertinent elements into his motion pictures.

He studied Japanese ideographs, analyzed Pushkin's visual imagery, searched the paintings of Surikov and El Greco, looked on at experimentation in physiological laboratories, made friends with people in all walks of life—a living-learning process, all-inclusive.

His art was not frozen, stylized. It was fluid. He rejected old forms, not because he was straining for originality but because he was searching for those new forms that would best express the new content.

He had no use for "star" pictures or pointless spectaculars. He dreamed of screenplays with history as the author and a nation's ships, guns, city streets, the sea and wind as the cast.

He showed that a film could have a larger theme than romance. It could be the struggle of peoples for justice, reflected in the simplest details—a baby carriage rolling down a great Odessa staircase, released from the hand of the child's mother who had just been killed; a pair of broken pince-nez; a candle in the hand of a dead sailor—details that became momentous, universal, unforgettably engraved in the eye and memory of the viewer as *Ten Days that Shook the World*.

His cruiser *Potemkin* steamed full speed across all frontiers, its engines pounding out the beat of the Revolution louder than the cries of the censors. It was a tall mast that flew the mutinying sailor's hand-painted flag high enough for the whole world to see.

THE VERSATILE DIRECTOR (LEFT) WITH AMERICAN PRODUCER JOSEF VON STERNBERG AND MARLENE DIETRICH.

Screening History

Nikolai Gogol once wrote: "There is the stage and the stage—two different stages calling forth two different kinds of enthusiasms from audiences. There is the enthusiasm evoked by a dancer who can kick higher and there is the enthusiasm evoked by a great actor who stuns an audience with an inspired reading."

Eisenstein gave great readings. He made it evident that there were motion pictures and motion pictures. It is one thing for a clever craftsman to amuse an audience for an evening with painted scenes of spurious happenings and sham relations; it is quite another to bring a transfiguring period in history to the screen with all its tragic and comic humanity.

Eisenstein strove not to amuse but to stun. He carried the motion picture toward a new dimension, from the slapstick comedy of pie-throwing and the tear-jerking sentimentality of imperilled innocence, to the "stunning" epic. It was a dimension the stage had lost centuries ago.

Once more—but now in a new quality—Eisenstein dramatized tragedy and horror, compassion and hate, a whole constellation of emotions. Crowds numbered in thousands were themselves the characters in great scenes: the hero was the crowd, not typified by and reduced to one character.

It was not that Eisenstein thought up a new genre. It was life itself that demanded the new forms, the millions who were chopping the new broad highway of history. These great human struggles needed to be reflected in art. It was Eisenstein who found the ways.

He worked like a mural painter, transforming speech, poetry, music, into large plastic forms. He was not attracted to complexities of psychology or subtleties of speech. He searched for the visual. His screen was a gigantic fresco, alive and seething with detail. Everything became palpable, tangible. It had weight and body and substance. It could be seen and touched—the storming of the Winter Palace, the battle with the knights on frozen Lake Chudskoye, the religious procession through heavy snow to meet Ivan the Terrible—all had the poetic detail of great reality.

These were not merely expertly directed scenes. They were discoveries in aesthetics. Again and again in films made in every country in the world, we see Eisenstein's pioneering touch in the reality of the unmade-up faces and the monumental plasticity of the landscape scenes.

A few months ago I saw Cinerama in a Paris motion-picture house. I thought of the technical genius behind this new camera development, and then of the use being made of it. Couldn't more be done with it—with this widened screen and this great diapason of sound—I wondered, than to use it to show Switzerland as winter sport country and France as the home of the can-can?

And then I thought of Eisenstein.

How much wider than Cinerama was the world on his screens. How much more eloquently than the stereosound did his silent pictures speak. How much more vivid than color pictures was his black and white art.

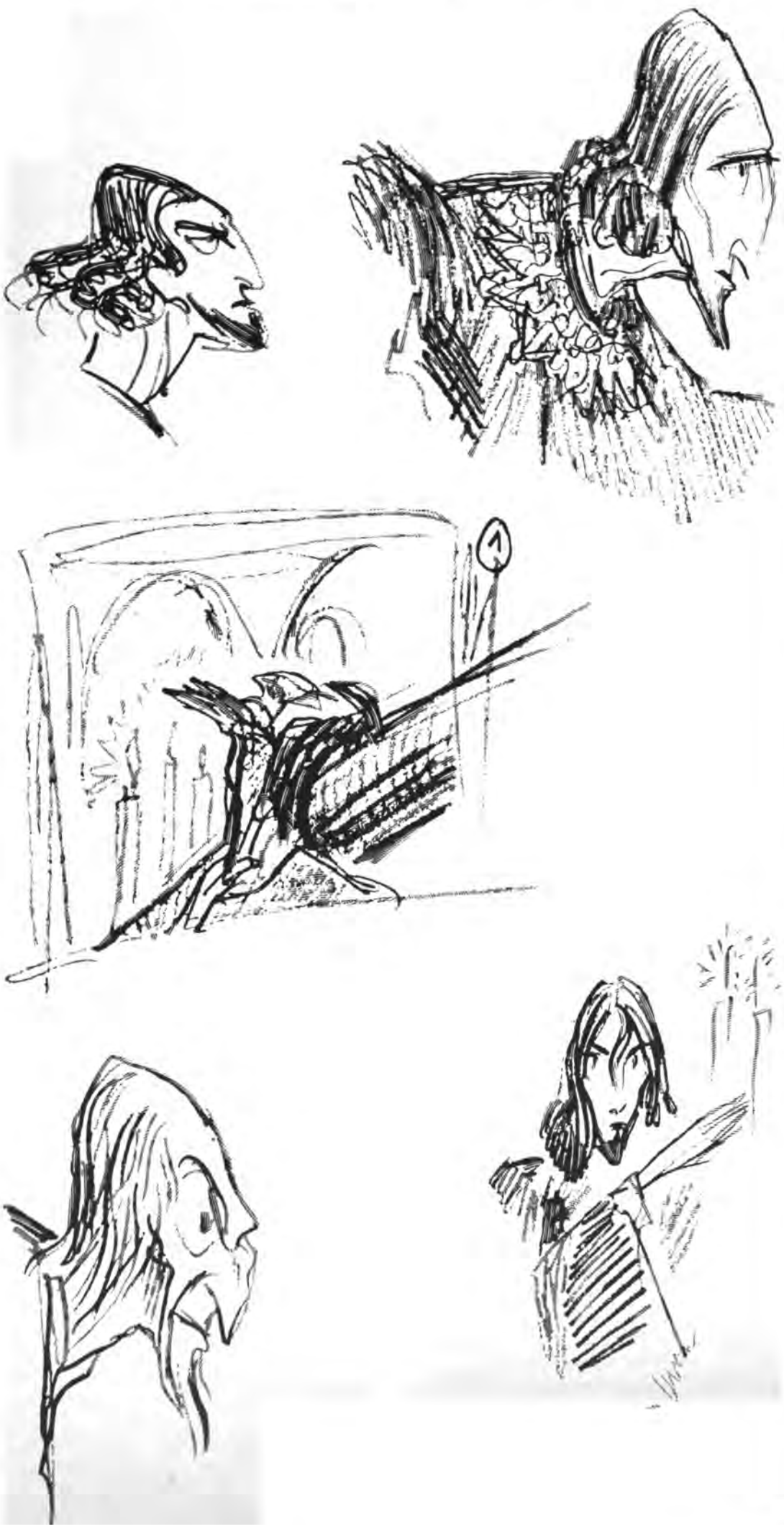
He died ten years ago, but he is still a living and pulsating force in world motion picture art. ■

Sergei Eisenstein's Sketches for His Film *Ivan the Terrible*

Sergei Eisenstein's personal files hold hundreds of drawings, rough drafts and sketches that help us understand how the high imitative art of his films was created.

His drawings for ***Ivan the Terrible,*** which are reproduced here, are rough sketches or "visual shorthand notes," as he termed them. In working on the scenario and preparing for shooting, Eisenstein clearly saw all the details to make up the graphic interpretation he desired: composition, light, costume texture, decorations and make-up.

The first four drawings depict his search for the right external appearance of Ivan, and show the make-up of Nikolai Cherkasov in that role, while the right bottom drawing shows Ivan over the corpse of Anastasia.



Daguerreotypes

A Personal Impression of America

By Sergei Eisenstein

RETAINED in my memory are countless impressions of first meetings.

The first meeting with George Bernard Shaw.

The first skyscraper.

The first meeting with Mack Sennett and Gordon Craig.

The first ride in a subway (Paris, 1906).

The first meeting with Jean Harlow, queen of the platinum blondes, in a setting of peacocks on a marble parapet ringing the blue water of the swimming pool at the Ambassador Hotel in Hollywood.

The widow of the great writer Dostoyevsky —Anna Grigoryevna Dostoyevskaya. For this meeting I, then still a boy, specially read *The Brothers Karamazov*, so that I might have something to talk about with the great widow. But the talk did not materialize—it was just a meeting and nothing more. I gave up the conversation for a big chunk of blueberry pie, which I picked off the table, and a game of tennis.

My first meeting with a movie star on American soil. That was Rin Tin Tin, the first star I met and with whom I was photographed. It was in Boston, where he and I made personal appearances in neighboring movie houses, each before his own picture.

I even remember my first movie fairly distinctly. That was in Paris in 1906.

These first meetings, each in its own way, were marked by a keenness.

And one of the keenest first meetings for its impressions was my meeting up with the works of Daguerre in America.

DAGUERREOTYPE FROM EISENSTEIN'S COLLECTION.

I don't know whether I had never come across them before, or had paid no attention to them, or because, being captivated with "left photography," I simply had never noticed them.

I was to make a film of the story of Captain Sutter, on whose land gold was first found in California. Like many other picture projects, this one did not materialize. However, because of it I traveled over a good bit of California. I saw Fort Sutter, and Sacramento, the capital of California.

In the offices of some big firm in San Francisco—I no longer remember what they manufactured—I was shown a relic, a saw from Sutter's sawmill, where the first gold dust was found.

In some out-of-the-way small towns in California, I visited nearsighted little old ladies who still remembered "The Captain" putting them on his knees—a horseman's powerful knees, he had—and bobbing them up and down.

Gradually out of the fragments of impressions and survivals of traditions (in Sacramento, for instance, beard-growing contests are still in vogue: the contestants shave on one and the same day and hour, and after the lapse of a specified time they measure the hirsute crop on their chins to determine the winner), from the appearance and customs of people, I came to feel the atmosphere of the America of the forty-niners, the America of the gold rush days, of the pre-Civil War period. An America already of necessity facing a range of problems for some of which the Lincoln epoch was to provide the solution while other new ones were to arise.

Following in the tracks of the colorful Captain brought us to the porch of a small house. It was the local museum. I no longer remember the name of the town. The museum was a modest one.

Affectionately surrounding the two or three genuine relics of the Sutter period—some odd buttons, the brim of a felt hat, and, I believe spurs—were whatever else they had found dating back to those years. Beaded bags, candlesticks, cracked cups, embroidered little pictures, hearth tongs and sugar tongs. And two or three small showcases. And in them a revelation.

Daguerreotypes—which I saw and held up for the first time. *Continued on next page*

WITH CARL LAEMMLE, PRESIDENT OF UNIVERSAL.

Sergei Eisenstein's Sketches for His Film *Ivan the Terrible*

Eisenstein said: "The composition of any scene should always be resolved from a piece which is most striking in its content and originality. Here, it should be borne in mind that the greatest impression is usually conveyed by a piece which is not only spontaneously effective but which contains the internal dynamic expression of the theme."

The sketch at the top shows the vow over Anastasia's coffin, while alongside is Eisenstein's idea for the make-up of Vsevolod Pudovkin in the role of Pimen.

"I think the nature and surroundings and decorations at the moment of shooting, and also the filmed material at the moment of editing are often cleverer than the author or director. It is a great blessing and a great art to be able to hear and understand the promptings of nature or of unforeseen points in the decorations you have conceived . . ."

The sketch above depicts the procession of the cross while below is the actual still from the film.

Daguerreotypes

Continued

Small, often almost black, dating back to the period zinc was used; or with a smooth and mischievously winking surface. Only by turning the glass surface in a particular way could you see the images in the small folding boxes, inside of which they are edged with a thin crimped frame made of copper plates as thin as foil.

A slice of a living image, a living slice of the period, a model of the living national character inside.

Very likely it was the amount of reading I had done, or the countless stories I had heard, or my complete absorption in those by-gone California days that made these ancestors of modern photography suddenly reach toward me from under the dusty glass of the showcase.

The past—another world, another century—looks at you with living eyes from the hinged leaves of these daguerreotypes. On one leaf is a slightly worn and faded orange-, cherry-, or chocolate-colored little velvet cushion, and looking at you from the other leaf are eyes surrounded by Confederate kepis and the "Uncle Sam" beards of the numberless and mostly anonymous, but once famous and distinguished first people of their little towns, the lively, busy and businesslike Americans of the forties, fifties and sixties.

Here they are. Their wives. Their children. Young people who had come from far-away places to the first American towns. Here you see them at the outset of their careers.

For the first time, a watch-chain across a bright vest. A rather stiff pose. The neck a bit too rectilineal, sticking out of a very low open-cut collar.

An enormous intricate knot in the tie which seems to match the enormous knotty hands. In the bends of the fingers you can still read the compass of the plow handles before the fingers became accustomed to draw, not a penholder yet, but a quill pen over the business letters, cash books of banks, judges' court records and lawyers' documents.

Here you see them at the height of prosperity. The lines of the watch chain follow the fold across the dazzling vests.

And there is something servile about the stiff plush armchair trying to accommodate its inherently inconvenient arms to provide maximum comfort for the arms of Mr. So-and-So, who has won prosperity, recognition and universal respect.

The surface of another daguerreotype, an earlier one, plays like the reflection in the mirror of a laryngologist. In the glitter of its surface you detect the fleeting outline of pale cheeks and the fluffy variety of checkered silks in which the wives and mothers of the prosperous gentlemen decked themselves out. The elegant white crimped caps, encompassing like helmets the no-less-intricately crimped curls of the hair-do.

The clever method used by Daguerre and Niels gradually squeezed out the earlier American painter who traveled from townlet to townlet and from farm to farm to paint family portraits. He carried with him already-made small pictures of painted-in figures in lace caps, black silk dresses drawn in tight at the waist and carefully draped shawls—all without faces. The portraits were filled in from life, with the face of the person who ordered the picture.

And my oh my, what a diversity of faces, what vital traces of biographies in the wrinkled faces, double chins, creases around the eyes and triumphantly turned-up noses of the successful people, or the sad youthful faces from under their Confederate kepis, looking as though waiting for their approaching end in hospitals, so touchingly described in the notes or diaries of Walt Whitman, the "great gray poet," who helped to brighten the last moments of so many of them.

From that day on began my eager, roving, dogged chasing to the little stores run by junk dealers; stores where odd things are sold, and tiny antique shops, of which there are so many advertised by fanciful bent metal signs on the road from Los Angeles to Santa Monica or Pasadena.

And here I discovered, to my great discomfiture, that the photographs of the past which fascinated me were not quoted at collectors' prices. It was the cases. The specimens in the slightest degree passable—specimens many times better than the fortuitous collection in the small museum—were very often outrageously expensive.

I discovered that devotees were collecting not the pictures, but the cases in which they were carried, just as now young Americans will carry a picture of mom and pop in a wallet, and after a certain age, pictures of the wife and kids.

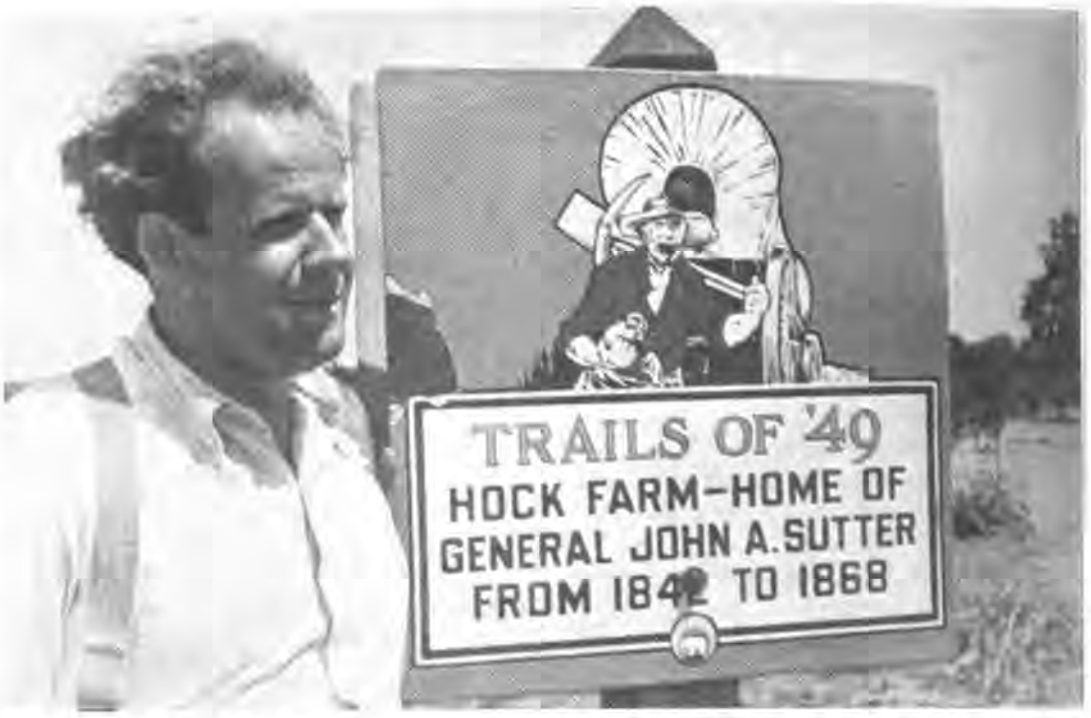
Among these cases there were really very interesting ones, made not only of stamped leather, but also of mastics resembling carved stone.

Be it as it may, the devil take the cases! What captivates me is the slice of the living spirit of old America, like a fabulous jinni caught alive and held within the leaves of the case.

A few old American "jinn" of this kind I lovingly keep deep inside my bookcases. Sometimes I take them out. I wipe off the dust. And then, for a while, I see before me pictures of the earlier America.

These miraculous glass and zinc plates made me wish to recreate the amazingly colorful America of the past, its towns which sprang up in the halting places of buffalo, in places where Indian wigwams once stood; around little missionary churches; scattered amid the expanses of virgin forests and prairies; or on the foundation of vessels which, after mooring at the small St. Francis mission, cast anchor for good in the hospitable bay. Emigrants filled the ship with sand from port side to starboard, erected cabins on the decks, and these became the first houses of the future San Francisco.

The cover of the little case is closed. The invariable hook is snapped. The desk drawer or the door of the cupboard in which it is kept is slammed. And for many months the memories fade, until I look at the daguerreotypes once again to envision Captain Sutter and the America he lived in. ■



PLANNING A GOLD RUSH FILM, EISENSTEIN VISITED THE LOCALE WHERE THE GOLD WAS FIRST DISCOVERED.

Chatting on General Sutter's farm with one of the old-timers who still remembers the general.

Ski trails in a park lure hikers by thousands. An occasional spill simply adds to a day's fun.

College students forget the classroom when they take dates to the rink for a few carefree hours.

No one delights in snow more than the kiddies. They find the gentle slope ideal for sledding.

Favorite Winter Sports

This small boy soon learns that he reaps what he sows and also something of cause and effect.

In colorful, spangled costumes, this amateur troupe of fancy skaters shows its patterned and practiced skills before a solid-packed audience on a flooded soccer field. The children start training very early.

A bus-load of hunters off to the fields before dawn characteristically swap tales about dogs.

For the more skilled no thrill can match this. A lightning-swift descent and then you're off!

Father teaches his figure-skating daughter how to sharpen the blades just so for quick stops.

Big league hockey creates intense partisans as crack teams meet in a stadium during cup play.

Motorcycling is exciting enough normally, but races run over snowy courses add more thrills.

A brisk afternoon brings out crowds of skaters to park rinks where oldsters join the novices.

Who's Who in Speed Skating

By Victor Kuprianov

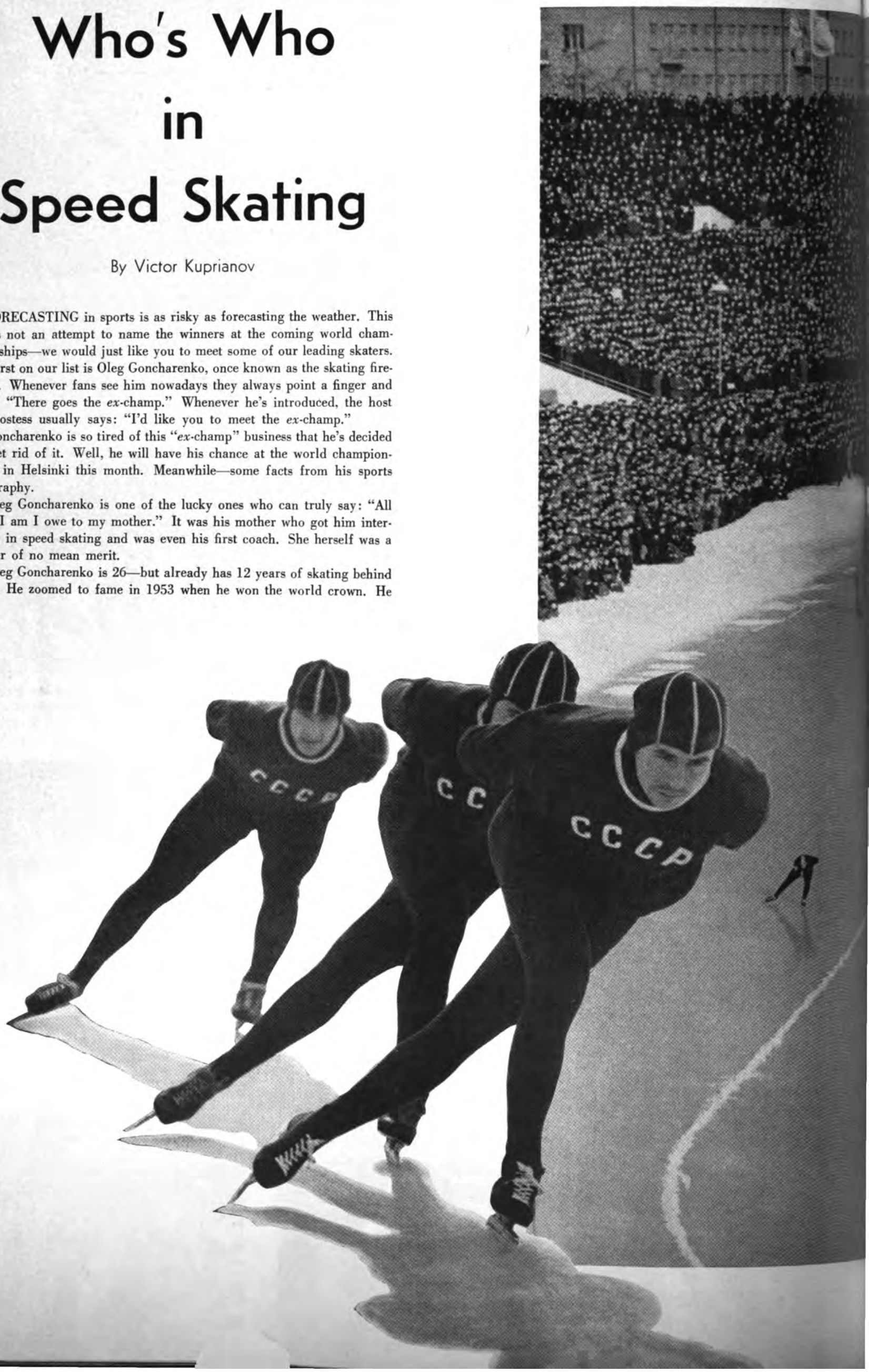
FORECASTING in sports is as risky as forecasting the weather. This is not an attempt to name the winners at the coming world championships—we would just like you to meet some of our leading skaters.

First on our list is Oleg Goncharenko, once known as the skating fireman. Whenever fans see him nowadays they always point a finger and say: "There goes the *ex*-champ." Whenever he's introduced, the host or hostess usually says: "I'd like you to meet the *ex*-champ."

Goncharenko is so tired of this "*ex*-champ" business that he's decided to get rid of it. Well, he will have his chance at the world championship in Helsinki this month. Meanwhile—some facts from his sports biography.

Oleg Goncharenko is one of the lucky ones who can truly say: "All that I am I owe to my mother." It was his mother who got him interested in speed skating and was even his first coach. She herself was a skater of no mean merit.

Oleg Goncharenko is 26—but already has 12 years of skating behind him. He zoomed to fame in 1953 when he won the world crown. He



IN A MOSCOW STADIUM ONE CAN SEE THE IMMENSE POPULARITY OF THIS SPORT.

repeated the feat three years later and was expected to win the crown again, but illness spoiled everything. He still is one of the world's strongest skaters, however, and is determined to prove it in Helsinki. What is more, he has the satisfaction of the highest point rating for the four Olympic distances on conventional rinks.

Becoming a world champion is hard enough, but it is even more so in speed skating. The aspirant to the title here must race against time in four events: 500, 1,500, 5,000 and 10,000 meters. And it isn't the number of first places that counts. Each skater is given a point rating in which the 500-meter event is taken as the unit. So that the 5,000 would net him ten times more points and the 10,000 twenty times more. What this means is that the sprinters who run away with top honors in the shorter events never attain the world crown because they're outpointed in the longer distances.

Goncharenko has the advantage that he's much better in the longer events than in the sprints. But still, it does help to win in the sprints and Oleg is working hard to improve his sprinting techniques. This is attained by all-year training. In the summer he goes roller skating, cross-country running, and cycling to build up techniques and stamina. Incidentally this is typical of the Soviet training pattern which calls for all-round build-up and versatility in every sport.

We'd like to introduce Boris Shilkov next. This season he will not only go out to prove that he is not yet a "has-been" but also that a man can be world champion at the age of thirty. He won the crown in 1954, so he knows his way about.

Boris Shilkov was born in Leningrad but lived most of his life in Archangel where there is always enough ice to skate. He's an engineer by profession. Maybe it's the secret to the precision in his stride that helps him shave seconds off his time. In 1955 he set a new world record for the 5,000-meter run: 7 minutes 45.6 seconds. This is a phenomenal time. Shilkov won Olympic fame by winning the gold medal in the same event. Later at the world championship he won the 1,500-meter medal and missed the world crown for all-round performance by a mere $^3/_{10}$ of a point. In 1956 Boris Shilkov was the Soviet Union's best all-round performer. Although he lost this title in 1957, he is still confident and hopeful and does not believe that being on the far side of 30 need be a handicap.

Dmitri Sakunenko is another speed skater who is rated high in the Soviet bid for world honors. He is 28 and a technologist by profession. Dmitri is married and has a three-year-old son. Sakunenko has lived his whole life in forestland. When he was seven he turned to skates as a way of getting places quicker. But the skates were just blades tied by cord or wire to thick felt boots ("valenki," as they are known in Russian). On his eighteenth birthday (January 7, 1948), he got his first pair of racing skates, and his sports career really began. In 1954 he made the USSR team to the world championships where he placed fifth, which is an excellent debut. In the following year he astounded the world with an excellent 4-event rating at the high-altitude rink near Alma-Ata. At the individual speed skating title meet held in Sverdlovsk last year, Sakunenko became the champion of the Soviet Union.

We have spoken of the top three male performers—now about their opposite numbers among the fair sex.

In the previous issue of *USSR* we introduced Inga Artamonova who still remains the favorite. Next comes Tamara Rylova.

She lost her mother at the age of 10 and household chores did not leave her much time to play. At the age of 16 she went to work in a printshop and continued her studies at night school. She first got on skates when she was past 18 and she went about making up for lost time. In 1953 she won top honors at the world university games in Austria (Tamara is a Teachers' Training School student). In 1955 she set two world records—in the 500- and 1,000-meter events—that still stand. Her performances at world championship meets have been good, but not good enough to win. In 1955 she took the USSR title, the following year she made a strong bid for the world crown and ended up third. In 1957 she placed second. This year . . . but Inga Artamonova is hard to beat. In spite of this, 27-year-old flaxen-haired, gray-eyed Tamara Rylova has no intention of quitting.

Another name we might be reading in the headlines soon is Galina Zorina. This blonde 22-year-old housewife is proving as good a skater as she is a wife and mother. Of course, at 22 she does not have much of a sports career behind her, but still Galina's is worth telling.

Galina Zorina comes from the Siberian city of Irkutsk. She was very frail as a child and her parents enrolled her in a ballet school, hoping

Continued on next page

Who's Who in Speed Skating

Continued

that this would help build her up physically. By the age of 15 she had developed to such an extent that it became clear that ballet dancing was not for her. Track and field became her hobby. Galina's debut in skating was quite accidental. When her playmates suddenly appeared among the winners at city tournaments she decided she wanted to be a champion too. So she began training by herself on the QT. Two years later she won the Irkutsk crown. She sky-rocketed up after she began training with a real coach. In 1955 she already turned in some very heartening results, but at the USSR championship she only managed to place 69th! She was so heartbroken that she dropped the sport. Soon afterward she married and everyone thought her racing days were over. But after giving birth to a daughter she decided the exercise would do her good. She returned to speed skating and soon managed to place second at a seeded tournament at the high-altitude rink near Alma-Ata.

We have not seen Galina Zorina's name among the world championship winners yet, but she is only 22—and youth is a big thing in skating.

The skaters we've just introduced to you are not nursery-bred champions. When you get to know them you find they are extremely human. Their sports debut was the same as that of any boy or girl in the Soviet Union. First backyard sports, then school sports and so on up the ladder to the big time. All of this is strictly graded. Every stage comes under careful medical supervision to prevent overemphasis and there is always expert coaching. Whenever an athlete shows outstanding results and a desire to work his way up, the sport club he belongs to (or the college he attends) will provide him with an individual coach. Not everybody wants to become a champion, however. That makes no difference—facilities and opportunities are the same for all.

What happens when a champion gets old? Most of them try to keep in touch with their sport as long as possible and turn to coaching. Nearly all the once big-time performers now pass their experience down to the youngsters. Thrice-champion Maria Isakova, foremost speed skater in the past, is now a maker of champions herself.

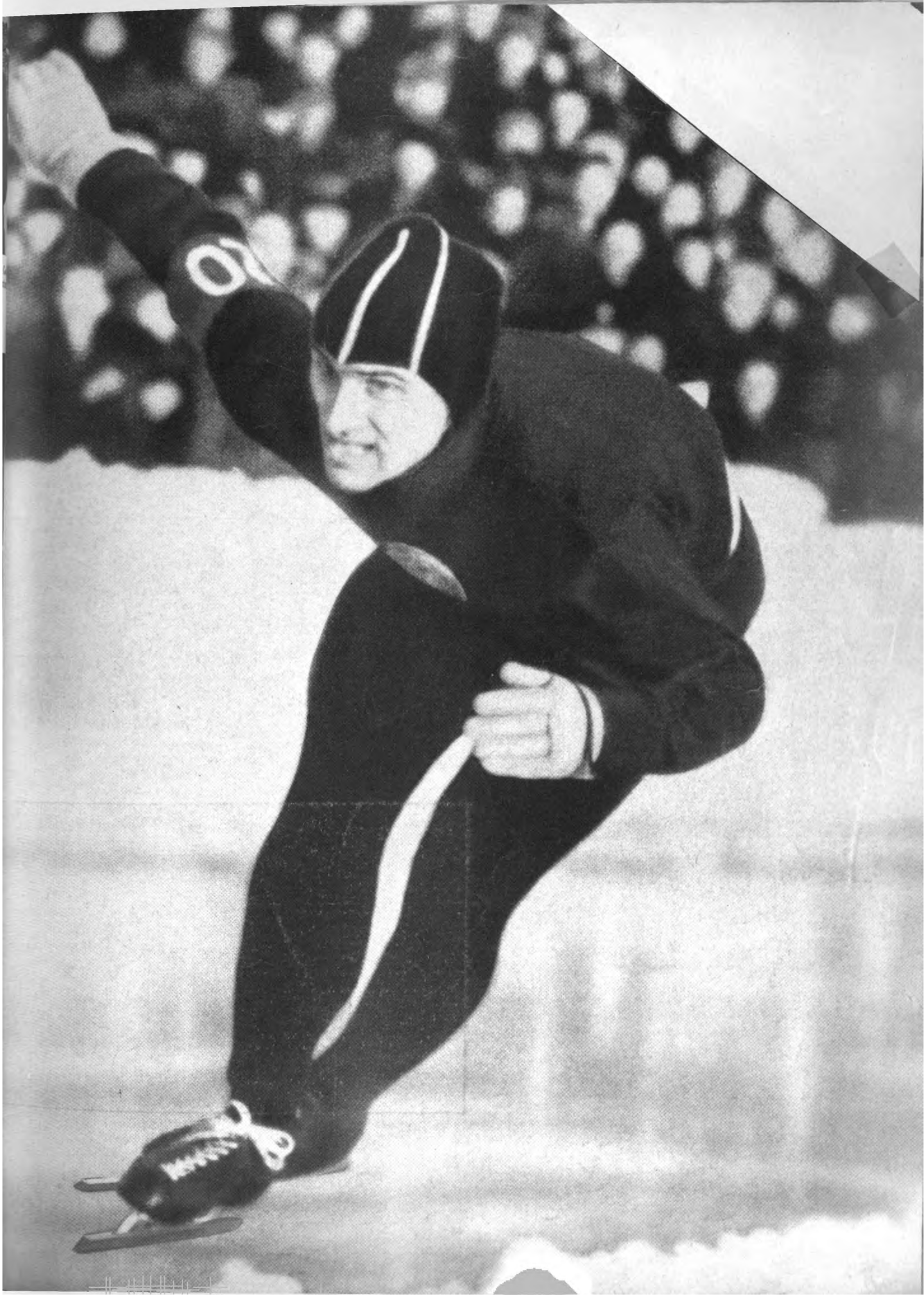
One last remark—our champions have no secrets. They train in the open, and very often together with their main opponents, and pass on pointers to one another. This is possible because sports in the Soviet Union are a hobby and not a profession. ■

Coach Konstantin Kudryavtsev chats with Boris Shilkov and charenko (back to camera). Films will be seen later for flaws

Dmitri Sakunenko competing in the 10,000-meter race in Sverdlovsk, wh won the title of 1957 all-round speed skating champion of the Soviet U

Boris Shilkov, Hjalmar Anderson of way, and Dmitri Sakunenko obviously joyed the Sverdlovsk races as much as thousands of fans who came to watch th

Oleg Goncharenko, an ex-world champion has plans for a comeback at Helsinki



ERS NINA GOLOVACHEVA AND RIMMA NIKITENKO WHO CHOSE TO WORK IN THE NEWLY CULTIVATED LANDS IN KAZAKHSTAN.

USSR

SOVIET-AME

CULTURAL EX

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—See Pages 6

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NIKITA KHRUSHCHEV, A MEMBER OF THE PRESIDIUM OF THE USSR SUPREME SOVIET, ADDRESSES A JOINT SESSION OF THE TWO HOUSES OF THE SOVIET PARLIAMENT.

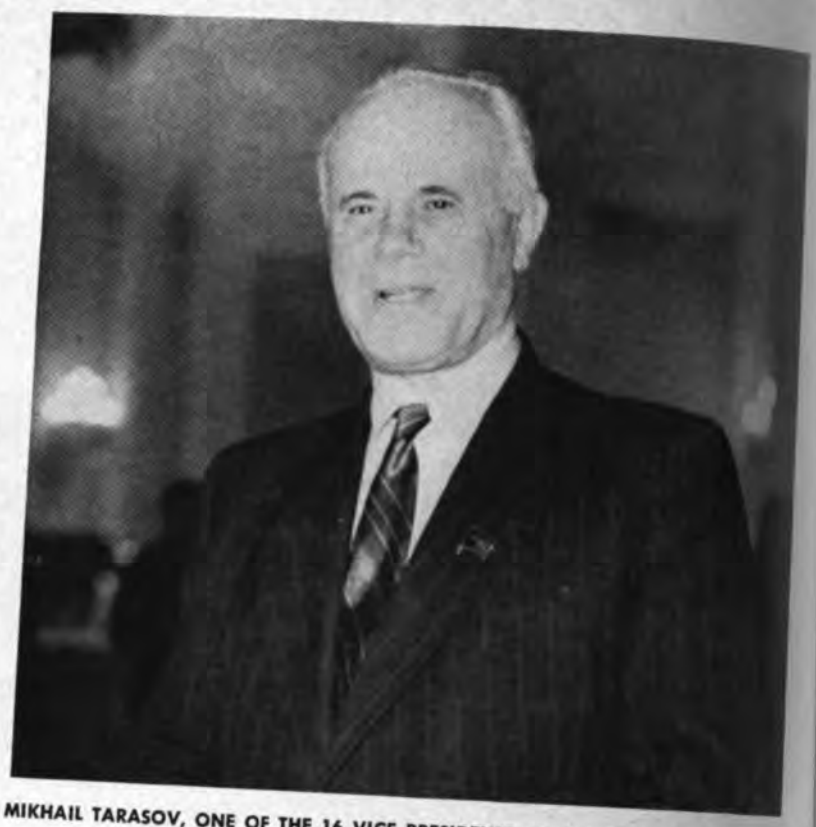
The Presidium of the Soviet Parliament

By **Mikhail Georgadze**, *Secretary of the Presidium of the USSR Supreme Soviet*

THE Supreme Soviet is the highest governing body of the Soviet Union, combining both legislative and executive duties. Its deputies are elected directly by the people and embody the people's sovereign will. These are not professional politicians who sit as deputies in the two houses—the Soviet of the Union and the Soviet of Nationalities—which make up the Supreme Soviet. They are industrial workers and farmers, doctors and engineers, writers and actors, men and women from every stratum of the population, representatives of different nationalities inhabiting the country.

About one-half of the 1,347 deputies elected to the present Supreme Soviet in 1954 are workers and farmers. The remainder are people in the professions, the arts and various other fields of public life. They meet to draft legislation and decide on matters of state importance at the regular sessions of the Supreme Soviet. Between sessions they work at their own jobs in factories, farms, schools, hospitals and elsewhere alongside the people who elected them and to whom they are responsible. This provides a guarantee that the legislator will be responsive to the wishes and needs of his constituents. *Continued on next page*

KLIMENT VOROSHILOV, PRESIDIUM PRESIDENT, TALKS TO TAJIK FARMER-VETERAN.



MIKHAIL TARASOV, ONE OF THE 16 VICE PRESIDENTS, WAS A TRADE UNION LEADER.

DEMYAN KOROTCHENKO, A PRESIDIUM VICE PRESIDENT, WAS ONCE A RAILROAD MAN.

The Presidium *Continued*

The Supreme Soviet has a number of permanent commissions that function between sessions. These commissions are elected by each of the two chambers from among the deputies. They include the budgetary, foreign affairs, legislative and credentials commissions. The Soviet of Nationalities also elects its economic commission.

The commissions study all matters which come under their jurisdiction and submit their reports and recommendations to the Supreme Soviet when it reconvenes.

The nation must, however, have a body in permanent session to take care of affairs of state between meetings of the Supreme Soviet. The Constitution vests this function in the Presidium of the Supreme Soviet. This body is elected at a joint session of the two houses from among the deputies. It has a president, 16 vice presidents, a secretary and 15 additional members.

To provide for representation from each of the Union Republics which make up the USSR, fifteen vice presidents of the Presidium are also the presidents of the corresponding body in those republics, the republics having much the same governmental structure. The Presidium, as a consequence, is aware not only of the requirements of the country as a whole but of the specific needs of each of the republics.

The present President of the Presidium is Kliment Voroshilov, a statesman who began life as a fitter in a railroad maintenance shop.

VICE PRESIDENT KARL OZOLIN, A JOURNALIST, ONCE EDITED A LATVIAN PAPER.

THE AMBASSADOR OF GREECE PRESENTS HIS CREDENTIALS TO KLIMENT VOROSHILOV.

VICE PRESIDENT JUSTAS PALECKIS IS A MEMBER OF THE INTERPARLIAMENTARY UNION.

VICE PRESIDENT VASILI KOZLOV (MIDDLE) MAKES THE PRESENTATION OF AN AWARD.

Among the vice presidents are Vasili Kozlov, a former schoolteacher who led the Byelorussian partisan movement in the Second World War; Mikhail Tarasov, a veteran trade union leader; Mirza Ibraghimov, an Azerbaijan writer; Justas Paleckis, a Lithuanian journalist.

The Presidium, which might be called the executive committee of the Supreme Soviet, to use a rough analogy, is accountable for its every action to the parent body. It is not an independent agency in any sense; its powers are conferred by the Supreme Soviet and may be withdrawn by that body. To assure this subordination, the Constitution requires that the Presidium, including its president, be elected by the Supreme Soviet.

The powers of the Presidium are strictly delimited. It has no veto power with respect to legislation, nor is it permitted to interfere, directly or indirectly, with any of the Supreme Soviet's legislative functions. It is charged solely with the publication of laws passed. The laws are signed by the president and secretary of the Presidium and are published in each of the languages used in the republics—there is no single official language in the Soviet Union, all having equal status.

Under very special conditions the Presidium of the Supreme Soviet itself is empowered by the Constitution to dissolve that body and order a new election. There is only one circumstance under which the Presidium may dissolve the parliament. The Constitution provides for the following contingency, one which has not occurred in the forty years since the Soviet Union was founded. If the Soviet of the Union and the Soviet of Nationalities fail to agree on any issue in question, the two chambers are required to set up a conciliation or conference committee. Should the committee fail to arrive at a decision satisfactory to one or the other of the chambers, the issue is considered for a second time by each chamber. Failing agreement this time, the Presidium is empowered to dissolve the Supreme Soviet and order new elections to be held within two months.

But even in this highly qualified and strictly limited contingency, the Presidium is not vested with extraordinary powers that would permit it to take over governmental control. It is merely exercising an organizational function with which it is charged by the Constitution, to assure the equal rights of the two chambers which constitute the Soviet Parliament. It cannot assume powers other than those vested in it by the Constitution nor any which are not controlled by the higher body.

Upon the expiration of the regular four-year term of the Supreme Soviet, or the body's dissolution prior to expiration of its regular term of office, the Presidium continues to function until the newly elected Supreme Soviet chooses its own Presidium.

The powers granted the Presidium by the Constitution, although limited, are extremely important.

In the sphere of foreign affairs the Presidium ratifies and denounces treaties and conventions with other countries, establishes diplomatic ranks, appoints and recalls plenipotentiary representatives of the Soviet Union in foreign states, and receives letters of credence and recall from diplomatic representatives accredited to it by foreign states.

In addition to these matters, the Presidium appoints and removes the high command of the Armed Forces of the USSR, establishes military titles and resolves other questions concerned with the national defense.

The Presidium is charged with seeing that acts of governmental bodies conform to Soviet law. The Council of Ministers, the highest administrative organ, is responsible to the Presidium between the sessions of the Supreme Soviet. The Presidium may repeal a decision of the Council of Ministers if it does not conform to law. Between sessions of the Supreme Soviet the Presidium may release or appoint members of the Council of Ministers subject to subsequent confirmation by the Supreme Soviet.

The Presidium makes awards to citizens for meritorious achievements in industrial, cultural and scientific work. In the period 1954 to 1957, one million such awards were made.

The Presidium rules on the granting or revocation of citizenship. It is empowered to pardon convicted prisoners, a function it exercised, for example, last November during the fortieth anniversary celebration of the Soviet Union, when it issued an amnesty decree.

It can, either on its own initiative or at the request of one of the republics, hold a referendum on important legislation. Nation-wide discussions have become customary procedure in the Soviet Union in connection with major laws being drafted. An example is the six-month discussion in every part of the country on the draft of the present Constitution prior to its adoption in 1936. More recently there was the discussion which centered around overhauling the pension system. Many of the proposals made were incorporated into the final bill. Another

Continued on page 5

A GROUP OF DEPUTIES GET TOGETHER BETWEEN SESSIONS. ABOUT ONE-HALF OF THE 1,347 MEMBERS ELECTED TO THE PRESENT SUPREME SOVIET ARE WORKERS AND FARMERS.

PEOPLE IN THE PROFESSIONS AND THE ARTS COMPRISE THE OTHER HALF OF THE SUPREME SOVIET. NIKOLAI CHERKASOV AND ALLA TARASOVA ARE FROM THE THEATER.

The Presidium *Continued*

example is the legislation on the reorganization of industrial management, worked out with the active participation of the public.

The Presidium is required to convene the Supreme Soviet for regular and extraordinary sessions. Regular sessions must be called at least twice yearly. An extraordinary session may be convened at the discretion of the Presidium or on the demand of one of the republics.

The Presidium is empowered to issue decrees; some must be endorsed by the Supreme Soviet, others do not require such endorsement. In this latter category are individual amnesty decrees, those granting or revoking individual citizenship and those granting awards and honors.

In the first category, those requiring endorsement, are decrees appointing or releasing members of the Council of Ministers or those which amend existing laws. Recent examples are: the decree reducing the working hours of industrial and office workers on Saturdays and the eve of holidays; the decree limiting the working day of 16 to 18-year-old workers to six hours; the decree to extend maternity leave; the decree granting citizens the right to purchase or build individual homes.

But for all the functions it exercises, the Presidium is accountable to the Supreme Soviet, in which all final legislative and executive power is vested.

As to the immunity of Supreme Soviet deputies, strict safeguards are provided by the Constitution. A deputy may not be arrested or prosecuted without the consent of the Supreme Soviet or, between sessions, without the consent of the Presidium.

The Presidium has its various departments concerned with legislation, awards, pardons, citizenship, information, statistics and other functions. Acting for the Supreme Soviet, it receives reports from the Council of Ministers, the Chairman of the Supreme Court, the Procurator General and other high officials.

Large numbers of private citizens call on the Presidium, either in person or by letter, with suggestions for legislation, with complaints of the work of various government bodies, or with personal appeals.

These suggestions, complaints and appeals are dealt with by the Presidium itself or turned over to the proper government department for investigation. In the latter case, the department must report its findings to the Presidium which then makes its recommendations.

All the Presidium's powers, whatever their nature, are exerted collectively. The Presidium is the Collective President of the USSR. ■

DEPUTIES OF MOLDAVIA, ESTONIA, THE UKRAINE AND UZBEKISTAN IN THE KREMLIN.

AN IMPORTANT PART OF THE DAILY LIFE OF A DEPUTY IS RECEIVING VISITORS. HERE DEPUTY NINA STRELNIKOVA (LEFT), AN ENGINEER, TALKS TO ONE OF HER CONSTITUENTS.

COLORFULLY COSTUMED BYELORUSSIAN DANCE *BULBA* (POTATO) EXPRESSING THE FARM GIRLS' JOY OF BUMPER HARVEST WAS CREATED BY THE MOISEYEV ENSEMBLE.

To Our American Audiences

Soviet National Folk Dance Ensemble will tour the United States this spring as part of the Soviet-American cultural exchange program

By IGOR MOISEYEV

One hundred members of the Moiseyev Ensemble, leading Soviet folk dance company, will present a program of regional dances from all parts of the Soviet Union during their American tour this spring. Besides a series of recitals at the Metropolitan Opera House in New York, the company will perform in Boston, Washington, San Francisco and other cities. The 10-week tour is part of the Soviet-American cultural exchange program.

Igor Moiseyev, director of the Ensemble, was born in 1906. He studied at the choreographic school of the Bolshoi Theater and was soloist at 18. He danced the roles of Raoul in the ballet *Theolinda*, Joseph in *Joseph the Handsome*, Mateau in *Salambo*, Phoenix in *The Red Poppy*. Very early in his career he demonstrated his talents as a ballet master in the ballet productions *Soccer Player*, *Salambo* and *Three Fat Men*.

Moiseyev has made a lifelong study of the folk dance for its influence on professional choreography. He is a demanding student and artist, a man of wide erudition who has tapped the history of people and their cultures for the sources of his dance themes and movements.

His work is not solely confined to the Ensemble. He directs national and regional dance festivals, works with amateur groups and serves as judge at international festivals.

Moiseyev has received three Stalin Prizes and the honored title "People's Artist of the Soviet Union" for his contributions to choreography. His most recent production was the Khachaturyan ballet *Spartacus* for the Bolshoi Theater.

THIS is the first time our Ensemble will be dancing in the United States, and I should like to tell our American audiences something about our work.

Every people creates its own unique and individual art, handed down from one generation to the next. Some of it is preserved, some changes to suit the temper of the time and the development of a people, some of it is lost.

Perhaps the oldest of the folk arts, the dance has stirred people throughout the ages. It has expressed every shade of human feeling and emotion. In many countries, Italy, France and elsewhere, it was the foundation for the classical dance.

The folk arts in the Soviet Union have had a remarkable renaissance in the last several decades, particularly the colorful and versatile folk dances. Our Ensemble was the pioneer in bringing these folk dances to the professional stage.

Without examples or experience to draw on, we had to devise our own methods for collecting and studying these dances and reworking them for the stage.

A Choice of Three

Like Czarevich Ivan in one of the old Russian fairytales, we found ourselves at a place where three roads branched off. Which one ought we to take?

The first was to reproduce the folk dance intact, with all the details and movements unchanged, whether they were relevant to the theme and spirit of the dance or not. One ballet master explained to us that he thought this the only valid approach because he, I quote him, "loved the art of the people too much to change anything that they have created."

With this approach we disagreed. We rejected it as a passive attitude toward art which amounted to little more than a mechanical copying of what already exists without trying to develop it creatively.

We also rejected the contrary approach, that of stylization, in which the artist is concerned exclusively with his own interpretation. He disregards the character, psychology and tradition behind the dance and for the sake of the stage effects introduces elements alien to the original dance, so that it has only a distant resemblance to the true folk dance from which it was derived.

Ours is an active approach to folk art. We strive to transform and interpret the folk dance creatively, to preserve its peculiar national flavor and tradition while at the same time we try to give it more meaning for the audience by enriching its form and content.

This is the way such great poets as Pushkin, Shevchenko and Nekrasov and such great composers as Glinka, Moussorgsky, Balakirev, Tchaikovsky, Beethoven and Chopin worked with folk material.

We employ all the resources of the professional stage—dramaturgy, composition, chore-

Continued on next page

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Continued on next page

***TRAVUSHKA*, A NUMBER FROM THE SUITE OF OLD RUSSIAN DANCES, IS FILLED WITH ROLLICKING HUMOR AND MISCHIEVOUS FUN.**

Tamara Zeifert, soloist, received her training at the Bolshoi Theater choreographic school and was among the first to join the Ensemble when it was organized. Her technical background and the lyricism of her style have created a wide range of unforgettable characters.

Lev Golovanov, soloist, is a versatile dancer whose characterizations are so true to life that it is hard to believe that the same man dances the parts of the shy lovelorn boy, the brave warrior, the energetic soccer player and the dandy, just four of his many diverse roles.

Lydia Skryabina, soloist, joined the Ensemble at 15. Her dancing is full of the joy of life and her talent is best displayed in her rendition of Russian and other Slavic dances. She has created highly original characters in choreographic scenes depicting life in old Russia.

Lyudmila Butenina is one of the Ensemble's younger dancers, but like the best veteran she has had good training. Although she has been with the group slightly more than two years, she not only dances in the chorus but often doubles for the principals in leading numbers.

To Our American Audiences

Continued

ography, music, design. First we study the dance as it is done by the people; next we select what we think are the major elements and then we create our own interpretation. It becomes a synthesis of the elements we select, a vivid and dramatic image of the dance, as it were, that embodies the characteristic national features.

Let us take the popular Moldavian dance *Moldoveniaska* as an example. Although the basic movements are retained, it is danced differently in almost every Moldavian village. As presented by our Ensemble *Moldoveniaska* does not duplicate completely any one of these versions.

What we do is develop the composition, emphasize the movements that are particularly regional, perfect the choreography so as to round out and dramatize what we have called the dance image.

New Dance Creations

Our Ensemble does not only interpret the traditional folk dance, we create new choreographic works—single dances, suites and dance scenes with themes from everyday life that may have been used in poetry or song but have not yet been woven into dance figures.

The Byelorussian dance *Bulba*—potato—was one of the earliest dances we created. In the old days potatoes were the chief crop grown by the Byelorussian peasants and their well-being depended upon the yield. An old folk song called *Bulba* sang of the joy of a big harvest.

We used the song as the basis for our music, combined the basic movements and rhythms of Byelorussian folk dancing with the movements of a woman working in the fields and built a dance we called *Bulba*. It is widely popular, has been performed by many other professional and amateur dance groups and has led to other dance versions built around the song.

Our suites are composed of a group of dances in the same style built around a central

theme. The suite of old Russian dances, for example, interprets the many-sided Russian personality, each of the dances presenting a different aspect of the national character. *The Reel* shows the vigor and stateliness of bearing and the friendly relations between young men and women. The duet *Korobochka* reveals a wide range of lyrical emotions, the modesty of the maiden and the tender attention of the young man in love with her. The episode *Travushka* is filled with Russian humor and mischievous fun. The dance of the young men is an embodiment of male strength and daring.

The Ukrainian suite *Vesnyanki* is a one-act dance play based on traditional customs and songs. The story is simple—a young couple in love are forced to separate. We dance the grief of the girl, the sympathy of her friends, the joy of the happy reunion and the merry-making to celebrate the engagement.

We have two groups of choreographic scenes —*From the Past* and *Soviet Scenes*. The first is made up of the dances: *Love in the Countryside*, *An Old-Fashioned Town Quadrille*, *Polka with Pirouettes and Compliments*, and *Sunday*. This group shows the life and customs of old Russia.

The second group is a picture of modern Russian life and character portrayed in the dances *Day Aboard a Ship*, *Polka Mamma*, *Soccer Game* and *Guerrillas*.

Dances of Foreign Countries

Our Ensemble tours many countries. This helps us to study various folk dances firsthand and to include them in our repertoire.

It is impossible to overestimate the importance of contact in the field of culture and art for establishing mutual understanding and confidence. That is why we are most happy to be dancing for American audiences.

We hope to do more than perform dances of our country. We hope to be able to study American folk dances and then to perform them for Soviet audiences when we return home. It will be our way of helping the people of our two countries to understand each other's minds and hearts. ■

Galina Talanova is the youngest dancer in the Ensemble. She studied at the folk dance department of the Bolshoi Theater choreographic school and graduated from it in 1956. Her performance of the group's Slavic dances have been described as spirited, whimsical and gay.

Samson Galperin, head conductor of the Ensemble, studied at Kharkov Conservatory and joined the group in 1943. An authoritative scholar of music folklore, he composes much of the musical accompaniment for the dances, both rewritten national folk songs and original themes.

Sergei Tsvetkov, soloist, joined the Ensemble in 1945, after dancing with some amateur groups. His dancing is highly original and filled with a gentle humor. He has developed a particular style of his own in such diverse roles as an elderly governmental official, soccer fan and guerrilla.

Tamara Golovanova, soloist, began her career in her school amateur dance group. Although her professional training started after she joined the Ensemble, that it was thorough is evident from the quality of her dancing. She is considered one of the best in the group.

THE REPERTOIRE OF THE ENSEMBLE INCLUDES THE NATIONAL DANCES OF MANY FOREIGN COUNTRIES. THIS IS THE RUMANIAN DANCE *BRUIL*.

SINCE PRE-REVOLUTIONARY TIMES (BELOW, RIGHT) BAKU HAS TREBLED ITS HOUSING AND IS NOW THE COUNTRY'S FOURTH LARGEST CITY WITH A POPULATION OF 900,000.

BAKU — Capital of

OF the old city of Baku on the west shore of the Caspian Sea, the 10th century Arab traveler Masudi wrote: "In Baku there are springs of white and other kinds of oil. And nowhere in the world—God well knows—is there white oil except in this place."

Although the Baku wells have long since yielded first place to other oil regions developed within the Soviet period, it is still one of the country's largest producers. From the hillside terraces of Kirov Park, you see silhouetted against the blue haze of the horizon the slender derricks pumping "the thick black blood of Baku," as the poet Mayakovsky phrased it.

But modern Baku is more than oil. It is chemicals, machine tools, electric motors, mobile drilling rigs and consumer goods besides. Baku turns out 270 different manufactured items and is a major port. With a population exceeding 900,000 it is the fourth largest Soviet city, capital of the Azerbaijan Republic.

Broad avenues of Baku, graced by trees and a rich profusion of flowers, run inland from the shore, some sloping gradually and others climbing steeply toward the blue mountains in the distance.

The lush greenery tempers the heat and settles the dust. Every section of the city has gardens and parks planted with Mediterranean trees, bushes and climbing plants. Young olive trees, pines and cypress line the squares and avenues. In 1957 alone, the residents of Baku planted more than 200,000 trees. The older people are pleased to say, "We are making the city beautiful not only for those who come after us, but for ourselves, too."

The slum districts, so typical of the Baku of czarist times, have long since been cleared away, replaced by street upon street of modern houses. This is true not only for the central districts, but also for the residential districts built around the factories and refineries.

In the public buildings—the many theaters, cinemas, clubhouses, government offices, schools—Azerbaijan motifs are blended harmoniously with modern design. As pleasing to the eye are the light-colored tints of the apartment buildings, their large windows, balconies and the patterned ornamentation of the façades.

Baku is an ancient city, founded, unwritten history tells us, as far back as the 5th century. The city is mentioned in 7th and 8th century

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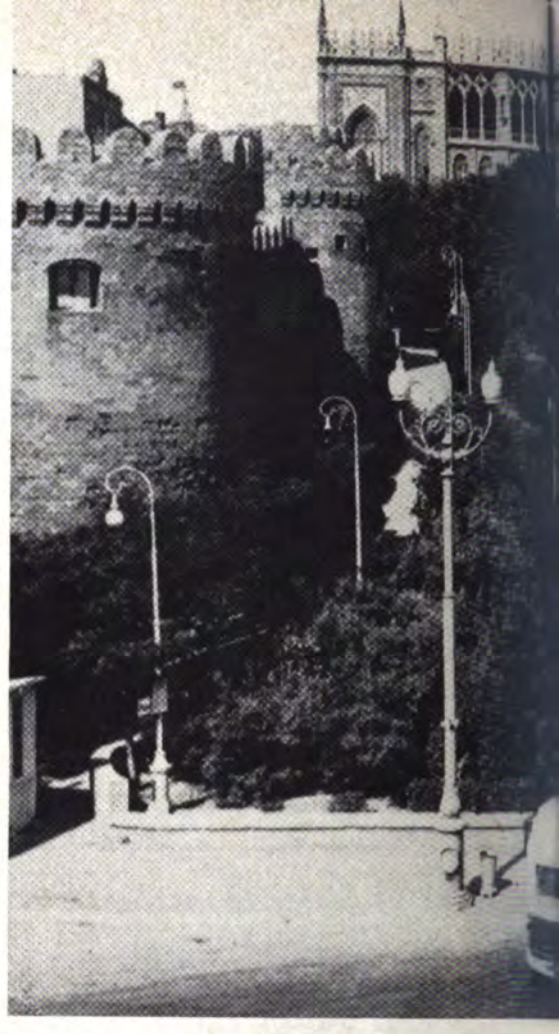
Azerbaijan

ELMIRA RAGIMOVA, A BAKU SCHOOLGIRL, PERFORMS AN INDIAN DANCE.



BAKU — Capital o

written chronicles. It was ruled successively by the Arabs, Turks and the Persians, and became part of Russia in 1806.

The city's history can be read in the gems of medieval oriental architecture still standing. The most famous is the palace of the Shirvan Shahs, a mute testament to many now long-forgotten tragedies. Near the picturesque bay stands the Maiden's Tower, erected nine centuries ago.

But the tone of Baku is not set by the monuments of the past, or even by the relatively recent pre-revolutionary period. The

POPULAR AZERBAIJAN ACTOR GUSEIN AGA SADYKOV IN A TELEVISION PROGRAM FOR CHILDREN, "THE TALES OF GRANDPA PIRI."

NIZAMI SQUARE IS NAMED FOR THE GREAT TWELFTH CENTURY WRITER, FOUNDER OF AZERBAIJAN POETRY. THE LUSH GREENERY OF THE MAIN SQUARE IS TYPICAL OF THE CITY.

Azerbaijan *Continued*

accent is contemporary. In the last forty years, Baku has grown to many times its former size—it has altered almost beyond recognition.

The city is surrounded by dozens of new towns and industrial communities. Each of them—the little town of Vorovsky is typical—has a ten-year school, a hospital, a community center, shopping district. The city's budget, with a substantial part allocated to housing, has increased from less than 13 million rubles in 1925 to better than 540 million in 1957. In this period twice as much housing has been built as the city had before that time.

Not only has the city changed in appearance; its entire way of life has altered. It is now a center of education and culture, with 12 universities and colleges, drama, opera and ballet theaters, museums, libraries and the Azerbaijan Academy of Sciences.

The old oil worker learned to read and write only in Soviet times, when he was well along in years; his children go to the colleges and the universities as a matter of course, like so many of the young men and women of the new generation.

The women of Baku, like their sisters throughout Azerbaijan, were once virtual household slaves, doomed to a lifetime of servility and ignorance. All that is gone. Side by side with men, the Baku women administer their city—the City Council has 212 women members—and share the obligations and benefits of citizenship.

Baku is a city old in years, youthful in mood and appearance, a colorful city that has blended the old and the new into a happier, more prosperous pattern of life.

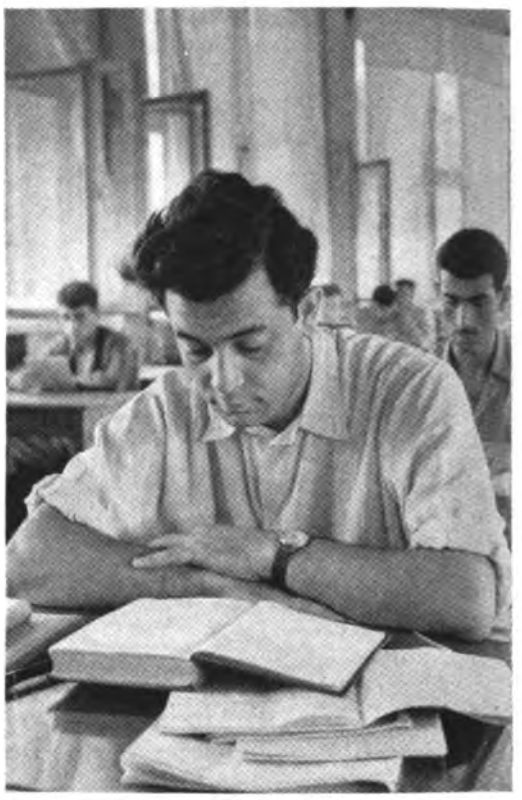
More pictures on following pages

MUSIC STUDENTS FROM ALL PARTS OF THE REPUBLIC ATTEND THE AZERBAIJAN STATE CONSERVATORY IN BAKU.

THE CITY HAS MANY DRAMA, BALLET, OPERA AND MOTION PICTURE THEATERS. THIS ONE IS ON KIROV SQUARE.

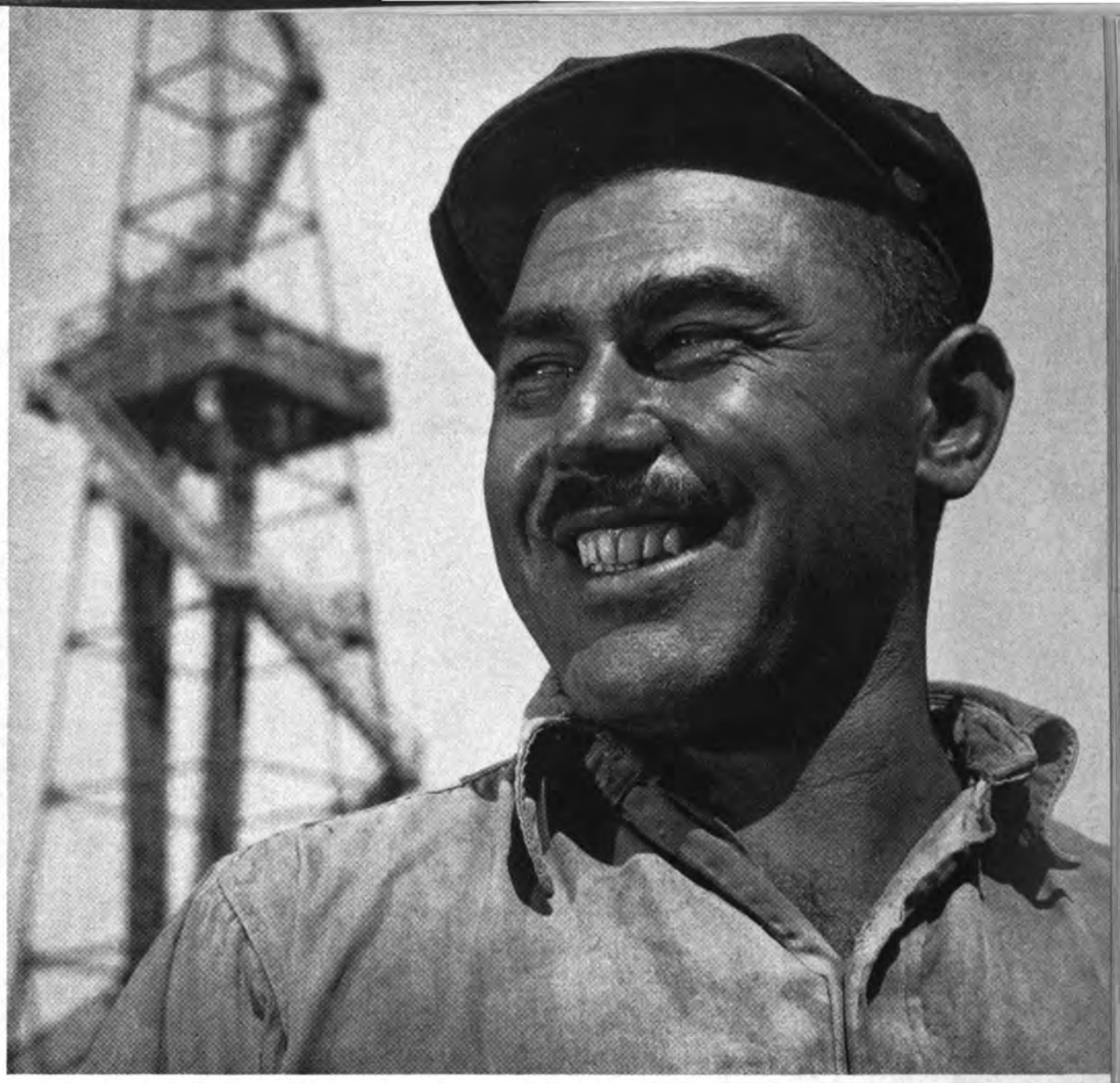
BAKU — Capital of A

These are graduate engineers of the Baku Industrial Institute employed at an oil refinery. Women now work alongside men in industry, science, the arts, government and other fields, while in pre-Soviet times the Azerbaijan woman, like the oriental woman generally, was a household drudge, in total subservience to her husband. The present Baku City Council includes 212 women among its 634 members.



Student Ramiz Agayev is shown in the Baku Industrial Institute Library. Large editions of books of all types—for the scientist and the layman, for readers of fiction and non-fiction—are now published in both the native and Russian languages in this area, where forty years ago most people could neither read nor write.

THE AZERBAIJAN ACADEMY OF SCIENCES, WHICH HAS ALREADY TRAINED A GENERATION OF SCIENTISTS, CONDUCTS RESEARCH IN BOTH PURE AND APPLIED SCIENCES.



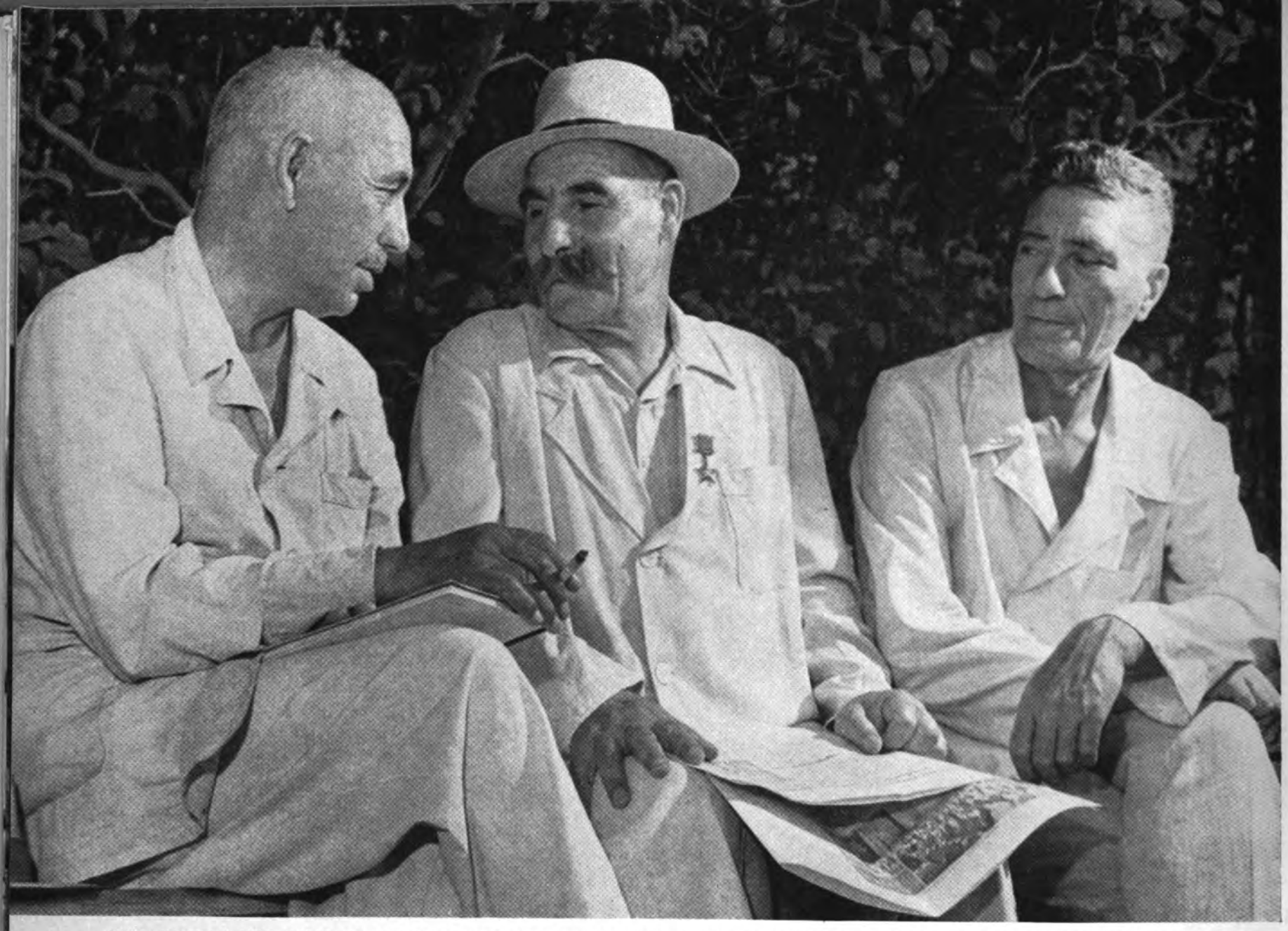
ALI PASHA NAGIEV, AN OIL WORKER OF THE YOUNGER GENERATION, HAS FOLLOWED THE FAMILY TRADITION IN HIS OCCUPATION.

YELENA GRIGORYAN IS A PHARMACEUTICAL LABORATORY TECHNICIAN.

KURBAN GUSEINOV IS A FOREMAN AT ONE OF THE BAKU OIL FIELDS.

NAJAF IZMAILOV (RIGHT) IS A FOREMAN AT AN ENGINEERING PLANT.

ALL THREE ARE MEMBERS OF AN AMATEUR SONG AND DANCE ENSEMBLE.

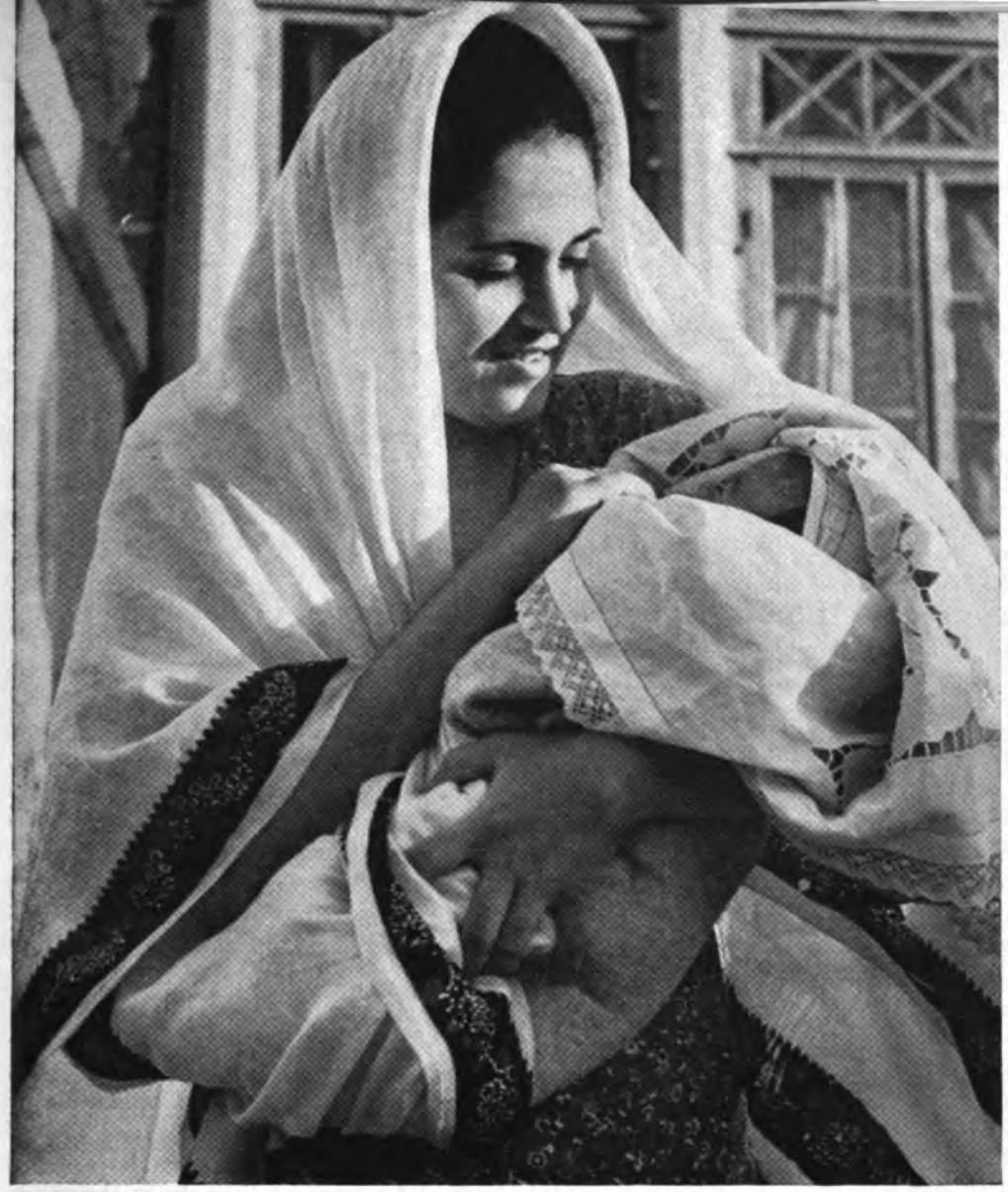


YUNUS MAMEDOV, GYUL ALIYEV AND ALI-ZADE NASUMILI ARE RETIRED OIL WORKERS. THE LAW PROVIDES THEM WITH MONTHLY OLD AGE PENSIONS FROM THE STATE FUNDS.

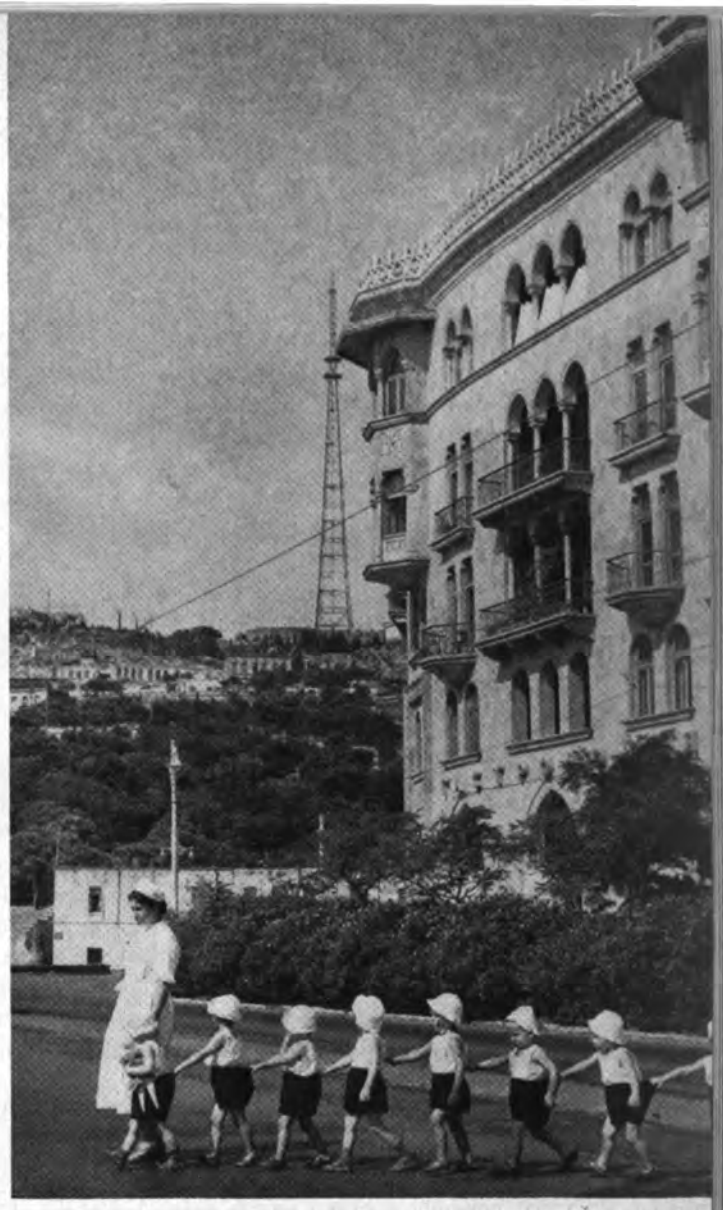
BAKU — Capital of Azerbaijan *Continued*

NEW HOUSING PROJECTS APPEAR IN ALL PARTS OF THE CITY.

THE FAMILY OF OIL ENGINEER KERIMOV IS ONE OF THOUSANDS THAT HAVE MOVED INTO NEW APARTMENTS.



HANUM BEGLYAROVA IS NOW ON MATERNITY LEAVE.



YOUNG BAKU CITIZENS TAKING A STROLL WITH THEIR NURSE.

THE CITY'S NURSERIES AND KINDERGARTENS ARE STAFFED WITH COMPETENT PERSONNEL AND TAKE GOOD CARE OF CHILDREN.

Woman's Place In Soviet Life

By POLINA KOROBOVA, *Secretary, USSR Central Council of Trade Unions*

OLD RUSSIA held strictly to the ancient Roman maxim that woman's place was "at home at the spinning wheel." The laws of Imperial Russia relegated women, then nearly half the population, to a submissive position in the family and in social life. They were denied the vote and the right to hold public office. Civil service regulations unconditionally proscribed the employment of women in any administrative position.

As industry developed in Russia at the close of the nineteenth century, women emerged from their homes. Those who were able to find jobs usually did the unskilled work at a fraction of the wages paid to men. Those who could not find jobs hired out as servants. Women in professional jobs were a rarity.

In the very earliest days of the Soviet state, all discriminatory laws were abolished. Women were given full civic and economic equality. But it was not only legal guarantees that gave women the important place they hold in Soviet society today, it was the direction of movement of the society itself.

Millions of skilled workers were needed to rebuild the country's economy. By 1930, because of the rapid pace of industrialization, not only had unemployment been eliminated, but there was an acute shortage of workers in all fields. Women in increasingly larger numbers, both skilled and unskilled, moved into industry, farming, the professions, government service.

Woman's place in Soviet life today is perhaps best indicated by the many hundreds of thousands who hold public office and high administrative positions in the government. More than a hundred women are ministers and deputy ministers in the governments of the Union Republics. In the national parliament they make up a fourth of the total number of deputies.

Librarians are kept busy. Women are guaranteed equal rights under Soviet law and 53 per cent of the country's college-trained specialists are women.

Why Women Work

There are few foreigners on a first visit to the Soviet Union who are not struck by the sight of women working at the most varied kinds of jobs, from the least skilled to those requiring the highest level of educational background. And one of the questions they almost always ask, particularly of women workers in industrial jobs, is this one: "Why do you work? Do you have to?"

Klara Antipova is a foreman in the Moscow Automobile Plant. She says, "This is a question I have been asked more than once by people who know little about life in the Soviet Union. The question was put to women at our factory when the delegation from the Renault plant in France visited, and again when we made a return visit there.

"The question surprised me the first time it was put; I had somehow never thought of it before. It had always seemed perfectly natural to me that I, like any other woman—or man, for that matter—should be working at a job. It's an obligation you have to yourself and to the society you live in.

"Nobody compels me to work. It so happens that my husband makes good wages and we could manage even if I didn't hold down a job. But I can't imagine myself tied down to an apartment with no other interests but housework. I'd be bored to death in a week. That's why I work."

There are women—and men—who feel differently, of course. Here is a woman physician working in a children's clinic, whose husband is insistent she give up her work and stay home to take care of their own children—and of him. What ought she to do?

Not a typical case, and one with obviously complicating factors, but if Klara Antipova were asked, and Klara Antipova's is the prevailing social attitude on the relation between the sexes, she would be most likely to reply, "Why doesn't the husband give up his own job if he feels so strongly about it? What's sauce for the goose is sauce for the gander."

This by no means implies that all women work because they like their trades or professions and would be unhappy if they had nothing to do but take care of a family. In many cases the woman must work to meet

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Polina Korobova *began work as a spinner in the Moscow Silk Spinning Mill in 1930. Over a period of many years there she was repeatedly elected chairman of the local trade union committee. Later she was elected chairman of the Textile Workers Union.*

Today, as one of the secretaries of the USSR Central Council of Trade Unions, Korobova occupies a top-ranking trade union position in the country's labor movement. She deals especially with questions pertaining to the work of women and the safeguarding of their rights.

the family budget, especially if the family is large and the husband's earnings insufficient.

Then there are many women who are the sole support of a family. One must not forget the millions of Soviet women whose husbands were killed in the Second World War and who are now raising fatherless children. Although the government makes special provision for the support of orphaned children and war widows, income from a regular job means a better table, clothes, furniture and luxuries which would not otherwise be possible.

From Worker to Factory Manager

The transition from unskilled worker to plant director is no greater rarity for women than for men in Soviet industry.

Arma Shakhgildyan is an Armenian woman, director of a big textile mill, who started work as a twiner in the silk-spinning division of the same mill in 1930. Much the same holds true for Maria Ivanova, director of the Java Tobacco Factory in Moscow; of Antonina Smolnikova, director of the Leningrad Confectionery Factory; of Menzira Rzayeva, director of an Azerbaijan textile mill; and for thousands upon thousands of other Soviet women. In Turkmenia, where there was hardly a woman who could read or write before the Socialist Revolution of 1917, no fewer than 30 big industrial enterprises have women directors.

Needless to say, fate has not dealt equally kindly with all working women. There are many who have fallen far short of high ambitions, many who take jobs out of necessity. But the significant point is that there are no barriers for women workers in the Soviet Union. In whatever field, opportunity is wide open to the woman who wants to avail herself of it.

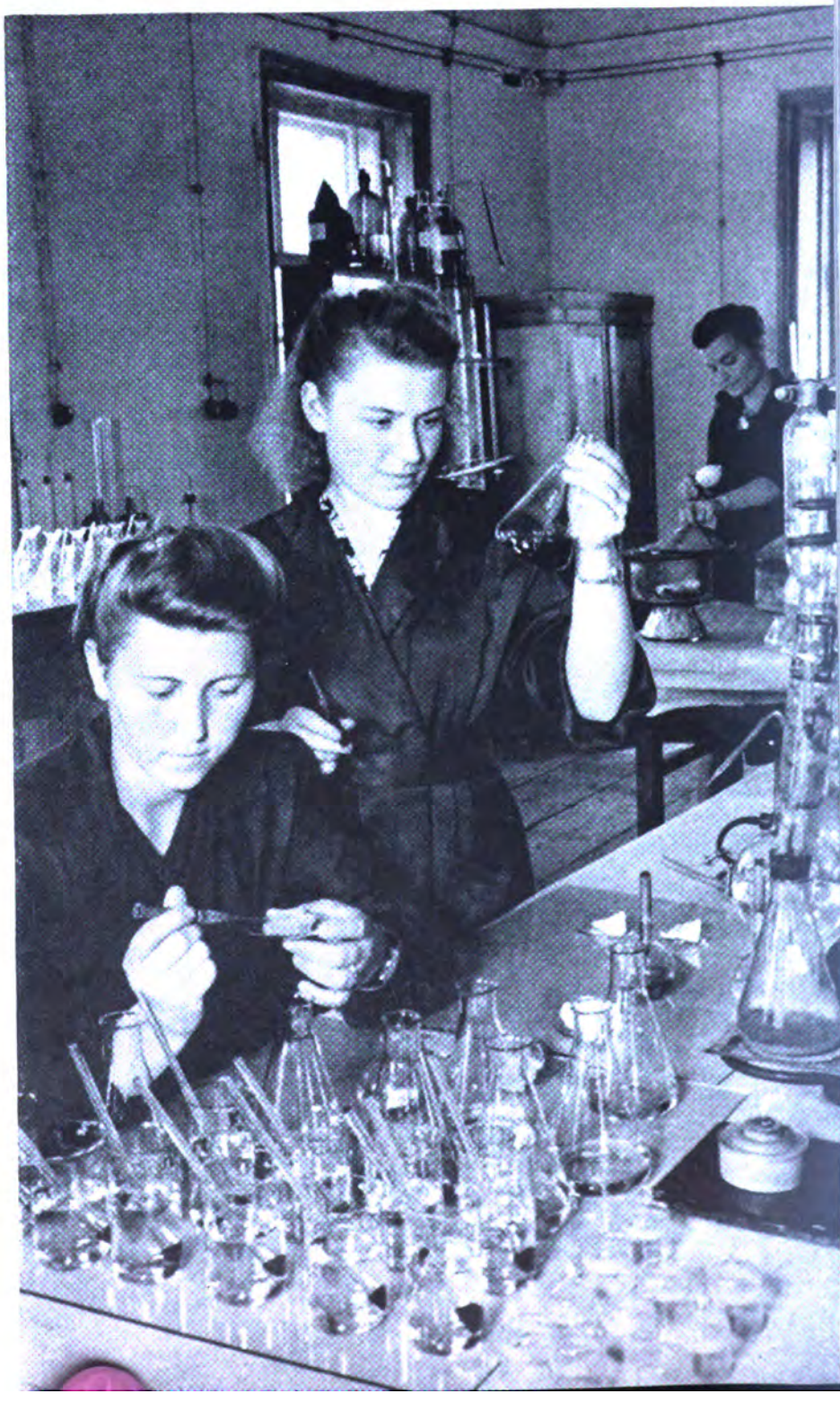
Every city, town or village has long "Help Wanted" lists posted. A woman who wants or needs work has no problem finding a job for which her education or experience suits her. And if she has no experience, no trade or profession, there are schools and training courses open to her, without cost, prepared to equip her for any one of a hundred jobs.

Continued on page 21

A recent painting by young Irina Shevandronova has been purchased for the famous Tretyakov Gallery. Here she is shown working on a self-portrait.

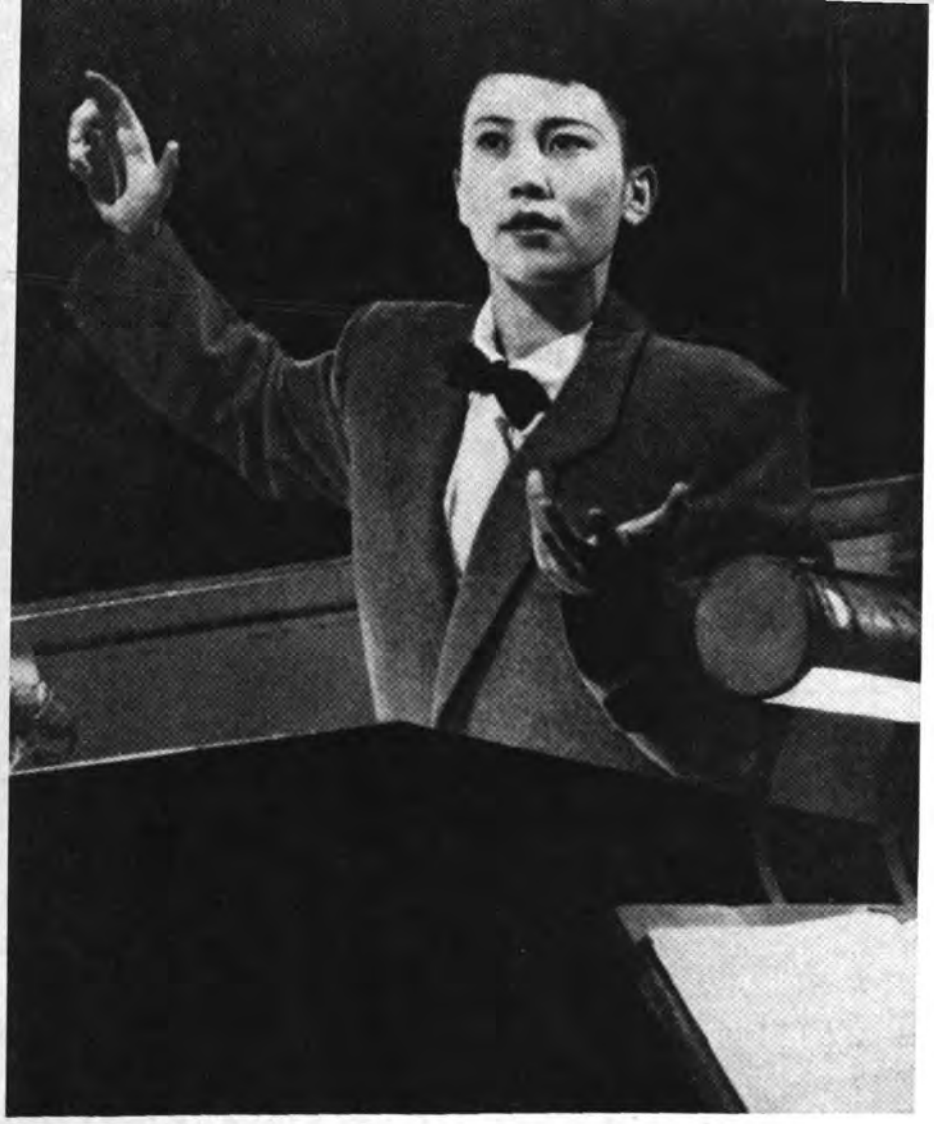
Maria Kovrigina is the Minister of Public Health of the Soviet Union. A fourth of all the deputies in the national parliament are women.

Young chemists at work in the laboratory are testing soil samples at a new hydroelectric station. They help fill the constant demand for new scientists.

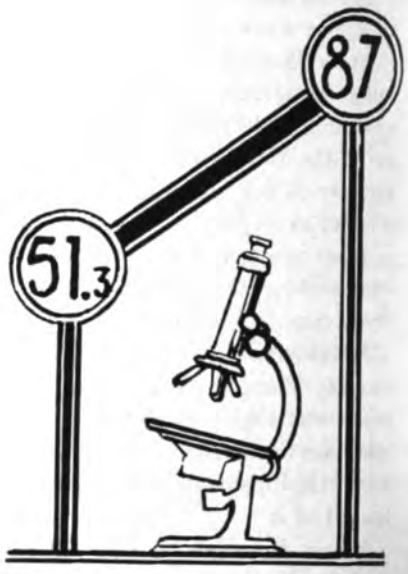


Woman's Place In Soviet Life

Continued



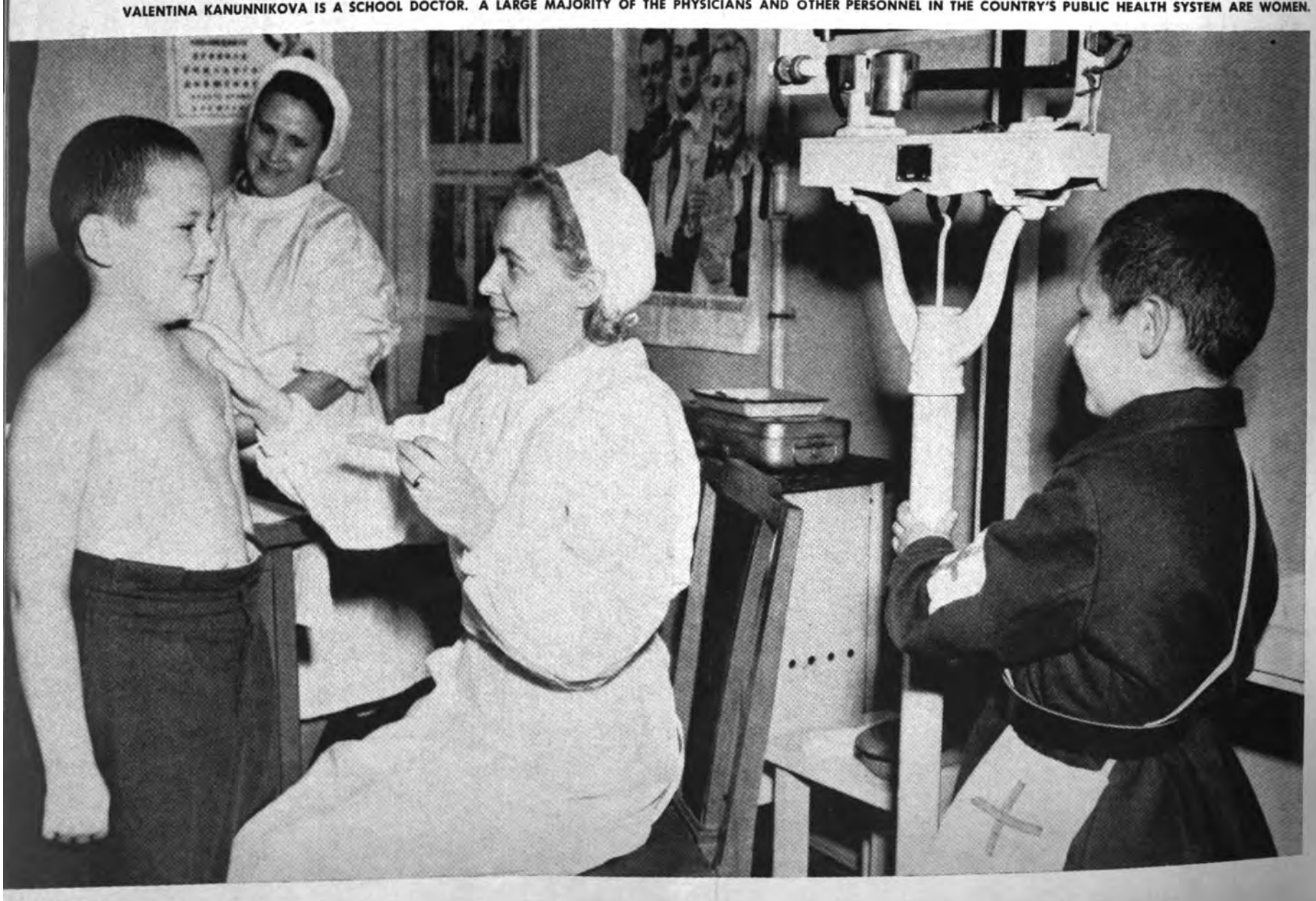
Nelli Shaltykova is the daughter of a cattle breeder from the Buryat-Mongolian Autonomous Republic. Here at her chosen post. she leads the republican symphony orchestra.



1947 1956

The number of women engaged in scientific research (in thousands).

VALENTINA KANUNNIKOVA IS A SCHOOL DOCTOR. A LARGE MAJORITY OF THE PHYSICIANS AND OTHER PERSONNEL IN THE COUNTRY'S PUBLIC HEALTH SYSTEM ARE WOMEN.



In All Industries and Professions

Because of mechanization and automation of Soviet industry there are few jobs today that require the kind of physical effort of which women are incapable. What is required to run a modern machine is the skill which a person with a general education can acquire in comparatively short order. As a result, large numbers of women have taken over jobs in industry.

As for the professional areas, today there are nearly half a million women engineers and technicians in Soviet industry, principally in food processing and textile manufacture. Fifty-three per cent of all specialists with a college education are women. They comprise 70 per cent of elementary and secondary schools teachers and 35 per cent of college and university professors.

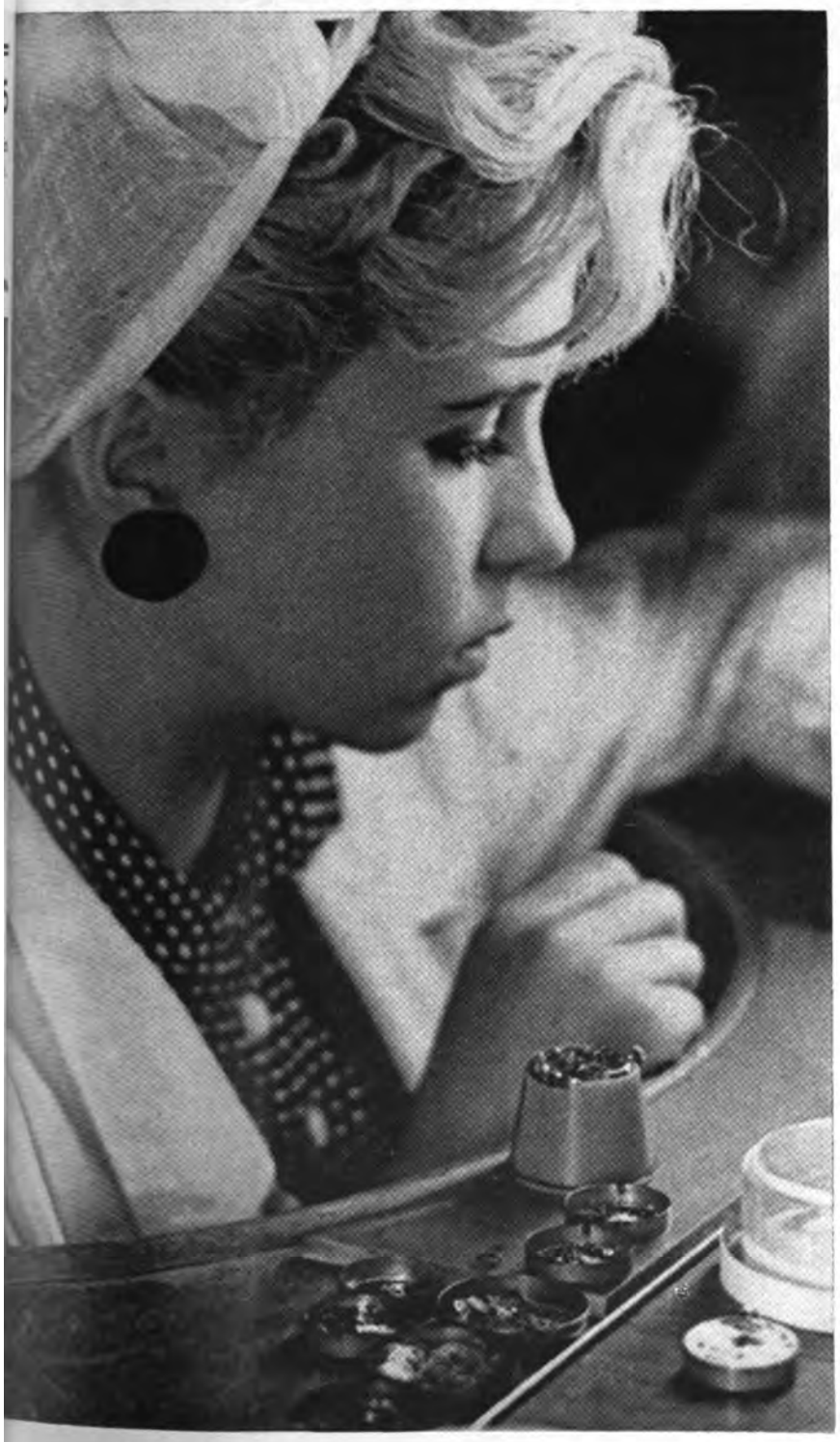
There is no area of scientific research in which women do not work. They have made major contributions to the scientific advances in both the pure and applied sciences. Forty per cent of the research staffs of the USSR Academy of Sciences are women.

Some foreign visitors to the Soviet Union express their displeasure at the fact that in their travels about the country they occasionally see women doing construction work and other heavier jobs.

It is true that, although this situation is becoming much rarer, women

Continued on page 23

Vera Krylova has assembled watches at Moscow Watch Factory for two years. She plans to enter English faculty of Moscow Foreign Languages Institute.



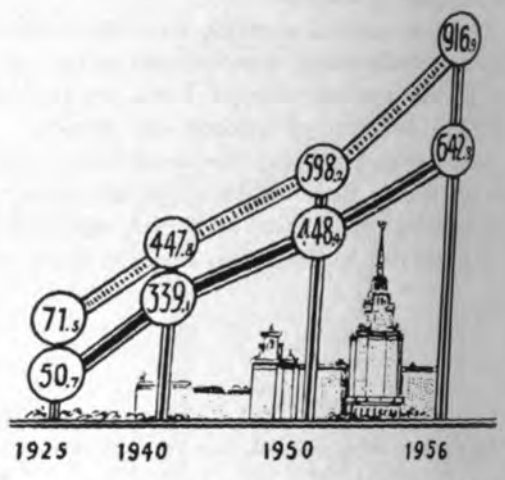
Dress-designer Lilya Belova, whose husband is a machinist, finishes dresses in a Moscow fashion house. Her customers are unanimous in their praise.

Ketevana Lomtatidze, a deputy to the USSR Supreme Soviet from Georgia, devotes time to scientific research. She holds her doctorate in philology.

Woman's Place In Soviet Life

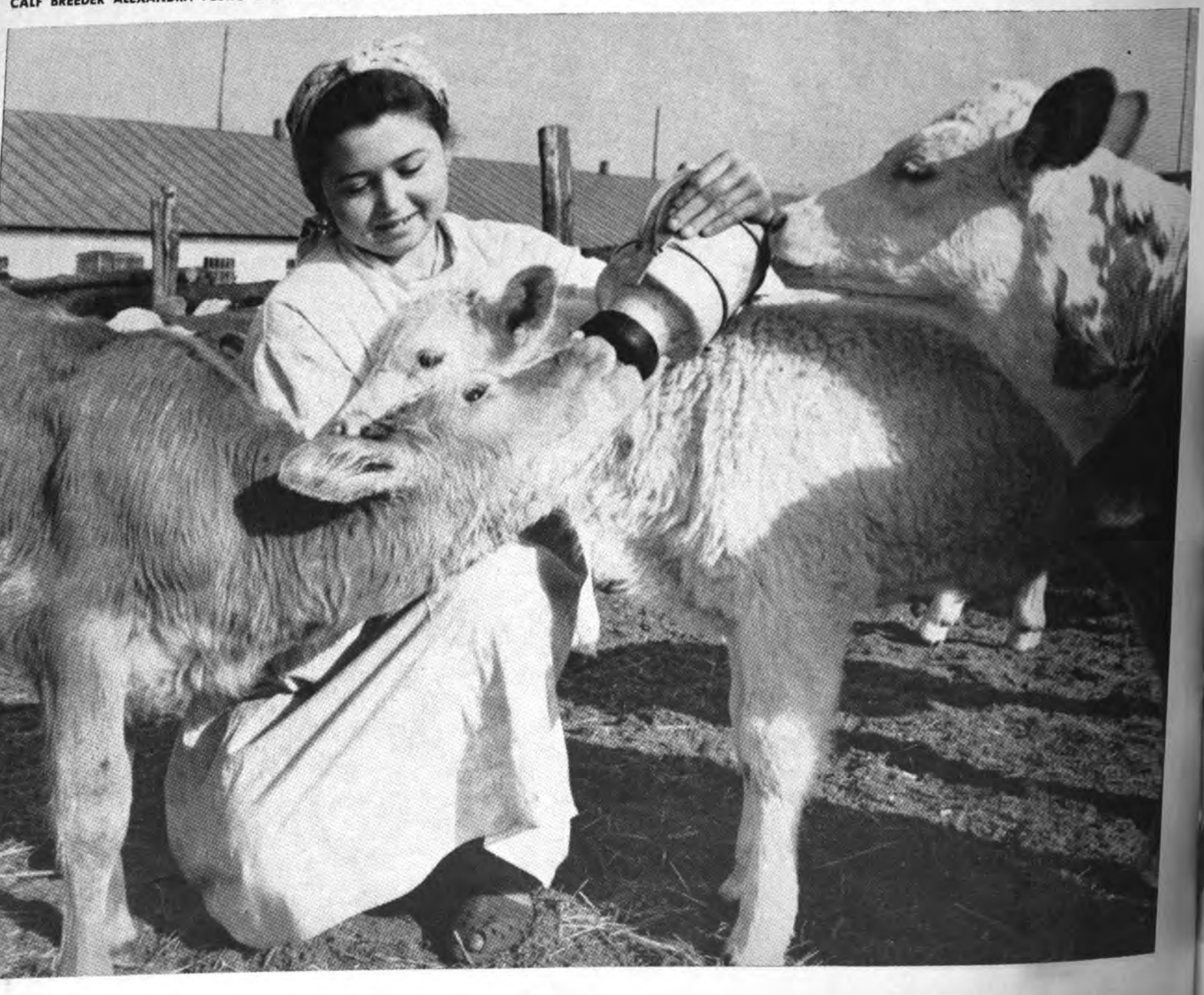
Continued

Film star Izolda Izvitskaya won her first role while a dramatic art student. In 18 months after graduating from the Institute of Cinematography she starred in four films involving the acting of varied roles.



Women correspondence students (in thousands): top—in technical schools; bottom—in colleges.

CALF BREEDER ALEXANDRA PEDKO WORKS ON A COLLECTIVE FARM IN THE UKRAINE. MANY YOUNG WOMEN CHOOSE FARM WORK AFTER COMPLETING THEIR EDUCATION.



are still to be found here and there employed at heavy work. But to understand why, one must keep this vital fact in mind. The country's loss in man power in the Second World War was incalculably great. Millions of the youngest and fittest men were killed or crippled. Women took up the slack; there was no other way to rebuild a shattered village, a burned town, a gutted factory.

More than 1,710 towns and cities were destroyed by the Nazis, more than 70,000 villages. Both men and women labored at this enormous rebuilding job for years after the war ended. War and its aftermath left scars that do not fade quickly, even though the wounds may be healed.

Real Equality

The principle of equal rights with men "in all spheres of economic, government, cultural, political and other public activity" guaranteed to Soviet women by the Constitution would be meaningless if it did not take into careful account the special problems of women.

The law forbids the employment of women in such work as underground mining, the smelting and pouring of metals, in specified jobs on railroads and ships. On the other hand, the principle of equal pay for equal work is so deeply imbedded in Soviet law and practice that no employer would dream of offering a woman less pay than a man for the same job.

The health of expectant mothers is carefully safeguarded. Besides the annual paid vacation every worker gets, the expectant mother gets a four-month maternity leave with full pay. This is specified by law. During the early months of pregnancy, if the doctor thinks it medically advisable, the management is required to transfer an expectant mother to lighter work at the same pay.

Nurseries and kindergartens, staffed by experienced teachers and doctors, are provided for children of working mothers. Even the lowest-paid parents can afford to send their children to country kindergartens and summer camps for vacation. The fees are negligible—about a hundred rubles a month, on an average. Schooling, all the way through college and post graduate work, is free. So are medical and dental services.

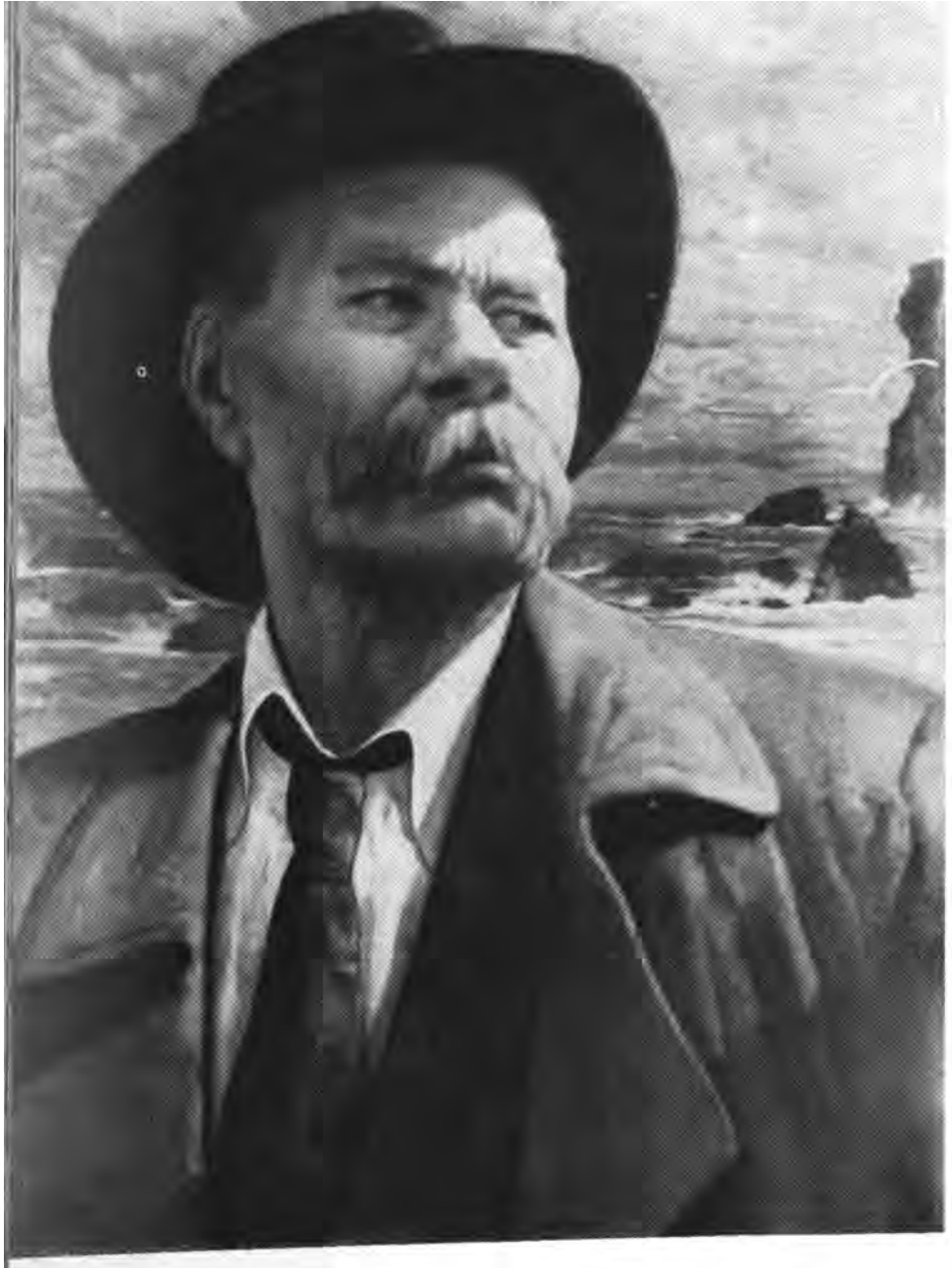
Utility-service establishments are taking over more and more of the thankless round of household chores—washing, sewing, even cooking—to give women more time to raise their children, to develop their capacities, and to make their contribution to the economic, cultural and social progress of the country.

The talented hands of women have added immeasurably to the nation's welfare. And the nation takes good care of these hands. ■

Alla Nekhoroshikh has two big interests at eighteen—aviation and cycling. She is currently enrolled as student at Moscow Aviation Technical School.

New teacher's exciting first day at school. Women occupy seventy per cent of all the teaching positions in Soviet elementary and secondary schools.

Zoya Mironova, the vice chairman of the Moscow Soviet Executive Committee, here writes her autograph for American tourists during an exchange visit.



MAXIM

On the 90th Anniversary

Maxim Gorky, great Russian writer, was born ninety years ago, on March 28.

His entire life was devoted to probing the significance of human existence and the laws of human development. "Man—it has a proud ring!" said Gorky. "Life must be rebuilt to make it worthy of man."

Gorky became known as a writer of outstanding talent in the nineties of the last century. He sang of the man of labor, of people strong of spirit and filled with resentment against what he called the "leaden abominations" of pre-revolutionary Russian life. His early romantic productions like *Old Izergil*, *Song of the Falcon*, *Song of the Stormy Petrel* and other short stories resound with a call to attain freedom and happiness.

"The purpose of literature," Gorky wrote in his story *A Reader*, "is to help man to know himself, to fortify his belief in himself and support his striving after the truth; to discover the good in people and to root out what is ignoble; to kindle shame, wrath, courage in their hearts; to help them acquire a strength dedicated to lofty purposes and sanctify their lives with the holy spirit of beauty."

In his early stories Gorky posed problems that were to trouble him all his life. The origin of many of the characters in his later novels and plays can be traced to these stories.

The Flaming Heart of Danko

By MAXIM GORKY
(1868-1936)

"LONG, long ago there lived some people in a place that was bounded on three sides by impenetrable forests and on the fourth by the steppe. They were a strong, brave and cheerful people, but evil times came upon them. Other tribes appeared and drove them into the depths of the forest. The forest was dark and swampy, for it was very ancient, and the boughs of the trees were so closely interwoven that they shut out the view of the sky, and the sun's rays had all they could do to pierce the thick foliage and reach the waters of the swamp. And wherever they reached those waters, poisonous vapors arose, and the people began to become ill and die. Then the women and children of that tribe began to weep and the men brooded on what had happened and grew despondent. Their only hope lay in getting out of the forest, but there were only two means of getting out: one of them was to go back over the road they had come, but at the end of this road strong and vicious foes awaited them; the other was to push forward through the forest, but here they would come up against the giant trees whose mighty branches were closely entwined and whose gnarled roots were sunk deep into the mire of the bogs. These stone-like trees stood silent and motionless in the gray gloom of daylight, and they seemed to close in upon the people at nightfall when the fires were lit. And always, day and night, this tribe, born to the freedom of the steppe, was walled in by shadows that seemed waiting to crush them. Most fearful of all was the wind that went wailing through the tops of the trees, causing the whole forest to sing a grim dirge to the people imprisoned there. They were, as I have said, a brave people, and they would have fought to the death with those who had once defeated them, had they not feared being wiped out in the fight: they had their ideals to defend, and if they perished, their ideals would perish with them. And for that reason they sat pondering their fate through the long nights, with the poisonous vapors rising all around them and the forest singing its mournful song. And as they sat there, the shadows of the fires leaped about them in a soundless dance, and it seemed as if it were not mere shadows that were dancing, but the evil spirits of forest and bog celebrating their triumph. And nothing, not even work or women, can exhaust a man as do despondent thoughts. The men grew weak from brooding. Fear was born in their hearts, binding their strong arms; terror gripped them as they listened to the women wailing over the bodies of those who had died of the poisonous vapors or lamenting over the fate of the living made helpless by fear. And cowardly words came to be spoken in the forest—at first softly and timidly, but louder and louder as time went on. And at last the people thought of going to the enemy and making him a gift of their freedom. So frightened were they by the thought of death that not one of them shrank from living the life of a slave. But at this moment Danko appeared and saved them from such a fate."

The old woman, Izergil, it seems, had often recounted this tale about the flaming heart of Danko. As she intoned it in her hoarse crackling voice, I seemed to hear the sounds of the forest, in whose depths these unfortunate exiles were poisoned to death.

"Danko was one of them, and he was young and handsome. Handsome people are always courageous. And he said to his comrades:

" 'Stones are not to be removed by thinking. He who does naught will come to naught. Why should we exhaust our energies thinking and brooding? Arise, and let us go through the forest until we come out at the other end; after all, it must have an end—everything has an end.'

"They looked at him and saw that he was the best man among them, for his eyes were aglow with life and strength.

" 'Lead us,' they said.

"And he led them."

GORKY

of the Writer's Birth

Even in his work of the nineties we can detect the beginnings of that new method which he was to introduce into literature—the method of socialist realism, combining a truthful portrayal of life as it is with a clear perception of what it ought to become.

"Socialist realism," Gorky declared in his report to the First USSR Congress of Writers, "affirms that life is action, is creation, the purpose of which is the continuous development of man's most valuable individual abilities for the sake of his victory over the forces of nature, for the sake of the great happiness of living on the earth."

His novel *Mother*, his autobiography *My Childhood*, *In the World*, *My Universities*, and such works as *The Lower Depths*, *The Artamonovs*, *The Life of Klim Samghin*, *Yegor Bulychov and the Others* won world fame for Maxim Gorky. These volumes have been translated into many foreign languages and are known and loved throughout the world.

The Soviet people and all progressive mankind mark the ninetieth anniversary of Maxim Gorky's birth as that of a man whose life was an unforgettable example of whole-hearted service to the progress of humanity.

The tale about the flaming heart of Danko, reprinted below, is an excerpt from Gorky's story *Old Izergil*, written in 1895.

The old woman stopped talking and gazed out over the steppe, which was growing darker and darker. Sparks from the flaming heart of Danko flared up in the distance like ethereal blue flowers that bloomed but for a moment.

"And so he led them, Danko. And they followed him willingly, for they believed in him. It was a difficult path. It was dark, and at every step the yawning bogs swallowed people up, and the trees were like a mighty wall barring the way. Their branches were closely interwoven, their roots were like snakes reaching out in every direction, and every step these people took cost them blood and sweat. For a long time they went on, and the further they went, the thicker grew the forest and the weaker grew their limbs. And then they began to murmur against Danko, saying that he was young and inexperienced and had no right to bring them here. But he kept walking at their head, his spirit undaunted, his mind unclouded.

"But one day a storm broke over the forest, and the trees whispered menacingly. And instantly it became as dark as if here were gathered all the nights that had passed since the forest was born. And the little people walked on under the big trees amid the roar of the storm, and as they walked the giant trees creaked and sang a sinister song, and the lightning flashed above the treetops, throwing a cold blue light over the forest for a brief instant, disappearing as quickly as it had appeared and striking terror into the hearts of the people. And in the cold flashes of lightning the trees seemed to be live things that were stretching out long gnarled arms and weaving them into a net to catch these people who were trying to escape from darkness. And something cold and dark and fearful peered at them through the dark foliage. It was a difficult path and the people who had set out on it grew exhausted and lost heart. But they were ashamed to admit their weakness, and so they poured out their anger and resentment on Danko, who was walking at their head. They began to accuse him of being incapable of leading them.

"They came to a halt, and, tired and angry, they began to upbraid him there in the quivering darkness, amid the storm's triumphant roar.

" 'You are a despicable and evil creature who has brought us to grief,' they said. 'You have exhausted us by leading us here, and for that you shall die.'

" 'You said: "Lead us!" and I led you,' cried out Danko, turning to face them. 'I have the courage to lead you, and that is why I undertook to do it. But you? What have you done to help yourselves? You have done nothing but follow me, without so much as husbanding your strength for the greater march. You merely followed me like a flock of sheep.'

"His words only infuriated them the more.

" 'You shall die! You shall die!' they shrieked.

"The forest roared and echoed their cries, and the lightning tore the darkness to shreds. Danko gazed upon those for whose sake he had undertaken such great labor, and he saw that they were like wild beasts. Many people were pressing about him, but he could detect no signs of humanity in their faces and he knew that he could expect no mercy from them. Then resentment seethed in his breast, but it was quelled by compassion. He loved these people, and he feared that without him they would perish. And the flames of a great yearning to save them and lead them out on to an easy path leaped up in his heart, and these mighty flames were reflected in his eyes. And seeing this, the people thought he was enraged; they thought that was why his eyes flashed so. And they instantly grew wary, like wolves, expecting him to throw himself against them, and they drew closer about him that they might seize him and kill him. He saw what they were thinking, but the flames in his heart only flared up the brighter, for their thoughts added the oil of sorrow to the flames of his yearning.

"And the forest went on singing its mournful song, and the thunder crashed, and the rain poured down.

" 'What else can I do to save these people?' cried out Danko above the thunder.

"And suddenly he ripped open his breast and tore out his heart and held it high above his head.

"It shone like the sun, even brighter than the sun, and the raging forest was subdued and lighted up by this torch, the torch of a great love for mankind, and the darkness retreated before it and plunged, quivering, into a yawning bog in the depths of the forest. And in their astonishment the people were as if turned to stone.

" 'Follow me!' cried Danko, and he rushed forward, holding his flaming heart high above his head to light the way.

"And the people followed him as if under a spell. And once more the forest began to murmur and wave its treetops in wonder. But its murmur was drowned out by the sound of running feet. The people were running ahead boldly and swiftly, lured on by the wonderful vision of the flaming heart. And even now there were those who perished, but they perished without tears and complaints. And Danko went on ahead of them, his heart flaming brighter and brighter.

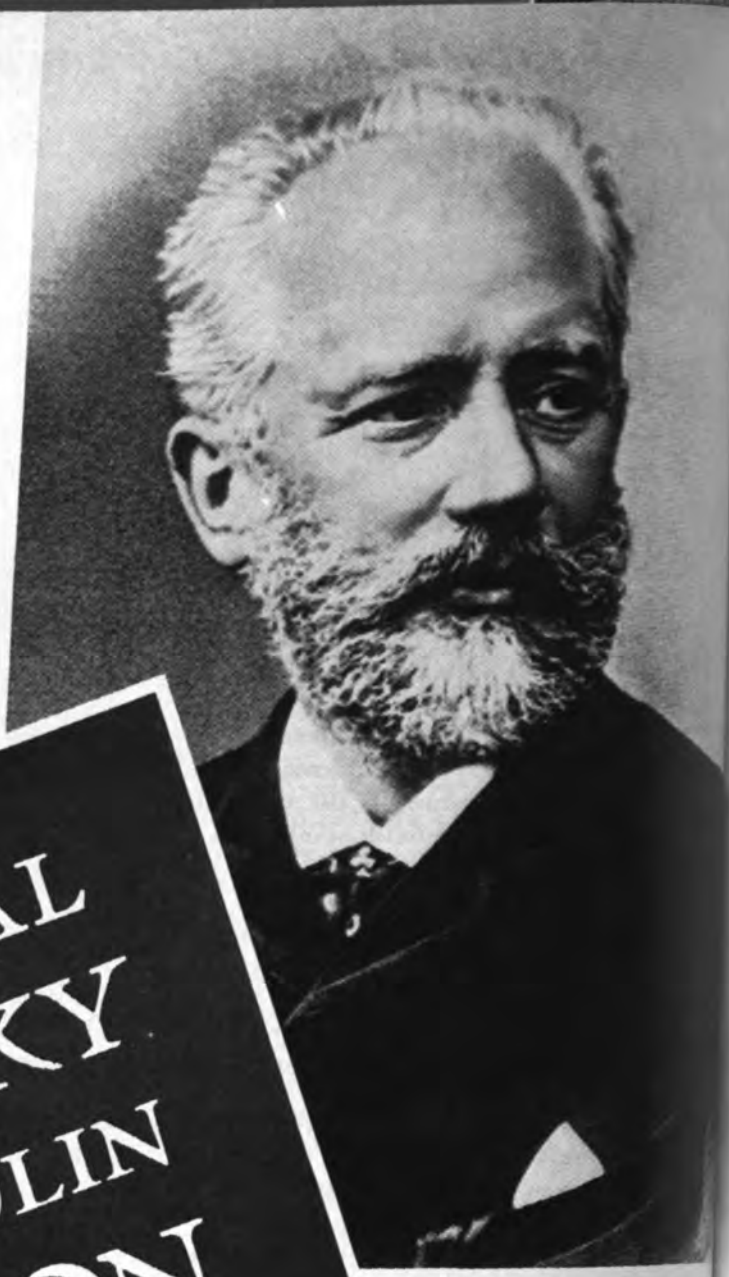
"And suddenly the forest in front of them parted; it parted to make way for them and then closed behind them, a mute and solid wall, and Danko and his followers plunged into a sea of sunlight and rain-washed air. The storm was now behind them over the forest, while here the sun shone, the steppe throbbed with life, the grass was hung with diamond raindrops and the river was streaked with gold. It was evening, and the rays of the sunset painted the river as red as the blood which poured in a hot stream from the wound in Danko's breast.

"The brave Danko cast his eye over the endless steppe, cast a joyful eye over this land of freedom, and gave a proud laugh. And then he fell down and died.

"And his followers were so full of joy and hope that they did not notice he had died and that his brave heart was still flaming beside his dead body. But one timid creature noticed it and, fearing he knew not what, stamped on the flaming heart. And it sent up a shower of sparks and went out.

"And that is why blue sparks are always to be seen in the steppe before a thunderstorm."

As the old woman finished her beautiful tale, the steppe grew incredibly still, as if overawed by the strength of the brave Danko, who set fire to his own heart for the sake of his fellow men and died without seeking the least reward for what he had done. ■



INTERNATIONAL
TCHAIKOVSKY
PIANO AND VIOLIN
COMPETITION

TO BE HELD
IN MOSCOW
MARCH–APRIL
1958

"This contest will honor a composer whose music belongs to all mankind"

—says Dmitri Shostakovich,

Chairman of the Organizing Committee

This statue of the great composer greets the visitor as he reaches the entrance to the Grand Hall of the Tchaikovsky State Conservatory in Moscow.

IN HONOR of Pyotr Ilyitch Tchaikovsky, whose influence upon music was world-wide, an international piano and violin competition is being held in Moscow during March and April.

Tchaikovsky composed in almost every musical form—opera, the ballet, symphony, cantata, chamber music, art song, concerto. One is hard put to think of a single form to which he has not contributed.

His concertos for both violin and piano form a preeminent part of the concert repertory. Their wealth and depth of emotion have moved concert-goers the world over. His work was the synthesis of emotion and intellect that characterizes all great art.

His memorable writing on music, which covered a period of ten years, reflected his scope of interest and wide erudition. He took an active and leading part in the musical life of the period. As director of the Russian Music Society, a post he assumed in 1885, he did much to develop musical style and technique and to train young musicians.

He welcomed new talent and fine musicianship. He was a champion of the forward-looking in music, of everything that expressed man's profound aspirations and his search for beauty.

He conceived of music as belonging to mankind, not to one country or another. It was a character of his tours that when he played abroad his programs featured Russian music, and when he played at home, he performed the work of non-Russian composers.

It is to these high purposes of Tchaikovsky that this contest in his honor is dedicated.

Its aim is to foster young talent, and the age limits, therefore, are from 18 to 30. Auditions will be public and will be held in the Grand Hall of the Tchaikovsky State Conservatory in Moscow. They will be judged by a panel of distinguished pianists and violinists invited from many countries.

The works to be played will include, along with those of Tchaikovsky and other classic and modern Russian composers, compositions of Bach, Chopin, Mozart, Liszt, Paganini and Wieniawski. Each contestant will also perform a work by a modern composer, preferably one from his own country.

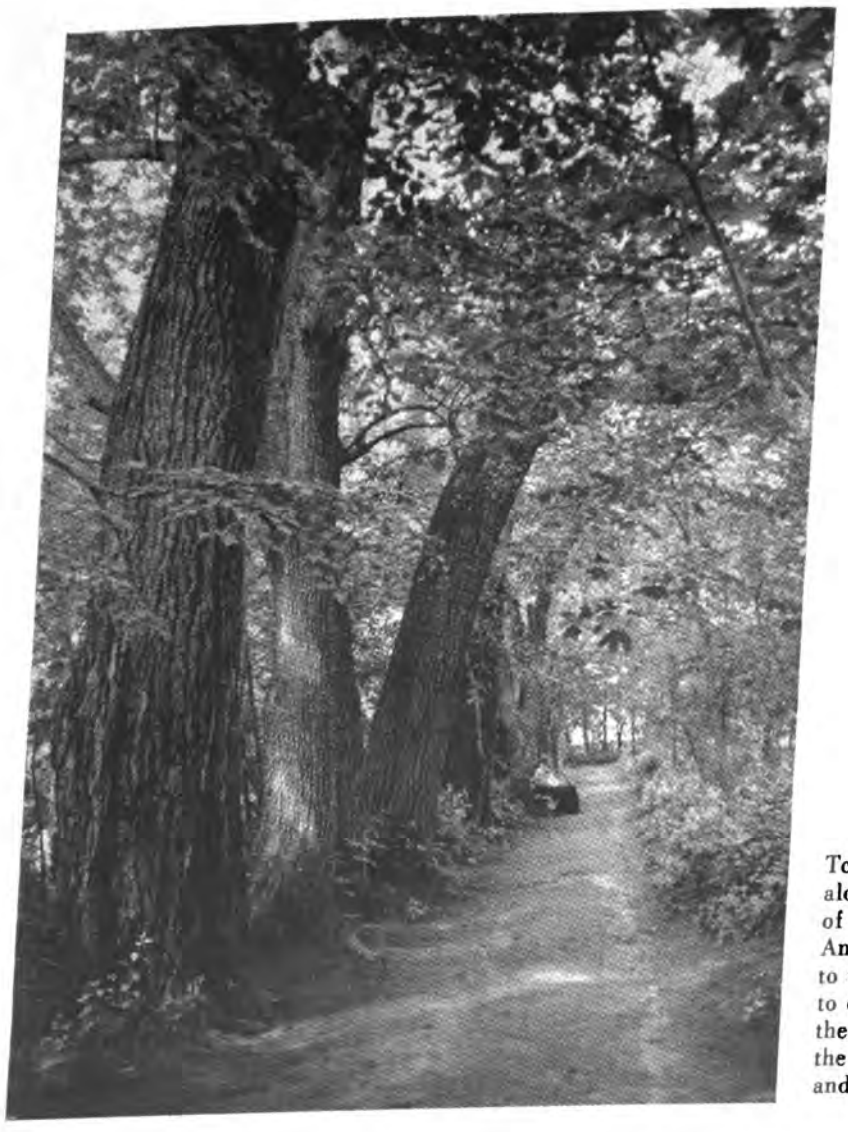
There will be sixteen prize-winners. The first prize in each group, for piano and violin, will be 25,000 rubles and a gold medal. The first three winners will make concert tours of the Soviet Union.

Music, as Tchaikovsky's life and work have phrased it for us, has no national boundaries. Its compass is as wide and unlimited as the range of the human spirit itself. It is our hope that this contest, honoring a composer who wrote for all people, will tie more closely the bonds of friendship between nations and promote mutual understanding. ■

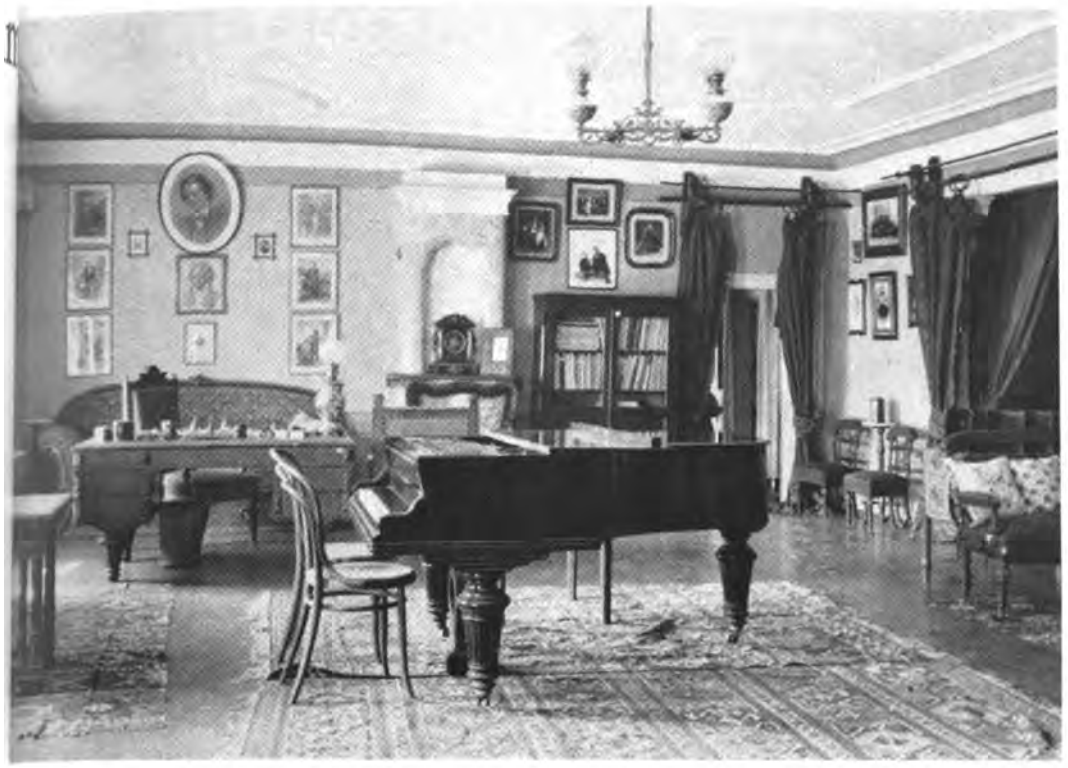
VIEW INSIDE THE GRAND HALL OF THE MOSCOW CONSERVATORY WHERE THE INTERNATIONAL TCHAIKOVSKY PIANO AND VIOLIN COMPETITION WILL TAKE PLACE THIS SPRING.

The Tchaikovsky Museum

The Tchaikovsky Museum in Klin, near Moscow, was the composer's country home. There, during the year before his death in 1893, he composed his last symphony, *The Pathétique;* the Third Piano Concerto; 18 pieces for the piano and six songs. Students of music from every country in the world have visited this national shrine to study the composer's manuscripts and memorabilia.



Tchaikovsky was fond of walking alone along this rustic path. He spent the last fifteen years of his life between his tours—he visited America and England—and composing. It was to these beloved country surroundings that he returned to create some of his finest work. Here he wrote the operas *Iolanthe* and *The Enchantress;* the ballets *Sleeping Beauty* and *The Nutcracker;* and his *Manfred Symphony.*



Tchaikovsky's study at Klin,
furnished as it was when he worked
there. At the Becker piano, presented
by the makers in 1885, the composer
wrote many of his compositions.
Tchaikovsky was uncompromising
in judgment of his own work. He was
convinced he had never mastered form.
Yet his longer musical works
are among the very finest of their kind.
His melodies are incomparably beautiful
and his orchestrations most
imaginatively inventive.

Tchaikovsky liked to work in this sunny corner in good weather.
From the bay window he could see the countryside he loved so much.
His Klin house was a wish come true. As early as 1885, he
wrote in his diary notes: "All my thoughts at present
are centered on finding a place of permanent residence
somewhere in a village near Moscow."

The composer's desk.
The archives at Klin contain
a wealth of material for the study
of Tchaikovsky's work.
His house has been maintained
as a national museum since 1894.

Tchaikovsky's bedroom at Klin.
The composer's life was not a happy one.
His Sixth Symphony, *The Pathétique*,
with its tragic overtones,
is in a real sense
a personal statement.
He died at the age of 53,
a few days before the symphony
was to have its first performance.

THE LOCAL REPLACES GENERAL ANAESTHESIA FOR MAJOR OPERATIONS, SIMPLIFYING THE SURGEON'S PROBLEM.

HEART SURGERY

UNDER LOCAL ANAESTHESIA

By Alexei Yugov

WE are in the Vishnevsky Institute of Surgery in Moscow witnessing an operation on the heart. The patient is a young woman with a lovely Ukrainian face. The operation is well advanced. We can see into the opened thoracic cavity, watch the lungs pumping and the heart beating but the patient is awake, her eyes open. There is more curiosity and surprise in her look than fear—and no slightest indication of pain. She even smiles when one of the white robed physicians talks to her.

There is no anaesthetist in evidence nor any of the anaesthetic apparatus we would expect. Nothing more than syringes of novocain that are being handed to the operating surgeon with quick regularity, one after another.

The surgeon makes an incision in the heart. His finger probes the beating organ, parts the adhesions, the scar tissue which has been constricting the opening between the left atrium and the left ventricle of the heart.

These cicatricial adhesions are a very serious aftereffect of endocarditis. They do not respond to treatment. The patient's life can be saved only by surgery. The young woman has this moment been saved from what would have meant certain death only a few years ago.

Modern cardiac surgery has moved a long way since the turn of the century. It was Dr. Albert Billroth, the most eminent European surgeon of his day, who issued the famous dictum: "The surgeon who dares sew up a cardiac wound deserves to lose the respect of his colleagues." He thought it murder. He would probably have been unable to find language strong enough had anyone suggested the possibility of operating on the heart.

Soon after this formidable statement, however, Surgeon Podrez of the Ukrainian city of Kharkov dared to sew up a cardiac wound—successfully—for the first time anywhere in the world. Professor Zege-Manteufel of Tartu University in Estonia followed by probing the cavity of the heart of a twenty-year-old girl to extract a bullet—successfully. Subsequently Terebinsky and Dmitriev, Soviet surgeons, were the first to make successful experimental studies of surgical treatment of heart diseases.

In the last ten years, cardiac surgery in the Soviet Union has made great strides. The operation we described above is a classic in the field. It was performed by Dr. Alexander Vishnevsky, son of the founder of the Institute of the same name, and was the first time cardiac surgery had ever been performed without general anaesthesia; only a local anaesthetic was used, a weak solution of novocain.

A New Method

The elder Vishnevsky was the founder of the school of surgery based on physiology, developed out of the work of Ivan Pavlov on the nervous system. The physiological approach to surgery implies consideration of the total organism rather than of the one diseased part.

The surgeon, Vishnevsky taught, must proceed from the whole. He must think in terms of a total compensation of all the affected functions as opposed to the excision of the single diseased organ. This is sparing, careful treatment of living tissue and considers the condition of the patient not alone during operation but subsequent to it also.

Following many years of intensive research Vishnevsky found a new technique which in most cases could replace general with local anaesthesia, and in addition, helped reduce inflammation.

With the older technique, called conductor anaesthesia, the nerve was groped for with the needle of the syringe and the surgeon tried to inject novocain so that it would anaesthetize the general region and thereby reach the nerve. Vishnevsky used a much more dependable technique. He made use of what is known as "invested structure" of the human body.

The muscles, large neuro-vascular bundles and internal organs are invested in their membranes. If a weak solution of novocain is pumped under these membranes, the anaesthetic that is sent ahead of the surgeon's scalpel will find the nerve trunk and will block sensitivity.

The Vishnevsky technique, relatively simple to follow, makes it possible for the competent surgeon in the small hospital to perform major surgery. It does not require the big, up-to-the-minute operating room or the top-ranking operator.

Many kinds of surgery, some very major,

A VAST AMOUNT OF EXPERIMENTAL WORK IN MANY LABORATORIES GIVES DATA ON FUNCTIONS OF THE HEART.

ALEXANDER VISHNEVSKY, SON OF THE NOTED SURGEON, CONTINUES HIS FATHER'S SCHOOL BASED ON PHYSIOLOGY OF THE WHOLE BODY RATHER THAN JUST THE DISEASED PART.

can be performed with the Vishnevsky technique, under the most difficult of conditions. Not too long ago Ponomaryov, one of Vishnevsky's pupils, successfully performed a critical and urgent abdominal operation under local anaesthesia on an ice floe at one of the North Pole stations.

The new method of surgery developed by Vishnevsky requires that it be integrated with all branches of modern medicine. In the Institute of Surgery that integration is demonstrated in its varied divisions and laboratories, including one for experimental animal surgery.

The laboratory headed by Professor Shik, for example, is doing research on a wide range of problems connected with physiology. The staff members here study not only the changes in physiological processes during surgery, but also the effect on the organism of the novocain block or the protracted therapeutic sleep. Another subject of their investigation is hypothermia, the artificial lowering of the patient's temperature by five to six degrees below normal before operating which sometimes saves patients undergoing cardiac operation. With cooled blood the organism needs less oxygen and can endure an exclusion of the heart for periods as long as five minutes. The laboratory also studies problems of compensation of functions after major surgery with special attention to the part played by the cerebral cortex.

Engineering and Surgery

The biochemical laboratory, directed by Dr. Konikova, studies metabolism with tracer atoms and X-rays. This is modern surgery calling on the latest findings of automatics and electronics.

The roentgenology department is headed by Professor Mazayev. He is one of the scientists who developed roentgenovasography. With this method a special contrasting substance can be introduced for a short period into the blood or lymph vessels, and even the heart cavity, without harm to the organism. The vessels set off by this contrasting substance are projected on a screen and can then be examined and studied.

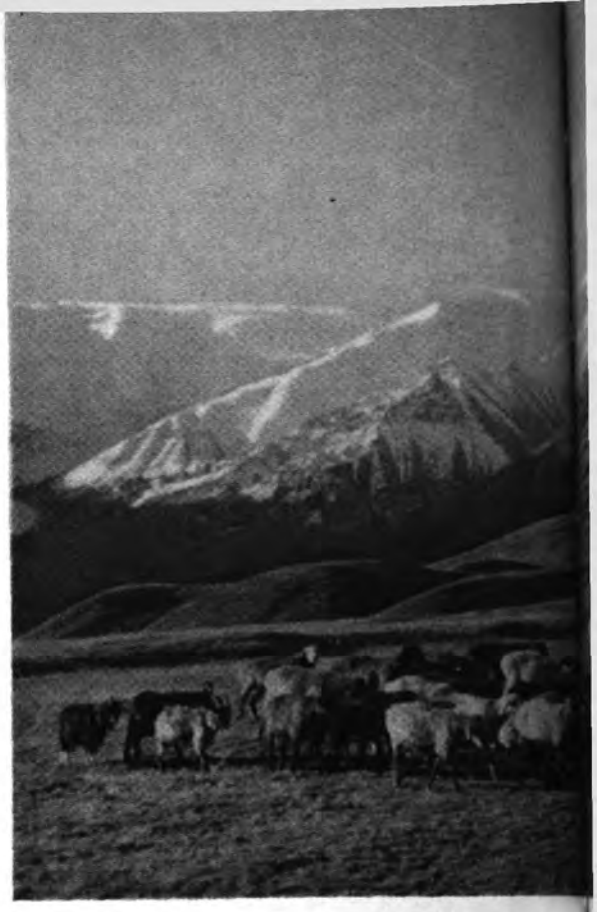
The modern equipment of physiological surgery is the combined creation of medicine and engineering. Very fine instruments—the blood pressure meter and the microscopic electrode of the electrocardiograph—can be inserted through the large vessels of the patient's arm into the cavity of the heart. If need be, the surgeon can take a blood sample directly from the beating heart.

With present techniques, the surgeon can take the time he needs for the most delicate work, since he has the opportunity to disconnect the heart for a whole hour. He no longer has to work at top speed and with what has been termed "circus-like virtuosity."

The use of the combined talents of the engineer and surgeon can be seen at work in an extraordinary institute in Moscow recently founded. It is headed by Dr. Ananiev who trained under Vishnevsky. This institute is the pride of Soviet medicine and is visited by numbers of foreign physicians almost daily.

The staff is made up of engineers, physicists, surgeons and physiologists, who together work on newly developed surgery equipment. Their joint work has produced the latest and most perfect instrument for artificial blood circulation, known as the "heart and lungs apparatus." Experimental tests have been so successful that the new apparatus is now being used by surgeons of the Vishnevsky Institute, one important additional tool for healing which Soviet research has placed in the hands of the surgeon. ■

(Abridged from the newspaper *Izvestia*)



PAMIR—

By Andrei Ionov
and Victor Ruikovich

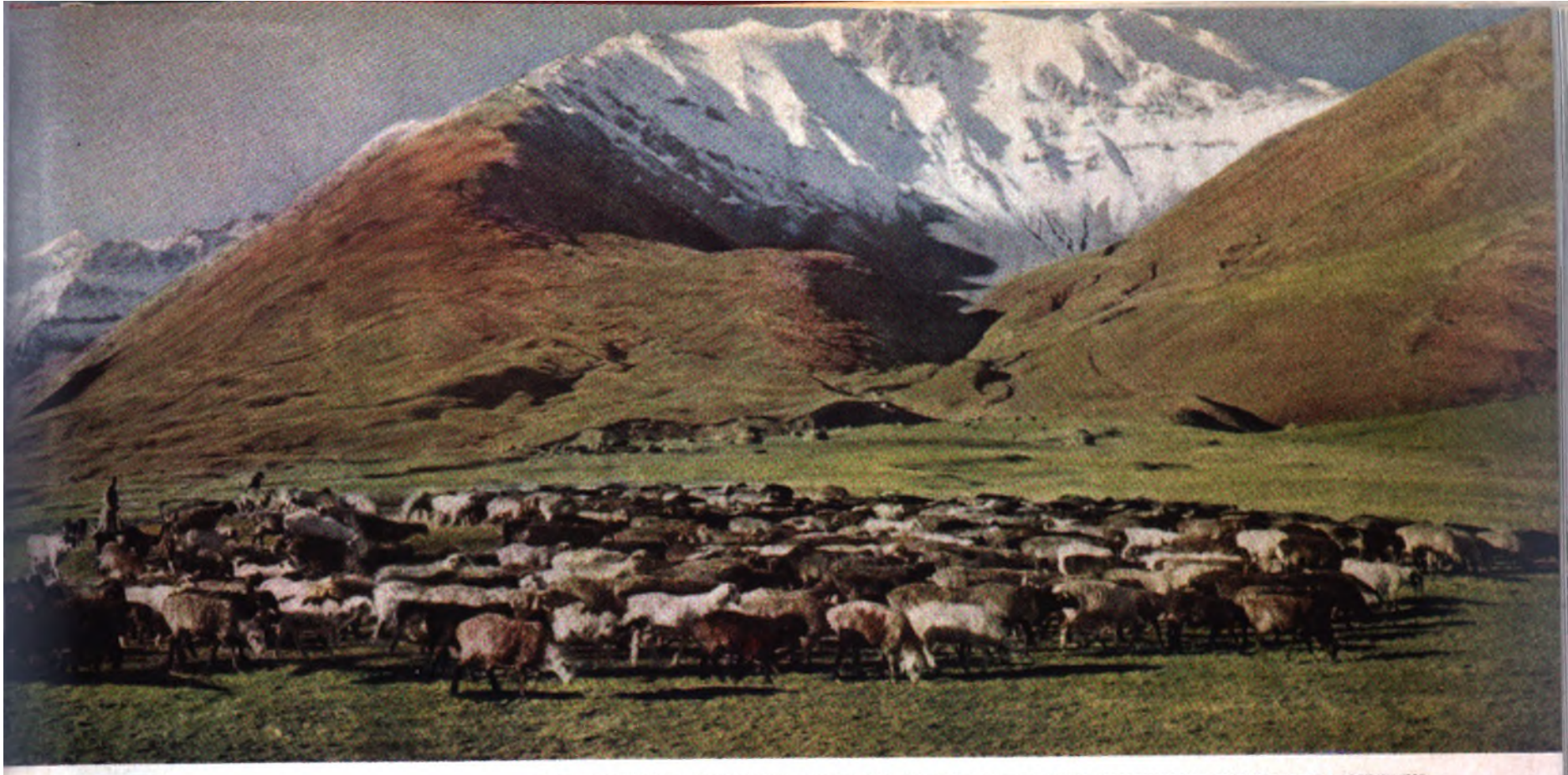
NESTLED amid snow-capped peaks that pierce the clouds to more than 20,000 feet above sea level lies a region known for ages as "The Roof of the World." It is the Pamirs, a part of the Tajik Soviet Socialist Republic. Criss-crossed by the rocky might of forbidding and all but inaccessible mountains, this region borders on China and Afghanistan, with some of the ranges, it seems, rubbing shoulders with summits of nearby India.

This long obscure land is peopled by hardy mountaineers, hunters and peasants. Some ninety per cent are descendants of Tajiks whose ancestors fled to the Western Pamirs to escape the raids of plundering enemies. Similarly isolated Kirghiz tribes took up their abodes in the Eastern Pamirs. They all settled in the river valleys and plateaus, separated from each other by ice-cloaked ridges and deep abysses, isolated from the rest of the world.

The outside world first learned of this land from the seventh century Chinese traveler Hsuan Tsang. His reports were followed about six hundred years later by those of the Venetian explorer Marco Polo.

Until late in the nineteenth century, however, little more was known of the Pamirs than

TRAVELING ACROSS THE INACCESSIBLE PAMIR RANGES.



THERE ARE MANY RICH PASTURES ON UPLAND PLATEAUS AND IN RIVER VALLEYS AMID SNOW-CAPPED MOUNTAINS.

he Roof of the World

centuries previously. In 1871 the Russian scientist Alexei Fedchenko explored the Pamirs, and the map he prepared gave the world its first accurate knowledge of these ranges. He was followed by other Russian explorers and by 1895 the first road was laid to Khorog, the present center of the area.

Planned exploration of the Pamirs by scientific expeditions began in 1928 to fill in the blank spots on the map. Hundreds of investigators arrived, seeking out metal and mineral sources, making experiments with agriculture and livestock. They were followed by caravans loaded with seeds, foodstuffs, manufactured goods of all kinds, medicines and building materials.

By this time the Tajiks and Kirghiz living in the Pamirs had united. In 1924 they elected their first common Regional Soviet. With a population of 62,000 and covering an area of 23,000 square miles, the Pamirs became the Gorno-Badakhshan Autonomous Region.

In 1928 the first moving picture performance was held in Khorog. Today many collective farms have their own movie facilities, and the regional drama theater in Khorog regularly stages plays by Ostrovsky, Molière and Shakespeare. *Continued on next page*

PAMIR HIGH SCHOOL STUDENTS GET NEW BOOKS PRINTED IN TAJIK AND KIRGHIZ, THEIR NATIVE LANGUAGES.

BACK HOME AFTER THEATRICAL SCHOOL IN MOSCOW.

Khorog, regional capital of the Pamirs peeks out from the green orchards at 7,500-foot elevation.

PAMIR — *the Roof of the World*

Continued

The lone newspaper first issued in 1931 has been followed by six others in the Tajik, Kirghiz and Russian languages.

In 1929 the first airplane landed in the region to the wonderment of the mountaineers, many of whom had no idea of what a wheel looked like, and in 1931 the first automobile came by camel caravan after toiling over the mountain passes.

Where formerly it took a caravan a month to travel to Khorog, now a scheduled airliner makes the flight in an hour. Good roads provide communication between the various villages and towns, promoting their economic and cultural development.

It was in 1931 that the first agronomist reached the region and pioneered in scientific potato raising and horticulture. By 1936 the Pamir Biological Station was established, and the Pamir Botanical Gardens were set up in 1940. These are the only high altitude scientific research institutions of their kind.

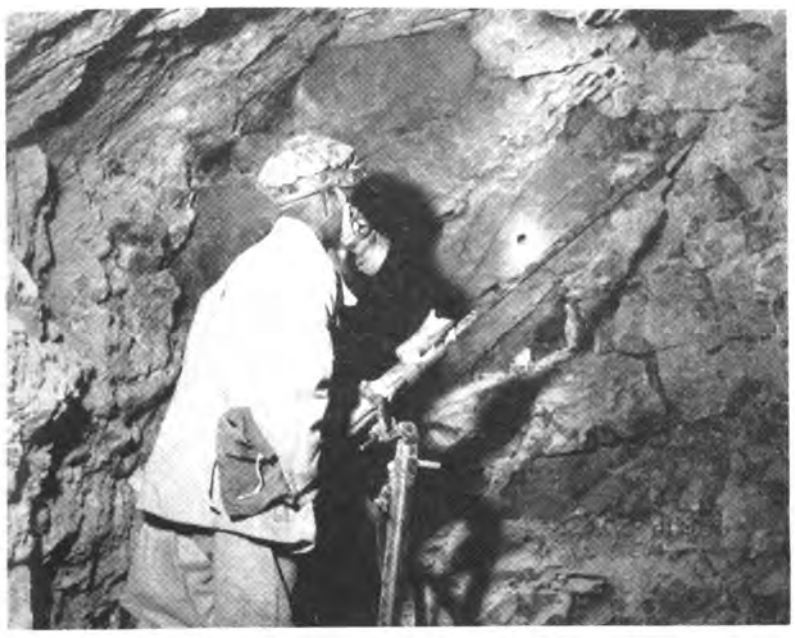
Where formerly the mountain folk grubbed out a meager living from the soil and their animal husbandry, today collective farms grow potatoes, cabbage, tomatoes, corn, grapes and improved varieties of wheat—crops that usually do not thrive at such altitudes. Barley evolved at the Pamir Biological Station is cultivated at 13,000 feet.

The first hydropower plant was put into operation in 1940 at Khorog and today such stations operate in the most remote areas. More new schools and homes are springing up and new farmland is being won from the mountains with the help of the state machine and tractor station.

The people of the Pamirs have been able to match their economic advances, rapid as they have been, with parallel gains in the field of culture. There is not a collective farm in the Pamirs without its own school and library. Illiteracy has been eliminated. Hundreds of local people have had special training or a college education and now work at the power stations, in schools and hospitals, forestry enterprises and livestock farms. ■

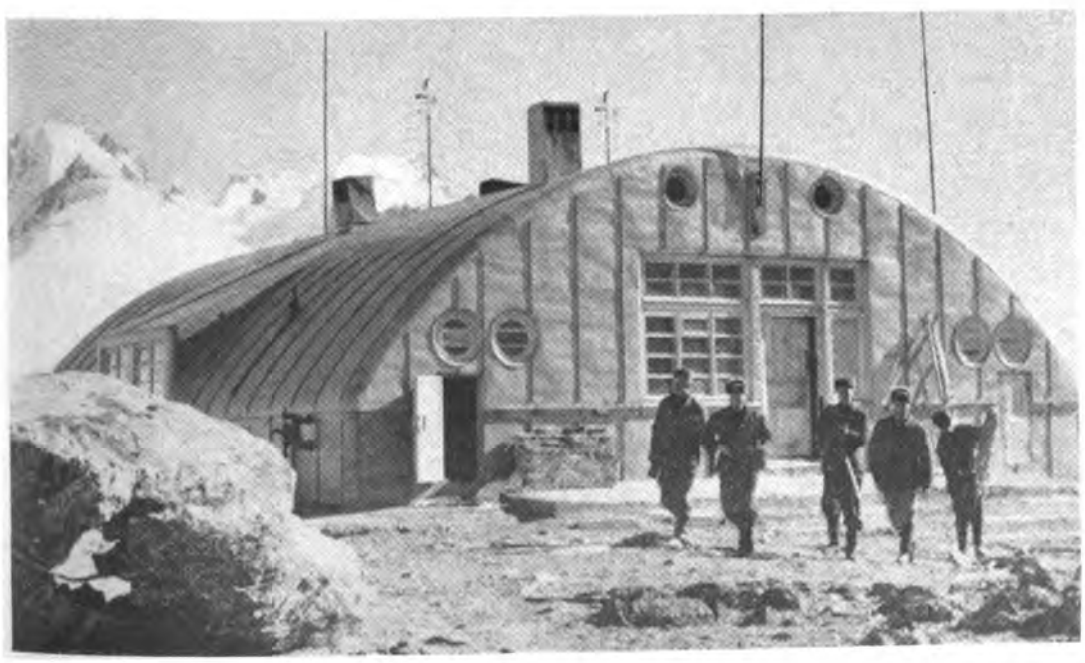
Students of Khorog Teachers Training Institute. Hundreds of Pamir people have college degrees.

Science and mechanization have made it possible for Pamir farmers, who only recently were simple herdsmen, to grow a wide variety of crops.



Many Pamir men are miners. Power speeds mining of mica, iron ore and rock crystal. Also mined in the area are gold, coal and various other minerals.

Highway construction was finished under adverse conditions and facilitated economic development.



Perched on a 14.000-foot peak, this observatory aids scientists to make accurate weather forecasts.

BORIS ZELENSKY IS THE SOUL OF HOSPITALITY. AT THE LEFT IS HIS POSTER FOR THE FILM *CARNIVAL NIGHT*.

Artists'

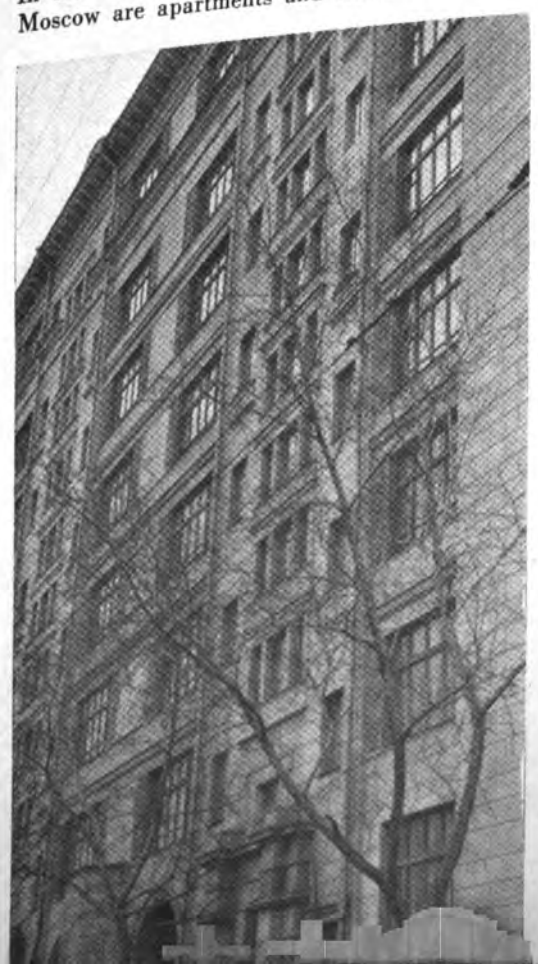
By Boris Korolev

NUMBER 5-7 Upper Maslovka Street in Moscow is Artists' Town. Ring any doorbell and it will be the studio or apartment of an artist or sculptor.

I rang the bell of Studio No. 41 on the seventh floor—Boris Zelensky, the film poster artist. Zelensky is an old friend, the soul of hospitality. He is tall and powerfully built and his magnificent crop of hair is as tangled as the plot of a detective novel. He seems never to have acknowledged the invention of the comb.

Studio 41 is divided. Zelensky works in 41a and his neighbors, the Nechitailos, have 41b.

In this building at 5-7 Upper Maslovka St. in Moscow are apartments and studios for artists.



Art Council of Moscow's painting studios sets prices on pictures commissioned by workers' clubs. The National Art Foundation helps its 16,000 members sell their murals, mosaics, sculptures and paintings.

Town

Painting, sculpture and the applied arts are highly esteemed in the Soviet Union. So is the artist. His work has a large and welcoming audience and his livelihood is secured by the National Art Foundation established in 1940.

The Foundation has ample funds at its disposal, derived from its 130 varied enterprises and from membership and agents' fees. Its fee for selling art work is a low 2 per cent.

The Foundation performs many functions. It obtains commissions for its 16,000 member artists from municipalities, museums, public organizations, and individuals for varied art work—murals for public buildings, mosaics for subway stations, sculpture for international exhibitions, paintings for museums and traveling exhibitions and portraits for individuals. Its contracts with artists total 500 million rubles annually.

The Foundation organizes shows and art contests. It lends money to young people newly graduated from art schools to carry them through the early years of independent creative work; a million rubles a year is spent for such aid.

The Foundation has 27 Art Houses and cottages in the country's resort areas for vacation use by working artists. It owns buildings like the one described in this article in 66 cities throughout the country which provide studios at low rentals.

During the five years between 1951 and 1956 it gave free of charge to needy artists 190 apartments, 350 individual studios and 26 workshops. The Foundation plans in the period from 1957 through 1960 to build another 460 apartments, 600 studios and several exhibition galleries.

Since its inception the appropriation for the work of the Foundation has risen annually from 122,000 rubles in 1940 to 37 million rubles in 1957.

Zelensky's studio is quite small—86 square feet in all—not too much room to swing the proverbial cat, but enough for one person. He pays 28 rubles a month rent; the usual rent for studios averages about a third of a ruble per square foot.

Zelensky does film posters. Not the huge ones that run across the length of a building, his are colorful flyers or illustrated folders that are printed in thousands of copies to announce a coming production.

The way Zelensky talks about it, the work takes skill and talent. "It isn't just a matter of copying a still from a film," he says. "Of course there are artists who hold on to a photo like a baby does to his highchair. Pull it away and he'll fall down. I have to work from life, I can't work any other way. Here are these sketches of a horse, twenty of them. I'm trying to catch the turn of the head. I've got piles of portfolios with preliminary sketches like that. It takes an artist, a good one, to make a decent film poster. It takes good drawing, good color, good composition. And each poster is special, needs special treatment to suit the particular film."

A conversation with Zelensky is a monologue. Sometimes you can get a word or two in edgewise. But he has things to say and his gesture and speech are as colorful as his posters. Even a casual glance at his posters shows the work of an artist—a very good one. He works with both pencil and brush, in practically every medium.

A Family of Painters

The Nechitailos' studio next door was larger than Zelensky's, with a big window that ran almost the whole length of one wall. The family has an apartment on the same floor.

Continued on next page

Dmitri Barkalov and Vladimir Zakharchenko (at the easel) are two of the three young artists sharing Studio 11. They all graduated from the Surikov Art Institute.

Vasili Nechitailo specializes in portraits, and his wife Maria in landscapes. They share a studio but always work independently.

YEVGENI KIBRIK IS A DISTINGUISHED BLACK-AND-WHITE ARTIST. ROMAIN ROLLAND HAS EXTOLLED HIS WORK.

Artists' Town *Continued*

Vasili is a portrait painter, his wife Maria does landscapes and genre pictures. I asked whether they had ever worked together on a painting. "I should say not," Maria laughed. "If we had, we'd have divorced each other long ago. Of course we discuss each other's work. It's always helpful to get another artist's reaction."

The Nechitailos have been married for twenty years now, happily, from the looks of it. They have three children. Dmitri is seventeen, Xenia is fourteen and Sergei is three. The two older children take after their artist parents, both are studying art.

"Do the children hamper your work?" I asked Maria.

"Not at all. The first two years after Sergei was born I managed to paint three big pictures —a lot of work. And they were all accepted for the USSR Exhibition."

The Nechitailos live comfortably. They spend about 4,000 rubles a month. The money comes from the sale of pictures plus Vasili's salary. He gets 2,000 rubles a month from the state studios—called the Art Combinat—started in 1956 under the National Art Foundation.

Twenty artists—one of them Nechitailo—get this monthly salary. To balance the account they either turn over one of their finished pictures to the Art Combinat or accept a commissioned work from it. This procedure is experimental. If the experiment justifies itself, it will be extended to other artists.

Contracts and Commissions

The Art Council of the Combinat meets twice a week. At the first meeting art projects commissioned by museums, public agencies, workers' clubs and private individuals are assigned to artists. Contracts are signed with the Combinat and advances paid.

The second meeting takes up what is called "fixed accounts." These are funds paid out by the Combinat itself for a picture which the artist has in mind and which has not been commissioned by anyone.

The Combinat draws up a contract and pays advances on a picture which may or may not sell. It is buying a Pig in a Poke, taking a calculated risk, banking on its business acumen and its judgment of the artist's previous work. During the first ten months of 1957 the artists sold the Combinat 750 such pictures and received 1,788,000 rubles in payment.

Nechitailo said that he liked the system because it guaranteed him a fixed monthly salary. His income did not have to depend on the number of pictures he sold or when he sold them. "I'm going to turn in this painting," he pointed to a canvas. "It will probably be priced at 18,000. The Combinat will get back the 12,000 rubles it paid me these last six months. I'll get the difference—6,000."

Young Artists

Studio No. 11 is occupied by three young artists, all graduates of the Surikov Art Institute, although of different graduating classes. It's a large studio and they are pleased with it, except perhaps for Dmitri Barkalov who wants to paint large canvases and feels he's going to be cramped.

"I could use a studio of this size all by myself," says Dmitri. It's not that he's antisocial, he hastens to explain. When he graduated from the Institute he worked in Siberia for a while. It's a big wide-open country and he brought back sketches and ideas for big paintings.

One of the other young artists is Vladimir Zakharchenko. I asked him what he had been paid for the pictures he'd sold in the last few years. His best painting, one with a historical theme, about one of the organizers of the Soviet state, Felix Dzerzhinsky, was sold for 23,000 rubles; his "Sorrow" and "The Races" brought 10,000; "Kazakhstan Steppes" sold for 8,000; "Haymaking" and "The Rooks" for 12,000; and "Eventide" for 5,000. Some of his pictures were bought by the Purchasing Commission for Museums, others by the Fund for Stationary and Traveling Exhibitions.

Illustrator

In Studio No. 40 I found the very well-known illustrator Yevgeni Kibrik. He was in the middle of a conference with a screen writer, discussing a film to be made on his work.

"They're going to have to use an extra-wide screen," the artist laughed. He is one of the best of Soviet black-and-white artists, illustrator for Romain Rolland's *Colas Breugnon* and Charles de Coster's *Legend of Til Eulenspiegel*. His are brilliant translations of words into pictures.

Romain Rolland wrote of him, "I am delighted with the broad-shouldered strength of his characters, the zest for life and the luminous atmosphere which suffuse his illustrations."

Kibrik is a hard and busy worker. There were some dishes around and a few kitchen utensils so that I gathered he spends long hours in the studio and does his own simple cooking to save time.

Kibrik is a reticent man and I had to extract the information that he has almost finished the preparatory work for illustrating Shakespeare's *Othello*. He knows Shakespeare well, has read everything by him and a great deal about him. He doesn't go along, he told me, with the approach to *Othello* adopted by the film director Sergei Yutkevich and some other interpreters of Shakespeare, and he takes strong issue with Shakespeare illustrations done by some artists.

Mural Painter

On the floor below is Georgi Rublyov's frescoe studio. He did the murals for one of the Leningrad subway stations and the decorative ceilings for some of the new Moscow hotels. He works with his son, Igor, a graduate of the Institute of Decorative and Applied Arts.

The veteran artist warns his students that a mural painter has to combine the talents of a fly and a steeplejack, not to speak of having

the patience of a saint. With his son he spent a whole year painting the 800 square foot ceiling of the lobby of the Hotel Ukraine.

Rublyov loves Russian marbles—"they have every color and shade"—jasper, glass, clays. He showed me his "palette," a roomy cabinet with dozens of jars. "They're all Russian pigments, most of them came from soil under the Ferapont Monastery—just look at these ochers!" He mixes his own paints, after the formulas of ancient Russian icon painters.

For the USSR Art Exhibition of 1957, dedicated to the 40th anniversary of the October Socialist Revolution, Rublyov did an 80-square-foot mosaic picture he called *The Aurora*, about the legendary cruiser which played a prominent part in the Revolution. He made it of insets of jasper and marble. It took eighteen months to work the pieces into the pattern.

Now Rublyov is preparing for a retrospective show of thirty-five years of his work.

"What do you have to do to organize a one-man show?" I asked him. "Do you have to have twenty-five or thirty-five years of work behind you?"

"No," he answered, "of course not. An artist has a show when he has enough work to exhibit. If he hasn't enough done, he can exhibit at a group show with his friends."

There are many galleries in Moscow, and they're rarely empty. The Kuznetsky Most galleries are reserved for the young artists. The Kropotkinskaya galleries usually exhibit the academicians. The first work of budding artists is shown at the galleries of the Art Workers Club. Then there are museums and community centers of all sorts which hold exhibitions.

"It's not hard at all for an artist to get his work shown," concludes Rublyov.

Sculptor

The last studio I visited belonged to a sculptor, Yekaterina Belashova. The sculptors' studios are all on the street floor. Some of the huge slabs of granite and marble were lying in the courtyard, waiting to be carried in. Belashova's was a large high ceilinged studio. bare except for great slabs of stone, barrels of clay and plaster, hammers, chisels—the workshop of a sculptor.

Belashova is now working on a statue of Pushkin, a commission from the Ministry of Culture, to be erected in Mikhailovskoye Village, where the great poet lived. Her assistant is a former student, Vadim Shilov. The contract specifies that Shilov is to receive part of the fee agreed upon.

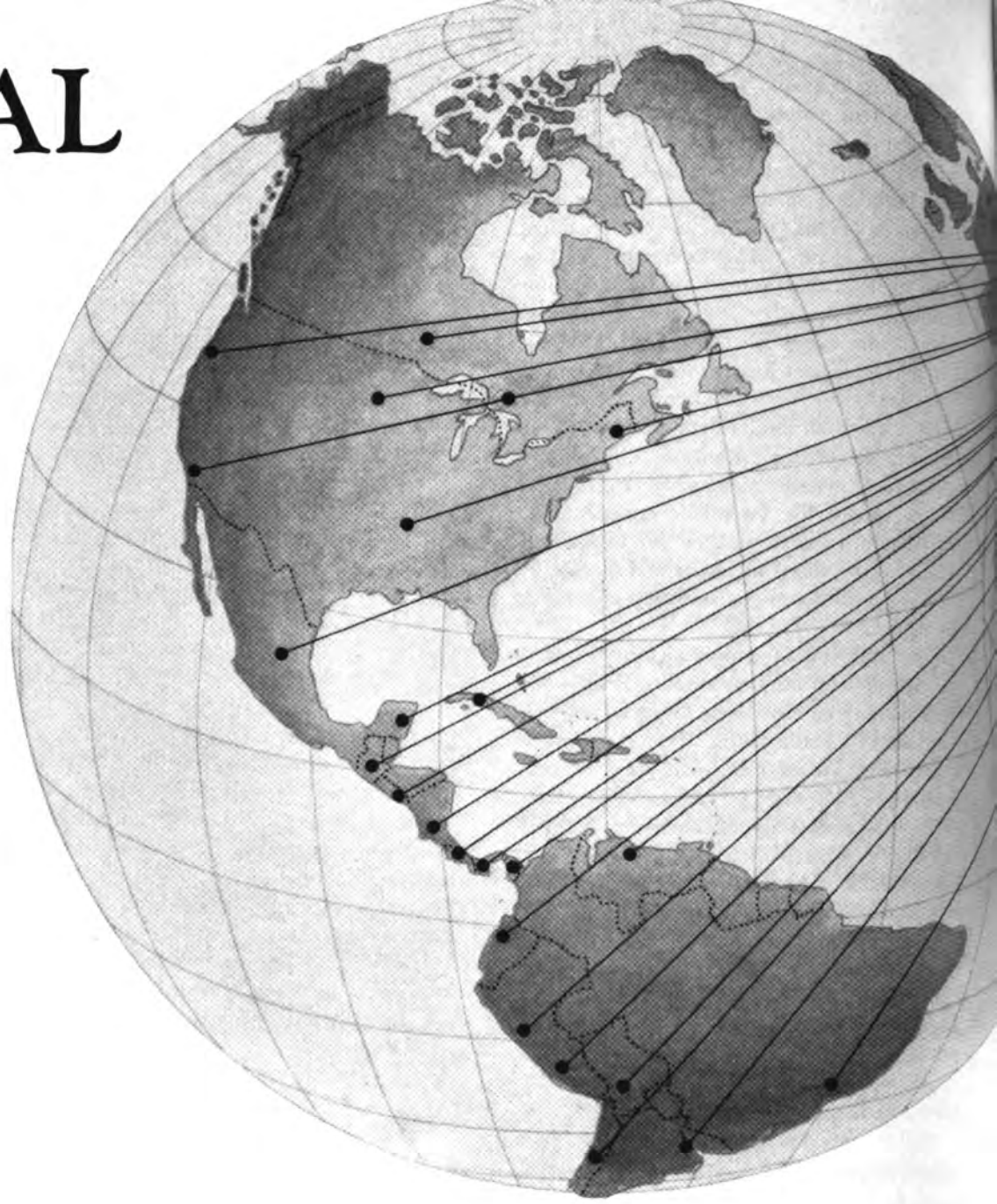
Our interview was coming to a close when a messenger brought Belashova an article for *Iskusstvo*. She manages to squeeze into her tight schedule the job of editing this monthly art magazine which is circulated throughout the country.

I wanted to be welcome the next time I knocked at the door, and so I decided that it was time to take my leave of this kind but busy woman. ■

Sculptor Yekaterina Belashova is working on a statue of poet Pushkin for Ministry of Culture.

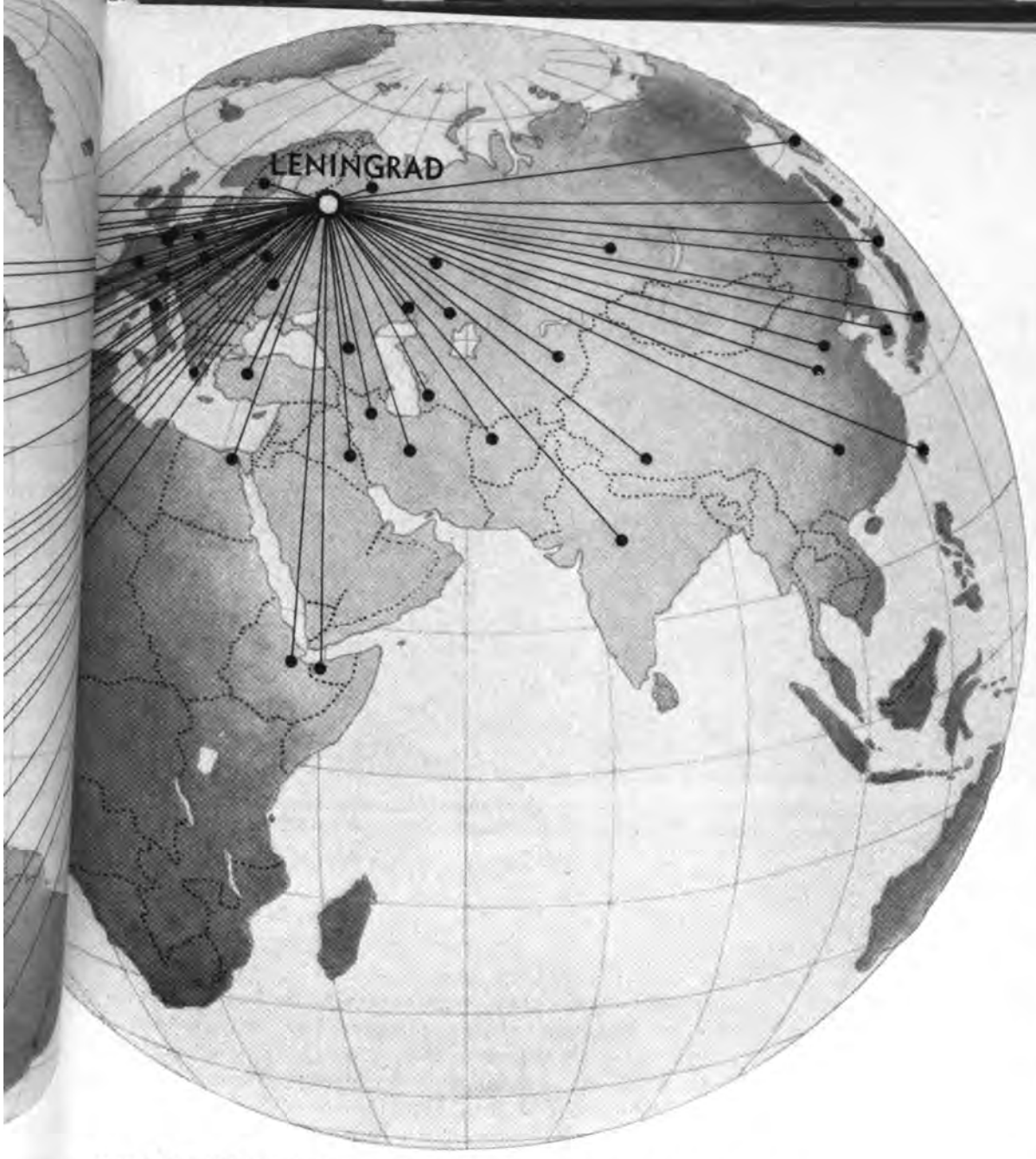
GEORGI RUBLYOV MAKES CONTOURS OF A PICTURE IN METAL AND THEN FILLS THE SPACES WITH STAINED GLASS, AN ORIGINAL METHOD PRODUCING DELICATE COLOR SHADINGS.

A GLOBAL SEED BANK



By Moisei Yeselev

SEEDS OF ALL KINDS FROM EVERY CORNER OF THE GLOBE ARE CATALOGUED AND PRESERVED IN THE REPOSITORY OF THE USSR PLANT GROWING INSTITUTE IN LENINGRAD.



THIS MAP SHOWS WHERE INSTITUTE EXPEDITIONS HAVE GATHERED SEED SAMPLES.

THE MAIL BRINGS SEED PACKETS ALMOST EVERY DAY.

THERE is a variety of explorer about whom most people hear very little. He travels to places known and unknown, to the out-of-the-way corners of the world. He climbs sheer cliffs and deep canyons, cuts his way through dense jungle in search of new and rare seeds that will grow better wheat, barley, corn, soybean, rice, potato and fodder.

These are hazardous expeditions, many of them to places that no men other than aborigines have been to before. Soviet botanical explorers found new varieties of wheat in parts of Ethiopia considered inaccessible. They discovered sixteen species of potato, previously unknown, in the wild regions of Peru, Chile and Mexico.

The priceless finds of these scientist-explorers come to the USSR Plant Growing Institute in Leningrad. There they are catalogued and filed in row upon row of cabinets that reach from floor to ceiling—one of the world's most precious banks of food seeds.

The collection was begun in 1905 by Russian botanists and agronomists. But with very limited funds and resources available to them, the collection remained small until the Soviet period, when large sums were allocated for the project with the aim of collecting seed specimens of every food plant grown, domesticated or wild.

Botanical Expeditions

Nikolai Vavilov, a distinguished Soviet botanist, led the early expeditions, outfitted by government funds, in the twenties. Since then surveys of plant resources and botanical expeditions have taken botanists from the Institute in Leningrad to the most widely scattered parts of the globe.

A criss-crossed map of the two hemispheres hangs in the Institute. It charts travels of the Institute botanists in search of rare plants to 65 countries. Academician Pyotr Zhukovsky has searched for plants in Turkey, Mesopotamia, Syria and Argentina; Dr. Yevgenia Sinskaya has studied Japan's plant life; Academician Sergei Bukasov has led expeditions to the high plateaus of South America. Every year expeditions bring back thousands of plants to be added to this great repository.

During the Second World War, when the Nazi armies began their drive toward Leningrad, these men of science carried the precious boxes of seeds on their own shoulders far behind the lines. Some of them died to safeguard the collection. It was brought back to Leningrad after the war. Since then it has been greatly enlarged.

New Strains of Wheat

The Soviet Union, with its great diversification of growing regions, sub-zero to tropical, would seem to have been one of nature's great laboratories for experimenting with wheat strains. Many old Russian strains have taken root abroad under new names, or have been the basic stock out of which new strains were developed. Such American strains as *Kanred* and *Turkey* were developed out of the Russian *Krymka*. The Canadian hybrid strains *Prelude, Preston, Reward* and *Huron* have their ancestry in the old North Russian *Ladoga* strain. The French *Noé* derives from the old South Ukrainian *Blue Wheat* and the Canadian *Marquis* from a strain of West Ukrainian wheat.

The recently published work of Matei Iakubtsiner, *The History of Wheat Culture in the USSR*, throws interesting sidelights on these global migrations of wheat varieties.

Krymka, the original Russian strain, when brought to America, was crossed with Mediterranean varieties. The new strain was brought back to its land of origin, improved at an experimental station near the Black Sea, then again at a station in the southern steppes near Stavropol. The

Continued on next page

Professor Sergei Alexandrov exhibits a cucumber formerly raised only in China. Today the variety *Long Chinese—1294* grows near Leningrad, in the Urals and in Latvia as a result of the Institute's work.

Dr. Sergei Bukasov sends potato research data to Professor Larson of Wisconsin University.

A GLOBAL SEED BANK

Continued

end product is the winter wheat *Voroshilovskaya*, grown widely in the southern part of the Soviet Union.

150,000 Seed Samples

Among the 150,000 seed samples collected and filed by the Institute are 42,062 samples of wheat seeds from all parts of the world, this most vital grain in all its multiformity. Forty years ago the genus of wheat—out of which man has developed thousands of varieties—included only five species. By 1935 Soviet investigators had already described fifteen. Today some thirty species of wheat are known, most of them discovered by Institute scientists.

All told, the Institute has in its collection more than 70,000 specimens of cereal seeds and an additional 12,950 specimens of corn. Barley takes only second place to wheat in number of specimens, with a total of 18,579.

There are also 22,167 specimens of industrial and oil plants; 12,330 vegetable; 10,852 fruit and 31,030 fodder plant specimens.

These are not petrified exhibits. They are live, ready-to-germinate seeds, potential plants. The Institute is by no means a museum, it is a scientific seed store which sends to Soviet plant research institutions every year more than 45,000 parcels with seeds for selection. A Soviet seed-grower would not think of trying to develop new varieties of food plants without calling on the Institute for advice and seed selections.

Growing New Varieties

The collection is used primarily by the Institute's own experimental stations. The fourteen stations, distributed in different growing areas, have developed through hybridization 340 varieties of food plants, now standardized and grown on a large scale.

Among them are the new corn hybrids, *VIR-42*, *VIR-25*, *VIR-150*; hybrid forms of the sunflower; and varieties of sorghum, vegetables and fruits. The *Kameraz* potato variety, developed from Institute samples, is canker-resistant and impervious to phytophthora. The Institute has reason to be particularly proud of this hardy plant variety, now grown widely in the northwest of the country, because old Russia had no canker-resistant potato.

Experimental stations, other than those run by the Institute, use the collection to develop new and highly productive plant varieties. In 1957 a new variety of wheat, originating from an Institute sample and classified as *Cesium-94*, was standardized and regionally assigned on virgin lands recently broken to the plow. From Institute seed specimens Academician Pavel Lukyanenko developed a hard wheat called *Krasnodarskaya-362*, and researchers in Azerbaijan developed the *Sevinij* and *Vafari* hard winter wheat varieties. All these yield large crops. *Khoranka-46* is another high-yield variety, developed by Nikolai Vavilov from a hard wheat he found in the Near East.

Since Institute specimens are planted in widely scattered parts of the country with differing climatic and soil conditions, the plants tend to display new characteristics. These new characteristics are being carefully studied to determine whether they are mutations due to environmental factors, and the degree and direction of plant mutability.

This is an aspect of the Institute's work, begun with Nikolai Vavilov's experiments back in 1923, which has large scientific significance. The data derived is of considerable practical value in deciding on the distribution of plants in areas where they will be most productive and in introducing cultures in areas where they have not been grown before.

Exchange with Foreign Countries

The Institute, for a good many years now, has been exchanging seed specimens with growers and investigators of many countries. In the past year alone the Institute received 4,468 specimens of different plants from 42 countries and sent 4,148 of its collection specimens to 38 countries.

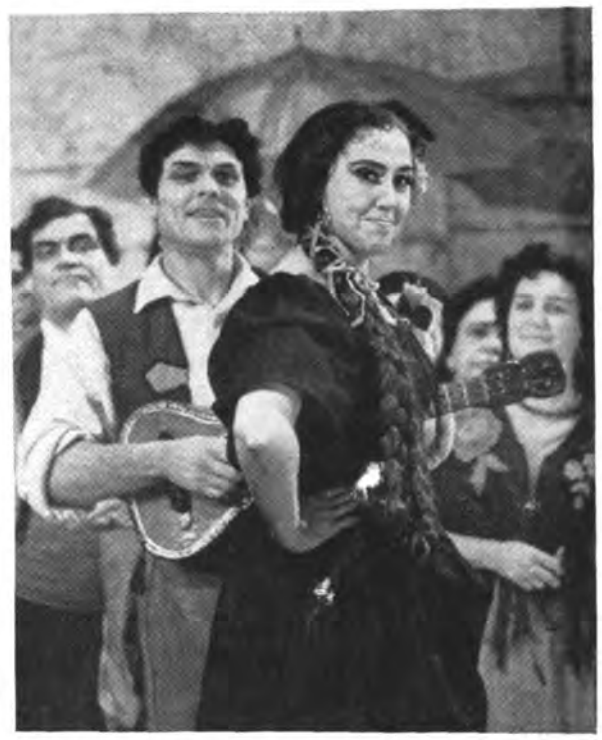
China has been notably generous in contributing hundreds of specimens to the Institute collection, among them seeds of heretofore unknown varieties of wheat grown in the Tibetan mountains, at altitudes of ten and thirteen thousand feet above sea level, which are altogether unique since nowhere else in the world had such varieties of hard wheat ever been grown at these altitudes.

India has contributed a large selection of plants. Bulgaria has sent valuable strains of hard wheat. Lucerne has been sent from Canada; sunflower and onions from France; rice and beans from Burma; peanuts from Brazil; flax from the Netherlands; peas and onions from Australia; wheat, oats, barley and potatoes from Finland; tomatoes from Sweden; cereals from Yugoslavia; and beans from Austria.

These parcels that are shipped into and out of the Institute almost daily carry more than seeds; they are products of a cooperative scientific effort to grow more and better food for all the world. ■

AMERICAN STAR BLANCHE THEBOM WAS GIVEN AN OVATION BY THE AUDIENCE AND THE BOLSHOI THEATER COMPANY AFTER HER MOSCOW APPEARANCE IN *CARMEN*. SHE IS SHOWN WITH CONDUCTOR V. NEBOLSIN. HER TOUR WAS PART OF THE CULTURAL EXCHANGE PROGRAM BETWEEN THE SOVIET UNION AND THE UNITED STATES.

An American Singer in MOSCOW



SCENE FROM *CARMEN*. MISS THEBOM EXPRESSED HOPE THAT THE BOLSHOI THEATER COMPANY WILL TOUR THE UNITED STATES.

MISS THEBOM, WHO MET A GREAT MANY ARTISTS WHILE TOURING THE SOVIET UNION, IS CONGRATULATED HERE BY IVAN KOZLOVSKY, A WELL-KNOWN MOSCOW TENOR.

THE AMERICAN STAR GAVE EIGHT CONCERTS IN MOSCOW, KIEV AND LENINGRAD. HERE SHE IS IN THE MAIN HALL OF MOSCOW UNIVERSITY.

DAIRY COWS OF THE RED TAMBOV BREED ON A COLLECTIVE FARM PASTURE. THESE COWS PRODUCE YIELDS RANGING FROM 9,000 TO 17,500 POUNDS OF MILK ANNUALLY.

PUREBRED LIVESTOCK BY THE MILLIONS

By Nikolai Burlakov

Director, USSR Research Institute for Animal Husbandry

SEVEN years ago a box was shipped air-freight from Moscow to a livestock breeding farm in the Altai region. The box held ampules of sperm taken from bulls belonging to a dairy breed of cattle that yielded milk with a high fat content. These bulls were grazing somewhere in the Moscow region, while their sperm was being used to inseminate cows 2,500 miles away.

Had this been related fifty years ago, people would have shaken their heads in disbelief, or would have considered it blasphemy against nature. Now this kind of thing is a commonplace detail in the day-to-day work of livestock breeding.

Our country's first experiment in large-scale artificial insemination was done on beef cattle state farms in 1930. Twenty thousand cows were inseminated. The results were encouraging—a large increase in the number of offspring produced by the best bulls. Cows, sheep, and horses in large numbers are now fertilized artificially from pedigreed sires.

In one season as many as 500 to 600 cows may be fertilized from the sperm of one bull, and 1,500 to 2,500 ewes from the sperm of one ram. A total of 20 million sheep are artificially fertilized every year in the Soviet Union.

All work connected with creating new and improving existing breeds of farm animals is part of a unified state program. The key position in this system is occupied by the USSR Research Institute for Animal Husbandry. It has under its supervision the central station for artificial insemination, where samples of all farm animal breeds are gathered. Their sperm is sent to all regions of the Soviet Union and to foreign countries. Fifty thousand portions of bovine sperm and 100,000 portions of sheep sperm were shipped from the station during 1957. This is only one of the many activities of our Institute. As the main research center for animal husbandry, it supervises the work of 27 other such research stations in different parts of the country.

Last year Soviet farmers pledged themselves to bring meat, milk and butter production up to the United States level in the nearest future. In per-capita production of milk, for example, they expect to overtake the United States this year.

The output of meat, however, to reach American levels, has to be more than tripled, and will take considerable doing. Scientists and practical livestock men are working together to increase the number of offspring and to raise the animal's live weight.

The big current problem in Soviet animal husbandry, one about which there is much difference of opinion among scientists and livestock breeders, is hybridization. Some are very much for interbreed crossing. Others are as strongly against it.

The cattle breeders aim to produce larger cattle giving more milk with a high fat content. But what actually happens in practice? Some thirty years ago a smaller Siberian breed of dairy cattle which gave milk with a high percentage of fat began to be improved with the large East Fries and Simmental breeds. These cows are good producers, but the fat content of their milk is not high. As a result of the crossing, the weight of the Siberian breed did increase and the cows began to produce more milk, but the fat content of the milk dropped. This is one of the strong arguments which opponents of mass interbreed crossing present in support of their point of view.

There are, however, arguments—and facts—which demonstrate that it is possible to develop larger animals and at the same time preserve a high fat content if the breed that is being improved has this property originally.

Our Institute has developed several new breeds of cattle, sheep and pigs. Scientists, directed by Dr. Dmitri Startsev, for example, bred a highly productive cattle which is the biggest in the country—the live weight of the cows runs as much as 1,500 pounds. Professor Alexander Vasilyev developed the Kuibyshev breed of sheep and Professor Dmitri Grudnev developed the Breitov breed of hog, the most widely raised variety in the country.

In its work on developing new breeds the Institute incorporates the experience of foreign researchers. It maintains close scientific ties with livestock breeders in Holland, Denmark, England, Egypt, Germany and Czechoslovakia. During 1957, twenty delegations from the United States, England, Egypt and other countries visited the Institute.

Our Institute and other research stations comprise only a part of a nationwide system of stockbreeding. A very significant role is played by the network of state pedigree nurseries located in various parts of the country. Each nursery serves a group of districts in which a particular breed predominates. The ultimate function of the nursery is to transform all the animals in its district into pedigreed stock. Almost all of the country's new breeds of farm animals have been developed with the expert assistance of the nurseries.

Then there are 500 specialized pedigree state farms which improve local breeds and sell the pedigreed sires and dams to the collective farms. These farms have herds of purebred cattle that run into the thousands.

The Karavayevo State Farm situated on the upper reaches of the Volga is typical of these pedigree farms. It produces the fine Kostroma breed. The average annual milk yield per cow of this breed is 14,000 pounds, while some groups of cows give an average of 19,000 pounds. The Karavayevo cow "Groza" gave 36,400 pounds in one milking season.

Collective farms are also active in developing new breeds. One of them, located in the region where the Kostroma breed is raised, has developed a big pedigree livestock business. It produces cows that became known as the Samet type of the Kostroma breed—Samet is the name of the collective farm village.

The Soviet Union is a country with widely varying climatic, soil and animal forage conditions. Central Russia differs markedly from the "black earth" region of the Ukraine; so do the Kazakh steepes and the Siberian woodlands; while arid Central Asia is altogether unlike all other regions.

As a consequence, every region tends to breed its own types of farm animals. It would be folly to try to create a universal breed of sheep, hog or cattle for the whole country. In the last quarter-century 36 animal breeds—horses, cattle, sheep and hogs—have been developed. These are not single experimental animals, they are raised in millions of heads.

In Central Asia a small zebu-like cattle used to graze on arid and semi-desert land. It gave little milk and meat, but it could live and forage under conditions that would kill a less hardy breed. It was crossed with Red Steppe cattle, and the product is a breed which is adapted to local conditions and is a high producer.

At the Chkalov Meat and Dairy Cattle Institute, located at a point where the four large regions of southeast Russia, Kazakhstan, the Urals and Siberia meet, early-maturing types of farm animals are bred. The Chkalov Institute crosses Astrakhan cows with bulls of the beef cattle breeds—Herefords, Aberdeen-Angus and Shorthorns.

To boost per-capita meat production, heavy emphasis is being placed on pig breeding. As compared with other livestock, pigs yield more meat and fat in a given period because of high fertility and early maturation. It is expected that the country's production of pork will be increased to 11 million tons annually in the next few years.

Two new pig breeds—the Breitov and the Large White—are the most widely-raised types. One farm in the Kuban region got more than 12,000 pounds of pork in one year from "Volshebnitsa," a sow of the Large White breed.

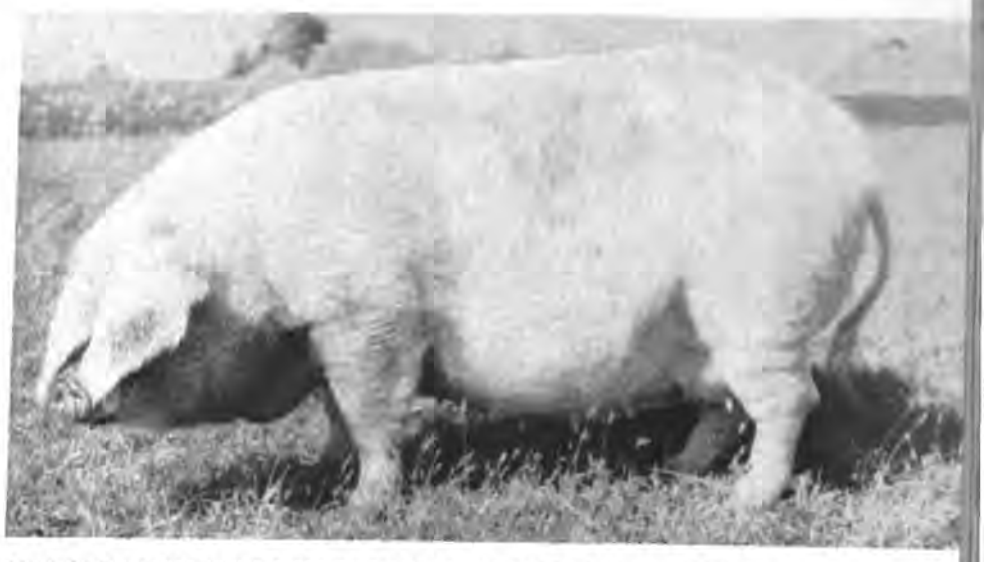
A large boost is expected in sheep production. By 1960 the country plans to reach an annual output of 1.5 million tons. Thirteen new types of fine-wooled and semifine-wooled sheep have been bred. The average live weight of the breed of Georgian rams runs from 140 to 150 pounds, the maximum as high as 200 pounds. The average wool clip is 9½ pounds, the maximum a little more than 12. In creating this Georgian breed it was found that not only could fat-rumped sheep with uniform semifine-wool be produced, but that these characteristics could be fixed in the offspring, something considered almost impossible heretofore.

New poultry breeds, well adapted to local conditions and to consumer needs, have also been developed. The Russian White breed of hens is now raised generally throughout the country. The best of the breed weigh 5½ pounds and lay 330 eggs a year. The native breeds of geese—the Kholmogori, Arzamas, Shadrin, Romen and others—run from 13 to 22 pounds and make excellent eating.

All these new breeds—cattle, sheep, pigs, poultry—are joint products of scientist and practical stockbreeder, of research stations and operating farms working together to produce more for the consumer. ■

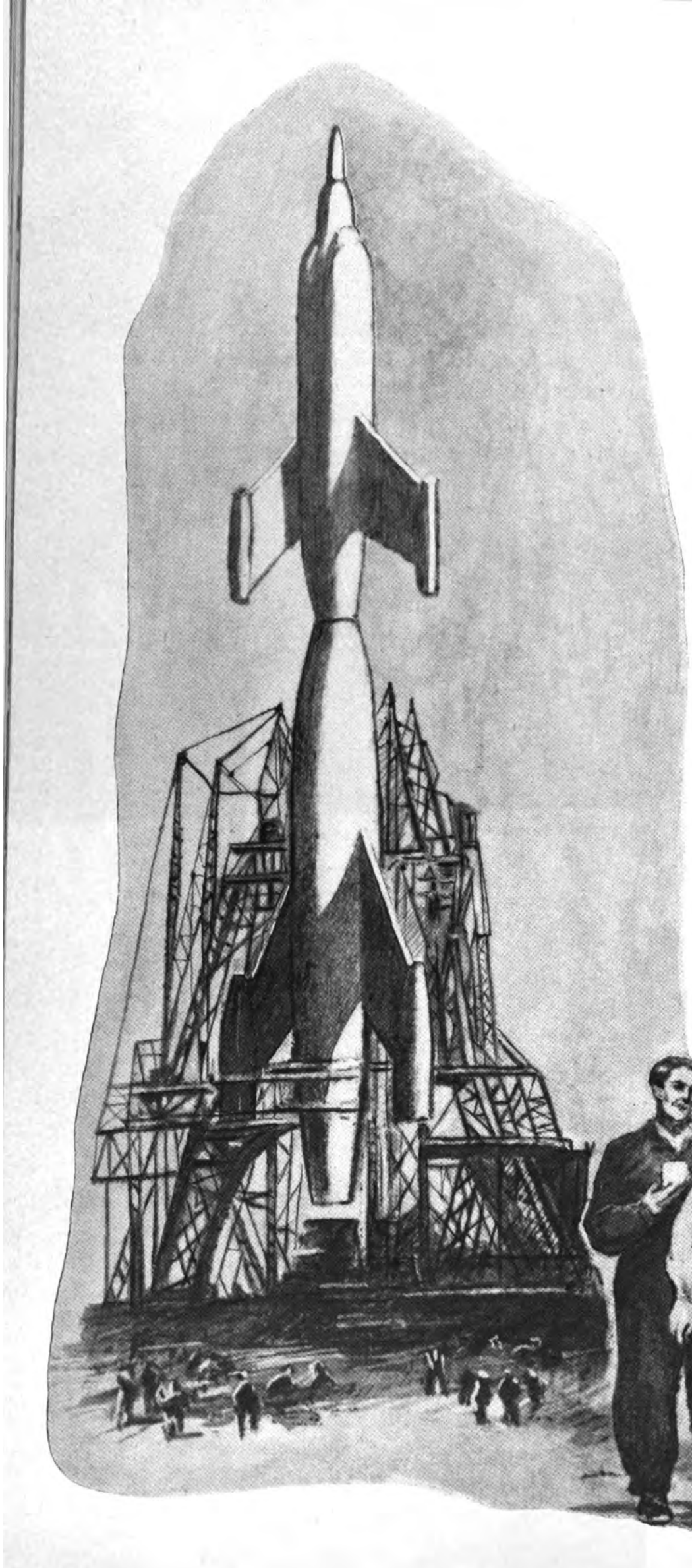
RAMS OF SOVIET MERINO BREED. THEY AVERAGE 30-40 POUNDS OF WOOL A YEAR.

THIS RECORD KOSTROMA COW GIVES UP TO 35,000 POUNDS OF MILK A YEAR.



SOWS OF THE LARGE WHITE BREED GIVE AN AVERAGE OF 12 PIGS PER FARROW.

A HERD OF PRODUCTIVE PEDIGREED DAIRY COWS GRAZE ON SAKHALIN ISLAND.



FLIGHT TO THE STARS

A SCIENCE FANTASY

By Alexei Savchenko

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JULY 24, 1977. Crowds flocked from Moscow to the Tushino Airport. Blast-off time had been set for 9 P.M.; by 6 P.M. the field surrounding the enclosure was packed tight with sightseers.

Above the enclosure towered the giant white arrowhead, the rocket at the very tip. Once aloft and the great arrow had gathered the required speed, the shaft, with its long, swept-back wings and powerful motors, would detach itself and drop back to earth by parachute.

Over the loudspeakers came an announcer's voice: "Today the first man-guided space ship will be launched. It will fly around Mars to photograph the planet at close range and return to earth a year from today.

"The space ship will be piloted by Andrei Ilyin, the leader of the group who built it.

"The ship will blast off with a boost from auxiliary jet motors. Its own atom-driven jet engine will begin to operate only when the ship is clear of the earth's atmosphere.

"Gases heated to temperatures of thousands of degrees will propel the ship. Nearly nine-tenths of the ship's airload," the announcer informed the waiting thousands, "is fuel. The hull, tanks, engines, cabins, instruments and stores take up only a little more than a tenth of the load."

The crowd listened closely. Small boys pushed their way through to the front to get the best view. The guards were busy trying to keep them off the tarmac.

Over the telephone, a hot and weary superintendent reported a stowaway. "Only twelve years old and in short pants. Tucked away in the flues, he was. Had a compass, two buns, and a thermos in his satchel.

"Off to explore the cosmos, he said. 'You've picked a daft place to hide,' I told him. 'You'd be scorched to bits by the hot gases!' He's crying here now and won't say a word. What a day!"

Meanwhile, in a small building on the edge of the airfield, the pilot, Andrei Ilyin, short, lean and dark-haired, lay resting, his eyes half closed. He jumped up when the flight controller poked his head through the door. "Ready?" he asked eagerly.

"Not yet. I'll call you. Try to get some rest."

"It's impossible. The doctor pushed me in here and ordered me to keep calm. But that only makes it worse. What's going on out there? Is the fuel aboard?"

"We start loading soon. The rocket is getting its final inspection."

The controller drew his head back. Ilyin glanced at his watch. Another hour and a half to wait. He was getting worn out with this waiting.

He shut his eyes again and tried to take his mind off the flight. Would Julia get here from Vladivostok in time? In any case, they had already said good-by over the TV phone.

She had joked, "You'll really outfly me this time." Ilyin smiled to himself. "My dear pilot-wife."

He was proud of her. She was one of the few women jet pilots on the long and hazardous runs, while he had given up flying to work as a designer. She had flown all his test models—all except this one, his space ship.

His thoughts returned to the flight he was about to make. Had everything been done? Shouldn't he take a last look himself?

He glanced at his watch again, impatiently. "Blast the doctors and their science," he said aloud. "I'm going outside."

Blast-Off

At exactly 8:50 P.M. Ilyin took his place at the controls. The hatches slid shut and were sealed. Through the portholes he could see the green patch of the airfield and everywhere around it the sea of faces stretching to the horizon.

At 9 P.M. the starter rockets were fired. In a cloud of smoky dust the white arrowhead slid up the guide rails of the tower, gathering speed. Then it tore off into the blue, rapidly darkening sky.

At first the red exhaust flame could be seen from the ground. Then the rocket disappeared from sight. The crowds peered into the sky, searching for the tiny speck, but the ship was already far beyond the horizon.

The members of the interplanetary commission were gathered round the radio transmitter in the control room.

"How do you feel? How's the ship working?" The chairman spoke into the microphone, his voice loud in the silence.

Ilyin's muffled voice came through. "Everything normal so far. The starter jets have dropped off and I've got the atomic engine going. Gaining speed and feeling fine. I can feel that extra G-force, as we expected."

"Where are you now?" the chairman asked, in an anxious voice.

"Just ticked off the first 600 miles. Speed: 16,658 mph. Engines working fine."

The listeners slowly began to relax, their faces lit up, smiling. "Well," the chairman began, "it seems we can congratulate ourselves on . . ."

A curious noise came from the receiver. Ilyin's voice was suddenly faint.

"Ilyin, Ilyin," the chairman shouted into the microphone, "what's happened? Can you hear me? What's happened?"

A long minute passed, then Ilyin came through again, almost inaudible. "I can't tell . . . the G-force has suddenly increased . . . acceleration is above normal . . . I can't turn off the engine . . . I'll have to wait until I run out of fuel."

In the control room of the airport, the scientists sat, listening helplessly to the voice of the chairman urgently repeating his question into outer space. "Ilyin, can you hear me? Ilyin, what's the matter?"

But there was no answer.

The Diary

July 25, 1977, 0010 hours: I am starting my diary. Whatever has happened, I am alive and can still carry on and make observations.

I left the earth at 2100 hours last night. Nine minutes later the rocket should have gathered enough speed to fly off on its course, but only six minutes after launching the speed increased suddenly and the acceleration pushed me back into my chair so hard that I lost consciousness.

My chest and back hurt, and I have bruises on my forearms and neck.

Then things got better and acceleration steadied to 130 feet per second. The gravity is four times normal.

The engine has been working for three hours now without a stop, but the instruments show only a very slight consumption of fuel.

I am now traveling toward the planet Venus. Mars is on my port bow, and I was unable to swing around toward it.

For some reason the steering isn't functioning. The speed is now 275 miles a second—it is incredible!

I have noted the figure, but I cannot believe it. I'm now over 1¼ million miles from earth. It is far away, and looks smaller than our moon usually does.

0300 hours: What is happening in the engine? It has used hardly any fuel in six hours' flight. Conditions have changed completely. The flame coming from the exhaust is much brighter than the sun.

July 26, 1977: At 2345 hours yesterday, I passed through the orbit of Mars, leaving it on the port bow. I am still traveling toward Venus, and have covered 125 million miles.

The engine is still working and acceleration is the same—130 feet per second. I don't think I could have stood the extra gravity for so long if not for the special training.

My head feels heavy and my feet—they're as heavy as elephants' feet! There's such a weight on my hands that it's hard even to write. I have to push the pen with the full weight of my shoulder behind it, as if I were sawing wood. But I must keep on writing.

The situation is bad. This pressurized cabin is like a cage: I'm safe, but helpless.

I can't control the engine. I have food, water and air to last me for eighteen months. That's my limit of endurance! So I shall live and take notes for a year and a half.

Who will read them, I wonder? A seaman throwing a bottle into the sea or a man burying a manuscript in the sand can hope that his message will be found by someone. What can I hope for?

2000 hours: This morning, 140 million miles away, I heard earth for the last time.

It's a long time since I stopped answering—my transmitter is not powerful enough. It was good to hear even that "Ilyin, where are you?" I am now all alone in interplanetary space.

July 30, 1977: Speed is 12,500 miles a second. I am five billion miles away from earth, on the boundaries of the solar system.

How few planets there are in our solar system! I have flown right through it and not passed anywhere near a single one.

Some were on the other side of the sun. Others, the closest ones, were 50 to 100 million miles away. They looked a little brighter than from the earth—but that was all.

My present speed is so great that I can only compare it to the speed of alpha particles in the fission of radium. But those are tiny particles which can't be seen even under a microscope, while this is a large complicated machine, with many instruments and a man on board. What's going to happen next?

Continued on next page

FLIGHT TO THE STARS *Continued*

The Speed Keeps Increasing

August 16, 1977: Speed is now 50,000 miles a second. It's unthinkable.

This immense speed has brought on the so-called Doppler effect. So far I have only used this effect to determine my speed, by measuring the displacement of the "yellow" line of sodium in the spectrum of the stars toward which I am flying.

September 24, 1977: I have now been flying for two months. It is amazing that I am still alive. By the Doppler effect I judged my speed to be 150,000 miles per second. I calculate that I am 3,800 times farther away from the sun than the earth is.

For two long months I have been leading a strange life. I have to crawl along the floor of my nine-foot-square cabin in the space ship. This is my world.

Beyond the walls of the rocket are the stars. The stars are much greater and brighter—their hues have changed—but the constellations are the same as seen from the earth. I can see Orion's Belt, the Great Bear and Cassiopeia; its 'M' shape is still the same.

How enormous must be the distances between these shining worlds, if the constellations do not seem to have changed, even at this distance!

To be accurate, of course, there are changes, but they can't be detected with the naked eye. With a telescope and star charts one could easily see that the nearest stars have moved: Alpha Centaurus by almost half a degree, Sirius by approximately a quarter, other stars have moved by even less than that.

Half a degree is the visible diameter of the moon, a noticeable magnitude. All the near stars shift in one direction, toward the constellation of the Ram, where I should see the sun, the brightest orange star. But I can't see it. The sun is behind my ship and blinding gases hide it from sight.

Recollecting the Past

October 2, 1977: It's your birthday, Julia. Your 26th birthday. I shall soon be 40. Although we are some 400 billion miles apart, my thoughts cover the distance easily.

You remember the day the Director of the Institute introduced us in his study? You were so excited that you were almost rude.

Now I understand that it was your embarrassment. But when you left, I asked the Director:

"Why are you letting this giddy girl test my airplane? Do you want to discredit the model? I shall protest. There's no sense at all in such testing."

But you made a brilliant test flight, and the Director often teased me about it afterward.

Do you remember when I proposed to you? Most people propose in the moonlight, in the park. But with us it was midday, with a hot sun shining on the beach.

It was at the holiday home, and you were leaving the same evening, and I was in a hurry to tell you that I loved you.

You remember I noticed that you had scratched the word "Darling" on a stone.

"Give it to me as a keepsake!" I begged. You blushed. "I never said it meant you. It's a song title." And you threw the stone away. I spent three days looking for it, but couldn't find it.

Why am I writing all this? If I die, you will never read my diary, and if I live and come back to earth, I will be able to tell you myself. But I doubt the possibility of my returning.

I am writing this for myself, just as lonely people talk to themselves and love. And anyone who does not think, work and love is dead, even though he still breathes.

The Engine Stops

October 18, 1977: It's very strange. According to my calculations, even the atomic process should have ended. The force of gravity is unchanged, but my speed is still increasing by the same 130 feet a second. It is already close to the speed of light. But this must surely be the limit!

Something must happen within the next few hours! I am so interested in it that I even forget to think of what's going to happen to me.

October 19, 1977, 0200 hours: At last the engine has stopped. I felt it stop even before I checked the instruments.

The oppressive weight has begun to ease up and it is easier to breathe and move about. . . Now weight has entirely disappeared and I am soaring in mid-air—just floating about.

It was so unexpected that I lost consciousness. That has passed, but I still feel nausea and dizziness. I am doing my best to get used to this absence of gravity.

I have lost the feeling of flight. It seems as if the rocket is hanging, surrounded by stars. The sudden silence makes my ears ache. The blinding light pulsating behind the rocket has died away.

0600 hours: The sky has changed noticeably in the last few hours. It is almost dark behind me. I can see a few dim stars, and some broad, misty shapes.

But before me everything is magnificently bright, and I can see spots of incandescent gas, clouds of stars. The whole sky looks phosphorescent. This is the Doppler effect to an extreme degree.

From the stars behind me I can perceive only the few extreme X-rays and gamma rays that we connect with rarefied high temperatures. From the stars in front of me I can see infrared rays. I can see the coldest stars, dimly shining, and can even make out the dark bodies.

Faster Than Light?

October 23, 1977: A body just cannot travel faster than light! Energy cannot be transmitted at speeds faster than the speed of light—that is a basic thesis of the theory of relativity.

An hour ago it seemed to me that either I was going out of my mind, or else I had refuted Einstein!

For some time I have not been able to measure my speed by the Doppler effect. The familiar dark lines have vanished, and lines and stripes unknown to me have appeared, all of them slipping by very quickly.

Now they are no longer slipping, but I cannot find them in the tables. And I have been trying to measure the speed of the ship by the movement of Sirius.

I was not able to do this before because the displacements were too small, and since the speed changed all the time I couldn't get a proper reading.

But in the last few days Sirius has shifted very noticeably, passed right through the Great Dog and has come closer to Orion.

I measured the shift over 24 hours, and my calculations showed that the rocket was traveling at about 25 million miles a second—133 times faster than light!

On second thought, this does not mean that I have refuted the theory of relativity. I have confirmed it, instead. In actual fact, the speed of my rocket is only close to the speed of light—it is over 180,000 miles a second.

This means that I have approached the speeds at which the relativity of time and space is very noticeable. The classical laws of physics are no longer valid for me, and it is impossible to determine the speed of the rocket the way I have done, by taking as a basis the distances we measure on the earth and the hours on the rocket.

Distances in the universe are not absolute, but grow shorter for a rapidly-flying body. And time, too, is not absolute.

In my rocket time passes more slowly than on earth, and all physical processes, too, take place more slowly—the fission of uranium, the passage of the hours, the life processes going on in my body. That is why my subjective determination of speed is quite incorrect.

So everything falls into place. Here it is, the limit of the movement of matter which man has not yet reached; the limit which has only rarely been studied in experiments with elementary particles. Everything changes—distance, mass, the rate of time—magnitudes which it is difficult to conceive of as real!

But then, what day is it today? If time passes more slowly in the rocket than on earth, perhaps from the earth's point of view I have already been flying for many months, and each "day" of mine takes me as far as "years" of ordinary travel on earth.

I must hurry with repairs to the engine. But how about the temperature? How about radioactivity?

Problems in Interstellar Space

October 24, 1977: The smallest thing becomes a problem in interstellar space. What could be simpler than cooling on earth?

You put a hot object in water, or expose it to air. But I have no water and no air to spare. I cannot use up the fuel, because I shall need it for the return journey. The engine is cooling slowly by the emission of radiation . . . while I wait, losing precious days and being carried I don't know where.

October 30, 1977: I have decided to get into the engine and set it working again. We hadn't envisioned this, so I have had to stitch metal sheets onto my space suit, to protect myself from radiation.

I left through the hatch, securing myself to the ship by rope—because in space, where there is no gravity, you could easily be close to an object but still be unable to put out your hand to touch it.

I soon found out what was wrong with the engine. The apparatus for lifting the uranium rods out of the atomic pile had been damaged, and that was why I had lost control of the engine. I set about the repair.

An hour later I stopped and asked myself: "Why am I doing these repairs? How will it help me?"

I forced myself to think the problem through. I was flying away from earth at a speed approaching that of light. I had to lose this speed, first of all. I had already flown an incredible distance, and while I was losing speed I would fly even further.

Flying at the ship's normal speed, it would take years to return to earth. I had neither time, nor food for that long a journey.

So I should have to brake, turn around, again reach the speed of light, and again brake as I approached the solar system.

But if I repaired the atomic reactor, I would be restoring a weak motor suitable only for a flight to Mars without landing, a motor only able to reach a speed of eight miles a second, which was insignificant indeed for my needs.

I did not even have enough power at my command to turn around! I would just use up all my fuel and lose hope forever.

What was the answer? There was only one—to restart the process which had brought me here.

It was a great risk, but there was no choice. I faced either slow death from suffocation and hunger in a year's time, or a risk that might cost me my life, and hope.

I made my decision.

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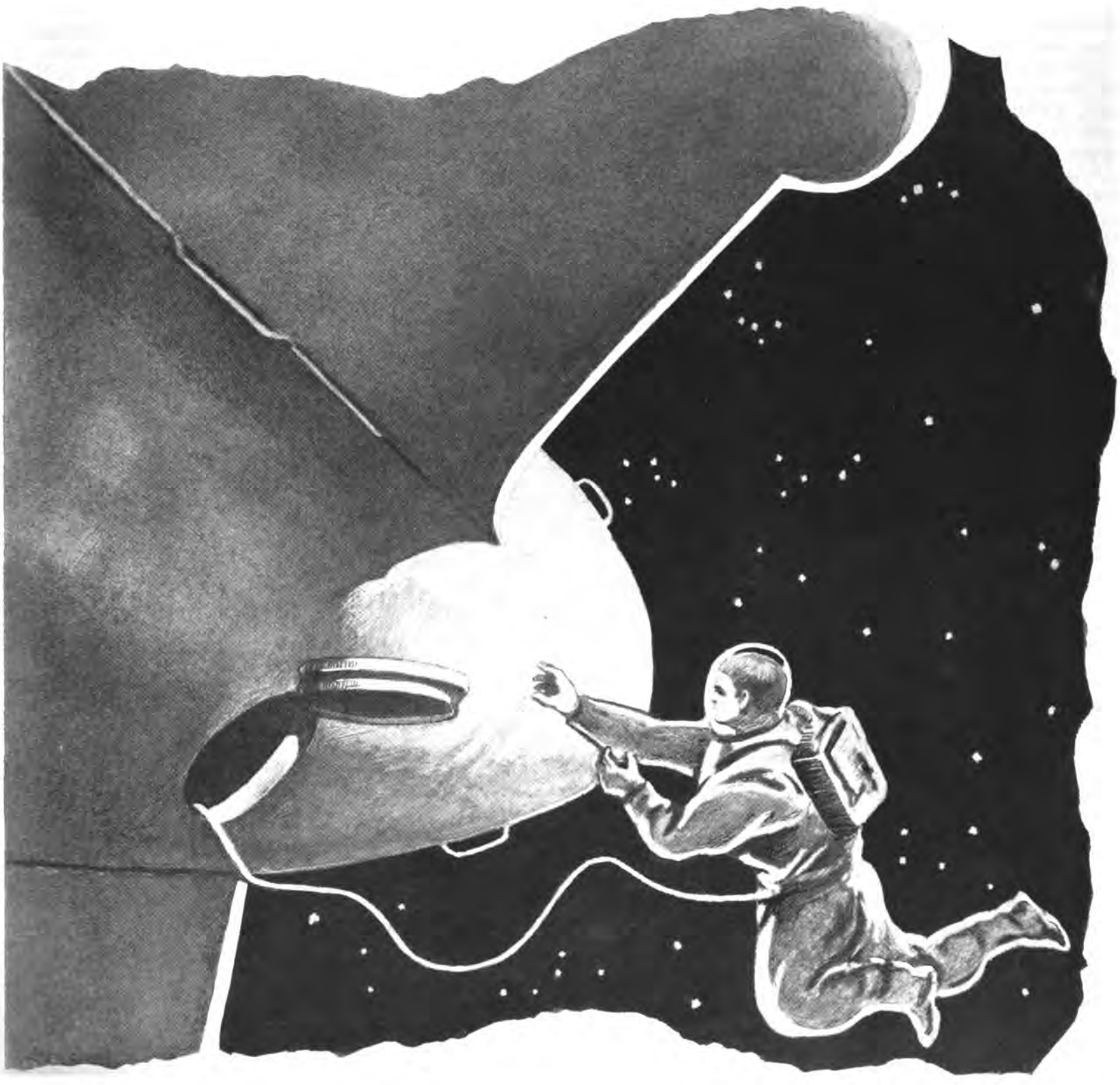


FLIGHT TO THE STARS *Continued*

Restarting the Engine

November 2, 1977: Everything is ready! Work on the engine took me two days. Then I reloaded atomic fuel, transferred ammoniac into the tanks feeding the motors. It was win or die! I flicked over the starter switch.

Ten minutes later I felt the unbearable heaviness once more. Again I was pushed back into my chair. But I was alive, and the repairs were a success.

I am still flying away from earth, but am already applying the brakes. The engine answers to the controls.

November 4, 1977: I must have flown an enormous distance because the constellations are distorted. Many bright stars have moved into other constellations.

I think I must be at least five light years away from earth, looking at it from the point of view of someone on earth, of course.

So this is the secret of interplanetary flight! At the usual speed of rockets, many human life-spans are needed to reach the nearest stars, but at the speed my rocket has attained, time inside the space ship almost stands still.

Man will thus be able to reach the depths of the universe. It is true that during these great flights, generation will follow generation on earth, and only the memory will remain of the brave men who set off to the distant stars to study their planetary systems and the life on these unknown planets. But sooner or later they will return to enrich science with priceless new data.

There are no boundaries to human travel in the universe—there are no unattainable worlds and galaxies!

December 7, 1977: My speed is already noticeably less than the speed of light. High speed effects have long ago disappeared and the sky has assumed its normal appearance—the same sky in front and behind me.

I have been taking photographs continually. I have flown far and seen stars from other positions, so my photographs are very important for determining the distance to the stars and their location in the regions close to our galaxy.

The Journey Home

June 4, 1978: I am flying home now. I must be patient for another two months! I managed to brake, turn around and start off again, and I have already been flying in interstellar space for two weeks in conditions of relativity.

Behind me are nine months of extra gravity load, and one month of suspension in space.

I have run out of film. It does not matter. In any case the most interesting part of the journey is over. Now I must see to it that the photographs are returned to earth.

I don't feel well—there are red spots on my skin, I feel pains in my chest and my temperature is above normal. It seems as though extra-gravity load for a long time isn't conducive to good health.

I try to sleep more, so that time may pass more quickly. But I sleep badly, even with sedatives.

Even in my sleep I listen to the hum of the engines. It would be terrible to die now . . . on the way home.

It is the photographs and notes that worry me. It would be such a pity if no one were to learn of my discoveries. If only scientists can see my work, then all this would make sense.

But it isn't only my work that I am worried about. I want to see my country again, green fields, Moscow streets, human faces.

July 31, 1978: I am coming into the solar system. I can see the sun as a small but blindingly bright disc. It is already beginning to warm the ship a little.

August 2, 1978: I can see the earth clearly. It is a bright bluish star. It is beautiful.

August 3, 1978: The earth is half covered by clouds. Speed is four miles a second. I am coming down to land.

Arrival

Crowds streamed from the railway station into the square and spilled out into the Moscow streets.

"Excuse me, is the Astronautical Institute where it used to be?"

"The best way is by subway, to Tsiolkovsky Station."

"Where's that?"

"Is it your first trip to Moscow?"

"No. I was here . . . a long time ago. Please tell me, what year is it?"

"Friday. Oh, the year! You want to know what year it is?"

"Yes, that's right."

"It's 1989."

"Thank you. That's what I thought."

The youth looked in bewilderment at the man in the blue overalls as he walked off. Then he shrugged his shoulders, glanced at his watch, and hurried on down the street.

Ilyin had been back on earth only a few hours. He had landed the ship on a big lake near Moscow.

When the ship had come to a stop in a dead silence, Ilyin, the noise of the motors still ringing in his ears, put his head out of the porthole and felt the breath of raw morning freshness against his face.

Mist hung over the water and birds rustled in the trees at the water's edge. The forest was still asleep, and the lake edge also. There was no one to meet the traveler.

Ilyin could not wait until people had awakened. There was nothing he had to do about the rocket—it wouldn't run away!

The shore was nearby, so Ilyin swam there and waded through the reeds and marshes to the thickly forested bank. An hour later he came out onto the railway. and . . . here he was in Moscow.

Relativity Laws Play a Trick

Twelve years had passed since he had last been here! Where should he go? Home to Julia? But twelve years had passed for Julia, too.

Suppose she waited a year, but after that . . . ? No, he'd go to the Institute first.

But what was the point? By this time they must have forgotten about him—his flight had been a momentary mishap in the history of cosmonautics.

What he had failed to do must have been done long ago. Other men must have flown around Mars, landed on Mars, Venus and on other planets of the solar system. He was twelve years behind!

The laws of relativity had played a dirty trick on him—the second Rip Van Winkle. That one had slept in the woods for 20 years, while he had lost 12 years in a few months in interplanetary space.

His reappearance, of course, would be a sensation—but he didn't welcome the thought of being a sensation.

Ilyin sat down on a bench in a small square. The noisy bustle of the capital passed before his eyes. A solid stream of cars sped along the street. Factory and office workers, school children, all hurried by.

Ilyin jumped to his feet. Why of course, he was no Rip Van Winkle! He had not been asleep. He had been at work—twelve years of work.

His photographs, measurements, catalogues were enormously important for science. His flight at maximum speed, his observations of the relativity of space and time, the very possibility of making such a flight, all this might be still unknown to scientists.

Astropilot's Memorial

When Ilyin came out of the subway, he saw a new suburb. In 1977 this had been a region of hillocks overgrown with shrubs. Now broad concrete roads ran in three directions. There were tall houses and tree-lined avenues—how it had changed!

One of the streets was marked Astronaut Boulevard. Ilyin walked a few blocks down to a white building with columns and a large glass cupola. On a column he read the inscription: Central Institute of Astronautics.

Ilyin went in, walked up a broad staircase. On the landing there was a bronze statue, and when Ilyin looked up at it, his heart skipped a beat.

There on a pedestal, shaped like a rocket, stood a statue of Ilyin, himself, just as he had been dressed on the day he left.

Hatless and in his overalls, he was looking calmly at the heavens. The bronze and marble glittered in the sunbeams.

There was an inscription on the base of the statue: ANDREI ILYIN—PIONEER OF THE COSMOS, 1938-1977.

Blood rushed to his face. He stood quietly for a moment to calm himself. So he had not been forgotten after all! How fast his heart was beating!

Well, it was all very nice to see a monument to yourself, but the date would have to be corrected! He hadn't died in 1977!

On the second floor he turned into a quiet corridor. On the doors were notices: "Professor of Astro-Navigation," "Physics Laboratory," "Professor of Jet Technique," "Radio Telemechanics Laboratory," "Lecture Hall," "Auditorium."

It was not only an institute for research workers. The young generation of astronauts was being taught here. Twelve years ago there had been no such institute.

The rooms were empty now—it was summer—but from behind one door came the sound of a lecture in progress. Ilyin listened. It was the unhurried, familiar voice of an old colleague.

"Today, my friends," he was saying, "you have come to our institute for the first time. You wish to devote yourselves to star travel, this difficult and noble branch of human knowledge.

"This science, which was only recently developed, demands selflessness and great courage.

"You know that in recent years not many flights have been made, and that the first of these ended with the death of the pilot—my old colleague, Andrei Ilyin.

"I must apologize for mentioning this in the presence of the hero's widow, Julia Ilyina," the lecturer went on.

Ilyin pushed the door open and entered the hall. The rows of seats towered upward in the sunlit auditorium. Hundreds of young eyes were concentrated on the platform, where the old professor was speaking. And beside him sat a tall woman, with streaks of gray in her flowing hair.

As the door opened she turned round, cried out and, pressing the arms of her chair, began to rise . . . so slowly . . . so slowly . . .

There was a buzz of excitement throughout the auditorium. Then the students ran down to greet him—a man who had just descended from the pedestal in the institute hall—the same lean figure in overalls. ■

SCIENTIFIC COOPERATION

Sputniks Aid IGY Research

Soviet scientists are engaged in 13 branches of the International Geophysical Year program. The data which they compile from their projects are sent to world centers designated to organize the information received from various countries. The Soviet Union is one of these centers.

Meteorological research is being conducted on an especially large scale. The observations made by Soviet scientists, along with data gathered by researchers of other countries, will furnish new information for correct forecasting of the weather.

Solar observations are another major part of the program. At the very beginning of the International Geophysical Year a powerful flash on the sun was registered that resulted in an extensive disturbance in the ionosphere, affecting the propagation of radio waves. Other processes on the sun which produced bright polar lights and magnetic storms have also been recorded.

As part of the IGY program the Soviet Union has established four research stations in different parts of the Antarctic. Recently Soviet explorers reached the pole of relative inaccessibility, the area farthest removed from the coast, where still another scientific station is to be established.

One of the most important projects of the IGY is the launching of artificial earth satellites equipped with instruments. The first sputnik, launched by the Soviet Union on October 4, 1957, had a 92-day career as a celestial body. Through observations and trajectory calculations it was established that it penetrated the denser layers of the atmosphere and disintegrated on January 4.

During its life Sputnik I made about 1,400 turns around the earth and covered some 37 million miles, which is about equal to the distance from the earth to Mars when it is closest to our planet. The final analysis of the sputnik observations is still to be made, but preliminary data have already yielded valuable information about the upper layers of the atmosphere and the laws governing the movement of artificial earth satellites.

Observations of Sputnik I confirmed the early calculations of scientists on its life span. With the aid of rapid electronic computers and methods worked out by mathematicians, observers could forecast the exact position of the sputnik at any given time.

Radio signals from Sputnik I on the 15-meter band were received at great distances, well in excess of the range of direct visibility, and in a number of instances reached up to 6,200 miles. Examinations of the signals revealed the formation in some layers of the ionosphere of specific conducting strata that facilitates long distance radio reception.

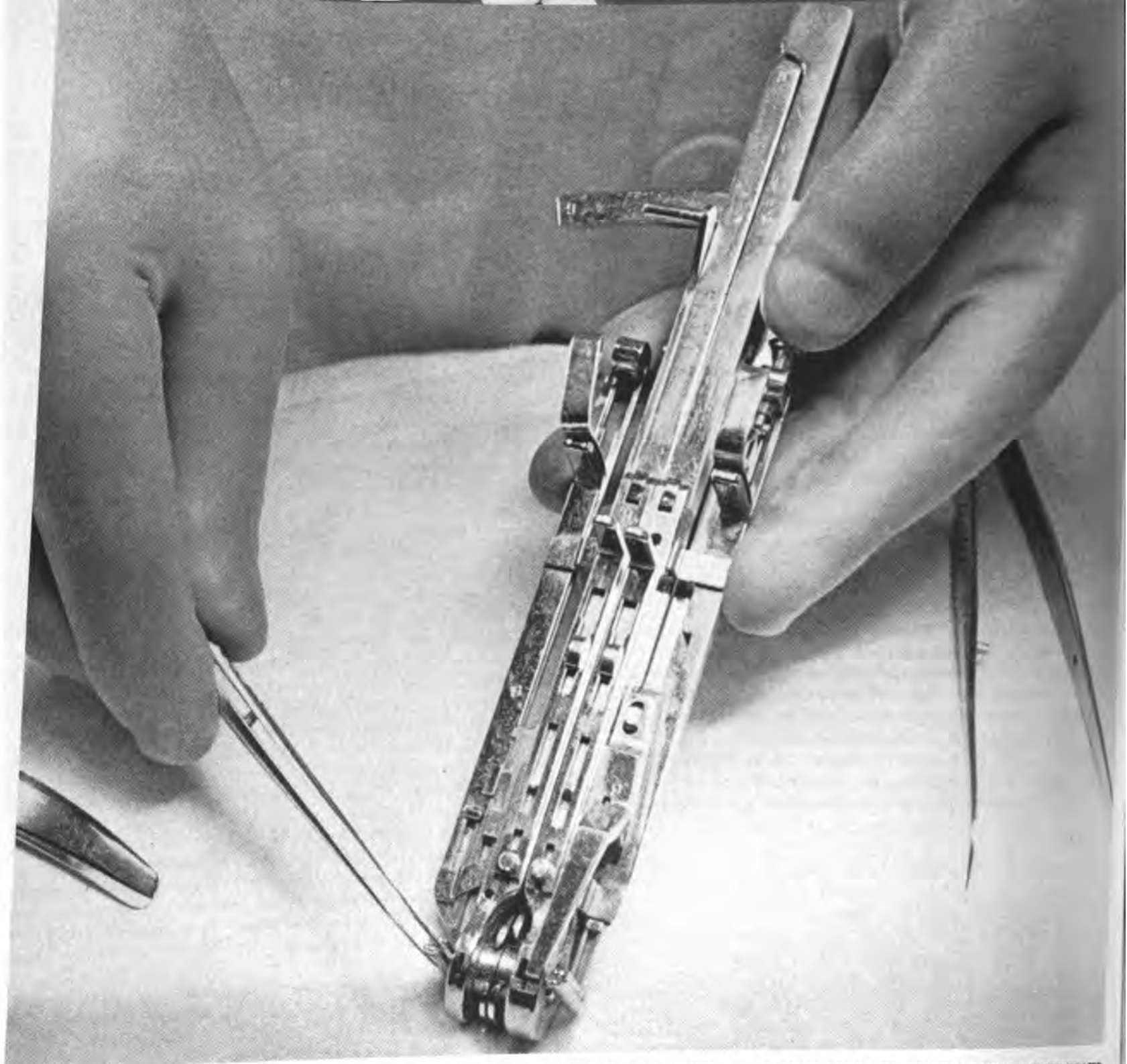
One of the important facts that was established by the sputnik's flight was that meteorites are not as formidable a danger to artificial satellites as had been believed. Sputnik I passed through meteoritic showers but remained unscathed for a long time.

Prior to the launching of the sputnik, numerous articles were published in scientific journals in the Soviet Union describing the methods and instruments to be used in observing its flight. Radio magazines carried advance descriptions of sets to receive the sputnik's signals, while astronomic publications gave instructions for visual observations of the man-made moon.

All of this publicity made it possible to organize the tracking of the sputnik in all countries. Monitoring stations and radio amateurs in many countries were of great assistance in collecting information on the first flight. The Soviet IGY committee received many hundreds of letters and cables reporting data from observers.

Valuable information came from scientists in Czechoslovakia, China, Poland and the German Democratic Republic. Observatories and stations in Ireland, Britain and some of the Latin American countries also reported their observations.

The Soviet IGY Committee has provided scientists and broad sections of the population of all countries with material on the most important features of the experiment with the world's first artificial earth satellite. In conformity with its obligations, the Committee has circulated a scientific report on the flight of the sputnik to the organizations participating in the International Geophysical Year. ■



MACHINE DESIGNED TO STITCH TORN VEINS AND ARTERIES HAS BEEN CALLED "THE SOVIET SPUTNIK IN MEDICINE" BY AMERICAN SURGEONS WHO SAW IT DEMONSTRATED.

SURGICAL ENGINEERING

NEW TECHNIQUE FOR SUTURING TORN BLOOD VESSELS

An Interview with ***Professor Pavel Androsov***

SURGEON and engineer combine their inventive skills to give Soviet medicine new instruments for healing. One such instrument, to suture torn blood vessels and nerves, was described by Dr. Pavel Androsov in a paper he read at a meeting of surgeons held in Atlantic City last October where he was one of a delegation of four Soviet physicians.

During the Second World War, a young engineer and aircraft designer, Vasili Gudov, returning from the front on furlough, was traveling on a medical train. All around him were badly wounded men, amputation cases, the surgeon in attendance told him.

"Was that the only thing that could be done—to amputate?" he asked the surgeon. "These young men to be left without arms, legs—crippled for the rest of their lives!"

"Maybe some day in the future we'll know how to save these legs and arms," the surgeon answered. "We just don't know enough today."

Gudov was fumbling with the idea, dim and very hazy yet. He asked the surgeon later, "The worst of it is that the bone is fractured, isn't it?"

The surgeon shook his head. "It is true that the bone is the foundation, the framework. But it isn't the bone and soft tissue which bother us. Bone has a tendency to unite. We can handle that part of it. What we don't know enough about is how to patch up the torn blood vessels and nerves—how to suture them properly—so that they can supply nutrition to the muscles."

Suturing blood vessels, the surgeon explained, was an old surgical technique. The difficulty lay in the method. Suturing with needle and silk was a primitive, lengthy and limited technique which brought its own problems. After suturing vessels with a needle, what usually happened was that the lumen, the opening of the vessel, was narrowed at that point. Then, too, small vessels could not be sutured at all. What it amounted to in practice was that you just could not sew a severed limb with needle and silk alone.

Dr. Pavel Androsov helped convert an engineer's crude model into exact surgical sewing machine.

A TV camera set-up in the operating room broadens the audience of doctors and medical technicians, who are thus enabled to watch Dr. Androsov as he performs an actual operation with the new machine.

Exciting Idea

Dr. Androsov takes up the story at this point. "A few years after the war. Gudov came with drawings and a model to the clinic where I was working at the time. 'This,' he said, 'is an idea I have for suturing blood vessels.'

"I looked it over and I thought the idea was very interesting. The idea—not the model. I told him the model wouldn't work, but the idea, even in this most rudimentary form, was exciting and imaginative.

"It was, I should say, like a beautiful and original melody composed by a man who knew nothing about the theory of music. What had to be done was to take the idea and relate it to the human organism. That was what we did—Engineer Gudov and we doctors.

"We got other people interested: engineers Nikolai Kapitonov, Leonid Kukushkin, Fyodor Polyakov, Alexei Strekopytov, Alexander Kakabyan; and doctors Natalia Petrova and Mikhail Akhalaya. They all contributed their talents to design and built the apparatus.

"It took some years of research and experimental work, with all the usual ups and downs, successes and failures, but we finally did it—designed an instrument that was quick and reliable.

"The conditions we worked under couldn't have been better; we have the government to thank for that. There was never any shortage of funds. We were given a specially-equipped laboratory at the Research Institute for Medical Equipment and did our experimental work at the Sklifosovsky Institute's Clinic. We did more than a thousand experimental operations on animals before we used the instrument on people."

Doctors and Engineers

Dr. Androsov continued: "The joint research of engineers and doctors proved so productive that a new institute was founded as a result—the Institute of Experimental Surgical Apparatus and Instruments. Professor Mikhail Ananiev, a surgeon, heads the staff, two-thirds of which are engineers and technicians. The Institute has, in the six years since it was founded, developed more than a hundred instruments."

Asked how the suturing instrument worked, Dr. Androsov said: "Try to visualize a severed vein or artery. The first job is to stop the bleeding. The instrument uses two clamps to stop the blood flow at both ends of the vessel. The vessel passes through special cylinders of an appropriate diameter. The surgeon turns the vein or artery inside out with pincers. Then the two halves of the apparatus are gradually brought together. When the ends of the vessel touch, a lever is pressed and tantalum wire sews the ends of the severed vessel all the way round.

"The results have been really phenomenal. Every single one of the 300 operations performed at the Sklifosovsky Clinic was successful. We've used the instrument in a case where the extremity was severed. Vera M., a young woman, was brought to the clinic after an accident which severed her right arm. The young girl, after treatment, went home not only with sutured blood vessels and nerves, but with a restored arm. Oleg L., a lathe operator, suffered a fractured shoulder. We were able to heal all the injured nerves and blood vessels with the help of the instrument. His shoulder is fine now and he's back on his job.

"I did a large number of these operations myself, but the instrument is so simple to operate that it needs only a minimum of skill. It can be used by the competent surgeon in a rural hospital." ■

The audience outside the operating room at the Institute of Experimental Surgical Apparatus and Instruments gets a close-up of just how it works.

NINA VESELOVSKAYA, STUDENT OF THE MOSCOW ART THEATER SCHOOL, MADE HER SCREEN DEBUT IN THE STARRING ROLE IN *THE SISTERS*, A MOSFILM STUDIO PRODUCTION.

THE SISTERS

Producer Grigori Roshal tells about filming the motion picture version of Alexei Tolstoy's trilogy *The Ordeal,* covering life in Russia during World War I, the Revolution and the Civil War through the lives of two sisters.

THE three books of Alexei Tolstoy's epic novel *The Ordeal* cover life in Russia during the First World War, the Revolution, and the struggle for the establishment of Soviet power. Combining the portrayal of historic events with profound revelation of the inner world of his characters, Tolstoy creates a moving chronicle of that grim and heroic epoch.

The "ordeal" that Tolstoy describes is the tortuous path which part of the Russian middle class had to take before they could find their place in the new society. The main characters of the novel—the Bulavin sisters Katya and Dasha, Katya's husband Smokovnikov, the poet Bessonov, worshipped for a time by both the sisters, Telegin, an engineer who eventually marries Dasha, and Roshchin, an officer who weds Katya after her first husband is killed at the front—all come from the middle class.

The worker Ivan Gora and his wife Agrippina, both fighting in the ranks of the Red Army, the sailors Chugai and Latugin, the peasant girl Anisya who afterward becomes an actress—these and many other people help the main characters of the novel find their proper place in life.

The first part of the film deals with the collapse of the old Russia and the birth of the new, with the Bulavin sisters, their mistakes, their joys and misfortunes.

Life takes the heroes of our film to all parts of Russia. Scenes are enacted in the Red Army, in the army of the counter-revolution, in the mountains and steppe, in the Crimea, the Caucasus, the Ukraine, the Volga country, in Petrograd and Moscow, in the homes of the rich, in peasant huts, factory workshops, in trains and on shipboard.

All members of the cast, which includes well-known and experienced artists as well as some talented newcomers, are very enthusiastic about the film. Katya is played by Rufina Nifontova. Two years ago, when she had just graduated from the Institute of Cinematography, I invited her to take part in the screen version I was making of Gladkov's story *The Freemen*. Her performance as heroine of the film won this young actress wide renown and at the international film festival held at Karlovy Vary she was awarded a prize for the best woman's performance.

Dasha is played by Nina Veselovskaya, a student of the Moscow Art Theater School. It is her first film.

The "sisters" Nifontova and Veselovskaya had never met each other before they started rehearsals. Now they are close friends and every day they seem to grow more like real sisters.

Nikolai Gritsenko, a popular actor of the Vakhtangov Theater, plays the part of Roshchin, the czarist army officer who at first sides with the counter-revolutionary forces and eventually becomes a commander in the Red Army. Roshchin has lived and suffered a great deal, he even reaches the verge of suicide when he realizes how fundamentally the old regime is against the people. It is then he comes to understand the great truth of the Revolution.

One of the main characters of the film is the engineer Telegin, an expansive man of great courage and devotion, with a broad understanding of people and events. The part is played by the young actor Vadim Medvedyev. It is not the first time that Medvedyev has acted on the screen and we hope his performance will rouse a warm response.

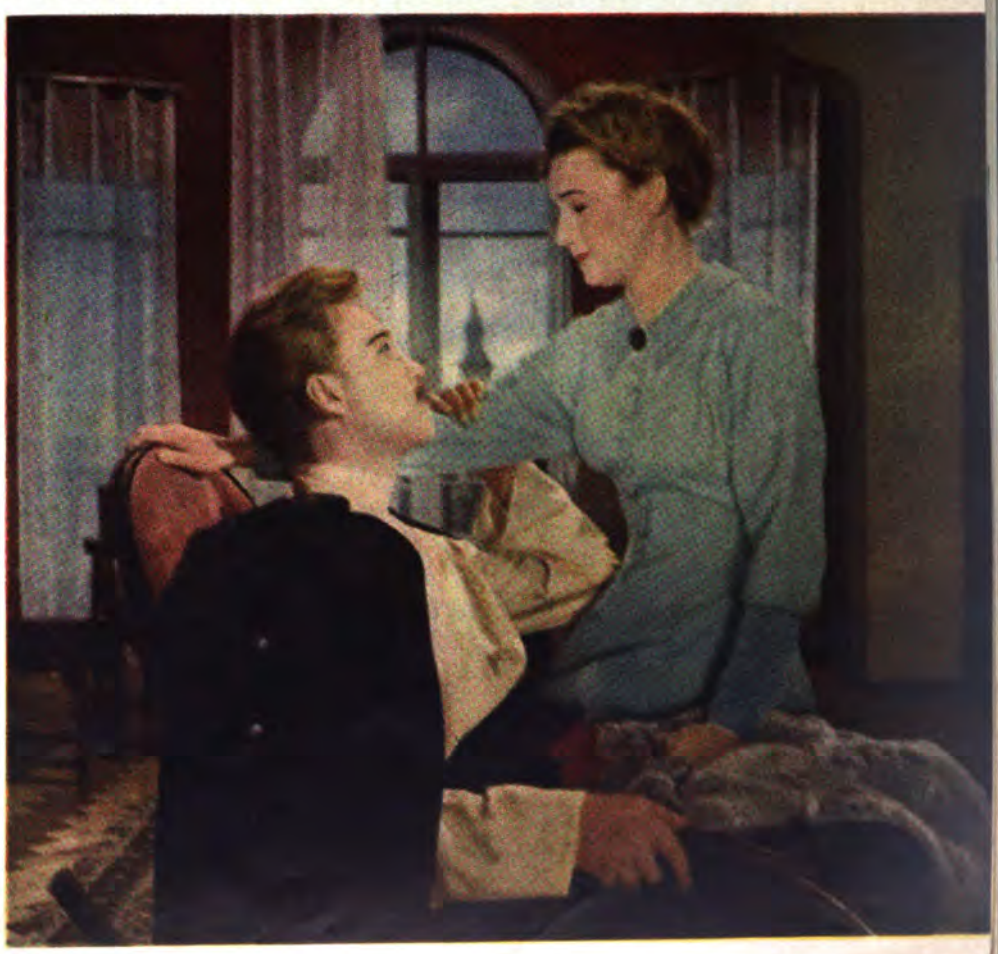
The part of the symbolist poet Bessonov, a gifted man but spiritually wasted and broken, is played by Vladlen Davidov of the Moscow Art Theater.

These are only the chief characters of our film. There are too many to mention them all.

The film's debut was warmly welcomed by audiences everywhere and the reaction of spectators and critics alike showed agreement that the actors had succeeded in conveying the book's spirit and message onto the silver screen in a vivid and lifelike manner. ■

The changes in the lives of Katya (left) and Dasha reflect events in Russia through the First World War, the Revolution and the Civil War.

Telegin, who marries Dasha, is one of the film's main characters. He is a man of courage, devotion and a deep understanding of people and events.



Her First Role Was Huckleberry Finn

NINA VESELOVSKAYA, *New Young Screen Star*

By Gennadi Sibirtsev

AFTER the Moscow premiere of *The Sisters,* the new wide-screen film based on Alexei Tolstoy's novel, a small crowd of reporters clamored to interview Nina Veselovskaya. She had created something of a sensation in her first motion picture as Dasha, one of the two leading roles.

The interview Nina gave followed the usual pattern of questions, with brief and somewhat different answers: She was 25 years old, a student in her third year at a theater school. Her parents were both accountants. She read a lot. She liked Pushkin, Shakespeare and Dreiser, and was especially addicted to Chekhov. She liked sports, especially swimming and skiing, and didn't care much for the more feminine occupations like sewing, knitting or cooking.

The interview had begun to fizzle out when Nina overheard a question passed between two foreign correspondents. She turned to them and said in English, "Pardon me, but I couldn't help hearing what you were saying. I don't mind answering your question at all. I'm not married."

There was a laugh all around. Nina forgot to be shy and the rest of the interview was fun and lively. One of the correspondents complimented her on her English. She smiled and said: "It's not surprising. I'm a teacher of English. Or at least I should have been. I majored in foreign languages."

"What made you switch to the stage?"

"*Huckleberry Finn,*" she answered.

The children in the neighborhood had built an improvised stage out of old boards in her backyard. An overhanging old lime tree supplied a partial curtain and the sets and costumes were whatever could be dragged out of her house and the neighbors' without the grownups seeing. Nina had played Huck because there were more girls than boys. Her performance may have been questionable, but the passion she acquired for acting was not.

Her family let her sing and act at school plays and concerts, but it was tacitly understood that she would become a teacher. Nina raised no objection, largely because she was very doubtful indeed whether she had the makings for professional acting.

But she spent whatever evenings she could spare from study at the student drama group and won major parts in all the productions. They put on plays by Molière, Schiller and Ostrovsky.

One summer three years ago, after graduation from the Tomsk Pedagogical Institute in Siberia, her parents saw her off to what they thought was a vacation resort in the Crimea. Nina never got to the Crimea. She switched trains to Moscow.

It was July, entrance examination period for Moscow's theater schools. There are six in the city. Nina chose the most difficult one to get into—the Moscow Art Theater School.

The odds were heavily stacked against her. There were more than a thousand applicants for the twenty vacant places. She thought, "And even if by a miracle I do get in, there are four more years of study ahead of me." It didn't seem to make much sense, particularly since there was a good teaching job waiting for her in September.

But she did get in and she did make good—very good indeed. After her first year she was awarded a special scholarship. Not only did it mean a larger monthly stipend than the average student received, but, even more important for Nina, it meant recognition of unusual talent.

Talking of the film, casting problems in general and of Nina in particular, Grigori Roshal, the producer, told reporters how and why Nina got the part.

There are special problems involved, he explained, in casting for a scenario adapted from a widely-read novel. The movie-going reader will have formed a preconceived picture of the character with details supplied him by the novelist. Alexei Tolstoy describes his Dasha as a girl "with soft-pink skin . . . ashen hair piled high on her head, a haughty child's mouth and searching eyes." Then there is the more subtle psychological portrait which the reader draws for himself.

A producer's problem, then, is to find the actress who can fill out this hazy outline portrait, give it dimension and body and individuality, so that the reader sees *his* Dasha live on the stage.

In the tryouts, Roshal was looking for *his* Dasha in much the same way as a reader-spectator does. He used as a test an episode in the scenario which calls for the most skillful reading.

It is three days after Dasha has been beaten by unknown assailants and left lying in a deserted street, her body contorted by the pains of premature labor brought on by shock. The child dies three days after birth. Dasha has lost all interest in life. Her husband, whom she once loved dearly, comes in. She must tell him at this moment that she no longer loves him, that they must part.

Nina, called for the audition, was given this part to read with no more than a few minutes of preparation. A harsh examination—but calculatedly so, Roshal explained, that only real talent could pass.

"As soon as Nina moved onto the stage and read her first line," Roshal said, "I knew I had my Dasha."

This film, *The Sisters,* is the first of a series of three motion pictures based on Tolstoy's trilogy with Dasha as major character. The others, to be filmed, are *The Year '18,* and *Dark Morning.*

Says Nina with a smile, "Dasha and I still have to live through the stormy events of the Revolution and the Civil War. I'm thinking of all the work and study ahead of me."

"Are you worried about it?" one reporter asked.

"Of course," said Nina. "But I love it." ■

The new star pauses in front of a billboard announcing the Moscow premiere of *The Sisters*

Nina, who is especially fond of Chekhov, discusses her future role in his *Uncle Vanya.*

COLLECTORS

By Mikhail Grigoryev

THERE'S no accounting for collectors, or the things they collect. It's every man to his own oddities there—and some of the collections are odd indeed. Witness the man who collects cigarettes fabricated in all corners of the globe. Or the man who accumulates lead pencils, old ones preferably, and with ends chewed by famous personages. Or the very respected philatelist and numismatist—stamp and coin collector to the uninitiated—who decided that these two fields were overcrowded. He wanted uninhabited territory to explore, so he collects chunks of cast-iron pipe from buildings, new and old—a whole apartment full of them. What for? It's a question you never ask a collector.

Stamp and coin collectors, of course, are an ancient tribe and the brethren are to be found in large and flourishing numbers in the Soviet Union. But there are rare-book collectors and collectors of minerals, butterfly collectors and collectors of matchbox covers. Then there are those who collect old pipes, or rare cacti, or watches that strike the hour, or whatever else you can think of that is collectible.

Collectors are clubby people. There is the business of comparing your collection with the other fellow's, and bargaining for a trade,

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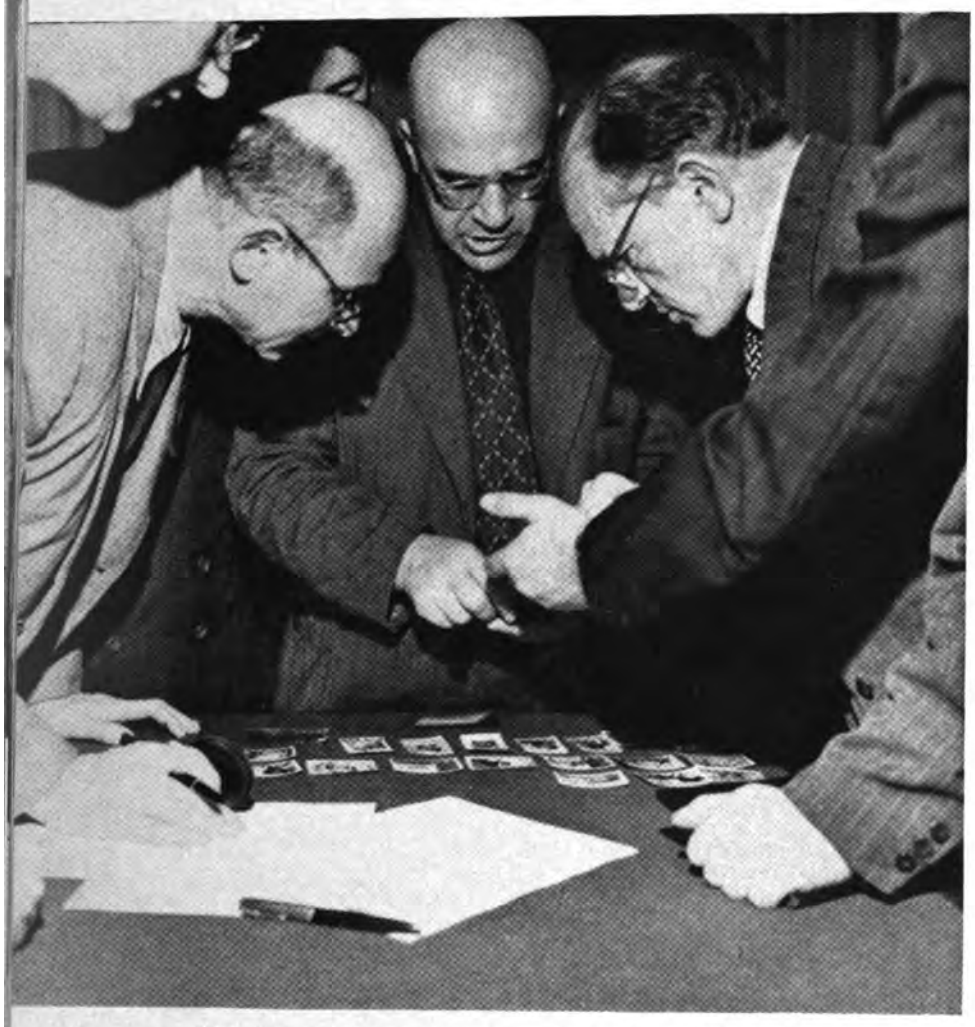
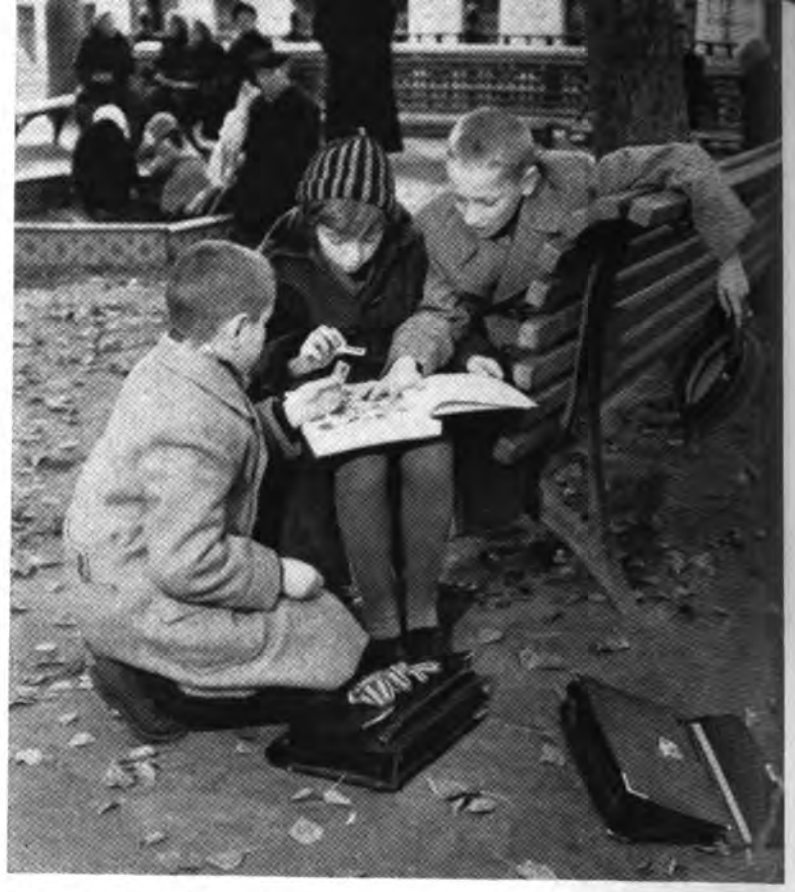


This is a typical evening scene at the Stamp Club. Age is no gauge for the eagerness with which these collectors pursue their pet hobby.



These school children are too young to belong to collectors' clubs, but they somehow manage to do their trading in stamps in any convenient place.

COLLECTORS *Continued*

OLD RUSSIAN MILITARY MEDALS AND ORDERS ARE THE PRIME SPECIALTY OF COLLECTOR ALEXANDER MAKAROV.

and then you need an understanding audience for the engrossing tale of how you finally tracked down this or that rare item. That's what stamp clubs and coin clubs and matchbox cover clubs are for. It must have been to make sure that no collector, no matter what he collected, would feel left out that a new club was added to the roster—this announced in the Soviet press a few months ago—a club for collectors in general.

Stamp Collectors

Among the stamp collectors—thousands of them in the Soviet Union—you find people of all ages and all walks of life. At the 1957 International Stamp Show in Moscow, the two bronze medal winners were the well-known Academician Pyotr Rebinder and fifth grade schoolboy Misha Falle, both members in good —and equal—standing of the Stamp Club, or the Philatelic Society, as you prefer.

The chairman of the Moscow Philatelic Society is Vyacheslav Merkulov, one of the most inveterate stamp collectors in the country. He is a young economist who graduated from the Moscow Institute of Economy last year.

His collection is the envy of many older and longer collectors, and so are his international contacts. Among the people abroad with whom he trades stamps are some American collectors—a schoolteacher in California, a business man in Illinois and a physician in Colorado.

Merkulov is a corresponding member of stamp clubs in England, Italy, Canada, Peru, Czechoslovakia and New Zealand. At the

This is the collection of rock specimens which helps artist Pyotr Pokarzhevsky select a color scale for his paintings.

1957 show his collection of rare Bulgarian stamps won a silver medal.

Sergei Kristi is an older member of the club. The stamp collection he now has is his second. The first one—it contained 100,000 stamps and took over thirty years to gather—was completely burned up when his house was bombed early in the last war. But this new collection is even larger. He is a specialist in Polish issues.

Coin Collectors

Some collectors double and triple in brass. Sergei Fortinsky collects coins, medals and bookplates. He claims there is a close and happy relation between bookplates and coins, even though it may not be apparent. He cites this in evidence.

In a secondhand book store which Fortinsky visits from time to time to search for bookplates, he met a venerable little lady who urged him to look at some old coins she had been keeping for nearly half a century. They were old enough, black with age and worn thin.

They didn't look like much at first glance, but Fortinsky can't resist a bargain, so he bought them—and a very lucky buy indeed for a coin collector, so Fortinsky says—a once-in-a-lifetime buy. Mixed in with the pounds of assorted valueless metal he found three very rare 300-year-old Russian coins.

Fortinsky up to now has divided his loyalties between coins and bookplates. In his interesting *Ex Libris* collection are bookmarks that belonged to Turgenev, Dostoyevsky and other famous Russian writers. His newest hobby is old books—memoirs in particular.

Book Collectors

Rare-book collectors are, so to speak, the aristocrats among collectors. Nikolai Smirnov-Sokolsky, the popular vaudeville actor, has the largest private collection of rare books in the Soviet Union. He has been book gathering for almost 50 years and his valuable first editions and autographed copies include some very rare Jonathan Swifts and one of the three copies extant of the original edition of Leo Tolstoy's *What Is My Faith?* The Czarist government

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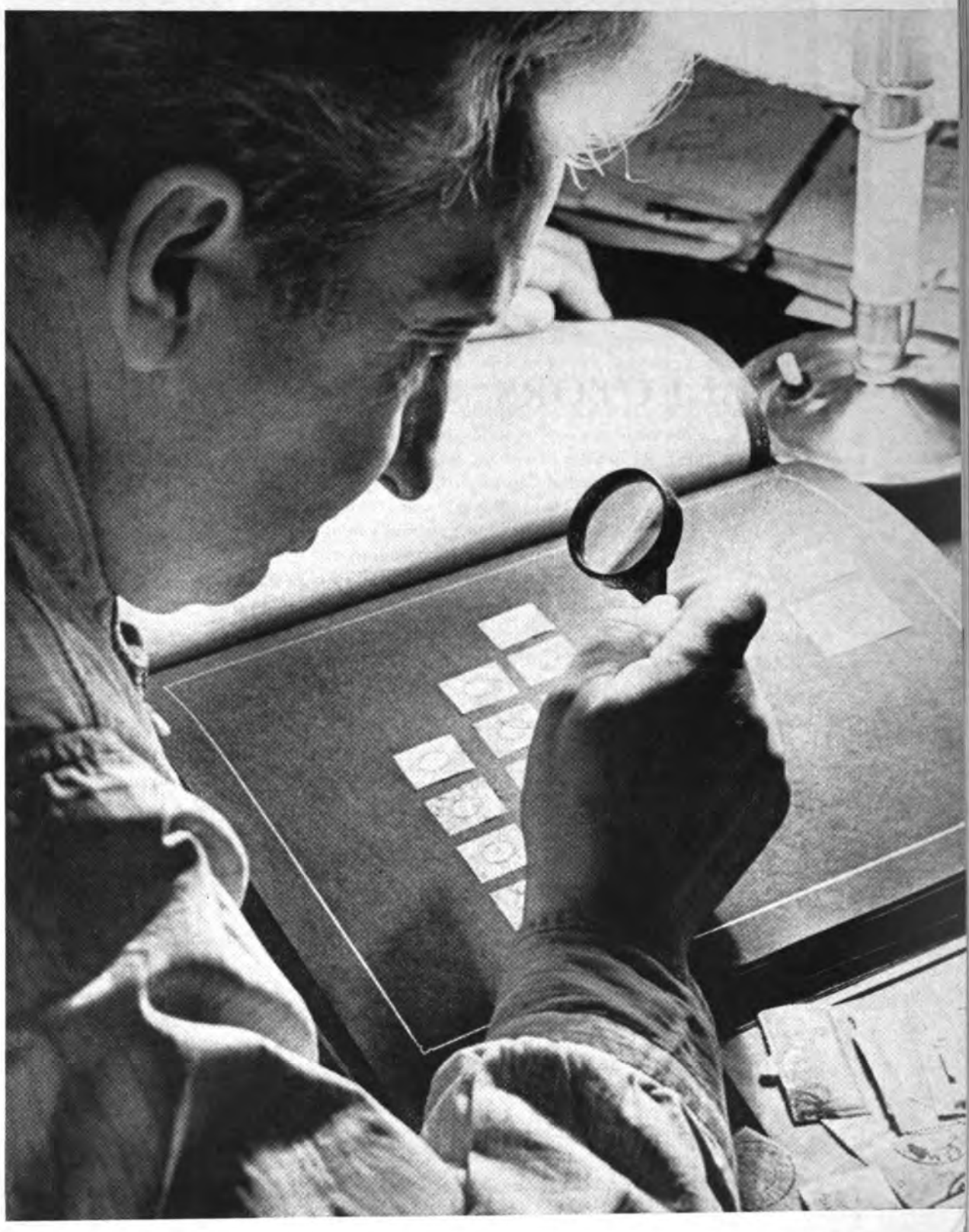
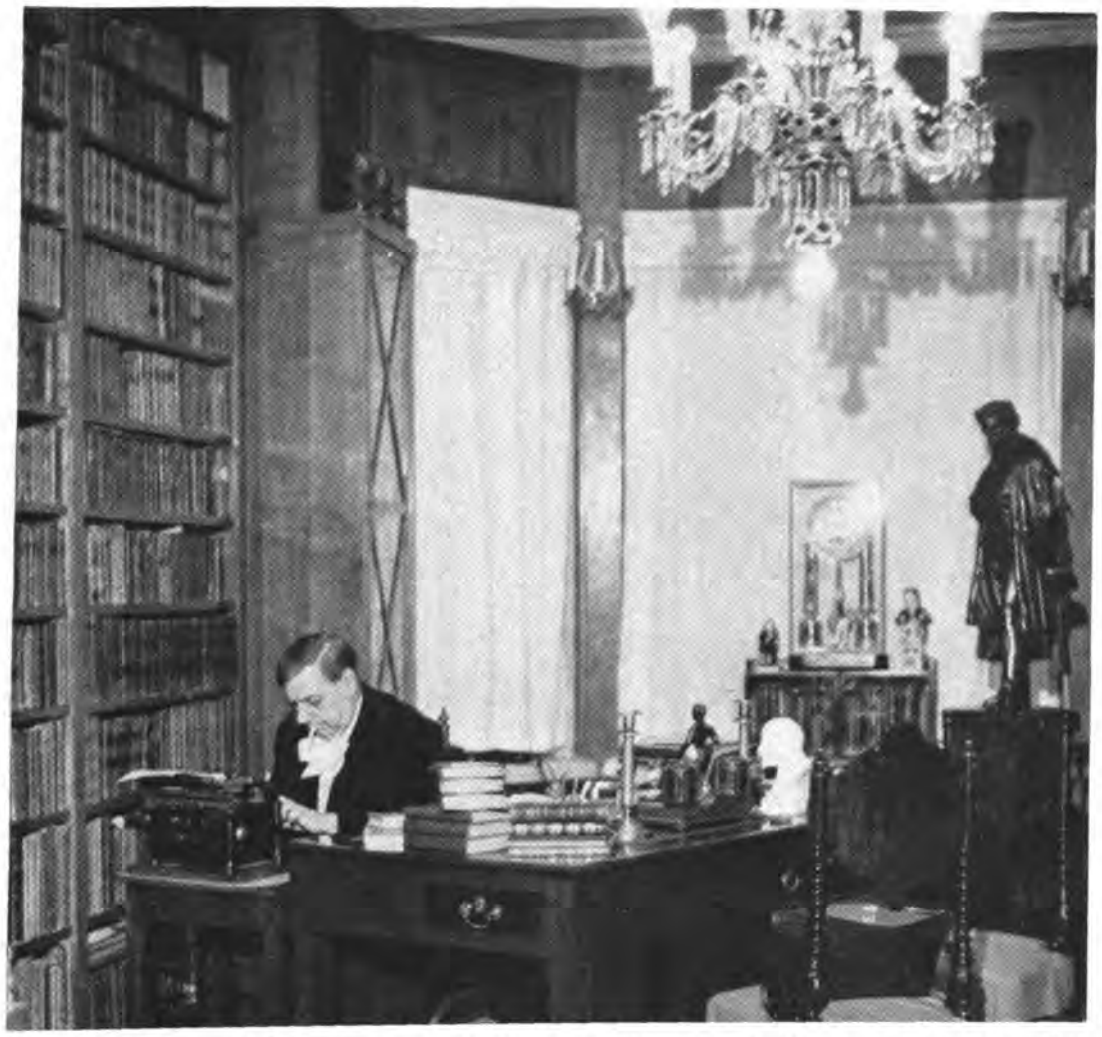
MIKHAIL FRENKEL HAS A COMPLETE COLLECTION OF STAMPS ON SOVIET ARCTIC EXPLORATION SINCE 1930.





Nikolai Smirnov-Sokolsky, popular vaudeville actor, has one of the largest private collections of rare books in the Soviet Union. He has been book gathering for almost 50 years.

permitted only 50 copies of this book to be printed in 1884, and of these 47 were destroyed by the censor.

Smirnov-Sokolsky, like many bibliophiles, is a considerable scholar. He has written a hundred or more articles on the books in his collection.

Assorted Odds-and-Ends

Among the less orthodox collectors we have the artist Pyotr Pokarzhevsky, who collects minerals, butterflies and beetles. He is one of the few collectors who has a rationale for his hobby. He claims to be studying the fine shadings in color of rocks and insects.

Pavel Kiselev, an army man who retired after twenty years of professional soldiering, is a matchbox cover collector. He prefers to be called a philluminist.

And Alexander Makarov, who is a very peaceful bookkeeper in public, is a military hobbyist in private life. He collects weapons, swords, pictures—anything that has to do with Russian Army history.

Makarov has collected about 10,000 portraits of Russian generals, past and present, many of them autographed. He has nearly all the orders and medals with which Russian soldiers, from the 16th through the 19th centuries, were decorated.

Makarov knows the history of the most obscure old Russian Regiments and the long-forgotten details of military campaigns. He is often called on to act as technical consultant by film producers and theater directors.

And Georgi Baidukov, the flyer who made the epic non-stop flight from the Soviet Union to the United States over the North Pole, collects porcelain dogs.

As we started off saying—there's really no accounting for the things collectors collect. ■

COLLECTORS *Continued*

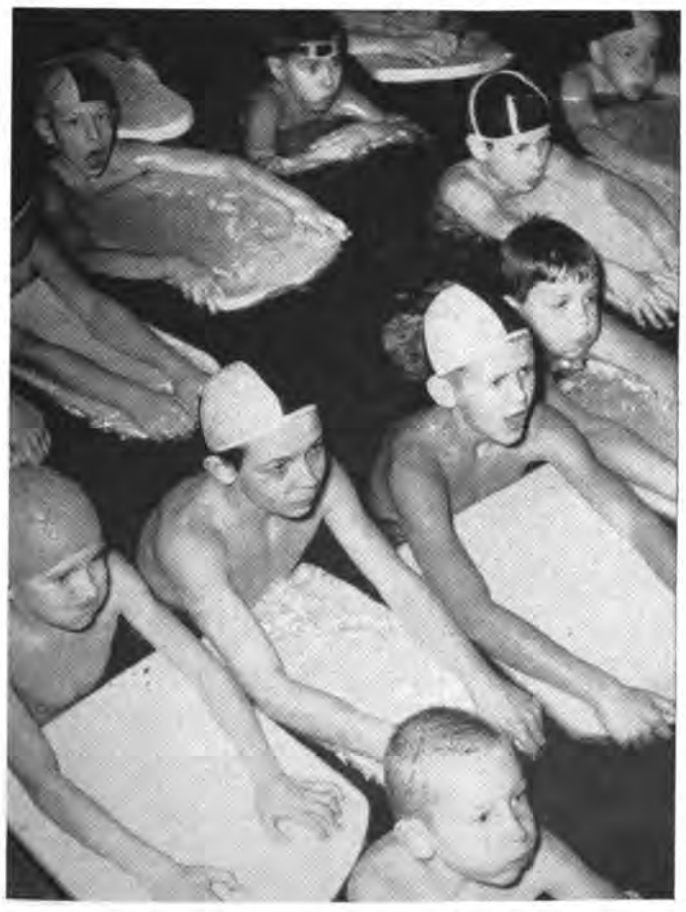
A first edition of Pushkin's *Yevgeni Onegin* (left) published during the poet's lifetime and an autographed copy of Chekov's stories are both from Smirnov-Sokolsky's collection.

One of three existing copies of Leo Tolstoy's *What Is My Faith?* also belonging to Smirnov-Sokolsky.

BEFORE THE SHIFT, THE AUTO PLANT'S POOL IS THE MEETING PLACE FOR THESE FRIENDS—AN ENGINEER, A TRUCK DRIVER, A DESIGN-ENGINEER AND A TOOL FITTER.

BUSY FACTORY POOL

By Victor Kuprianov



WORKERS' CHILDREN LEARNING TO SWIM AFTER SCHOOL HOURS.

IF YOU asked to be shown the Likhachyov Automobile Plant in Moscow, the engineers will take you around the different shops to give you an idea of how skill and material combine to make vehicles of various designs. And when you watch the new luxury ZIL (the Russian initials for Likhachyov Plant) cars roll off the assembly line, you'd think you had seen it all. But the tour doesn't stop there.

Your hosts will insist that you visit what they jokingly call the "physical fitness" shop. From the outside it looks like any other factory shop—the same dark brown brick and big, big windows. But you don't hear the hum of machinery there—just the hum of voices and laughter galore.

This is the swimming pool—Moscow's oldest, incidentally. It's old in years (completed in 1930) but modern in equipment. This was once the favorite site of the USSR championship tussles in swimming, diving and water polo. Although now it is eclipsed by Moscow's 50-meter pools, its popularity has not diminished in the least. It still gets a daily attendance of about 400 from the age of 5 to 60.

The pool is a 25-meter affair with lanes for racing, a sector for diving and all facilities for learning. They say if it has anything to do with water sports—you'll find it at the ZIL pool.

Activities are manifold. The pool's day begins at 7 A.M. to give the morning shift a bit of exercise and a swim before starting the job. This was the idea of tool foreman Boris Anufriev who once held the USSR diving title. He believes a man needs a bit of limbering up before the job, and swimming is his choice of morning PT.

No one is too old to swim, says Boris Anufriev. The oldest member of the early morning swim club is 60. Boris Anufriev is just a bit under that himself. His group is made up of all ages. You get the 18-year-old youngster churning up the lane in the hope of a record performance perhaps, and you find the older generation of granddads and grandmas paddling about with their leisurely strokes.

At 8 A. M. they all leave the pool and youngsters come. These are the children and grandchildren of those who were there an hour earlier. And all around the clock to midnight—one group replaces another.

The factory swimming pool is more than just a place to come for a good time. While you're having fun they'll teach you to swim the real way. They'll help you improve on your diving. People come for a number of reasons. Some want to learn how, others want to improve on their techniques, still others just want to have fun and some come to get rid of surplus poundage.

Water polo is an important part of the pool's activities. The factory teams rank among the best in the country. The pool also sponsors all sorts of contests on a local scale and sends teams to outside tournaments as well.

Continued on next page

THIS FACTORY POOL CAN TRAIN BOTH ADVANCED AND BEGINNERS IN AQUATICS.

BUSY FACTORY POOL *Continued*

The swimming pool charges no admission. All that is needed to get in is medical clearance. The pool has its own medical staff which examines all comers regularly. And this medical supervision is strict.

Much of the day at the pool is given over to the youngsters. And it isn't just a matter of splashing around. The boys and girls are taught how to imitate the champions and are prepared for contests at all levels. While health is the main goal, the instructors at the pool have an eye open for future champions. Valentina Nikolayeva, who has been teaching swimming since 1939, takes particular pride in 17-year-old Ira Bogdanova. Ira first came along as an awkward and clumsy kid. But Valentina Nikolayeva succeeded in whipping her into shape and now Ira is taking a course in physical education in college. Her ambition is to become a swimming instructor herself and maybe a "real good swimmer."

Joining the swimming class is simple. All a youngster needs is permission of the school doctor. Then you come and see Valentina Nikolayeva who sends you to the pool doctor. But medical examination is nothing, the youngsters say. The worst is yet to come! I decided to find out what the "worst" could be and waited around to see.

I watched the youngsters gather at the entrance to the pool, with Valentina Nikolayeva seated at a table peering at a list of names over the top of her glasses. She'd look at the list, look up at the individual concerned and back again at some notes she had. Everything went well until her glance rested on 12-year-old Sasha. She had said nothing yet but I noticed Sasha becoming as red as a beet. Suddenly she looked up and asked: "Why weren't you here last time? Were you sick?"

Sasha mumbled something very incoherent. Meanwhile his eyes seemed to be drilling holes in the floor, and he was as red as a hot tamale.

"Oh, so you got a bad mark in arithmetic!"

Sasha shifted uncomfortably. He definitely wasn't enjoying this interview. And all the other youngsters snickered—some even made caustic remarks.

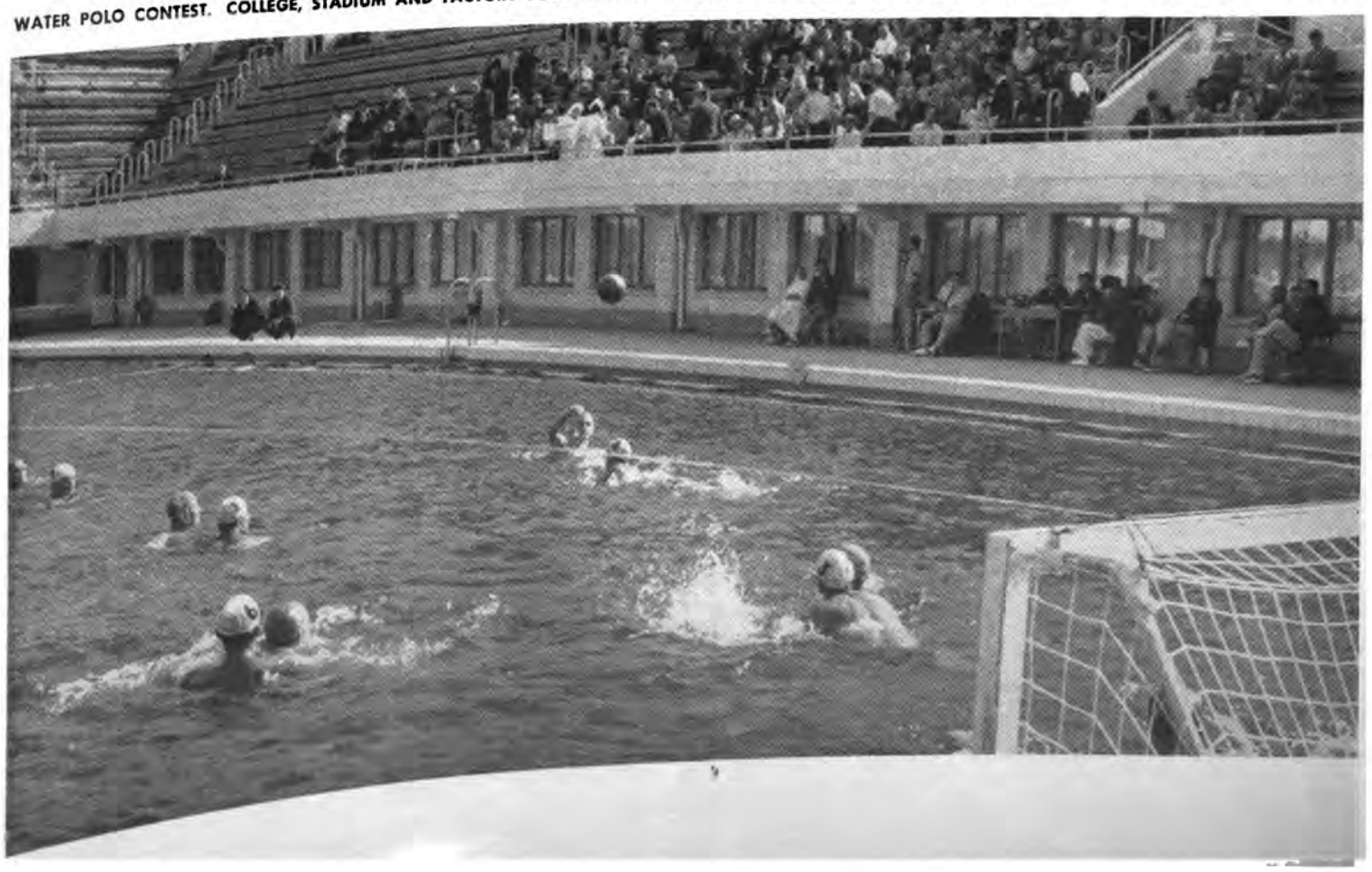
Valentina Nikolayeva later explained the procedure to me. "We're not only concerned with the youngster's health. We're interested in his scholastic work as well. Anyone who gets a bad mark is ineligible for training until he patches things up. And he can be held ineligible for as much as a month at a time."

"But suppose you're getting ready for some big tournament, isn't there a danger of one of your 'stars' being made ineligible this way?"

"We've got to be strict," was her reply. "At all tournaments the contestant is required to show his report card to the judges. If there's a bad mark in any one subject—out he goes. Then there are the parents, who are always afraid of over-emphasis on sports and they're prone to hold the instructors responsible for bad marks, so naturally they've got to be strict."

Valentina Nikolayeva's influence can certainly be felt. While the youngsters wait for their turn in the pool, they don't waste time. I saw them all with their books intently reading up on their assignments. No one wants to get sent home because of a bad mark. ■

WATER POLO CONTEST. COLLEGE, STADIUM AND FACTORY POOLS DRAW THE CROWDS TO AQUATIC EVENTS AND SWIMMING CONTESTS THE YEAR AROUND.



ARKADI VOROBYOV, ONE OF THE MOST POPULAR SOVIET WEIGHTLIFTERS, SET THREE NEW USSR RECORDS IN HIS PERFORMANCE AT THE WORLD CHAMPIONSHIPS IN TEHERAN.

Soviet Weightlifters

Win Six of Seven Championships

THE YEAR of 1957 has passed. The excitement of sport rivalry on the green soccer fields, black track lanes, tennis courts and rippled surfaces of rivers and lakes has subsided. The results of the season have been summed up and sport equipment stored away for a brief lull. The last to summarize achievements were the weightlifters.

For five days, November 8-12, the strongest barbell performers of 21 nations competed in the world championships in Teheran. During these five days Soviet athletes ascended the dais of honors six times while the band played the Soviet national anthem.

★ ★ ★

The first to launch the tournament, as usual, were the bantamweights. At the 1956 Olympic Games in Melbourne spectators witnessed a sharp duel between two outstanding athletes, Vladimir Stogov of the Soviet Union and Charles Vinci of the United States. The American won that time, amassing a new Olympic record total of 342.5 kg.

Vinci did not come to Teheran, but the bantamweight competition was closely contested and even more thrilling. After Stogov had scored a 107.5 kg. press, thus repeating the USSR record he had established, the onlookers realized that the Soviet lifter was in a position to chalk up a remarkable total. While in excellent form a little over a year ago in Melbourne, Stogov had then only succeeded in raising 105 kg. in the press, yet went on to run up a total of 337.5 kg.

The next exercise was the snatch. The barbell carried a record weight of 105 kg. Back in 1956 Stogov lifted 105 kg. but after the weigh-in, following the exercise, the athlete proved to be slightly over 56 kg. and this prevented the achievement from being recognized as a new official world high.

The situation in Teheran was quite different. The scales read 105 kg. exactly for the barbell weight and 56 kg. exactly for the performer. Thus, a new world record was established.

The last exercise was the jerk. Nobody by this time doubted a victorious outcome for Stogov, who was 12.5 kg. ahead of his nearest competitor. What aroused the excitement of the fans was whether they would witness a new triple movement record. Stogov registered 132.5 kg. in the jerk and regained the world bantamweight crown.

★ ★ ★

Two old rivals met again in the featherweight class—Isaac Berger (USA), the 1956 Olympic champion, and Yevgeni Minayev (USSR). In 1956 the former proved superior in paced movements and triumphed over the Soviet entrant. But a year had passed. During this time the young Soviet lifter's skill had improved considerably. He became the possessor of the world's best achievement—357.5 kg.

Meanwhile, Berger, too, had bettered his results. Whereas in Melbourne he lifted 107.5 kg. in the press, his best performance in Teheran equalled 115 kg. Minayev registered 117.5 kg. to eclipse the world high by 2.5 kg. However, the true weight on the scales amounted to 117.2 kg. and Minayev's new record went down in the official tables as equalling an even 117 kg.

Sebastian Mannironi, a young Italian strongman, proved the best in the snatch with a 107.5-kg. effort. Minayev came in second with 105 kg. and Berger, third—102.5 kg.

Minayev and Berger both started off in the jerk with 132.5 kg. The Soviet sportsman had failed with this weight in Melbourne, but now it was lifted with ease. Berger realized that his only chance was to stake his all. He let through one weight after another.

Minayev's last effort was 140 kg. which brought the athlete's total to a world record-smashing 362.5 kg. Mannironi lifted 142.5 kg. to score a 352.5-kg. total.

In order to catch up with Minayev, Berger approached the barbell when it carried 145 kg. But the weight was not lifted and Yevgeni Minayev became the world champion and record-holder in his category.

★ ★ ★

Two years ago the name of Victor Bushuyev, a Soviet lightweight, was unknown outside the Soviet Union, and only a few inside the country had heard of him. Together with thousands of other young people, Victor had helped build the Gorky Hydropower Plant on the Volga. His athletic career started in 1955 in the city of Gorky in the Energia Sports Society. He came to Moscow in 1956 to participate in the USSR Sports Festival. There he placed seventh with a 357.5-kg. total. But vigorous training in the following year produced brilliant results: in August 1957 Bushuyev captured the lightweight crown in the Third World Youth Games and set a new world record. He ended the year by taking the world title.

Many athletes had finished in the press when Bushuyev and Cziepulkowski of Poland ascended the competition platform. Bushuyev easily lifted 115 kg. and then 120 kg. An attempt to raise 122.5 kg.

Continued on next page

Soviet Weightlifters *Continued*

was unsuccessful. Cziepulkowski, too, could do no better than 115 kg.

After the snatch the Pole relinquished second place to Ivan Abadjiev of Bulgaria. Like Bushuyev, the Bulgarian started with 110 kg. and subsequently they lifted 115 kg. and 117.5 kg.

Once more, in the jerk, the majority had completed their performance when Bushuyev approached the barbell for the first attempt. A successful jerk and his total of 380 kg. proved unsurpassable and another Soviet sportsman won the world championship gold medal.

★ ★ ★

The rivalry between middleweights Fyodor Bogdanovsky (USSR) and Tommy Kono (USA) was resumed in Teheran.

Kono took the lead after the press. Bogdanovsky trailed by 2.5 kg. However, the situation changed after the snatch, where the Soviet contestant registered 127.5 kg. and the American had to be satisfied with 122.5 kg. following two unsuccessful tries at 127.5 kg. Bogdanovsky now held a 2.5-kg. lead.

The outcome depended on the results in the jerk. Kono scored 162.5 kg. and Bogdanovsky, 160 kg. Thus, both challengers had the same total of 420 kg. By weighing less himself than Bogdanovsky, Kono gained top honors. The Soviet sportsman received a silver medal as runner-up.

★ ★ ★

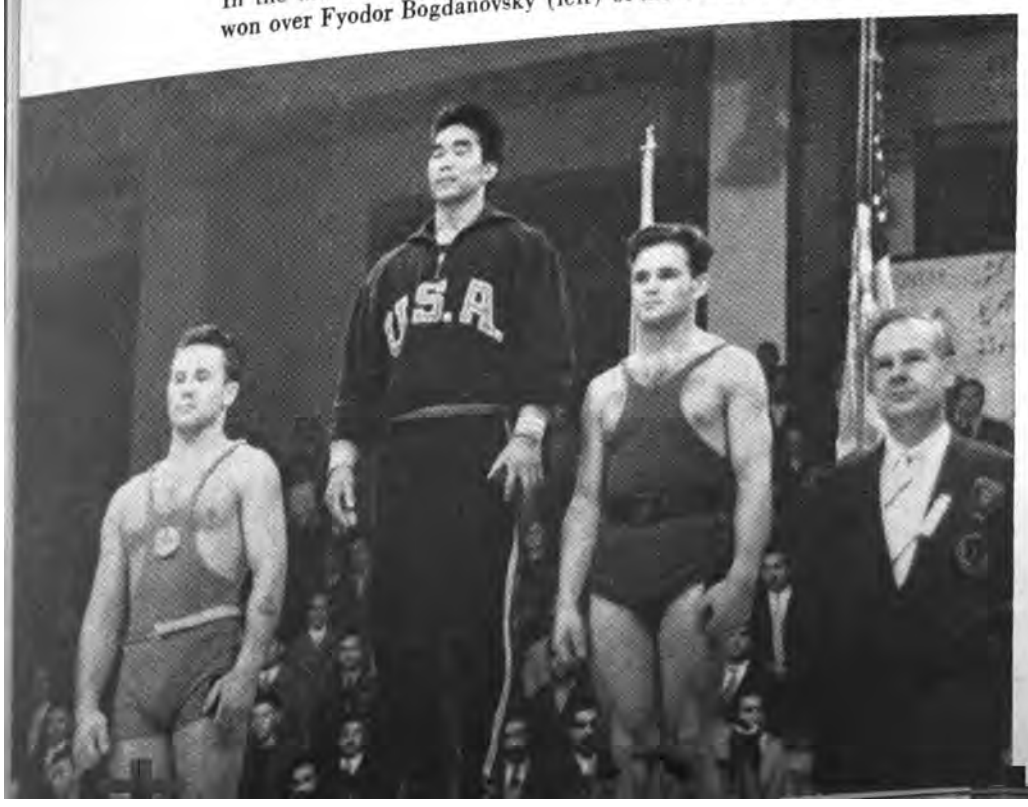
Trofim Lomakin. The name of this Soviet weightlifter first echoed in the sport world during the Olympic Games in Helsinki where Lomakin emerged victorious in a tense duel with the world-famous American light-heavyweight S. Stanczyk and won a gold medal. Since then Lomakin has been seen annually in the group of prize-winners in USSR and international tournaments. At the 1957 world championships Lomakin's most dangerous rivals were J. George (USA), holder of an Olympic bronze medal, and J. Mansouri (Iran). The latter two ended the press with the same result—130 kg. The Soviet athlete let the weight through and asked the judges to put 135 kg. on the barbell. He took this weight with ease. Lomakin still had two more attempts. Everyone expected that the weights would respectively be 135.5 kg. and 140 kg. But Lomakin's request was 142.5 kg. After one unsuccessful effort, the USSR lifter registered the weight on outstretched arms.

Lomakin and George both showed 132.5 kg. in the snatch, but the former again strode ahead in the jerk. He began with 165 kg. George twice failed to lift 167.5 kg.

At this point the new world champion, Trofim Lomakin, resolved to break the USSR record in the jerk and establish a new world high for the triple exercise. The first two tries with 175 kg. were failures but the third and last saw the weight taken faultlessly.

Among the light-heavyweights, Trofim Lomakin (center) made a new world mark in his event. J. George (USA) was second and J. Mansouri (Iran) third.

In the middleweight competition Tommy Kono of the USA team (center) won over Fyodor Bogdanovsky (left) of the USSR, who took the silver medal.



Two Soviet strongmen who enjoyed particular popularity in Teheran were Arkadi Vorobyov and Alexei Medvedev, who chalked up the greatest triumphs in the competition. They were scored in different ways: Vorobyov vied with metal (he lacked a worthy rival) while Medvedev met the challenge of Selvetti, the Argentine giant, who in the Melbourne Olympics had the same total of 500 kg. as the American heavyweight Anderson.

Arkadi Vorobyov marked up three USSR records simultaneously—145 kg. in the snatch, 180 kg. in the jerk and a total of 470 kg. In the press the army officer from Sverdlovsk repeated his own world record of 147.5 kg. shown in Melbeurne.

Arkadi approached the barbell ten times and not once did he let the metal beat him. He really deserves the name of a "man of iron."

The battle between heavyweights Medvedev and Selvetti, the Olympic silver medallist, was exceptionally keen. In the press the Argentinian gained a 10-kg. lead over Medvedev who had lifted 165 kg. This could have decided the issue since Selvetti had already shown his strength in the next exercises before the start of the title tournament. The Soviet athlete, however, remained unperturbed. Medvedev launched the snatch exercise with 142.5 kg., whereas Selvetti could only master 140 kg.

Adding another five kilograms, Medvedev finished the snatch with a new USSR achievement of 147.5 kg. The Argentinian's lead was cut to 2.5 kg. Then came the all-deciding jerk exercise.

While the weight was not heavy on the barbell, Selvetti suddenly came up to the Soviet team doctor and asked for permission to inhale oxygen which Medvedev had just breathed. The Argentinian looked very fatigued. After he had been given oxygen as well as liquid ammonia, he felt better and resumed the battle.

The Olympic star lifted 170 kg. Mäkinen of Finland and Pigaiani of Italy did better than he. Then Medvedev came along with a 180-kg. lift. Selvetti asked for 185 kg. but this weight proved too much for him.

Medvedev scored a 187.5-kg. jerk and became the sixth member of the Soviet team to win the world title. His total of 500 kg. is a new Soviet record and repeats the Olympic high. Selvetti finished as runner-up with 485 kg. and Pigaiani finished third with 452.5 kg.

★ ★ ★

At the end of the tournament, one of the foreign coaches offering his congratulations to the Soviet athletes remarked that they fully merited the golden shower of medals in Teheran. The USSR team received six out of seven gold medals and one silver medal. The total for the USSR team was 33 points, or 24 points ahead of the Americans and Iranians who occupied second and third places, respectively. ■

GIRLS OF THE PAMIR MOUNTAIN REGION. (See story on page 2

no. 4 (19)

GIRLS OF THE PAMIR MOUNTAIN REGION. (See story on page 3)

no. 4 (19)

VLADIMIR ILYICH LENIN IN HIS KREMLIN OFFICE (1919)

V. I. LENIN

VLADIMIR ILYICH ULYANOV (LENIN) was born April 22, 1870, in the old Russian town of Simbirsk, now Ulyanovsk, on the Volga River. His father was a prominent figure in the educational field. His mother, a gentle, considerate and well-educated woman, was the daughter of a physician. The Ulyanov children grew up in an atmosphere of respect for work, devotion to learning and love of humanity.

In 1887, following his graduation from high school with a gold medal, young Lenin entered Kazan University, taking up the study of law. Soon, however, he was arrested for participation in the students' revolutionary movement, expelled from the university and exiled to Kokushkino, a forsaken village, where he was kept under police surveillance.

In October 1888 Lenin was permitted to return to Kazan but he was not readmitted to the university. He proceeded to acquire his education by himself, studying the works of the great thinkers of Russia and the West. After considerable effort he won permission to take examinations covering the full law course, which he did in the spring and fall of 1891 at the University of Petersburg, now Leningrad.

During this time Lenin had joined the revolutionary movement. He took part in the activities of the underground groups where the members studied the works of Karl Marx and Friedrich Engels, founders of scientific socialism, and discussed the problems confronting society.

Early in 1892 Lenin began the practice of law, appearing as defense attorney for various clients, mostly poor peasants or workers, in the courts of Samara, now the city of Kuibyshev. But much of his time was spent speaking to underground groups of workers and students, explaining and upholding Marxist views on how society was to be changed. Lenin was then only 22, but he already amazed those about him with the depth and clarity of his thinking.

In August 1893 Lenin moved to Petersburg, then the capital of the country and its cultural and industrial center. He began to lead the busy life of a revolutionary, teaching Marxism to workers' study circles and writing a number of scientific works and articles dealing with pressing social problems. By the fall of 1895 Lenin had united all the workers' revolutionary groups of Petersburg into a single organization—the League of Struggle for the Emancipation of the Working Class—which headed the movement of the capital city's workers for the defense of their interests, their economic and political rights. The example set in Petersburg was soon followed by workers' revolutionary circles throughout the country.

This activity, however, brought about Lenin's arrest once more later that year and he continued his work from jail, writing his comrades letters of advice and leaflets explaining the reasons for the misfortunes of the working class. He also continued his research into the economic development of Russia, writing several pamphlets on forbidden political subjects. To get his material through the prison censorship, Lenin wrote with milk as his ink between the lines of quite innocent-appearing volumes. He kept his milk in "inkwells" made of bread he could easily swallow if a guard appeared. "Today I ate six inkwells," he once jokingly informed his friends.

After more than 14 months in prison, Lenin was sentenced to three years' exile in the Eastern Siberian village of Shushenskoye. From that distant spot, almost 400 miles from the nearest railroad, he closely followed the latest Russian and foreign literature on philosophy, economics, history and law sent him by his relatives. While in exile he wrote 30-odd works, among them the book *The Development of Capitalism in Russia*, as the result of his many years of study of the country's economy. In Shushenskoye he married Nadezhda Krupskaya, a young teacher whose acquaintance he had made in Petersburg.

On returning from exile in 1900, Lenin undertook the establishment of a revolutionary Marxist labor party. The czarist authorities strictly prohibited any democratic movement and were especially zealous in persecuting any group with a labor or Marxist tinge. A secret police report in 1900 made this characterization of the young revolutionary: "There is no one bigger than Lenin in the revolutionary movement today," and the authorities ordered him kept out of the capital, the industrial centers and university towns. But Lenin, preparing the ground for setting up the party, went everywhere it was necessary to be, establishing contact with the main revolutionary organizations of the country.

Continued on next page

VLADIMIR LENIN WHEN HE WAS FOUR

V. I. LENIN *Continued*

While carrying on extensive organizational work, he simultaneously continued to develop the theory of the revolutionary movement and published a number of books. It was in these years, incidentally, that he started signing some of his works "Lenin."

In the summer of 1903 a Marxist congress held in London with Lenin in attendance laid the basis for the formation of the revolutionary Marxist party of the Russian working class that is known today as the Communist Party of the Soviet Union. Lenin's adherents at this congress were elected to the leading bodies by a majority vote and after that were called Bolsheviks, from the Russian word *bolshinstvo*, meaning majority.

During the first Russian Revolution in 1905, Lenin returned to Russia and, in open disregard of police persecution, threw himself into revolutionary activity. He often published articles in newspapers and spoke at workers' meetings and to Party audiences.

Following the defeat of the 1905 uprising, the Central Committee of the Party decided that Lenin should go abroad and late in December 1907 he moved to Berne, Switzerland.

But Lenin would not be diverted. All told, he spent 20 years in various czarist jails, banishment and exile abroad without abandoning his life struggle for the freedom and happiness of the working people. Wherever he chanced to be, his comrades and followers came to him for advice. He regularly corresponded with friends, and many Party conferences and congresses took place under his leadership.

During the First World War, which found Lenin in Switzerland, he came out vigorously against the conflict which he branded as unjust and imperialist on both sides.

The war's burden hit the masses of the people hardest, aggravated the contradictions in Russia's life more than ever, and toward the end of February 1917 the czarist autocracy fell under the onslaught of the Russian people.

Hurdling the many obstacles in his path, Lenin returned to his native land and arrived in the capital on April 3, 1917, to be met by an enthusiastic welcome from thousands of workers, soldiers and sailors. Addressing the people in the railroad station square, he called upon them to struggle on for the victory of the socialist revolution.

During the early hours of October 25 (November 7 in the new calender) 1917, revolutionary workers and soldiers led by Lenin and his comrades overthrew the reactionary Provisional Government and on the same day the Second All-Russian Congress of Soviets, representing the vast majority of the population, announced that all power had passed to the Soviets of Workers', Peasants' and Soldiers' Deputies. The Congress elected Lenin head of the Soviet Government—Chairman of the Council of People's Commissars.

The October Revolution, which started in the national capital, was quickly victorious throughout the country. Enjoying the confidence of the millions of workers, peasants and intellectuals, Lenin directed the establishment of the young state of the working class.

Immediately associated with Lenin's name are the abolition of land ownership by big landholders, the control of production by the workers and later the nationalization of the banks, railroads and large-scale industry. Lenin advanced and put through the idea of an integrated state economic plan, the first of its kind in the world. He was the author of the policy of equality and sovereignty of all Russia's multi-languaged peoples and their right to self-determination, and under his guidance this policy was carried out. Decrees signed by Lenin abolished all forms of discrimination and oppression, among them national and religious restrictions, laws stipulating the inequality of women, setting class limitations and so forth.

Lenin initiated the principal actions of the Soviet Government that marked the beginning of a new historical era.

Lenin took into account the practical experience of the workers, the initiative of the masses which bloomed under Soviet power. As a result of his thorough study of the historical lessons of the Revolution, he combined in his governmental activity a boundless belief in the creative forces of the people along with a sound scientific basis.

Immediately after the October Revolution of 1917 Lenin advanced the task of Russia's economic development for improving the general welfare. The civil war and foreign intervention that followed the Revolution hindered it, but even during the most difficult times Lenin kept working out his program. In the winter of 1920 the Eighth All-Russian Congress of Soviets approved the electrification program drawn up by a group of scientists under Lenin's direct guidance, providing for the building of 30 large electric power stations. The implementation of that plan, a colossal one for the time, was the first step toward the fundamental transformation of the country's economy, then ranking among the world's most backward.

It is characteristic that even in the first months of the new state, with the ravages of war still unrepaired, Lenin gave much attention to the cultural advancement of the people. He personally concerned himself

THE ULYANOV FAMILY GROUP (1879)

VLADIMIR LENIN WHEN HE WAS EIGHTH GRADE STUDENT

with providing each of the 50,000 free libraries and reading rooms set up by the new government with all needed textbooks, classical world literature and books of contemporary science and engineering.

The Soviet Government from its very inception proclaimed peace to the peoples and extended the hand of friendship and cooperation to all nations. Lenin was a staunch champion of peace and upheld the principle of peaceful coexistence of countries with different social and economic systems. He underscored the Soviet Union's desire for peace and economic relations with all countries. He repeatedly pointed to the need for normal and mutually advantageous cooperation between the Soviet Union and the United States.

During the most difficult years of the civil war and foreign intervention, Lenin was an optimist. He did not just believe, he knew that the Soviet people, to use his own expression, were erecting the bright edifice of a socialist society. His work in the early years of Soviet power traced the outlines of that edifice and worked out scientifically a program for the industrialization of the country and for the transformation of its agriculture through voluntary cooperation of the peasants in production along with a program for raising the people's cultural standard.

Hated by enemies of the people throughout his life, Lenin was twice the target of terrorists. On August 30, 1918, returning home from a Moscow factory meeting, he was shot and severely wounded. Although he pulled through, his health was seriously impaired.

Lenin was not destined to reap the fruits of his labors to the full or see his cherished dreams become reality. He looked after everyone but himself. The endless strain, coupled with the effects of his wounds, prematurely drained his strength, and after a protracted illness Lenin died on January 21, 1924.

Thousands attended the funeral, and workers all over the world declared a five-minute work stoppage for the hour of the funeral.

More than three decades have passed since then, and the further time marches on, the more fully and profoundly is revealed the greatness of Lenin and the brilliant power of his genius. The Soviet state he founded has long since cast aside its heritage of poverty and backwardness and has become a mighty and rich industrial power possessing a flourishing agriculture and an advanced culture and science. ■

LENIN AND HIS WIFE NADEZHDA KRUPSKAYA WITH TWO YOUNG FRIENDS

READING A REVOLUTIONARY LEAFLET

LENIN *Returns from Exile*

By Anna Ulyanova-Elizarova

MY BROTHER Vladimir was due back from exile in Siberia in February of 1900. We were looking forward to the day as though it were a holiday, all of us, especially Mother. We had not seen him for three years. But we could not persuade ourselves that he would really be freed, that his term might not have been extended because of some mishap. A conflict with the local authorities or the ill-will of some petty official could mean a longer sentence.

Nor did Vladimir himself feel any certainty about his release, although he lived quietly and carefully avoided breaking any one of the rules. The closer the day of his freedom, the more disquiet he felt.

We lived then on the outskirts of Moscow, in Bakhmetyevskaya Street, near the Kamer-Kolezhsky Val. We all ran out to the street when we saw the cab pulling up. The first thing Mother said—she was the first one who could speak—was, "How could you write that you put on weight? You're so thin!"

"I had put on some weight," Vladimir said, "but I lost most of it the last few weeks before I left."

Nadezhda Krupskaya, Vladimir's wife, told us later that he had lost weight because he had worried about whether he would actually be released at the end of his term.

The moment the first greetings were over Vladimir asked, "Has Yuly returned? Did he send a letter or a telegram?"

Yuly Tsederbaum—he was better known by his pen name, Martov—had been exiled to Turukhansk, Siberia, at the same time, for the same reason, and with the same sentence.

His extreme concern was something of a surprise to me. Before his exile, Vladimir had not been as close to Martov, who had joined the revolutionary circle later than some of the other members, as he had been to Krzhizhanovsky or Starkov, for example.

His anxiety about news from Martov was explained for me in talks we had subsequently. He looked on Martov as his closest comrade for future work, especially for beginning an all-Russia newspaper. He admired Yuly's revolutionary spirit and could not rest until he received word that Yuly was on his way from Turukhansk. ■

Remembering Lenin

LENIN AND THE FISHERMAN

TOILING AT THE SUBBOTNIK

LENIN *and the Subbotnik**

By Alexandra Sysoyeva

I MET Lenin for the first time when I came to work as housemaid for the family. When he was wounded in 1918 and went to the village of Gorki, near Moscow, to recover, I went along to look after him. We spent three weeks in Gorki and then came back to Moscow.

I remember the subbotnik on May Day in 1920. Vladimir Ilyich told me he wanted to go to it and help in the work. We had supper earlier than usual so he could go to bed earlier.

During supper his wife, Nadezhda Krupskaya, and his sister, Maria Ulyanova, made fun of Lenin's wanting to go to work during the subbotnik. They thought he really didn't mean it. They said he had enough to do in his own office if he wanted to work on May Day. But he said plainly that he wanted to go to the subbotnik like everybody else and help clear the square of rubbish. It was all littered up with logs, pieces of iron and big stones.

I remember how I got breakfast ready for seven that morning and went to call Vladimir Ilyich. He was already up and said, "Yes, yes, I am up. I'm coming."

He had a quick breakfast and then hurried out to the square. They told me later that he didn't go there straight, but took a roundabout way so he wouldn't be noticed.

When Lenin was recognized, the other people there were worried about his doing such hard work. They wanted him to stop. But he wouldn't listen to them and went right on working.

I was curious to see the subbotnik, so I went there and saw Vladimir Ilyich helping to haul the logs away. Four persons took one of the big logs on their shoulders and carried it to a spot where they were stacked up.

Vladimir Ilyich worked from 8 that morning until noon. When he came home he was drenched with perspiration and one of his shoe soles was torn off.

Nadezhda Krupskaya looked at it and laughed. "We can't let you do that kind of heavy work. Where would we get enough shoes for you?" ■

TALKING WITH WORKERS' DEPUTIES IN THE KREMLIN

*The word *subbotnik* is derived from *subbota* (Saturday in Russian) and means volunteer community work done on a holiday.—*Ed.*

AT A NEW YEAR'S PARTY FOR CHILDREN

CHILDREN WERE FAVORITES OF LENIN

LENIN *and the Children*

By Victor Ulyanov

IN THE WINTER of 1921, my aunt Anna Elizarova and I came from the countryside to Moscow. We lived in Manezhnaya Street and Vladimir Ilyich, my uncle, was a frequent guest.

I remember the first time I met him. I was timid as a child and when I saw a stranger come into the house I ran to hide under the sofa, my customary refuge.

I knew a good many folk songs, and Vladimir Ilyich asked me to sing them. At first I refused, and then, relenting, I sang a few lines from under the sofa. When Vladimir Ilyich laughed heartily in approval, I was encouraged to crawl out. He put me on his knee, and then, quite bold, I sang my entire repertory for him.

In 1922 we spent the summer in the village of Gorki. Vladimir Ilyich used to take me berry-picking. During one of our picnics the other people there tried to persuade me to give the berries I had picked to Uncle Vladimir but I said no, and ate them all. Vladimir Ilyich was more generous. He gave me a handful of his.

I liked him, as any small boy would, because he was always so kind. I remember the time he was sick and living at Gorki. We were having supper there once, and there was a bottle of lemonade on the table. I was not permitted to have any, for what reason I no longer remember. Vladimir Ilyich pushed the bottle toward me without saying a word.

Another time, together with some other children I was modeling boats out of sand along one of the park walks. That was in 1923, when Lenin was quite ill and was taken out for air in a wheel chair. We knew he was wheeled along that walk and were sure that the wheel chair would roll our boats flat. But it didn't, for some reason.

Then we modeled our boats across the whole width of the walk. But this time, too, they remained undamaged. We couldn't understand how the wheel chair got by until we learned, some time later, that Vladimir Ilyich thought it might disturb our game. So he had his chair wheeled to by-pass that particular walk.

Those days I loved to drop in to see Uncle Vladimir in his room. I think he enjoyed my visits too. Sometimes when I came in, he would be sitting at the window, and with Nadezhda Krupskaya's help be teaching himself to write with his left hand. He would stop when I came in and look at me, I remember, with his slow, kind smile.

In December 1923 a New Year tree was set up for the children of the family. Children of the farmers living in the neighborhood and others whose parents worked in the local state farm and vacation resort came as guests to the New Year party.

It was a gay and happy party for both children and grownups. Lenin must have enjoyed our company—he spent almost the whole evening with the children and stayed through until after all the presents were handed out.

It's a picture I will never forget—Vladimir Ilyich sitting there and smiling at the noisy lot of us—children whom he loved so much and for whom he had done so much. That was the last time I saw him. ■

CHESS WAS ALWAYS LENIN'S NUMBER ONE GAME

LENIN

Loved Music

By Dmitri Ulyanov

MOTHER was always pleased with my brother Vladimir's aptitude for music. When he was eight he played children's piano pieces or four-hand pieces with grownups quite easily. But in spite of that he gave up the piano when he went to school.

It was not because music stood in the way of his studies. Vladimir was a gifted student and he had no difficulty with school work at all. More likely, he stopped playing the piano because in those days it was not looked upon as the kind of thing boys did. But all the rest of his life Lenin had a profound love and a keen appreciation and understanding of music.

In the winter of 1888 we both went to the opera in the city of Kazan. I have a vivid recollection of the evening we spent. We had seats high up in the gallery. I still remember our walk home. Everybody was asleep by the time we got back. As we sat eating our bread and milk supper, Vladimir was still under the spell of the music we had heard and kept humming the arias he liked best.

Our mother loved the piano. She played and sang many of the old songs. She was especially fond of the opera *Askold's Grave*, and often played selections from it, reading from a worn and faded score. We all enjoyed her singing and playing. Vladimir often hummed passages from *Askold's Grave*.

He also liked singing with Olga, our sister. She was younger than Vladimir, but they were very close during childhood and youth, not only brother and sister but close friends and companions. Olga was as advanced for her age in her reading and thinking as Vladimir. At eighteen she was able to speak fluent German, French, English and Swedish. I can vouch for the accuracy of the comment people made about her all the time—that the only time she did not work was when she was asleep. Vladimir respected and admired her talents and her will to work. She died in May 1891, of typhoid fever.

They used to sing duets—Yazykov's *Swimmer*, Dargomyzhsky's *Our Sea Is a Desert*, and *The Wedding*. There was a lyric song by Heine that Vladimir liked to sing. It had the line, "I am expiring, my darling . . ." which had to be taken on a very high note. After the line, Vladimir would chuckle and say, "I've really expired. I really have."

I can hardly remember a time when there was a sad note in Vladimir's singing. It was always bouyant, cheerful, confident. These lines from his favorite aria in *Faust* "Almighty God, God of Love" seemed to reflect his spirit. Perhaps that is why he liked them so much.

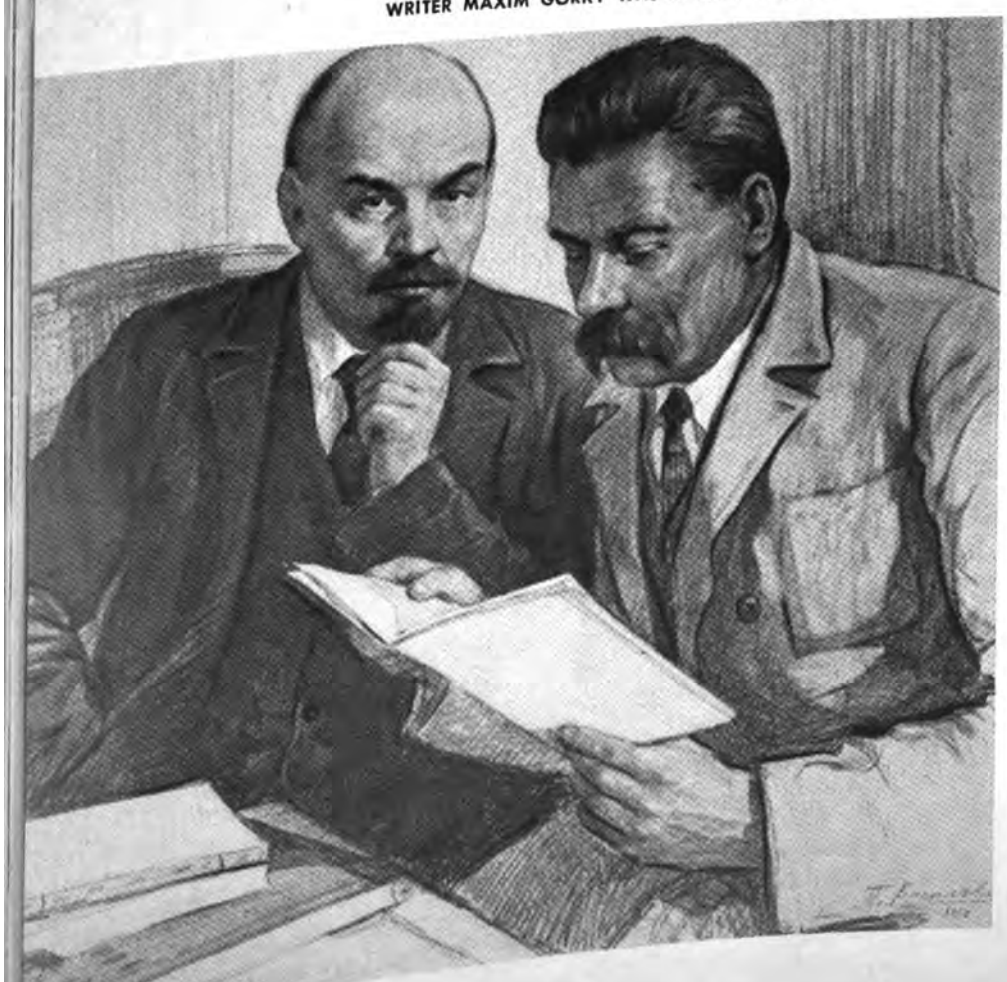
"In the life-and-death battle,
I swear to be in the forefront."

Whenever I hear Gounod's music I am reminded of those far-off days when Vladimir sang those lines from Valentine's aria.

It was the summer of 1889 when I heard the *Internationale* for the first time. It was then almost unknown in Russia. We were in Alakayevka, a hamlet in the Samara region. Olga played it on the piano and followed with the *Marseillaise*. I begged her to play it again.

Then Vladimir walked into the room unexpectedly. It was morning, the time of day he was usually busy studying. He wanted to hear it again, too. First he and Olga played the melody on the piano and then we sang the words quietly in French. ■

WRITER MAXIM GORKY WAS A CLOSE FRIEND



LENIN

on the Arts

LISTENING TO BEETHOVEN'S *APPASSIONATA*

ART, Lenin said frequently, must be understandable to the people. An art so esoteric that it becomes the property of only a few hundreds or a few thousands in a population of millions, he thought insignificant. Art must move the emotion, the mind and will of people, it must educate them, it must be big enough and inspiring enough so that it can become the beloved property of all the people.

Lenin's personal likes and dislikes were sharp and clear-cut. He liked the classical works and realism in literature, painting and the theater. From art he demanded truth. He was as impatient with the artist and sculptor who prettified reality as he was with the petty emphasis upon detail of naturalism or the formal distortions of the abstractionist.

He thought it "nonsense, plain nonsense" to idolize the new for the sake of its newness. He said bluntly, "As far as I am concerned I have the courage to admit that I am a 'barbarian.' I am unable to look upon the works of expressionists, futurists, cubists and other 'ists' as a supreme manifestation of artistic genius. I don't understand them. And the sight of their works gives me no pleasure whatsoever."

In literature, he said, he preferred Pushkin. But he stressed that this was his own personal preference. What was characteristic of Lenin's likes and dislikes in art was that he was extremely careful never to impose them upon others as esthetic concepts.

Lenin loved music—all kinds of music—from street songs to concert music. In her memoirs, Krupskaya, his wife, tells how much he enjoyed the songs of Montegus while living in Paris. Montegus was a café singer, a great favorite in the workers' districts. He improvised songs, often sentimental but always full of spirit, about events of the day.

Lenin often hummed one of Montegus' songs, "I salute you, soldiers of the 17th regiment," about a regiment that had refused to fire on striking workers. There was an Alsatian popular song he also liked, one he had picked up in his travels in Europe. It was about the French in Alsace-Lorraine who were forced to live under German rule when the region was ceded to Germany after the Franco-Prussian War.

Music was one of his ways of relaxing from cares of state. He often went to hear the singer Chaliapin, the pianist Romanovsky, the Stradivarius Quartet, and symphonic concerts conducted by Koussevitzky.

One evening, visiting friends in Moscow, he heard Issay Dobrowen playing Beethoven's *Appassionata*. He was moved to comment, "I know of nothing more wonderful than the *Appassionata*. I would like to listen to it every day. It is marvelous, superhuman music. I always think with pride—perhaps it is naive of me—what marvelous things human beings can do!"

He was a wide and omnivorous reader. When he was deported by the czarist government to Siberia, he spent much time in reading Pushkin, Lermontov and Nekrasov, they were his bedside books. There too he read Goethe's *Faust* and Heine's poems in German.

He was not unduly concerned with style. He liked Chernyshevsky's novel *What Is To Be Done?* for its social insight in spite of its rather poor style and characterization. He admired Chernyshevsky as a man and revolutionary who had suffered 24 years of Siberian exile for his principles. In his Siberian album Lenin pasted two pictures of the author, together with pictures of Emile Zola, Hertzen and Pisarev.

Jack London's *Love of Life* was one of his favorite short stories. The unconquerable will of the starving man, who refuses to give way though trailed by a timber wolf and who finally wins to safety, appealed to Lenin.

He was fond of the story of protest against oppression and of striving for a better world. He liked the vigorous realism of the Belgian poet Emile Verhaeren and the stirring verses Victor Hugo wrote in exile in spite of their naive and rather bombastic phrasing.

Lenin knew Russian literature well and admired particularly the writers who portrayed the reality of their times.

No end of volumes have been written about Tolstoy, but for real penetration there is nothing to match two small collections of articles on the great writer written by Lenin and Maxim Gorky, whom Lenin admired as friend and writer.

Lenin's articles on *Leo Tolstoy as the Mirror of the Russian Revolution; Tolstoy and the Modern Labor Movement; Tolstoy and the Proletarian Struggle; Tolstoy and His Epoch* represent a thorough critical anaylsis of Tolstoy's writings and teachings.

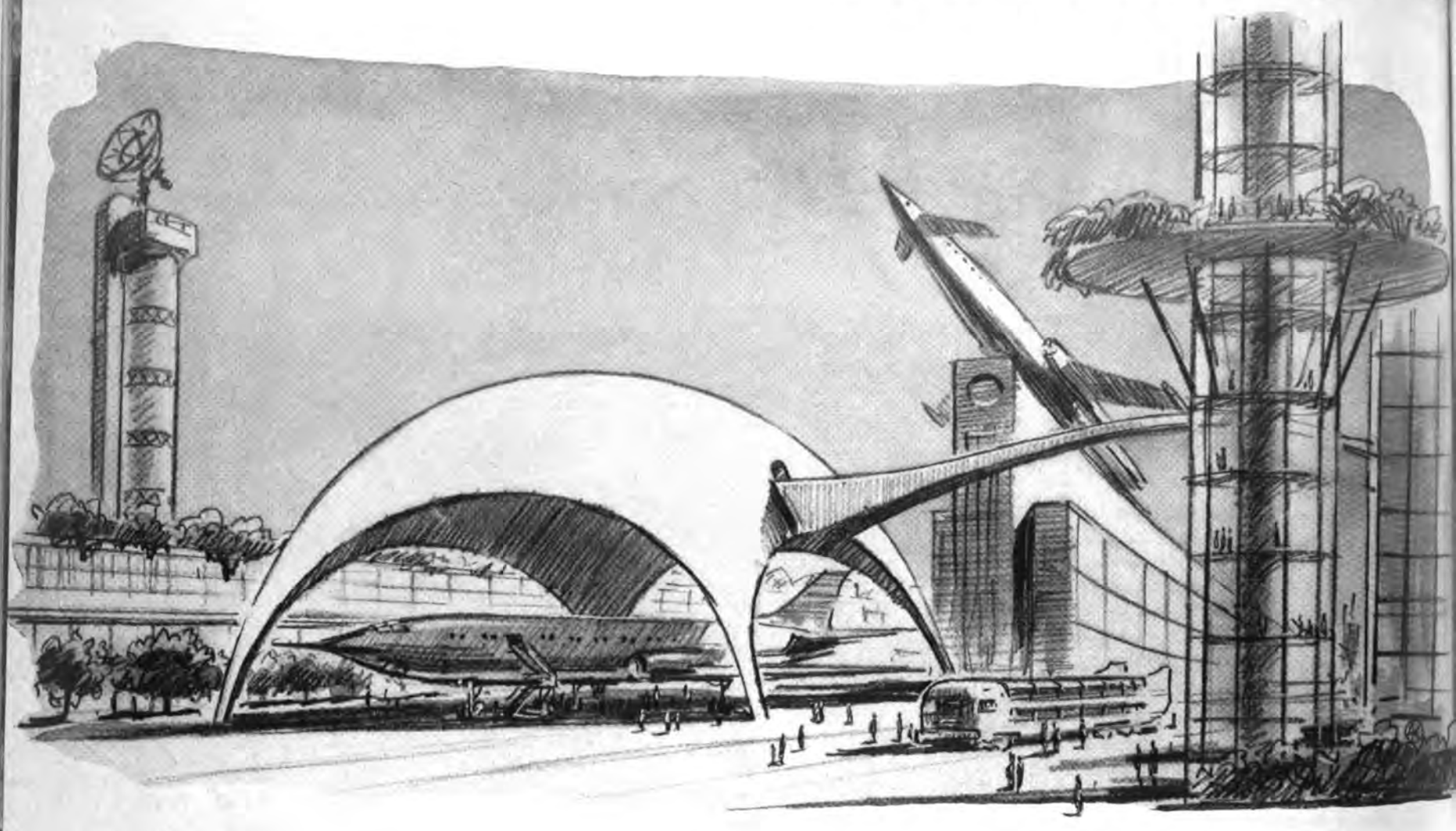
Although Lenin categorically rejected Tolstoyism as a way of life, he thought "it contained a good many critical elements which could be used as valuable material to enlighten the masses." He looked on Tolstoy as an author of genius, the greatest writer of his time.

As head of the Soviet government, even during the period of great hardship brought on by civil war and foreign intervention, Lenin did everything he could to foster an art that would serve the people. The treasury of old art in museums and libraries was carefully safeguarded against those bellicose "leftists" who thought everything old was necessarily reactionary, "burdens inherited from the past," as they called them.

This kind of infantile thinking Lenin fought vigorously. "We must safeguard what is beautiful," he said, "keep it as a model, work our way from it, even if it is 'old.' Why should we reject what is truly beautiful, and refuse to use it as a starting point for our further advance, merely on the grounds that it is 'old'?"

After the Soviet system was established, one decree after another was signed by Lenin to provide a favorable climate for creative work in all areas of art—painting, writing, music, the theater, the ballet. It was an art freed from material dependence on private interests and the tastes and whims of wealth and patronage—a people's art. ■

THE FUTURE IS



The City of Tomorrow

By Academician Pyotr Rebinder

CREATIVE work in science must peer into the future. Call it fantasy if you will, or call it the creative faculty to project our present knowledge into an imagined tomorrow, it is nevertheless the substance out of which the real future is being woven in the research laboratories today.

What will the shape of our future cities be like? Need we, for example, always build dwellings with heavy walls, so costly to erect but absolutely necessary now in countries with cold climate? Those of us who have been working in the new science of physico-chemical mechanics answer no.

THE LAST PEDESTRIAN

The houses we see for tomorrow are thin-walled, graceful structures, easy to build, made of materials easy to transport, simple and inexpensive to heat and to cool. They will look different, even strange, to our eyes accustomed to brick and stone. Future houses will be largely transparent, seemingly fragile, but in spite of their lightness, remarkably strong and lasting.

New materials being invented and fabricated in our laboratories today will build these cities. Unusual cities they will be, bold and daring in design, built for function and beauty both, with light and air and space in abundance. We can visualize this building material. It is easy to mold, process, stamp; it assumes any shape desired; it sets easily and quickly.

Progress in physico-chemical mechanics will also produce such future technologies as pressure-processing of solid materials—hot pressing and stamping, for instance, adapted both to the mechanical and chemical properties of the material and the environment in which it is to be used.

Sectional parts of buildings, and of machines, too, will be manufactured, and from these sections the complete structure will be put together in much the same way that an Erector Set model is made.

Such new merging sciences as physical chemistry and the newer physico-chemical mechanics have uncovered new data and new methods and, therefore, new prospects.

Physical chemistry, in conjunction with chemical synthesis, has produced many of the materials that nature does. But it has gone beyond that; it has created new materials that never before existed—a long and growing catalog of products, from artificial fur and silk to the hardest solids yet made.

The new science developed out of the merger of physics, chemistry and biology has produced in its relatively short span of work such curative agents as artificial vitamins, hormones and other drugs that cure once incurable diseases.

The science of physico-chemical mechanics developed on the borderline between molecular physics on the one side and the physics of solids, physical and colloidal chemistry and the mechanics of materials on the other, out of the combined efforts of large groups of scientists in these varied fields. Through synthesis of substances it is working to produce new building materials, alloys and plastics that will be strong, durable and easily molded.

These will be the new materials for the future—for building houses, factories, machines and instruments. And they are in process of creation today. ■

BEING MADE TODAY

Tomorrow's Medicine

By Professor Irina Lagunova

TOMORROW'S MEDICINE will have been altered from a science of healing to a science of prevention, one which will have destroyed all sources of disease and left for the physician only the problem of keeping his patients healthy. With the universal health protection and free medical service of every kind now provided for every Soviet citizen, this future is by no means fanciful.

The use of radiant energy and high frequency radiation has already made it possible to destroy various harmful bacteria, on a limited scale it is true. The installations of the future will be powerful enough to sterilize air and earth. Atomic radiations and powerful radio waves with bacteria-destroying properties will be generated to rid us of the organisms which breed infectious diseases.

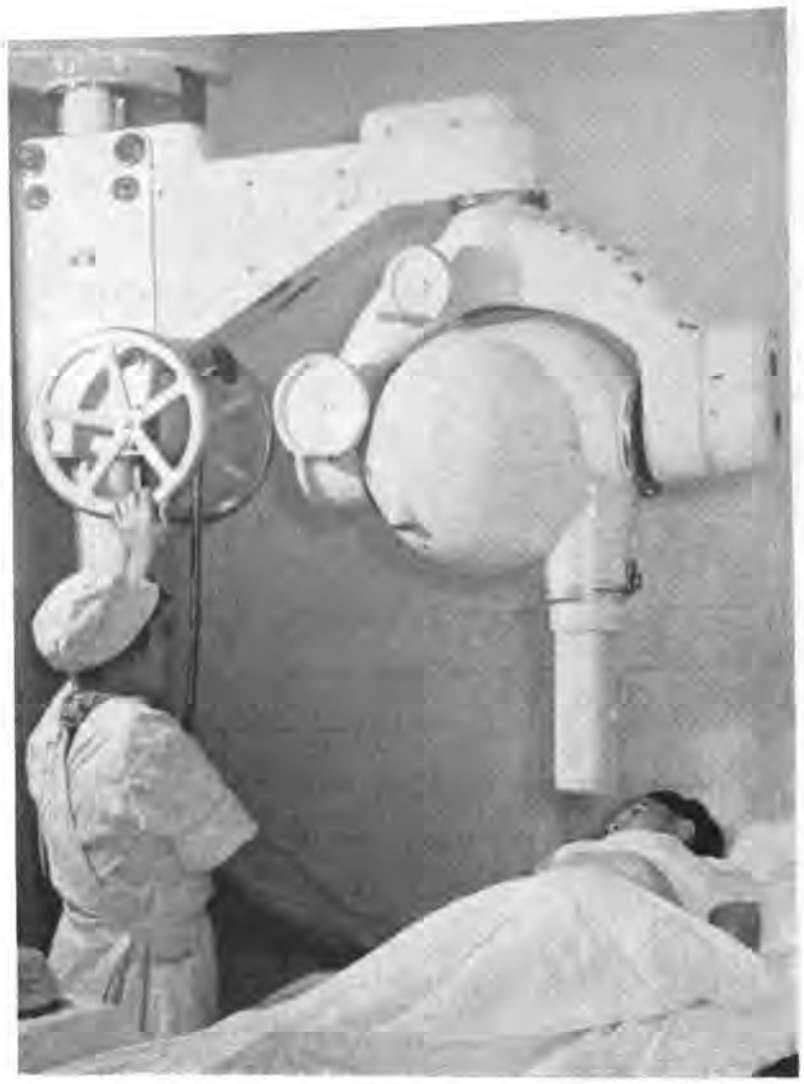
And what of diseases that set in because of disfunction of one or another organ or tissue? Here, too, radiant energy is being used to heal.

In 90 per cent of the cases, cancer of the skin, tongue or lip is completely curable if diagnosed and treated in its early stage. Timely diagnosis and treatment with radiant energy has led to complete cure in most of the cases of so widespread a women's disease as cancer of the uterus. It was a very short time ago that patients suffering from cancer of the esophagus or the lungs were considered hopeless. Today their lives are prolonged by external radiation of the diseased tissue, together with internal injection of radioactive gold.

Radioactive isotopes have made it possible for medicine to diagnose a number of diseases. By measuring the speed and quantity of radioactive iodine absorbed by the thyroid gland with instruments we now have, we are able to make a positive diagnosis of the conditions and functional peculiarities of the gland.

Different glands and organs of the body select and absorb different kinds and varying amounts of isotopes at different rates. It is therefore altogether possible to find the specific isotope that would be selectively absorbed by each important gland.

This is an exciting prospect indeed. It forecasts complete control by the physician of the activity of every major gland of the body. By varying the isotope supply to a gland and combining that with simultaneous treatment it is possible to make the gland function just as it should.



RADIATION APPARATUS IS NOW STANDARD EQUIPMENT IN SOVIET HOSPITALS.

THIS GEORGIAN IS ONE OF 30,000 SOVIET CITIZENS OVER 100 YEARS OLD.

It should be possible not only to restore normal activity of separate organs by securing proper gland functioning, but to alter the total personality through this method—to influence a person's capacity for work, his growth, even his appearance.

Just as chemists will in time fathom the secret of how protein—living matter—is created, so medical research will as surely uncover the mysteries of the complicated organism that is the human body.

Methods developed by physics and electronics have been invaluable in pushing forward the horizons of medicine. Soviet medical researchers have been successfully using tracer atoms to study some of the highly complex activities which go on in the living organism. Physicians now commonly use radium or cobalt guns for healing. They use the special light intensifiers devised by physicists that make it possible to increase image brightness hundreds of times over. It is probable that some such television technique as the one astronomers are beginning to use to intensify the image brightness of the lunar surface may be adapted to bring out imperceptible details on roentgenograms.

Medical science is using robot models of vital human organs that respond to stimuli of various kinds to study the causes of diseases and methods of healing them. And this with promising success.

Successful experimental work is being done in surgical amputation and regrafting of extremities—with the outlook for the future of disclosing the secret of replacing diseased tissue and organs with healthy ones. Experimental medicine in the Soviet Union has succeeded in reviving the human organism after clinical death has set in. It has been able to restore to elderly people lost hair color, memory, capacity to work, hope for longevity.

Today's experimental research is tomorrow's healing, and the day after tomorrow's eradication of killing and incapacitating disease. ■

THE FUTURE IS BEING MADE TODAY

Tomorrow's Rocket Plane

By Vasili Alexandrov, Master of Technical Sciences

THE AIRLINER of tomorrow will shoot like a rocket into outer space, returning to earth it will land like the usual plane of today.

On take-off it will rise upward at high speed to reach the rarefied upper layers of the atmosphere as quickly as possible. After the ship has worked up to a speed of 7,500–9,000 miles an hour, the pilot will stop the rocket engines and the plane will continue its flight by force of inertia, as a projectile does. It will describe a great elliptic curve on its descent into the dense layers of the atmosphere. There its wings will create the necessary lift and it will begin to glide.

By using air for support and its own enormous reserve of speed, the ship will once again rise into the upper layers of the atmosphere, describe another curve like the first, and once again drop to the denser atmospheric layers. So it will move in this series of ballistic curves until it expends its entire reserve of kinetic energy.

Its path of flight will resemble the one made by a pebble skipped along a smooth pond. Once up, it will fly for many thousands of miles without any expenditure of fuel.

To keep the plane from bursting into flame when it strikes the dense layers of air, it will be necessary to reduce speed sharply and quickly. This will be done by rapidly increasing the area of friction. Try to picture an eagle flying to the ground. It folds its wings and drops toward the earth like a rock. But when it comes close to the ground the wings spread to full length and the eagle lands without striking. The rocket plane will have to "unfold" its wings in much the same way, at a height of perhaps 50 to 60 miles, and thus by increasing its friction area, reduce its supersonic speed and land safely.

Our rapidly developing rocket technique makes the creation of such planes possible. But to build a plane that operates as a rocket on take-off and as a glider on landing is a highly complex task. This is actually the last stage in the development from the plane we know to the interplanetary ship. It must be designed to fly at speeds approximating 10,000 miles an hour, to slow down to normal landing speed, to alter the area of its wings—these are exacting requirements.

The draught force of the rocket plane engines must reach a minimum of 50 tons. The total draught force of the present-day intercontinental ballistic rocket engine is very likely considerably greater. Thus the country which builds the best intercontinental ballistic rockets and produces new high-calorific fuels will be the first to build this new ship.

One of the most difficult problems the rocket plane designer faces is to devise means for controlling the ship. It is incomparably more difficult to change the direction of flight of a rocket ship than an airplane. When an airplane changes direction of its flight, it momentarily rests upon air, but the rocket ship will be flying at the boundaries of the atmosphere and even beyond, where conditions approximate a vacuum. At heights upward of 125 miles, air support is practically non-existent.

One method of changing flight direction may be to use additional rocket engines placed at an angle to the direction of flight. The traction force exerted by these engines will alter the path of movement in the direction required.

Another of the yet unsolved problems is to compensate for the strain of the tremendous acceleration that crew and passengers will have to undergo. In the flight upward travelers will have to adjust to a five-fold overstrain. In the downward movement along the ballistic curve, passengers will be in free flight and weightless. We do not yet know nearly enough about the effects of prolonged weightlessness on the human body nor the time that must be allowed for the pilot to adjust himself to changing gravity conditions.

There are other problems still unsolved, but the solutions will be forthcoming, as they were in process of developing the powerful intercontinental rockets and in launching the first artificial satellites. This is a next step forward in the same direction—these airliners of tomorrow that will be flying, very likely within our own future, at heights of 600 miles and at speeds of 10,000 miles an hour. ■

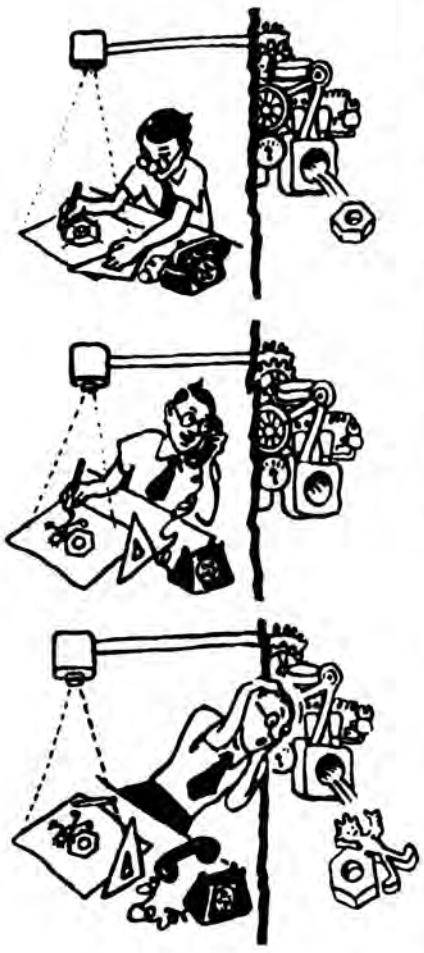
WE LONG AGO abandoned the idea which at one time obsessed inventors of creating the perpetual motion machine that would need no fuel, no replacements, and that would operate without outside agencies.

Our present ideas as regards the machine, although not so ambitious, are as revolutionary in their effects and implications as the perpetual engine—the possibility, and a real one it is, of mechanizing and automating all labor operations that are now performed or controlled and supervised by people. More than that, we want to entrust to machines much of what we call mental labor in addition to physical.

The complete automation of the future is not only in blueprint, its development is already in process and has been for some time.

Consider the very important machine-tool industry. From the use of hand-controlled universal machine tools, Soviet factories have successively moved to automatic and semi-automatic universal machine tools, then to automatic and semi-automatic specialized machine tools, then to machine-tool trains, and finally to automatic production lines made up of machine-tool trains with program control.

The very latest trend is the creation of universal machine tools with program control. The machining process in which these tools are used is set up in the form of a program through various tracking systems and mechanical devices. The tracking system checks and controls the accuracy with which the machine tool follows the program through. The precision of performance of these tools is very high, with a tolerance as small as .0039 of an inch.



AUTOMATIC LINE IN A BEARING PLANT ▶

Tomorrow's Machine Will Do Man's Physical Labor

By Professor Grigori Shaumyan

Latest advances in electronics in the Soviet Union have made it possible to build various self-controlling and self-checking machines that select their own plan of operation after an assignment is fed in. These machines can also correct errors they may make.

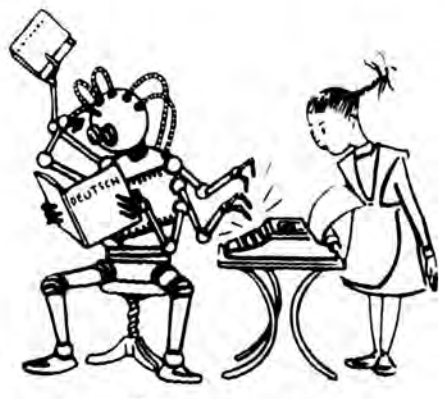
Electronic devices have been created that can be set to reproduce the best human control of a machine tool and function independently of an operator. A case in point is the machining of crankshaft pins on a lathe. A skilled turner operates the machine while the electronic device "memorizes" the process. When the turner leaves, the device takes over and runs the machine from "memory."

But even program control of universal machine tools, which operate as a rule with a single cutter, will not provide the complete automation and the great labor productivity that we envisage for the future. What is forecast are concentrated automatic systems made up of hundreds of separate machines with thousands of cutting tools operating simultaneously. The continuity and quality of operation will be controlled not by maintenance personnel, as is true today, but by automatic devices and installations.

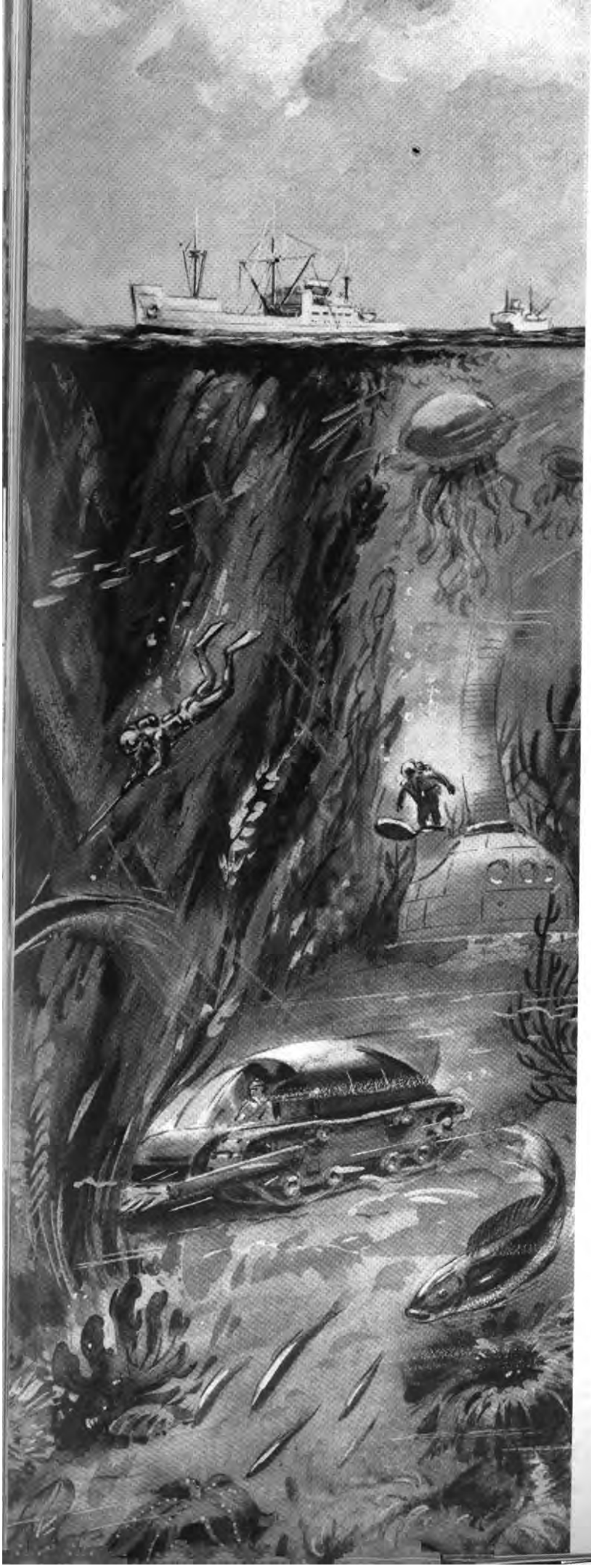
Complete automation controlled electronically will handle the most complicated technological processes without the need for human interference. It will do the observing and correcting, it will change the cutting tools, it will set up work units, it will select optimum working conditions. It will, in short, do all the work now done by numberless setters, mechanics, electricians and other maintenance personnel.

With electronics, machine-building plants can be more flexible, adapted to perform the widest and most varied kind of intricate operations. Electronics provides the "yes" answer to the great question—are we likely to be able to create machines that will completely replace the physical labor of man in producing the commodities he needs, and so free him for creative work? Nor is the possibility too remote for the creation of machines that will do a large part of a man's mental labor as well. Science has been making fast progress in designing and building electronic and magnetic "memories."

But even the most distant future cannot envision the machine that will do creative thinking. That is man's sole and peculiar property and privilege. Automation will free him for this singular function. ■



HOMEWORK ROBOT



THE FUTURE IS
BEING MADE TODAY

The Oceans Explored

By Lev Zenkevich,
Corresponding Member, USSR Academy of Sciences

IT WAS ONLY nine years ago that this great marine continent of 2½ million square miles which we call the ocean floor, four miles below the surface, was thought to be an empty lifeless abyss. Then the Soviet scientific expedition on the vessel *Vityaz* in 1949-1952 and the Danish expedition on the *Galatea* in 1951-1952 explored these lowermost depths and found them teeming with life.

From the floor of the Pacific Ocean the *Vityaz* biologists brought up species of unknown marine animal life. These pogonophorae, as they are called, were found to be related to the vertebrate animals.

In the Arctic Ocean, Soviet scientists discovered the great submerged mountain range which stretches from the coast of the Soviet Union to the shores of Greenland. They were able, as a result, to reconstruct the geologic development of the Arctic and to revise the earth history of the region in conformity with the new data.

These are among the more recent scientific explorations of the great water masses which take up two-thirds of the earth's surface and which have so profound a bearing on our daily lives—our weather, our food, our transportation.

This is only preliminary exploration for a future which will give man the knowledge to extract the vast riches that the oceans and seas can provide. In a future not too far distant we can envisage a vast and well-ordered marine economy, with minerals extracted from the ocean floor, energy from its waters, food from its rich stores of plant and animal life.

The sea is the mother of life, its inhabitants to be counted in multitudes, endlessly fertile, maturing early and reproducing early. Our biggest land animal, the elephant, takes 35 to 40 years to mature; that elephant of the sea, the whale, grows to maturity and bears young within two or three years after birth.

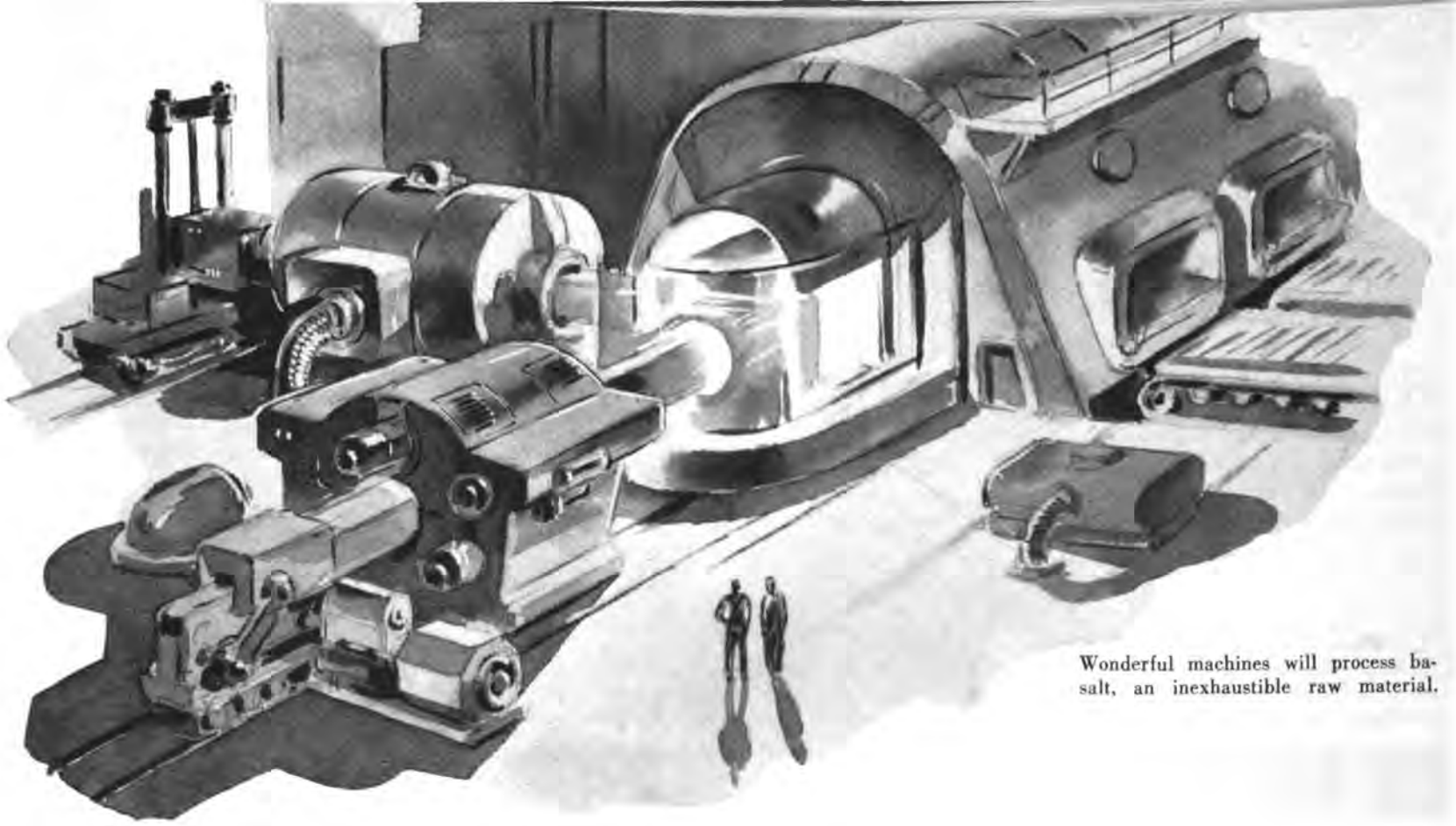
The sea is infinitely richer than the land in food, nutritive substances and vitamins—an ideal environment for both plant and animal life, with its temperatures favorable and little changing, and nutrition ever present in the encompassing water. Sea plants build up high vitamin concentrations, the like of which land plants cannot even approximate. Plankton, the minute marine plant and animal life that swarms in the upper layers of the sea, is especially rich in vitamins. In the ocean there are organisms, making up the major mass of our planet's vegetation, which produce fifty generations in the course of a single year!

This endlessly swarming mass of plankton can—and will probably, in the future we speak of—be scooped out of the sea to be converted into fodder for animals and perhaps, too, into food for people. It will almost certainly be used for technical and medical purposes.

No one has yet bothered to make exact calculations, but world reserves of seaweed, to consider only this one marine plant, must run into billions of tons. Only a fraction of a per cent is being used at the present time.

Some varieties of seaweed are placed in steam boilers to prevent scale formation. Seaweed is the ingredient for a paste used in very fine grinding in certain industrial processes. Agar-agar, used as a culture medium, comes from red algae. Sea kale goes into food. In farms near coastal waters, a certain type of brown algae is used as fertilizer.

Submarine agronomy is a new science that the future will bring, as it will another, to be called, perhaps, submarine genetics, their purpose to organize and classify the knowledge we are beginning to amass of this little-known part of our planet. ■



Wonderful machines will process basalt, an inexhaustible raw material.

In the Depths of the Earth

By Academician Dmitri Shcherbakov

WE HEAR more and more talk of the time when our earth will have exhausted its mineral wealth. This is a favorite theme for science-fiction writers—the planet's storehouse of iron, aluminum, titanium has been all used up, earth scientists travel to the moon and to Mars to prospect for new ore resources.

Now we scientists are all for fantasy, but we prefer the variety that comes down to earth occasionally, and the facts of life are that under the thin crust of the globe we live on is hidden an inexhaustible storehouse of ores, those we use now and new ones that we will be using in the future.

One unlimited source of mineral raw material is basalt, that dark gray-to-black rock found underfoot, no matter what part of the earth one walks on. It is a mixture of some 40 per cent silicon, 15 per cent aluminum, 7 per cent calcium, 6 per cent iron, 5 per cent magnesium, 2 per cent titanium, and also various rare metals. All these elements can be extracted and refined to provide metals in almost infinite quantities, once a cheap enough source of power is available.

A plentiful mineral future is foreshadowed in preliminary but successful experimentation done in the Soviet Union, remelting basalt and casting parts from it. Such parts are much in demand already as substitutes for rare and valuable metals, alloys and ceramics. Basalt is also a high-quality building material.

Or consider the earth's vast deposits of nephelite, a silicate of sodium, potassium and aluminum which occurs in various igneous rocks. A short while back the idea of extracting aluminum from nephelite was thought to be a project for the distant future. But a method in operation today worked out by Soviet scientists and engineers yields not only aluminum but potash and soda, which are in short supply, fine cement, and even the rare element gallium, as by-products. Production of aluminum in the Soviet Union no longer depends upon a limited store of bauxite.

But basalt and nephelite taken together make up only the thinnest crust of our globe. Imagine the earth as a gigantic basketball; the basaltic layer is only the thin rubber worn clear through in several places. What about the inside of this 7,926-mile diameter ball? We have seen, and that only dimly, no farther than 3 or 4 miles inside it.

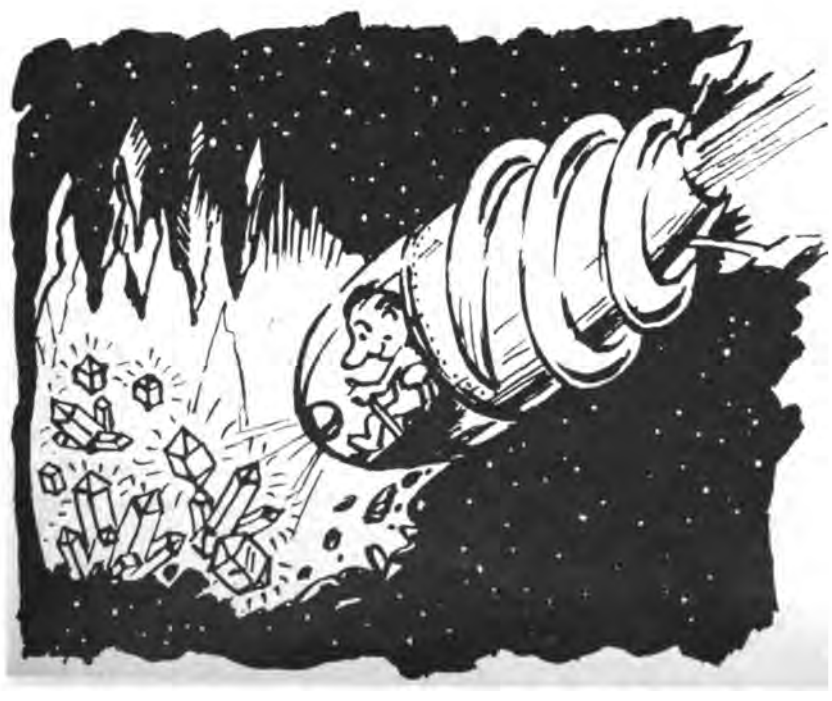
Only now are we beginning to go a bit deeper. The turbodrill that is replacing the rotary drill takes both the bit and the motor underground. But it must still be attached to the surface for its power supply. In the foreseeable future, however, we shall be taking the energy source underground, too.

The time will come when the subterranean machine, working on atomic fuel independent of the surface, will penetrate deep into the bowels of the earth, breaking up and melting rock as it burrows in search of ore deposits.

And it is not only ores that the earth stores. In the subterranean depths are colossal reserves of heat. For example, when the Bezymyanny Volcano on Kamchatka erupted in March 1956, the quantity of energy liberated would have taken the world's largest power plant, the Kuibyshev Hydroelectric Station, 3,500 years to generate.

So far, this internal heat coming through to the surface in geysers and hot springs has been used in the Soviet Union only for heating purposes in a few cities. But on Kamchatka, test boring is already under way to get this underground superheated stream to turn turbines.

The sources in our earth are indeed infinite. They only wait to be explored and used for the good of man. ■



THE FUTURE IS BEING MADE TODAY

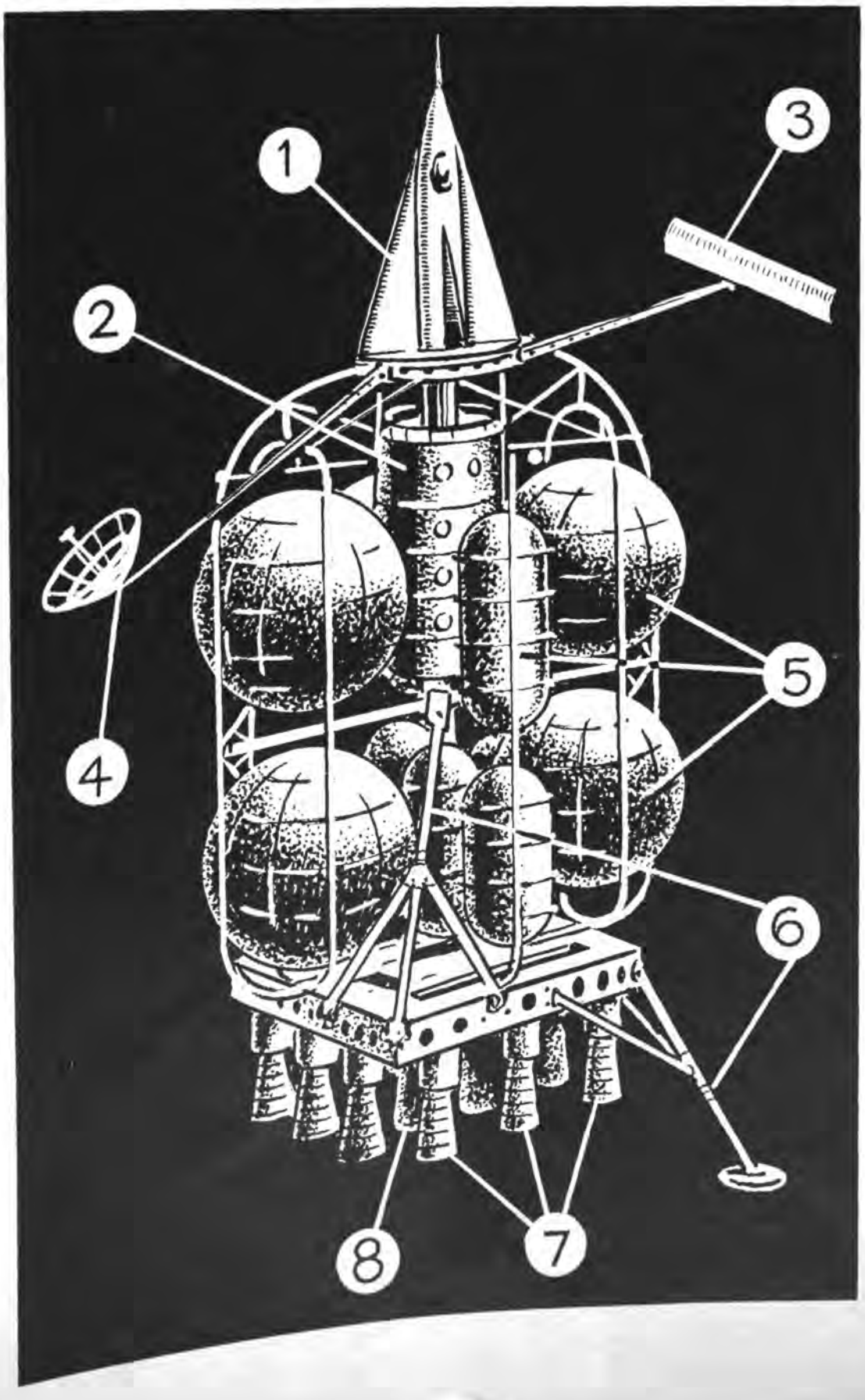
Flight to the Stars

By Victor Kaznevsky, Design Engineer

HISTORIES of the future will describe our century as the one in which flying ships first ventured beyond the terrestrial atmosphere into outer space. The plane we are familiar with now will be replaced by the cosmic ship which will fly at speeds varying anywhere from 40 thousand to 60 thousand miles an hour.

In appearance it will be unlike our present-day planes and rockets. There will be no value in streamlining since friction will be minimal in the highly rarefied atmosphere through which the cosmic ship must pass. The interplanetary ship will resemble a group of attached globes and cylinders. The cabins will be more spacious than those on our planes since astronauts will have to live in the ship for long periods. The flight to Mars, for instance, will take approximately a year.

A cosmic ship may look like this: 1—launching rocket, 2—quarters for crew and passengers, 3—solar mirror, 4—radar, 5—fuel tanks, 6—landing gear, 7—mobile jet propulsion ducts, 8—stationary propulsion ducts. Cosmic ships would likely be launched not from the earth, but from orbiting space stations.



The ship will be built of light, durable alloys which do not lose their properties under extremely low and extremely high temperatures. It will use both electric and solar energy and will be equipped with radio, radar and automatic control apparatus to ensure flight on an exact given trajectory.

Cosmic ships will very likely be launched from an artificial satellite rather than directly from earth. This will have a number of advantages.

First, the pull of gravity on the artificial earth satellite will be less than that on earth. The acceleration which a cosmic ship needs to develop to move into free flight will be comparatively low when starting from the satellite. Then again, since interplanetary ships will most probably be equipped with nuclear or radiant power engines, there is the ever-present danger of radioactivity if they are launched from earth.

Once a cosmic station is set up and moves in an orbit around the earth as a satellite, the parts of the interplanetary ship will be flown to it and the ship will be assembled at the station.

Ready to fly, the cosmic ship will be launched out of the orbit of the station toward the planet it is headed for. As it approaches the planet, the ship will reduce its speed and travel around the planet as a satellite. A small landing "rocket boat" will detach itself from the ship and land the astronauts on the planet.

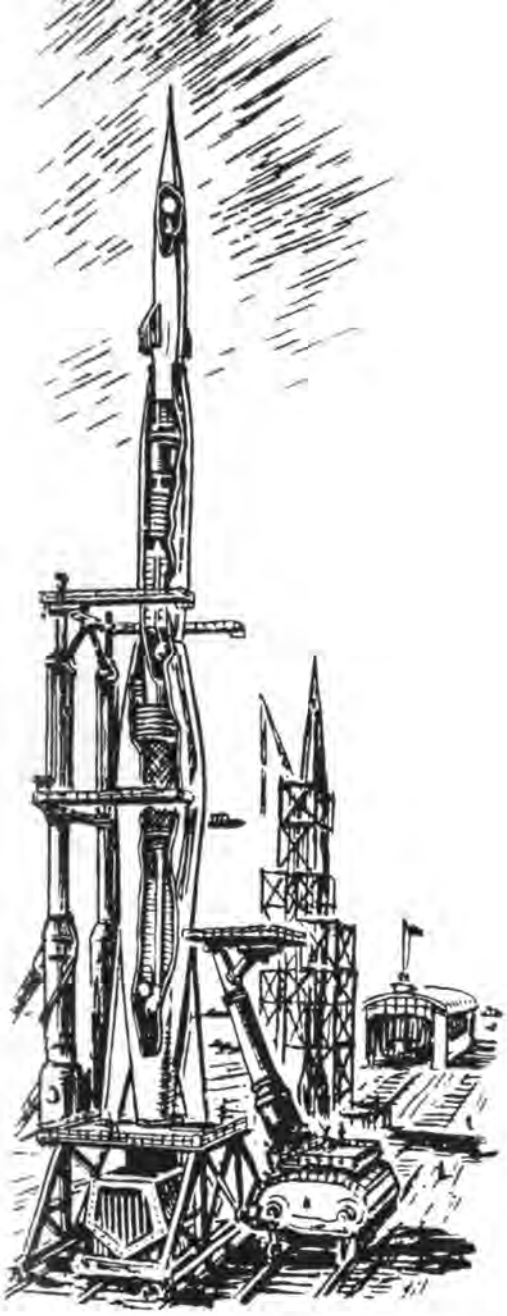
The speed of five miles a second that the first artificial satellites reached would be high enough to make a trip to the moon or Mars feasible. Rocket technique is developing so rapidly that there is every reason to believe that in a matter of years cosmic flights to our nearest planets will be on the order of the day.

But beyond our solar system lie still more distant worlds. And the dream of scientists that man will some day set foot on Tau-Kita or in the star system of Sirius A may well be the reality of the future. For a rocket in which the nuclear fuel is transformed into electromagnetic rays can develop a velocity of somewhere up to 186,000 miles per second, the speed of light, and at this speed the planets of 42 stellar systems can be reached in a flight lasting several years.

It may very well be that within a matter of decades our neighboring planets will no longer be offering a challenge. The distant stars will be our goal. ■

SPUTNIKS and SPACE SHIPS

Breaking Through the Biological Barrier



An artist's cross-section showing a Soviet three-stage rocket with a sputnik at the top.

THE LAUNCHING of the first earth satellites was a great triumph of man over nature. Man had broken through the physical barrier into cosmic space. He had overcome the force of gravity and the resistance of the atmosphere.

But there still remained the biological barrier. Could a living organism stay alive once beyond the earth's atmosphere? The answer was provided by Sputnik II and Laika's heartbeats, heard by radio stations around the world. A dog, a living, breathing organism, had traveled in cosmic space.

Just as Sputnik I was predicated on the early research of Konstantin Tsiolkovsky on the dynamics of rockets and jet propulsion, so the dog-carrying satellite was predicated on years of experimental study of animal reactions by Soviet scientists in flights 60 to 120 miles above the earth's surface. Here is a picture of one of these flights.

Five minutes before sunrise a silver-gray cigar-shaped rocket zooms up to the stratosphere. In the forward part of the rocket is a non-hermetically sealed compartment with catapulting trolleys. Attached to the trolleys are oxygen supply tanks, a parachuting system and apparatus for recording reactions of the animal in flight.

At an altitude of 50 to 55 miles, the trolley is catapulted. Then the parachute opens and the animal drops to earth, the descent taking approximately an hour.

The Physiology of Cosmic Flight

From the biological standpoint, flying in these upper layers of the earth's atmosphere has much in common with flight in outer space. In either case a living organism is exposed to cosmic radiation, weightlessness and, in some cases, the virtual absence of atmospheric pressure and molecular oxygen.

Some of these effects can be produced artificially and studied under laboratory conditions, others during these short rocket flights. Air-flight medicine, even before Sputnik II was launched, had done more than merely collect data on these effects. It had fabricated such devices as hermetically sealed chambers and space suits for protection.

But the biological effects of weightlessness, of primary cosmic radiation, and of corpuscular and ultraviolet radiation of the sun could be adequately tested only in flights of long duration in the upper layers of the atmosphere. One of the principal functions of Sputnik II was to provide data for the study of these problems in preparation for future manned flights.

The first cosmic flyer was a warm-blooded animal. A dog was a natural choice, since the normal physiology of that animal has been thoroughly studied. Future satellites may carry anthropoid apes, rodents, mollusks and insects to provide data for other studies—genetic effects, for example.

Laika, the traveler on Sputnik II, was a small dog weighing about thirteen pounds. She had a phlegmatic disposition, indicated by the fact that she never got into scuffles with other dogs in the laboratory. Data telemetered from the satellite indicates that the animal remained calm and undisturbed during the progress of the flight.

The physiological data obtained in the flight is still being carefully studied, but certain conclusions can already be drawn. We know that the animal was not harmed by the acceleration nor by gravity-free conditions. This is the first data ever to be obtained on the effect of weightlessness upon an organism over a long period, and it provides reason to believe that man also can operate in gravity-free conditions.

Overcoming Hazards of Space

Animals and human beings can travel in outer space only in hermetically sealed chambers which duplicate the earth's air composition and pressure. To provide against the possibility of a meteorite striking

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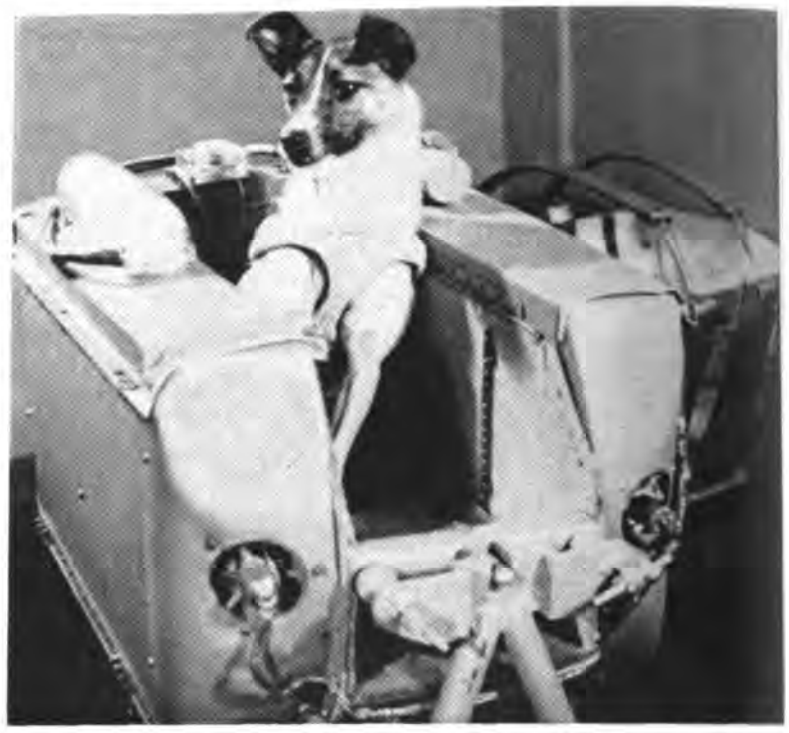
This still from the documentary film *First Soviet Earth Satellites* shows the scientific equipment in the forward section of Sputnik II.



History-making Laika in her compartment ready for installation in Sputnik II. The dog's reactions radioed from outer space gave science new data.

SPUTNIKS and SPACE SHIPS

Continued

the ship and piercing the chamber, with a resulting drop in pressure which would be fatal, the astronaut must wear a space suit.

Both hermetically sealed chamber and space suit were provided for Laika and operated satisfactorily.

The problem of maintaining a required temperature in the animal's chamber was especially critical. That problem, the dog's experience proved, was also satisfactorily solved in Sputnik II.

Intensity of ultraviolet rays in the upper atmosphere and beyond is so great as to be fatal to living cells. But this is no difficult problem to solve, since most materials, including ordinary glass, block off this part of the solar spectrum.

Solar radiation also contains X-rays and cosmic rays, which are more difficult to guard against. The cosmic rays, or cosmic particles as they should more properly be called, are most destructive when they penetrate the tissue of an organism. They destroy the cells, producing effects much like those caused by gamma radiation in nuclear reactions.

Protection against radiation is a considerable problem, and data from Sputnik II instruments of the radiant effects of outer space provides invaluable material for further study.

Another space phenomenom which the artificial satellites have provided data about is the danger from meteorites.

It is estimated that some 8 billion meteorites enter the earth's atmosphere every 24 hours. They travel at immense speed—20 to 30 miles a second. Because of friction of the air they burn away in the upper strata of the atmosphere, and we see them as falling stars.

Meteorites do not, as a rule, fall much below 40 to 100 miles above the earth's surface. However, the higher a satellite travels, the more likely it is to strike a meteorite. It is important, if we are to design ships for space travel, to establish how much this likelihood depends upon the height at which the ship travels, time of year, and other factors of this nature.

Experience with present satellites seems to demonstrate that the probability of collision with a meteoric particle is quite small—perhaps no more probable than the average man's being hurt in an automobile accident. Perhaps less so.

How Much Speed Can the Body Endure?

To propel a satellite into its orbit, a speed of some 25,000 feet a second has to be imparted to it. This involves a high acceleration over a long period.

The effects of acceleration or overstress on both animal and man have been intensively studied in recent years, since modern high-speed planes are subjected to considerable accelerations.

If the acceleration is exerted upward from feet to head, it will cause a redistribution of the whole mass of the blood. There will be more blood than normally in the lower extremities and not enough in the upper part of the body. If the acceleration is great enough, it will cause loss of consciousness.

Speed which is uniformly maintained, however, has no effect at all upon the living organism. We are certainly not disturbed in the least by the earth's motion in its orbit at an average speed of 18½ miles a second. It is quite obvious that man can safely stand any uniform speed.

But at a certain speed of movement a point is reached where man's sense organs can convey to the brain only transient and incomplete information. Manned space flights will therefore have to be controlled chiefly from land stations with the help of electronic computers.

Weightlessness and Acceleration

Interesting results have been obtained in recent years in experiments on the effect of zero gravity on human beings. In several specially programmed flights, sixteen men were subjected to weightlessness for periods of 30 to 45 seconds.

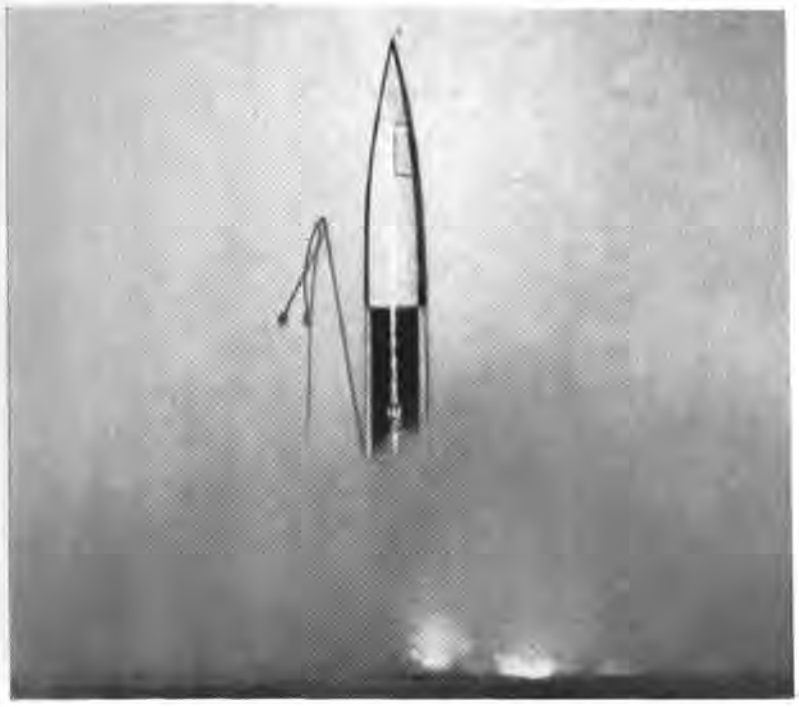
Eight men said they had felt fine, with no adverse effects whatsoever. As a matter of fact, one of them, the scientist who led the study, said that the zero gravity state was very relaxing. Five men, on the other hand, experienced illusory sensations. They had the feeling that they were in a state of free fall or that they were flying upside down. And one indicated he felt much as though he were air sick.

After repeated experiences of weightlessness in flight, the human being seems to make the necessary adjustment. He develops reasonably good orientation in space and is able to coordinate his movements without difficulty.

In conditions of rapid acceleration, both the amounts of oxygen inhaled and carbon dioxide exhaled sharply increase. In a gravity-free state, a decrease may be expected once the organism has made the adjustment. More specific data is, of course, vital for human space flight to ensure proper oxygen supply and to decide on the capacity of air-conditioning apparatus.

Weightlessness affects not only breathing, but also blood pressure and circulation, body temperature and other physiological functions. But studies of these effects have covered only periods of seconds.

The effects of a gravity-free state of some considerable duration are undoubtedly quite different and will be clarified as the information



Intensive scientific research and test firings of rockets like the one shown here preceded the launching of the first Soviet earth satellites.

Astronauts in this still from the science fiction film *Road to the Stars* assemble a space station from which to take off to the moon or to Mars.

derived from the Laika Sputnik is studied further. In particular, this study will give science more data to help decide to what extent centrifugal forces must be created on a man-carrying satellite to provide accustomed gravity conditions.

Altitude and Survival

The higher a satellite's apogee—the point in its orbit farthest removed from the earth—the longer it survives. But this creates the problem of supporting life inside it so that height will have no bearing on survival of its passengers.

As a matter of fact, our atmosphere begins to lose its life-giving properties very rapidly at relatively low altitudes. At 5 or 6 miles above sea level the effects of insufficient barometric pressure for living things become very noticeable.

Up to an altitude of 22 to 23 miles, heavy particles of cosmic radiation are absorbed; above that height protection must be provided for organisms against cosmic radiation. Still further up, at altitudes of 26 to 27 miles, begins the region which, in terms of the ultraviolet part of the solar spectrum, is equivalent to interplanetary space.

Approximately 80 miles above the earth's surface, the intensity of cosmic particles begins to increase. But the region in which a satellite can survive for a long time is considerably higher than even this outside limit.

Space Age

A flight to the moon? Soviet scientists predict it with certainty. The space ship will, perhaps, be a much bigger, although younger brother of the first sputnik.

When the first ship lands on the moon, one or more of its predecessors will have previously been shot out of the sphere of the earth's gravitational pull, to fly in an orbit around the moon, transmitting telemetric data and perhaps television photographs of the moon's surface to the earth.

This moon flight, says science, is not a matter of a distant future. The first earth satellites were given an orbital speed of some 5 miles a second. To send a space ship to the moon requires the speed of only about 2 miles a second more—somewhere in the neighborhood of 7 miles a second.

Shot from the earth at that speed, the space ship will travel in a drawn-out ellipse. It will enter the sphere of gravitation of the moon, and, after a few evolutions, will land on its surface.

The projected trip, as worked out by Soviet scientists, will take no more than five days. It can be done in less time. Given an impetus greater than 7 miles a second, the moon ship can make the flight in

The space station pictured here is not fantasy, but a scientifically possible engineering feat since the launching of the artificial satellites.

24 hours. This faster trip and its route has also been worked out in some detail.

Soviet scientists are working on an even bolder, more ambitious project—a flight to Mars. One of the plans envisages space stations on which as many as ten ships, each weighing 1,700 tons, are assembled and prepared for the flight.

Once shot out of the orbit of the space station, they will move toward Mars without expenditure of fuel. The trip will take 256 days. To return, the ship will have to wait on Mars or on an artificial satellite circling the planet until the relative positions of the earth and Mars are favorable for the return flight. The waiting period will equal 440 terrestrial days. The whole trip will thus take 952 days—nearly three years.

This voyage is projected within the next few decades.

The Space Age dates from October 4, 1957, with the launching of Sputnik I. Its progress will be accelerated by Sputnik II, by "Explorer," by other satellites, both Soviet and American.

Next on the order of the day are unmanned space ships, controlled by electronic devices. The theory has been worked out in detail. The ship and its instruments will follow inevitably. Then will come manned flight to the moon—or to Mars. ■

This Ukrainian cow shown at USSR Agricultural Exhibition in Moscow produces more than 8,800 quarts of milk annually.

More MEAT, MILK and BUTTER

Progress of USSR program to surpass USA per capita production

By Nikolai Stepanov

THE SOVIET UNION's constant drive to increase the standard of living by providing more and better foodstuffs received new stimulus when the country proposed to surpass the per capita production of the United States in meat, milk and butter within the next few years.

The proposal was originally conceived by the farmers in a number of Soviet villages and quickly gained nationwide support. It won the ready encouragement of government authorities and the leaders of the Communist Party. The initiative of the farmers stirred millions of people into the movement for a sharp increase in livestock farming.

The United States was singled out because of its world leadership in the field of production of these foodstuffs, and the movement became a sort of competition that aroused the deepest interest of the people. In any race or contest the participants do better if they have a visual competitor or goal.

But it was not for the mere sake of competition. Back of the competition in which the Soviet people will strive to show the potentials of their system is a parallel and equal desire to produce more food to meet the constantly rising demand.

All sections of the population immediately realized the benefits that would flow from the attainment of the goal set. They all quickly saw the advantages accruing to townspeople and farmers. With the enthusiastic support of the Government and the Party there has been a tremendous increase in the various branches of livestock production.

When this American farmers' delegation came on a visit two years ago, the Soviet Union was just realizing the first gains from its expansion of animal husbandry to meet greatly increased consumer demand.

Initial Results Encouraging

Milk production in the Soviet Union in 1957 amounted to 54.7 million tons compared with 49.1 million tons in 1956 and it now approximates 95 per cent of the U. S. production.

This increase in milk quite naturally meant more butter, particularly when the fat content of the milk increased, as it did on most of the collective and state farms. Thus butter production in creameries in the Soviet Union last year was approximately that of the United States, and by adding home-churned butter, the total was somewhat ahead of the United States.

In the third item involved in the campaign, meat, the gains were not as marked because it requires a greater "running start," but good headway was made here as well. There was an especially significant boost in pork production, but neither the lovers of beefsteak nor poultry had room for complaint.

Almost one million more head of cattle were sent through the packing houses en route to dinner tables in 1957 than in the previous year. Another important factor was that the average weight of the steer or cow increased sufficiently to permit the holding back of a larger number of young animals for breeding purposes.

THOUSANDS OF LIVESTOCK FARMS WERE MODERNIZED TO BOOST SUPPLIES OF MEAT, MILK AND BUTTER AS FARMERS SET OUT TO SURPASS AMERICAN PER CAPITA OUTPUT.

Foodstuff Sales Boom

Running parallel with the increase in production was the gain in the consumption. Sales in the state and cooperative trade network in 1957 compared with 1956 shows that the volume of meat, sausage and meat products advanced 19 per cent, butter 10 per cent, milk and dairy products 27 per cent, eggs 20 per cent.

The demand for consumer goods is increasing year by year in both the urban and rural sections of the population. This is due to the fact that prices and taxes are lower; that wages, salaries and pensions have been increased; and that the real incomes of both farm and city consumer have become greater.

Take the situation of the farmers whose income in cash per household in 1957 was 6 per cent above that of the previous year and 2.4 times that of 1952. For factory and office workers the figures show a 7 per cent boost in real income for 1957 over 1956.

One of the constant characteristics of the Soviet Union's economy has been the fact that the purchasing power of the consuming public and its demand for goods has increased at a rate in excess of the country's swiftly increasing production.

This feature of Soviet economy provides the country with the fundamental and compelling drive that is constantly forcing greater expansion of production.

A Two-Way Course

The Soviet people are working toward their goal of more foodstuffs along two interconnected lines. The first is an increase in the scope of livestock farming, and the second is a sharp improvement in livestock productivity.

The reclamation of virgin lands in Kazakhstan, Siberia and other eastern regions was a real stimulus to the increase in livestock farming and its over-all progress. Grain produced in these regions has enabled the Ukraine, the Kuban, Central Russia and the Baltic Republics to set aside greater stores of grain feed for livestock use. The Kuban, for instance, traditionally concentrated its agricultural endeavors on raising grain; today it is becoming a colossal producer of milk and meat.

Livestock raising is also being developed in the newly opened virgin lands where conditions are especially favorable for breeding beef and dairy cattle and thick-fleeced sheep.

The country's herds of dairy and beef cattle increased by 5.3 million head during 1957; the number of cows by 2.4 million; pigs by 3.5 million and sheep by 12 million. All in all, the total gain in livestock amounted to 20.8 million head, or twice the average annual increase scored during the previous four years.

Alongside the increase in the size of herds has come improvement in the quality of the stock and their higher productivity.

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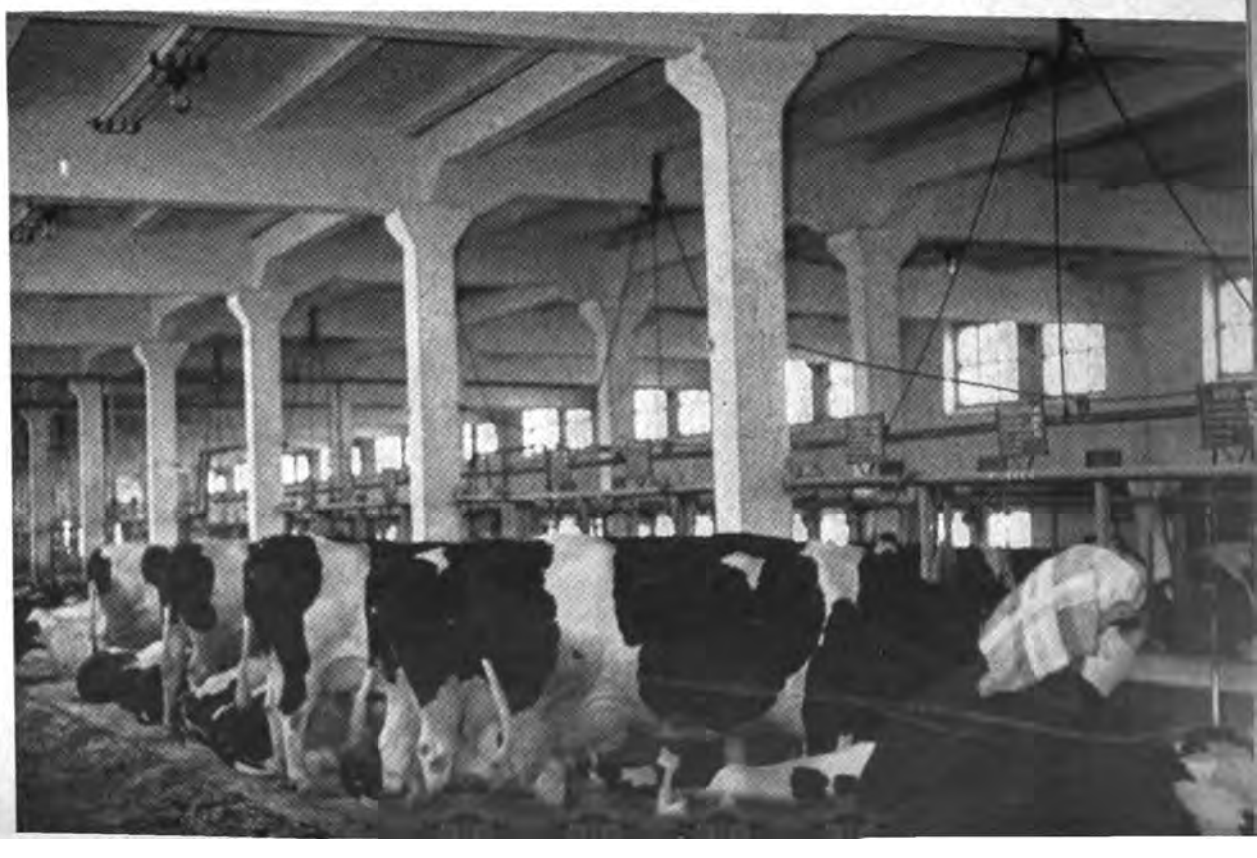
One of the farms that helped raise the country's total milk production to nearly that of the United States. Soviet butter output already exceeds American production. Next is per capita goal.



Veterinary laboratories on collective and state farms like this one, help research centers in developing pedigreed farm animals. In the past 25 years, some 36 new breeds of livestock have thus been created.

More MEAT, MILK and BUTTER *Continued*

Increased flocks of poultry combined with improved maintenance help boost meat production.

For some time after the war, the annual milk yield in the country varied between 950 to 1,160 quarts per cow. In 1957 the average annual milk yield per cow was raised to 1,900 quarts on collective farms and 2,800 quarts on state farms.

However, milk production potential is far from being exhausted. This is evident when comparing the average figures of other countries where milk production is higher. In the Soviet Union, too, many farms that could not be counted as show places or models maintained for visitors have milk yields greatly in excess of the average. Milk production records that run between 3,100 to 4,200 quarts per cow annually are not uncommon at collective farms.

Factors Influencing the Rise

Back of the rapid increase in productivity of Soviet animal husbandry are a number of influencing factors. First there is the all-round assistance of the Government that is manifest in three major categories:

1. It supplies collective and state farms with the latest machinery and modern equipment for livestock farming.
2. It supports and encourages the nation-wide program of training more and more college specialists in animal husbandry.
3. The state pedigreed stock nurseries are conducting intensive work in breed improvement and in developing new breeds of livestock that are supplied to the collective and state farms.

Another factor is the improvement in feeding methods and particularly the extensive use of corn for livestock. Although 1957 was a difficult year for Soviet agriculture since some large territories were hit by drought, the crop proved large enough to meet the country's demands and still provide feed for its increasing herds of stock.

Under the generally favorable growing conditions of 1953, for example, collective and state farms prepared about 32 million tons of silage for livestock. In 1957 they prepared 90 million tons, or an average of 15,000 pounds per cow. Stocks of concentrated and coarse feed were also greater than ever before.

Much credit must go to the skill and devoted labor of millions of ordinary people engaged in work with livestock. An overwhelming majority of these people took special courses in villages under college-trained experts and received better knowledge in the fundamentals of modern animal husbandry.

One more factor to be included is the broader education of the young people taking over the beginning jobs on all farms. Instead of coming to agriculture with a seven-year general schooling, today's farm youth more and more frequently comes with a minimum of ten years.

Incomes Rising Fast

Greater incentives provided for livestock people also had a most stimulating effect on the over-all results, and the incomes of the farmers grew faster than did their herds of stock. This was accomplished through a whole series of interconnected events.

A few years ago the Government increased wholesale prices paid by the state purchasing organizations for livestock and associated products as well as other produce bought from collective farms. At the same time the application of the newer machinery and improved care reduced the production costs, while the quantities of produce increased.

On the collective farms of Smolensk Region, for instance, pork production increased 160 per cent in 1957 while incomes from pig raising rose by more than 300 per cent—from 36.5 million rubles to 150 million. The Radishchev collective farm of this region had seemed to be unable to recover from the ravages of the war until it started concentrating on livestock production. In a four-year period this farm attained an eightfold increase in animal husbandry production and its annual cash income alone soared from 160,000 to 5,485,000 rubles.

The sale of animal husbandry produce by the collective farms of the country to the state purchasing organizations gives a comprehensive picture of the increase in farm income. In 1957 these sales were approximately 9 billion rubles more than the previous year.

Although the Government paid higher wholesale prices for livestock and other animal husbandry items, there was no increase whatever in retail prices charged the consumer of these products at the stores and markets. As a matter of fact, retail prices for some dairy and meat products were reduced in 1957.

The Goal Ahead

The past year was the first of our competition with the United States in the per capita production of meat and dairy products. The

drive is being continued and broadened with the results carefully watched by every citizen.

Characteristically enough, the best livestock farmers are already looking ahead for new laurels and some additional world records worth matching and exceeding. Milkmaids of Ryazan Region, for example, have resolved to bring their milk yields up this year to the standards reached by Holland—the world's champion in milk production.

Collective and state farms of the Soviet Union are determined to attain sharp increases in meat production in 1958. They aim to do this primarily through continuing to concentrate on increasing the pork supplies while at the same time furthering the output of beef, mutton and poultry.

While increasing production, our farmers are also turning out better quality and reducing production costs. That pattern will be continued and it is a combination that can only mean setting the stage for future reductions in retail prices of these prime necessities which will result in higher standard of living for all the people.

Throughout the drive there has been an exchange of experience and a sharing of knowledge between agricultural specialists and practical workers handling the day-to-day tasks. What is learned in the pastures and milk sheds, on the feed lots and in the pig pens is immediately made available to everyone concerned, and the findings of the researcher are just as readily put into practice.

Exchange of Experience

The farmers and specialists know that there is much they can learn from other countries and much that they, in turn, can pass on to them. They have already put to good use some of the experiences gained in the exchange of farm and scientific delegations, and they are ready to share their own knowledge with all who are interested.

In this connection the agreement between the Soviet Union and the United States on exchanges in the cultural, technical and educational fields signed last January has three pertinent sections.

The first provides for the exchange of delegations of agricultural specialists, including animal husbandrymen and veterinarians. The second provides for the exchange of scientists to lecture and share experiences in biology, selection, pedigreed stockbreeding and other agricultural fields. The third provides for the exchange of films on stockbreeding, mechanization of agriculture, construction and utilization of irrigation and drainage systems, protection of plants from pests and blights and the fight against erosion.

It is expected that these exchanges will prove mutually beneficial. ■

Suckling pigs win careful attention. Pork is a major factor in matching American meat output.

SOVIET MUTTON OUTPUT EXCEEDS THAT OF THE UNITED STATES BY MORE THAN TWO AND A HALF TIMES. HIGHER OUTPUT OF ALL KINDS OF MEAT INCREASES FARM INCOMES.

USSR MINISTER OF TRADE DMITRI PAVLOV (CENTER) MEETS WORKERS OF MOSCOW'S GUM DEPARTMENT STORE, WHICH SERVES THE NEEDS OF 250,000 CUSTOMERS DAILY.

Consumer Goods and Prices

By Dmitri Pavlov, USSR Minister of Trade

THE SOVIET CONSUMER is eating better, dressing better and living better than he ever did before. Retail trade is brisk in town and country, and turnover is rapid.

Shops and markets have never sold so much milk, meat, butter, clothing and footwear as they do today. Sales of meat and meat products, always a good index of purchasing power, run to 15,000 tons daily; sale of butter to 3,000 tons; sugar to 15,000 tons; sweets as high as 8,000 tons.

Sale of wool cloth has increased from 2.6 billion rubles in prewar year 1940 to 13 billion in 1957, and silk fabrics from 2 billion to 19.5 billion.

Household appliances—kitchen stoves, refrigerators, space heaters, washing machines, TV sets—show a quick turnover, too. Before the war the Soviet Union did not manufacture household refrigerators, washing machines and vacuum cleaners. Now they are turned out by the hundred thousands for a ready and waiting market. Sales of radios and television sets run far above prewar figures.

The expected annual increment in retail sales used to be 4 to 6 per cent, or slightly more. But in 1956 the increase was 9 per cent, and last year it jumped to 14 per cent, to reach a high of 600 billion rubles.

Supply and Demand

But demand for many articles still outruns supply. This is true for such items as furniture, footwear, musical instruments and building materials. In part, the shortage in these and some other goods can be explained by such instances as these:

Three or four years ago, the annual retail sales of leather footwear averaged only 231 million pair. Shops were overstocked and were pushing hard to dispose of shoes. In 1957 there was a big buying splurge for footwear, sales jumped to an average of 310 million pair and stores began to run short. The big jump came largely from sales in rural areas. Collective farms were prospering and farmers had more money to spend.

The picture for furniture follows somewhat the same pattern. In 1953 shops had an oversupply of stock and sales totaled only 3.2 billion rubles. Last year furniture sales jumped to 6 billion rubles and furniture-makers have not yet caught up with the increased demand.

Here the reason for the jump is new construction. In 1957 alone housing completions equaled approximately 1,371,000 apartments in urban areas plus some 700,000 houses in rural localities. Thus the establishment of more than two million new homes stimulated the demand for new furniture.

The picture varies in details for one or another commodity, but what the details all add up to is more consumer demand that comes from greater consumer purchasing power. This demand is being met by increasing production of foodstuffs and manufactured goods.

The planned economy of the Soviet Union is at a point today where consumer goods production can be sharply increased on the basis of progress achieved in heavy industry.

The planned increase for gross industrial output in the current year is 7.6 per cent. At the same time the planned increase for meat and dairy products is 14 per cent, for sugar 18 per cent, and for farm products generally 17 per cent.

Farm products that have heretofore gone to meet industrial needs are also being funneled off for consumer uses in a larger measure. Alcohol and spirits made for industrial use from grain and potatoes can to some degree be replaced by synthetic alcohols. This alone will add 800,000 tons, if we calculate in terms of grain, to the country's stock of consumer food this year.

All factories are stepping up production of consumer items. In Gorky, a city on the Volga River, to cite one example, furniture production is to be quadrupled over last year's figure.

The quantity of locally manufactured goods has increased to the point where it makes up a large proportion of the stock on hand in retail stores. In the Central Asian Republics of Uzbekistan and Kazakhstan, goods manufactured locally account for more than 45 per cent of retail sales. It was only a few years ago that the great proportion, some 80 per cent, of consumer items had to be shipped in from regions thousands of miles away.

The country as a whole offers a stable and ever expanding market for imported goods including raw materials, manufactured products and foodstuffs. Such items as staple fibers, rayon yarn, woolen cloth, silk fabrics, rice, fruit, tea, coffee, cocoa beans and spices are coming from abroad in large amounts.

Price Cuts

About 65 per cent of the retail stores in the country, particularly those located in cities and towns, are state-owned. The rest are consumer cooperatives and collective farm markets.

Since the vast majority of goods are produced by state-owned industries, the volume and the variety of consumer items is determined by an over-all national plan, as is the distribution of goods, numbers of retail establishments and the size of their inventories.

Prices are also planned in the Soviet Union. There is no such thing as price speculation or runaway pricing, either in state-owned or cooperative stores. Retail prices for many items are fixed locally, but prices for such mass consumed items as textiles, footwear, baked goods, sugar and a whole range of other goods are established centrally, with consideration given to specific local conditions.

It is according to plan also that prices for many commodities, especially staples, have been systematically cut. Ten years ago average retail prices were 2 to 3 times higher than they are now.

Prices for bread, meat and butter have been cut considerably. In 1956 the government reduced prices for children's clothing, staple fabrics, aluminum kitchen utensils and radio equipment. In 1957 prices were cut for canned fish and vegetables, pork, lard, poultry and other products. Early this year prices were reduced for such mass demand items as radio and TV sets.

Prices and, as a matter of fact, the over-all functioning of stores in any city, town or village are supervised by the city, town or village council, with volunteer public assistance.

The stores are also subject to trade union supervision. Soviet trade unions have powers much broader than mere worker-manager relations. The unions together with the government authorities decide what kind of shops should be built and where. The unions check on the efficiency of the stores and the quality of service given the public.

This all helps to improve the retail trade network, to cut down on overhead—which comes to about 6 per cent of the turnover—and to guarantee prompt and courteous service from the store personnel.

Gaily packaged perfumes and cosmetic items in a Moscow shop. Increased lines of luxury goods find an ever-eager market throughout the country.

Bedroom suite in GUM department store. Furniture sales in the Soviet Union were 6 billion rubles last year as compared with 3.2 billion in 1953.

Consumer Cooperatives

Consumer cooperatives and collective farm markets together account for some 35 per cent of the country's retail trade. There are 20,000 consumer cooperative societies and they own 270,000 retail establishments, located for the most part in rural areas. Their work is closely tied in with the agricultural cooperatives—the collective farms.

The consumer coops are big trading organizations with large resources. In the countryside they are the major suppliers of manufactured goods. They also buy agricultural products from collective farms and from individual collective farmers for retail sale and in some cases act as commission agents for a low fee.

The collective farms themselves and their members also sell their products directly to the city consumer at collective farm markets. Prices at these markets are not fixed, but they are naturally influenced by the established prices set for the state-owned stores.

The government helps both the consumer cooperative stores and the collective farm markets to enlarge their trade and services. More than 9,000 collective farm markets have been built at government expense in towns and cities. The farms have their own warehouses, refrigerating rooms, trucks and other equipment.

All told, collective farm trade accounts for only 7 per cent of the country's total retail trade. But in cities located in the heart of the farm country, the role of the collective farm market is a large and essential one. In Saratov, collective farm markets account for 30 per cent of total food sales; in Stalinabad, Tashkent and Yerevan, for 36 per cent; in Tbilisi and Odessa, for more than 40 per cent.

All the country's retail establishments, whether state-owned store, cooperative shop or collective market, have one and the same function—to supply the consumer with more and better goods at the lowest possible prices. ■

MANAGERS OF GORKY'S FOOD STORES. THEY BEAR THE RESPONSIBILITY OF SUPPLYING WHOLESOME AND TASTY FOOD TO AN INDUSTRIAL CENTER WITH SOME 900,000 PEOPLE.

KEEPING A CITY

By Yakov Usherenko

RUSSIANS, like people anywhere who do a good day's work, are hearty eaters. It takes thousands of people to supply wholesome and tasty food to a city like Gorky, for example.

Gorky is one of the Soviet Union's larger industrial centers, some 250 miles east of Moscow. It has a population of 876,000—a considerable number of very healthy appetites with a wide range of various tastes to satisfy daily.

Many billions of rubles have gone into building up a modern food industry in Gorky, with additions almost constant. In the last few years a number of large bakeries, a macaroni factory, a sausage factory and a winery have been opened in the city. Nearing completion are a meat packing plant, which will be one of the largest in the country, and a brewery.

While the City Sleeps

Before the city awakens in the morning, hundreds of trucks are already carrying milk, meat, fish, baked goods and dozens of other products from the suburban state farms, food processing plants and the central refrigerated warehouses to local shops.

Here is a truck with the traditional sausage boy painted on its side. It stops outside the big food department store on Mayakovsky Street and out come aluminum cases piled high with frankfurters, ham rolls, smoked sausage.

The sausage factory the truck belongs to processes 50 to 55 tons of 43 different kinds of meats daily and is constantly figuring out new varieties of cooked, smoked and semi-smoked meats to satisfy every epicurean taste.

The city's nine bakeries make 83 kinds of bread, rolls, buns and assorted baked goods, but Gorky's bakers are busy contriving new varieties to catch up with Moscow—the capital turns out 90 different kinds.

EATING OUT IS COMPARATIVELY INEXPENSIVE AND A GOOD WAY TO SPEND A WEEK-END EVENING WITH FRIENDS.

Regular restaurant diners make themselves quite at home in the relaxing atmosphere.

No shopping expedition is complete without a purchase in the confectionery department.

The food chain stores stock a wide variety of canned goods as well as fresh foods.

WELL FED

National and Local Food Chains

Two nationwide chains of state-owned food department stores called Gastronom and Bakaleya serve Gorky and other major Soviet cities. In addition, there are local state-owned stores, plus specialty food shops handling only meats or fish, baked goods or milk and dairy products, baby foods or vegetables and fruits, wines and liquors or cigarettes and tobacco. During the summer milk, fruits and vegetables are also sold from sidewalk stalls and from specially equipped trailers.

Gorky has sixteen markets where collective farmers bring their surplus meat, milk, fowl, eggs, vegetables, fruits and everything else farmers usually sell in town. One of the main attractions at these markets are the homemade delicacies featuring salted cucumbers, sauerkraut, pickled mushrooms and the like. All meat and milk products must pass sanitary inspection before they are put on sale.

Dining Out Is Popular

At the top of the list of "where to eat" are the restaurants, some of which feature musical entertainment. All serve wines and liquors with meals. Next come the cafeterias, where

Continued on page 29

Suburban state farm hothouses supply Gorky residents with vegetables the year round.

Just one of Gorky's nine sausage factories produces 43 different types to tempt the appetites of epicures.

KEEPING A CITY WELL-FED *Continued*

When it comes to choosing fish, the customers know they can rely on Sergei Stepanov's advice, which is based on almost 30 years of experience.

patrons can choose between self-service and table service.

Dining halls, third on the list, are by far the most numerous. Practically every factory, school and office has its own dining room serving well-prepared and tasty meals. Their food, while ranking with the cafeterias' in quality, is lower in price.

Snack bars can be found everywhere and serve cold sandwiches and hot drinks or beer. Additionally there are restaurants and stores dealing in dietetic products and in ready-to-cook meat pies, stews and other dishes to ease the task of the working housewife.

Teodor Karpei, an official of the City Retail Trade Administration, estimates the daily food sale of Gorky's shops and markets to run to 206,800 pounds of meat and fish, 495,000 pounds of milk and dairy products, 61,600 pounds of butter and fats, 264,000 pounds of sugar and confectioneries, 88,000 pounds of cereals.

There have been changes in food tastes in the last years that can be attributed to the steadily rising standard of living. Sale of meat and meat products and of oils and fats show a steady and decided rise, to cite an example.

Gorky people like milk products, to judge by sales. Last year state retail shops sold 171 million pounds of milk, buttermilk, yoghurt, sour cream, cottage cheese and scores of other cheeses. Add to this figure 28 million pounds sold at the collective farm markets and an undetermined amount of milk consumed by hundreds of families who live in the suburban districts and keep their own cows. In the past two years sale of milk and dairy products has jumped two and one-half times.

Home Grown and Imported

Gorky food plants and the collective farms in the city environs do not produce nearly enough food for the city's hearty appetite. So food in quantity is brought in from other areas.

The city stores are supplied with beef from the Ukraine, mutton from Kazakhstan and Kirghizia, butter from the Vologda region and Siberia, fish and herring from Astrakhan and Murmansk and grapes from the Caucasus. In addition to those made at the city's three confectionery factories, sweets and pastries are shipped in from Moscow, Leningrad and Kiev. Citrus fruits, coffee and cocoa are imported from abroad.

The city stores get their stock from the Ministry of Trade which signs annual contracts with the various food industries throughout the country. The very large shops and stores make their own contracts with food industries and the City Retail Trade Administration buys foodstuffs from farms.

With the exception of the very rare delicacies, Gorky shops sell almost everything in the way of food. Their sales have almost doubled in the past six years. The higher purchasing power has come from higher wages and several cuts in retail prices in the past few years. Gorky citizens can afford hearty eating. ■

Sterilized infants' formula sold in special stores proves a big help to working mothers.

GORKY'S FAMILIES ARE WELL SERVED BY THE CITY'S PUBLIC CATERING CHAINS, BUT THE LIGHTER EVENING MEAL IS GENERALLY PREPARED AND EATEN AT HOME.

The Kent exhibition was received enthusiastically by the press. "His paintings convey a sense of vastness and wide horizons," commented one critic.

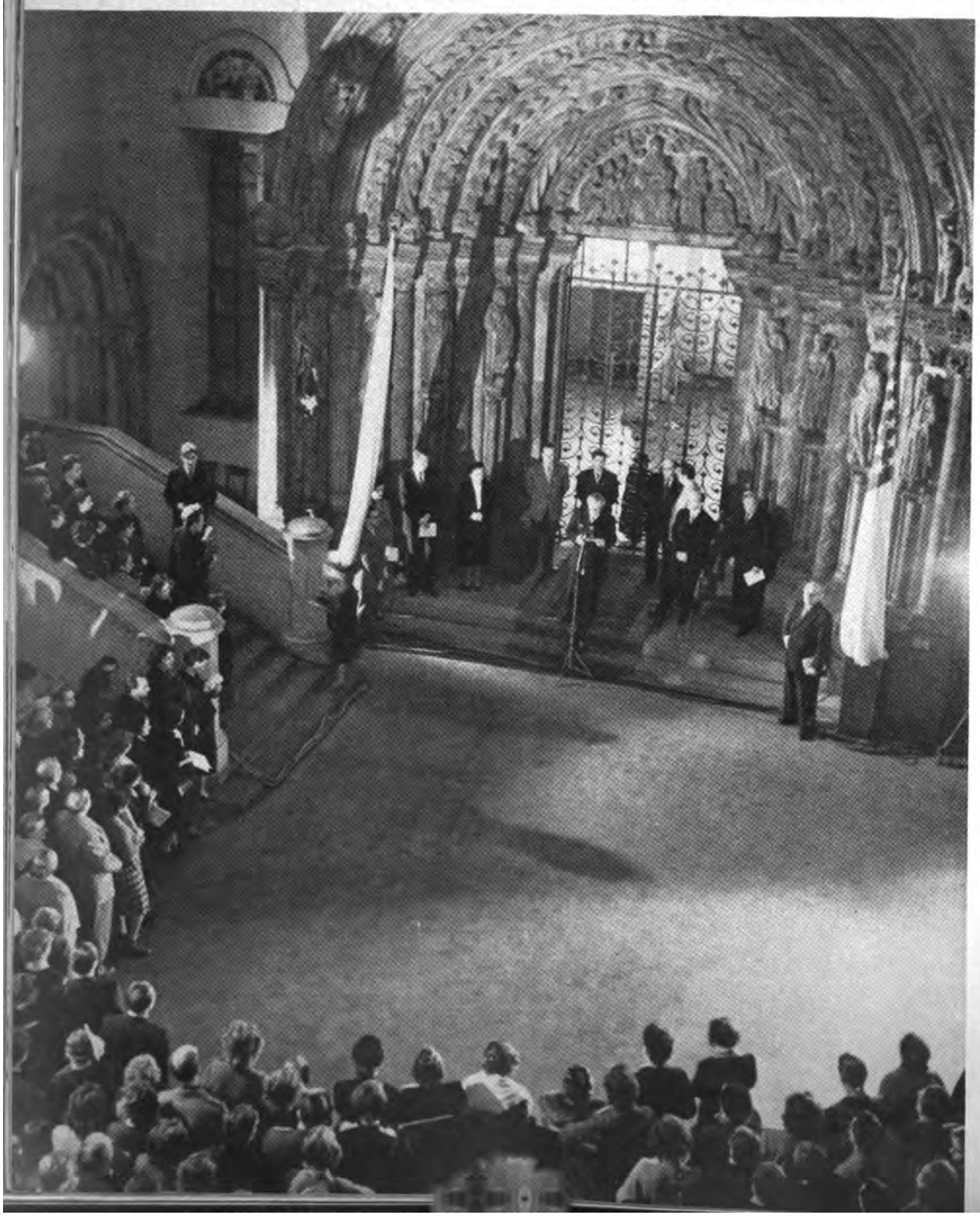
The Rockwell Kent ART SHOW

By Alexander Zamoshkin

Corresponding Member
USSR Academy of Arts,

Director
Pushkin Art Museum

Scene at the opening of Rockwell Kent exhibition in Moscow. It was held in Pushkin Art Museum, whose director, Alexander Zamoshkin appears at microphone. Major art critics, the press and public attended.



MAXIM GORKY addressed Mikhail Prishvin, a very prominent Soviet writer, with the following words: "Your feeling of friendship for man proceeds with such logical simplicity from your love of nature."

I would like to apply these words to Rockwell Kent, the American artist and writer, the basis of whose creative work is the unity of man and nature.

An artist and traveler, he contributed to the landscapes of Maine, Alaska and Greenland his own sense of beauty, as his own human gift to the earth. He created that typical Rockwellkentian epic and monumental landscape which opened people's eyes to the stern majesty of the nature of the North.

He was preceded by Winslow Homer, an American realist painter who generously endowed his native land with beauty. Rockwell Kent inherited and developed the principles of Homer's creative work.

It is an accepted fact that no matter what problems are raised by an artist, no matter what aspects of reality he desires to depict, nature and man can live in works of art only when they are illuminated with the rays of man's soul and warmed by the fire of his emotions.

The Rockwell Kent art show in the Soviet Union makes it possible to become acquainted with the art of a major artist in all

Nearly 2,000 visitors poured into the art show daily and twice that number on Sundays. Press comment: "Man is the invariable hero of his works."

Many of the visitors wrote in the exhibit's guest register. Among those who expressed their appreciation were both layman and professional folk.

its scope and diversity. The artist's best works are imbued with humanism. faith in man, in his indestructible spiritual power. And Rockwell Kent understands nature as a school of courage.

In a number of his works we see the combination of deep realism with romanticism. Here he has much in common with his famed compatriot, Jack London. Our art lovers are attracted by such canvases as *Toilers of the Sea* and *Greenlanders*, in which the artist renders the stern, majestic beauty of poetic nature, creates harmony of intensive and mighty colors and transmits the heroic labor of strong and hardy people capable of waging battle with nature.

In his work Rockwell Kent is a friend of man. The visitors to the exhibition cannot remain indifferent to such poems in paint as *The North* and *Fjord Kangerdlugsuak in Winter*. These pictures are charming for the beauty of the mountain peaks and are distinguished for their monumental generalized forms and for their bluish-silvery cold and severe tonality.

Scanning the drawings, engravings, lithographs and the masterly illustrations to Boccacio, Shakespeare, Chaucer, Pushkin, Melville and to his own books the visitor draws the conclusion that all of them represent the artist's quest for new ways to express the theme of life's optimism. Submitting to the images created by the writer, the artist awlays finds his own visual embodiment for them. In this way he does not proceed from formal prerequisites but from the substance and character of the image.

Imbued with freedom-loving spirit and life-asserting optimism, Rockwell Kent's work is astonishing for its combination of courage and gentleness, for the faith and wisdom which true art finds in a deep knowledge and understanding of life.

"It is related that when Zeuxis heard that the artist Agator was very proud of his ease and speed in drawing pictures, he said 'As far as I am concerned. I draw them long and for long,'" wrote Plutarch. I think that these words are the best description of Rockwell Kent's work. ■

American Artists' Exhibition Welcomed in Soviet Union

THE EXHIBITION of the works of Rockwell Kent in the Pushkin Art Museum in Moscow was enthusiastically received by the Soviet Union's public, press and critics. There were 55 canvases and 120 drawings and paintings in the exhibit, which attracted an average of 2,000 visitors on weekdays and double that number on holidays.

Some of the comments follow:

Literaturnaya Gazeta's review, after detailing Kent's travels and love of nature, wrote that "his travels, however, were not in search of the exotic. The artist conceives nature primarily as a school of courage. And he believes in the strength of man who must be the victor . . .

"Kent's art is closely connected with the best traditions of American realism, the realism of Mark Twain, Walt Whitman, the eminent American artist, Winslow Homer . . ."

The youth newspaper, *Komsomolskaya Pravda*, found that "Kent's pictures are divided into a number of cycles, according to the place in which he created them, but all the landscapes have one common feature: Kent seeks to reveal the epic traits in nature, to show the original, wild beauty of these desert regions, practically untouched by man.

"At the same time, man is present in all the painter's landscapes. He is the invariable hero of Kent's works, persistent, active and strong, he is in harmony with the nature with which he lives and which he is conquering . . ."

Another opinion, carried by the newspaper *Sovietskaya Kultura*, said: "Kent's works attract one by their careful finish of details, by the author's warm interest in the object which he depicts. At the same time they are distinguished by the romantic elation with which the painter tells the spectator what he has seen.

"The same applies to Kent's illustrations to Herman Melville's *Moby Dick*, so astutely and superbly understood by the painter . . ."

Visitors to the exhibition frequently left notations in the museum's guest register commenting on their impressions of Rockwell Kent's work.

Here are a few of them:

"Well done, Kent!"

—Y. Krylova, office worker.

"One does not often see such beautiful simplicity!"

—Zimina, zoologist.

"Rockwell Kent conveys an exceptionally vivid and multifaceted picture of the life and nature of Greenland."

—G. Agrendt, senior scientific worker of the Arctic Institute.

"Of course, Kent possesses definite mastery. But frequently his soul cannot master his disobedient, 'free and easy' hand which forges ahead of all emotions."

—M. Ovorets, writer.

"R. Kent displeases those whose views have become stiff."

—Kozlov, pensioner.

"A big thank you from man to Kent!"

—A. Semyonov, fitter.

"A wonderful exhibition of the powers of Man and Nature. The canvases of R. K. present the serenity of northern landscapes, which he understands better than any which we have known. Even the barren and grim rocks live and speak of our amazing world!

"Dear Mr. Kent! We wish you could have been here and felt the pleasure we derived from your paintings."

—Students A. Saburov and L. Zudin. ■

CLASS

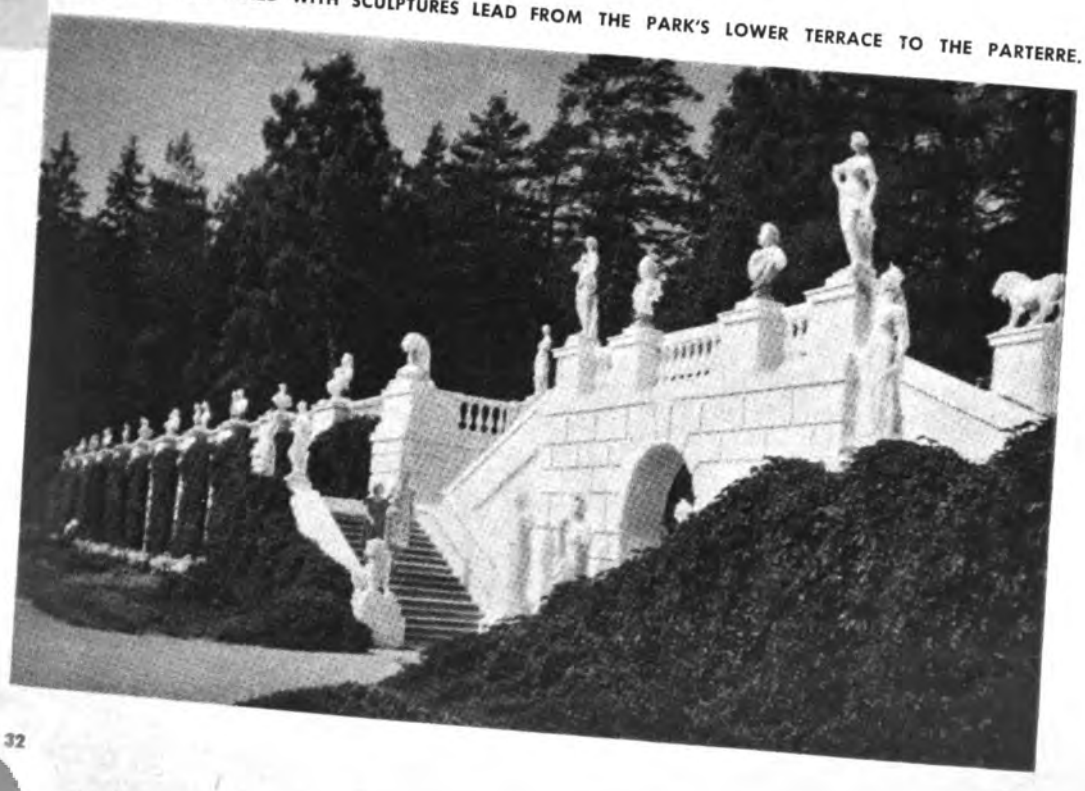
ARKHANGELSKOYE Estate, a monument of Russian culture of the 18th and 19th centuries, is twelve miles from Moscow. This is a palace and park ensemble—the creation of several generations of architects, sculptors, painters and serf craftsmen.

The earliest mention of Arkhangelskoye is made in 16th century chronicles as belonging to wealthy noble families. In 1703 the estate became the property of the Princes Golitsyn and in 1810 it was bought by Prince Yusupov. After the Socialist Revolution of 1917 the estate was nationalized and turned into a museum.

The center of Arkhangelskoye is the palace built by unknown Russian architects after the

THIS ARCH BUILT OF UNFINISHED STONE TO RESEMBLE AN ANTIQUE RUIN IS AN EXIT FROM THE PARK.

TWO STAIRWAYS LINED WITH SCULPTURES LEAD FROM THE PARK'S LOWER TERRACE TO THE PARTERRE.



VIEW FROM THE PALACE ON THE PARK'S TERRACES AND OVER

CL ONUMENT

rchitecture and Art

design of the Frenchman Chevalier de Gern. Along with the 350-acre park and other major parts of the ensemble, it was completed at the close of the 18th century. After the War of 1812 the palace and park structures were restored under the guidance of distinguished Moscow architects and local serf masters.

The palace's furniture, bronzes, cut-glass and china, handicrafted by serfs owned by the Yusupov family, represent a unique collection of applied art. The collection of paintings and sculpture includes ancient originals and the works of outstanding West European artists from the 16th through the 19th centuries. The library has some 30,000 volumes and a fine collection of prints and engravings.

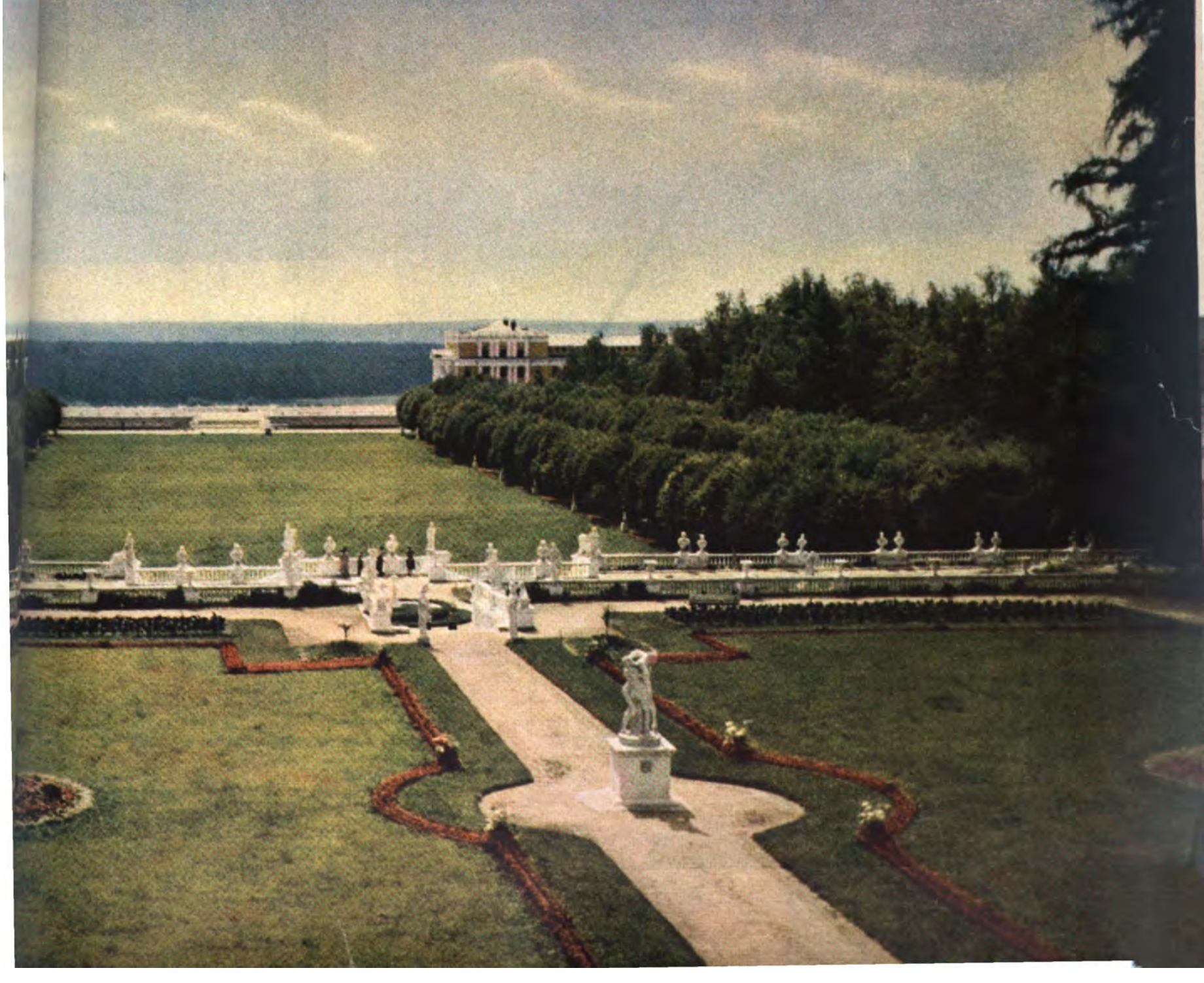
The park is laid out in the French or "formal" style, with strict geometrical design. The stairways of two artificial earth terraces descend to a vast parterre overlooking the old bed of the Moscow River. The steps, the boundary of the parterre and the park lanes are lined with classical sculptures and historical memorials. The park grounds are dotted with arches and arbors.

On top of the steep bank two new buildings were constructed in Soviet times to accommodate vacationers. They are classical in design to blend with the original buildings of the ensemble. Vacationers are also housed in the wings of the old palace, while the main section has become a museum.

The southern facade of Arkhangelskoye palace. The outer lines of its oval corner hall correspond to those of the arbors in the park.

More pictures on following pages

E PARK'S TERRACE LOOKING THE MOSCOW RIVER VALLEY. THE TWO BUILDINGS IN THE BACKGROUND, ERECTED IN SOVIET TIMES, ARE OF CLASSIC DESIGN AND BLEND WITH THE OTHER STRUCTURES.



CLASSIC

MONUMENT

OF ARCHITECTURE AND ART *Continued*

Venetian Hall. Among the masterpieces of West European art are the works of Tiepolo, eighteenth century painter. ▶

Antique Hall. The collection of French masters includes *The Abduction of Daughters of Leucippus* by Marie Mongez.

◀ Octagonal Room. The decorations give it the semblance of an aviary. On the walnut table are birdcage and aquarium.

Dining Hall. The palace contains a collection of Chinese porcelain as well as porcelain made by local serf-handicraftsmen. ▶

Tea set manufactured at the Arkhangelskoye porcelain factory which operated early in the nineteenth century. The designs were hand copied from palace paintings or book plates.

CLASS

The photo above shows the 1923 class of the first Soviet school in the Uzbek town of Kokand. The picture at the right was taken at the class reunion 35 years later. The lives of the pupils tell the story of changes in Uzbekistan, a formerly undeveloped area whose population was 98 per cent illiterate.

By Georgi Dimov

AN old time-worn photograph with the legend "1923. Kokand. Class in the first Uzbek Soviet school. A physics lesson."

Kokand is a town in Uzbekistan, and Uzbekistan is in the heart of Soviet Central Asia, bordering south on Afghanistan.

It was in the early twenties that Uzbekistan began to stir out of the slough of poverty, superstition and ignorance inherited from the old regime. Uzbek women had just begun to throw off the horsehair veil, ugly symbol of their virtual slavery. In 1923 the first Soviet school was opened in this country where 98 per cent of the people were illiterate.

It could hardly be called luxurious, this one-room school. But the country had barely emerged from the rack and ruin of the Civil War that followed the Socialist Revolution of 1917. The big iron stove set in the alcove in this old photograph did not heat because the fire box on the other side of the wall had been blown up, and part of the building with it.

Notice the darkened patch on the wall alongside. That may very likely have been drilled by case-shot fired by bandits who in those days swooped down frequently from the hills upon Kokand, Ferghana and other towns and villages of the young Uzbek Soviet Republic.

Into this small classroom were jammed eight double desks and a rickety table for the teacher. The physics demonstration apparatus—imposing word for these few simple instruments—was moved to the floor when the other subjects were taught—arithmetic, music, physical training, the native language and Russian.

But for these first young students, children of illiterate craftsmen and poor villagers, this was riches, an endless new world of learning that the Socialist Revolution had opened for them.

Thirty-five Years Later

What happened with these boys and girls during the past thirty-five years? I learned their stories at their recent class reunion. Taken together they tell the story of the Uzbek people as a whole.

This is a story of new towns built alongside the old; of modern hydroelectric stations to provide power to cities and villages, and to irrigate the desert; of thirty-six colleges and universities in a region where the college-trained Uzbek had been a rarity; of Asian women become teachers, doctors, scientists, industrial managers, agricultural specialists, government officials.

Look at the boy in the dark coat and skull cap at the extreme left. The skull cap, usually with decorative embroidery, is still traditional headgear in Uzbekistan. He is Tisha Zakhidov, now a Doctor of Science and professor of biology at the university in the capital city of Tashkent.

The boy alongside him is Fattakh Rakhmanov. He is now a rural teacher in the village of Kiyat. His brother, Malik (second from the right), is a writer, translator and editor at the Uzbek Publishing House.

The youngest boy in that class—he is sitting alone at the rear of the room—is the very well known hydraulic engineer, Fakhritdin Shamsutdinov, who held the post of Minister of Irrigation for the republic.

The two girls are both teachers. Zainab Mirsalimova teaches in a village school near Andizhan and Mokhrui Buranbayeva in Tashkent.

Two of the students in the picture have died since. Sharif Rizayev was a journalist and Yulchi Tashpulatov was the first Uzbek

REUNION

to be appointed professor at the Tashkent Engineering Institute.

The boy with the flower in his left hand is Rakhim Atadzhanov. He is an assistant professor at the Tashkent Teacher Training Institute. Abdulkhak Bekkuzin is an engineer at the Nuclear Physics Institute and Ulug Tursunov lectures on physics and mathematics at the University of Samarkand.

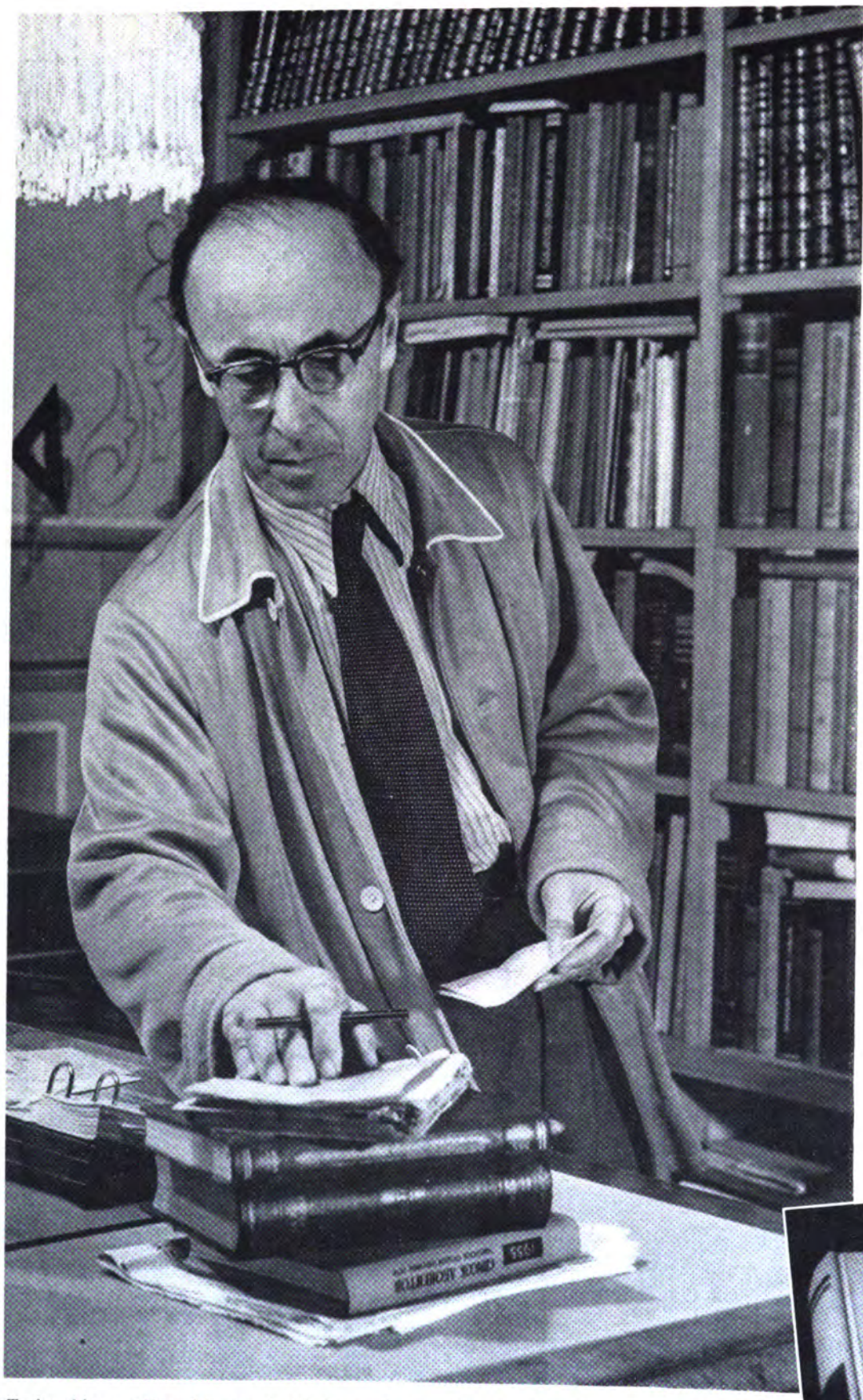
Educating a Whole People

And the teacher? Tashmukhamed Kary-Niyazov is an eminent mathematician, a member of the Uzbek Academy of Sciences and honored nationally for his work in the field of education. He was one of the early organizers of the republic's school system.

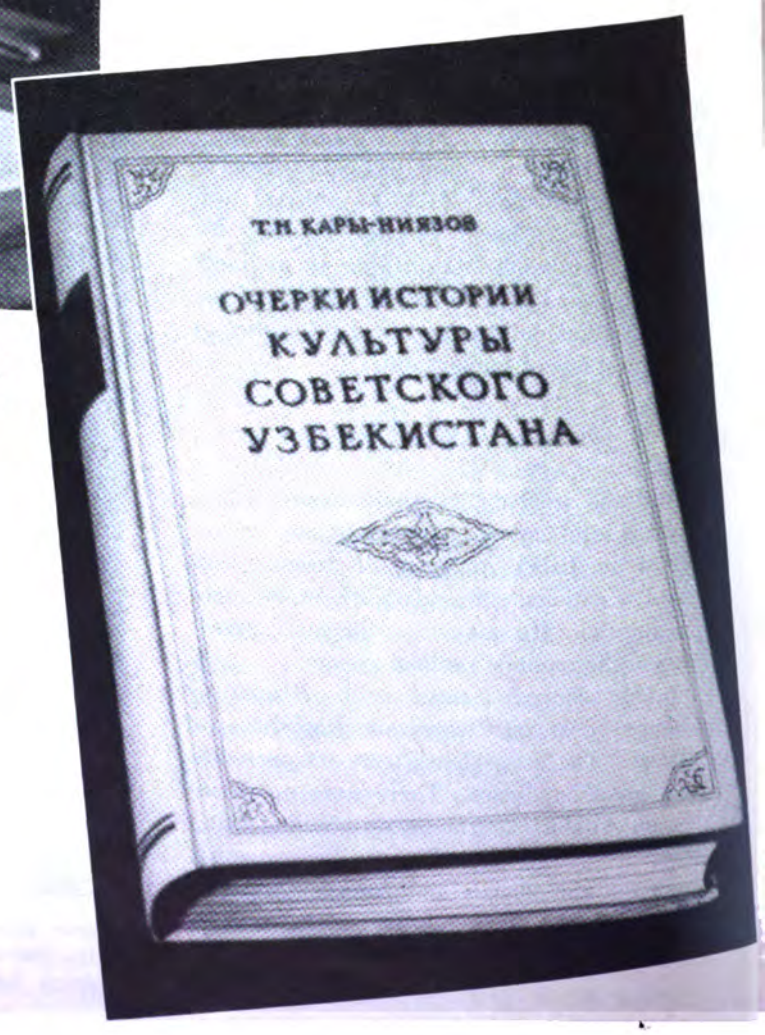
In his scholarly *Essays on the History of Culture in Soviet Uzbekistan* Kary-Niyazov writes: "The first schools were set up under very great handicaps. There were no teachers, no suitable classrooms, no teaching materials. We had to meet all sorts of provocation from the old officials and from antagonistic religious leaders and teachers in the old religious schools. There were plenty of parents

Continued on page 39

A get-together at the home of their old teacher, Tashmukhamed Kary-Niyazov, now an eminent mathematician and a member of the Uzbek Academy of Sciences. At the class reunion his former pupils of the Kokand School exchanged impressions about their present work in economy, science and education.



Kadyr Abdullayev (right) is one of the old students who have made light industry their specialty. He is an expert in the knitgoods field.



Tashmukhamed Kary-Niyazov, beside his work in mathematics, is a historian. His book (at the right) traces the social and cultural development of the Uzbek people from antiquity to modern times, stressing the growth of science and education during the past three decades.

CLASS REUNION *Continued*

Rakhim Atadzhanov (center, in light suit), an instructor at the Tashkent Teacher Training Institute, is shown with a group of his students.

Nuritdin Aliev (left) is a hydraulic engineer. He is demonstrating the automatic flow regulator he designed at an experimental irrigation station.

Malik Rakhmanov (second from left) checks a layout at a Tashkent print shop. He is an editor and translator for the Uzbek Publishing House.

harassed and attacked because they sent their children to the new public schools, children beaten because they wanted to go to school.

"There were so few Uzbek educators that we were largely dependent for guidance and experience upon Russian educators. We owe much to the selfless work of men like Alexander Yakhontov and Alexander Sutyagin. Yakhontov had a real passion for learning that he instilled into those of us who worked with him. He taught us more than mathematics. There was his sincerity, his patience and kindliness that we learned from, perhaps even more. I still remember the talks we had with him after class, when he could tell us about the great men of science and the history of their discoveries.

"Alexander Sutyagin had a wide and thorough background in educational psychology. We learned a great deal from his understanding approach to classroom work. These Russian teachers taught themselves and in the process trained our Uzbek teachers.

"At the same time some of the local people who were well educated were enlisted to teach in these new schools. Among them were people like Dadamat-Domulla, who subsequently was honored with an award for education: Sadriddin Khodzha and Aishakhan Kary-Niyazova, who became outstanding teachers; the poet Khamza Khakim-Zade Niyazi, who was also founder of the Uzbek theater.

"They were more than schools, these first efforts; they quickly took on the character of centers out of which a culture was growing and developing. They were centers of education for a whole people eager and ready to learn."

Every Field of Work and Study

The original dozen or so secondary schools of that early period have grown into 5,800 schools. Universal seven-year schooling is compulsory, with general ten-year schooling already on the way. Today the republic's schools have 1,300,000 students enrolled.

In the early days, every graduate was a person of consequence, there were so few of them. Like the students in the old 1923 photograph of the Kokand class, they have been making their contributions to the republic's development in their chosen fields.

Akhmaddzhura Kayumov is one of the Kokand school graduates. He went into silkworm breeding and has made a name in that field. Mirsoli Gafurov comes from an old line of peasants. After he graduated he went to the Moscow Agricultural Academy and came back to Uzbekistan to work as an agronomist in the cotton fields.

Makhbuba Dadamukhamedova, after training at a technical school, went into the textile industry. Kadyr Abdullayev became an engineer. Now he is a specialist in the field of knitgoods.

Others of the early graduates have risen to high places in government. Kasym Rakhimov went to an agricultural school, worked as an agronomist, and is now Permanent Representative of the Uzbek Republic's Council of Ministers to the Council of Ministers of the Soviet Union.

Two of his classmates, Nuritdin Aliev and Zakir Ashirmatov, became hydraulic engineers. There are few major irrigation projects in Uzbekistan with which Ashirmatov has not been associated. He was one of the builders of the Katta-Kurgan reservoir and the North Tashkent Canal, and is now working on the big project to irrigate the Hungry Steppe, an immense region of arid land which is slowly being made richly productive. Nuritdin Aliev is director of an irrigation research and design institute.

Not all of the 1923 graduates of the Kokand School could come to the reunion. Some were in distant parts of the country, some were doing scientific work abroad, three were in Moscow on projects they could not leave, still others were in the mountains of Central Asia, where new mining developments and power stations were being built.

But those who came to exchange stories and to sit at the school desks in the Kokand school to have their reunion picture taken were men and women who had come more than the chronological 35 years from their youth to middle age. They had spanned the centuries from feudal Asia with its superstition and poverty to twentieth century enlightenment and socialism. ■

THE DONBAS MINER, SELF-CONFIDENT AND HIGHLY ESTEEMED BY HIS COUNTRYMEN, ENJOYS TOP WAGES AND OTHER BENEFITS BEFITTING HIS HAZARDOUS PROFESSION.

THE DONBAS AND THOSE WHO MINE ITS COAL

DECISIONS OF WORKERS' CONFERENCES CONCERNING PRODUCTION PROBLEMS OR MINE CONDITIONS AND SOCIAL WELFARE OF THE MINERS ARE GUIDES FOR MANAGEMENT.

EXPRESS trains and long lines of freight cars speeding south of Kharkov in the Ukraine en route to the Black Sea coast rumble through a vast mining region, the Donets Coal Basin, called Donbas for short.

Situated in two republics, the Ukraine and the Russian Federation, the Donbas is the oldest coal field in the country. Its miners helped open new areas in Siberia and Central Asia, in the North and the Far East. They provided the training that was needed to supply the young fields with experienced workers.

In the past three decades geologists have learned considerably more about the richness of the Donbas' underground inventory. Now its reserves of coal are believed inexhaustible, and plans call for the construction of pits for digging two and one-half times as much coal as was mined in the Basin in 1954.

In just one new district, known as the Western Donbas, enough area has been prospected for the sinking of about 120 mines. This new field stretches about 30 miles east and more than 200 miles west of the old boundaries of the Basin.

At the same time, in the center of the Basin prospecting and tapping of deep-lying seams is under way. Until recent years most of the coal was mined in a range of depth between 900 and 1,600 feet. New and rich seams were found 3,200 to 4,300 feet from the surface.

A modern mine in the Donbas is a veritable underground factory where coal is cut and transported almost entirely by machines. The old machines are being continuously modernized and new machines to lighten the labor of miners are being designed and built at research institutes and laboratories of the coal industry. It was in the Donbas that the coal mining combine bearing its name was first conceived. It now has various models for the most varied types of coal seams.

In 1957 the Donbas produced 163 million tons of coal, or about one third of the country's total. Donbas coal is of excellent coking quality and feeds the iron and steel industry of the Ukraine. It is also used as raw material for the Ukrainian chemical industry and serves as a major source of fuel supply for the power plants in the South European part of the Soviet Union. With all this, the Donbas still has enough capacity to provide coal for the railways of the entire Ukraine and the adjoining parts of the Russian Federation and Byelorussia, and to meet other requirements of these areas.

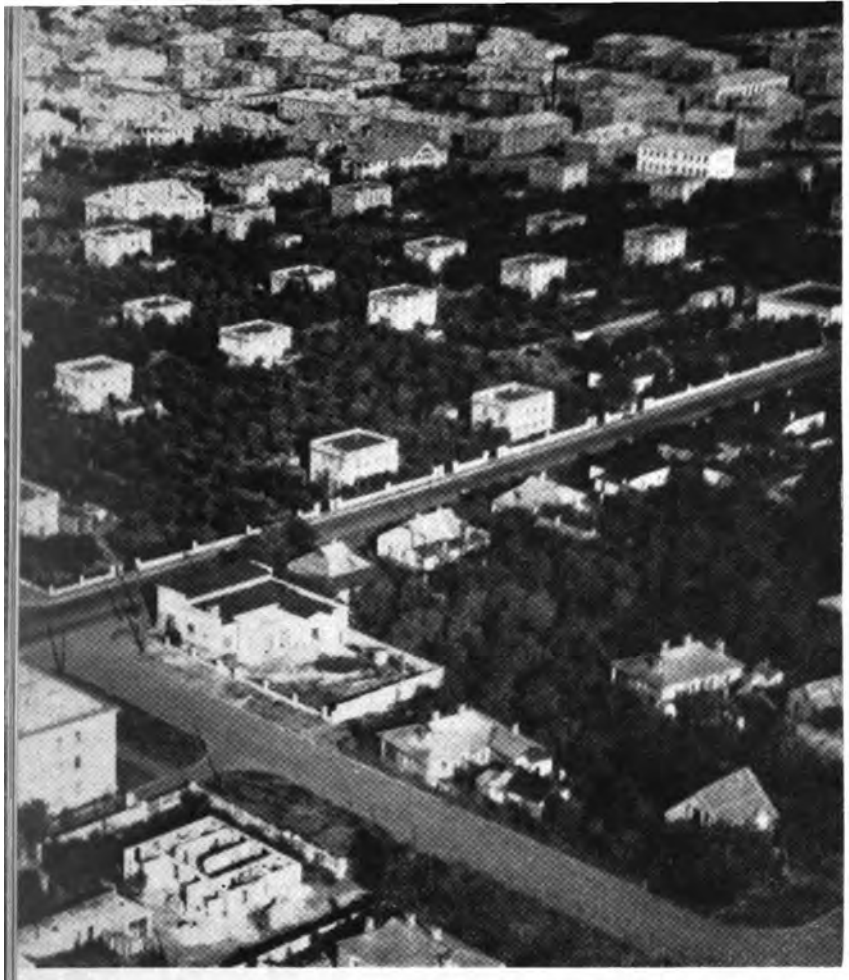
Each day sees thousands of miners enter the Donbas' pits. They have a 34-hour work week and one-month yearly vacation with full pay. The miners are among the country's best paid workers; they receive increased pensions and other benefits accruing to their hazardous profession.

The state budget allocates ever increasing sums to expand housing and municipal construction in mining communities and to provide more and better medical, cultural and recreational facilities for miners and their families. The cities and towns of the Donbas are becoming more and more beautiful with their new parks and boulevards abounding with trees and shrubbery. New blocks of modern houses, social and recreation centers, theaters, department stores, schools, colleges and athletic stadiums strike the eye as visitors pass through the Donbas.

More pictures on following pages

Donbas coal is of excellent coking quality and feeds the iron and steel works of the Ukraine. Its reserves are inexhaustible and it is also shipped elsewhere as raw material for the chemical industry and as fuel.

Stalino, Donbas capital, though a major coal, steel and engineering center, is proud of the greenery in its streets, parks and residential yards. Enforcement of strict smoke-curtailment rules protects the health of citizens.



Industrial cities, towns and communities of the Donbas almost overlap in endless chains. Their residential areas are marked by carefully planned landscaping as in Kadiyevka, shown here.

This apartment house in Makeyevka is typical of municipally-owned projects where rents do not exceed 2 to 4 per cent of a month's income. Many miners live in their private homes.

THE DONBAS AND THOSE WHO MINE ITS COAL *Continued*

TOWNS OF THE DONBAS SIGNAL THEIR COAL MINING CHARACTER BY THE TOWERING PILES OF ROCK WASTE SEEN FOR MILES AWAY SILHOUETTED AGAINST THE SKYLINE.

Yuri Olenin is studying mine engineering at the Stalino Mining College. Both his father and his grandfather dug coal in the pits of the Donbas.

Students of the Makeyevka Mining School learn to operate machines used in the pits. Schooling is free and they receive a monthly state allowance.

MANY YOUNG MEN WIN DIPLOMAS IN EVENING CLASSES AND CORRESPONDENCE COURSES OF MINING SCHOOLS AND COLLEGES.

After a 34-hour week in the mine, Nikolai Mamai has plenty of time off for his hobby as a "do-it-yourself" home carpenter.

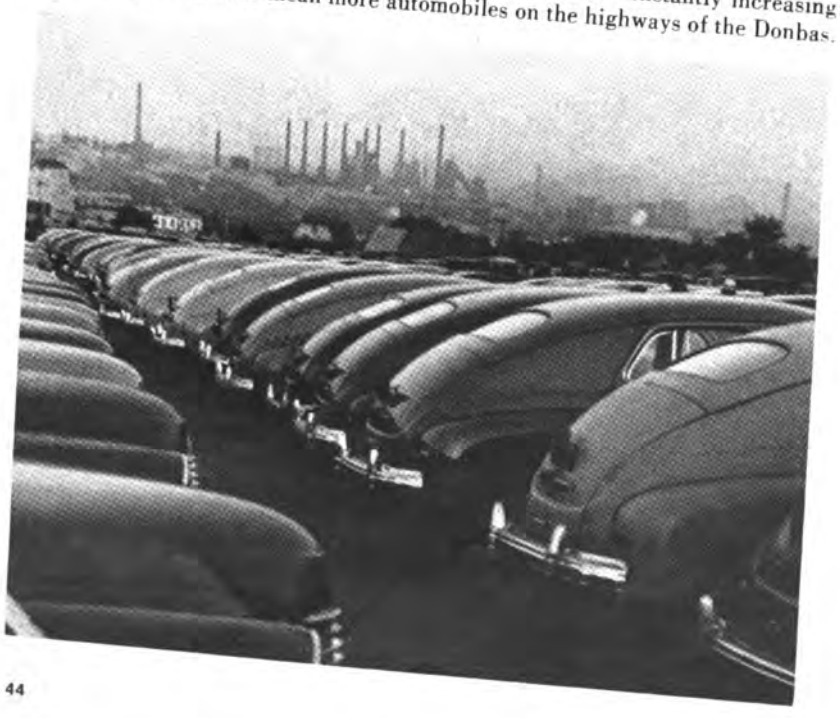
New coal mining machines are continuously introduced in the Donbas, resulting in free training programs at every mine.

THE DONBAS AND THOSE WHO MINE ITS COAL

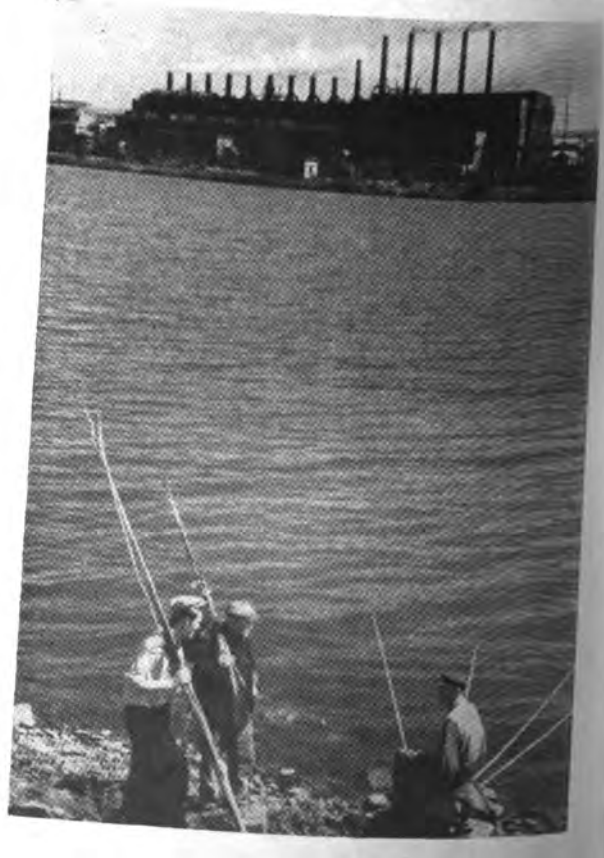
Continued

Miners and their families drive to Sea of Azov beaches in less than 6 hours for annual vacations and week-ends. Their union gets them resort reservations free or at 70 per cent discount.

Parking lots are filled to capacity during the championship events at stadiums and the premieres of theatrical attractions. The constantly increasing incomes of the miners mean more automobiles on the highways of the Donbas.



Most of the river banks of the Donbas area are jammed with various industries, but eager anglers always manage to find secluded spots where fish bite readily.



Kindergartens supervised by expert teachers provide full daytime care. Miners' children attend summer camps each year free of charge or at reduced rates.

Prenatal care, skilled doctors and well-equipped maternity hospitals assure every baby a good start in life. Complete medical service with an emphasis on preventive care is free throughout the whole country.

The recreation centers maintained by the miners' trade union feature musical, theatrical and art groups for amateurs with free direction and instruction under professional teachers.

While many games are played and draw crowds of spectators during both the cold and warm months, none touches soccer for appeal. The Donbas miners' team, Shakhtyor, vies with the country's best.

GALYA OLENEVA IS THE MAILMAN FOR THE ENGLISH CLUB OF MOSCOW SCHOOL NO. 112. SHE MAKES SURE THAT PEN-PAL LETTERS ARE PROPERLY ADDRESSED AND POSTED.

Only English Spoken Here

ENGLISH CLUB IN A MOSCOW SCHOOL

By Adolph Pikov

THE ENGLISH CLUB on the fifth floor of Moscow School No. 112 is a busy spot after school hours. In one corner of the bright room posted with the club emblem a group of older boys and girls are adjusting a tape recorder, others are leafing through Russian-English dictionaries looking for the right word for a letter to an English or American pen pal, in another corner a vociferous quartet of young stamp collectors are making a trade and the bargaining runs hot and heavy.

I overhear this snatch of talk between two girls.

"I got a letter today from Jack in England and he wants to know if I'm a girl or a boy. Imagine that. After we've been corresponding for almost half a year, he still doesn't know if Tamara is a boy's or a girl's name."

Her friend giggles, "Don't tell him. Keep him guessing." The two of them burst into a gale of laughter.

I am introduced to Alla Levitina, the honorary club president, a charming eighteen-year-old who takes me under her wing and shows me around.

"How did the club get started?" she repeats my question. "I don't really remember now. It just did. There were a lot of us who wanted to learn English. We were studying it in school and we wanted more prac-

tice in real conversation and real writing, not just writing school compositions."

"And then," adds Vladimir Andreyev, another club member—a senior, "many of us were trying to read books in the English original."

"And," added a younger member, "don't forget we wanted to make friends with school children in other countries."

"That's very true," confirmed Alla, "that's the most popular club activity—letter writing to pen pals."

Club members have a variety of activities to busy themselves with—practice in conversation, dramatics in English, poetry reading. Young botanists exchange seeds with their foreign correspondents. The club has a technical group which operates and takes care of the tape recorder and records foreign broadcasts and American and English folk songs. The club's artists and photographers make up posters, photo-news exhibits and displays.

The club has 180 members now, the youngest is Yura Tutov, nine years old. By the club rules Yura was too young to be eligible for membership, but he refused to be turned down, so an exception was made in his case.

The faculty adviser is Grigori Dorf-Shuster, who teaches English at the school. The club's equipment—tape recorder, books, radio, American and English newspapers and magazines—are provided by the school. The club now has a library of 500 books in English.

The club's first big function was a concert and dance. The dance was fine, you don't have to talk English when you dance. The show, however, with songs in English and recitations from Byron's *Childe Harold* apparently had its difficult moments—the level of the club members' English was not too high. But now, Alla assured me, with the club going on to its second birthday, they do fine.

The various groups meet once a week after school for reading, practice conversation, singing and other activities. Typical conversation topics are: "Let's talk about the new films," "My favorite book," "What I want to be." Lectures are given by English teachers, and advanced students from the Foreign Languages Institute talk on art, literature, and English and American life.

A year ago last May Radio Moscow devoted one of its foreign broadcasts to the activities of School 112's English club. The broadcast, opening with the phrase, "Dear friends, wherever you are, listen to us," brought the club a flow of letters from young people all over the world. Club members now correspond with students in 19 countries.

Two young Scotsmen, the brothers Hugh and John Campbell, are honorary club members. In May of 1957 the club held an Anglo-Soviet friendship meeting. A Scotch delegation then visiting Moscow was invited to attend. Tom Campbell, one of the delegates, told the club that his two sons were coming to Moscow to the World Youth Festival and in July the club was host to Hugh and John.

The Scotch boys told the club about Scotland, recited poems by Robert Burns and joined in singing Russian songs. When they left, they wrote this in the club's visitors' book, "We, members of the Scottish delegation to the 1957 Moscow Youth Festival, should like to record the pleasure which our visit to School 112 gave us. Our best wishes. We hope that the English Club will continue to flourish." The Campbell brothers have been corresponding with the club regularly since their visit.

Continued on next page

Lena Kovner, club president, makes an announcement.

Schedule of each week's activities is posted for the club's 180 members just outside its headquarters on the fifth floor of the school building.

Trading stamps with foreign pen pals is one of the club's most popular activities, with the exchange of coins and seeds running a close second.

Tanya Granilshchikova recites one of Robert Burns' poems. Last year the club was host to young men from Scotland, who were elected to honorary membership.

Ira Sumina, announcer of the school programs, conducts a broadcast in which all of the various numbers performed are given in English.

ENGLISH CLUB IN A MOSCOW SCHOOL

Continued

Other honorary members are Nicholas Clarke, the club's first correspondent in England; Sahib Singh Shokay, a social worker in India; Charles Crampton, president of the British Matchbox Cover Club; and Axel Gryspeerdt, president of the Belgian White Wolf Club.

A big event in the club's life was the trip three of its members, Rita Novikova, Anatoli Larkin and Andrei Rozanov, made to Norway in the summer of 1956. They stayed at an international children's summer camp on the invitation of the wife of the Norwegian Prime Minister and made many foreign friends.

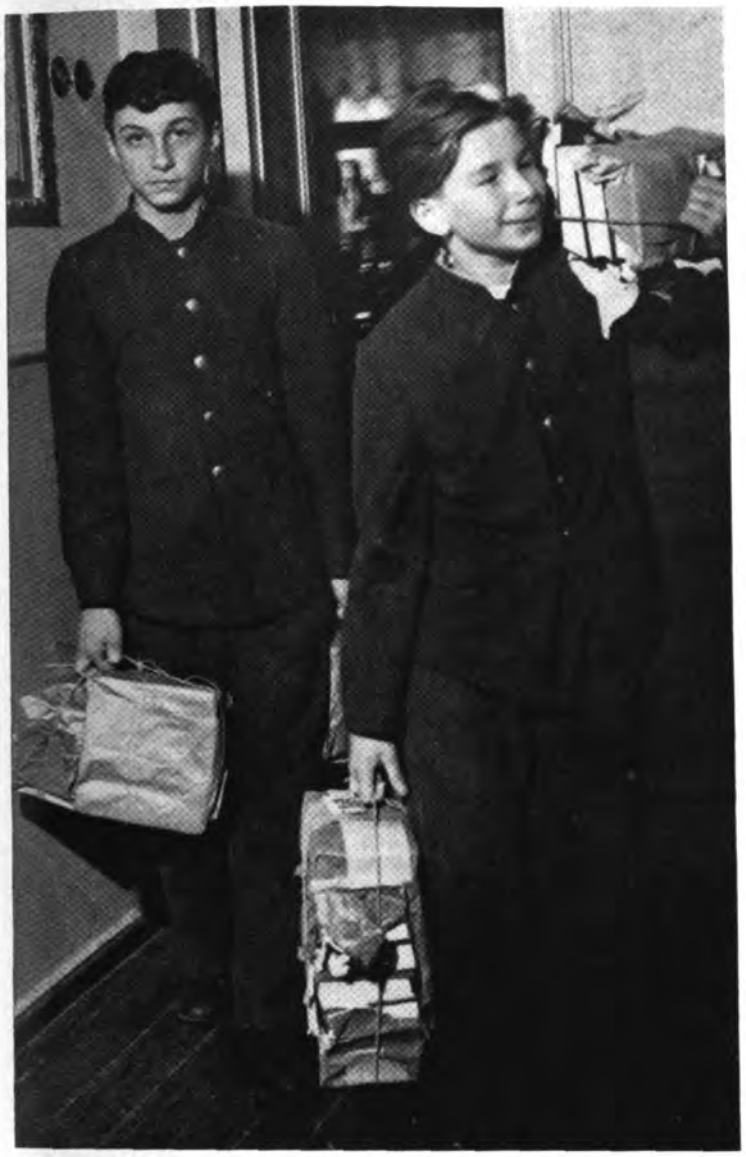
While we were talking the club postman brought the mail. One of the letters was from a high school correspondent in Spokane, Washington, congratulating the club on the launching of the first sputnik. "I hope," the letter read, "that it will lead to future peaceful scientific discoveries in your country and mine."

There are English clubs in schools elsewhere in the country. The oldest is in a rural school in Bagan, Siberia, that got started five years ago. The collective farm youngsters correspond with friends in the United States and have exchanged books and records.

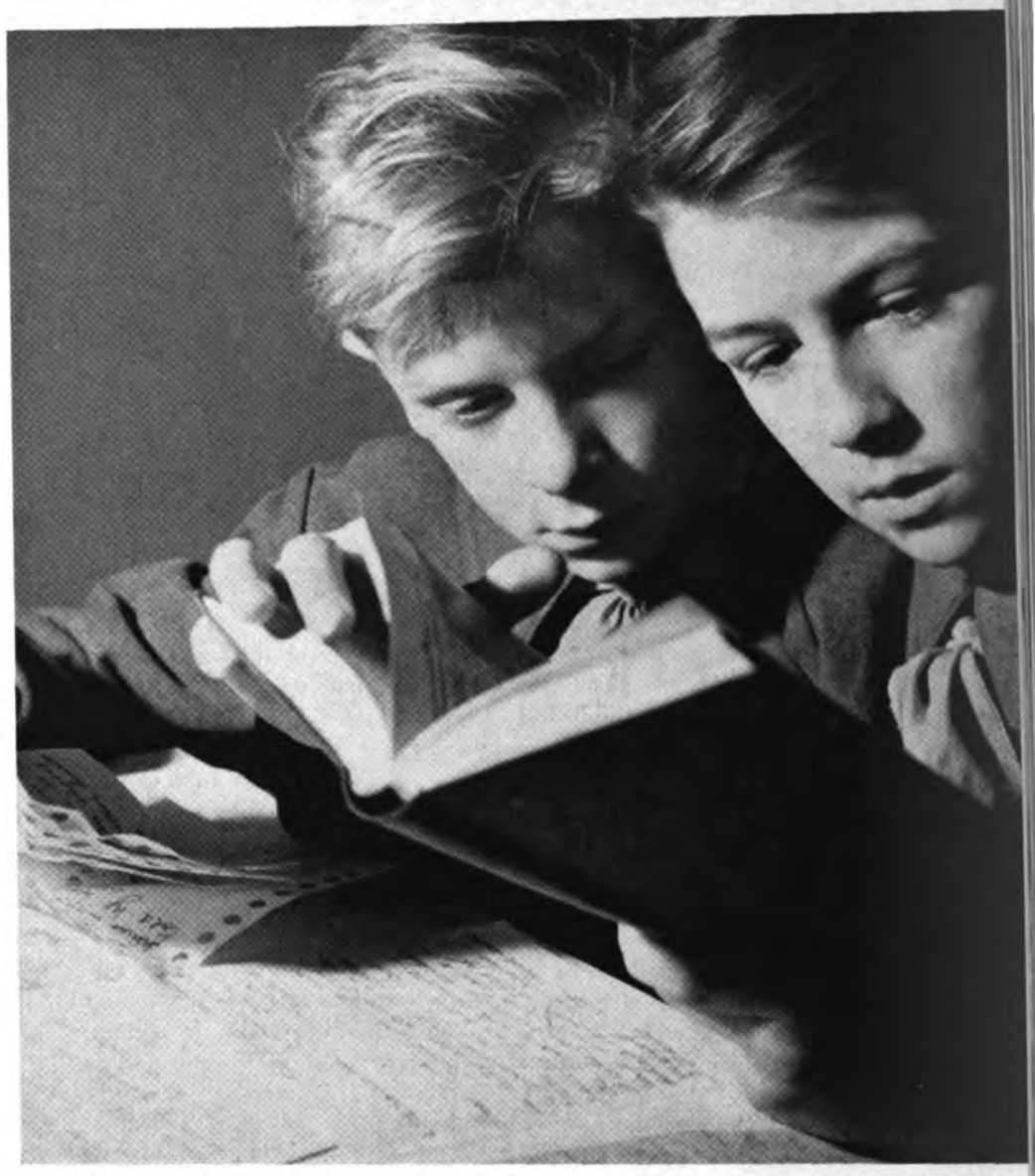
Moscow schools 610, 574 and 280 have taken their lead from 112 and have set up English clubs. In other schools, French and Chinese clubs have been organized, all attuned to the sentiment of this verse written by a member of the Bagan village English club:

"The world may be great
But friends can be found
In each country and state
All the world round."

Eager young botanists, Faina Labazina, Lida Kulikova and Tanya Mikhailova, exchange seed and flower specimens with their pen pals in England.



New books for the club library. With about 500 volumes now, the club acquires new books provided by the school and donated by friends.



Yura Klyavin and Oleg Lomanov are using the Russian-English dictionary to check a definition. Of all the club's various books, this volume is most in demand.

Grigori Dorf-Shuster, a teacher of English and the club's faculty advisor. He constantly maintains as a standing rule, "Only English spoken here."

The American folk song *Billy Boy* is being rendered by a club trio made up of Natasha Matalasova, Zhenya Tikhomirov and Galya Malysheva.

MOSCOW TRAFFIC

By Yuri Pavlov

A NEW YORK CITY driver would feel almost at home in Moscow's Mayakovsky Square at peak traffic hours. Cars lined bumper to bumper crawl along at a pace slower than the pedestrian. If you are in a hurry at rush hours, you take the subway. The Sadovaya Ring, one of the city's major thoroughfares, clocks an average of 7,000 cars an hour and Mayakovsky Square about twice that number.

Traffic in Moscow like in every other Soviet city is handled by the municipal Department for Regulating Street Traffic, called ORUD for short. It is responsible for licensing drivers, setting and enforcing traffic rules, and investigating auto accidents.

Driving Regulations

Driving regulations in the Soviet Union are much the same as those in the United States. You keep to the right, pass on the left. On busy streets, passing is prohibited. In heavily traveled streets left turns may be made only at certain marked intersections. Horn blowing is banned except during a heavy fog when visibility is reduced to less than thirty feet.

Speed limits are similar to those in American municipalities. Street signs warn drivers to slow down in areas with heavy pedestrian traffic, in school and hospital zones and other spots where faster speeds might be hazardous.

Traffic signs in the Soviet Union are based on internationally recognized symbols used in European countries. However, one unfamiliar sign which the foreign motorist is likely to see is a yellow circle showing two white pigeons within a black triangle. There is an unwritten rule that if the pigeons fail to move, you stop. It is sometimes necessary to get out and shoo them away.

Moscow's traffic lights are the ever familiar affairs with three standard colors but in reverse order compared with the one adopted in the United States: red on bottom, then yellow and green on top. Lights are either synchronized to permit traffic to flow continuously at the established speeds, or are manually operated by an ORUD officer in an intersection booth, depending on traffic conditions in the given area.

Much of ORUD's work is educational, to reduce driving hazards. Most through trains on Soviet railroads broadcast music en route, but when a train approaches a metropolitan center, talks on local traffic regulations replace the music. Movies include shorts on safe driving and safe walking. Schools and children's parks show animated cartoons to teach safety, which are supplemented by the teachers and ORUD officers who visit for short talks and discussions with youngsters.

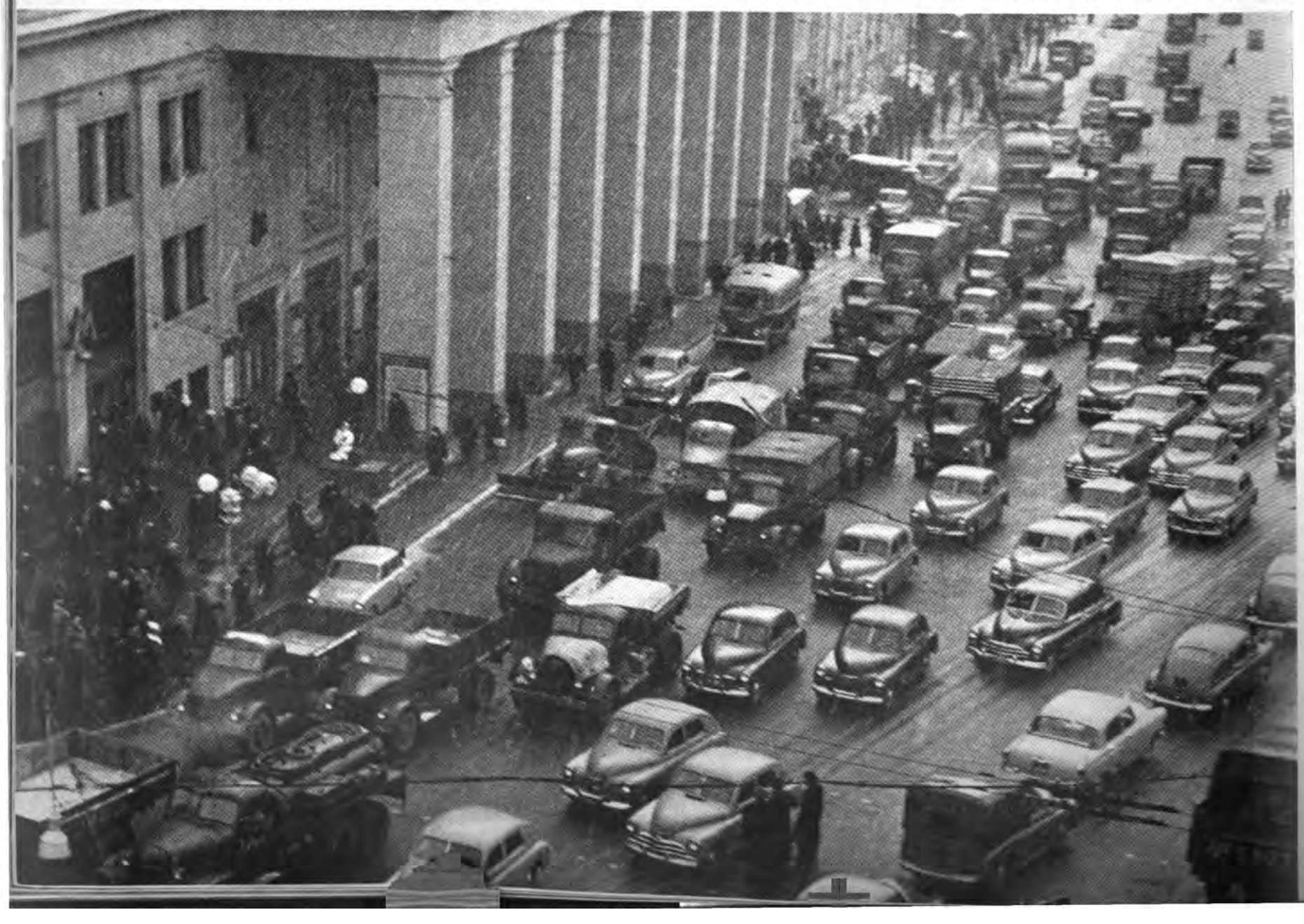
Driving Permit

Obtaining a driving permit or license is a bit more complicated than it is in the United States. The applicant must be at least 18 years of age and pass a thorough medical examination. This is not a casual eye test, but a full-fledged physical examination that goes into reflexes and reactions as well. Then there is an oral examination on safety and traffic regulations followed by a driving test with very rigid requirements. In addition to being able to drive competently, the applicant also must prove that he knows how to handle minor mechanical troubles, change a tire, adjust brakes, fix headlights or get a stalled car into operation.

Statistics show that beginning drivers are the greatest hazard to both other drivers and pedestrians. Drivers with less than a year's experience must display a special sign both in the front and rear of

Continued on page 52

RUSH HOUR TRAFFIC IN A DRIZZLE. MAYAKOVSKY SQUARE, SHOWN HERE, CLOCKS AN AVERAGE OF 14,000 CARS AN HOUR. THE ONLY MEANS TO SAVE TIME IS THE SUBWAY.



TRAFFIC OFFICERS

ON DUTY

TRAFFIC LINES UP AS THE RED LIGHT SHOWS ON BOTTOM. THE LIGHTS ON SOVIET ROADS ARE IN REVERSE ORDER COMPARED WITH THE ONE USED IN THE UNITED STATES.

MOSCOW TRAFFIC *Continued*

the vehicle they drive. It features a yellow background with a heavy black exclamation mark that warns other drivers and pedestrians to exercise good care—a novice is at the wheel.

In addition to the license for the average or private driver, there are special licenses for the professionals—the chauffeurs, bus and taxi drivers, and commercial truck drivers. Their examinations are much more complete than those for the more casual private driver. There are three categories of these professional licenses. Only first category, the highest, permits the driver to operate a bus or other vehicle carrying passengers. Transfer from one category to another involves a new test both in technical background and in driving.

When a driving permit is first issued. it is accompanied by a green coupon which is retained as long as the driver commits no traffic violation. After the first offense it may be replaced with a yellow coupon. A more serious violation or accident would bring about the drawing of the red coupon. Upon its loss, the driver's license is suspended for a six-month period.

Drivers who have lost the first or second coupons may have them restored by driving without further difficulty with the regulations for a fixed period. For example, if one drove for six months without a new violation, he would be restored to his original status with a green coupon.

Some of the traffic violations bring fines of from 10 to 25 rubles. The ORUD officer on duty may also note the violation on the license in addition to imposing a fine to "help" the driver remember to exercise more caution in the future.

NEON LIGHT SIGNS TELL THE DRIVERS AND PEDESTRIANS TO EXERCISE CAUTION.

A TRAFFIC OFFICER EXAMINES LICENSE APPLICANTS ON DRIVING REGULATIONS.

Solving the Problems

Moscow has long and cold winters with frequent heavy snowfalls from December through March. Hundreds of snow-cleaning machines begin their operation with the first snowfall and keep the streets clear through the heaviest storms.

This has been a relatively easy problem to solve compared with that of road building. Moscow is more than 800 years old, and until recently many of its streets were little more than narrow, winding lanes. Now most of the major thoroughfares are very wide. The Sadovaya Ring, for example, is more than 260 feet wide.

But the street reconstruction in an old city is a long, slow process while traffic keeps increasing. Whenever possible, houses standing in the way of traffic streams are not razed in Moscow; they are moved to new sites. In recent years this has become a limited operation since space is now at a premium. Where it is impossible to widen the road, parallel highways are built to divert traffic from it.

A 60-mile highway forming a ring around the city's outskirts is now under construction and this is expected to help ease the traffic situation and particularly remove much truck traffic. All roads converging radially on Moscow will cross this new speedway.

The new road will have two ribbons of concrete each 23 feet wide, separated by a 13-foot parkway in the center. There will be no traffic lights and the speed limit will be 75 miles an hour.

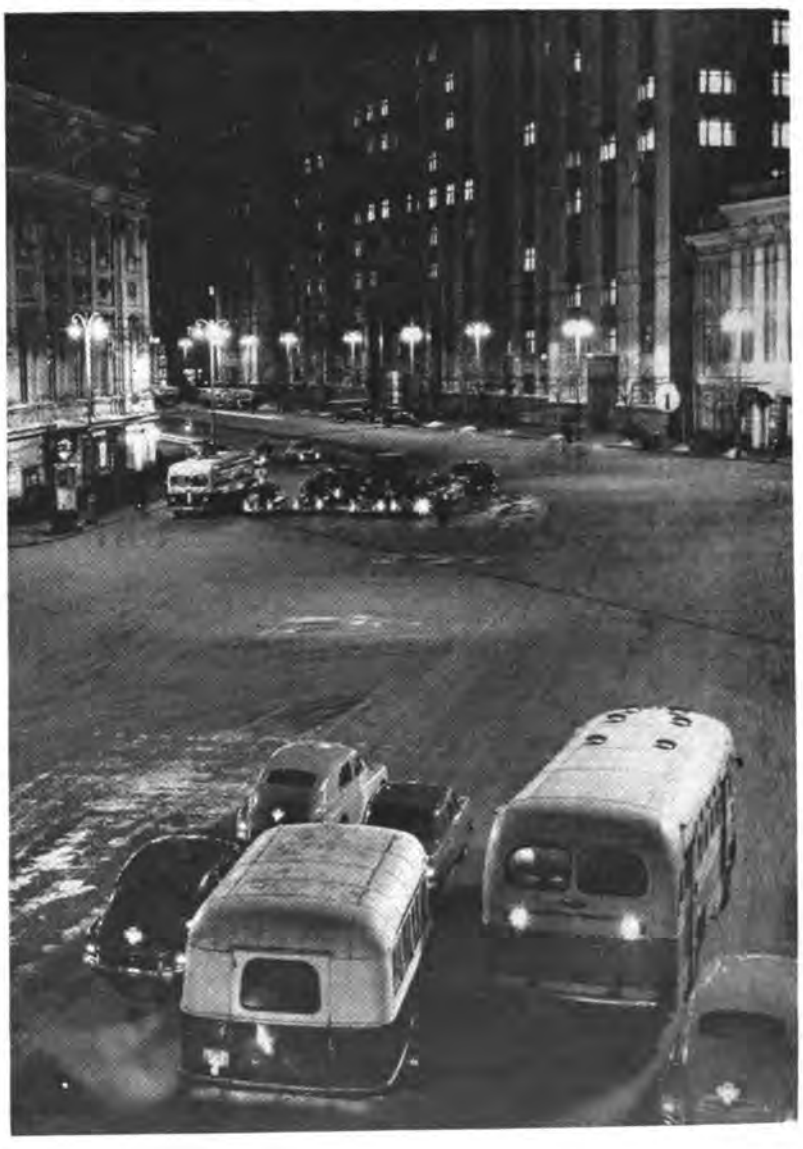
Moscow's subway system takes up much of the traffic. Its lines are constantly expanded to provide adequate transportation facilities for new residential areas and for the busiest sections of the city. For example, with the opening of the giant Lenin Sports Stadium, a new line was built to take care of the increased traffic in the area.

Moscow's traffic planning looks forward to a growing future and the city authorities are thinking in terms of clover-leaf intersections, tunnels and overhead routes to eliminate cross traffic. The program also includes large-scale street widening and multistory and underground garage building. ■

OVERHEAD SIGNS WARN ALL MOTORISTS TO WATCH OUT FOR THE CITY'S PIGEONS.

TRAFFIC CONDITIONS IN SVERDLOV SQUARE IN DOWNTOWN MOSCOW AT DAYTIME.

AT NIGHT HOURS THE TRAFFIC IN THE SAME SQUARE SHOWS BUT LITTLE CHANGE.



FASHION

Sable-trimmed sleeves lend a very smart touch to this coat with its deep yoke and gathered back.

This frock of white artificial silk with its black design is worn with a full length stole.

Two-piece set for spring. The plain silk coat is marten-trimmed. The dress is patterned brocade.

HARADE

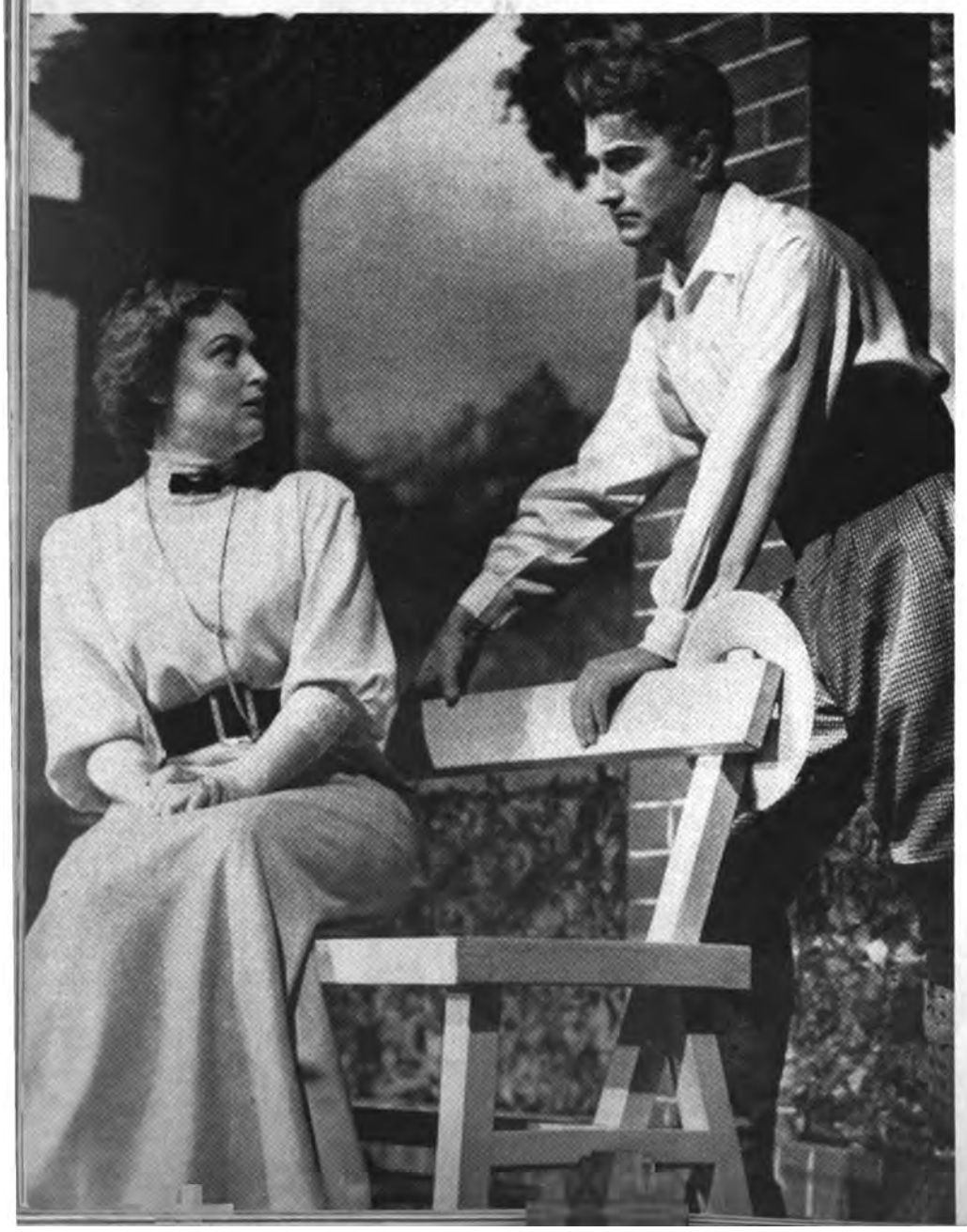
Lounging outfit. These pajamas with matching coats are available in several smooth prints.

rts set featuring a blouse,
rts and a wrap-around skirt.

Changeable taffeta dress with hobble skirt and a patterned rep coat featuring lining to match.

SCENE FROM PROKOFIEV'S OPERA *WAR AND PEACE* BASED ON TOLSTOY'S NOVEL.

THE PLAYS BY FOREIGN AUTHORS INCLUDE SHAW'S *MRS. WARREN'S PROFESSION.*



THEATERS STAGE 3,541 PLAYS THIS SEASON

By Alexei Morov

SEVEN-THIRTY is curtain time, when the houselights dim and the footlights brighten the stages of the country's 508 professional theaters for every taste and inclination—drama, ballet, opera and variety.

The theater is immensely popular in the Soviet Union. In the course of one season the average theater will stage five or six new productions and may run as many as twenty plays, including those which were hits in previous years. This is true not only for the famous and internationally known companies like those in Moscow, Leningrad and Kiev, but for the local companies in provincial towns. Productions are staged in every one of the forty languages spoken in the Soviet Union.

Although the Soviet theater is not a commercial theater as the term is commonly used, it generally pays for itself. The subsidy which it receives from the government—it amounted to 300 million rubles last year—is used largely to stage particularly expensive productions, to finance guest performances of entire companies and, most important, to sell tickets at a price to meet anybody's pocketbook.

"WALPURGIS NIGHT" FROM GOUNOD'S *FAUST* AS PRESENTED AT THE BOLSHOI THEATER. OPERAS AND BALLETS ARE PERFORMED EACH NIGHT ON THE BOLSHOI'S TWO STAGES.

A run through billboard advertising will show a most varied repertoire of plays by authors of all times and from different countries—Shakespeare and Dostoyevsky, Lope de Vega and Anton Chekhov, Leo Tolstoy and George Bernard Shaw, Ibsen and Ostrovsky, Gogol and Gorky, Rabindranath Tagore and Sholom Aleichem, Stefan Zweig and Arthur Miller, Lillian Hellman and Haldor Laxness, Yan Drda and Martin Andersen Nexo, De Philippo, Nushic, Hikhmet, Heiermans, Figueredo and many, many more.

All told, during the season starting last fall the Soviet theater has staged 977 plays by contemporary authors and 378 classical plays. The total number of plays staged throughout the country—this includes musicals, children's plays, puppet plays and others—comes to 3,541.

Season's Most Popular Productions

The great names in stage, ballet and opera are, of course, to be found on the marquees of the big city houses like the Bolshoi or the Art theaters in Moscow. But fine artists and gifted companies are by no means limited to the famous theaters in the large cities. The theater company of the provincial Latvian city of Daugavpils with a population of 80,000 recently put on a production of *Hamlet* directed by Sergei Radlov that had theatergoers traveling many hundreds of miles away to see it, not to speak of the leading theater critics.

The beginning of the current theater season coincided with the nation-wide celebration of the fortieth birthday of the Soviet Union and many of the productions, therefore, centered on the Socialist Revolution of 1917 and the building of the country. Nikolai Pogodin's *Kremlin Chimes*, one of the most popular of the current plays, tells the story of how the plan for the reconstruction of the economically backward and war ravaged country through electrification was worked out under the guidance of Lenin.

In opera, the most interesting premiere this season was the composer Tikhon Khrennikov's *Mother*, with the libretto adapted from Gorky's famous novel of the 1905 Revolution. Another popular production is *Keep Shining, You Stars* by the Ukrainian playwright Ivan Mikitenko, on Soviet young people's transition from school to lifework. This is also the general theme around which are built Fyodor Knorre's *Two Sisters* and *I Shall Find You* by Yelena Uspenskaya and Lev Oshanin.

Running alongside the standard classics are the plays of Lillian Hellman, George Bernard Shaw, Arthur Miller and other foreign playwrights. A favorite this season is Friedrich Schiller's *Intrigue and Love*.

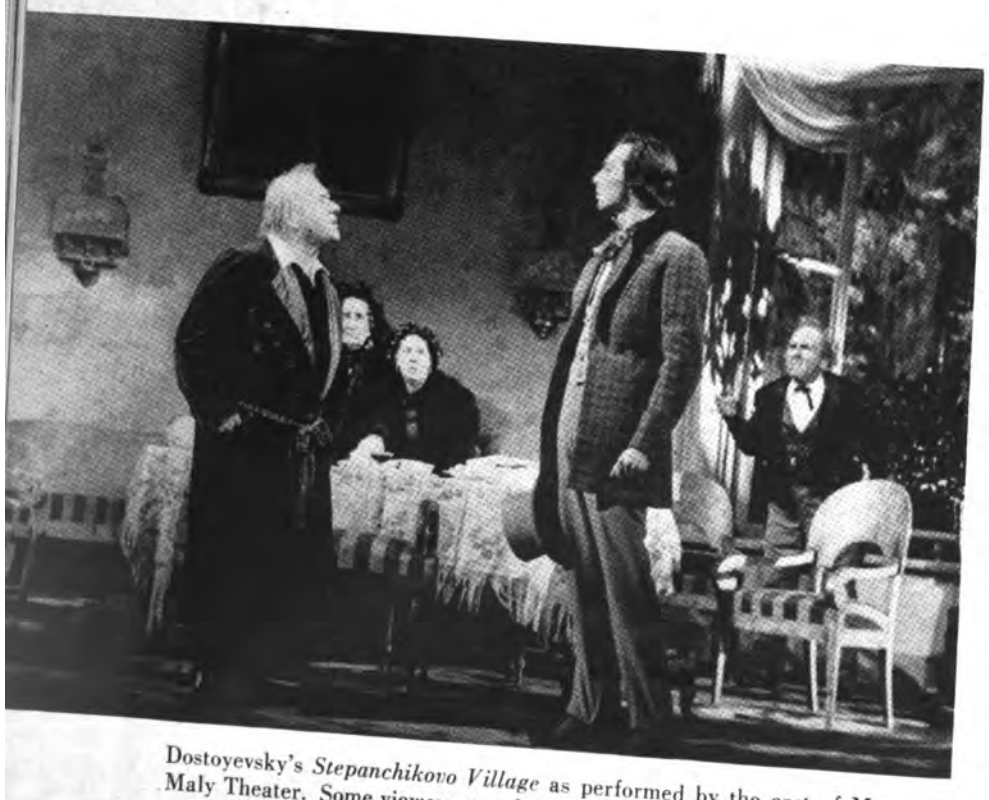
The premiere of Erich Maria Remarque's *Last Stop* was held in a number of cities in the Soviet Union. This German writer's novels *All Quiet on the Western Front, The Road Back* and *A Time to Live and a Time to Die* have long been popular with Soviet readers. Remarque's play, a fiery protest against fascism and the war it brings, is laid in Berlin at the period when Hitler's Germany is crumbling. It was very well received by large Soviet audiences. *Continued on page 59*

Siberia's Krasnoyarsk Drama Theater is among the several that produced *The Morals of Pani Dulskaya* by the Polish playwright Gabrieli Zapolskaya.

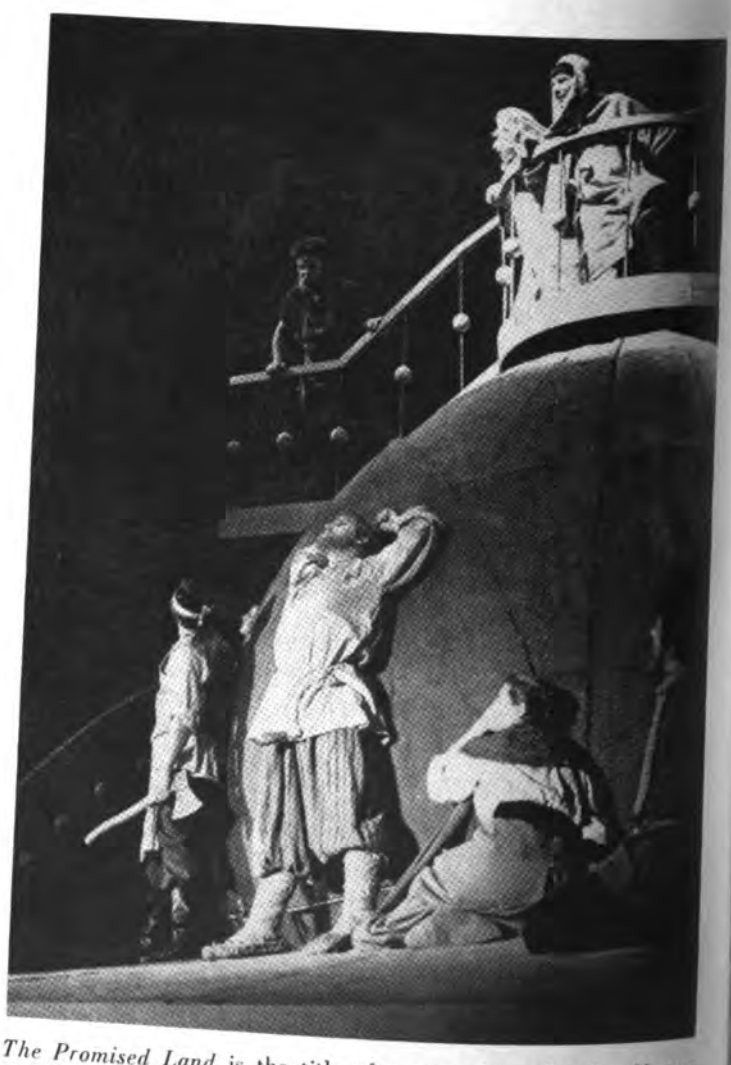
Scene from *The Autumn Garden* by Lillian Hellman at the Moscow Art Theater. Arthur Miller and other American writers are also very popular.

THE THEATER

THIS SEASON *Continued*



Dostoyevsky's *Stepanchikovo Village* as performed by the cast of Moscow's Maly Theater. Some viewers stated that the play dimmed the author's satire.



The Promised Land is the title of a scene from the play *Mystery Bouffe* by the Soviet poet and playwright Vladimir Mayakovsky.

Two other foreign favorites this season are *The Morals of Pani Dulskaya* by the Pole Gabrieli Zapolskaya, a satire on middle class family life in the old days, and *Doctor of Philosophy* by the Yugoslav playwright Branislav Nushic, a comedy of errors laid in old Belgrade concerning a man who tries to transform a wayward and unwilling son into a scholar.

Some Plays Are Controversial

Not every play, of course, was received with great applause. Some faded off the boards very quickly, others were hotly argued pro and con. Perhaps the most controversial play of the current season was *Stepanchikovo Village and Its Dwellers* produced by Moscow's Maly Theater company.

The play was adapted from the Dostoyevsky novel. Many thought the adaptation had very much dimmed Dostoyevsky's brilliant satire and had softened the grotesque outlines of the Stepanchikovo inhabitants. There were others who thought the production admirable, particularly the performance by actor Mikhail Tsaryov as Colonel Rostanev.

Theater attendance will, as elsewhere, vary depending upon the play, but a good production will run to full houses for long periods. The Vakhtangov production of Gerhardt Hauptmann's *Before Dawn* has played 300 performances, but tickets are still at a premium.

With the advent of the motion picture in Russia at the beginning of the century and again with the spread of television in the past half dozen years theater people were worried, as they were in America and other countries, that interest in the legitimate theater would lag. But nothing of the sort happened, nor is it likely to happen.

The theater is very much here to stay, if Soviet audiences are any indication. The curtain will be going up at 7:30 on the Soviet stage night after night, long into the dim and distant future. ■

TAJIK STAR KHANIFA MAVLYANOVA AS MARIA IN OPERA *MAZEPPA* BY TCHAIKOVSKY.

NIKOLAI POGODIN'S PLAY *KREMLIN CHIMES* IS BASED ON LENIN'S PROGRAM FOR THE ELECTRIFICATION OF THE SOVIET STATE. BORIS SMIRNOV (RIGHT) IS CAST AS LENIN.

Disease Is International
HEALING SHOULD BE THE SAME

By **Professor Vladimir Kovanov**, Director, First Moscow Medical Institute

ALL DOCTORS, regardless of nationality, revere the great men of medicine—the Frenchman Pasteur, the Scotsman Fleming, the German Koch, the American Cannon, the Russians Mechnikov and Pavlov. Disease is international and so must healing be.

It has been the collaboration of scientists of all lands which has rid the world of plague, cholera, smallpox and which has found means for combating syphilis, tuberculosis, poliomyelitis and a hundred other diseases that show no respect for national boundaries.

The sharing of experience is an ancient and revered tradition in medicine. We Soviet doctors adhere to that tradition. Our research institutes and clinics are wide open to our foreign colleagues.

In this past year we were host to more than a hundred foreign medical delegations, among them gynecologists from Uruguay, public health workers from India, internists from France, tumor specialists from Belgium, physicians from the United States, Finland and many other countries.

Participating in the proceedings of our 26th Congress of Surgeons were medical delegations from nineteen countries in Europe, Asia and America. A similarly broad international representation marked our 6th Congress on Tuberculosis, our 14th Congress of Internists and the conference convened in Moscow to exchange experience on the treatment of invalids of the Second World War.

Our foreign guests had every opportunity to become acquainted with the work of our medical institutions and examine our equipment, observe operations, meet with physicians in city, town and rural areas. The mutual exchange of impressions, ideas and work under way was always most gratifying. We were learning from each other and pleased to be doing so.

Our medical people were happy to return the visits. Soviet physicians in this past year have participated in forty-four scientific congresses held abroad and have visited clinics, institutes and research laboratories in England, Japan, Denmark, the United States, Poland, Czechoslovakia, Canada and other countries.

Together with other Soviet scientists I attended the International Congress on Cardiovascular Diseases held at Atlantic City toward the end of last year. The congress was a striking example of the importance and value of exchange of medical experience for everyone who participated.

We described clinical application of an altogether new instrument for suturing blood vessels that our scientists and engineers had designed. The description of the instrument and the technique, which in animal experiments kept a transplanted heart functioning alongside the natural one for a whole month, evoked general interest and attention.

We, in turn, learned much from the papers of foreign colleagues on the treatment of coronary ailments and arteriosclerosis of the large blood vessels. Described were methods by which affected sections of these vessels were replaced with plastic substitutes.

We were present at hospitals in New York and Washington where cardiac surgery was performed with the use of hypothermia—lowering the body temperature—and an apparatus for artificial blood circulation was employed. We told of work our surgeons had done in transplanting organs and described the new instruments we used.

There was no hesitation on our part or on the part of our American colleagues in sharing experience that would help us all in treating our patients. When we returned home, we answered innumerable questions about everything we had seen during our trip.

Not long afterward we all learned with satisfaction that an agreement on cultural, technical and educational exchange had been concluded between the Soviet Union and the United States. With such an agreement in operation, the medical personnel of our two countries will be able to broaden exchange of visits and get to know about each other's research work and achievements firsthand. This will be another step in the direction of eliminating the duplication of efforts on a world scale.

Our common aim is to heal, to eradicate disease, to prolong the span of life. The closer our relations, the wider our exchange of knowledge, the faster will we move toward that great objective. ■

A group of participants at the 1957 International Congress on Cardiovascular Diseases take time out for a breath of sea air on the boardwalk at Atlantic City. From left to right are Professors B. Dolgo-Saburov (USSR), J. Kinmonth (Britain), V. Kovanov (USSR), P. Androsov (USSR) and R. Linton (USA).

A few of the scientists who gathered to listen to Dr. Kolthoff's lecture in Moscow, during his recent visit. From left to right: Ivan Alimarin (USSR), Izaak Kolthoff (USA), Alexander Vinogradov (USSR), Harry Irving (Britain), En Jen-ing (China), Victor Spitsin (USSR) and Laszlo Erdely (Hungary).

AMERICAN CHEMIST meets SOVIET COLLEAGUES

PROFESSOR Izaak M. Kolthoff of the University of Minnesota is one of many American scientists to have visited the Soviet Union recently. This is his second visit. The first was twelve years ago.

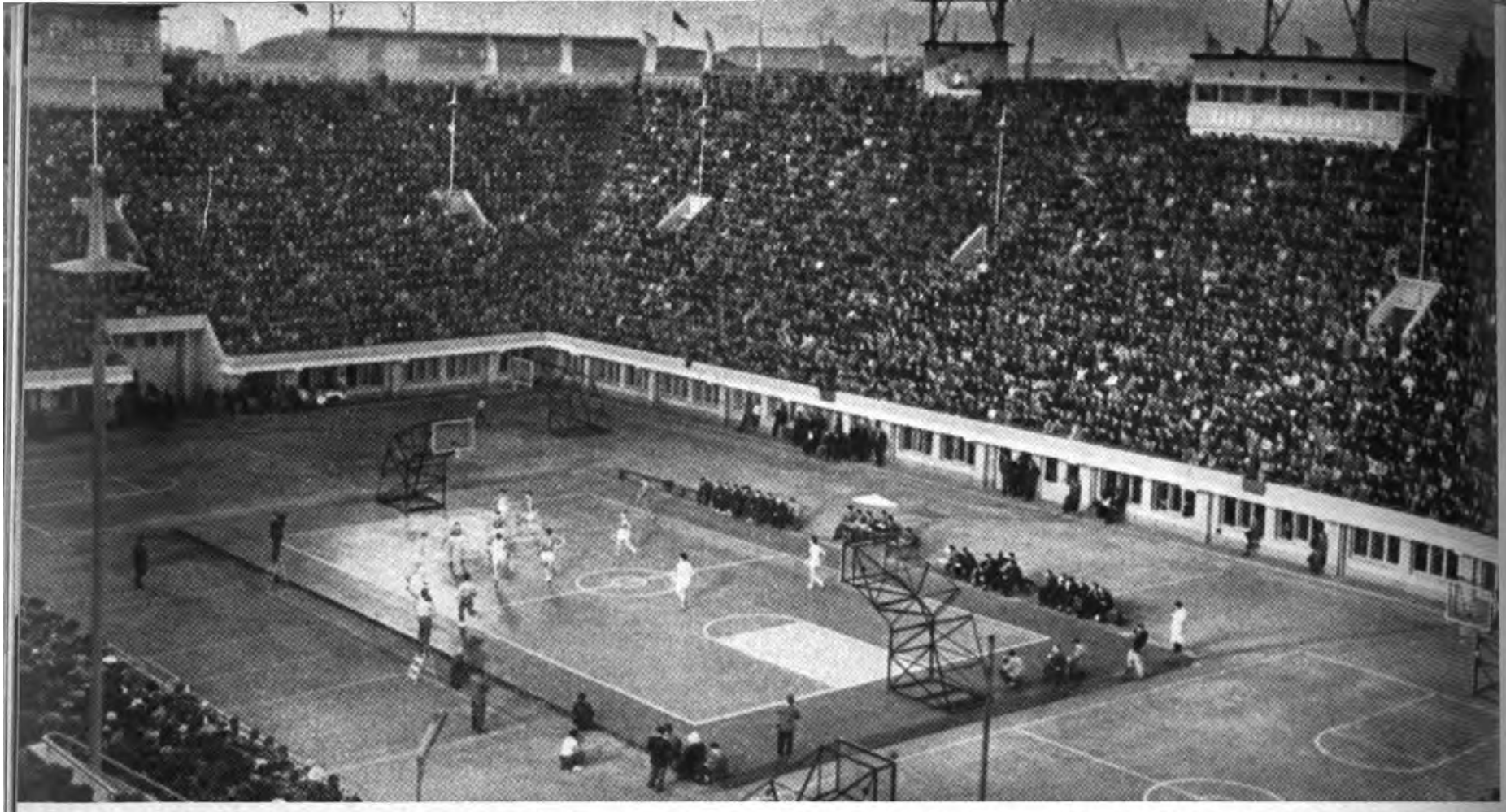
During his stay in the Soviet capital, Dr. Kolthoff participated in a conference on the use of radio isotopes in analytical chemistry. The conference, held under the auspices of the USSR Academy of Sciences, was attended by 500 Soviet chemists and 35 foreign guests.

Dr. Kolthoff lectured to an audience of some 500 graduate and undergraduate students of the Chemistry Department of Moscow University on "Induced Reactions" and paid tribute, in the course of his talk, to Soviet science. "I was truly amazed," he said, "by what I have seen here. I have been greatly impressed by your accomplishments and the interest shown by all your people in the success of our common work."

"I hope," he continued, "that my visit will stimulate the development of contacts between Soviet and American scientists. Scientific research for peaceful purposes requires the cooperation of scientists of both our countries."

Dr. Kolthoff visited the Vernadsky Institute of Geochemistry and Analytical Chemistry and the Institute of Physical Chemistry, met many of the research scientists and teachers and talked to Moscow University students. The high point of his trip, Dr. Kolthoff considered, was the warm and friendly talks he had with such eminent Soviet scientists as Academicians Alexander Vinogradov, Ivan Alimarin and Alexander Frumkin. It is such personal exchange, he thinks, that can do much to further both scientific and international understanding. ■

Dr. Izaak Kolthoff of the University of Minnesota is presented with a souvenir badge commemorating the 200th anniversary of Moscow University.



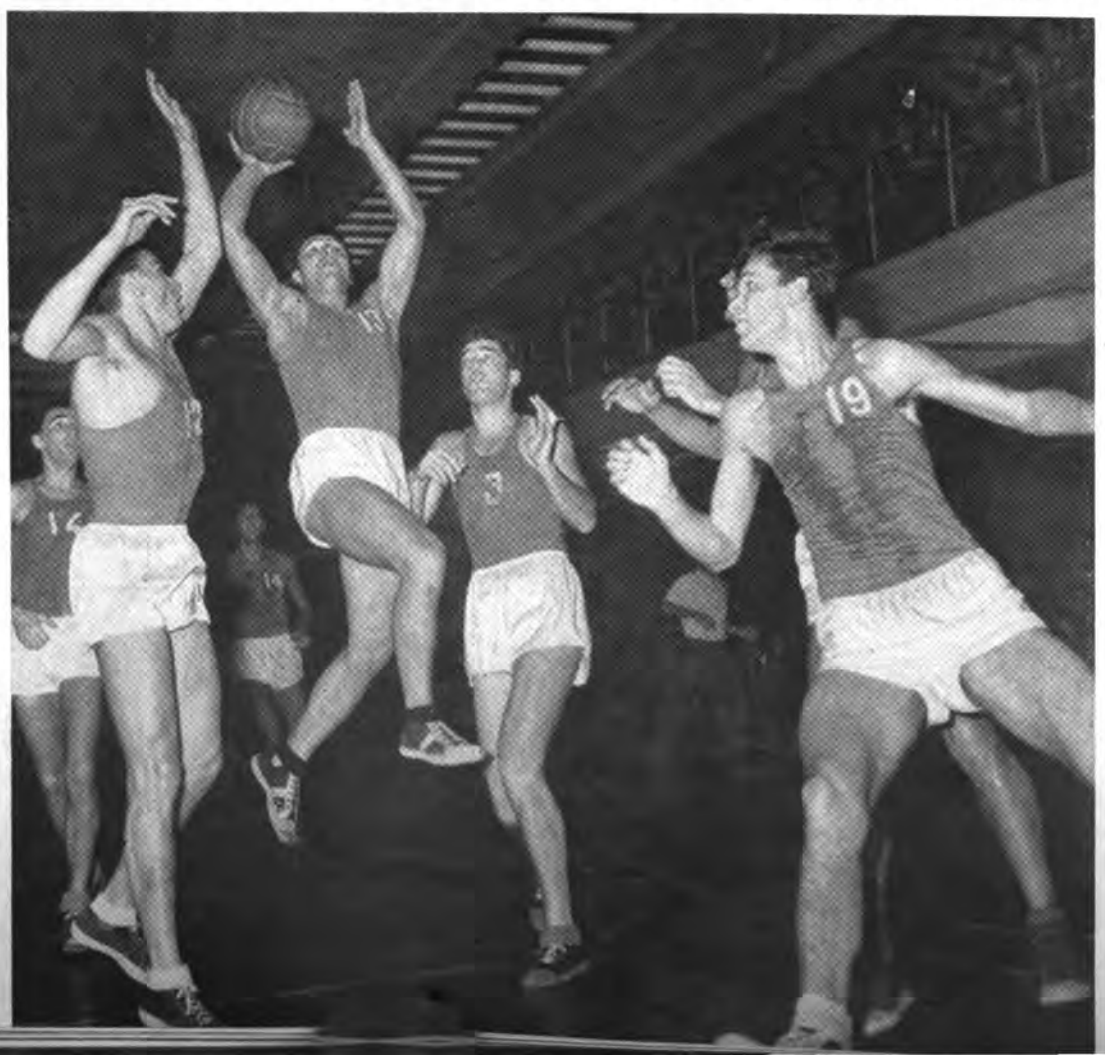
BASKETBALL HAS COME ALONG RAPIDLY IN THE SOVIET UNION, DRAWING THOUSANDS OF FANS TO SUCH COURTS AS THIS OPEN-AIR AFFAIR IN MOSCOW'S LENIN STADIUM.

BUILDING MUTUAL UNDERSTANDING AND FRIENDSHIP

The USA-USSR Basketball Meet

By Victor Kuprianov

TRAINING SCHEDULE OF THE USSR NATIONAL TEAM INCLUDES INTRA-SQUAD GAMES TO IRON OUT STRATEGY.



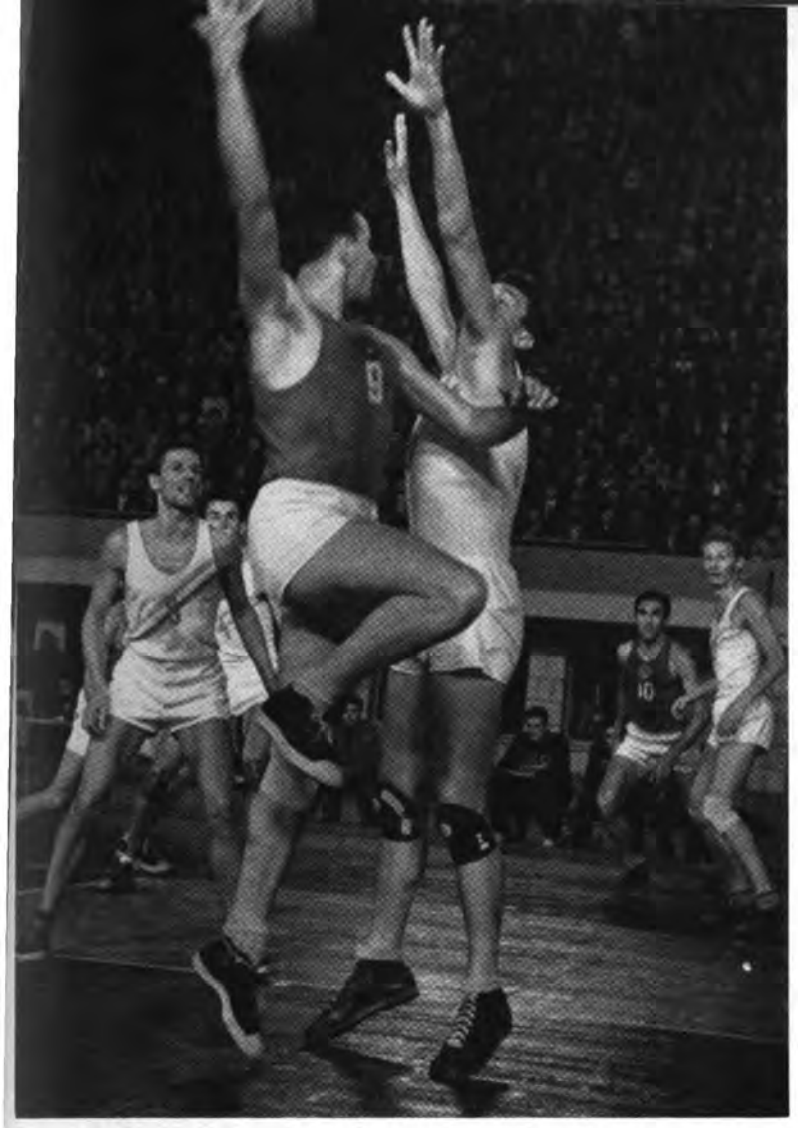
The over-all agreement between the United States and the Soviet Union on exchanges in the cultural, technical and educational fields signed in Washington last January provides for an exchange of athletes and athletic teams.

During 1958 American men's and women's basketball teams, track and field athletes and Canadian hockey squads will journey to the Soviet Union for contests there. At the same time Soviet wrestlers, weightlifters and chess players will come to the United States to meet American teams.

In the following year, 1959, Soviet basketball and track and field squads will travel to the United States for contests, while American wrestlers will visit the Soviet Union.

USSR Illustrated Monthly *plans to cover the exchange meets in the Soviet Union and report on the personnel and preparations.*

The following article by Sports Commentator Victor Kuprianov describes the Soviet preparations for the forthcoming basketball meet scheduled to take place in Moscow in April.



THE DEADLY HOOK SHOT (USSR PLAYER IN FOREGROUND) CAN BE DEVASTATING.

HEADS-UP BALL PLAYING. SOVIET PLAYERS KNOW BALL-CONTROL MEANS POINTS.

THERE used to be a time when mother would tell junior: "Now if you eat your oatmeal you'll grow up to be a big boy and play volleyball in the All-USSR." Times have changed however. Today most mothers would say: "Now if you eat your oatmeal you will grow up to be a big boy and play basketball in the All-USSR."

I am not prepared to say that the increase in the consumption of oatmeal is in any way the result of the growing popularity of basketball, but I am prepared to say that basketball has grown in popularity, and grown tremendously.

Basketball has been played in our country off and on since the beginning of the century but it never caused a ripple of excitement until the 1952 Olympics when we made our debut in big time international competition. The silver medal the Soviet team won in Helsinki made the public basketball-conscious. At home junior would hang up mummy's hatbox and try to sink anything from rubber balls to dad's slippers into it from across the room.

At the 1956 Olympics our team again won the silver medal and fans were beginning to wonder: "Isn't it about time we went out for the gold one?" That means outplaying such a formidable opponent as the Americans, and the skeptics said: "Let's leave well enough alone and be grateful we won the silver medal."

But one must never be satisfied with what one has already attained in sports. The other man is always moving up and if you content yourself with merely marking time, that is the end of you.

After the Olympics, while the fans were shouting "hooray" to the boys who won the silver medal, the coaches were saying: "We are going right back and brush up on our shooting." Our boys were all right on breakthroughs, but when it came to scoring from a distance, the odds were certainly not always in their favor.

Distance shooting is very important now that walking skyscrapers have taken to the game. A squad of tall men could cover the

Continued on next page

BULL-DOGGING AN OPPONENT BY CLOSE GUARDING IS TEAM WATCHWORD AND KEY TO THEIR DEFENSIVE PLAY.

NEARING PAY DIRT. PLAYERS GRAB FRANTICALLY FOR THE BALL UNDER THE HOOP.

USSR WOMEN'S TEAM (IN WHITE) FIGHT FOR REBOUND AGAINST BULGARIANS.

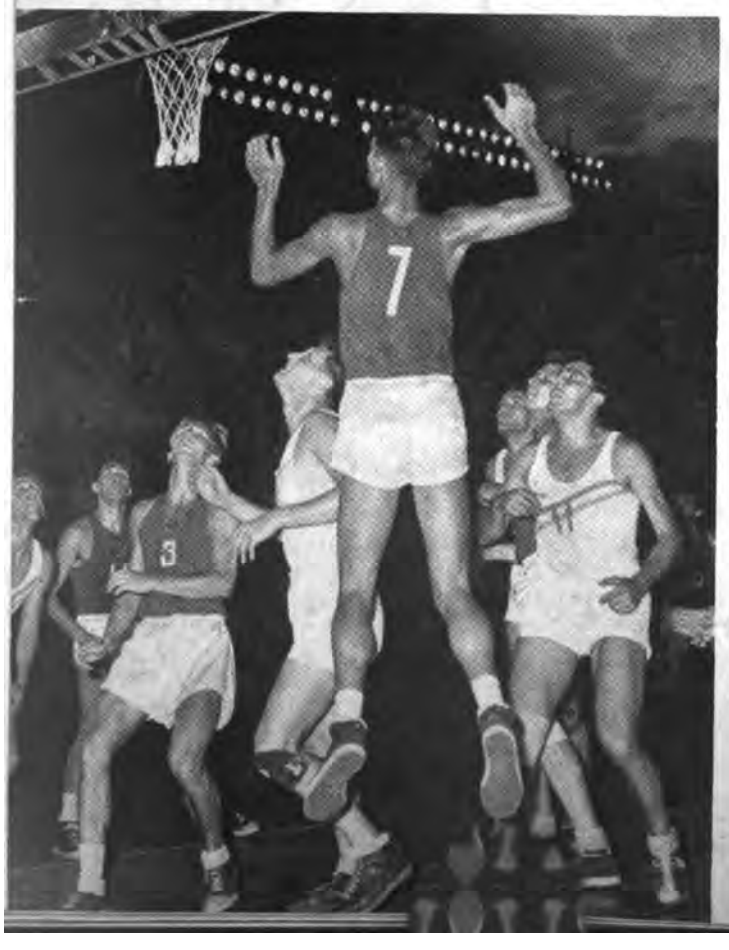
The USA-USSR Basketball Meet

Continued

basket so effectively that the attacking side would need radar to find it. One-hand shots from far away—that's the best antidote for height. And that's what the Soviet team has been working at, and working hard, too.

Another thing that the Soviet team has been trying to perfect is that 'go-out-and-get-that-ball' tactics. That's no easy job and many a player runs through his career without really being able to retrieve the ball. That takes lots of skill, skill takes lots of training and training takes lots of time.

ANOTHER TWO POINTS SWISHES THROUGH THE NET.



Defense tactics is the third thing that the coaches have been working on. Holding "your man" is an art. Our coaches seem to favor holding "your man" so close that he'll think he was born Siamese twins.

How well our players have learned their lesson will be seen in April when the Americans arrive in Moscow to match basketball skill with the Soviet national team.

The All-USSR will probably be the same team that won the European championship. It will be made up of players with an average height of 6 foot 4. Coaches here seem to feel that this is the best height for basketball, since they want a man who can show speed. They don't want actors for the slow-motion newsreels.

That's why the prime consideration in picking the men for the All-USSR will be playing ability and speed. Height is a secondary consideration—but still a help, of course.

The All-USSR will be mainly a team of veterans whose average age is 24 years, although it will range up to 30. However, it will include some hard-playing youngsters who have come up from junior basketball.

Most promising is Alexander Petrov from Baku. He will be graduating from high school this year. He'll be 19 at graduation time, and if he doesn't grow anymore, he'll stand just a wee bit under 7 feet.

The potential high scorer of the Soviet team is Janis Kruminsh, the Latvian lumber-jack who now plays for the Army. If you can reach high enough to measure him, you'll find that your tape will read about 7 foot 3.

The dangerous break-through men are Mikhail Semyonov and Arkadi Bochkarev, also of the Army and both of them boys who will go after any ball at any time. Incidentally, what this duet lacks in feet and inches it makes up in miles per hour.

These are just a few of the likely candidates for the All-USSR. The squad will be finally picked after the end of the first half of the play-off for the USSR title. The men will come from many clubs, and from all over the country. This system of selection leaves the coaches no more than one month to hammer the squad into shape as a team before the Americans arrive.

The All-USSR has a heavy schedule in store for it this season. The culminating point is the world championship tournament in Chile next October. The feeling here is that the USA-USSR meet in April will be the supreme test for both squads.

Soviet basketball fans are very anxious to see the American women's team in action, since the USA girls hold the world title.

The Soviet girls' squad appears to be no less hopeful than the men about their prospects and they feel they could have done better in the world championship meet.

Our players, coaches and fans are enthusiastic over the plan for a home-to-home series in basketball. The USSR has played the USA only twice—at the 1952 and 1956 Olympics—and the feeling is that these meets should be held oftener. We think that these meets should be held regularly at the national level as well as the university and college levels.

Interest here in the April meet runs high. Tickets will be hard to get. The teen-agers are already brushing up on their English pronunciation to be able to talk to the Americans and suggest exchanges of souvenir pins. That's the latest rage here—and the visiting American squad will do well to come abundantly stocked with pins to cope with the rush.

We make no attempt to forecast the scores but one thing we are sure of—the USA team will get a grand reception and—may the better team win! ■

INTER-CITY MATCH: LENINGRAD VS MOSCOW. ARKADI BOCHKAREV (RIGHT) IS ONE OF USSR'S CRACK PLAYERS.

USSR

SOVIET ECONOMY TODAY

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No. 5 (20)—20 Cents

MAY DAY CELEBRATIONS THROUGHOUT THE COUNTRY START WITH A BIG PARADE. THIS ONE IS IN MOSCOW.

USSR

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IN HIGH HOLIDAY SPIRIT, THESE MARCHERS NEED ONLY THE SOUND OF THE LIVELY ACCORDION TO PERSUADE THEM TO STOP AND DANCE ON GORKY STREET IN MOSCOW.

May Day Is Holiday Time

MAY DAY is holiday time in the Soviet Union, celebrated with giant parades and festivities throughout the country.

It was a commemorative day, but of a grimmer sort, long before the Socialist Revolution of 1917. Russian workers met and marched on this traditional working-class holiday, but it was to demonstrate for bread and freedom. On more than one May Day the czar's police and armed troops shot down workers gathered to observe the holiday. Many lost their jobs, many were sentenced to prison at hard labor. But in spite of bans and prohibitions, in spite of jailings and persecution the workers downed tools on May Day to express their will for a better life and their faith that it would be won.

It is different now and has been ever since the peoples of Russia made the country their own. Fittingly, the holiday falls in spring, the season of rebirth. City streets and village lanes are adorned with greenery, flags and pictures. Everything and everyone is festive. It is a day of flowers and bright colors.

May 1st and 2nd are legal, paid holidays. The celebration in every corner of the country traditionally begins with a parade. But this is not the tense demonstration of workers which older people still remember from pre-Soviet times. This is a carnival parade, with song and unrestrained merriment. It is a parade which pictures achievements in industry, farming, science, the arts—colorful with floats and banners, placards and streamers.

May Day traditionally commemorates the unity of working people the world over, and delegations from many countries come to the Soviet Union at this time to join in the celebration.

In the evening the streets fill with crowds again, to dance to orchestras and to enjoy concerts by leading artists performing from stages built in the big open squares and parks. May Day balls at factory clubs and concert halls last far into the night, and home parties are legion.

The second day people spend strolling in the country or watching the big soccer teams play. The older people rest and exchange reminiscences of the older May Days which made this happy spring holiday possible for millions.

More pictures on following pages

THE MERRY-MAKING IN STREETS DECORATED WITH GAY BANNERS AND MULTICOLORED LIGHTS CONTINUES UNTIL THE WEE HOURS OF MORNING.

May Day Is Holiday Time *Continued*

WITH THE LONG WINTER FINALLY OVER AND THE COMING OF SPRING, THE BOATING AND FISHING SEASON BEGINS ON LAKES AND RIVERS.

FOREIGN GUESTS NEAR KREMLIN WALL DURING CELEBRATION WAVE TO MUSCOVITES.

SUNNY WEATHER GIVES THE CYCLISTS AND HIKERS A DAY IN THE COUNTRYSIDE.

HOLIDAY OPEN-AIR CONCERTS GIVEN BY LEADING ARTISTS DRAW BIG CROWDS.

THE CITY STREETS BECOME VERITABLE FLOWER GARDENS ON THE MAY HOLIDAY.

NEW IRON AND STEEL MILLS ARE GOING UP TO SUPPLY THE GROWING NEEDS OF THE ENGINEERING INDUSTRY AND CONSTRUCTION PROJECTS.

The Soviet Economy Today and Tomorrow

By Iona Andronov

TAPPING OF THE NEW OIL FIELDS HAS GIVEN BIRTH TO NEW REFINERIES.

IN ALL FIELDS of national endeavor—heavy industry, construction, farming, consumer goods production—the Soviet economic graph moves on a steadily rising upward curve. This is no jagged graph marked by high peaks and low valleys which cancel each other out over a period of a decade or two, but the steadily upswinging curve of a healthy and prospering economy.

With the Soviet Union accounting for approximately 20 per cent of the world's industrial output, the effect upon world economic stability is great, the potential immeasurably greater. Here is an unparalleled market for world goods, for that mutually profitable trade that means more prosperity, not for the Soviet Union alone, but for every one of the countries with which it exchanges goods.

In the past year alone, Soviet foreign trade increased by 13 per cent, from 29 billion rubles in 1956 to 33 billion in 1957. And this is only a fraction of the possibility. The Soviet Union is ready and eager to expand its trade with any interested country on mutually profitable terms.

Factory and Farm

The most characteristic feature of the Soviet economy is its activity. Every worker participates in the busy economic life of the country, and everyone feels it in terms of greater personal income and improved well-being. People in city and country are training for better-paying skills. Employment opportunities are wide open in industry, agriculture, the professions.

In every one of the 15 republics which make up the Soviet Union, this activity is reflected in production figures that increase sharply every year. These annual increases, that in many cases run as high as 23 per cent, hold for all branches of industry, from metal smelting to machine production, from cotton processing to the finished textile.

Both in consumer goods and in heavy industrial production, the Soviet Union has long ago recovered from the enormous destruction of the war. In 1956, industry was turning out three and a half times

more goods than in prewar 1940. For 1957, the rise was 10 per cent over 1956, although only 7.1 per cent had been planned for.

The country now produces in one year the same quantity of industrial goods it previously turned out in 15-20 years.

Farm production has moved along more slowly than industrial development, but its pace has been rapidly accelerating, with more land being sown each year, with constantly increasing crop yields and with more livestock being raised.

In the past four years, in spite of periodic drought, the gross wheat harvest jumped by 40 per cent; sugar beet by 70 per cent; and corn by nearly 100 per cent. Production of meat was boosted by 38 per cent and milk production by nearly 50 per cent.

Early last year Soviet farmers pledged themselves to reach the high American per capita output of meat and dairy products within the immediate future. The 1957 figures show that in milk and butter production this goal has been practically reached, and that good headway has been made in increasing meat production as well.

This year the plan is to increase total gross farm output by 17 per cent and total gross industrial production by 7.6 per cent. The first months of the year already indicate that these figures will be exceeded.

Employment and Incomes

In this past year, 800 large new plants have been added to the country's industrial network and 849 new state farms established.

The number of workers employed has increased by 2,100,000. It is estimated that 2,300,000 more will be needed this year. The total number of employed workers will have risen to 54,400,000 from the 31,200,000 figure of the prewar year 1940. And, as it has for every one of the past 25 years, the Central Statistical Board reports a growing need for man power.

Ever increasing budgetary allocations are spent for schools and classes that train for better jobs. Last year 7,800,000 workers took these free courses, 300,000 more than in 1956.

In all parts of the country there is a constant demand for more engineers, doctors, teachers—every one of the professions. This year, 837,700 students will graduate from colleges—64,100 more than last year—to swell the total of six million specialists now at work.

Of the total national wealth produced, a greater sum is budgeted yearly for education, grants-in-aid to mothers, pensions and social insurance, public health, vacation accommodations, and other welfare items.

A RECENTLY BUILT PLANT OF ARTIFICIAL FIBER. PRODUCTION OF ALL KINDS OF CONSUMER GOODS IS BEING CONSTANTLY INCREASED TO SATISFY THE GROWNG DEMAND.

Housing Construction

The building materials industry, which until recently lagged behind others, increased its production by 23 per cent last year, a record figure. Everywhere in the Soviet Union you see construction under way, in both city and country.

Housing, a seriously short segment of the Soviet economy, is expanding with rapid strides. Plans for 1957 called for construction at state expense of some million and a half apartment units.

By mid-year, however, it was found possible to raise the figure, and the latest reports show that 1,600,000 new apartments were tenanted during the year—a third more than in 1956. Besides, 770,000 dwellings were built in rural areas, mainly by collective farmers. Incorporated in the new housing projects are stores, social and recreation centers, stadiums, schools and clinics in large numbers.

The annual rate of housing construction in the Soviet Union is now equivalent to 10.2 apartments per thousand of population compared with 6.7 in the United States, 6.2 in France and 5.9 in Great Britain.

Literally every citizen enjoys some, if not all, of these payments and privileges at the expense of the state. For 1957, the budget allocation for these purposes was originally set at 192 billion rubles. But final calculations by the year's end showed an expenditure of 201 billion rubles. This is almost a third of total expenditures allocated in the national budget.

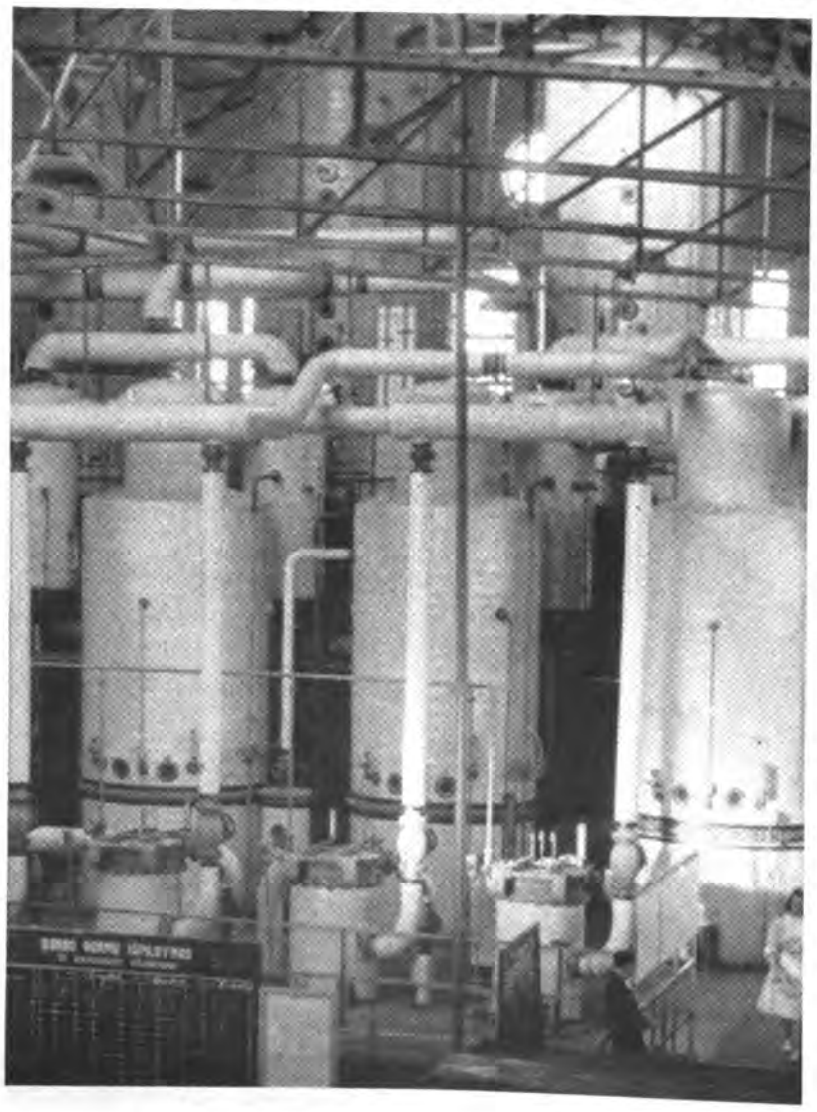
What these figures indicate when translated into the citizen's day-to-day living is more personal income and greater purchasing power. In 1956 retail trade turnover increased by 9 per cent and in 1957 by another 14 per cent.

Old-age pensions were raised last year. The total paid out was 58 billion rubles as compared with 36.5 in 1956. Transition to a shorter working day is under way—this without reduction in wages. The earnings of factory and office workers in the lower wage brackets have been raised and this group has been exempted from the payment of taxes. Consumer prices for food and other necessities have been systematically reduced, and the quantity of consumer goods available has increased.

Continued on next page

THE COUNTRY'S WHEAT OUTPUT JUMPED BY 40 PER CENT IN THE PAST FOUR YEARS. OTHER BRANCHES OF AGRICULTURE REGISTERED SIMILAR OR EVEN LARGER INCREASE.

A NEW SUGAR REFINERY. PROCESSING PLANTS ARE BUILT ALL OVER THE COUNTRY.



The Soviet Economy Today and Tomorrow

Continued

The steady improvement in living conditions and better medical facilities have increased longevity and sharply reduced the death-rate—from 18.3 per thousand in 1940 to 7.5 today. There has been a big drop in infant mortality. In 1957, only 45 out of every 1,000 newborn infants died before they reached the age of one year; in 1940 the figure was four times as large—184.

Goals for Tomorrow

On the basis of the expansion of heavy industry, the Soviet Union has reached a point of development at which it can sharply expand production of consumer goods. Within the near future it will be able to supply all calls for these goods which have increased tremendously in the past few years.

An objective of equal importance is that of ending the present housing shortage in the next ten or a dozen years. This, too, is altogether possible in view of the expanding Soviet economy. This year a third of the total allocations for construction in all areas of the economy will be spent on housing. There are more new houses being completed now than ever before in the country's history.

That the objectives set for tomorrow are very real and very practicable is witnessed by economic progress in the past decades, which, except for the interruption of the war, has moved steadily forward. This is a factor of socialist planning—continuous development without fear of overproduction.

It is over-all, integrated planning which combines the thinking and experience of the country's millions of workers and farmers. It makes possible the benefits of automation without its hazards of unemploy-

ment. It is able to utilize for the public good ideas and inventions to save valuable time and labor which can be used more productively elsewhere.

All-round mechanization and automation is being introduced wherever possible. Obsolete equipment is being replaced or modernized. Last year alone more than 1,500 new types of machines and mechanisms were put in production.

The country's almost inexhaustible wealth of natural resources is being put to ever more effective use. New industrial centers are being built in regions where natural deposits have been found. Key industries are in process of expansion.

Increases are planned for construction development in the chemical industry by 50 per cent, in iron and steel by 42 per cent, and in iron ore mining by 73.4 per cent. Construction and development in basic industry will accelerate the pace of the whole economy.

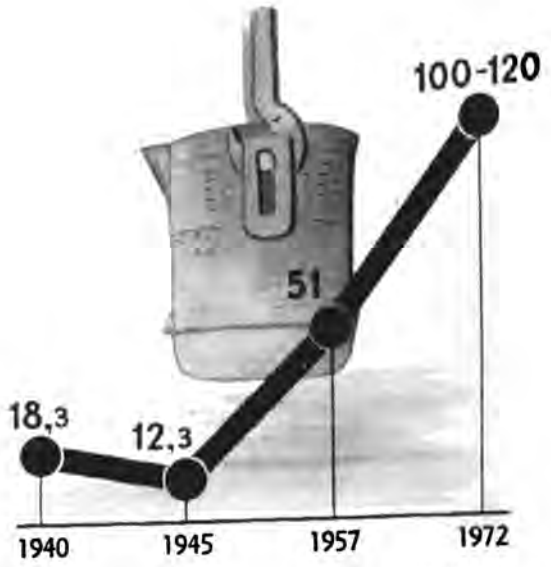
But even these large plans give only a preview of the potential of the Soviet economy. Additional evidences of this great potential are the launched earth satellites, the production of super high-speed jet and turboprop passenger planes, the level of Soviet scientific development in mechanics, metallurgy, chemistry, radio-engineering and automation.

Such phenomena as super-conductivity, super-pressures of a hundred thousand atmospheres, super-temperatures of a million degrees, and those remarkable phenomena which occur at temperatures close to absolute zero are today's research problems and tomorrow's industrial practices.

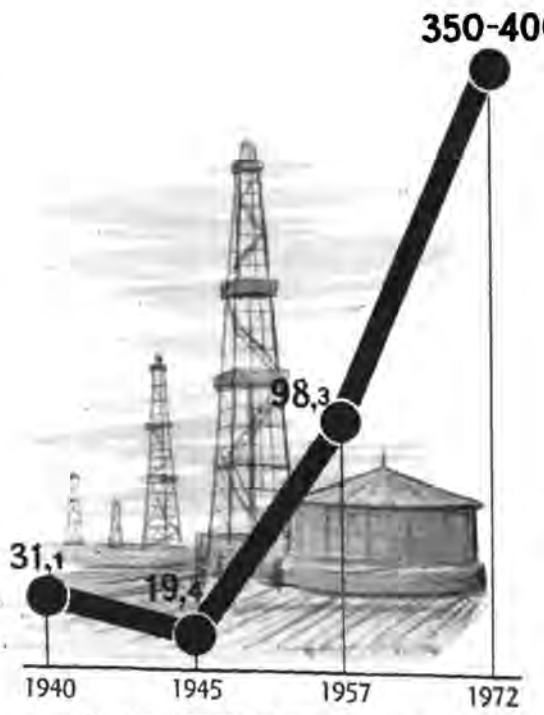
The research findings in electronics, telemechanics, semi-conductors and atomic physics will in the near future be used to produce cheap power to develop industry and to manufacture less expensive and better consumer goods. The first atomic electric station in the world, set up in the Soviet Union in 1954, is likely to change the character of power production. Atomic electric stations with capacities of 200,000 to 400,000 kilowatts are now going up.

The higher level of production will be greatly facilitated by further improvements in the structural make-up of the country's economy. Last year the Supreme Soviet—the national legislature—adopted a decision to decentralize management of industry, which has already proved most beneficial in raising both quantity and quality of production. The last session of the Supreme Soviet held in March decided to reorganize state-owned machine and tractor stations which had been servicing collective farms on a contract basis.

Under this decision the collective farms will be able to purchase tractors, harvester combines and other machinery needed for their field operations, while the machine and tractor stations will be transformed into repair and technical service stations. The reorganization will provide for more efficient and widespread use of agricultural machinery and will stimulate the creative initiative of farmers in making better use of the potentials of collective farm production. This will undoubtedly result in a new advance of all branches of agriculture with beneficial effects on food and light industries. The country's population will receive more and cheaper consumer goods and the collective farmers will benefit from increased incomes.



STEEL PRODUCTION IN MILLIONS OF TONS



OIL PRODUCTION IN MILLIONS OF TONS

Long-Range Planning

Socialist planning must peer into the future, it must see a long way ahead. Being drafted now is a plan for the country's economy for the years between 1959 and 1965.

The new plan runs for seven years, a longer period than the previous five-year plans. The longer period is to allow for new and unforeseen problems which inevitably arise, and to provide sufficient time to solve them. This contingency was not allowed for in previous plans. This seven-year plan fits into a longer view fifteen-year plan.

These are the major elements in this grand over-all plan for industry and farming. In per capita production of nickel, chromium, manganese, sugar, wheat, flax and several other products, and in numbers of hogs and sheep raised per capita, the Soviet Union has already reached the level of the world's leading producers.

The plan predicts that for farm production as a whole, the level of the world's leading producers will be reached in approximately six to seven years. The same length of time will be required to reach the leading production level for iron ore, coal, cement and woolen fabrics. For many industrial goods, however, considerably more time will be needed.

In general, the long-range plan requires the doubling or tripling of

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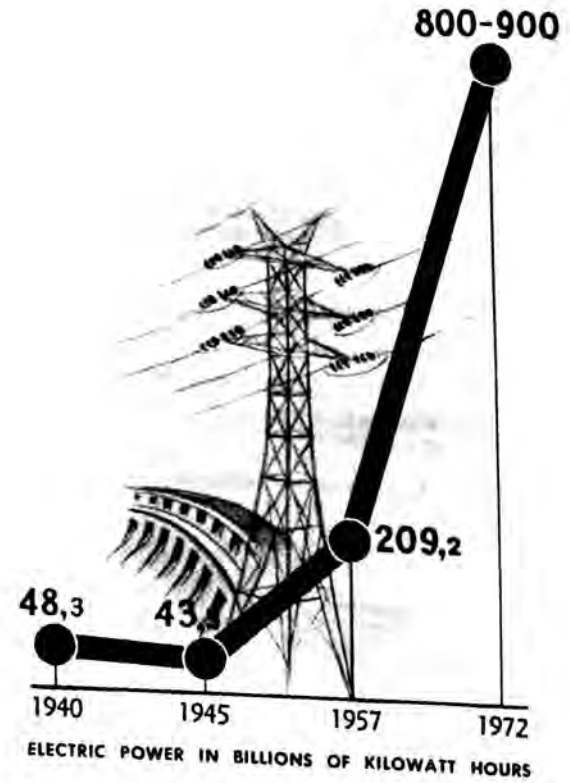
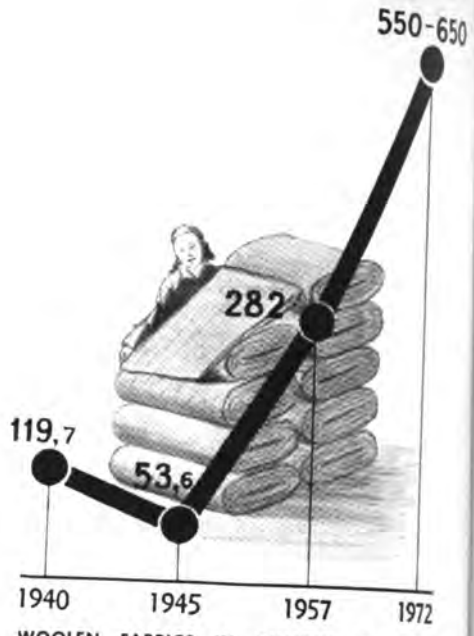


ELECTRIC POWER IN BILLIONS OF KILOWATT HOURS

PUBLIC HEALTH BUDGET IN BILLION RUBLES

PUBLIC EDUCATION BUDGET IN BILLION RUBLES



WOOLEN FABRICS IN MILLIONS OF METERS

LAST YEAR PRODUCTION OF TEXTILES WAS ALMOST EIGHT BILLION YARDS.

The Soviet Economy Today and Tomorrow

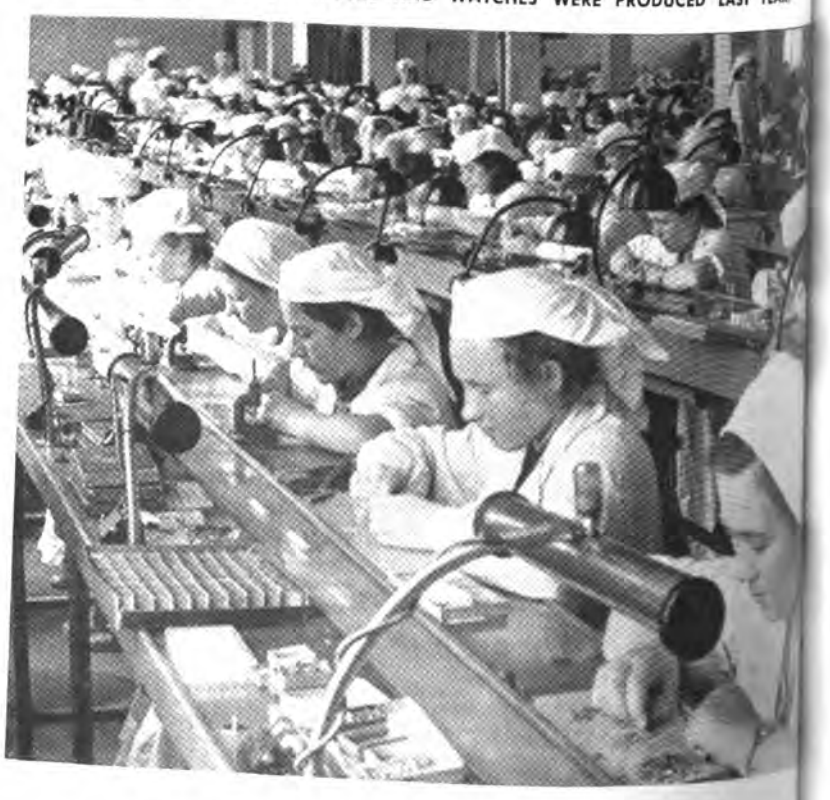
Continued

production in key branches of industry. Preliminary forecasts indicate that in the 15-year period, Soviet annual industrial output can build to these levels: in steel, to 100-120 million tons; in coal, to 650-750 million tons; electric power, 800-900 billion kilowatt-hours; cement, 90-110 million tons; sugar, 9-10 million tons; woolen fabrics, 600-700 million yards; leather footwear, 600-700 million pairs.

If past experience is to serve as guide, this is not rash speculation. The more likely possibility is that 15 years will see even more accomplished than is predicted by the plan.

The material possibilities are at hand. Given a climate of international good will and peace, an expanding Soviet economy presents a challenge in peaceful competition to raise the world's standard of living to the high level which progress in science and technology makes altogether possible today. ∎

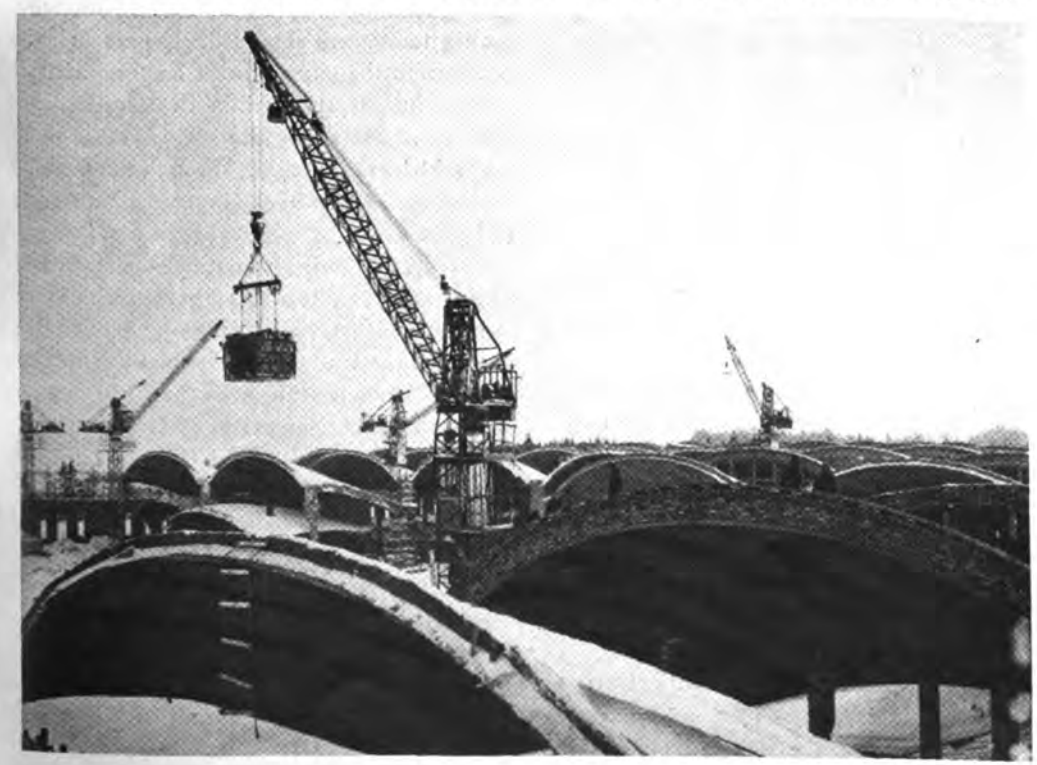
MORE THAN 23.5 MILLION CLOCKS AND WATCHES WERE PRODUCED LAST YEAR.



REFRIGERATORS AND OTHER HOUSEHOLD APPLIANCES ARE IN EVER GREATER DEMAND AS CONSUMER BUYING POWER RISES.

THERE IS ALWAYS AN EAGER MARKET FOR THESE ECONOMICAL LOW-PRICED *MUSCOVITES* AS WELL AS FOR LARGER CARS.

A CONSTRUCTION SITE TYPICAL FOR THE GROWTH OF THE COUNTRY'S CONSUMER GOODS INDUSTRY.



THIS TYPE OF PRODUCTION IS ALSO CONSTANTLY GROWING.

TOURISTS WELCOME

A GROUP OF BRITISH FARMERS DURING THEIR STAY IN MOSCOW. LIKE MANY OTHER FOREIGN GUESTS THEY DROVE THEIR OWN CARS ON A TOUR THROUGH THE SOVIET UNION.

THE LANGUAGE BARRIER IS NO OBSTACLE FOR THEM.

WITH SUMMER just around the corner, more and more tourists are arriving in Soviet cities and villages from all countries of the world. And they are met by welcoming people who are as interested in the visitor as the visitor is in them.

In 1957 the Soviet Union was host to more than a million foreign guests. While many tourists come alone, by far more prefer to travel in groups, with people of similar interests, trades or professions. It may be a group of farmers who are particularly interested in visiting collective farms to get a picture of Soviet agriculture, or a group of physicians who come to attend a congress.

Whatever their work and interests, whatever their views or attitudes on the Soviet Union, they will be received with that traditional hospitality on which foreign travelers unfailingly comment. They can, if they choose, visit not only museums and places of historic interest, but factories, farms and research institutes to see the Soviet people at their day-to-day work.

Dozens of tours crisscross the country. During the current travel season new ones have been added, to Siberia, the Baltic Republics, Moldavia and Western Ukraine. Ten additional tours are now being worked out.

Last year, for those wishing to travel through the country in their own cars, automobile tours were arranged. They include the route from the city of Brest on the country's western border, through the Byelorussian capital city of Minsk, to Moscow. Another route is mapped from Moscow, through the Ukraine to the Crimea, one of the best vacation resorts in Europe.

Through Intourist, the Soviet state-owned travel agency, visitors are provided with every convenience for comfortable and pleasurable touring at moderate rates. Intourist maintains business contacts with more than 150 foreign firms and travel agencies in almost every part of the world, including the United States.

Intourist does much more than meet visitors halfway to make their stay in the Soviet Union memorable. To facilitate travel between Soviet cities, often removed from each other by great distances, Intourist has arranged for free passage between any two cities on a tourist's itinerary within a limit of 600 miles. Foreign guests pay only 25-50 per cent of the actual cost of railroad travel and 50-84 per cent of

GUESTS FROM ICELAND IMMEDIATELY BECAME FRIENDLY WITH MOSCOW'S PIGEONS.

AMERICANS ALBERT AND DAVID MESLIS DECIDED TO PURSUE A MOTORBIKE TOUR.

the cost of plane travel. Tourists also enjoy a privileged rate of currency exchange which gives them 10 rubles to the dollar instead of the official rate of four, and are given 25 rubles a day for incidental expenses.

On several international and domestic airlines new jet planes have been introduced in recent years. The cost of travel on these fast airliners is roughly equivalent to railway fare. Besides the saving in money, there is also a considerable saving in time, compared not only with train travel but even with other types of planes.

The time element is a rather important factor, considering the distance from city to city in so large a country, and also the distance between West European countries and the Soviet Union. Agreements between Soviet airlines and those in major European cities makes it easy for a tourist to get to the Soviet Union from practically every country.

For the convenience of foreign guests, Intourist sells a special ticket for complete tour services that covers hotel, food, excursions, travel between cities, and other items. The cost runs anywhere between 70 and 700 dollars, depending upon services required and length of stay. For low-income travelers—students, for example—service costs have been reduced by 25 per cent. In the off-season period, from October to May, travel costs for all tourists are lower by a fourth compared with the summer months.

Other services have been introduced in the past two or three years that make the life of a tourist easier. For example, the border, customs and currency formalities have been simplified. Collective documents prepared for groups are used more extensively. All large border airports, seaports and railroad stations now have foreign exchange offices.

Expanding tourist travel, fostered by the Soviet Union and growing from year to year, has an importance far greater than the purely commercial. There is no better way of improving understanding between countries than through the exchange of visits between their citizens. *More pictures on following pages*

TOURISTS THE WORLD OVER ARE QUITE SIMILAR, AND THEY ARE EASILY SPOTTED BY A MOST CASUAL GLANCE.

BRITISH M.P.'S OSBORNE AND KERBY WERE AMONG THE MANY FOREIGN GUESTS RECEIVED BY NIKITA KHRUSHCHEV DURING THE RECENT MONTHS.

NETHERLANDERS OF THE BUILDING TRADES INSPECT A MOSCOW HOUSING PROJECT.

TOURISTS WELCOME

Continued

FINNISH GROUP HAS BEEN INVITED TO TOUR THE SOVIET PARLIAMENT BUILDING.

GERMAN FARM AND FORESTRY GROUP INSPECTS THE NEW *VOLGA* CAR ON EXHIBIT.

ITALIAN CONDUCTOR CARLO ZECCHI (RIGHT) WITH SOVIET COMPOSER YURI SHAPORIN.

ELIZABETH TAYLOR WELCOMED IN MOSCOW ON A RECENT VISIT.

EMINENT SOVIET PAINTER ALEXANDER GERASIMOV PRESENTS HIS WORK TO MRS. ROOSEVELT.

NOBEL PRIZE WINNER SELDEN WAXMAN WAS AMONG U. S. VISITORS.

CZECHOSLOVAK MINERS, ON TOUR IN THE SOVIET UNION, FIRST WANTED TO VISIT A MINE.

ITALIAN PEASANTS GET WARM GREETING AS THEY VISIT A FARM.

DOCTOR W. HORSLEY GANTT IS BEING SHOWN AN EXPERIMENT TO DEMONSTRATE THE EFFECTS OF NEW MEDICAL PREPARATIONS AT THE PAVLOV INSTITUTE OF PHYSIOLOGY.

BUILDING MUTUAL UNDERSTANDING AND FRIENDSHIP

Pharmacologists Exchange Visits

By Dmitri Petrov

THE MUTUAL VALUE of the scientific exchange program was once again evidenced in the recent visit of a group of American pharmacologists who spent three busy and instructive weeks in the Soviet Union. They worked out their own travel program and toured the medical institutions and industrial plants they had selected to visit in Moscow, Leningrad and Kharkov.

During their stay in Moscow the American guests spent several days observing work in progress at the Chemico-Pharmacological Institute, especially in the production of new medical preparations. At the Therapeutics Institute of the USSR Academy of Sciences they were invited to examine drugs and research procedures used in testing effects of treatment for various ailments, particularly cardiovascular diseases. The group also visited the Institute of Pharmacology and Chemical Therapy, the Institute of Medicinal Plants, and met with officials of the Ministry of Public Health and members of the Academy of Medical Sciences.

American pharmacologist Dr. Maurice Nance commented on the work being done. He said that "Soviet doctors are working boldly. That is why they are getting good results, both in their clinical and theoretical research."

In Leningrad the visitors spent considerable time at the Institute of Experimental Medicine and went through the Chemico-Pharmaceutical Factory. In Koltushi, near Leningrad, they studied work being done at the Pavlov Institute of Physiology.

They also visited research institutes and laboratories working in diseases of the brain, pediatrics, obstetrics and gynecology. In Kharkov they saw a plant for the production of experimental medical equipment and visited a pharmaceutical plant. Dr. W. Horsley Gantt, professor of psychiatry from Baltimore, made a trip to Sukhumi, a town on the Black Sea, to observe scientific work being done there.

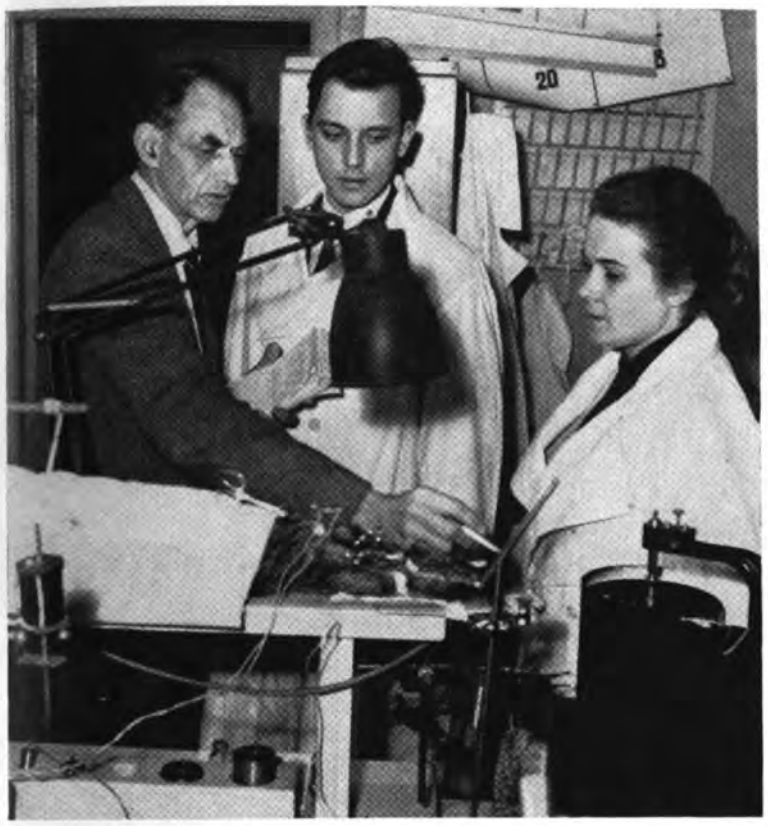
The leader of the delegation, Francis Grant who is director of the Smith, Kline and French Laboratories, stressed the value of the visit and the continuing need for contacts between the two countries.

"Our stay in the Soviet Union," he said, "was fruitful. We made extensive observations and carry back with us most interesting impressions. The attitude of the Soviet people was one of rare friendliness and cordiality, from the young girl packer we met at the Kharkov Chemico-Pharmaceutical Factory to the eminent scientists we talked to. Everywhere we were met hospitably."

He went on to say: "The medical industry of your country is making good progress. I am certain it will go on to outstanding achievements. Laboratories and institutes are splendidly equipped and are staffed by high-quality specialists. Our common aim is to establish businesslike and mutually advantageous relations in the drug trade. We are much in need of these kinds of contacts and we will do our best to expand them in every way we can."

Charles Scull, another member of the delegation, head of one of the departments of the same firm, spoke of the high morale and enthusiasm of workers in the Soviet medical industry. "For me," he said, "it was news to find that in the Soviet Union specialists in different, and often only remotely related, branches of medicine work together to solve problems. Because of this, there is no narrowness in scientific work. This approach makes for greater coordination. With such an excellent organization in the medical industry and with this coordination of work, Soviet science will undoubtedly move on to great successses."

During the stay of the American pharmacologists, five Soviet specialists in the manufacture of pharmaceuticals and medical equipment, headed by Alexander Natradze of the Ministry of Public Health, left for the United States on an exchange visit. ■



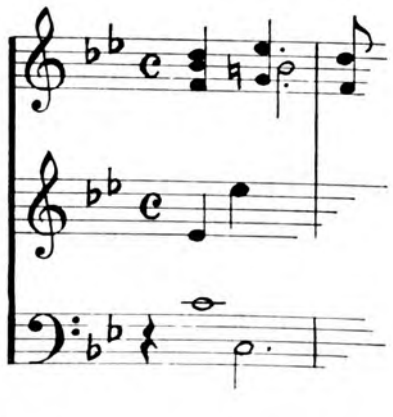
An experiment on conditioned reflexes is being demonstrated for the guests at one of the laboratories of the Pavlov Institute of Physiology.

During a visit to the Moscow Institute of Pharmacology and Chemical Therapy Americans exchanged new medical preparations with Soviet colleagues.

Professor Ervand Airapetyants, of the Pavlov Institute of Physiology, answers questions for the American visitors.

American pharmacologists, shown at a pharmaceutical factory in Leningrad, commented on efficient organization of the medical industry and modern equipment in the labs visited.

SYMPHONY ORCHESTRA OF OREKHOVO-ZUYEVO TEXTILE WORKERS PERFORM AT THEIR PALACE OF CULTURE.



Eighty-Man Amateur Symphony Orchestra

By Sergei Zharkov

THE STAGE lights up on a symphony orchestra of eighty. The conductor makes his bow and the crowded concert hall is filled with the beautiful melody of Tchaikovsky's *Iolanthe*.

The last chord, and a thunder of applause bursts from the audience, interspersed with cries of "Bravo . . . Mikhail . . . Maria . . . Yuri. . . ." An unusually familiar audience, the stranger thinks, to be calling these formally-clad musicians by their first names.

But this is an informal symphony orchestra and a personal audience. The big man at the double bass is Yuri Dyukov, a forgeshop worker; the pretty cellist is Kapitolina Beliayeva, a weaver; the young bassoonist alongside her is Yuri Shibanov, a fitter in the bleaching mill. Most of them work at the Orekhovo-Zuyevo Textile Mills, either in the shops or offices. A few of the musicians are students at the textile school and, to fill out, there is a schoolteacher or two and a designer. All amateurs and all good musicians.

Orekhovo-Zuyevo is an industrial town in the central part of the Soviet Union with a population of about 120,000. Although it has a number of other kinds of industrial plants —chemicals and instrument-building among them—its major industry is textiles, with 700,000 yards of fabric a day turned out by the eight mills of the giant Orekhovo-Zuyevo plant.

The plant's social and recreation center, or the Textile Workers' Palace of Culture as it is called, has a variety of amateur circles. Half a dozen years ago the amateur singers, dancers, actors and musicians got together and put on a production of the opera *Puss in Boots*, based on motifs from 17th century Charles Perrault's fairy tale. It was staged at the Palace of Culture.

The production was interesting, but the musical accompaniment, which was provided only by a pianist, was something less than adequate. This was a point on which both musician and audience were in complete agreement, and someone suggested that an orchestra be formed to prepare for future productions and perhaps to arrange symphony concerts, too.

The amateur musicians laid the project before the plant's trade union committee, which finances the Palace of Culture and its activities, and 200,000 rubles were allocated for the purchase of musical instruments.

That was the simpler problem solved. The much more difficult one was to find musicians. There were plenty of music lovers at the mills, but few of them could read music. David Push, the conductor of the future orchestra, and a fine musician—he was educated at the Sverdlovsk Conservatory—had no recourse but to train his musicians from the ground up. It meant three or four hours of hard work every evening after a day at the mills for these future violinists, cellists, clarinetists, percussion players.

Some of them found it hard going, this constant and everlasting repetition of each musical phrase, but they kept at it. Cellists Kapitolina Beliayeva, a weaver, and Galina Aksyonova, a cook who worked in the factory canteen, were as happy as children when they graduated from exercises to their first honest-to-goodness piece. *Continued on page 19*

CONDUCTOR DAVID PUSH HAD TO BUILD HIS ORCHESTRA FROM SCRATCH, INVOLVING LONG REHEARSAL HOURS.

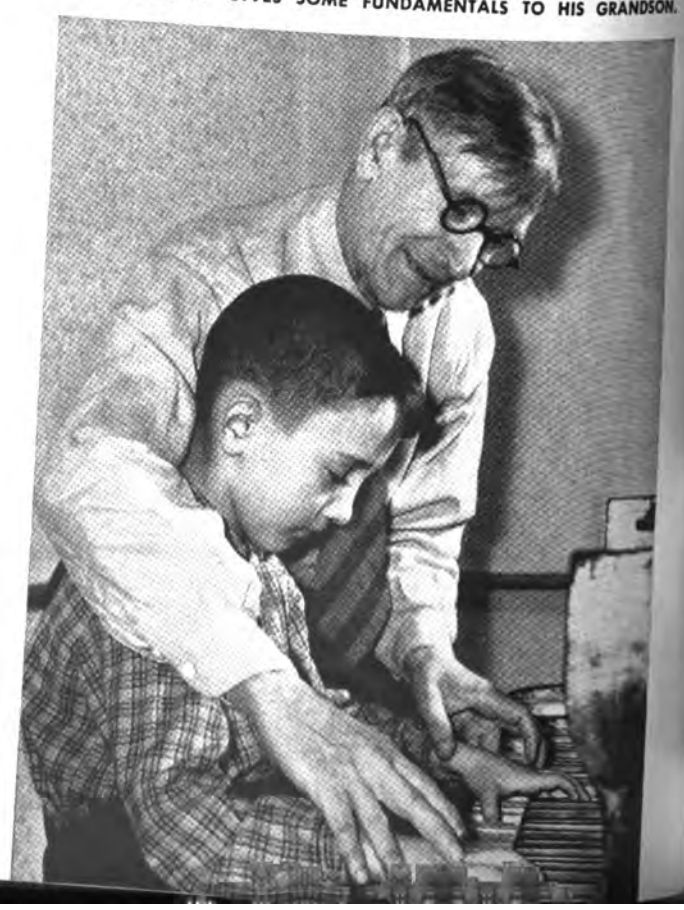
TEXTILE WOKERS AND THEIR FAMILIES TURN OUT EN MASSE TO HEAR THE AMATEUR SYMPHONY ORCHESTRA.

GRIGORI MOROZOV, BOOKKEEPER IN THE BLEACHING MILL OFFICE, IS THE ORCHESTRA'S FIRST VIOLINIST. HE HAS DEVOTED HIS LEISURE TO MUSIC FOR 45 YEARS.

SOMETIMES MIKHAIL ZVONOV, AN OLD FRIEND, STOPS IN TO TALK ABOUT MUSIC.

Amateur Symphony Orchestra *Continued*

HERE MOROZOV GIVES SOME FUNDAMENTALS TO HIS GRANDSON.



Mikhail Shumliansky, a fitter, had a real passion for music, but a bad ear. Conductor Push had turned him down as orchestra material. But Shumliansky wouldn't take no for an answer. Although he's no longer young—a family man with two daughters—he joined an amateur ensemble, practiced with them for a full year, applied for admission to the orchestra again, was turned down again, but extracted permission to attend rehearsals. That was four years ago. Now Shumliansky is the beaming first violin in the front row of the orchestra.

Maria Anisheva, a weaver, had a rare musical memory and a very good ear. She had no difficulty getting into the orchestra and has a record for never having missed a rehearsal, in spite of a double program. She works at a full-time job and attends evening school.

Anna Prokhorova, an attractive kindergarten teacher, had a rather special problem only indirectly associated with music. She was regular at rehearsals and was making excellent progress when, quite abruptly, she stopped coming. When other orchestra people visited her to find out what the trouble was, Anna explained that she had decided to leave the orchestra so as to keep peace in the family.

She was recently married, and her husband was jealous—there were too many men in the orchestra. Her friends got down to cases with the jealous husband, and with such good effect that he joined the orchestra training group himself. Whether it was for musical or other reasons, nobody is inclined to argue. The fact is, he is doing well in both areas—music and romance.

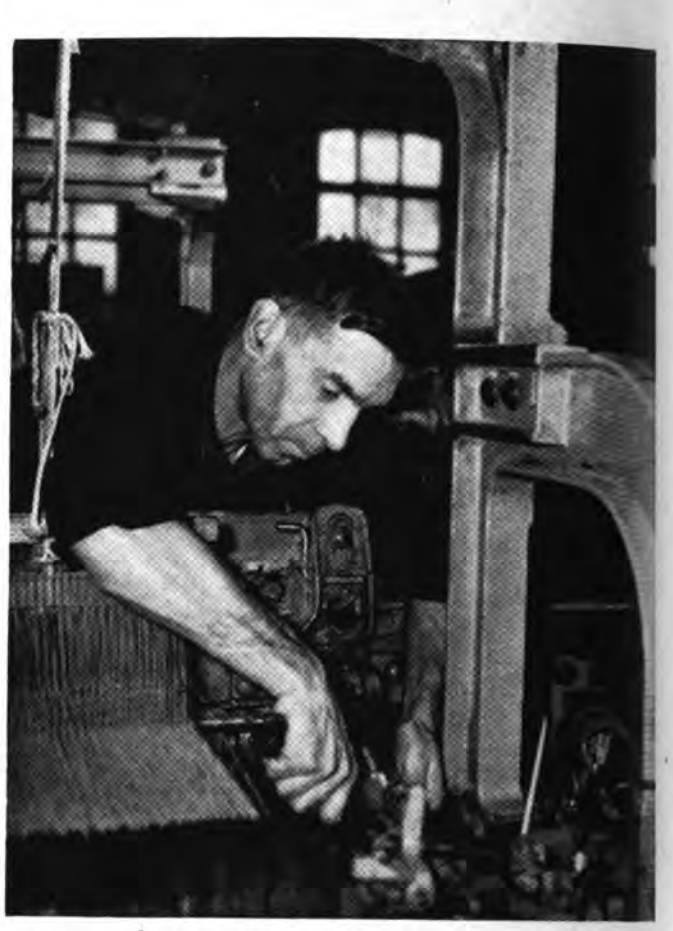
Most of the musicians have a high-school education. Some are working and studying at

Continued on next page

CELLIST KAPITOLINA BELIAYEVA IS A WEAVER BY DAY, BUT MUSIC WITH THE SYMPHONY IS A SECOND CALLING.

HERE SHE IS AT THE FACTORY BUT SHE IS ALSO A CORRESPONDENCE STUDENT OF A TEACHER TRAINING SCHOOL.

IT TOOK MIKHAIL SHUMLIANSKY YEARS OF EXTENSIVE STUDY TO MAKE THE ORCHESTRA



A VIOLINIST IN ORCHESTRA MIKHAIL IS A FITTER BY PROFESSION.

SHUMLIANSKY DEVOTES ENJOYABLE SPARE HOURS TO HIS VIOLIN—WHEN HIS TWO DAUGHTERS PERMIT IT.

Amateur Symphony

the same time. Kapitolina Beliayeva is taking a correspondence course at a teacher training school. But the orchestra means so much to her that she won't give it up, even though pressed for time.

The orchestra's influence spreads in widening circles through the town. Kapitolina's younger sister, Vera, is a member of the amateur string ensemble at the Palace of Culture and hopes soon to qualify for the orchestra. Cellist Victor Antonov, an electrician, has two daughters studying music. Nina Gerasimova, a schoolteacher who is an orchestra violinist, has a home trio—her father plays the accordion, her brother the guitar, and she alternates between violin, accordion and piano.

Some members of the orchestra are in process of becoming first-class professional musicians. Alexander Timokhin, a weaver's son, and Galina Volkova, a former textile worker, are now studying at the Moscow State Conservatory, and Lilya Bulavina is a student at the Gnesin Music School.

The orchestra, in its sixth year now, is the pride of the town, and its concerts are invariably successful. Its repertory includes such varied compositions as Beethoven's *Fifth*

NOW THE ORCHESTRA AND OTHER GROUPS OF THE PLANT'S AMATEURS REHEARSE *ARINA*, AN OPERA INSPIRED BY THE 1885 STRIKE OF OREKHOVO-ZUYEVO TEXTILE WORKERS.

Orchestra *Continued*

Symphony, Glinka's *Waltz-Fantasia*, Brahm's *Hungarian Dances*, Khachaturyan's *Nocturne for Violin and Orchestra* and *Saber Dance* from the ballet *Gayane*, and Schubert's *Unfinished Symphony*. Its repertory is as large and its performance as accomplished as some professional orchestras, and it has played before audiences in Moscow's Tchaikovsky Hall and elsewhere.

Now in rehearsal is the score of the opera *Arina*. Composer is David Push and librettist is Alexander Druzhelovsky, who is director of the Palace of Culture.

The opera was inspired by the events of 1885—a strike of the local textile workers for better conditions. The first act has already been produced, with a cast of 150: soloists, chorus and dance ensemble. Galina Borisova, a nurse at the mill clinic, sang the title role of Arina and Victor Chumakov, an electrician, played the supporting role.

The opera will be presented for its first full production in the fall by the Palace of Culture. It will be sung entirely by textile workers. The accompaniment, needless to say, will be supplied by the Orekhovo-Zuyevo Amateur Symphony Orchestra. ■

TEACHER ZOYA SIZOVA, VARIETY SOLOIST, AND THE QUARTET "GET WITH IT" FOR A GERSHWIN NUMBER.

A BILLION B

NOT TOO LONG AGO I was driving around Moscow with a foreign visitor, a delegate to the Inter-Parliamentary Union. We noticed a long queue outside a store.

"What's the line for?" he asked me.

We stopped the car and put the question to the people waiting. It was a book store which had advertised editions of the complete works of Anton Chekhov, Jack London and Sergei Esenin, and these were buyers.

It was some time before my foreign guest could get over his astonishment. "I've been in most parts of the globe," he kept saying, "but this is the first time I've seen people lined up halfway down a street to buy books."

It is not an uncommon sight in a Soviet city. Not because books are a rarity, but because a large edition of a popular book, Soviet or foreign, contemporary or classic, will frequently be sold out the day it is issued.

Foreign visitors are always surprised at the sight of so many bookstalls in the streets of Soviet cities, in the vestibules of office buildings and inside factories, along with the more usual bookshops. They all do a brisk trade.

Reading has become an essential part of Soviet living, and book-buying is universal throughout the country, even in remote parts. Home libraries for large numbers of people of all degrees of educational background, factory workers and farmers included, have become as important a part of home furnishings as radio.

This is quite aside from the public libraries, of which there are 400,000 in cities, towns and villages. Libraries are crowded, reading rooms are always full-up in the evening.

All public libraries in the Soviet Union are free. Some are owned and maintained by trade unions and cooperative societies; most are state-owned and operated. Most of the publishing houses, printing plants and book outlets are also public property.

Statistics on book publication and sale are usually a fairly reliable index of the cultural, and even of the scientific, development of a

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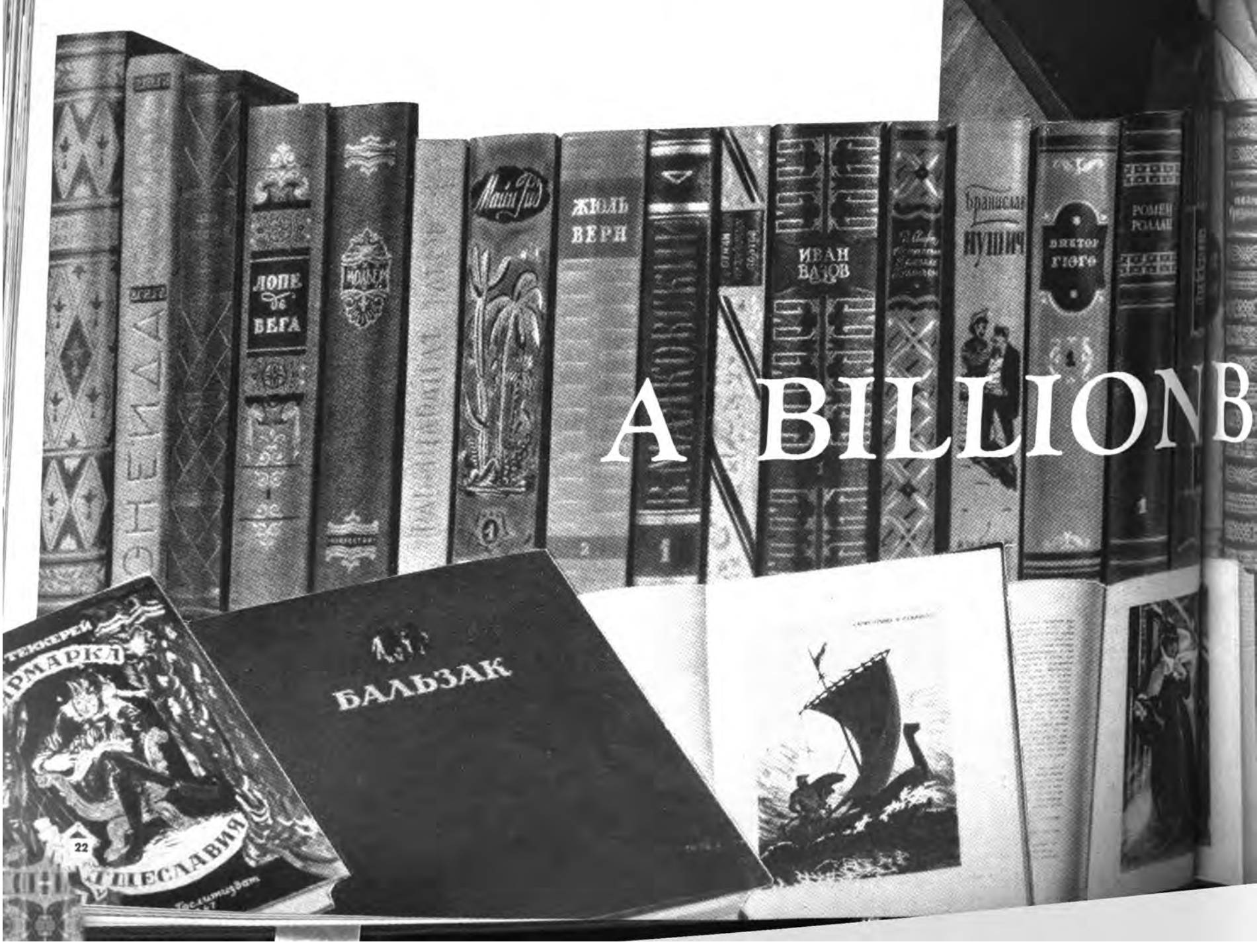


Shop display of current books by workers. A 5-year total runs to 100 million copies.

One of the reading rooms in Moscow's Lenin Library which is the largest of the country's 400,000 public libraries.

◀ Marina Shelepina, a publishing house editor, and Alexei Malinkin, an electrical worker, discuss his book where he describes the new methods he introduced in his trade. Some 16,000 workers, farmers and engineers have published similar books during the past five years.

By Nikolai Mikhailov
USSR Minister of Culture

BOOKS A YEAR

THERE ARE NUMEROUS BOOKSTALLS IN ADDITION TO THE MORE USUAL BOOKSHOPS.

A BILLION BOOKS A YEAR

Continued

nation. One may hazard a guess that there is a correlation of considerable significance between the large circulation of books in the Soviet Union and so advanced a scientific achievement as the launching of the first earth satellites.

Book Publishing—1913 and Today

Consider the Russia of 1913 and the Soviet Union of today with regard to book publication. Here are the comparable figures. In 1913 a little more than half a book was published per person. Today, with the country's population largely increased, there are five and a half books published per person, while the figure for average world book production is slightly more than two books per person.

These five and a half books published for each Soviet citizen cover all existing fields of knowledge, books for every age group and every conceivable interest.

As the general educational level rose during the past 40 years, people demanded more solid reading. This is partly reflected in the steady increase in the average size of books. The average book today has two to three times as many pages as it did in the late twenties.

The size of editions, too, has greatly increased. In 1913 the country issued a little more than 99 million books; the figures for 1957 were

better than a billion. According to UNESCO, all the countries in the world publish five billion books annually. The Soviet Union is thus the world's largest book publisher.

A study of the books a country publishes and the reading habits of its people tells a great deal about where the country is heading, what its aims and goals are. In the Soviet Union the broad perspective of education—and that includes book publication, of course—is an informed and socially-minded citizenry with an understanding of both the humanities and the sciences as they relate to modern life.

As a consequence, the range of book publication is extremely wide. Books on philosophy, economics and politics, on technology, industry and agriculture, textbooks in every field of science and the social studies, fiction, poetry and art books are on sale everywhere and are circulated by every library.

Books on various phases of technology, industry and agriculture make up a large part of the total output of Soviet publishing houses—nearly 46 per cent. This compares with 7 per cent in 1913. There is a wide distribution of books describing new methods and techniques in industry and agriculture, usually written by the innovator—industrial worker, collective farmer or engineer. In the past five years some 100 million copies of such books were published.

Statistics show that 50 million people—approximately one out of every four inhabitants of the Soviet Union—are engaged in some kind of study. This large figure means that an enormous number of textbooks must be published yearly. In 1913 textbooks comprised 8 per cent of the total number of published books; the present figure is 25 per cent.

Continued on next page

A BILLION BOOKS A YEAR ARE TURNED OUT BY THE COUNTRY'S BINDERIES.

WIDE CHOICE OF CHILDREN'S BOOKS DEVELOPS GOOD READING HABITS.

A BILLION BOOKS A YEAR *Continued*

As the national culture of the various peoples has flourished, so has the publication of books in each of the languages. Exclusive of the Russian, the total printing of books published in the languages of the peoples of the Soviet Union was 38 times greater, on the average, than in 1913.

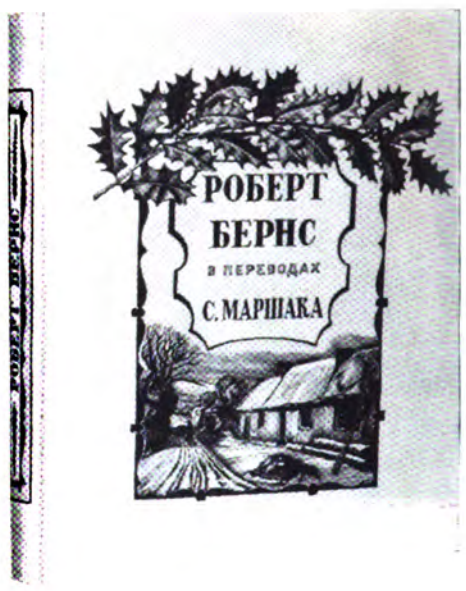
Printings of books published in Ukrainian have increased by more than 150 times. In pre-Soviet times there were no books published at all in what is now the Tajik Republic; in 1956, some 450 titles were issued in a total of 3.5 million copies. Of these, 2.8 million were in the Tajik language. The Estonian Republic issues three times as many books as it did in 1940.

An even more unusual, and quite unprecedented achievement, is the publication of books in the native tongues of 40 nationalities which had no written language until Soviet times. Millions of people who four decades ago would have had no access to the treasury of world culture now read books in their own language. More and more books—fiction, textbooks, books on the arts and sciences—are published every year in these newly created written languages.

Giant Editions

Translations of the best work from each of the national literatures enriches the whole country's intellectual life. In the past few years, works of Ukrainian literature have been translated into 40 languages; Georgian literature into 19; Byelorussian into 16; Tatar into 13, and so for the others.

Russian literary works are published in scores of the languages spoken in the country. Alexander Pushkin's poetry has been issued in 82 languages in editions totaling 84 million copies; Maxim Gorky's works in 76 languages with 88.5 million copies issued; Leo Tolstoy's books in 80 languages with more than 76 million copies; and Anton Chekhov's short stories and plays in 72 languages with 52.5 million copies.

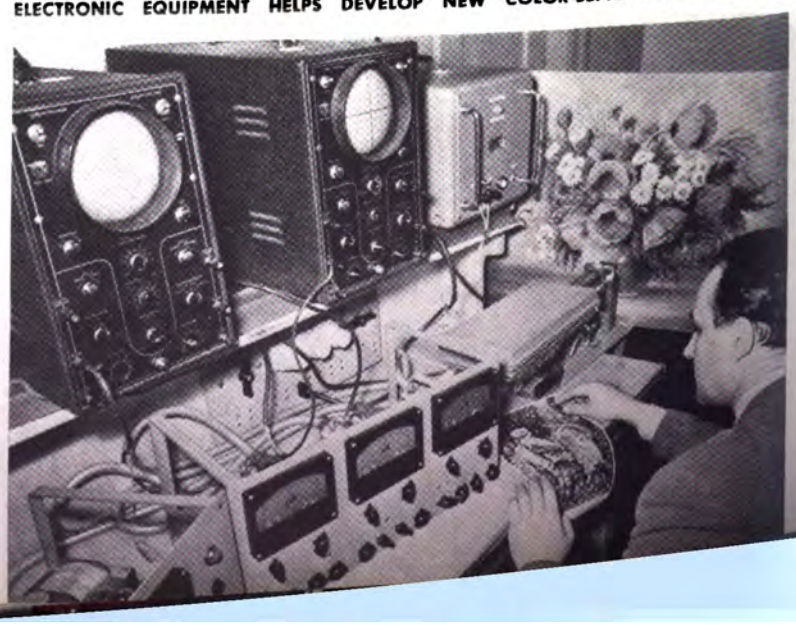


Books in Every Language

Since teaching in the schools is carried on in the language of the people living in the particular part of the country, many of the books are published in multi-language editions. Secondary school textbooks are printed in 59 languages of the peoples of the Soviet Union and in 12 foreign languages.

Fiction, including translations of world classics and works of contemporary foreign writers, and the classic and modern literature of the various Soviet nationalities, is published in editions totaling many millions of copies. The annual printing of novels, short stories, poems and plays exceeds 340 million copies. The average edition of a book today is 16 times larger than in 1913, while the number of books of fiction published per person has increased 17 times over.

ELECTRONIC EQUIPMENT HELPS DEVELOP NEW COLOR-SEPARATION METHODS.



NEW LARGE PRINTING PLANTS ARE BUILT TO FURTHER INCREASE BOOK OUTPUT.

These giant printings are done for contemporary writing as well. Mikhail Sholokhov's novels have been translated into 56 of the languages spoken in the country and issued in a total of 26 million copies.

In foreign translations, to cite UNESCO figures again, Soviet publishing holds first place and has held this pre-eminent world position for many years. In the past two years alone, fiction by writers of 53 foreign countries have been published in translations totaling 193 million copies.

The Soviet reader is interested in the literatures of the East and the West, both classic and contemporary. Honoré de Balzac has been published in 17 of the languages spoken in the Soviet Union, in editions with a total of 10 million copies; Victor Hugo in 45 languages in 13 million copies; Jules Verne in 23 languages in 12.8 million copies.

Among English writers, first place is held by Charles Dickens, who has been published in 18 languages in 7.6 million copies. The most popular of American writers are Jack London, Mark Twain, and O. Henry. Jack London is the most widely read of all foreign writers. His books have been issued in 18.5 million copies in 32 languages.

All told, 2,572 books by 218 American writers, including contemporary authors, have been published in the Soviet Union in 50 languages and a total printing of better than 77 million copies.

More Readers—More Books

In spite of these enormous printings, demand for books still exceeds supply—the reason for the line in front of the Moscow bookshop and for waiting lists of sizable length for popular books at circulating libraries.

That the supply has not caught up with this extraordinary demand for good books is to be explained by two reasons: First, and most significant, is the truly enormous reading public that the Soviet educational system has created in these past four decades, a public which increases with each passing year. Second, is printing capacity and paper supply.

The paper industry in the country actually had to be built from the ground up after the Revolution. The modern Balakhna mill on the Volga today produces more paper by itself than did all the mills of czarist Russia. In recent years many big pulp and paper mills have been built near the country's large forest areas. Many more are now going up in Siberia, the Urals and other forest regions.

Large printing plants with modern equipment began to be built only in the thirties. The first Soviet-produced linotype machine was manufactured as late as 1932. Now there are thousands of large and small print shops in towns from coast to coast. In the first ten years after the war, the machine-building industry turned out upward of 60,000 presses and machines of all kinds to speed up printing and book production.

THE FICTION AND JUVENILE SECTION IN ONE OF MOSCOW'S NEW BOOK STORES.

At present 180 types of varied printing equipment are manufactured. The Soviet publishing industry is being steadily improved and expanded and book production continues to grow from year to year. There is still much to be done, however, in the way of mechanizing and automating book production processes to increase quantity and improve quality.

But even with unlimited printing facilities and paper supplies, it is unlikely that supply will catch up with demand, so fast-growing is this great audience of book readers, undoubtedly the largest and the most demanding the world has ever seen. ■

Beating Swords into Plowshares by E. Vuchetich

National Art Show

By Natalia Sokolova

Editor of the Art Magazine *Iskusstvo*

A NATION-WIDE show with more than 8,000 exhibits of fine and applied arts was opened in Moscow last November to commemorate the fortieth anniversary of the Soviet state. Participation of artists and craftsmen was so wide and public interest so keen, that in addition to the big Central Exhibition Hall supplementary display space had to be used in the USSR Academy of Arts Building and other galleries.

Artists of all generations, the masters of various forms and media, took part in this exhibition. The works on display reflected the life of the country and its people in a wide range of moods and motion. The artists' treatment of historic and contemporary themes in pictorial and sculptural arts elicited warm, sometimes heated comment from onlookers, both for and against. Subject, composition, values, drawing, all came in for their share of debate.

One of the interesting things about the exhibition was the large number of works by younger artists, the generation born in the 20's and 30's. Their novel approach in portraying life, and often, too, the romantic fervor with which their images were drawn, compelled the visitor to stop and look.

The artists of the older generation—Sergei Gerasimov, Alexander Deineka, Arkadi Plastov, Martiros Saryan, Boris Ioganson—displayed work individually characteristic. Gerasimov and Plastov have long been noted for their portrayal of landscape and peasant life of Central Russia. Deineka looks to the worker in the large industrial cities for his models. Saryan paints the poetic beauty of his native Armenia. Ioganson uses the epic themes of working-class struggles.

Deineka's paintings had the quality for which he has long been distinguished. His drawing is sharp, often harsh, but his color tones are always precise and subtle, a treatment thoroughly suited to his studies of machines and men, industry and the industrial worker.

Lenin, the founder of the Soviet state, was much in evidence at its birthday exhibition. The simplicity and warmth of the man and the indomitable spirit of the revolutionary were expressed in several media. In sculpture, Lenin's personality was best portrayed, in my opinion, by Veniamin Pinchuk whose work is marked with a restraint that serves admirably to convey the moral strength of Lenin.

Art critics and exhibition visitors were much moved by another Lenin-inspired work —the painting *Smolny in 1917* by the Ukrainian artist Semyon Guetsky. The theme is one which has particularly vivid memories for those whose recollection goes back to the early days of the Revolution.

It is 1917, and the Revolution is not yet won. Lenin stands quietly looking at a group of battle-worn soldiers sleeping on the floor of the Smolny Institute, headquarters of the Revolution. There is kindliness in his look, concern, a wide-embracing humanity.

This crucial period in history is also the theme of a large canvas by the young artist Alexander Atsmanchuk titled *The Order Has Been Given*. This is the opening phrase of a popular song about the years of civil war and foreign intervention.

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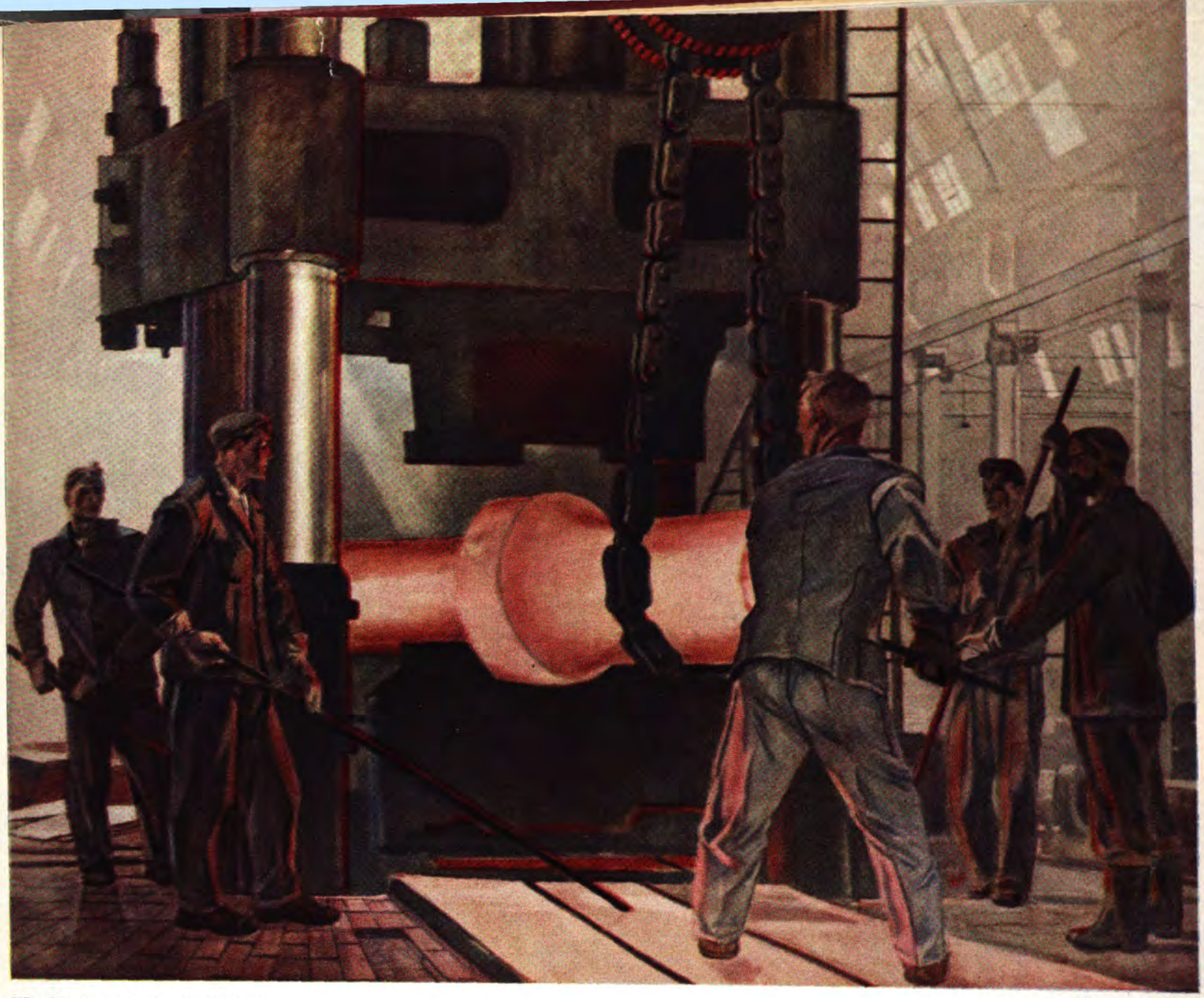

The Forgemen by A. Deineka

Construction Site Concert by M. Volodin

Stronger Than Death **by E. Fiveisky**

A New Shift Arrives by E. Samsonov

The University's Embankment by G. Savinov

Toward Evening by S. Kacharov

National Art Show

Continued

The viewer knows that the young soldier of the Revolution and his girl friend, the central figures of the painting, are in love and he knows, too, the fortunes of war are about to separate them. There is a tender longing to be together in their expressions, but also a stubbornness that says that "the order of the Revolution will be carried out." The artist has portrayed with deep understanding the fate of Soviet youth, who were ready to sacrifice themselves to preserve the freedom won in the Revolution.

Boris Nemensky derives the subject for his painting from the Second World War. Here are the trenches again, and the land scorched by enemy shells. A soldier, obviously a farmer in peacetime, looks at something held in his open palm. They are grains of wheat which have survived in this burned-out earth, and they bring thoughts to the soldier of the life he has left behind.

The historical subjects toward which many of the exhibiting artists turned was a very natural one for a show of this kind. But subjects were by no means confined to the history of the past. As prominent were themes of today, many of them interpreted with deep feeling and lyricism—friendship, love, childhood, life in factories and in homes, in city streets and farm villages.

On display were the work of artists from every one of the Union Republics, characterized by a variety of mood and treatment. Of particular interest were the paintings of artists from Kazakhstan—a Central Asian Republic where easel painting is of relatively recent origin. I was also impressed by the works of the Azerbaijan exhibitors. Most of them were younger artists, born in the late 20's and

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Ararat Valley by A. Kodzhoyan

Latvian Fisherman in the Atlantic by E. Kalins

Still Life by O. Tatevosyan

Warm Day by A. Levitin

National Art Show

Continued

early 30's. It is a modern, prosperous, sun-drenched land they depict.

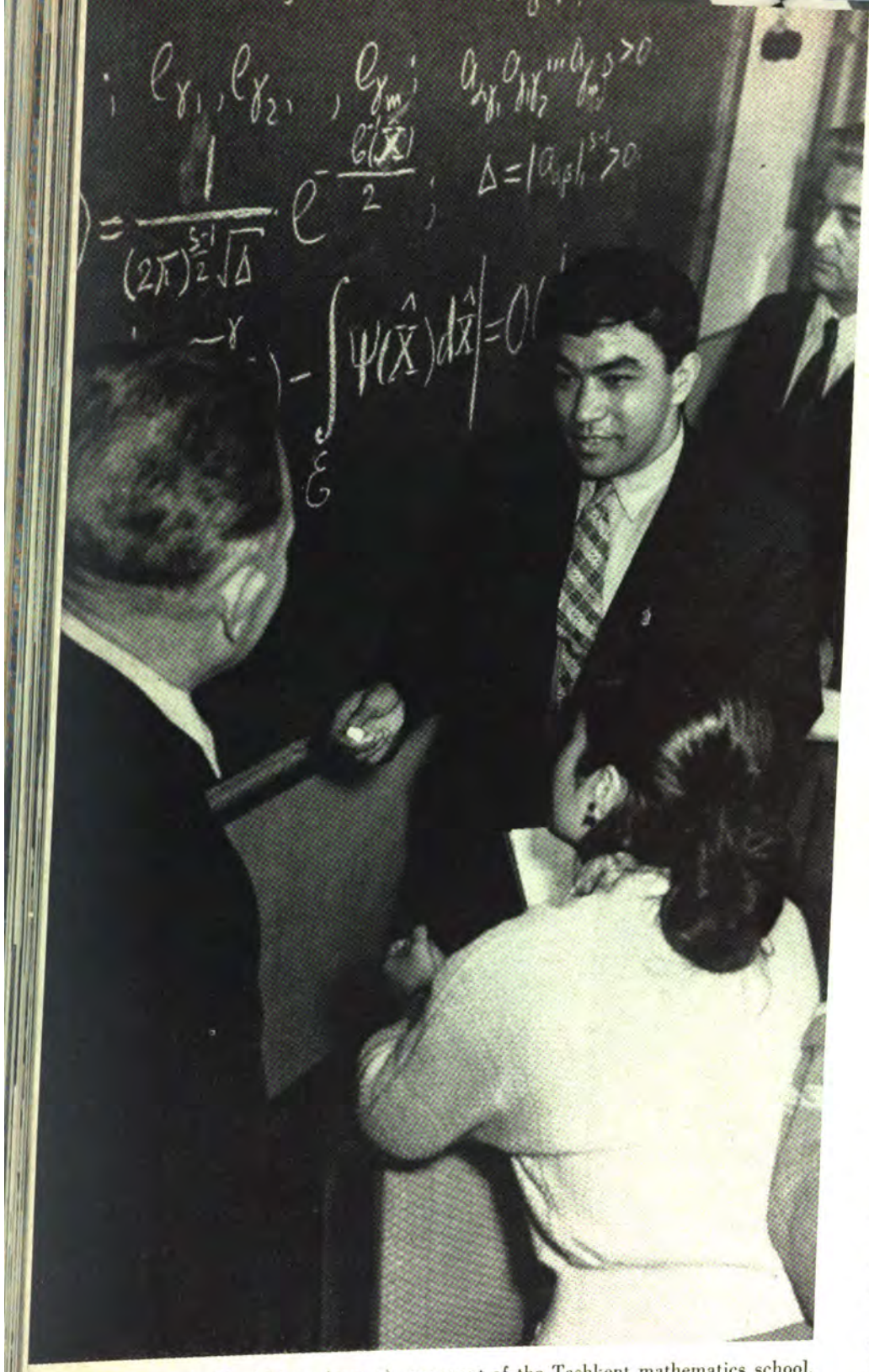
Among the best of the paintings on exhibit were works of Mikhail Gusein-ogly Abdulayev and Agasaf ali Dzhafarov, both young artists from Baku who exhibited a series of studies painted on a visit to India. *Back from Work,* a large canvas by Abdulayev of Indian peasants returning home from the fields, captures attention for its profound human and lyrical perception of the life of the people emphasized by the magnificently painted background of mountains veiled in twilight blue.

In sculpture, the exhibits seemed to demonstrate a tendency to the monumental, stimulated by the largeness of vista of Soviet life and the great openness of the country's landscape. Too, there seems to be a growing interest in the realistic portrayal of life's great truths through symbol and allegory.

Fiveisky's splendidly executed *Stronger Than Death* is characteristic of this tendency. Fiveisky's stoic trio facing their executioners typify the strength of the people's struggle against Nazi enslavement and the inextinguishable patriotism that marked Soviet citizens in the Second World War.

Vuchetich's figure of a naked warrior hammering his sword into a plowshare and Kibalnikov's worker holding aloft a golden symbol of the sun's energy best expressed, in the opinion of most viewers, the spirit of the times—the striving for peace and the conquests of modern science. ■

With Her Grandfather by V. Yefanov



Sagdy Siradzhinov (center), exponent of the Tashkent mathematics school, works with graduate research scholars at the Uzbek Academy of Sciences.

NEW

IN A NEW

By KHABIB ABDULLAYEV

President, Uzbek Academy of Sciences

FIVE HUNDRED years before Copernicus developed his heliocentric theory, Biruni, an eleventh century scholar from the region of Central Asia which is now Uzbekistan, considered the possibility of the sun as the center of the solar system and calculated the radius and circumference of the globe.

The ancient towns in this region were world-renowned for their scholars centuries before the voyages of Columbus and Magellan proved that the earth was round.

Al-Ferghani (called Alfraganus in the West), ninth century mathematician and astronomer who derives his name from his birthplace, the Uzbek town of Ferghana, was the author of *Fundamentals of Astronomy*. Translated into Latin from the original Arabic, this book was still being published in Europe 800 years after it was written.

In the same century Muhammad ibn Musa al-Khorezmi (Khowarizmi), a native of the town of Khorezm, propounded the fundamentals of algebra. The words *Al-Jabr* from the title of his treatise gave that branch of mathematics its name.

Tenth century philosopher and encyclopedic scholar Muhammad Farabi, born in the town of Farab on the Syr Darya River, was one of the founders of the theory of music.

Abu Ali ibn Sina (Avicenna) from the town of Bukhara, twelfth century philosopher and physician, worked out a system of medicine in his treatise *The Canons* which remained an authoritative guide for physicians the world over for hundreds of years afterward.

The Samarkand astronomical school of the fifteenth century, headed by Ulugh-Beg, attained precision of observation that was unmatched anywhere in the world at the time.

Alisher Navoi, fifteenth century scholar, wrote great and imperishable poetry which is still admired today.

Past and Present

These are all names for the centuries, but for most of the Uzbek people of their times—illiterate, sunk in superstition and poverty—they were names unknown. Central Asia for hundred of years was ravaged by foreign invaders from the south, by nomads from the north, and by incessant internal feudal hostilities that dismembered the country.

Scholars fled to safer regions or were exiled. In his verse, Navoi

Khabib Abdullayev, ***President of the Uzbek Academy of Sciences, is an eminent geologist. He is well known for his theoretical works on ore formation and is an authoriy on oil deposits.***

The Uzbek Academy was founded in 1943, but traces its beginnings to the prewar period, when it existed as a branch of the USSR Academy of Sciences with some ten scientific institutes. The Uzbek Academy today has 30 institutes and a total staff of 3,500.

Long-range program now being prepared will materially step up the work of the Academy in organizing research over the next 10 to 15 years.

SCHOLARS

UZBEKISTAN

speaks of himself as a homeless wanderer. Biruni, Avicenna, Farabi and many other scholars lived most of their lives in foreign lands.

The ancient learning perished, libraries were destroyed, and a period of cultural darkness set in for these Central Asian peoples which continued through the czarist period. It did not lift until after the Socialist Revolution of 1917.

In Uzbekistan, as in other Central Asian Soviet Republics, it was no simple matter to create a modern industrial society out of a feudal economy in 40 years, to educate a whole people, to reinvigorate a culture. But the result is an enlightened people and a prospering nation.

There was not one college in Uzbekistan before the Revolution. Now in our republic with its 7.3 million population, more than 130,000 students are enrolled in 32 colleges and 102 specialized secondary schools. They are training for leadership in industry, agriculture, the professions, arts and sciences.

Today 91 of every 10,000 Uzbek men and women have a college education. That is double the figure for France, seven times greater than for Turkey, 28 times more than for Iran.

Uzbekistan has one hundred scientific research institutes—for industrial and agricultural research, mathematics and physics, geography, geology, astronomy, history, linguistics, the arts. Some 6,500 scientists, heirs to the tradition of the scholars of the past, work at these institutes.

The Uzbek Academy of Sciences

The best of the Uzbek research people are associates of the Republic's Academy of Sciences. Our Academy, a focal body for research in all fields of study, developed and grew with the founding of the modern educational system.

Its beginnings date back to 1920, when the first university in the Central Asian Soviet Republics was founded at Tashkent, capital of Uzbekistan. The faculty then was largely made up of professors from Moscow and Leningrad, whose objective it was to develop a corps of Uzbek scholars and scientists.

In the thirties the first Uzbeks and members of other national groups in that area to hold doctorates in science had made their appearance. They headed the work of the scientific research institutes belonging to

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Sabir Yunusov (left), shown with a young researcher, is a well-known chemist, heading group that discovered 60 new alkaloids for drug development.

UZBEK SCHOLARS

Continued

the Uzbek branch of the USSR Academy of Sciences. In 1940 the branch had 10 scientific institutes with a total number of 210 researchers, of whom 28 held doctorates and 58 master's degrees in science.

The scientific endeavors had increased to such an extent that the organization of an independent Academy of Sciences of the Uzbek Republic in 1943 was inevitable. It now has 30 institutes with a total personnel of 3,500, including 75 doctors and more than 400 masters of science. Whereas ten years ago the Academy published 47 scientific papers, the corresponding figure for 1957 is 190 scientific papers.

Developing Scientific Schools

The scientists of Uzbekistan have developed their own schools in the further pursuit of knowledge. The Tashkent mathematics school on the theory of probability and mathematical statistics, founded by the late Vsevolod Romanovsky, is being successfully continued and expanded by Tashmukhamed Sarymsakov, Sagdy Siradzhinov and his other pupils.

Much has been contributed by Tashmukhamed Kary-Niyazov, the author of a major work on the ancient Uzbek astronomical school of Ulugh-Beg, in the field of methodics in mathematics and in the elaboration of Uzbek mathematical terminology.

In the field of theoretical and applied mechanics we have the noted works of Khalil Rakhmatullin on the aerodynamics of a permeated body and Magamet Urazbayev on the theory of resilience, which have enriched the theory and practice of building mechanics, aseismic construction, etc.

The Tashkent geological school evolved under the influence of the noted Russian explorative geologists of Central Asia. It is successfully pushing research in the theory of formation of magnetic ores and ore deposits, in the teachings on formations and lithology, in the geochemical lines, hydrogeology, etc.

The school of the chemistry of alkaloids is also doing important work. The Uzbek Academy of Sciences has now become one of the main Soviet centers in the study of alkaloids.

Similar examples may be cited in other branches of science, such as the humanities, for instance. Scholars in Tashkent and elsewhere in Uzbekistan are making notable contributions in many studies, their achievements recognized internationally. In these past few years at least 30 Uzbek scientists read papers at international congresses.

Tapping New Areas of Knowledge

With new areas of research being tapped by growing numbers of well-trained Uzbek scientists, our Academy has reorganized some of the older institutes and founded new ones to extend the scope of work.

The Power Institute was recently reorganized into the Institute of Energetics and Automation. In connection with this, a number of laboratories on the automation of different branches of industry have been opened. The Institute is now preparing a blueprint for a unified power system for all of Soviet Central Asia.

Since Uzbekistan is a land of cotton, the study of the theoretical foundations of the biology of cotton is of exceptional importance. For this purpose a special Institute of Genetics and Plant Physiology has been established by our Academy.

To concentrate research on such problems as the influence of a hot climate on the human organism, rational food regimes and local medicinal raw materials, the Institute of Experimental Medicine was established.

The newly organized Institute of Nuclear Physics, equipped with an experimental reactor, grew out of the work of Sergei Starodubtsev, Ubai Arifov, Sadyk Azimov and other Uzbek physicists on the peaceful uses of atomic energy. They have been using tracer atoms in research on cotton, industrial processes and medicines.

Last year the Uzbek Academy of Agricultural Sciences was founded. Associated with this Academy are 2,000 scientific workers in cotton growing, forestry and conservation, cattle breeding and a variety of other specialties. At their disposal are research institutes, testing stations and experimental bases in all parts of Uzbekistan.

Planning Ahead

The problems upon which Uzbek scientists work have an intimate bearing upon the economic growth of our Republic. The theoretical work of a group of chemists led by Malik Nabiyev served to change the technology of production of nitrogen fertilizers radically. Another group, headed by Sabir Yunusov, discovered 60 new alkaloids in local

Members of the Uzbek Academy of Sciences in a cotton patch where pneumatic picker, designed in the aerodynamics laboratory, is being field tested.

Professors Stepan Altunin (left) and Alim Mukhamedov observe working model of hydroelectric station in Academy's river-bed research laboratory.

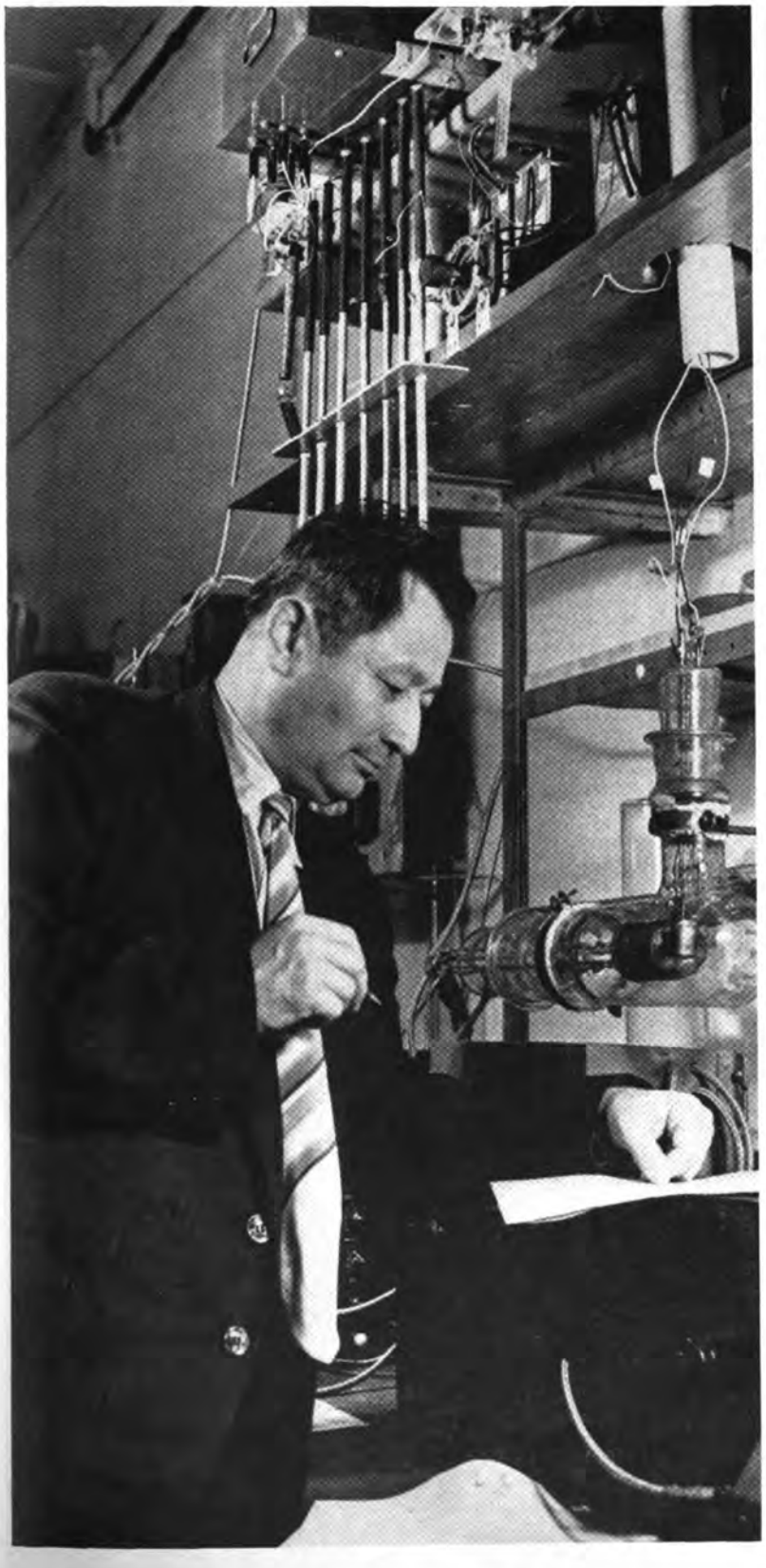
plants, which means new drugs for fighting microbes and bacteria.

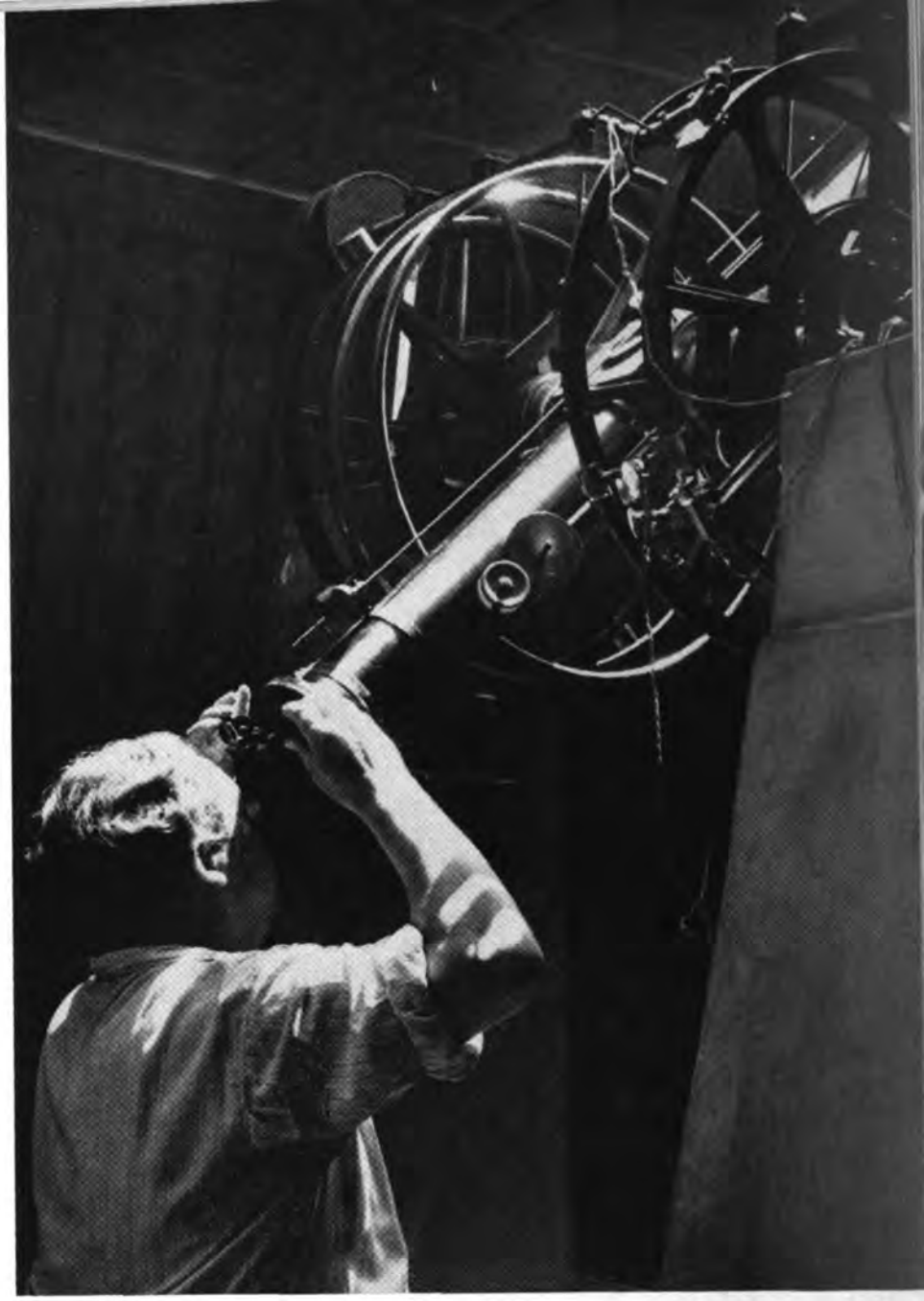
Researchers in the Institute of Zoology and Parasitology have carried out a number of investigations for the transformation of the fauna of Uzbekistan. Investigations in aerodynamics in which Khalil Rakhmatullin took an active part led to the creation of the first model of a pneumatic cotton picker. Fruitful work of this kind has been done in practically every area of science.

The institutes of our Academy are extending their research in the fields of geology, physics, chemistry, energetics, automation, construction and building materials. Our Academy plans to set up new scientific institutes for metallurgy, engineering industry, chemistry and the technology of nonferrous and rare metals.

The Uzbek Academy of Sciences is now in the process of drawing up a long-range plan for the training of scientific personnel and for organizing research for the next 10-15 years. It can, in view of the rate of development over these past few decades, confidently project a greatly accelerated future. ■

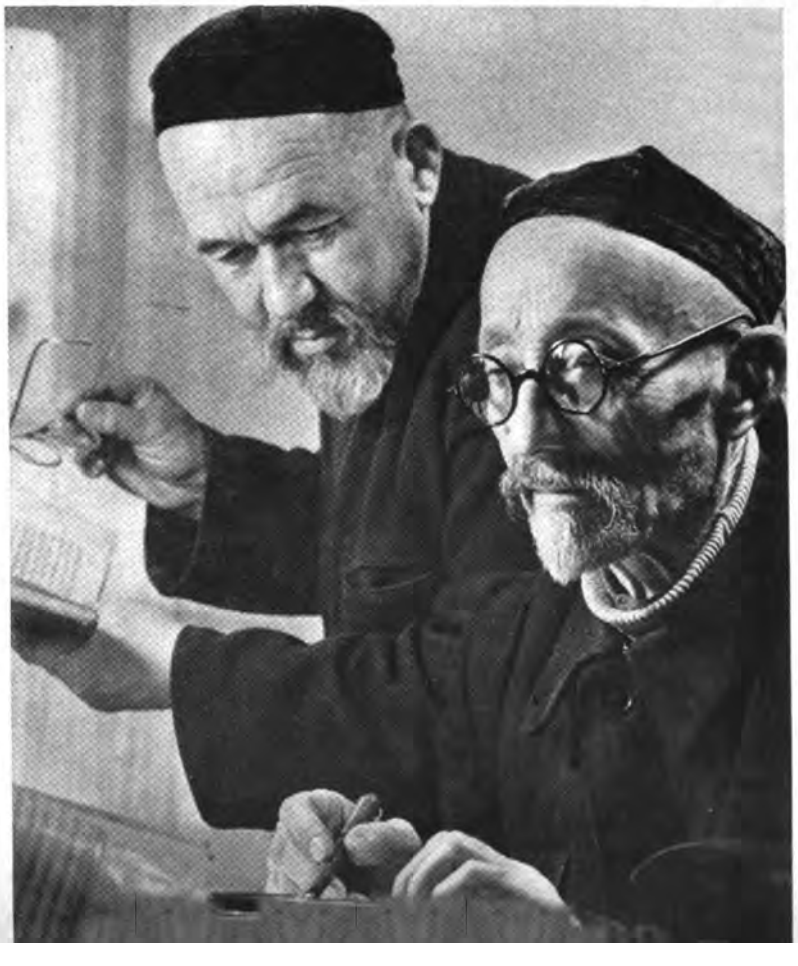
Ubai Arifov, the director of the Academy's Nuclear Physics Institute, is now working on using tracer atoms in research on cotton and medicines.





The Uzbek Academy's astronomical observatory does precise work. As far back as the fifteenth century, Uzbeks were famous teachers of astronomy.

Yunus Khakimdzhanov (left) and Abulfattakh Rasulev of the Institute for Oriental Studies are eminent authorities on ancient Uzbek manuscripts.



VLADIMIR ASHKENAZI'S TALENT WON THE QUEEN ELIZABETH PRIZE IN BRUSSELS WHEN HE WAS NINETEEN.

BUILDING MUTUAL UNDERSTANDING AND FRIENDSHIP

TWO Soviet musicians who have played for enthusiastic audiences both at home and abroad will be appearing in American concert halls this fall—Igor Bezrodny, violinist, and Vladimir Ashkenazi, pianist.

They will tour American musical cities as part of the exchange agreement concluded between the United States and the Soviet Union some months ago covering a large area of cultural activities.

Both are young men—Bezrodny is 28 and Ashkenazi is only 21—but as virtuosos they rank with the great instrumental performers of today.

Igor Bezrodny

"The noble musicality displayed by the young violinist in his performance of Bach's *Ciaccona* amazed all." "His playing was impeccable, grand, full of emotion, without any

IGOR BEZRODNY HAS SEVERAL PRIZES RECEIVED AT INTERNATIONAL COMPETITIONS. HIS CONCERTS IN FOREIGN COUNTRIES WERE HIGHLY COMMENTED BY MUSICAL CRITICS.

Young Violinist and Pianist

To Perform For American Audiences This Fall

hint of striving for effect." This was the typical tenor of press comment following Igor Bezrodny's tour of Holland.

Bezrodny is a masterly interpreter of Bach. At the 1950 International Contest held in Leipzig to commemorate the bicentennial of the death of the great composer, Bezrodny was awarded first prize. He is no less a splendid interpreter of Handel, Mozart, Beethoven and Brahms. Critics have been moved to comment on the delicate water-coloring of his Debussy's *Claire de Lune,* the poetry of his Prokofiev sonatas and the fascinating movement of his Ravel's *Tzigane.*

Igor Bezrodny is the son of musicians. Both his parents teach the violin. He was born in 1930 in Tbilisi, capital of Georgia. At the age of six he began studying with his father.

In 1937 the family moved to Moscow and there he entered the Central Music School. This school, affiliated with the Moscow Conservatory, gives talented children both a general and musical education. His teacher was Abram Yampolsky, who has trained such eminent violinists as Leonid Kogan, Yulian Sitkovetsky, Eduard Grach and Yelizaveta Gilels.

In 1948 Bezrodny entered the Moscow Conservatory. While still a student he won first prize at the Jan Kubelik International Contest held in Prague in 1949, and in 1951 he was awarded a Stalin Prize. After graduating from the Conservatory in 1953, he stayed on as a postgraduate student and subsequently as teacher.

His foreign concert tours have been invariably successful. He has played to audiences in Austria, England, Belgium, Holland, France, Finland, Switzerland, Japan and in Latin American countries.

His American program will include sonatas by Prokofiev, Handel, Bach and Debussy. He will also give several concerts of classical and modern music for violin and symphony orchestra. ■

VIOLINIST'S WIFE SVETLANA IS A STUDENT OF MOSCOW'S CONSERVATORY FROM WHICH HE GRADUATED IN 1953.

Vladimir Ashkenazi

This musician is one of the outstanding Soviet pianists of the younger generation. He was born in 1937. His father, pianist David Ashkenazi, is an accomplished performer of popular music.

Vladimir began his study of the piano when he was six, and almost immediately manifested a rare talent and unusual musical memory. After only a year of study, he could play symphonic music rearranged for the piano.

In 1945 he was admitted to the Central Music School affiliated with the Moscow Conservatory. His busy program included general courses, music and athletics—he played a great deal of soccer.

While still at school, Ashkenazi participated in the 1955 Warsaw Chopin International Competition and won second prize for his rendition of Chopin's Etudes. That same year he entered the Moscow Conservatory, where he studied under the noted pianist and teacher Lev Oborin. He is now in his third year at the Conservatory.

In 1956 he played before a jury composed of Artur Rubinstein, Robert Casadesus, Emile Bosquet, Renata Borgatti, Emil Gilels and other leading musicians at the Queen Elizabeth International Competition in Brussels. Fifty-five pianists from fifteen countries contended for prizes in this competition considered by musicians as "the gate to world recognition."

The requirements were taxing. Besides playing a difficult and varied program of compositions, each participant was given seven days for study of a previously unannounced concerto by a Belgian composer. Vladimir Ashkenazi won a first prize for his remarkable performance.

During his tour of the United States, Ashkenazi's repertory will include Rachmaninov's *Concerto in C Minor,* Chopin's *Concerto in F Minor,* Prokofiev's *Second Concerto,* and Brahm's *Concerto in B-Flat Major.* ■

Each day begins by practicing new pieces, with concertmaster Alexander Erokhin accompanying.

Dolukhanova loves skiing for the sport's sake, not simply because good singers must stay fit.

When she turns some of her creative talents to the kitchen, a tasty Armenian *bakhlava* results.

Mezzo-Soprano

Plans U.S. Concerts Next Season

ZARA DOLUKHANOVA, mezzo-soprano, will make her first concert tour of the United States next season as part of the American-Soviet cultural exchange program.

Endowed with a voice of rare beauty and great range, the singer stirred Moscow audiences in her first major concert ten years ago. The occasion was the première of the *Cantata of the Motherland*, written by the young Armenian composer Arutyunyan. Her rendition of the "Cradle Song" in the third movement of the Cantata was an experience still remembered by music lovers. Her voice, deep and rich in the low ranges and crystalline in the high, held the audience completely captive.

Many people maintain that the concert singer cannot dramatize a character musically. That is held to be the particular province of the opera singer. Zara Dolukhanova's remarkable dramatic technique is living argument to the contrary. She can with equal grace and musical fidelity create the character of Joan of Arc in the aria from Tchaikovsky's *Maid of Orleans*, and of Rosina in the aria from *The Barber of Seville*. With equal dramatic mastery she sings Schumann's *Woman's Love and Life* series, the romances of Richard Strauss, Prokofiev's *Ugly Duckling*, Debussy's *Wonderful Evening*, the fortune-telling scene from Moussorgsky's *Khovanshchina* or Grieg's *Dance of the Kids*.

It is the uncommon singer who is able to achieve a complete interweaving of the poetic phrase interpreted in music. One might call it the ideal of musical speech. Dolukhanova achieves that harmonious blend, an essential unity between the poetry of the spoken line and the poetry of music. For the audience she is able to evoke a charmed emotional atmosphere, that momentary coincidence of mind and mood, which marks great singing.

Dolukhanova was born in Moscow in 1918. Her father, by profession an engineer, played the flute, clarinet and trumpet. Her mother was considered to be one of the best singers in her native Leninakan in Armenia.

Zara began to study the piano when she was six. Then she became interested in the violin, and at twelve was accepted for violin instruction at the Gnesin School of Music in Moscow. At 16, however, she quite suddenly decided to switch to voice training.

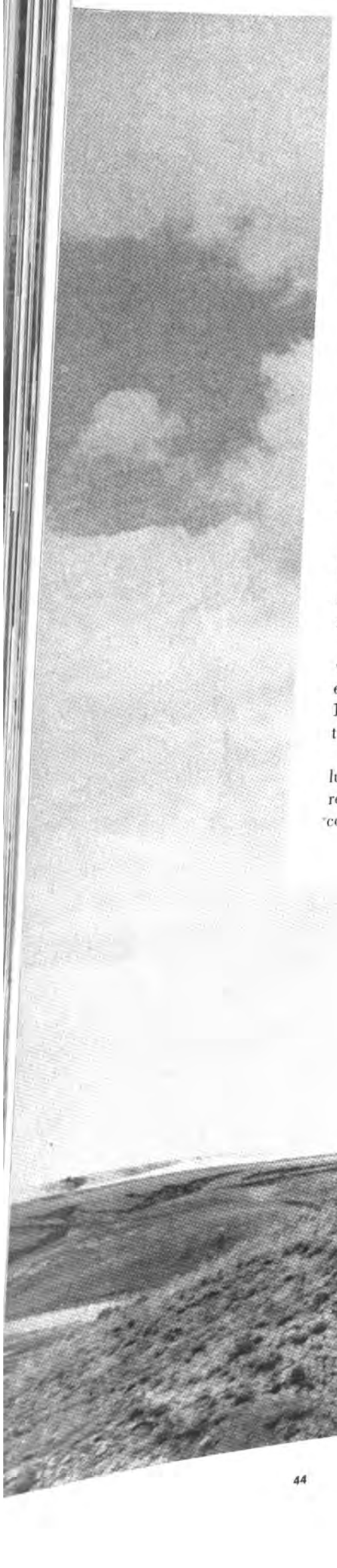
Her teachers were disturbed by what they thought to be adolescent changeability. "I remember," says the singer, "that even our gentle director was angry at what she called my fickleness, but my future teacher of singing, Vera Beliayeva-Tarasevich, after testing my voice, decided to let me study with her." Zara was graduated from the voice class in 1937 and her marked ability secured her admission to the Gnesin Music Institute.

Dolukhanova made her debut in 1939 in the role of Olga in Tchaikovsky's *Eugene Onegin* at the Opera and Ballet Theater in Yerevan, capital of Armenia. But later she devoted herself entirely to concert and radio work. Her repertory is wide, ranging from opera to folk song. In the past few years, aside from concerts in the Soviet Union, she has sung for audiences in England, France and the East European, Scandinavian and Latin American countries. ■

STEINW

The Soviet Farmer an

By Mikhail Sukhanov



EVERY one and a half minutes a tractor comes off the conveyor of a Soviet farm-machine plant; every three minutes, a seeder; every five minutes, a tractor plow; every seven minutes, a grain combine. They rumble out of the factories by the thousands in a steady and continuous fleet headed for the farms.

It was only thirty-five years ago that the first Soviet-made tractor was produced, modeled after a machine bought from Henry Ford. An epoch-making machine, that first one, for a country that had plowed and sown and hauled with hand tools and muscle power for generation on generation.

To be more exact, this was not the first tractor built in Russia. Back in 1888, Fyodor Blinov, a man with much native talent, a locomotive engineer by profession, successfully tested a caterpillar tractor run by a steam engine he had built. He was commended and awarded a bronze medal. But for all practical purposes the lethargic czarist officialdom attached no real importance to the invention.

Nor had they to a previous invention, a combine-type grain harvester built by Andrei Vlasenko in 1868 that he called a "reaper-thresher." That, too, was awarded a gold medal and left to rust in a barn.

Yakov Mamin invented a low-powered wheel tractor with a non-compression diesel engine that he called the "Gnome," and in 1911 began producing it in his own small factory. But he found no buyers to speak of.

For the miserably poor peasant of pre-revolutionary Russia, a tractor was totally beyond reach, and so far as the big landowners were concerned, they saw no reason to buy expensive machines when there was more cheap labor available than could be used.

Nevertheless, Yakov Mamin had better luck than his predecessors. After the Socialist Revolution of 1917 he was one of those who helped lay the foundation for the country's tractor industry. His sons were educated at engineering schools and built careers as tractor designers.

120 Million Horsepower

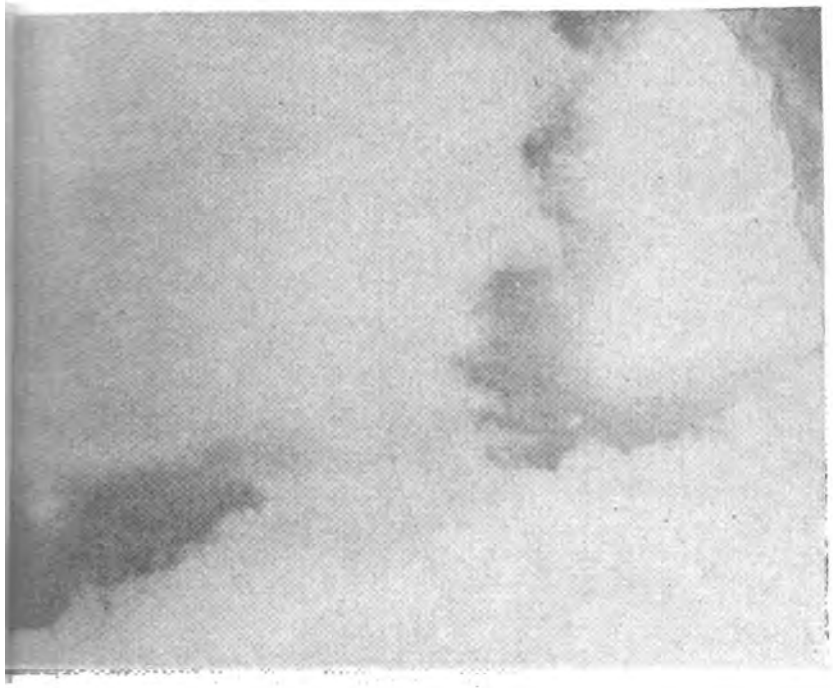
Thirty years ago the draft animal was the principal, almost the sole, motive power on the farm. Machine power was insignificant—a low five per cent. Today the figures are reversed—with machinery accounting for about 95 per cent of motive power.

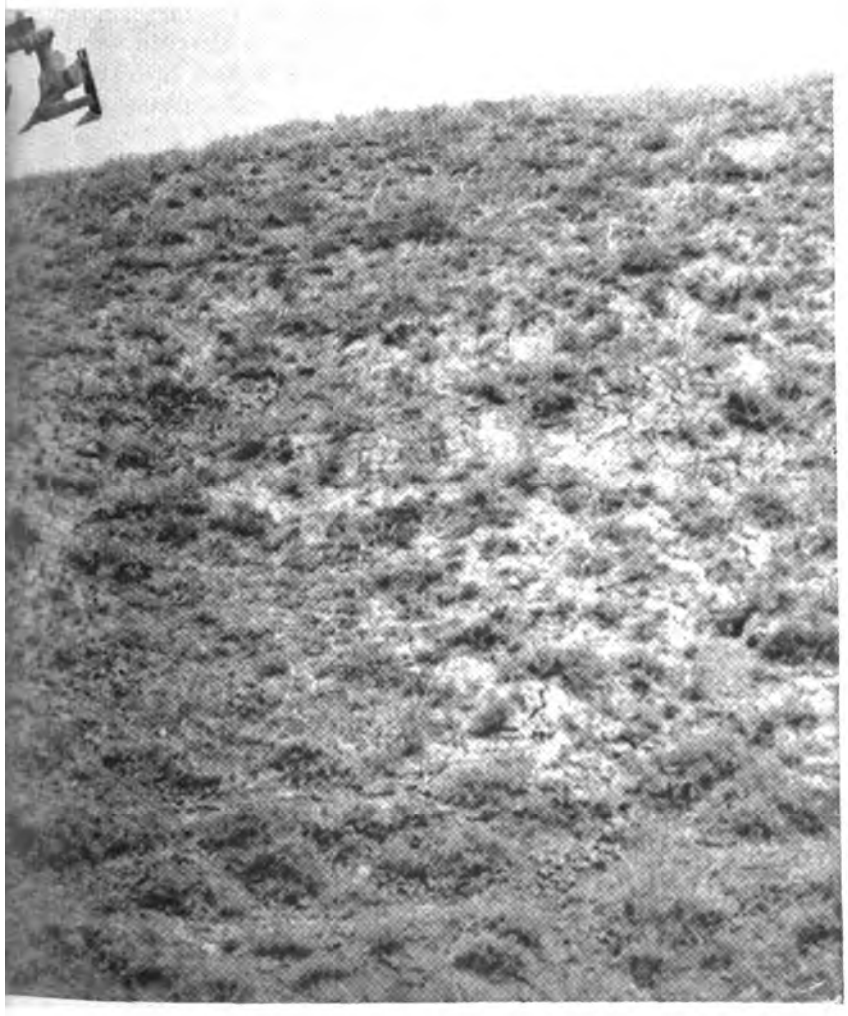
The extensive introduction of farm machinery started in the late twenties and got into full swing in the early thirties, after the small peasant households had united their plots and resources into large-scale agricultural co-operatives, called collective farms.

To supply this new type of farmer with the machinery he needed, to teach him how to operate it and to educate him in the use of modern agricultural methods, a wide network of state-owned machine and tractor stations was established. Through these stations, which served the collective farms on a contract basis, the state was able to help the peasants transform the country's agriculture from its primitive level into an efficient and profitable branch

Continued on page 46

Machine Power





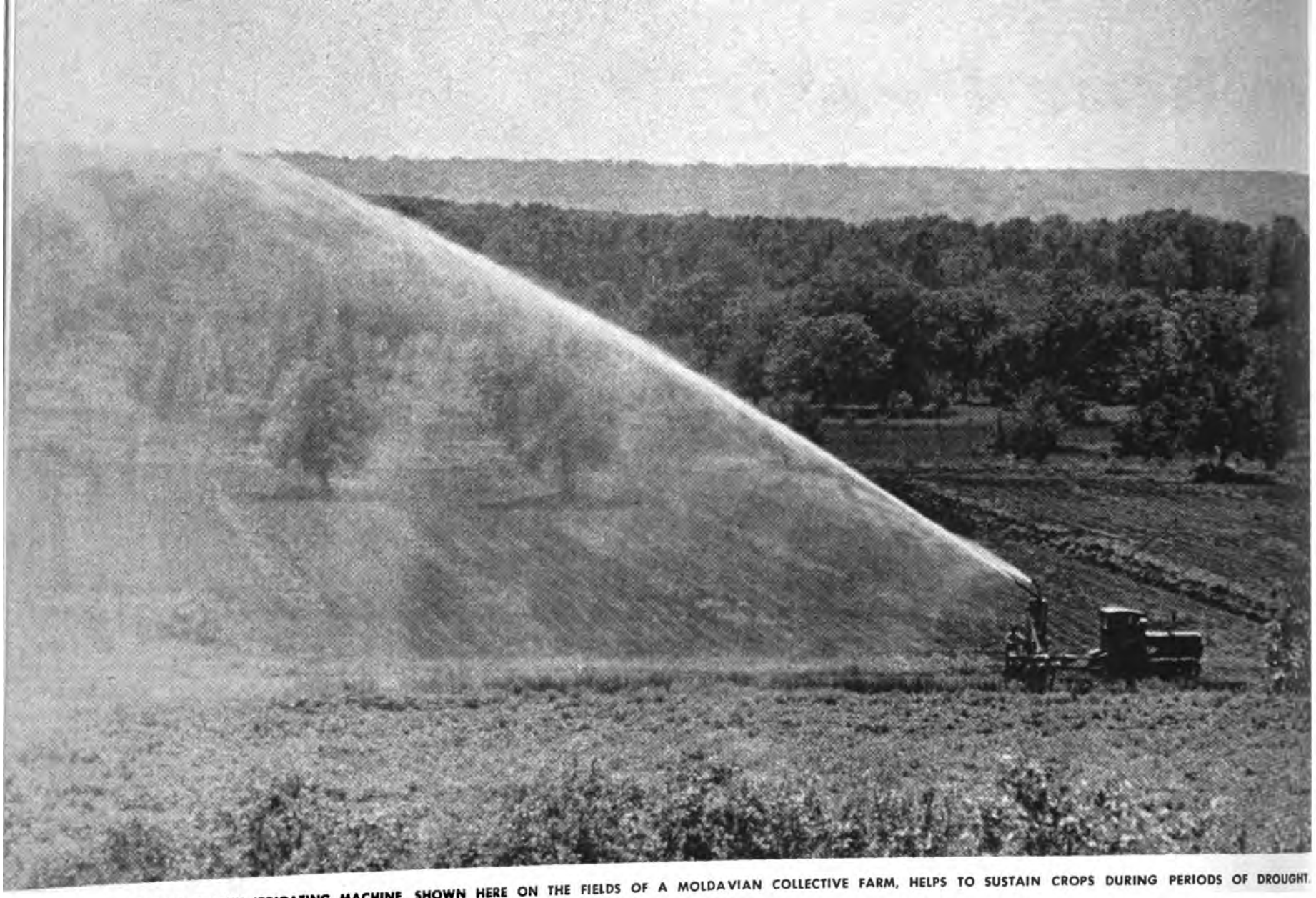
GIANT 250-HORSEPOWER TRACTOR USED FOR HEAVY-DUTY WORK

DIESEL TRACTOR EQUIPPED WITH POWERFUL HYDRAULIC LIFTING ARMS

LATE MODEL OF THE *BELARUS* TRACTOR PUT OUT BY THE MINSK PLANT

LIGHT ROW-CROP TRACTOR MANUFACTURED BY THE VLADIMIR PLANT

SELF-PROPELLED VEGETABLE SEEDER SOWING BY THE DRILL METHOD



TRACTOR-DRAWN IRRIGATING MACHINE, SHOWN HERE ON THE FIELDS OF A MOLDAVIAN COLLECTIVE FARM, HELPS TO SUSTAIN CROPS DURING PERIODS OF DROUGHT.

The Soviet Farmer and Machine Power

Continued

of the economy based on modern machinery and scientific achievements.

Since 1929 the power available to farmers has increased nine times over. Combined machine and animal traction in 1929 ran to slightly more than 21 million horsepower; by 1957, according to incomplete data, it had risen to 120 million horsepower. Now there are 1,700,000 tractors; 450,000 grain-harvester combines; 660,000 trucks and millions of other machines in use on Soviet farms.

The harvests, better than anything else, tell the story of the advances of agriculture over these years. There has been an almost three-fold increase in the marketable grain compared with the pre-revolutionary level. The supplies of meat have doubled, while milk and wool production have more than tripled that of czarist Russia. In some fields of animal husbandry and in crop farming the marketable produce has increased as much as six times.

The use of farm machinery on a large scale in these past years, while raising farm productivity, has at the same time cut labor expenditure sharply. This fact is most vividly demonstrated in the census of the farming population, which was reduced by one-half compared with the pre-revolutionary period.

The country's expanding industry not only has absorbed all the manpower available, but its need for labor has never been satisfied. Yesterday's farmers—the young people, for the most part—trained in the free trade and technical schools, have become city workers. No farmer coming to the city has to pound the pavements for a job. The job searches him out.

Farm mechanization has incomparably lightened the farmer's labor and cut his working hours. He has the time and the opportunity to specialize, to learn a skill. He does not have to wear himself out with the thousand endless chores of the small, marginal farm.

More than a million farmers have become tractor operators; hundreds of thousands are combine operators, engineers and agronomists. The Soviet farmer today grows his crop scientifically, he breeds his livestock with the benefit of the most advanced methods and techniques. With universal free education all the way through college, he has every opportunity to become an educated man and to develop all his potentialities.

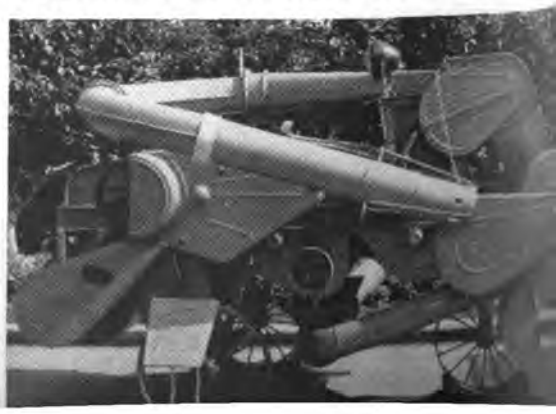
Recent Reorganization

At the present stage of the country's agricultural development the principal task is to achieve a sharp and rapid increase in productivity to satisfy the growing demand for

TRIPLE-DISC PLOW USED WITH HEAVY TRACTOR

TRACTOR-DRAWN MACHINE FOR DIGGING POTATOES

UNIVERSAL GIN USED IN COTTON-GROWING AREAS



foodstuffs and raw materials for light industry.

There is no doubt that this challenge can be met by today's collective farms, which, for the most part, are economically sounder than ever before. Their growing incomes have enabled them to make large capital investments and purchase new machinery for the expansion of production. However, in recent years it became evident that the servicing of the collective farms through machine and tractor stations was obsolete in many ways.

As a result, farmers initiated searches for new forms of providing technical services for the collective farms which would be better adapted to the increased requirements of further expansion of agricultural production and would ensure the most efficient and economical use of machinery. Their initiative, supported by the Communist Party and the Soviet Government, finally took the shape of a suggestion that at the present stage it is expedient to sell tractors, harvester combines and other machinery directly to the collective farms, while the machine and tractor stations should be transformed into repair and technical service stations.

Early in March this suggestion was advanced for nation-wide discussion. Widest segments of the population both in the countryside and in the cities participated, beginning with membership meetings of collective farms and workers' meetings in factories and winding up with a session of the Supreme Soviet—the national legislature.

A variety of opinions were voiced concerning details, but there was general agreement that the proposed change would undoubtedly make for a greater share of on-the-spot management and greater efficiency. It was also generally agreed that the collective farms would further consolidate their economy and increase their incomes, while the entire country would benefit from the resulting increase in supplies of marketable produce.

Late in March the Supreme Soviet adopted a decision on reorganization of the machine and tractor stations. Beginning this year agricultural machinery will be sold directly to the collective farms for cash or credit, on terms depending in each case on the farm's economic condition. The changeover from the previous forms of the technical servicing of the collective farms will be effected gradually and will take into account the specific features of the various areas to ensure a further expansion of the country's agriculture.

300 Types of Machines

Previous to the Second World War, Soviet factories turned out 84 types of farm machines; in 1957 they were producing 300 types. There has been a particularly large increase in production of diesel tractors, the most economical type. They make up about 70 per cent of the fleet now at work in the fields.

The farm-machine industry manufactures a self-propelled chassis on which 40 different farm tools can be mounted. It turns out square-hill planters for corn and other row crops, grain-grass drills, potato planters, seeder-cultivator-fertilizers.

Machines are mass-produced for organic and mineral fertilizing—a loader-mixer for combining manure with peat and organic with mineral fertilizers; a soil-penetrating machine for organic, mineral and granulated fertilizers and for liquid ammonia used in sowing grain and industrial crops.

Among other machines being manufactured are haymowers that cut a 46-foot swath, self-propelled and uniflow grain combines, split-trail reapers, and pickups for harvesting grain by stages. A universal corn harvester combine is now in use which cuts down the plant, strips it and feeds the ears into the truck rolling alongside, while grinding up the stalks into silage.

Not only is industry making better machinery; the farmers are using the machines to better advantage. Average annual cultivation per tractor has increased by more than 20 per cent as compared with prewar figures: 1,280 acres are now plowed per tractor if figured in terms of 15-horsepower units.

Closing Gaps in Mechanization

For all practical purposes, farm mechanization in the country is universal—97 to 98 per cent of the grain plowing and sowing and almost 90 per cent of grain crop harvesting are done by machine. Planting of cotton and sugar beet is almost entirely mechanized.

There are gaps in the picture, however. Potato planting, sugar beet harvesting, truck farm and orchard cultivation, haymowing, siloing and livestock operations are still incompletely mechanized. But it is only a question of time before machines will replace muscle power in all farm operations.

Soviet scientists, collaborating with practical farmers, have worked out a comprehensive system of farm mechanization based in principle on the industrial conveyor. It covers more than a thousand different kinds of machines suited to various zones and provides the very real possibility of fully mechanizing all farm work and further raising farm productivity.

An example is a set of machines in a special hookup, recently introduced by several farms in Omsk Region, that helped mechanize all harvesting operations, from reaping to loading and unloading of grain. Contrasted with the previous hookup, also mechanized, labor expenditure now is seven times lower.

Soviet engineers have divised a number of unique machines. Engineers A. Sheldyayev and A. Shmelkin have built a vibroplow that does not mold back the soil in a continuous solid layer but shakes it up into small lumps. This makes for better moisture retention and more favorable growing conditions. Inventor A. Babayev has developed a compressed air-seeder which drops seeds along with water and fertilizer, and plants them with almost mathematical precision.

Not infrequently farmers themselves turn inventors. Collective farm chairman D. Popov, to cite only one example, invented a cultivator with discs of original design. It weeds and loosens the soil in two directions at the same time, along the rows and between them.

New machines flow in an endless stream to the farmer, to lighten his labor and bring the day closer when the country's agriculture will be able to satisfy all demands for foodstuffs and raw materials. ■

TRACTOR-MOUNTED CULTIVATOR-FERTILIZER ASSEMBLY

MACHINE TO PLANT SEEDLINGS 4 ROWS AT A TIME

TRACTOR-DRAWN SUGAR BEET HARVESTER COMBINE

SELF-PROPELLED COMBINE FOR HARVESTING GRAIN

TRACTOR-DRAWN COMBINE FOR HARVESTING CORN

GROWING WHEAT

By Pyotr Zabazny

A LOAF of wheat bread, said Kliment Timiryazev, the Russian scientist, is one of the great inventions of the human mind. The origin of this basic food dates back to the prehistoric times, when primitive man singled wheat out of the existing wild crops and began to cultivate it. Archeological research shows that it was known several thousand years before our era to the peoples who lived in what is now China, India, Egypt and the countries of the Near East. From those places wheat has traveled and taken root in far-flung parts of the earth.

In Russia, wheat has been grown for more than a thousand years. During this long period many strains have been developed. In more recent times Russian wheat was carried to various parts of Europe and America and took seed to produce local varieties. That beneficial "exchange," we might call it in present-day terms, is gratefully acknowledged by food plant specialists writing today.

Egon Stark, of the University of Manitoba, wrote in 1948 that most of the Canadian wheat strains originated from Russian varieties which were acclimatized to the great open plains of North America.

J. Allen Clark and the late B. B. Bayles, leading agronomists of the United States Department of Agriculture, concluded in a study of American wheat that the main varieties of hard wheat cultivated by American farmers were originally imported from Russia.

A sheaf of Russian wheat growing on American soil might well stand as symbol of Russian-American exchange of food, trade, science, culture and friendship.

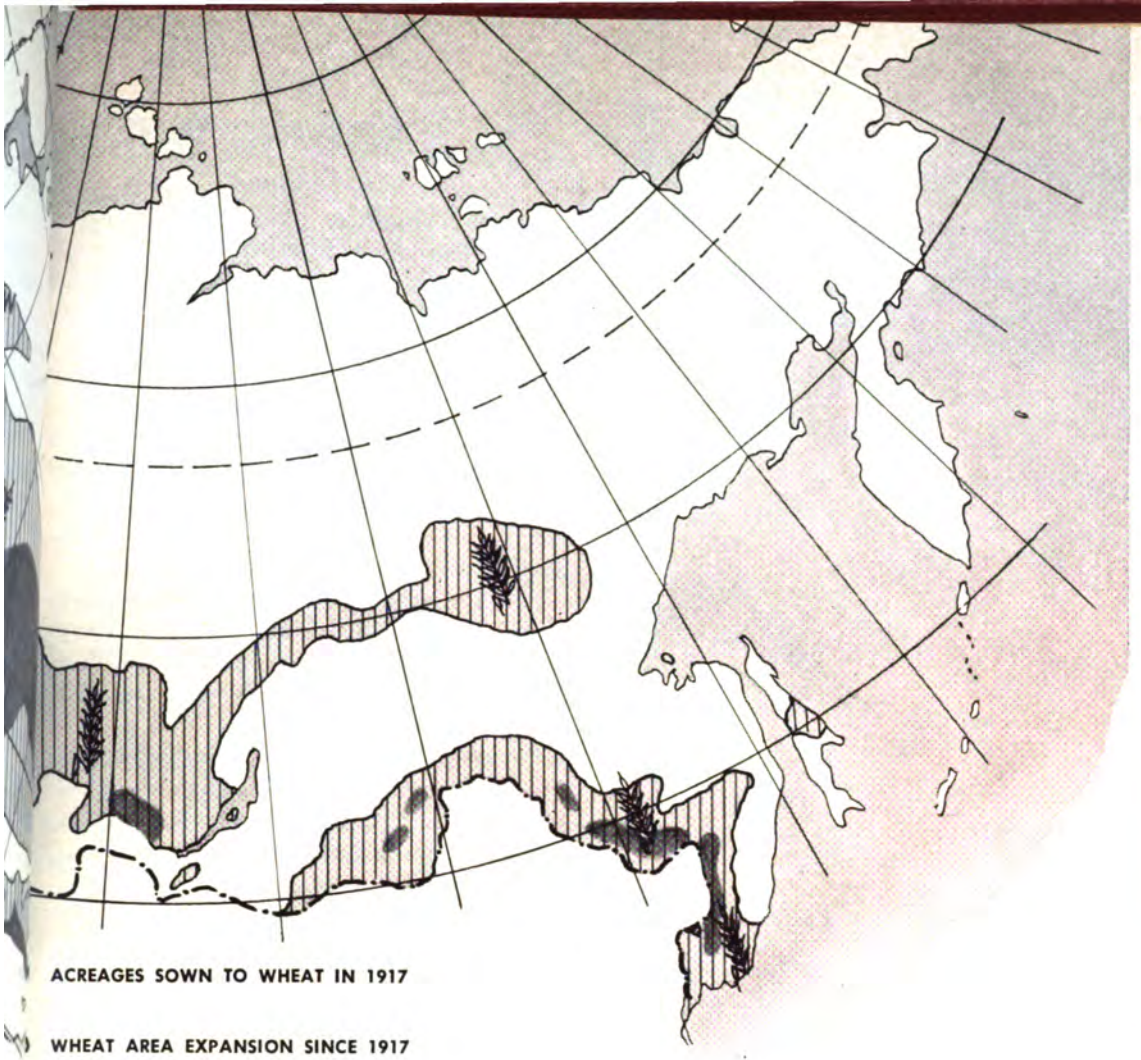
A Changed Farm Map

In all its ancient history, wheat has never been given the thought and attention it is receiving in the Soviet Union today. Scientific institutions are working with collective farms to develop new wheat strains which will yield larger and better crops. Wheat is being grown in new regions, and new methods of cultivation are being tried on a large scale.

With the collective farm system and the introduction of modern farm mechanization, radical changes have been effected in wheat production within a relatively short period.

In pre-Soviet times wheat was concentrated in the southern parts of the country—in the Ukraine, Moldavia and the North Caucasus—in the Volga region and West Siberia. There was little wheat grown in the central, western and northern areas, where rye was the traditional crop. It was not that either soil or climate were unsuited to wheat, but that the small peasant farmsteads, with their hand tools and primitive growing methods, could not compete with the cheaper wheat of the South.

Because of this haphazard crop distribution, the agricultural map of old Russia showed two big spots: the "golden" for wheat, and the "gray" for rye—almost equal in acreage. The

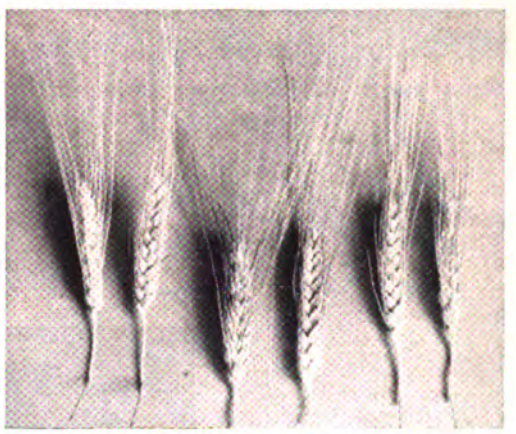


ACREAGES SOWN TO WHEAT IN 1917

WHEAT AREA EXPANSION SINCE 1917

GRASS-WHEAT HYBRID

WINTER WHEAT "ODESSKAYA-3"



SPRING WHEAT "SARATOVSKAYA"

"golden" area was composed of some 82 million acres sown to wheat, the "gray" area somewhat less than 69 million acres sown to rye. They represented 31.6 and 27.8 of the total grain crop respectively.

During the Soviet period, this map has been markedly altered. The "golden" spot is very much larger and the "gray" much smaller. By 1957, wheat was being grown on almost 173 million acres, while rye was grown on only 45 million acres. The proportion of the total grain area has now increased for wheat to 50 per cent and diminished for rye to 14 per cent.

The old rye regions in the central, western and northern parts of the country are now raising good wheat crops. Scientific cultivation and large-scale use of farm machinery have reduced production costs, and national planning has eliminated the old, wasteful price competition which set up artificial and unnatural barriers to restrict cultivation of this basic food.

As a result of crop redistribution, spring wheat, which grows the most valuable varieties, is now raised on 73.5 per cent of the wheat acreage.

The acreage under wheat is being expanded year by year. With the reclamation of virgin and long-fallow lands in Kazakhstan, Siberia and the Urals, more than 57 million additional acres were sown to wheat in the past three years. This year an additional 12 million acres will be sown to grain, including wheat.

For size of its sown area and gross crop of wheat, the Soviet Union stands first in the world. It grows 28 per cent of the world's wheat. *Continued on next page*

SPRING WHEAT "BYELORUSSKAYA"

SPRING WHEAT "OMSKAYA"

SPRING WHEAT NO. 525

SPRING WHEAT "LUTESTSENS-62"

HARVEST TIME IN SIBERIA. BETTER SEED AND SCIENTIFIC METHODS OF CROP CULTIVATION HELP BOOST YIELDS.

GROWING WHEAT

Continued

Wheat with More Protein

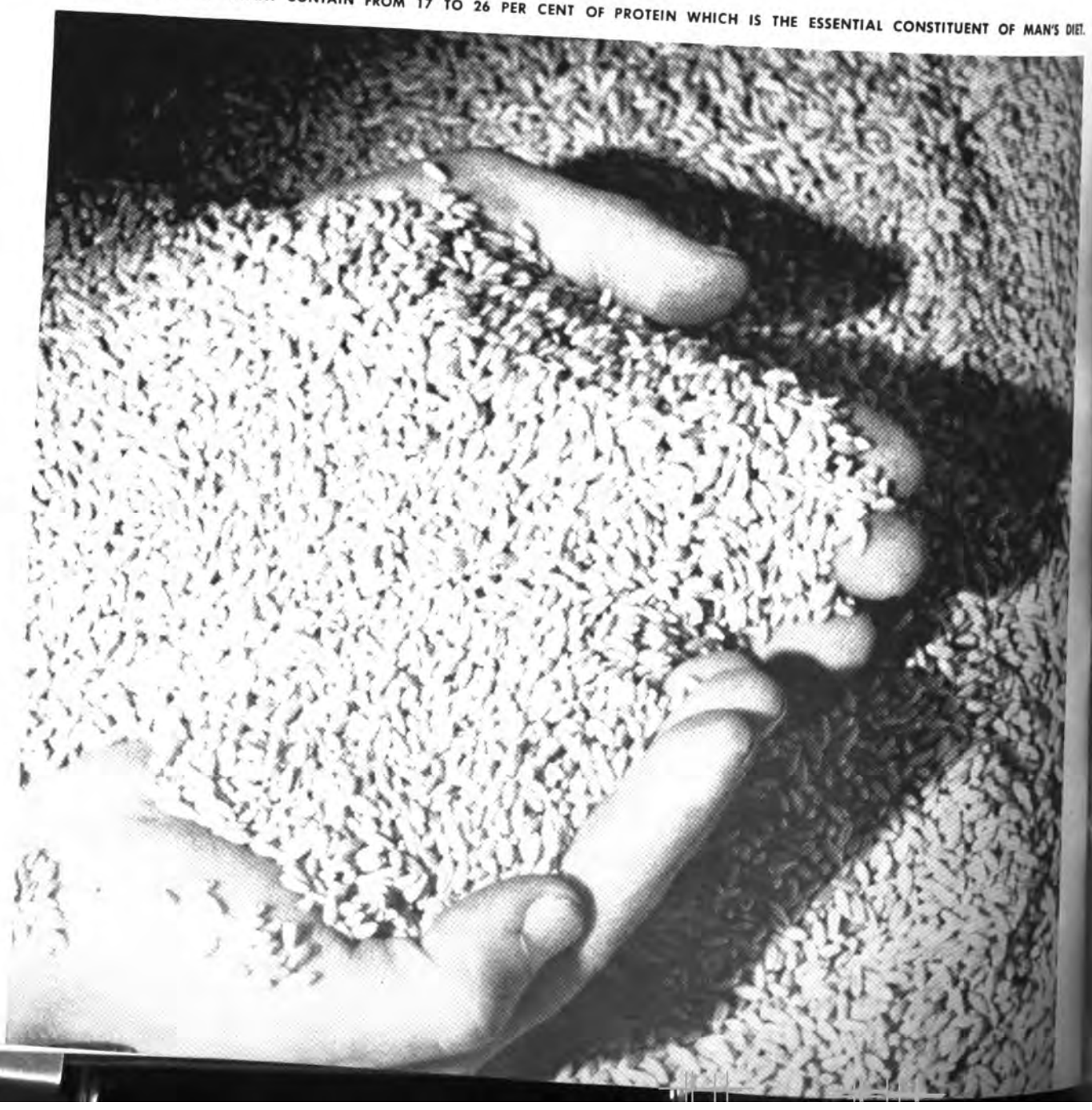
It was the eminent British chemist and physicist, Sir William Crookes, who wrote of the special position allocated to wheat by civilized man because it was the food most suited to develop the muscles and brain.

Soviet science has done much to improve the taste and nutritive qualities of wheat. Many varieties of wheat have been developed with a high content of protein which is the essential constituent of man's diet.

For comparison: West European wheat has 11-14 per cent of protein; Canadian wheat has 16-17 per cent; American has 16-20 per cent; and the Soviet varieties have 17-26 per cent. The international standard is 12.5 per cent.

This process of improving wheat has been going on since the earliest days of the Soviet Union. In 1921, special legislation on seed selection was passed. Out of that beginning has developed a country-wide network of scientific institutes, selection stations and seed-growing farms.

SOVIET VARIETIES OF WHEAT CONTAIN FROM 17 TO 26 PER CENT OF PROTEIN WHICH IS THE ESSENTIAL CONSTITUENT OF MAN'S DIET.



Soviet selectionists have produced 315 varieties of wheat. Among those particularly widely-grown are the varieties developed by Alexei Shekhurdin, Pyotr Konstantinov and Pavel Lukyanenko. The "Lutestsens-62" spring wheat variety developed by Shekhurdin, as one example, is grown on close to 17 million acres.

The work of Academician Nikolai Tsitsin has been especially productive. By means of remote hybridization he has developed new forms of perennial wheat and couch-grass hybrids and rye and wheat hybrids which are remarkable for their high yield and their resistance to pests and disease.

Along with improvement in seed production there has been decided emphasis upon improved growing methods, a process in which selectionists, agronomists and practical grain farmers work together to make a common contribution. Crops are improved through widespread use on the collective farms of such scientific growing methods as treatment with warm air, checkerboard and narrow-row planting of seeds together with granulated phosphate fertilizer, and top dressing of plants with organic and mineral fertilizers. Such simple but extremely effective methods of renewing seed have been followed as planting spring wheat in the fall to improve the hereditary properties of the seed and to yield a larger kernel.

The use of elite seed and scientific methods of crop cultivation have contributed largely to big wheat harvests, even in unfavorable seasons.

Although modern farming has by no means learned how to control nature completely in its more destructive moments, considerable headway has been made to temper its force. In the dry farm regions, irrigation systems have been built, swampy areas have been drained, shelter belts and windbreaks grown to protect farm fields in the steppes. Great wheat fields stretch today where there was only bog or desert not too long ago.

All these factors have united to help grow more wheat. As compared with 1913, the most favorable growing year in czarist times, marketable wheat production has increased by 400 per cent, an addition of 36 million tons of wheat.

A Ready Market

In spite of the long spell of dry weather which affected a large part of the Soviet farm area in 1957, the grain crop harvested was large enough to meet both domestic and export needs. Early in 1958 the Soviet Union concluded agreements for export of approximately three million tons of grain.

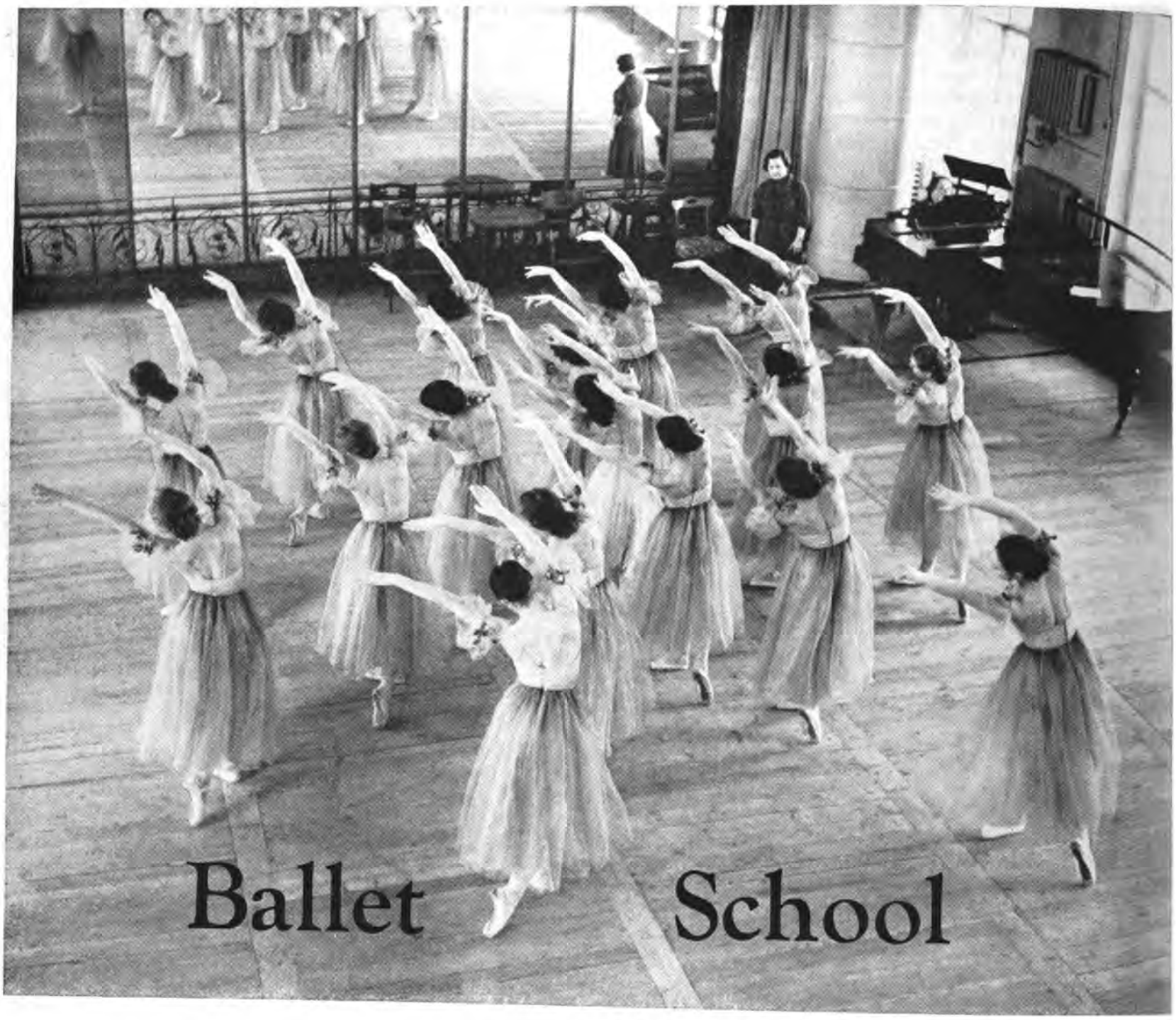
At the end of the past century, when Southern Russia was the country's principal grain producer and the North the consumer, Dmitri Mendeleyev, the celebrated chemist, wrote with truth: "When grain is dear, the North cries and hungers, and when grain is cheap, the South grieves."

That woeful commentary on food production and distribution no longer holds true. Both the South and the North now produce all the grain they need. The grain farmer looks forward to a high yield.

A large harvest no longer means, as it did in 1892 when Mendeleyev wrote, a glutted market and low prices. No matter how high his yield, the Soviet grain farmer has a ready and waiting market. As evidence, in the past few years of bumper crops, the government, which is the largest buyer in the Soviet Union, has been paying collective farms higher prices for many of their products, grain among them.

The combination of higher productivity in all branches of agriculture and higher government-fixed procurement prices accounts for the higher income of the collective farmers—an income which has grown by more than fifty billion rubles only during the past four years.

Nor have higher prices paid by the government to the farmer raised the price of bread and other foodstuffs for the consumer. Consumer prices of foodstuffs, bread among them, were reduced again this year. In the Soviet Union, what benefits the farmer, benefits the consumer. ■



Ballet School

By Yuri Fantalov

FOR 220 YEARS the Leningrad Ballet School has been training the world's great dancers. Pavlova, Nijinsky, Fokine, Karsavina, Ulanova and scores of other great figures in ballet, past and present, learned their first pirouettes at this school.

By August of each year the school receives the applications of as many as 2,000 hopeful future ballet stars. The most promising of the applicants take competitive examinations to determine who will be accepted to fill the 40 places in the entering class.

Head of the admissions committee is Nikolai Ivanovsky who is in charge of professional training at the school. He is a veteran of the Russian ballet and had an eminent career as soloist. For the past 20 years he has been teaching in the school from which he graduated 45 years ago.

"In my day," he says, "there were only 90 of us, boys and girls, at the school. Now we have 330 pupils. But it is not quantity we are so much concerned with—although that, too. is important—as it is quality. We demand much more of our pupils now. And we have to, because the demands upon the dancer are so much greater than they used to be."

Ballet as an art has been going through a radical change in the Soviet Union in these last few decades. Soviet choreographers, while making selective use of the past achievements of the classical Russian ballet, have been turning more and more to the great works of literature in search of new and significant themes and seeking to combine the classic ballet with the folk dance. Prokofiev with *Romeo and Juliet*, Khachaturyan with *Othello* and *Spartacus* and Peiko with *Jeanne d'Arc* have brilliantly translated into dance great world events and figures and great literature.

This dynamic approach to the ballet requires of the dancer much more than the skill to do an "arabesque," let us say, no matter how graceful and poetic. It needs a background knowledge of the history of society and an understanding of human behavior. It must be in tune not only with the past, but with the present and the future.

Hence the changes which have been developed in the curriculum of the Leningrad School and of the dozen other professional ballet schools in the Soviet Union. The course of every school has three major divisions—the choreographic, the musical and the general educational.

The old ballet school had no comprehensive and unified system of training. Each school and each teacher followed an individual pattern, derived from a particular background of stage experience.

In the late twenties a Leningrad ballerina and teacher, Agrippina Vaganova, worked out a unified system of classical dance training for girls. Her book *The Fundamentals of the Classical Dance* is based upon the natural principle of working from the simple to the complex and is the basis for present-day training.

In the first class, the children learn the basic

ballet positions, do simple exercises to strengthen the leg muscles, study plastic movements and develop poise. Most of these exercises are done at the bar. Toward the end of the year the children put on their ballet slippers to do the first toe exercises.

In the second and third year classes, exercises are given without bar support. Exercises for the full foot, the ball of the foot and the toes develop the muscles and the skill to do movements in allegro tempo. In the same way, leaping and spinning movements are done first at the bar and then in the center of the room without support.

From the sixth through the ninth year the children are taught duets; folk and character dances, both native and foreign; and old-time dances. The art of acting is taught as well in these years.

The piano is taught from the first year, advancing to ballet music in the senior year.

Progress is checked carefully. If during the first two or three years the child does not show promise, he leaves the school. He is still young enough to find a more suitable vocation and has lost no ground in general school subjects since he has been taught them at the ballet school.

The pre-Soviet ballet school did not consider general education, aside from the fundamentals, necessary for a career as a dancer. General education was limited then to the first four classes of elementary school.

Now, when children enter the ballet school at the age of ten, they have already had three years of general elementary schooling. After four years in ballet school, they have completed the same program of the seven-year course as in general schools.

From the fifth through the ninth year in ballet school they continue their work in Russian and foreign literature and history, a foreign language, mathematics, physics, chemistry and biology in survey form. At the same time the children are given classes in the history of ballet, theater and fine arts, as well as in make-up and fencing. None of these subjects were included in the pre-Soviet ballet school.

All the way through, from the second half of the first year to graduation, students perform on the big ballet stage with professional dance groups as part of their training. It gives them practice in dancing before an audience and accustoms them to the stage, footlights and theater. The Leningrad Ballet School students dance in *The Nutcracker*, *Sleeping Beauty*, *Shuraleh*, *Fadette*, *Morozko* and other ballets.

A highlight of the Leningrad ballet season is the annual graduation production of the School, often repeated for several performances before large audiences of dance enthusiasts, who speculate on future ballet stars.

On occasion, ballets especially commissioned by the School are performed at these graduation concerts. Two such ballets have been given in recent years—*The Stationmaster*, composed by Andrei Petrov after Alexander Pushkin's story of the same title, and Georgi Portnov's *Daughter of the Snows*, after Tikhon Syomushkin's novel of Arctic life, *Alitet Goes to the Mountains*. Both are new three-act ballets and are excellent training media since

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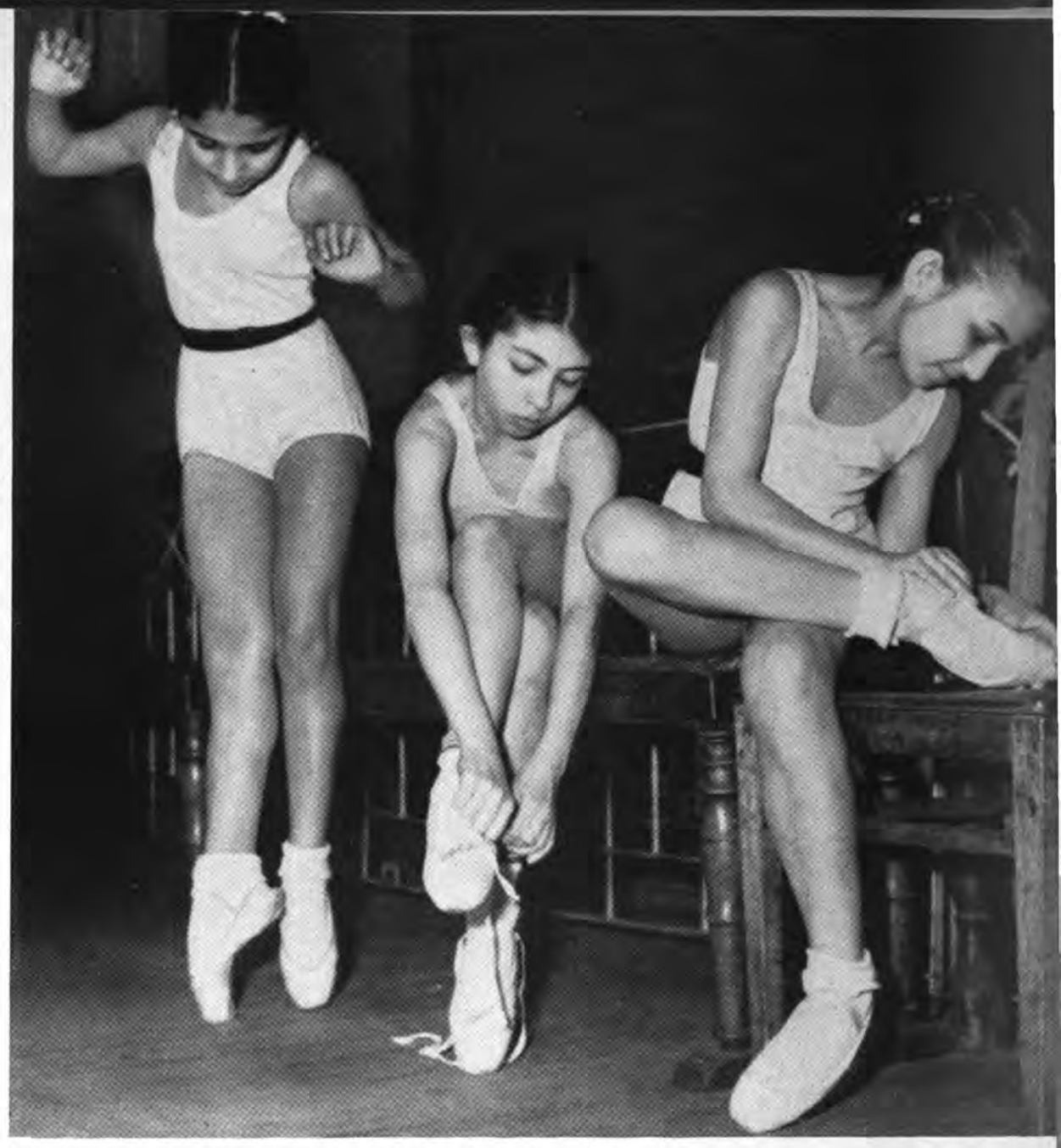
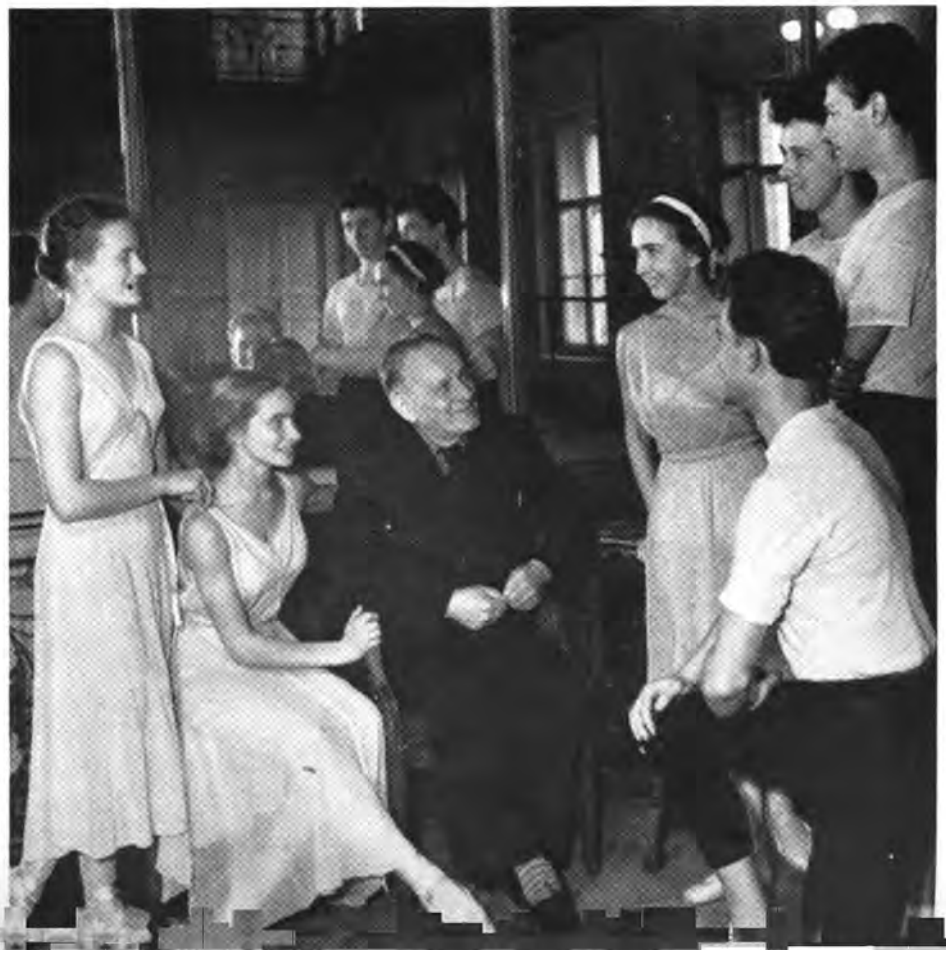
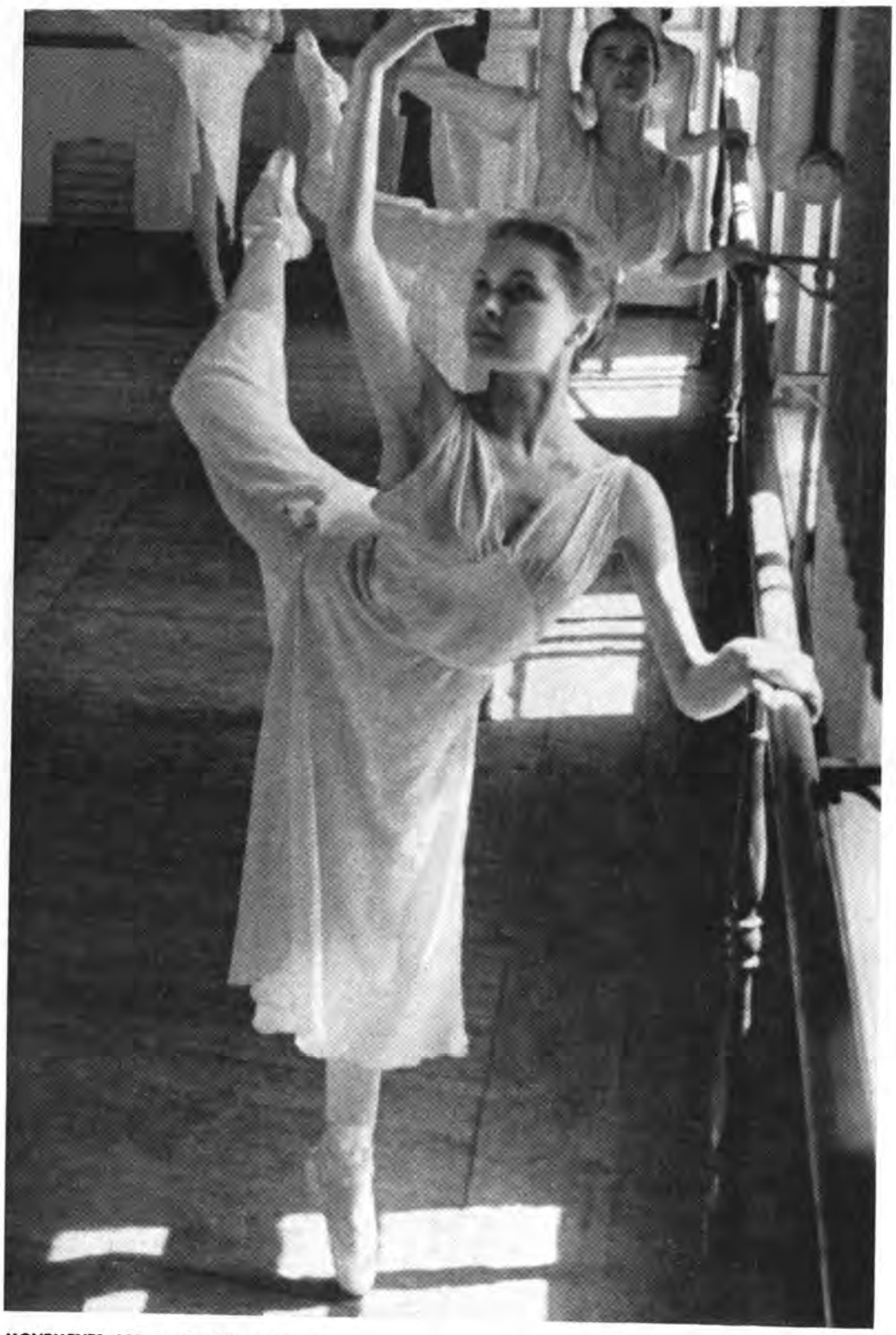


At the end of their first year at the school, after having learned basic ballet positions and strengthened leg muscles, they don ballet slippers and do their first toe exercises.

The junior class discusses the graduation concert with Nikolai Ivanovsky, Dance Director of the school. This is the crowning event of nine years of thorough ballet training.





MOVEMENTS ARE PRACTICED AT THE BAR AND THEN IN THE CENTER OF THE ROOM WITHOUT SUPPORTS.

Ballet School

Continued

students have no previous productions to emulate and must therefore display their own initiative and artistic inventiveness.

The Leningrad Ballet School trains dancers for the various national groups within the Soviet Union and also for other countries. The first national studios were founded ten years ago and since then they have trained dancers for Kirghizia, Moldavia, Ossetia, Bashkiria and Buryat-Mongolia. Among the foreign students graduated during this period were those from Hungary, Bulgaria and Rumania.

At the present time there are eight such studios with a hundred children from Tajikistan, Kazakhstan, Lithuania, Turkmenia and Tataria, as well as from the German Democratic Republic, Albania and Rumania. They all live and study on full scholarships.

Tuition in Soviet ballet schools is free, as it is in every school. The cost of training a ballet dancer—it will run from 8,000 to 11,000 rubles a year, depending on whether the pupil boards at the school or not—is paid by the state. Students of the three upper classes who make satisfactory progress are given, in addition, a monthly stipend.

Former Leningrad Ballet School graduates star in all the major theaters of the country and in theaters abroad. They maintain fond connections with the School by letter and occasional visits.

Jelu Barbu of Rumania, a 1955 graduate, is now a star in the Bucharest Ballet Theater. He wrote to his school recently to tell about his major role in the new Rumanian ballet, *Haidush*. "I shall always be grateful to my old school for teaching me how to live and to dance," his letter concluded. ■

Galya Ovsyannikova, like all students of the ballet school, studies humanities and sciences. At the left: Galya in a physics class. Above: practicing the piano.

OCCASIONALLY ORIGINAL BALLETS ARE PREPARED FOR THE GRADUATION RECITAL. THIS ONE IS A SCENE FROM PORTNOV'S *DAUGHTER OF THE SNOWS*.

From the second half of the first year to graduation, students perform on the big ballet stage with professional dance groups as part of their training. At the left: Galya in the dressing room. Above: dancing the role of Masha in Tchaikovsky's *The Nutcracker*.

Fire Fighters

By Yuri Pavlov

LIGHTNING strikes a big oil tank just outside town. The tank explodes and a pillar of fire streaks into the dark night sky. A torrent of burning oil flows toward the quietly sleeping town, consuming everything in its way.

That was a blaze that Soviet fire fighters will not forget in a hurry. The oil burned for a full day and most of the night following. It was only early the next morning that the flames were under control.

"There have been few fires like that big one," Abram Rubin will tell you. He's a veteran fireman and one of the top-ranking officials of the Soviet fire-fighting service.

"There are strict fire-prevention regulations enforced by law, and one of the main jobs of the fire-fighting service is to see that they are observed in all residential, factory and public buildings. As a rule, fires just don't have a chance to get started. According to recent figures, we have only 0.28 fires a year per thousand of population for Moscow as against 0.8 for Paris and 1.8 for London.

"But no matter how careful people are or how strict the regulations, fires do occur from time to time. Our men are always on the alert because they know that even a small fire may present a grave danger."

Fire Alarm

The work of Moscow's fire department is typical for any big city. When a fire is reported, it is immediately flashed to the central communications center and shows up as a flickering red light on a big map of the city. Operators phone the alarm to the firehouse nearest the scene and moments afterward the red fire engines, with sirens wide open, race to the spot.

Details of the fire, if they have been reported, are passed on by radio to the engines. Simultaneously, the alarm is transmitted by radio to all other fire brigades in the city. They remain on the alert for emergency call.

If they are needed, fire trucks equipped with powerful smoke-suction devices, foam and carbonic acid extinguisher installations, or emergency squads equipped with oxygen apparatus and special clothing for smoke and gas fighting are rushed along.

EQUIPMENT AND MEN ARE EVER READY FOR ACTION.

THE FIRE CHIEF CALLS OUT DIRECTIONS TO FIREMEN AND WARNINGS TO THE CROWD OVER THE LOUDSPEAKER.

Rescue Work

The red light flickering on the big map in the central communications office may be for other emergencies.

A while ago, on one of Moscow's construction jobs, a swinging crane boom accidentally cracked a metal rod scaffold. A bricklayer working on the scaffold just managed to grab hold of an iron hook and hoist himself on to the narrow wall before the scaffold crashed to the ground. The wall was only two bricks wide and towered 230 feet above the street.

A fire engine came racing to the spot and ran out a ladder. But heaps of piled brick prevented the engine from backing close to the wall and the ladder fell short—and there was no time to wait for an engine with a longer ladder.

One of the firemen, Timofei Polyakov, snatched up a narrow escape ladder and a safety rope and began climbing. It was bitter cold and the ladder swayed dizzily in the high wind. Polyakov clambered up to the last rung of the main ladder and, perched dangerously on his toes, managed to secure the escape ladder to the wall. He grabbed hold of the bricklayer not a second too soon.

This was Fireman Polyakov's thirty-second rescue. His thirty-first had been an eight-year-old adventurer, Victor Levushkin.

Victor was visiting Moscow for the first time and he thought he'd take a walk around the city by himself. Without telling his moth-

Continued on next page

A TOP STORY FIRE. ALARMS ARE TRANSMITTED BY RADIO TO FIREHOUSE NEAREST SCENE AND OTHER BRIGADES ARE ALERTED TO STAND BY FOR EMERGENCY CALLS.

Fire Fighters *Continued*

Firemen go through rigid basic training and a special daily program of sports exercises to keep them in trim and improve their skill.

er, he started off. As he was walking across the Krimsky Bridge he thought he'd like to have a better view of the city, as he explained later, from the top of the arch.

There were few passers-by at the moment and apparently no one noticed the boy climbing. He kept going up and up, then stopped to see how high he was. One look down at the Moscow River far below him, and he grabbed the girder convulsively and stuck.

Timofei Polyakov raced to the scene in a fire engine, climbed up after him, and pried him loose.

Award For Valor

Nikolai Smirnov is another Moscow fireman who is establishing a record for rescues. One of his was off duty, on what he thought was going to be a quiet night at home.

He was awakened in the middle of the night by cries for help from a neighboring five-story house. People were trapped in the top story with the flames shooting out beneath the roof of the house.

There was no time to wait for the fire engine. Seconds counted. Smirnov raced across

the courtyard, climbed up the fire escape to the fifth story, walked gingerly along a 15-foot-long, narrow ledge, holding on to the wall with his fingernails, and reached a window.

There were a litle boy and an old woman in the burning room, cowering in a corner away from the flames. There was no way of getting them out, except back across the ledge. Smirnov picked up the youngster, carried him along the ledge and handed him down to the firemen, who had come by this time. Then he went back for the old woman.

For such courageous acts, many firemen were presented with the "For Valor in Fire Fighting" Medal, an award established by the Soviet Parliament. Appropriately it pictures a fireman carrying a child in his arms through flames.

Volunteer Firemen

Assisting the professional fire fighters are volunteer firemen. Their main task is to see that fire regulations are observed at home, school and shop. Fire prevention, say both professional and volunteer firemen, is still the best way of fighting fires.

The Moscow volunteer firemen's association has a membership of several hundred thousand. Many of the members have distinguished themselves in action.

Vasili Yefimov, a railroad worker and volunteer fireman, climbed the 160-foot steeple of a Moscow railway station to put out a fire. Vasili Malkov, high school student and junior volunteer fireman, recently rescued three children from a burning house.

Fire-Prevention Equipment

There is a special fire-fighting research institute which coordinates the work connected with the designing of new fire-prevention equipment and bringing old equipment up to date. Recently the institute held an exhibit in Moscow.

On display were old fire-fighting apparatus and the latest equipment. A suit made of aluminum fabric that looks a little like a medieval suit of armor attracted many of the visitors. This suit makes it possible for firemen to work surrounded by flames for a considerable time.

Another exhibit which caught the fancy of the visitors was an unusual fire prevention gimmick. It is a small rectangular box on a stand. Should the visitor strike a match to light a cigarette, a tape-recorded voice booms out of the loudspeaker attached to the innocuous box—"No smoking here, if you please."

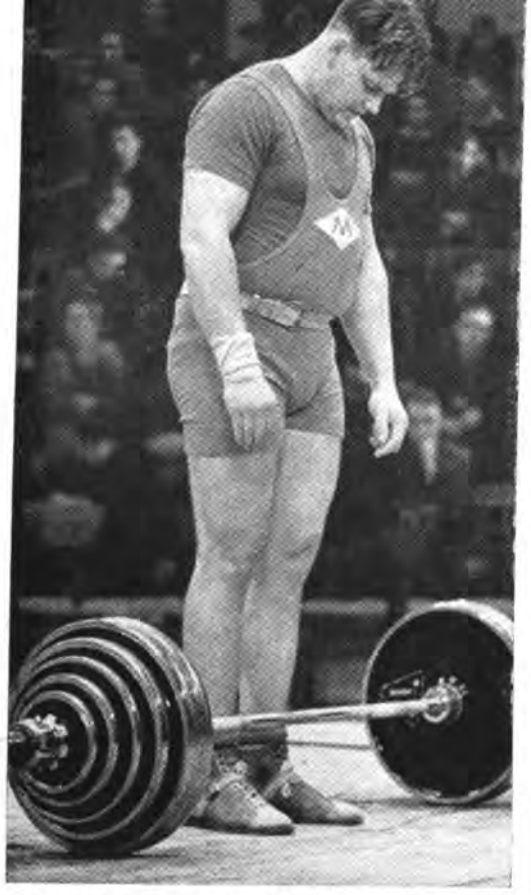
There were pieces of fire-prevention equipment on exhibit which were familiar to many visitors, for example, the automatic thermo-notifiers. These devices, operating on semiconductors, ring an alarm when the temperature rises beyond a fixed point. Also widely used are devices working on isotopes of polonium which automatically sound if smoke appears.

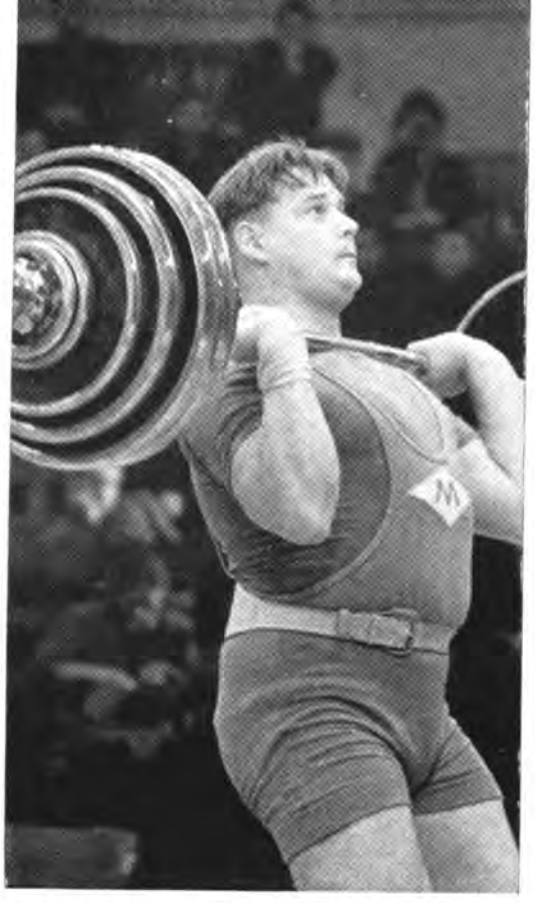
These and many others of the most modern type of fire-prevention and fire-fighting devices are in everyday use in public buildings, factories and apartment houses to protect life and property. ■

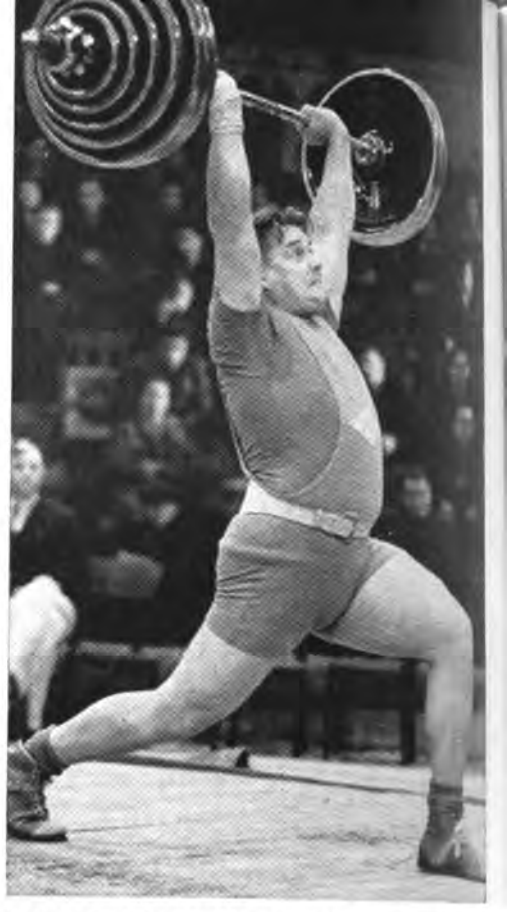
A NEW JUNIOR MEMBER OF THE VOLUNTEER FIRE-PREVENTION SOCIETY RECEIVES HIS BADGE FROM THE CHIEF.

AN EXHIBITION SHOWING FIRE-FIGHTING SERVICES IN THE SOVIET UNION WAS RECENTLY HELD IN MOSCOW.

A LIGHTER SIDE OF THE SERVICE—FIREMEN'S JAZZ ORCHESTRA. THEY ALSO HAVE OTHER AMATEUR GROUPS.







ALEXEI MEDVEDEV, THIS MOSCOW PATTERN-MAKER IS THE WORLD'S STRONGEST MAN. HE IS 30, WEIGHS 264, AND WON CROWN BY AMASSING A TOTAL 1,102 POUNDS.

STRONGMEN

By Efim Rubin

STRONGMEN of the Soviet Union and the United States—"Two Great Weightlifting Powers"—will get together for a competition in May. The trip of our strongmen to the American continent is a reciprocal one. A team of USA barbell performers visited our country in 1955 and competed in Moscow and Leningrad.

Five of our weightlifters who matched their strength with the Americans three years ago remain top-notchers in their respective classes.

* * *

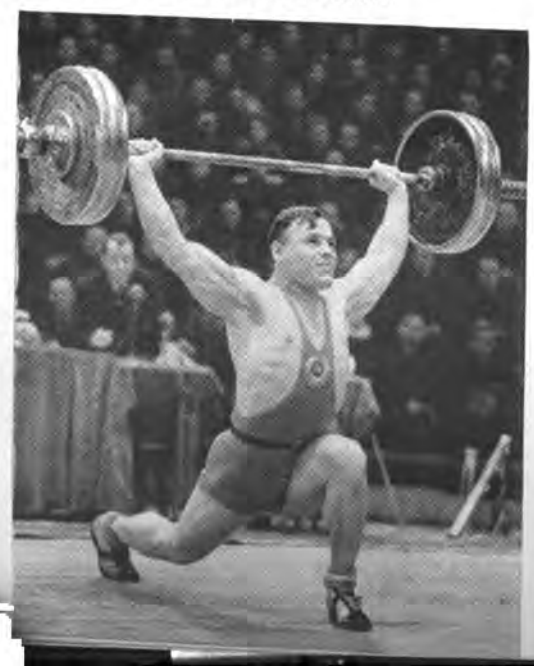
Arkadi Vorobyov, a 33-year-old middle-heavyweight and the captain of the Soviet team, was brought up on the Volga River. He took an early fancy to diving and when he grew up, became a professional deep sea diver and served in the Navy. After being demobilized in 1951 he enrolled in the medical institute in the Urals city of Sverdlovsk. He graduated from that institute last year and is now taking a postgraduate course there. Vorobyov is well known as a prominent public figure. He is a deputy to the Sverdlovsk City Council.

Vorobyov's initial appearance in a weightlifting meet, back in 1947, did not bring him any laurels. He tried to register 287 lbs., but the attempt was unsuccessful. As a result he did not win a single point for this exercise and dropped out of the scoring. This was the first and also about the last failure of the future world champion.

Vorobyov won recognition in Stockholm during the 1953 world championships. He then placed first in the light-heavyweight division. A year later at the world championships in Vienna, Vorobyov again captured a gold medal, this time in the middle-heavyweight class. Following this Arkadi became the Olympic champion in Melbourne and added more laurels at the 1957 world championships in Teheran, where he established two world highs, 319.6 lbs. in the snatch and an aggregate total of 1,036.1 lbs.

ARKADI VOROBYOV, MIDDLE-HEAVYWEIGHT

TROFIM LOMAKIN, LIGHT-HEAVYWEIGHT



VLADIMIR STOGOV (RIGHT), BANTAMWEIGHT

* * *

Another brilliant member of the Soviet team is light-heavyweight Trofim Lomakin, an army officer. He is the same age as Vorobyov and they are friends in life but rivals on the weightlifting platform. Lomakin hails from Siberia, where his great-grandfather, grandfather and father worked as gold miners, and he followed in their footsteps. He first went in for weightlifting in 1947, when he was in the Army. There are a number of legends about his physical strength. One of them recalls the time when Lomakin bet he could overturn a car with its wheels pointing skyward and won the wager.

The sport world heard of Lomakin and learned his worth after his stellar victory in Helsinski during the XV Olympic games. He occupied first place in the light-heavyweight category with a total of 920.3 lbs. In Teheran, Lomakin confirmed his high class by capturing the 1957 world title with a 992-lb. total, a new world achievement.

* * *

The third of our strongmen leaving for the United States, heavyweight Alexei Medvedev, was satisfied with the role of reserve on the USSR team until 1957. He was present at the world championships, was in Melbourne too, but remained in the shade. Then, finally, he had a chance to prove his mettle. At the tournament in Teheran he amassed a total of 1,102 lbs., overtook the Argentine strongman, Humberto Selvetti, and ascended to the top rung of the stand of honor as the 1957 world heavyweight champion.

Medvedev, now 30, is a student of the Moscow Institute of Physical Culture. He began practicing weightlifting when he was working as a pattern-maker in a Moscow engineering plant. Together with other keen sport enthusiasts he devoted the greater part of his free time to persistent training. The weight he lifted in the course of a single workout added up to ten tons. Continuing to work in the engineering plant, Alexei reaped the first fruits of his effort in sport—he became the heavyweight champion of Moscow.

Whereas Medvedev's teammates are thinking of ways of avoiding putting on extra weight, the heavyweight, on the contrary, wouldn't have any objections to that. He has added 88 pounds in the last ten years and he now tips the scales at 264.5 pounds.

* * *

The world bantamweight champion is Vladimir Stogov, a 28-year-old truck driver. His start in weightlifting was accidental. It happened when he was serving in the Army.

The bantamweight contender from his unit suddenly fell ill during an army weightlifting meet. The disappointed trainer spotted the stocky figure of Stogov among the onlookers and coaxed him into substituting for the ailing man. He explained how the barbell should be pressed, snatched and jerked. Stogov approached the barbell and to the great surprise of everyone collected 418 lbs. to take first place.

This occurred in 1953. Two years later Stogov was crowned champion of the world. In 1957, while performing in Teheran, he set up a new world record total of 760.5 lbs., and Stogov himself weighed only 123 lbs.!

* * *

IN USA-USSR MEET OF 1955, STOGOV'S PERFORMANCE WAS JUDGED BY AMERICAN REFEREE ROBERT HOFFMAN.

Another truck driver on the USSR squad is middleweight Fyodor Bogdanovsky. In 1950, when he was 19, he emerged victorious in a strongmen's competition in Vishny Volochok, a small town on the Moscow-Leningrad railway line. He gained a triple exercise total of 641 lbs.

The winner gave his first interview to a reporter at that time. He said that he had been fond of "fussing around with iron" since boyhood. Back in the garage Fyodor did not have much difficulty in raising heavy truck tires, crankshafts and even a tie-car axle. Having tested his strength in sport, Bogdanovsky entered the Leningrad Institute of Physical Culture.

Fyodor racked up his most impressive victory in the Melbourne games. There he won the gold medal of Olympic champion in the middleweight class. He holds two world records: 297.6 lbs. in the press and a 925.9-lb. total. It must be pointed out that Fyodor ran into bad luck twice: in the 1955 and 1957 world championships he remained in runner-up position because his own weight proved heavier than that of his rival—in the first instance, by 2.8 ounces and in the second, by 4.2 ounces.

* * *

The Soviet team includes Victor Bushuyev, a lightweight, who works as an assembly hand and fitter at the Gorky Electric Power Station. He began his weightlifting career seven years ago at the age of 19—bought a pair of Indian clubs, found an old barbell somewhere and repeated the necessary exercises daily before a mirror.

Bushuyev's first triumph came in 1957, when he became a champion of the World Youth Sports Games and a world record-holder. Two months after that, in Teheran, he gained the title of world lightweight champion, showing an excellent total of 837.7 lbs.

* * *

Finally, the USSR squad includes 27-year-old Yevgeni Minayev, a featherweight from Moscow and a welder by trade. He first won prominence at our national sports festival in the summer of 1956, where he gave us a world record with a 251.3-lb. press. Soon after that he was sent to Melbourne where he finished second to the American featherweight Olympic victor, Isaac Berger. But on the following year, in Teheran, Minayev proved to be in front. He was called an alchemist who could turn silver into gold. His world record total equalled 799.1 lbs. ■

FYODOR BOGDANOVSKY, MIDDLEWEIGHT.

YEVGENI MINAYEV, FEATHERWEIGHT.

Vacationing in the *Caucasian Mountains*

By Victor Ruikovich

PLANNING an excursion in the mountains one should always be prepared to put up with some discomfort. Mountain climbing requires a certain amount of effort, the fitness of an athlete, courage, and frequently Spartan endurance.

Those who prefer to spend their vacation in a quiet spot, where the very air is languid, make sport of the mountain climbers, saying that "a good life does not drive one up the mountains. . . ." The mountaineers have a ready answer for them: "There is no good life without mountains! . . ." Both are prepared to stand up for their opinions, but I am inclined to side with the admirers of the mountains.

Chains of snow-capped peaks holding up the blue sky; evergreen fir-tree forests with their healthful fragrance; deep canyons cutting across giant mountain ranges; rushing streams which seem to sweep down from the sky as it were—these and other features of the Caucasian mountain ranges, appeal to every heart. They have a special appeal to a man who has the spirit of a pioneer, of a conqueror of nature, who loves to test his skill, strength and courage in battle with the elements.

Thousands of people are vacationing in the Caucasus in summer and in winter. They need not worry about finding shelter, for the numerous resorts, tourist and sports camps, maintained by trade unions or by athletic societies, are prepared to receive them. The charge for a room with meals, for sporting gear and guides is 600 rubles a month on the average.

I snapped the pictures appearing on these pages in one of these tourist camps. It is situated in the Dombai Valley, to the west of Mt. Elbrus.

NEW GUESTS MAKE PLANS FOR TOMORROW'S TRIP UP THE SIDE OF THE MOUNTAIN.

NEW SNOW OFFERS A STRONG INVITATION TO EVERYONE.

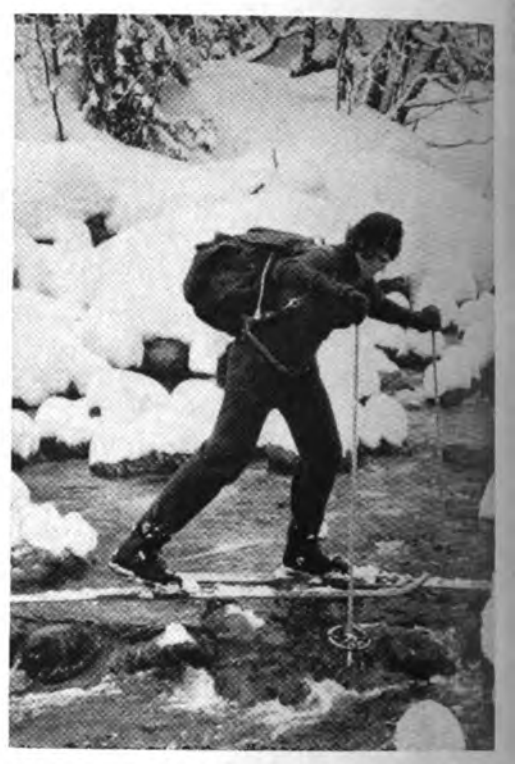
VACATIONERS BUILDING A DOMBAI VALLEY "SNOWMAN".

A GAY IMPROMPTU CONCERT AT THE DINNER TABLE.

More pictures on following page

Caucasian Mountains

Continued



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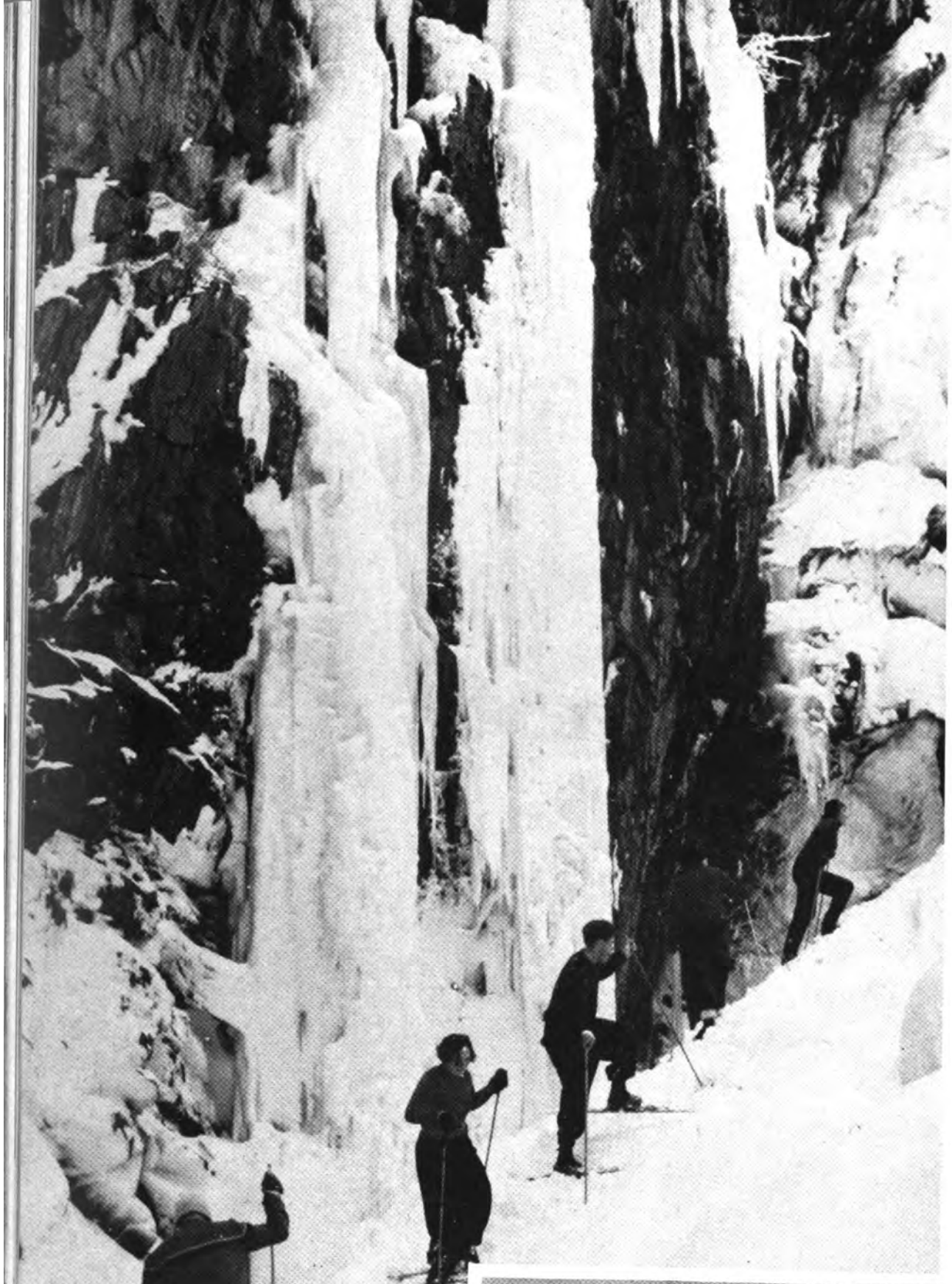

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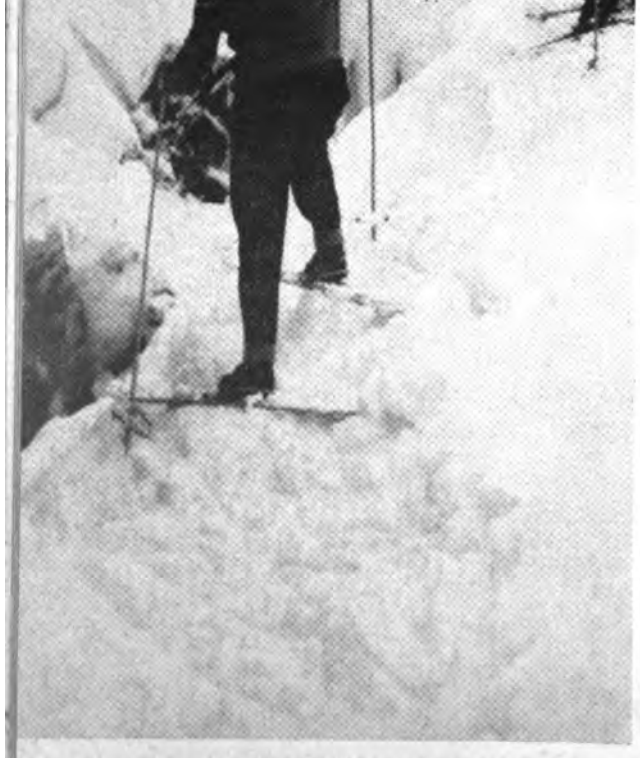
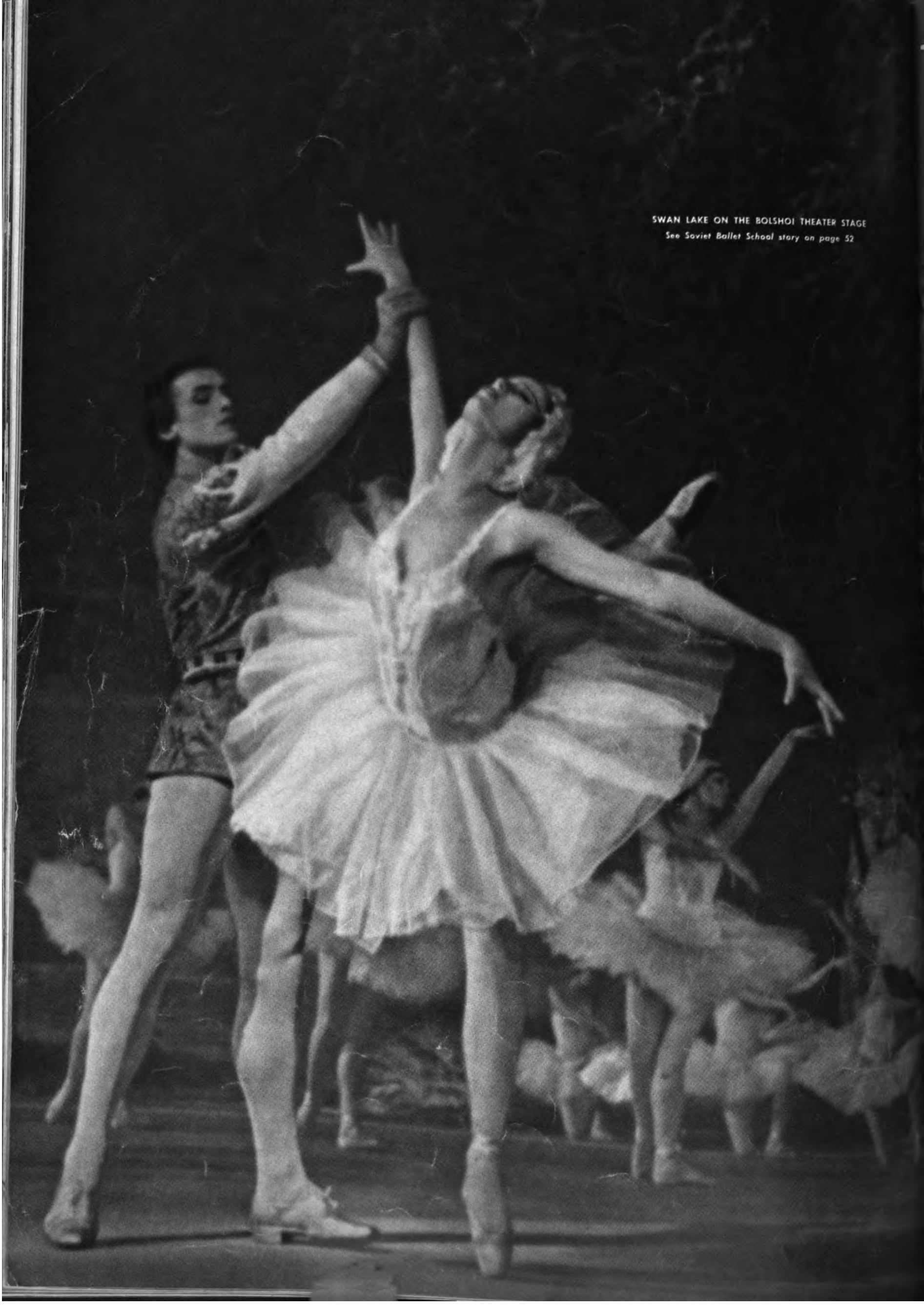


ARTISTRY OF NATURE IN MOUNTAIN CANYON.



SWAN LAKE ON THE BOLSHOI THEATER STAGE

See *Soviet Ballet School* story on page 52

USSR

MORE PRODUCTION IN AGRICULTURE

—See Page 10

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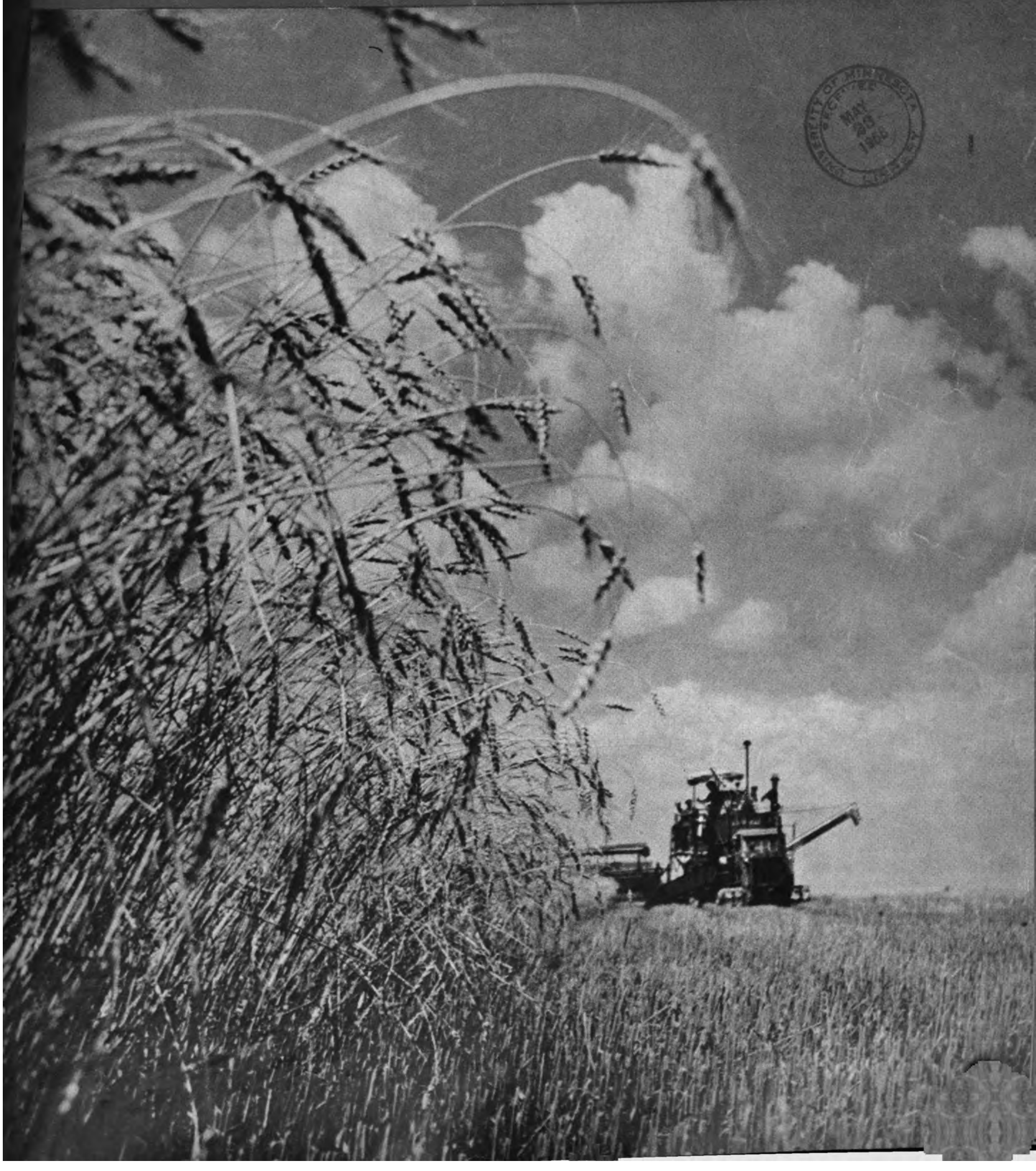

UNIVERSITY OF MINNESOTA ARCHIVES MAY 23 1966

ELECTION DAY BROUGHT 133.5 MILLION TO THE POLLS TO VOTE FOR MEMBERS OF THE SOVIET PARLIAMENT.

USSR

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NIKITA KHRUSHCHEV AT AN ELECTION MEETING HELD IN MOSCOW'S KALININ AREA, WHERE HE WAS RUNNING AS A CANDIDATE FOR DEPUTY TO THE USSR SUPREME SOVIET.

Elections in the Soviet Union

ELECTIONS on the local, regional and national levels are of great importance and concern to all Soviet citizens. The voting for all elective offices at every level is by secret ballot. Each citizen, on reaching the age of 18, is eligible to vote regardless of race, creed, sex, national origin or religious belief.

Once every four years the country's population chooses the deputies for the USSR Supreme Soviet—the national parliament. Early this year the term of the old Supreme Soviet expired and an active nominations and election campaign was launched that was climaxed last March 16 by the balloting for the seats in the two chambers of the national legislature.

These elections and the campaign that precedes them provide the country's population with a thorough accounting of the outgoing Supreme Soviet's record of accomplishment compared with the platform upon which it was elected, and they furnish the voting public with another opportunity to study and debate the program for the over-all development of the country in the coming period. The deputies who have been renominated report on their record and accomplishments and, along with new candidates, discuss various aspects of future policy.

All of the reports are made at public meetings that draw their participants from all groups of citizens. Workers of industry meet in their plant clubs or in the shops; there are assemblages of collective farmers in villages; meetings are held in remote outposts from border to border across the great breadth of the Soviet land.

The deputies recalled in their reports the various measures which had been taken during their tenure of office to carry out the tasks of the 1954 platform of the Communist and non-Party slate. Many examples were cited to show what had been done to help ensure the further development of the nation's economy and culture, to improve the well-being of the people, to work for the relaxation of international tension and the strengthening of peace.

The record, of course, was well known to the people, because the facts and figures on industry and agriculture, on educational progress and all matters of common concern are regularly reported both in the press and at meetings, and the improvement in the well-being of the people is self-evident.

During the four years of the former Supreme Soviet's tenure there was an expansion of 55 per cent in industrial production. In the same four-year period more than 3,000 new large industrial enterprises were placed in operation. There was a 45 per cent increase in the output of consumer goods.

Both the candidates and the general public joined in discussions on how to maintain and increase the rapid growth of all branches of industry in order to attain the chief task of the national economy: to overtake and then surpass the per capita output of the world's leading powers.

As a matter of fact, the 1958 platform of the Communist and non-Party slate proposed that within the next fifteen years the Soviet Union double and triple its output in the decisive branches of industry as a major step toward this goal.

In the agricultural field it was recalled in the course of the campaign that four years ago the platform had held forth the prospect of a speedy rise of farm production in a relatively brief space of time to satisfy the greatly increased demand. The record showed that by cultivating millions of acres of new lands in the eastern regions, the country had produced hundreds of millions of extra tons of grain despite severe drought conditions in a number of areas.

There was also an increase of 42 million head in the country's livestock herds during the four-year period. The volume of marketable milk rose by ten million tons. For the purpose of comparison, it was shown that in 1913 the entire marketable production of milk was only seven million tons.

All of the reports touched on the movement launched on the initiative of the country's farmers to overtake the United States

Continued on next page

Elections in the Soviet Union *Continued*

ANASTAS MIKOYAN, FIRST DEPUTY PREMIER, WITH HIS CONSTITUENTS IN YEREVAN, CAPITAL OF ARMENIA.

within the next few years in the per capita production of meat, butter and milk.

In the past four years many measures were undertaken to improve living standards at an ever-quickening pace. There was legislation to boost the wages of lower paid workers; to repeal or reduce various taxes; to increase old-age pensions and grants to students. There was a changeover to a seven- or a six-hour workday, depending on the type of job, with no reduction in pay. Social insurance benefits and appropriations for free education and free medical services increased.

Housing has been and remains one of the country's major concerns, although much has been done to alleviate the shortage. During 1957 alone more than 1,600,000 new apartments were made available for tenancy in urban communities and additionally the rural regions saw the completion of 770,000 new houses. The program for the coming period calls for building at an increased rate throughout the country so that the solution of the housing problem will be attained in ten or twelve years.

Carried on in meetings, reported in newspapers and on the radio and TV, these discussions, speeches and reports bring the issues and the candidates into clear focus for voters everywhere. Soviet voters naturally feel they are closely involved in their Government's operations and make their decision at the polls on the basis of a long and studied consideration of the situation. One example is the nationwide discussion on the reorganiza-

KLIMENT VOROSHILOV, PRESIDENT OF THE PRESIDIUM OF THE USSR SUPREME SOVIET, ADDRESSING A MEETING OF THE VOTERS IN HIS ELECTION AREA IN LENINGRAD.

tion of the machine and tractor stations which coincided with the election campaign.

During the month of March alone some 50 million individuals attended meetings to discuss the problem. Some three million took the floor to voice their remarks on it or make suggestions. In addition, during the discussion period the press, radio and TV carried some 100,000 letters, articles and speeches dealing with one phase or another of the reorganization question.

In the past four years there were other national issues that brought about similar widespread discussion. They include the law adopted last year for the transfer of industrial management from the central ministries to the local level, where it is now administered through regional economic councils.

In selecting deputies for the Supreme Soviet the voters bend every effort to pick the best qualified and most representative citizens.

Nominations are made jointly by the Communist Party, the trade unions, the cooperatives, youth, cultural and other non-Party organizations. They are made after a most thorough debate and discussion of each nominee—pro and con.

Anyone dissatisfied with one or another of the nominees has the right to place the name of his own choice before the meeting. He is granted the floor to elaborate on the qualifications of his candidate. The final choice is decided by the majority of the meeting. Should two or more candidates be nominated in a given district, representatives of the meetings of this district gather in conference, and the winner of the majority vote is declared the common candidate.

When the final slate of nominees is completed and ready for balloting, there are no rival candidates because there are no competing parties in the Soviet Union, nor are there any antagonistic or conflicting groups.

All candidates run on the united slate of the Communist and non-Party bloc. This is actually a national coalition that campaigns on a common platform reflecting the interests of the whole nation. The platform is dedicated to the assurance of the country's continued growth and prosperity as a means to attain a constantly rising standard of living for all in an atmosphere of world peace, understanding and good will.

The single party system has been proven in forty years of experience under the most trying and difficult conditions. Before the Socialist Revolution of 1917 there were several political parties in Russia. But with the victory of the Revolution only one party met the challenge of history and was able to respond to the people's demands. That party, the Communist Party of the Soviet Union, was at the head of the nation's drive to create a new, socialist society. All other parties, having failed to win the support of the masses, were rejected by the people.

The balloting is preceded by the registering of the candidates and the setting up of election commissions to handle that task as well as the mechanism of the election itself. For the March 16 elections these commissions had a total membership of 1,200,000, of which 57 per cent were non-Party people.

Every election district is divided into precincts. Election commissions of the precincts make up the list of voters for each election, adding the names of new voters and removing those who have moved away or died. The entire system is so set up that voting is made readily available to every citizen no matter where he may be. The end result is that Election Day brings a mass outpouring of citizens to the polling places.

Out of a total electorate of 133,836,325 voters on March 16, only 0.03 per cent failed to exercise their franchise. More than 99.5 per cent of those who voted cast ballots in favor of the coalition slate of candidates. Thus the elections proved that the nation had endorsed the record of the Soviet Government and the Communist Party made in the preceding four-year term and the program for the future as set out in the election statement.

Of the 1,378 deputies elected to the new Supreme Soviet, 738 are members of the Soviet of the Union and 640 of the Soviet of Nationalities—the two equal chambers of the country's parliament. They represent a cross-section of the voters themselves, the working people of the country, both manual and intellectual. Among the deputies are 614 workers and collective farmers directly engaged in production, comprising 44.6 per cent of the Supreme Soviet's membership. The remainder are people from the various professions, scientists, writers, artists and people in public life. A total of 26.4 per cent of the deputies are women.

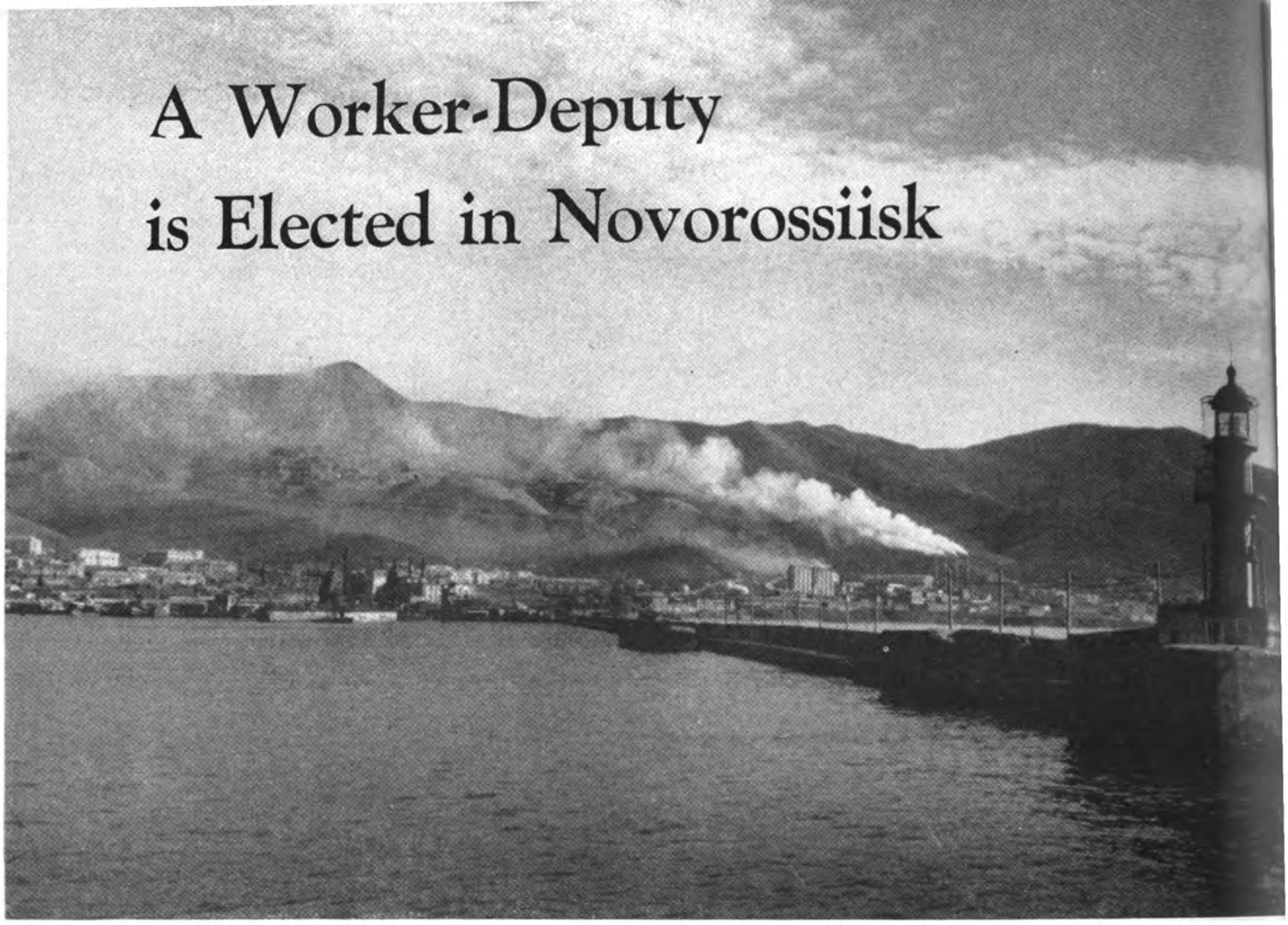
Soon after the election results were certified, the Supreme Soviet met in its first session and immediately got down to business. One of the first actions was a debate on the reorganization proposal concerning the country's agriculture, followed by the adoption of a law that spelled out the operation in detail. (For a complete article on this subject see Page 10 of this issue of the magazine—*Ed.*)

After that there was another equally important debate—in the field of international affairs. By unanimous vote the Supreme Soviet approved with legislative action the Government's proposal to abandon the testing of hydrogen and atomic weapons as a unilateral step to contribute to world peace in the hope that the other Great Powers will do likewise.

Members of the Supreme Soviet continue working on the jobs they held before being elected as deputies. To meet the responsibilities and duties of public office they are granted time off from their regular work. Back home between sessions, they are in constant touch with the people whose ballots made them legislators. They are able to help their voters in many ways and at the same time they receive many valuable suggestions from them.

Because of this continuous and direct contact, the legislative actions of the Supreme Soviet always reflect the people's ideas. In serving their constituents the deputies contribute to the national welfare, to the advancement of the people's standard of living and to international good will and understanding. ■

A Worker-Deputy is Elected in Novorossiisk



NOVOROSSIISK, A CITY ON THE BLACK SEA, COMPLETELY DESTROYED BY THE NAZIS IN WORLD WAR II, HAS SINCE BEEN REBUILT. ITS MAJOR INDUSTRY IS CEMENT.

DOCKERS TAKE A BREAK TO READ THE ELECTION NEWS. ALL NEWSPAPERS RAN DAY TO DAY COVERAGE ON THE CANDIDATES, THE ISSUES, AND OPINIONS OF CITIZENS.

By Yakov Mikhailov

NOVOROSSIISK is a port city on the Black Sea. Its major industry is cement. The city was completely razed by the Nazi invaders during the war and had to be rebuilt from the ground up. Now Novorossiisk has grown past the old city line with dozens of new residential and industrial areas.

In mid-January, two months before the March 16 elections for deputies to the USSR Supreme Soviet—the country's parliament—a sign was posted outside the public library on the main street of Novorossiisk. It read "Office of the Election Commission for Novorossiisk Constituency."

The Soviet of the Union, one of the two equal chambers of the parliament, is elected on the basis of one deputy for each 300,000 of the population. Novorossiisk and the adjoining communities, which together formed a constituency, were entitled to elect one deputy to the Soviet of the Union.

Following the formal announcement by the Presidium of the outgoing Supreme Soviet of the new election, public meetings were held to choose the Election Commission for the Novorossiisk constituency. Those who were finally elected were locksmith Nikolai Orlovsky of the Proletary Cement Factory, construction engineer Alexander Kopichev, tool setter Raisa Loginova from the Krasny Dvigatel Metal Plant, garment worker Klavdia Nosova, collective farmer Anna Skorobogatova from the outlying Abin rural district and schoolteacher Taisiya Tokarenko from the city Communist Party organization. Engineer Alexander Sekutov from the slate factory was elected chairman.

Election Precincts

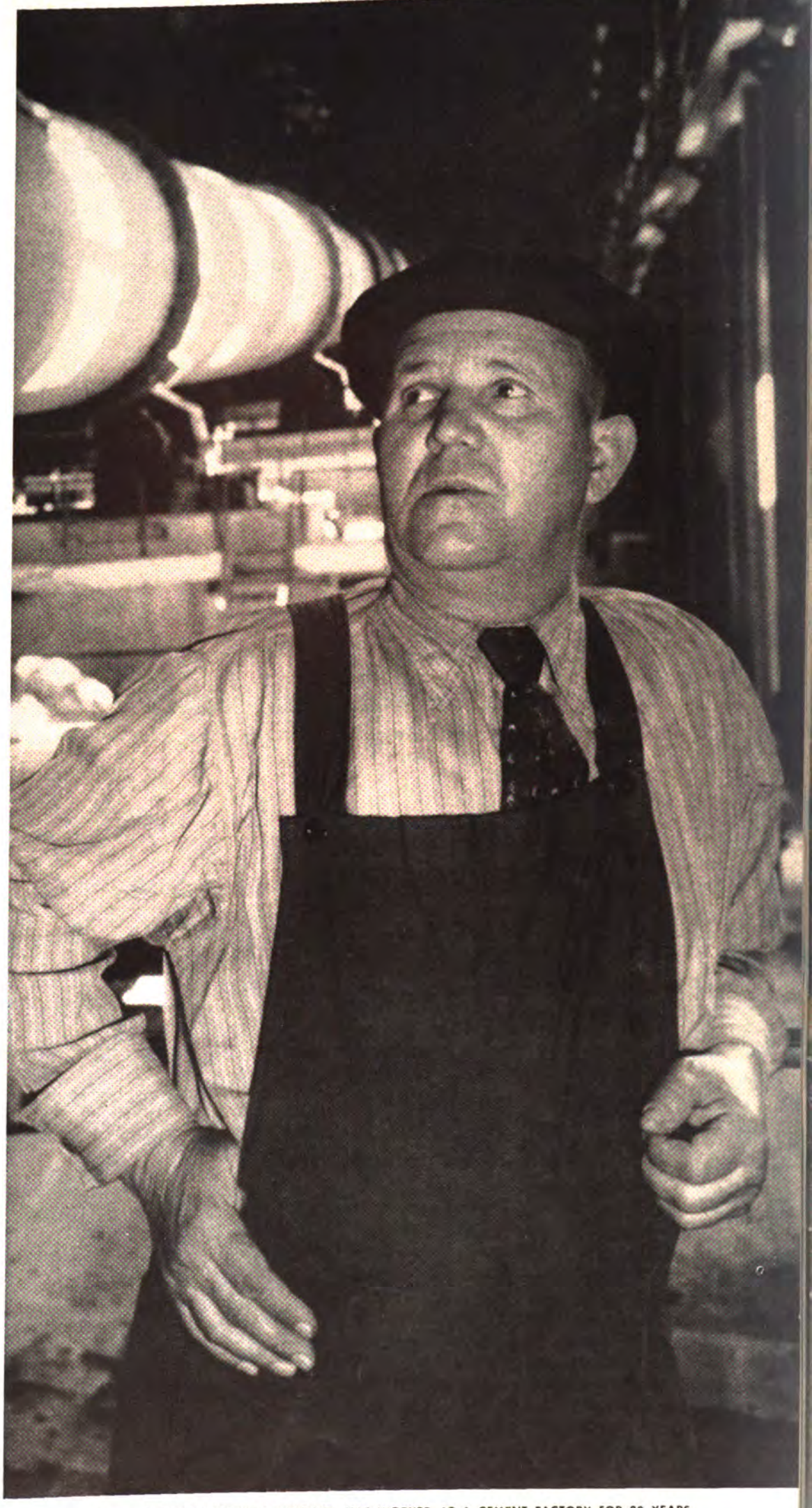
The commission's duties were to compile voting lists, to set up election precincts, to provide ballots and voting places, to register candidates, in short, to see that the provisions of the election law were carried out in every detail.

The commission held its first meeting on January 25 to budget its financial requirements. The Regional Council, by law, appropriated the sum of 7,000 rubles for commission expenses.

The constituency was then divided into 173 election precincts, each one with a population of 1,500 to 2,000. In addition, precincts were formed in hospitals, sanatoria and aboard ships, as required by law, wherever 50 voters are gathered.

Each of the precincts was administered by a precinct election commission of 11 citizens. These were all unpaid offices with the exception of the election precinct secretary who obtained a month's leave from his regular job at full pay. A total of 2,000 Novorossiisk citizens served on the precinct election commissions.

To acquaint the voters with election regulations and the background of the candidates running for office, canvassing centers were opened in each precinct. Excellent public premises were provided free of charge for each center, which consisted of a meeting room, library and offices. *Continued on next page*



SEMYON MEDVEDEV, NOVOROSSIISK'S CANDIDATE, HAS WORKED AT A CEMENT FACTORY FOR 30 YEARS.

THE CANDIDATE WAS CALLED UPON TO ANSWER ALL SORTS OF QUESTIONS ASKED BY CONSTITUENTS.

MEDVEDEV WAS INTERVIEWED BY NOVOROSSIISK REPORTERS AND THE OTHER NEARBY NEWSPAPERS.

A Worker-Deputy

Continued

The job of the canvassers—there were 17,000 of them in Novorossiisk, all working on a volunteer basis—is to visit citizens and provide them with the information they need to vote intelligently. A new voter may want to have some information on the mechanics of casting a ballot, or somebody who just moved into the area may want some biographical data on the candidate.

These centers were always humming with activity. In addition to the canvassers darting around, the voters were always dropping in to pick up election literature, ask questions about the campaign, or attend a meeting at which the candidate or some other citizen was speaking.

How a Candidate Is Nominated

Semyon Medvedev is a furnaceman who has been working at the Proletary Cement Factory for 30 years. He is a well-liked and respected man of 54. In the last national election in 1954 he served as a member of the election commission in the precinct in which the cement plant is located.

The evening of February 5 the factory trade union committee scheduled an election nominating meeting. The meeting was held in the assembly hall of the factory club and was opened by trade union chairman Yekaterina Grineva. "Order of business," she said, "is to nominate a candidate as Novorossiisk deputy to the Supreme Soviet. The floor is open for nominations."

The name of Nikita Khrushchev was offered for nomination by rotary furnaceman Vladimir Krasny. The next name to come up was that of Alexei Kirichenko, a member of the Central Committee of the Communist Party.

Then the name of Semyon Medvedev was placed in nomination. The following theme ran through all the speeches made in his behalf: "Many of us here know Semyon Medvedev very well. He has helped train a whole generation of young people in the plant. You can see many of them in the audience. Beside that we have his fine record of performance when he served as a member of the City Council."

Several people seconded the nominations. Among those who took the floor to speak were furnaceman Alexei Talanov, electrician Ivan

Continued on page 9

THESE VOTERS-TO-BE SAY HE'LL MAKE A GOOD DEPUTY.

TEACHER YELENA NIKOLAYEVSKAYA, ONE OF THE 17,000 VOLUNTEER CANVASSERS WHO CAMPAIGNED FOR MEDVEDEV, ANSWERS QUESTIONS AND LEAVES ELECTION LITERATURE.

REGISTERING A CANDIDATE AT ELECTION COMMISSION. SOME 2,000 CITIZENS WERE ELECTED TO WORK AT THE AREA AND PRECINCT COMMISSIONS DURING THE CAMPAIGN.

NEW RESIDENT MAKES SURE HIS NAME WILL APPEAR ON THE VOTERS' LIST.

ELECTION COMMISSION WAS KEPT ON ITS TOES DURING THE ENTIRE CAMPAIGN.

GETTING THE BALLOT ON ELECTION DAY. ALMOST ALL ELIGIBLE VOTERS IN NOVOROSSIISK — 99.9 PER CENT — CAME TO THE POLLS; 99.6 VOTED FOR MEDVEDEV.

A Worker-Deputy

Continued

Peredkov, plant director Frantz Veber and young Roman Plyasov, who worked as apprentice under Medvedev.

A committee of 10 was then chosen to bring the names to the constituency election conference which was to decide on the common candidate from Novorossiisk.

On February 9 the Soviet newspapers published a letter written by a group of public officials and Party leaders who had been nominated as candidates by various cities and regions. Since a candidate can run in only one constituency, the letter indicated that Nikita Khrushchev and Alexander Kirichenko had accepted the nomination of constituencies other than Novorossiisk.

Thereupon Semyon Medvedev was registered by the commission as the candidate for Novorossiisk, after he had officially informed the commission that he accepted the nomination.

VOTER LEAVES A BOOTH WITH HER FOLDED BALLOT.

Campaigning

During the period between his nomination and final selection as candidate, Medvedev and supporters of his candidacy had been speaking at election meetings to groups all over the city—to longshoremen, railwaymen, workers at the slate factory, fishermen, teachers, medical workers.

At these meetings voters brought up various local issues and requirements and wanted to know what Medvedev thought about them. They ranged from complaints about the slow progress of a half-finished school building, to questions about housing in the crowded city and the needs of the young people for a sports stadium. On each of these and many other questions, Medvedev was asked to state his position. The voters liked his straightforward replies and were impressed by his record of service.

The flaring newspaper headlines on March 16 read: "All Out for Elections to the Supreme Soviet." Campaigning was over and voters flocked to the polling places. Appropriate to a national holiday, everyone was in holiday best—clothes and mood both.

The election returns were broadcast over the local networks next day. Of all the people who went to the polls in Novorossiisk, 99.6 per cent had cast their ballots for Semyon Medvedev.

At its final meeting on March 18, the Novorossiisk Election Commission formally presented to Semyon Medvedev, furnaceman at the Proletary Cement Plant, his credentials as deputy to the parliament of the Soviet Union. ■

BACK AT THE SHOP, THE DEPUTY IS CONGRATULATED BY HIS FELLOW WORKERS. MEDVEDEV WILL REMAIN ON HIS JOB, WITH TIME OFF TO PERFORM HIS NEW DUTIES.

Moving Ahead in Agriculture

REORGANIZATION OF THE MACHINE AND TRACTOR STATIONS

By Nikolai Stepanov

OUTSTANDINGLY significant among the major legislative actions of the first session of the newly elected USSR Supreme Soviet last April was the national program for the further development of agriculture involving the reorganization of the machine and tractor stations. The program opens new possibilities for the expansion of mechanization in all branches of agriculture and quickens the pace of the collective farms toward the goal of achieving an even sharper boost in agricultural production to meet the greatly increased demand.

The new law reflects the interests not only of the farmers but of the population as a whole. This explains the participation of millions in the nationwide discussion held in town and countryside before the draft proposals were presented to the Supreme Soviet in a report delivered by Nikita Khrushchev.

During this discussion, which preceded the debates in both chambers of the Supreme Soviet, many valuable suggestions and amendments were voiced by people in every walk of life. Thus, when the legislators met to take action on the report and draft it into law, they were thoroughly cognizant of the popular sentiment on this major change in farm organization.

Pages of History

In the first decade after the Socialist Revolution of 1917, the country's peasantry continued to use the old tools and primitive machines inherited from czarist times. There were only 27,000 tractors working in the fields in 1928. Expensive machinery was beyond the means of millions of small individual households.

In the late twenties and early thirties the peasants throughout the country began to unite into collective farms. With the rapid expansion of large-scale agriculture, there was an ever-growing demand for all kinds of machines to increase farm productivity and lighten farm labor. By that time Soviet industry was beginning to turn out farm machinery in larger and larger numbers. As early as 1932 agriculture had at its disposal 148,000 tractors, 14,000 harvester combines and thousands of other machines.

As collectivization became more prevalent and farm machinery more plentiful, the question arose as to how to use this machinery to the best advantage of the collective farms. There were two alternatives. The first was to sell the machines directly to the farms. The second was to set up stations which would service the farms.

The answer was provided by the facts of the situation. The young collective farms, still weak economically, did not have the funds to buy machines or to build maintenance shops. Nor did they have trained operators and servicemen. And of prime importance, Soviet industry had not yet developed to the point where it could turn out enough machines to supply all the collective farms.

As a result, state-owned machine and tractor stations were set up. The first was built around a ten-tractor detachment in 1928 at the Shevchenko State Farm in Odessa Region. Thereafter the stations multiplied rapidly. By 1932 their number had grown to 2,500; by 1941 to 7,000; and by 1957 to more than 8,000.

The machine and tractor stations became a highly important segment of Soviet agriculture. They serviced the collective farms with tractors, harvesters, trucks and other machines, as well as with all the technical personnel required. Their specialists helped introduce modern methods in farming and stockbreeding. Along with the farm machine has come electric power, an essential factor in technical progress.

Nikita Khrushchev addresses the recent session of the Supreme Soviet which unanimously enacted the law to reorganize machine and tractor stations.

In a very short period the stations have changed the entire character of farm life by substituting machines for much of the old hand labor. A veritable army of skilled workers for all branches of agriculture has been trained from among the farmers. In 1957 the stations themselves employed two million tractor drivers, combine operators, mechanics and technicians.

The establishment of the machine and tractor stations provided a guarantee for the efficient use of farm land and increased labor productivity, thus ensuring the constant growth of collective farm income. The stations served to prove in living practice that large-scale, mechanized collective farming meant a higher living standard for millions of the country's rural population.

Without any doubt, the machine and tractor stations were a major force in the revolution in the country's agriculture. They helped to consolidate the collective farm system, to increase agricultural production and to narrow the gap between countryside and city, giving the farmer a fuller and richer life.

The Collective Farms Today

Soviet agriculture today, thirty years after the first machine and tractor stations were set up, is much transformed, both qualitatively and quantitatively. It has at its disposal 1.7 million tractors, 450,000 har-

vester combines and millions of other modern agricultural machines working the fields.

Most collective farms today are large-scale agricultural enterprises which are economically much sounder than ever before. The average farm runs close to 5,000 acres of cultivated land and many have as much as 25,000 acres. They are immeasurably better equipped in the way of machines. Of the total of 660,000 trucks used in agriculture, for example, half are owned by collective farms. Many farms have their own power stations, various workshops and processing and other plants.

Another index of the economic progress of the collective farms is the increase in their incomes. As a result, the allocations of each farm for the commonly-owned fund used for the development of its economy have been rising steadily. The measure of the wealth of the country's collective farms can be judged by the fact that these funds increased from 1.5 billion rubles in the early days of collectivization to 63 billion in 1952, and now amount to nearly 100 billion.

Paralleling this increase is the accompanying growth of personal earnings. The real income per working farmer is now four times that of the pre-Revolutionary level, and if one includes the value of free education, free medical services and other benefits financed from the national budget, the increase is found to be six times that of the pre-Soviet period.

The growth of income was especially rapid in recent years, since a series of measures were undertaken to raise the level of collective farm production. The total incomes in cash and kind per working farmer increased by 33 per cent between 1953 and 1957. This resulted in larger purchases of manufactured goods and an accelerated pace of housing construction. During these four years 2.5 million new houses were built in the countryside.

One of the major developments which helped to transform rural life was the tremendous cultural progress made during these past decades. Almost total illiteracy has been replaced with universal schooling and a real opportunity for college education open to everyone.

Translated into the activities of the collective farms, this means that they now have personnel trained in all the necessary skills. With each passing year the number of people with specialized secondary and college educations increases. As recently as 1953 the collective farms had only 18,500 such specialists; now they have 150,000. The number of specialists for all of agriculture, including machine and tractor stations and state farms, is 277,000.

Searching for Answers

Thus today, with collective farms having the funds needed to purchase complex machinery and the trained people to operate and maintain it,

Collective farms, with their increased wealth and abundant trained personnel, are now able to buy machines like this one to further expand production.

the question arose as to whether the time had not arrived for a [illegible] whether the machine and tractor stations had not outlived their use[illegible]ness, and whether it would not be decidedly advantageous for the ma[illegible]chines to be owned and operated directly by the collective farms.

In the present stage of development of large-scale collective farming, the divided responsibility, it was felt, tended to duplicate management and to delay and hinder, rather than speed the work. Why two separate groups of trained personnel when a single group would obviously make for greater efficiency?

The problem thus was to change the present relationship of collective farm and machine and tractor station, to provide an organizational form suited to present needs—one which would avoid duplication of management and superfluous personnel, would fix responsibility, would secure more complete use of machinery, would provide greater material incentive, and in general would make for still greater productive use of both land and machines.

To Meet New Needs

Any national economy, in order to grow productively, must periodically re-examine its structural make-up and working methods to find if they are sufficient for the tasks at hand. If they are outmoded, new ones must be fashioned to meet the new needs.

This was the case when Soviet industrial management was thoroughly overhauled. The old and highly centralized control from ministries at the capital had been proved to no longer meet the requirements of the gigantic industrial complex it had developed. After nationwide discussion, the Soviet parliament decided to transfer management to local bodies. In a relatively few months of operation, industrial decentralization has proved itself in more efficient production and in making industry more responsive to both local and national needs.

It is the same now with the reorganization of the machine and tractor stations, and the Soviet people have every reason to believe that it will be equally fruitful and successful.

The new law as passed by the Soviet parliament provides that the tractors, combines and other machines which now belong to the state-owned stations be sold to the collective farms. This does not mean the immediate elimination of the machine and tractor stations but their gradual reorganization into maintenance, repair and supply stations.

In addition to technical services, the collective farms will be able to buy new machinery here. The terms of sale will be either cash or credit, at prices slightly above manufacturing costs, in order to provide farm machinery plants with sufficient funds for development and improvement.

The stations will also sell spare parts, gas, oil, grease, fertilizers, insecticides and other items needed by the collective farms. They will display demonstration models, will have on hand manuals, catalogs and other pertinent reading material, and will rent those machines which a collective farm might not own.

Changeover

The reorganization of machine and tractor stations will vary in character and degree, depending upon the needs of the collective farms in the specific area. In districts where there are at present several stations, they may be combined into one repair, maintenance and supply unit. In some districts it may be that more than one such unit will be needed.

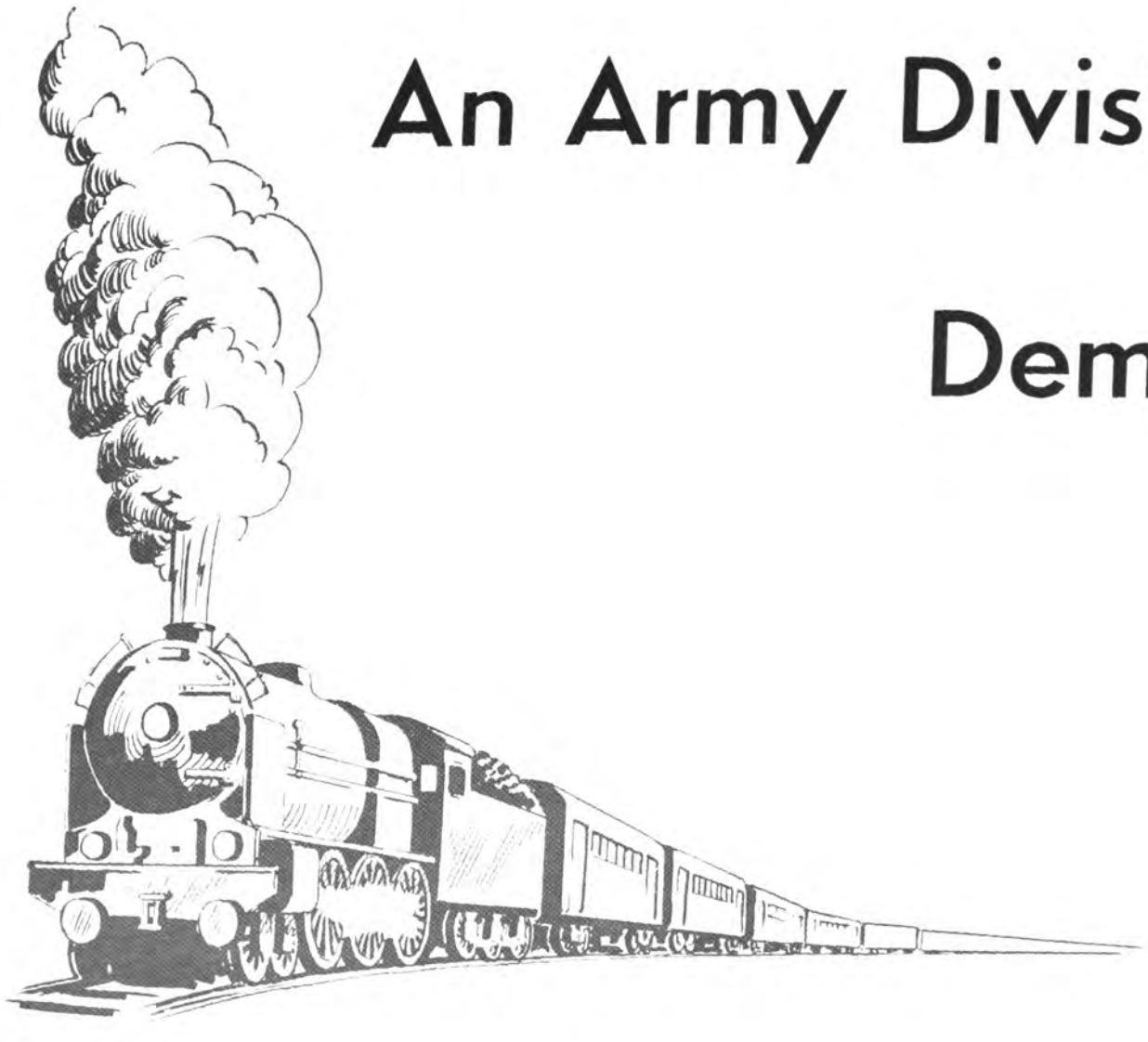
To be avoided during the changeover period is haste and a carbon-copy approach. To be emphasized in all cases is careful consideration of local conditions.

Preliminary estimates show that most collective farms, particularly those in the Central Asian Republics, in Transcaucasia, the Ukraine and the Kuban, are able to buy machinery from the machine and tractor stations immediately. In some areas there are fewer such farms, and it is apparent that the machine and tractor stations still have a function there. As the collective farms in these areas grow, however, they will gradually accumulate funds to buy out the stations' machinery. Installment buying will also make the transfer easier for the collective farms.

The reorganization of the machine and tractor stations starts a new chain reaction. With machinery available and at hand for more efficient use, labor productivity will rise and farm output with it. The result will be lower production costs. This in turn will mean more food at lower prices to the consumer.

The new law is another long step toward making the Soviet Union the world's largest food producer. ■

YURI PIVOVAROV'S DAUGHTER HAS TO GET USED TO HER DADDY AS A CIVILIAN. HE WAS A CAPTAIN IN DEMOBILIZED ARMY DIVISION STATIONED IN THE CARPATHIANS



An Army Division Demobilizes

By Yuri Pavlov

FOR the last time the division was lined up in formation. Final inspection—and then the order for demobilization was read.

The men fell out, went back to their barracks. The barracks had already been stripped down, personal belongings packed. Conspicuous on the walls were posters announcing jobs open.

In a matter of hours the barracks emptied. The men seemed to shed their army anonymity with their uniforms. They became construction men, miners, farmers, university students on the way to job or school.

"The division no longer exists," General Batov, in command of the Carpathian Military District, had announced. "Its men are demobilized. Barracks, administration buildings, vehicles have all been turned over to the Lvov civil authorities."

The single man who remained in uniform was the division commander. He was an old soldier and he had preferred to remain in the army as instructor in a military academy. The other officers and men were ex-soldiers now, civilians ready to take up their old trades and professions or to learn new ones.

This Soviet army division was not the first one to be demobilized, nor is it to be the last. The first was a demobilization of 640,000 men in 1955, the second a 1,200,000-man demobilization in 1956-1957, and this was a third cut of 300,000—all within a three-year period.

Along with this demobilization of 63 divisions went a cut in the number of military schools and the drydocking of 350 ships. This was disarmament in practice, to implement the Soviet Union's proposals for world disarmament and to demonstrate its will for peace.

With this large cut in army personnel went a reduction in war materiel. Scores of plants that had been producing weapons were con-

Continued on next page

Final division inspection. The order of the USSR Ministry of Defense to disband the division is read. During the past three years the Soviet Union has reduced its armed forces by 2,140,000 men.

Into the fire go the now useless service records. Cutting down armed forces means conversion of military plants to consumer goods production, drydocking warships and closing military schools.

Sergeant Larionov removes the division commander's nameplate, his last army duty.

An Army Division Demobilizes *Continued*

verted to consumer goods production. Military budget figures have been steadily reduced year by year and the funds have been channeled off into civilian housing, consumer goods and welfare.

This most recent cut in military forces affects not alone troops on Soviet territory but those outside the country as well—men stationed in the German Democratic Republic and Hungary.

More than 41,000 men were withdrawn from the German Democratic Republic and then demobilized. Units included two mechanized divisions, one anti-aircraft artillery division and three artillery brigades. Similarly several units totaling 17,000 soldiers were withdrawn from Hungary and demobilized when they returned to the Soviet Union.

An Honored Division

The demobilized division we spoke of earlier has a 40-year-old service record. It was organized in the twenties during the period shortly after the Socialist Revolution of 1917 when foreign armies invaded Soviet territory. During the Second World War the division fought

This soldier feels that the best thing about army service is having it over and returning home, where civilian work and family await him.

There isn't a sad face in the crowd as the men leave the barracks for home. Some of them plan to continue their schooling, while others will go back to old jobs or try their hand at new ones. The law provides for up to a year of on-the-job training at full pay for ex-servicemen.

◀ Help Wanted posters tacked up in the barracks list jobs openings all over the country for skills in every imaginable field of endeavor.

in many of the big battles, among them were those which forced the fascists out of Czechoslovakia and the battles that freed the Soviet cities of Berdyansk, Chernovitsi and Uzhgorod.

The division has proved its mettle both in war and in peace. Last winter, in the near disastrous flood in the Carpathians, it did yoeman service. A sudden sharp temperature rise melted the heavy mountain snow and in a matter of hours great masses of water flooded the valleys below and engulfed fields and houses. The division's amphibious trucks rolled into action to save lives and property.

On another occasion building workers on a local construction site unexpectedly uncovered a former fascist ammunition dump which had escaped detection. It was full of unexploded aviation bombs. To follow the usual—and the safest—procedure, the bombs should have been detonated where they lay. But that would have meant blowing up a half finished factory and several new houses.

The division's sappers headed by Captain Yuri Pivovarov broke army safety rules to dig the rusty bombs out of the frozen earth and move them elsewhere. "It was a ticklish job,"

Continued on next page

With the new skills learned during army service tucked under their belts and a welcome waiting wherever they go, there is cause for jubilation.

A tearful but happy welcome home for Grigori Yagolnik, an ex-captain of the disbanded army division. His mother, like others the world over, knows such homecomings mean that life is getting back to normal, and that more and more families will experience the same kind of joy as their men are demobilized.

Pavel Zatorsky is now working as assembler in an auto factory, a skill he learned in the army.

Ex-Sergeant Yevgeni Shkrabaussky reports back to work at the Lvov Bus Plant, which advertised in the barracks for a variety of job openings as soon as the demobilization order was issued.

Ex-Colonel Klavdi Nikonov is sure he'll have no further need of his shoulder straps. His wife watches with approval as he cuts them off his uniform, to be stored with other souvenirs. He is manager of a bookshop now.

Nikonov says he much prefers working at his new job to military service.

An Army Division Demobilizes

Continued

The division left all its trucks as a gift to the City Council and other civic bodies in Lvov.

recalls Pivovarov, now ex-captain, when he talks about it, "and uncomfortable, especially since we knew we were going to be demobilized in a few days."

It's hardly exaggerating to say that the division served the country almost up to the last minute that it was disbanded.

Plenty of Jobs

What does the future hold for the hundreds of thousands demobilized from the army?

Most of the men were going back to the towns and cities where their families lived, but some of the young, unmarried ones were taking advantage of job offers in far-off places in the country and satisfying a desire to travel, see new places and try new skills. Every one of them had job offers in abundance to pick from. The job posters had been very closely studied for weeks before demobilization.

Jobs are no problem in any part of the Soviet Union. Trained men are in demand everywhere, and especially ex-servicemen. In addition to teaching skills useful in civilian life, the army provides the men with educational advantages which broaden their cultural interests. The average ex-serviceman is a well-rounded individual.

Even if a man wants to try his hand at a job he hasn't done before, Soviet law guarantees up to a year of on-the-job training for every demobilized soldier at any trade or skill he chooses. During his free training period he is paid the average wage the job calls for.

Some of the ex-servicemen are heading for college. Since tuition is free in all schools throughout the country and student stipends are paid by the state, no special financial provisions are necessary for servicemen. Everyone who fills the academic requirements is eligible, but the way it works out in practice is that, all things being equal, servicemen are given preference over other applicants.

Many of the men from the Carpathian Division had the future mapped out long before demobilization. Sergeant Ivan Reshetnikov was going to matriculate at Lvov University. His friend Alexander Portnov was going to work in the lumber industry. Pyotr Labinsky had already accepted a job in a mine in Vorkuta, in the North. Vladislav Larionov had taken a job in one of the Lvov taxi garages. Corporal Nikolai Klimenko was going to work in a radio shop in his native Ukrainian town of Kramatorsk.

And so it went, with jobs available in plenty and posters urging men to apply to the nearby Lvov Bus Plant, to construction jobs, to collective farms, to heavy and light industry, jobs for men of every interest and every skill.

Of one thing every ex-serviceman is sure. Wherever he goes, whatever he decides to do, he will be helped. The people of the Soviet Union see in demobilization not only the further improvement of their own living standards, with men and resources diverted to civilian production, but the promise of a more relaxed international climate. So the ex-serviceman is a welcome sight to everyone. ■

Unlimited Help Wanted

ONLY ONE OF THESE WORKERS IN A MOSCOW IRON AND STEEL PLANT—HE IS 54 YEARS OLD—HAS EXPERIENCED UNEMPLOYMENT. THE REST KNOW ABOUT IT FROM HEARSAY.

By Professor Yefim Manevich, D. Sc. (Economics)

Institute of Economics of the USSR Academy of Sciences

HELP WANTED advertisements like the ones pictured here spot Soviet newspapers all over the country. Every kind of help is wanted—by factories, offices, farms, building projects—whatever area of work one can think of. If you are skilled, the advertisements say, you can take your pick of jobs; if you are unskilled, we will train you and pay you while you are being trained. Are you a teacher, physician, architect, engineer? You can have your choice of jobs. Are you a scientific worker? There are vacancies in scientific institutes and research centers in big towns and small.

There is a constant demand for labor in the Soviet Union and these advertisements have been a permanent feature of the country's newspapers and billboards for more than a quarter of a century. The last of the unemployed got jobs at the end of 1930, and unemployment boards, no longer needed, shut down at the same time. Now every day of the year the country's employment figure increases by more than 6,000 workers.

Wide Choice of Jobs

There was a time when unemployment was chronic in the densely populated Baltic areas, in the western regions of the Ukraine and Byelorussia, in Moldavia and Armenia, and the people moved abroad in search of a living. In other parts of the country the situation was not much better.

But the picture changed long ago. Jobs are available everywhere in this big country and the choice is entirely up to the worker. Do you wish to change your job, or even change your occupation? You are

EVERY DAY SIX THOUSAND NEW WORKERS LIKE THIS ONE ARE ADDED TO THE COUNTRY'S GROWING LABOR FORCE.

perfectly free to do so. Any worker, regardless of where or at what he is working, may leave his job after giving two weeks' notice.

Pick up any newspaper at random, from any region, listen to the radio or TV, look at the billboards, and everywhere you will find want ads. In Vilnius, capital of Lithuania, the Komunaras Plant advertises daily for metallurgy engineers, mechanics, electricians and foundry workers. The city's automobile repair plant wants designers, engineers, fitters, lathe operators. An electric meter plant advertises for tinsmiths, carpenters, masons. A silicate plant wants crane operators and furnacemen. Help wanted ads are also placed by the municipal departments of transit and sanitation, by a fur factory, refrigeration plant and several other Vilnius enterprises.

These are a few examples taken from only one newspaper, and they come from a city whose industry, although growing, is just average in size. In large industrial centers there is a much greater demand for labor, and the help wanted columns carry ads for the most diverse occupations.

There are about 100,000 construction projects in the Soviet Union—new industrial, agricultural and transport developments, new housing and municipal jobs. During the past four years alone more than 3,000 large industrial enterprises were commissioned all over the country and all of them, of course, needed new workers.

Construction is especially intensive in the eastern regions, where new land is being cultivated, new factories built, new mines dug, new towns and villages springing up. People, mainly young ones, are eagerly moving from the larger metropolises in the European part of the country to the new areas.

This migration is stimulated by the special privileges offered them there: higher wages, lump sum benefits, defrayment of the cost involved in transporting families and belongings. In most cases new housing is available at state-fixed low rates. Where it is not, long-term loans are granted for building private homes. And, of course, there is always a helping hand extended to the newcomers by the older settlers.

Continued on next page

Students who have just received their engineering diplomas from a steel institute have accepted jobs in various plants and are trying to locate the places where they will soon be working. More than 6,000,000 specialists—scientists and engineers, technicians and agronomists, teachers and physicians, artists and writers—are now employed in the country and 4,000,000 are being trained in colleges and specialized secondary schools.

Unlimited Help Wanted *Continued*

Industrial Growth and Man Power

Unemployment was inherent in the economy of pre-socialist Russia. The only change was in the number of permanently unemployed, swelled during the periodic depressions by the flow of pauperized peasants to the cities in search of any kind of work at any kind of wages that could keep body and soul together.

National ownership of all industry, production for use, and national planning have ended unemployment in the Soviet Union for good. For Soviet workers in their middle thirties and those younger, unemployment is an academic concept; they have had no experience with it in their own working lives.

The country's expanding economy has been constantly clamoring for more and more workers since the time when the first industrialization projects were started in the late twenties. In spite of an extensive educational system, in spite of a country-wide system of on-the-job training, there has been a labor shortage in most major areas of employment, critical in some, less pressing in others.

Before the Socialist Revolution of 1917 the number of workers employed was never more than 8.6 million. By 1932 the employment figure had reached 22.6 million, and by the beginning of 1958 it was 52.1

million. By the end of 1958 the figure is estimated to reach 54.4 million. But even this increase will not suffice to meet the demand for labor which increases at an ever faster rate than the supply.

The reason is apparent in the phenomenal growth of industrial production. Since 1953 alone, output of Soviet industry increased by 55 per cent. In one year the country's industry can now produce an amount of goods that would before have taken it 15 to 20 years to produce.

Within the next 15 years Soviet planners forecast a doubling and tripling of production in key branches of industry, basic and consumer, and in food farming and stock raising. An ambitious goal, certainly, but one based upon the accelerated development of productive potentials that has been so characteristic of the Soviet economy.

Overcoming the Labor Shortage

The question being grappled with now in the Soviet Union is this one: With the pressing shortage of labor, where is the labor force to come from that will be required to reach these productive capacities? What new resources are to be drawn on for this needed army of workers?

The major source of new labor power is in natural population increase. Between the years 1926 and 1939 the increase ran to two million yearly. In the postwar years the annual increase has exceeded three million. But in terms of the working population, the country will feel, for the next few years, the delayed effects of the war in a decrease in this figure.

Planning of the nation's economy, however, makes it possible to use most rationally the available labor resources. Data compiled by the government planning organizations gathered from all parts of the country and from every branch of the economy not only indicate the immediate needs for labor but also help in the preparation of estimates for future needs.

On this basis plans are worked out for training skilled workers in those specialties which are required in industry, agriculture, construction, and other fields. Planning ensures the required proportions between the various fields of the economy as well as the required geographical distribution of labor resources.

There was a time when the country's agricultural areas served as the main source for recruiting industrial workers. But since the collective farm system helped boost the peasants' incomes and improved the life of the countryside beyond recognition, the flow to the cities has slowed down.

However, increasing mechanization is constantly releasing labor from the collective farms. The recent law on the reorganization of machine and tractor stations will accelerate agricultural progress and raise labor productivity in farming and livestock breeding. This will surely decrease the number of people required for agriculture with a resulting move toward industrial jobs.

Mechanization and Automation

Rapid growth of mechanization and automation in all branches of the economy is an important source that helps to make up for the shortage of labor power. The replacement of man power with modern machines is particularly true of such labor-consuming fields as iron and steel, coal, ores and timber, agriculture, construction and transport.

As a result of more extensive mechanization more people are released from arduous jobs each year. They are trained at state expense for more skilled and better paid work which is waiting for them elsewhere in industry.

The planned character of the country's economy makes it possible to effect the required redistribution of labor resources between productive and non-productive spheres. The measures to abolish the waste of national labor resulted in the fact that now 85 per cent of all those employed are engaged in production. There is also a constant increase in the number of workers engaged in public health, education and scientific research. This number rose from 4.4 million in 1940 to 7.5 million in 1956. Opposed to this is the constant shift from administrative jobs of all levels to productive areas.

In recent years the country's economy has received a good part of the labor resources which had previously been forced to remain in military service. Without waiting for general agreement on disarmament, the Soviet Union reduced its armed forces by 640,000 men in

Continued on next page

JOBS IN NEWLY DEVELOPED AREAS OF THE COUNTRY LURE THESE YOUNG PEOPLE.

Unlimited Help Wanted *Continued*

1955, by another 1,200,000 men in 1956-57, and by a third cut of 300,000 at the beginning of this year.

These are some of the sources from which the country will be drawing its manpower needs.

The Right to a Job and Free Training

For the Soviet citizen the right to a job, guaranteed him by the Constitution, is translated into reality by the living facts of an economy whose rate of production increases with every working day. But that is only one side of the picture. The demand for workers in almost every area of Soviet life means that a worker has a wide variety of fields from which he may choose. More than that, with trade and professional training at every stage offered free, and usually paid for during the learning process, the only limits are those established by the worker's own interest and willingness to meet the qualifications for his job.

Most of the young people who graduate from secondary schools go into various branches of industry, agriculture or one or another of the cultural areas. For this new generation of workers long-range plans are now being evolved which presume a labor force with a good educational background.

During the early years of the country's industrialization the trade schools accepted pupils who had only a minimum of general education. As educational facilities expanded and the needs of the economy grew more demanding, the requirements for these schools became more rigid.

In recent years a new type of technical school was established. These schools, with courses of study ranging from one and a half to two years, train highly qualified industrial personnel and base their instruction upon ten years of prior education. At the same time there are still the old vocational schools which admit students with seven-year general schooling.

In both, tuition, room, board and clothing are provided without charge to the future worker and are financed from the national budget.

MINING ENGINEERS KEEP ABREAST OF THE LATEST TECHNICAL DEVELOPMENTS.

WITH AGRICULTURE DEMANDING MORE PEOPLE WITH A SPECIALIZED SECONDARY OR COLLEGE EDUCATION, THESE AGRONOMY MAJORS HAVE A PROMISING FUTURE.

MILLIONS OF WORKERS ATTEND FREE TRAINING OR SKILL IMPROVEMENT COURSES.

Last year these two types of schools trained 686,000 young workers who took jobs in industry, construction, transport and farming.

The national budget also provides large funds for on-the-job training, for retraining for new occupations, and for improving skills. In 1957 these free courses were taken by 7.8 million workers.

Advancing General Education

Many industrial enterprises are universities, in a manner of speaking, where workers can not only advance their general education but get a technician's or engineering diploma. The Kharkov Tractor Plant in the Ukraine, to cite one example, in addition to its vocational schools and on-the-job training courses, has two evening high schools, an evening department of a specialized secondary school and a correspondence division of a polytechnical institute. Every third worker in this plant is taking advantage of one or another of these facilities. At the Tbilisi Silk Mill in Georgia, to cite another instance, every second worker is studying. Every fifth worker in this mill has a high school or college education.

Education for the Soviet worker is a vital matter, not only to improve his job skills, but to round him out as a cultured person. It is a phenomenon which seems an eternal surprise to foreign visitors, educators included, that in a country which was largely illiterate only 40 years ago, there is so widespread an interest among workers, young and old, in educating themselves. The number of workers who attend school after work exceeded 3.5 million last year.

Insofar as it immediately affects the national economy, an educated worker is a better equipped worker, one who can use his labor power more effectively and more creatively.

Confidence in the Future

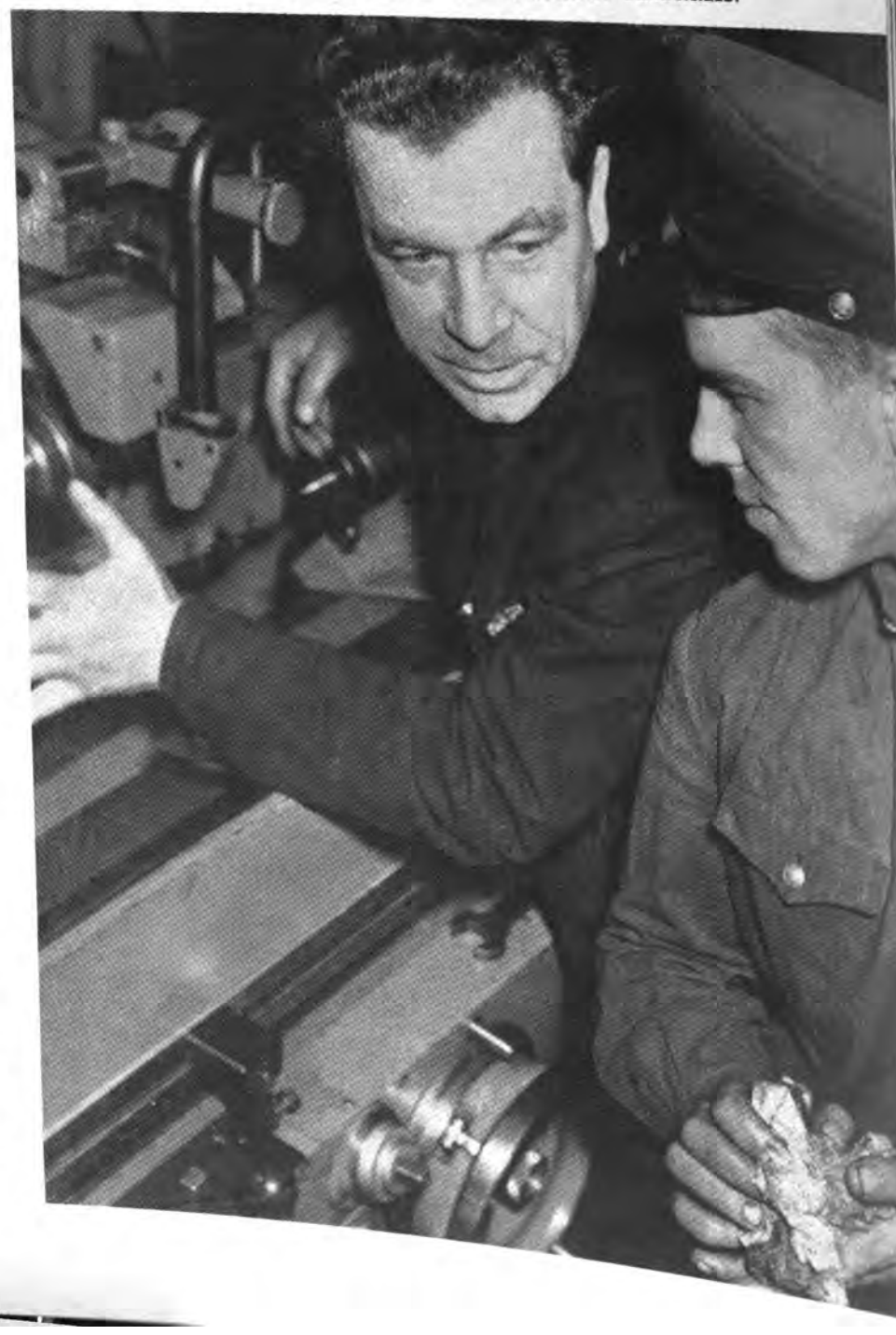
An economy in which the aim of production is the fuller and better satisfaction of the constantly growing requirements of the population is guaranteed an unlimited market. Since there is no point at which one can say a certain standard of living is adequate, there is no limit to the expansion of production. Such an economy is not plagued by a surplus of labor power.

The more man power, the more goods produced. The more goods produced, the more cheaply they can be made available to the consumer. The more the machine takes over to reduce working time and increase production, the more the working day can be cut to give the worker more leisure to relax, to study and to develop his own interests and capabilities.

This creates an atmosphere of real security and confidence in the future. Aging workers know that as the years pass they will still have guaranteed employment at suitable jobs, and when they retire their old age will be secured by a pension. For young people, the country's full and stable employment and the certainty of a job means that they can choose whatever trade or profession suits them. This is a guarantee for the full development of their talents and initiative, which benefits both the individual and the nation.

In the wake of science's fast advances old jobs are changing and new ones appearing. But one thing remains unchanged. This is the guaranteed right to work reinforced by the fact that there has been no unemployment in the country since the early thirties. ■

EITHER JOBS OR SCHOOL AWAITED 2,140,000 ARMY MEN RECENTLY DEMOBILIZED.



OLGA PONOMARENKO WITH SOME OF THE PUPILS SHE HAS TAUGHT DURING HER 20 YEARS AS SCHOOLTEACHER.

AND HE

By Mikhail Sukhanov

THE village of Samarskoye is not far from the city of Rostov-on-Don in Southern Russia. It is a steppe village that has lived through many changes.

The older people still remember the peasant plots of forty years ago worked with hand tools, the wretchedly low standard of living, the almost universal illiteracy. They see the change in the big collective farm fields worked by machines, in the spreading orchards, in the electrically-lighted cowbarns equipped with automatic milkers and feeders that have replaced the old sheds.

But the most striking change is in the village people.

It was not too long ago that you could count the number of educated people in Samarskoye Village on the fingers of one hand. Now there are better than 200 men and women in the village working in the professions. They are the agronomists, technicians and other specialists of the local collective farm; the teachers in the four village schools; the doctors and nurses of the village hospital; the trained librarians in the five village libraries; the staffs that direct the amateur art groups of the two social and recreation centers.

Another manifestation of the change is an institution comparatively new to the countryside—a society to sponsor all kinds of lectures established by the village intellectuals. The subjects of these lectures cover agronomy and stockbreeding, medicine and literature, art and history, current events at home and abroad. Their popularity with the villagers is evident from the attendance. Last year the combined audience totaled 50,000.

Teacher Olga Ponomarenko is the village resident who is perhaps most aware of the changes the years have brought. For her, the past is very much alive; she meets it walking down the village street. Most of the men and women in the village were her pupils when they were children. Pyotr Krapivny, the principal of the school, who has a weakness for rhetoric, called her "the living history of our village's culture"—a somewhat overblown phrase, but apt nevertheless.

The Past and the Present

Olga Ponomarenko does not look at all the ancient relic that the phrase brings to mind. She is getting on in years but is still very active. We spoke of the village past and of the present, of her pupils and what they had made of themselves, of her own children.

She mentioned Anatoli Savchenko, one of her former students who is now a physician in the village hospital. When the fascists had overrun the village during the war, Anatoli was a young boy.

Olga Ponomarenko was sick and bedridden, and Anatoli had smuggled food past the Nazi soldiers to feed her and the children. He had done the household chores until she was well enough to take care of the house herself. How he managed to avoid detection she never knew. Had he been caught, it would have gone hard with him, since Olga was the wife of a Soviet officer.

Her husband was killed at the front and she had brought up her children by herself. The youngest daughter will graduate from high school this year, another is preparing to enter college and the third is a college student. Her son, the eldest, has already received his Master of Science degree and is now teaching at an institute.

Olga Ponomarenko did not want to talk of the difficulties and hardships of the past, she said, but of the way the life of the village has changed.

"How fast time goes," she said. "How everything has changed. We teachers see the changes in the children we teach and watch grow up."

She told me of something a peasant had said to her twenty years ago. The people of Samarskoye had wanted to make a village green out of a bare stretch of earth. "We planted some young saplings. There was a gusty wind blowing and the weak young trees bent and shivered against the wind. 'Will they survive?' I asked an old peasant. 'They will if we help them,' he answered.

"Have you seen the tall trees in our village green?" she asked me. "They are not afraid of wind any more."

A Village School

All education in the Soviet Union is free, from elementary school through college and graduate work. The allocations from the national budget for public education comes to 84 billion rubles this year, 46 billion more than in 1946.

This great sum of money is spent for thousands of new schools and great stocks of books, for teachers and equipment, to bring more and more schooling into every corner of the country. Samarskoye Village is one of these corners.

Olga Ponomarenko began to teach there more than twenty years ago. At that time most children from the village and the surrounding farms took only four years of schooling. A very few completed the seven-year course. Now every child takes seven years of

VILLAGE SCHOOLTEACHER PUPILS

COLLECTIVE FARM HORTICULTURIST NIKOLAI TOLOPCHENKO IS TAKING A COLLEGE AGRONOMY COURSE BY MAIL.

schooling and many go on to complete the full ten-year course.

In the cities, the ten-year course is already general. It soon will be in rural areas, too.

"Our old school is getting crowded," the teacher said. "It's as though the children were growing out of their clothes."

In the postwar year of 1946 there were 20 in her school who graduated after ten years of schooling. "This year," she said beaming, "we have eight full classes of tenth-year students and we have had to open an evening session for the young men and women who work during the day and want to finish their secondary school courses."

She teaches in the Samarskoye Secondary School, a combined elementary and high school. The course of study covers the same material as the city secondary schools and includes literature, history, geography, mathematics, physics, chemistry, biology, foreign languages, crafts, a study of machinery, and physical culture.

The school has 37 teachers, well-equipped laboratories and a large library. Theoretical work is closely linked with practice. Pupils make a study of the automobile, tractor and other machines as part of their work in applied physics. They apply their chemistry and botany in serious farm work.

A group of tenth-year students led by one of them, Alla Ivanchenko, has been experimenting in growing rice, a crop new to Samarskoye. They do their experimentation not on small school plots, but on the collective farm fields and are paid for the work they do on the farm at the same rate as adults.

Many of the students take jobs at the farms after graduating. With their rounded educa-

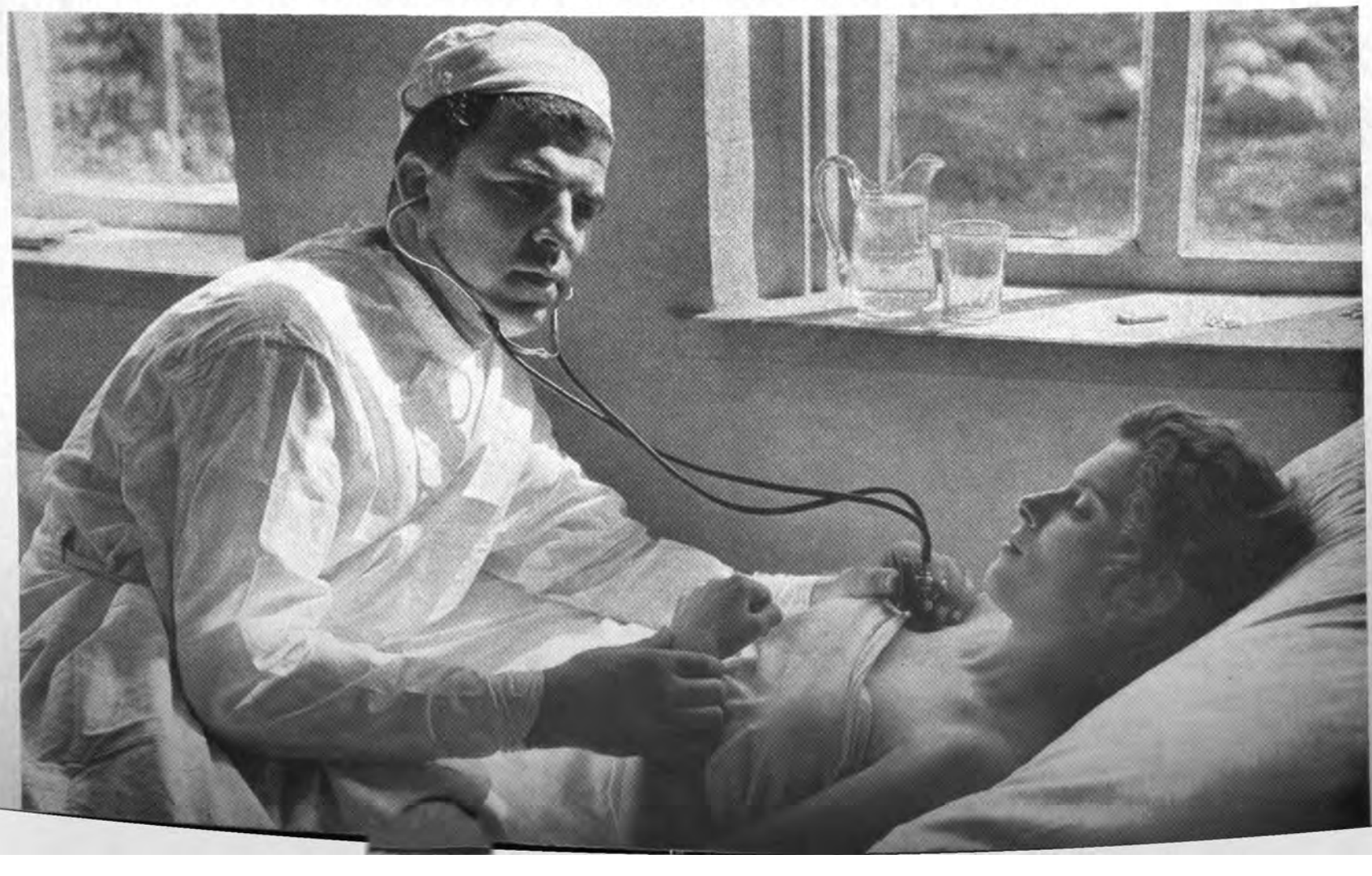
Continued on page 27

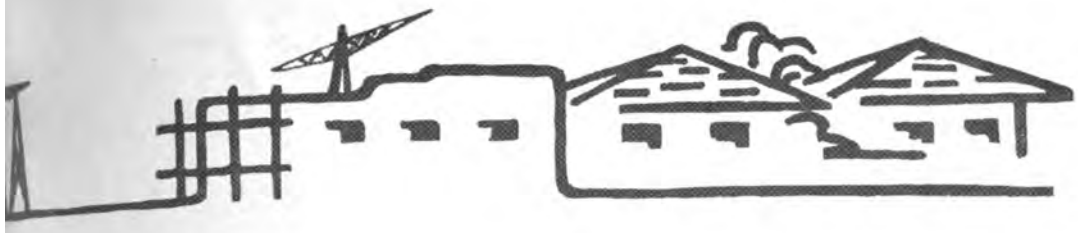
A VILLAGE SCHOOLTEACHER AND HER PUPILS

Continued

ALLA TISHCHENKO, SCHOOL LAB ASSISTANT, IS A CORRESPONDENCE STUDENT OF ROSTOV UNIVERSITY.

ANATOLI SAVCHENKO, ONE OF OLGA PONOMARENKO'S PUPILS, IS A DOCTOR IN THE VILLAGE HOSPITAL. HE RETURNED TO SAMARSKOYE AFTER FINISHING MEDICAL SCHOOL.





tional background, they have the equipment to specialize as agronomists, livestock men, or in other fields of farm work.

A good many graduates go on to further study. In the past three years more than 100 boys and girls from the village have entered colleges, universities and professional schools in the cities.

College by Correspondence

Olga Ponomarenko spoke of one of her old pupils, Alla Tishchenko, who very much wanted to become a naturalist. But when she was through secondary school and was ready to go on to college, her mother took seriously ill, and Alla decided that she had to stay home to take care of her.

But there is an alternative for people like Alla, not as satisfactory, of course, as attending college, but a very good second best. She enrolled for the correspondence course at the biology faculty of Rostov University. She works in the Samarskoye Secondary School as a biology laboratory assistant and studies evenings at home. It's not easy, since correspondence school students must complete the same course of study as regular students in attendance, but Alla is managing.

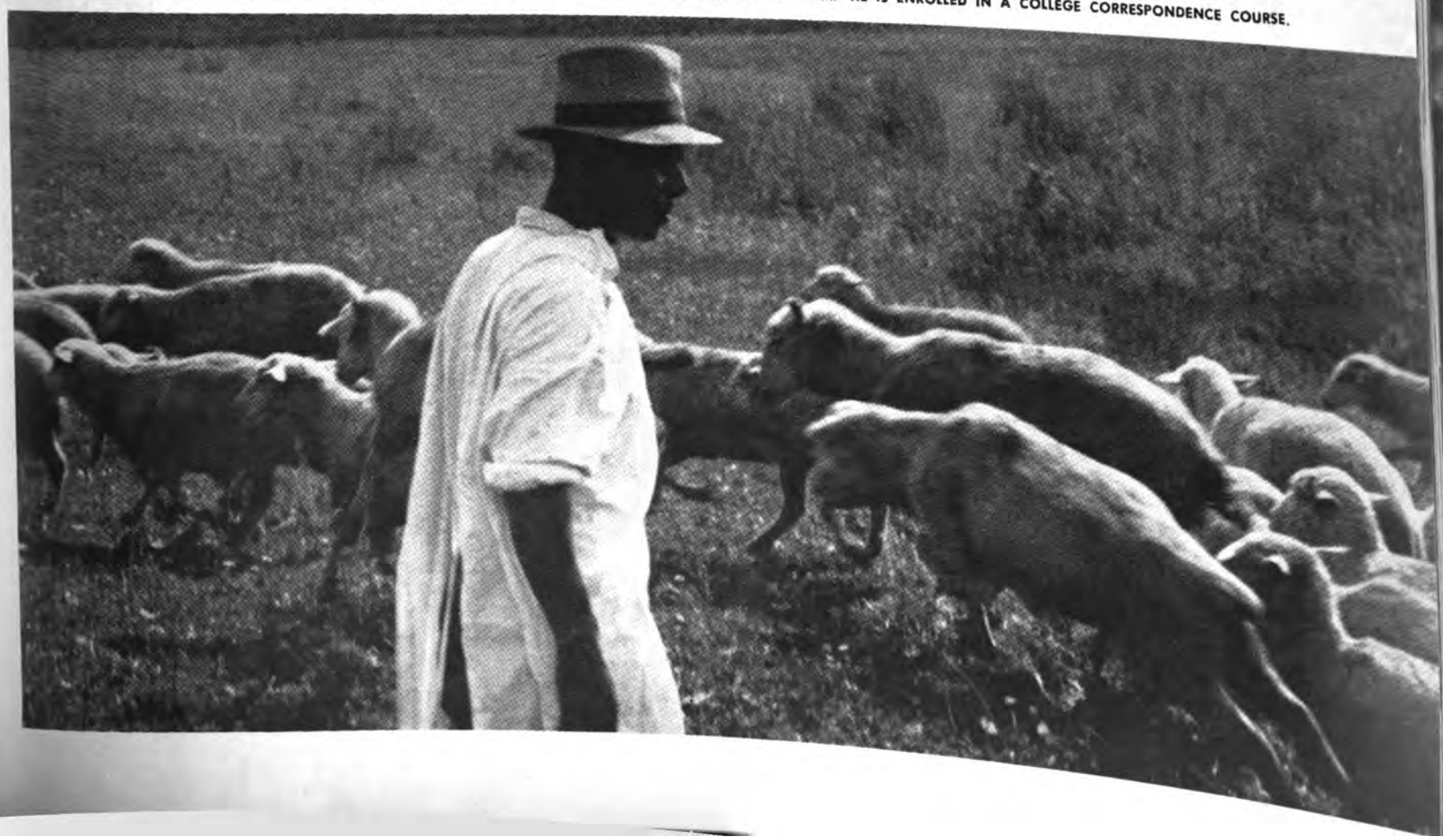
There are other village residents who work during the day and take correspondence college courses—Nikolai Tolpchenko, collective farm horticulturist; livestock breeder Nikolai Karpun; builder Pyotr Shevchenko.

This is the kind of people who work on the collective farm today. They are no longer satisfied with seven or even ten years of schooling. More and more of them are going on to college.

In the words of Olga Ponomarenko, "You can't achieve much in the village nowadays without a good education. Life itself demands it, and you should see how eagerly our young people respond to this demand." ■

VICTOR YUNISHCHENKO IS A VETERINARY ASSISTANT.

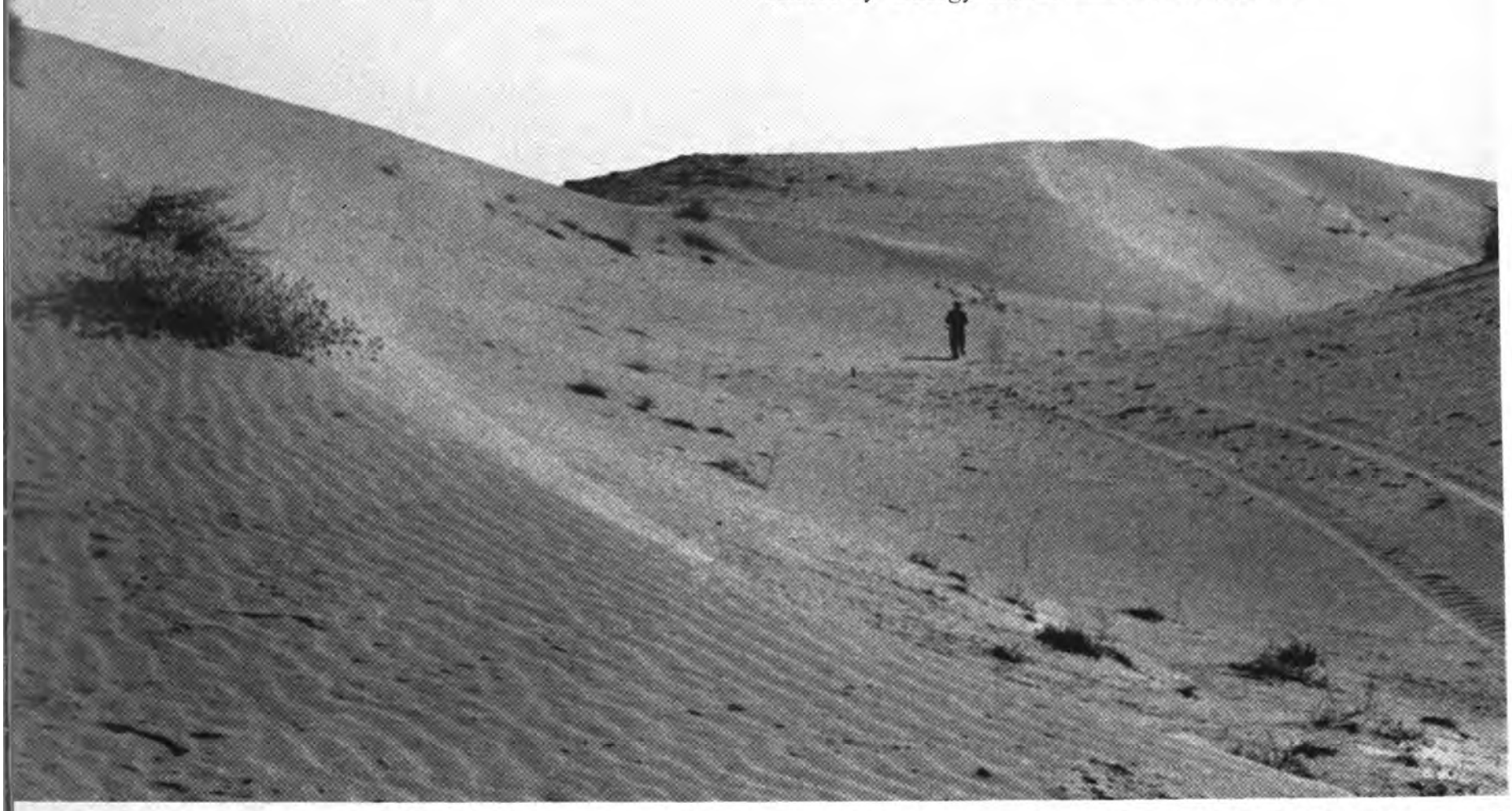
NIKOLAI KARPUN IS A TRAINED TECHNICIAN IN THE LIVESTOCK BREEDING SECTION OF THE COLLECTIVE FARM. HE IS ENROLLED IN A COLLEGE CORRESPONDENCE COURSE.



THE DESERT BLOSSOMS

By Andrei Ionov

Photos by Georgy Zelma and Alexei Stuzhin



THE KARA-KUM CANAL HAS ALREADY CUT ACROSS 250 MILES OF DESERT. WHEN FINISHED IT WILL BE 575 MILES LONG, ONE OF THE GREATEST WATERWAYS IN CENTRAL ASIA.

WATER means life—the old Turkmen saying goes. The byword carries the force of many parched centuries endured by the people who live near the great sand desert of the Kara-Kum in Central Asia.

Today's traveler watches the gulls gliding over the road which meanders through the great dunes. As he follows their flight for a few miles the dry heat seems to moisten and cool and then suddenly, unexpectedly, he sees the sparkling mirror surface of a lake set in a frame of green and, beyond, the 160-foot-wide ribbon of a river that runs to the horizon.

Canal That Brought Life

No desert mirage. This is the Kara-Kum Canal, one of the largest of modern irrigation projects. Near the town of Kerki, water from the Amu-Darya River is gravity-fed into the interior of the southeastern Kara-Kum Desert. The new canal, destined to become a major waterway, has already cut across 250 miles of desert to the town of Mary located in the ancient oasis on the Murgab River.

The channeled river flows into the artificial lake, a reservoir with a cubic capacity of many millions of gallons of water imprisoned behind a dam. The flow is regulated by a complex series of locks and spillways.

The revivifying waters, newly arrived, have already begun to transform the life of the region, both plant and animal. The southeastern part of the Kara-Kum Desert is changing into a great blossoming oasis.

In the new pastures near the canal one sees sheep, cows, ducks, and geese—animals and fowl strange to these parts which only a matter of years ago supported nothing but the most tenacious desert life. On the dunes and sand ridges one finds leafy thickets. Closer to the canal, in the evenly spaced rows of machine planting, are young bushes and three-year-old trees leaning over the water, growing into the future forest shelter belt.

All this is new, some of it not even finished. There is still not much traffic on the new roads through the desert, nor do many ships as yet have reason to use the canal. The few settlements on the canal banks are separated by long stretches of sand.

New Towns and Their People

It is 37 desert miles from Kerki, where the canal begins, to the next nearest settlement, Chaskak: 53 miles to Karamet-Niyaz; 110 miles to Nichki; 186 miles to Zakhmet. None of these settlements are old enough to be listed on the map.

It is mostly young people who live in these new towns—people like Stepan Kucherenko and his wife Svetlana. They are citizens of Pionerny, a fast growing community which can hardly be called a settlement any longer. Their three-year-old daughter Oxana is a person of historical consequence. She is Pionerny's first native, born in a tent on the construction site.

Her father and mother, both hydraulic engineers, had come straight from college to their first job, her father from the Ukraine, her mother from Ashkhabad, the capital of Turkmenia. The birth of their daughter was a civic event. Now Pionerny takes such events more calmly. Last year 17 young Pionerny citizens were born in the town's new maternity clinic.

For the young people who make up the majority of the settlers in Pionerny and the other new towns along the canal these years have been rigorous, but they have also been most rewarding. When they came, this was a waterless region of waste sand without the most elementary necessities. Everything they now have they created themselves, necessities and luxuries both.

They gathered from all parts of the country —mechanic Nikolai Voloshin, for instance, is from the Don steppes, scraper operator Ivan

THE TURKMEN SOVIET SOCIALIST REPUBLIC IS THE HOTTEST REGION IN THE COUNTRY, AND ITS FERTILE LANDS GROW FINE CROPS ONLY WHEN THEY ARE PROPERLY IRRIGATED.

Rudko from the Ukraine, hydrotechnician Pyotr Yanov from the Volga River area, Konstantin Tsereteli from Georgia and the supervisor of the project, Semyon Kalizhnyuk, from a place a thousand miles north.

The newcomers are good specialists in their trades, and as they worked at their jobs they trained the local people. Many of these Turkmenians are now skilled hydrotechnicians, mechanics, construction workers and machine operators.

The builders of the canal developed new methods of hydraulic construction to speed the work. Perhaps the most original and productive was to work from both ends of the future canal simultaneously.

The canal was built by using its own water. Moving out from the Amu-Darya River, floating dredges sucked up the earth from what was to become the canal bed and dumped it on the bank. There big bulldozers pushed it into place. Following the dredges came floating electric power plants and prefabricated houses on barges.

Practically all the construction work—90 per cent of it—was mechanized. On stretches of sand 6 to 10 miles long as many as 40 dredges of various sizes were used, as many as 15 bulldozers and 25-ton dumptrucks.

The machines came from plants in the Volga region, the Urals, and Byelorussia; lumber came from Siberia. This was a national project and plants from all over the country contributed to it.

Fertile Lands

Although Turkmenia is the hottest region in the Soviet Union, it is very fertile. The oases of the Murgab and Tejen Rivers grow fine-fiber cotton. The Atrek River valley south of Ashkhabad produces dates, figs, persimmons, pomegranates, almonds and olives. Turkmenian grapes and melons are justly famed for quality and are shipped elsewhere in the country. Millions of the noted karakul sheep are raised in Turkmenian pastures.

Turkmenia is a region of rich natural resources—of non-ferrous metals, raw chemicals and sulphur and oil. These valuable deposits are all being tapped and processed.

But most of the area between the Caspian Sea and the Amu-Darya River is desert—one great shifting ocean of sand with a rare and infrequent oasis and its precious greenery and water.

East of the Atrek River the sand stretches for hundreds of miles, all the way to the Tejen River. Beyond the desert and the waterless land is the Murgab Oasis, and then sand again

Continued on next page

TURKMEN FAMILIES THRIVE ON THE NEW OASIS.

FORMER DESERT LAND IS PLANTED TO COTTON. WATER IS THE MEANS TO PROSPERITY FOR THESE FARMERS.

THE DESERT BLOSSOMS

Continued

to the Amu-Darya. Only where there is water is there life. And there is very little water.

The Turkmenians say, "Not land but water gives life." So it is in this parched land where a temperature of 105 degrees and more is normal in the summer and where the desert sands heat to 170 degrees. It is land where every acre of cotton must be watered six or seven times a summer.

With effective use of water resources, the area sown to cotton in Turkmenia has been expanded to 500,000 acres. Total production has increased five times over during the Soviet period, and the yield per acre has increased ten times over and is still on the upswing. In 1956 the yield was 1,520 pounds per acre and in 1957 it was 1,800.

Many large reservoirs and canals, more than 1,500 hydrotechnical structures and 350 miles of collectors and dams have been built. The irrigation capacity of the rivers that feed the oasis are now fully utilized with the single exception of the Amu-Darya, the largest river in Central Asia.

But the most fertile lands in the delta of the Murgab are being used to only about a third of their potential. By bringing additional water to the valley of the Tejen it is possible to extend the area of the irrigated lands from 60,000 to as much as 1,730,000 acres. The Kara-Kum has 2½ million acres of potentially fertile land and there is another 2½ million acres in the region near the Caspian Sea.

The first section of the Kara-Kum Canal is being used to irrigate part of these lands to begin with. The advantages of this man-made stream are already apparent. The area of irrigated land in the Murgab Oasis alone is in process of being doubled. The Kara-Kum collective farms, which last year planted the virgin lands near the canal, have harvested large crops of lucerne, watermelon and muskmelon and from 3,500 to 4,000 pounds of cotton per acre.

Irrigation Network Expands

More and more branch irrigation channels are being built into a widely ramified irrigation network to carry water to cotton plantations and stock farms. The canal will irrigate close to 2½ million acres of desert pastureland and at least 250,000 acres of farm land.

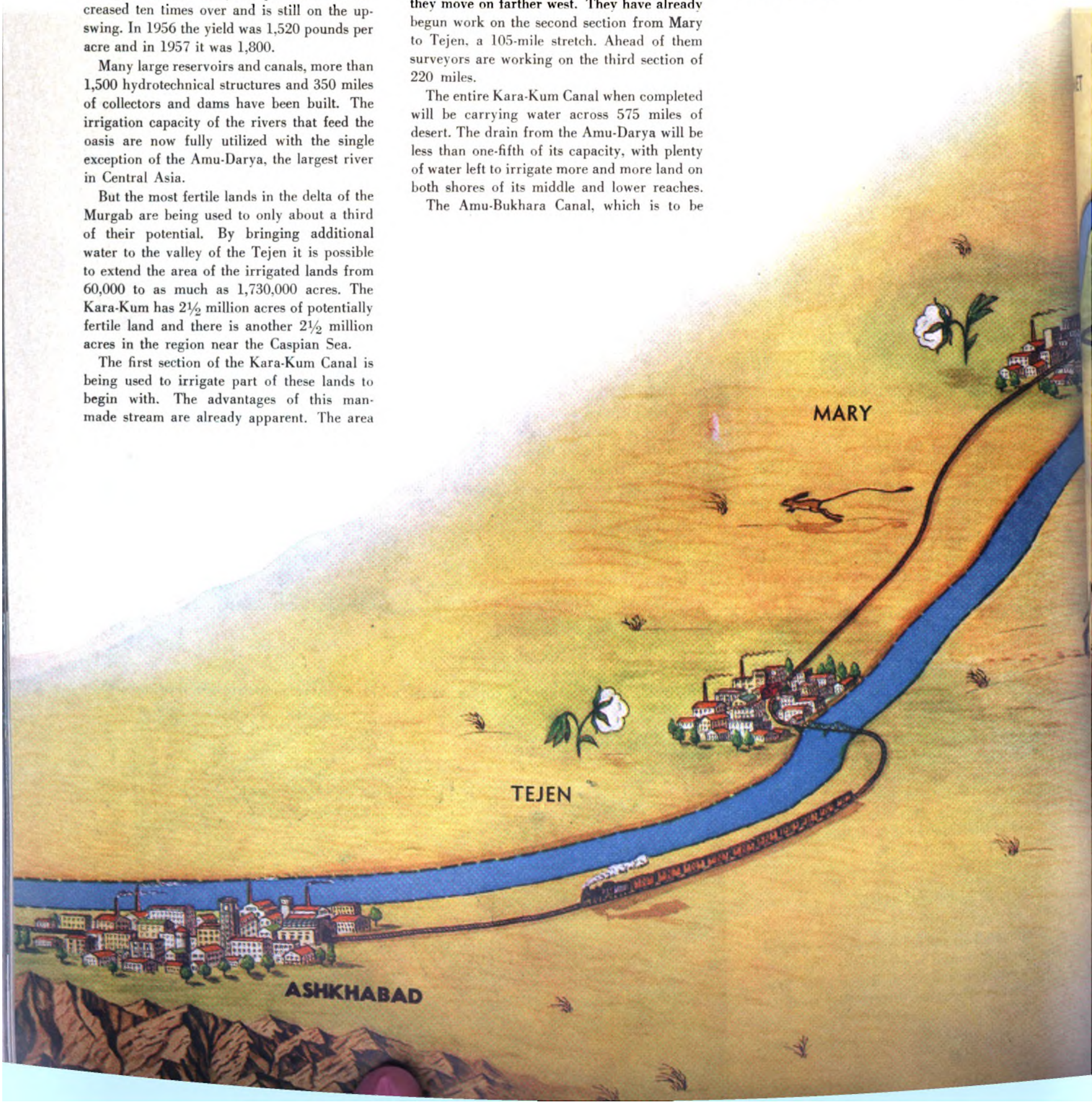
The 250 miles of the Kara-Kum Canal already built from Kerki to Mary is only the first section. As the builders finish a section, they move on farther west. They have already begun work on the second section from Mary to Tejen, a 105-mile stretch. Ahead of them surveyors are working on the third section of 220 miles.

The entire Kara-Kum Canal when completed will be carrying water across 575 miles of desert. The drain from the Amu-Darya will be less than one-fifth of its capacity, with plenty of water left to irrigate more and more land on both shores of its middle and lower reaches.

The Amu-Bukhara Canal, which is to be built on the river's right bank, will make it possible to cultivate even more land in Turkmenia and to irrigate more than 2½ million acres of exceedingly fertile land in the neighboring regions of Uzbekistan.

In process of constructing canals, irrigation systems, wells and reservoirs in the Kara-Kum region and elsewhere, geologists have found water sources previously unknown—pools and veritable lakes of water buried deep under the sand of the Central Asian desert.

Some of these underground pools have been found in northwestern and western Turkmenia, around Krasnovodsk, a city on the Caspian Sea coast, and in the middle of the Kara-Kum. They are being studied now and it will not be long before they become additional water sources which will also be used to irrigate the desert regions. ■



Amu-Darya River

KERKI

KARAMET-NIYAZ

ZAKHMET

BAIRAM-ALI

THE AMU-DARYA FEEDS THE KARA-KUM CANAL AND ITS IRRIGATION SYSTEM.

VACAT

Head of
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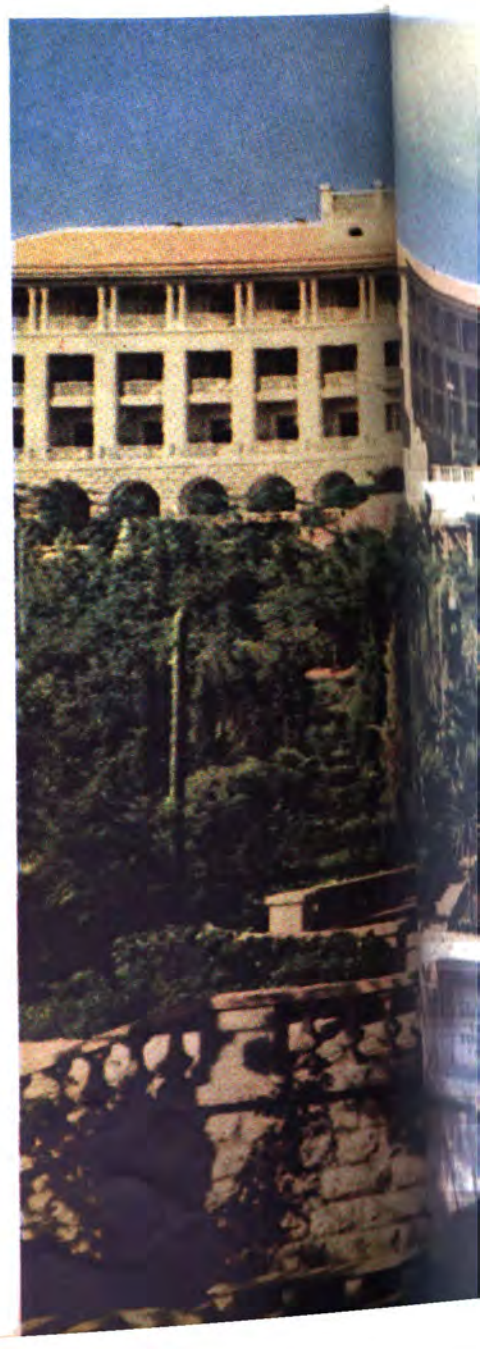
HEALTH RESORT FOR IRON AND STEEL W... COAST OF THE BLA



ON TIME

By IVAN KOZLOV

Head of Social Insurance Department, USSR Central Council of Trade Unions

SUMMER spells vacation time in the Soviet Union, just as it does elsewhere. Everyone makes plans long in advance. City people take advantage of life in the countryside and rent summer houses or visit relatives in villages. There are devotees of the seashore and partisans of the mountains, and others who favor resorts in the woods or on rivers. Many prefer to keep moving and go touring within the country or take a trip abroad.

Guaranteed by Law

The right to an annual paid vacation is guaranteed by the Soviet Constitution and is further specified in the labor laws and union contracts. The basic vacation is two weeks, but many categories of workers are entitled to additional time. The length of this additional vacation depends upon the industry and working conditions.

Production workers in such industries as mining, iron and steel, nonferrous metallurgy, transport, oil and chemical get three or four weeks. Those employed on especially difficult or hazardous jobs and in remote regions receive as much as five to eight weeks.

Special vacation privileges are also given to those who have been working at the same enterprise for a long time. In the industries listed above and also in textile mills and on large construction projects, workers remaining on the job for more than two years get three days extra added to their regular annual vacation.

People who work in the lumber industry and in forestry get an extra two-month holiday every three years added to their basic annual month's vacation. Teachers in schools and colleges get a two-month summer vacation. Young people training in factory and vocational schools get a month's paid vacation.

The right to a vacation is carefully safeguarded by law, with provision made for various contingencies. If, for instance, a worker for one reason or another misses his vacation, he is entitled to its equivalent in money or to a double vacation the following year, whichever he chooses. No worker can be discharged while he is on vacation.

In case of illness the vacation is not canceled, it is merely postponed, while the worker is put on sick leave for the duration of his disability. His income is not affected since he receives sick benefits and all medical services are free. If he falls ill while on vacation, he is entitled to be paid for each day he spends in the hospital, just as though he had become ill while on the job.

Resort Accommodations

The right to a vacation is not merely a matter of having the free time or money. As the term is defined in the Soviet Union, it includes the right to the facilities that will make the vacation restful and pleasant.

This means that every citizen has the right to enjoy the services of vacation and health resorts at very reasonable prices and in some cases

Continued on page 36

CAUCASIAN COAST OF THE BLACK SEA. THE HIGHWAY TO THE LEFT CONNECTS THE MANY VACATION SPOTS IN THIS AREA, ONE OF THE MOST POPULAR IN THE COUNTRY.

THE WARM SEA, INVIGORATING MOUNTAIN AIR AND THE SCENIC BEAUTY OF THE SOUTH ATTRACT THOUSANDS OF VACATIONERS TO THE CAUCASUS.

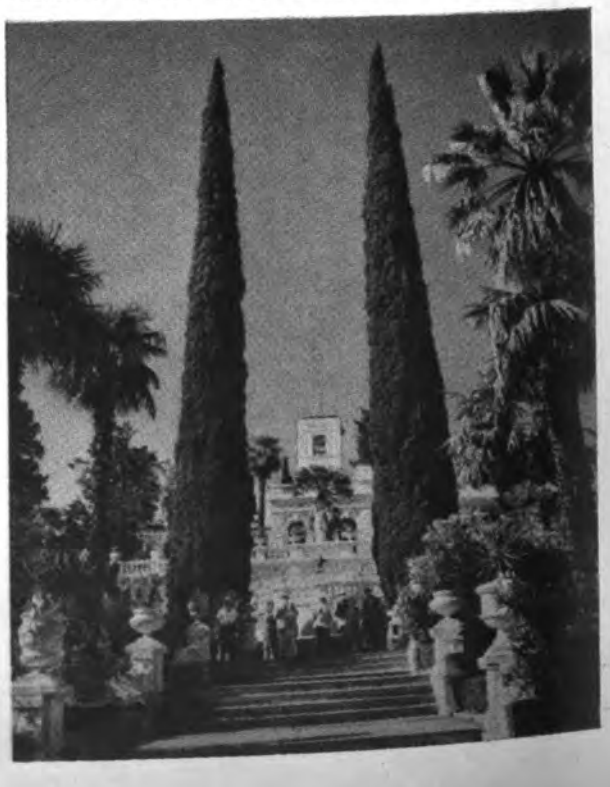
VACATION TIME

Continued

SOUTHERN RESORTS ARE OPEN ALL YEAR.

THE SEASON FOR FLOWERS NEVER ENDS IN THIS CLIMATE.

THERE ARE PUBLIC PARKS IN ABUNDANCE IN RESORT TOWNS.



THE SWIMMING SEASON HERE AT THE "CAUCASIAN RIVIERA" HEALTH RESORT LASTS FROM MAY THROUGH OCTOBER, AS IT DOES AT MOST OF THE BEACHES IN THE SOUTH.

EVERY KIND OF MEDICAL TREATMENT IS AVAILABLE FOR THOSE WHO NEED IT.

Continued on next page

SPORTS AND SUN ARE THE BEST REMEDIES OF ALL, THE YOUNG PEOPLE FIND.

DONBAS MINERS ON VACATION IN SOCHI. PEOPLE FROM EVERY WALK OF LIFE CAN BE FOUND AT THIS WORLD-FAMOUS SEASIDE RESORT.

VACATION TIME *Continued*

without cost. These facilities include not only board and lodging, but medical checkups, treatment if needed and consultation on health problems. All this is financed through the national budget and from funds distributed through the trade unions.

Each union has its own social insurance fund. The money for it comes from contributions made by every enterprise in the country. The worker contributes nothing. In 1957 the national social insurance fund was 43.5 billion rubles, and in 1958 it reached 57.5 billion.

A large slice of that sum is used to provide summer rest and recreation for the workers and their families. More than two billion rubles are to be spent this year to subsidize cut-rate or free accommodations at health and vacation resorts and tourist camps for 3,350,000 people, almost 200,000 more than in 1957. Accommodations are also arranged each year for additional thousands of people by the management of enterprises and the public health services.

Planning a Vacation

Let us see how Pyotr Salamatin, a textile worker at the Tryokhgornaya Mills in Moscow, arranges his vacation. He had decided to go to a health resort, as he had done in previous summers.

Salamatin is an older man and he likes the combination of quiet, relaxed atmosphere, beautiful country, informal gaiety, well prepared food and pleasant room that he will find in one of the Black Sea resorts in the Caucasus.

There will be a variety of sports activities if he cares to participate, a library and game room at his disposal, theater and motion pictures, dances, concerts, excursions to points of interest—all sorts of activities to make his vacation pleasurable. If he needs it, he can have a special diet arranged or get medical treatment or mineral baths, all without extra cost.

Once his mind is made up, Salamatin goes to the trade union committee of his shop which will arrange for his stay at the resort of his choice. The regular charge for a two-week stay is 300 rubles, but Salamatin was required to pay only 30 per cent of that sum in past summers, the rest was paid by his union out of its social insurance funds. This year, however, because of his long and good working record, the union decided that Salamatin is entitled to get his accommodations without cost.

As a matter of fact, accommodations free of charge or at reduced rates are given to old workers, people in low income groups, those with large families and workers who need a vacation to keep them in

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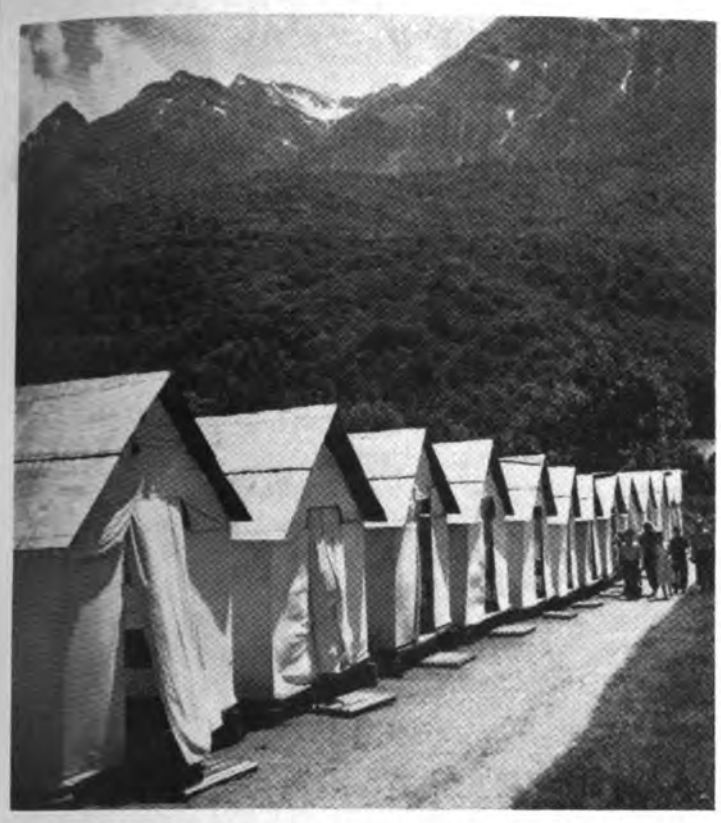
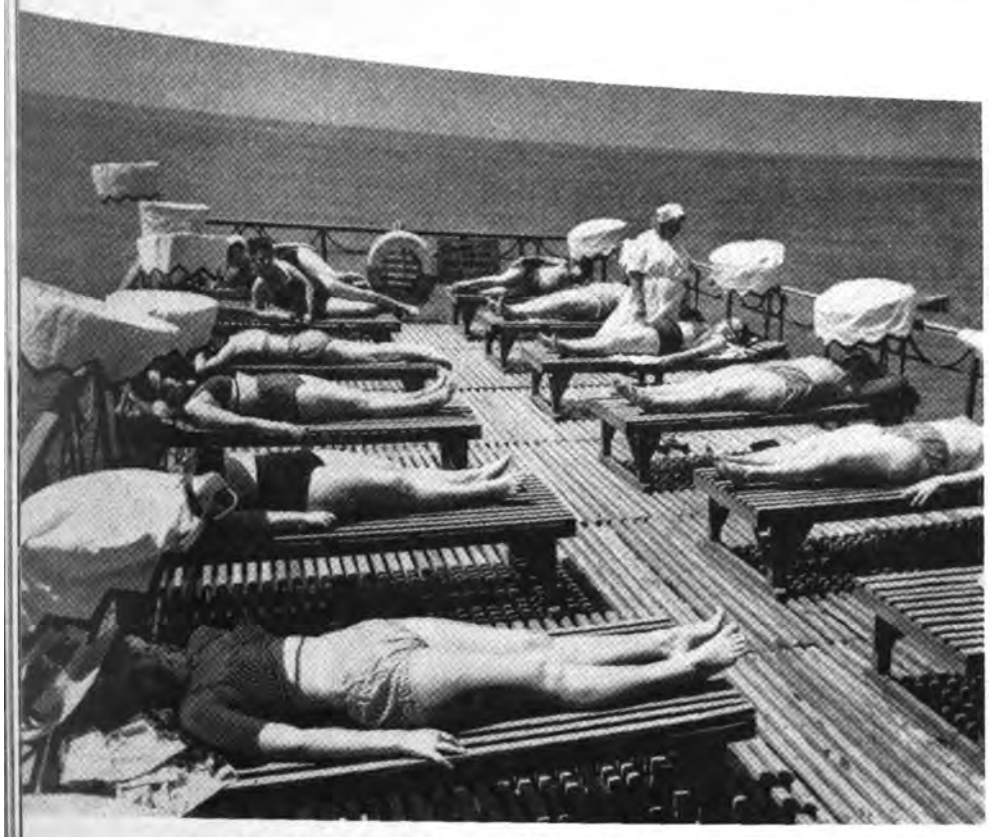


TOURIST CAMPS PROVIDE OVERNIGHT SHELTER FOR MOUNTAIN CLIMBERS.

THERE ARE MANY RIVER AND LAKESIDE RESORTS IN THE URAL MOUNTAINS.

THE LUMBER INDUSTRY OF THE FAR EAST MAINTAINS A VACATION RESORT ON THE USSURI RIVER WHERE THE WORKERS AND THEIR FAMILIES CAN SWIM, BOAT AND FISH.

VACATION TIME
Continued



NURSES ARE ON DUTY AT EACH RESORT TO PROTECT OVER-EAGER SUN BATHERS.

IT TAKES A GOOD SWIMMER AND SOME COURAGE TO DIVE OFF THIS HIGH SUN DECK.

good health. About 20 per cent of all accommodations at health resorts and 10 per cent at vacation resorts are given free of charge. The cost in each case is covered out of the social insurance fund administered by the unions.

All Kinds of Vacations

The Soviet Union is a vast country with a great variety of scenery and with climates that range from subtropical to arctic. Those who like southern nature go to the traditionally famous Crimea and Caucasus, with their sunny beaches on the warm Black Sea and the invigorating air of the mountains. But there is beauty in northern nature, too, and people say that the beaches on the Baltic seacoast are even better than in the South, although the sea is not as warm. No less popular are the resorts in the Ural and Carpathian Mountains, on the plains of Central Russia and Siberia, or in picturesque spots in Central Asia and the Far East.

There is hardly a region of the country without its health or vacation resorts, famed either for fine climate, mineral springs, lovely beaches, scenic beauty, or a combination of several. Nearly all of these resorts have been built in the past forty years. Nothing of the kind was available to the working population in czarist times, when the few existing resorts were within the reach of only the aristocracy or the wealthy.

The first vacation resort for the general public was opened in 1920 at one of the old aristocratic watering places. Shortly afterward the trade unions were given the responsibility of building resorts with the help of social insurance funds. The Ministry of Public Health built its own resorts with money appropriated from the national budget. The network long ago developed to the point where it has become quite commonplace for anyone who wishes it to spend his vacation at one or another of the country's resorts.

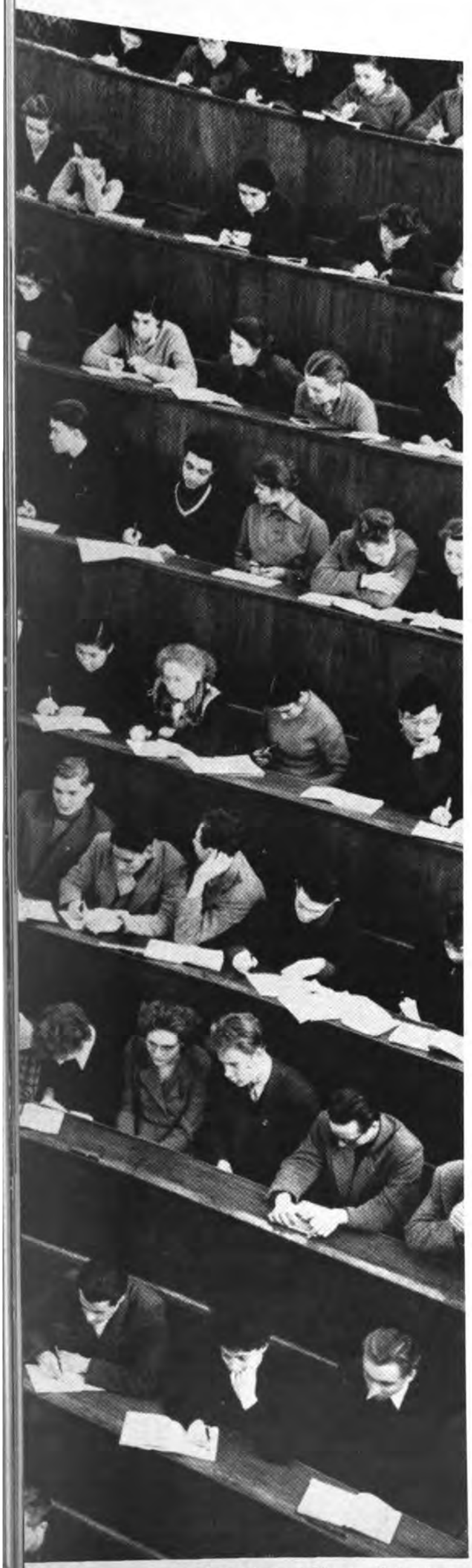
But the resorts, as popular as they are, do not account for all Soviet vacationing. Hiking and mountain climbing attract a substantial number of the hardier characters to the tourist camps and hostels that have been set up at the foothills of the towering peaks, in the woods, and on the banks of rivers and lakes.

There are the perennial tourists who count a vacation lost unless they travel across country either alone or with family. There are the anglers who can spend twice their vacation watching the fish rise to the bait. And the gardeners who leave the bustle of city life for their summer houses. But whatever kind of vacation, and however spent, everyone enjoys the right to rest and relax from the year's work. ■

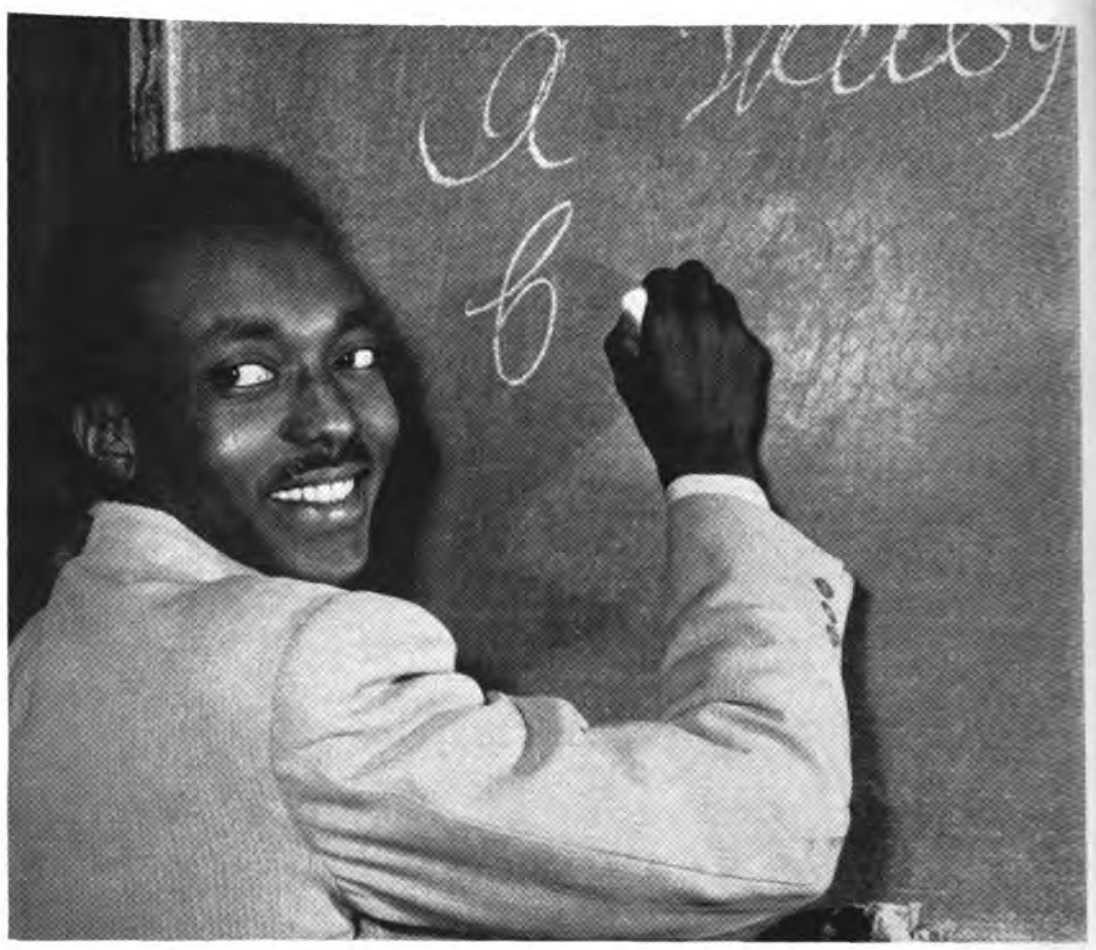
WITHOUT A CARE IN THE WORLD TWO PLAYERS BATTLE IT OUT ON SUNNY BEACH.

THE COUNTRY'S NETWORK OF HEALTH AND VACATION RESORTS IS CONSTANTLY EXPANDING. THIS IS A RECENTLY BUILT HOLIDAY CENTER ON THE AMUR RIVER IN THE FAR EAST.

IT IS NOT NECESSARY TO TRAVEL TO THE SOUTH FOR GOOD VACATION SPOTS. ALL OVER THE COUNTRY THERE ARE LOCAL RESORTS LIKE THIS ONE NOT FAR FROM MOSCOW.



Among the students at Moscow University are 1,500 young people from 30 foreign countries.



MUKHAMMED KHAMED SALEKH ALMEK, SUDANESE STUDENT, FINDS CONJUGATING RUSSIAN VERBS ISN'T EASY.

Foreign

THERE are 15,000 students from foreign countries now studying in Soviet colleges. They come from countries as far apart as France and Paraguay, China and Mexico, Iceland and Vietnam, Finland and the Sudan, Italy and Indonesia, Czechoslovakia and India, Syria and Poland. Countries on every one of the continents are represented in the foreign student colony.

There are no Americans as yet, but the cultural agreement concluded a few months ago provides for an exchange of students between Harvard and Columbia and Moscow and Leningrad universities. So that students from the United States will soon be joining these student groups where different tongues, temperaments, customs and traditions mingle.

How do students from other countries get to study in the Soviet Union?

The arrangements are made by government agreements. There are several dozen such agreements now operating between the Soviet Union and other countries. As a rule, these student exchanges are bilateral. For example, 14 French students are now attending Moscow University, while 12 Soviet students are studying at the Sorbonne in Paris.

Many students from foreign countries come to study in Soviet colleges through the International Union of Students. The Student Council of the USSR Committee of Youth Organizations provides scholarships, while the International Union distributes them and nominates candidates from various countries.

Some of the foreign students attend on scholarships provided through the United Nations, the USSR Slav Committee and the Ministry of Culture. But the great majority of scholarships are provided through the Ministry of Higher Education.

The Course of Study

The language problem is, of course, the most immediate one for a foreign student. To meet the problem, Moscow University provides a special one-year course for study of the Russian language. Most students arriving in the Soviet Union enroll for this course which gives them opportunity to become "acclimatized" and to find their way around.

The course is intensive and demands five or six hours a day of classroom work, beside independent study. Once the student has acquired reasonable fluency in speaking and

Continued on page 42

GERMAN, RUSSIAN, CZECH AND POLISH STUDENTS.

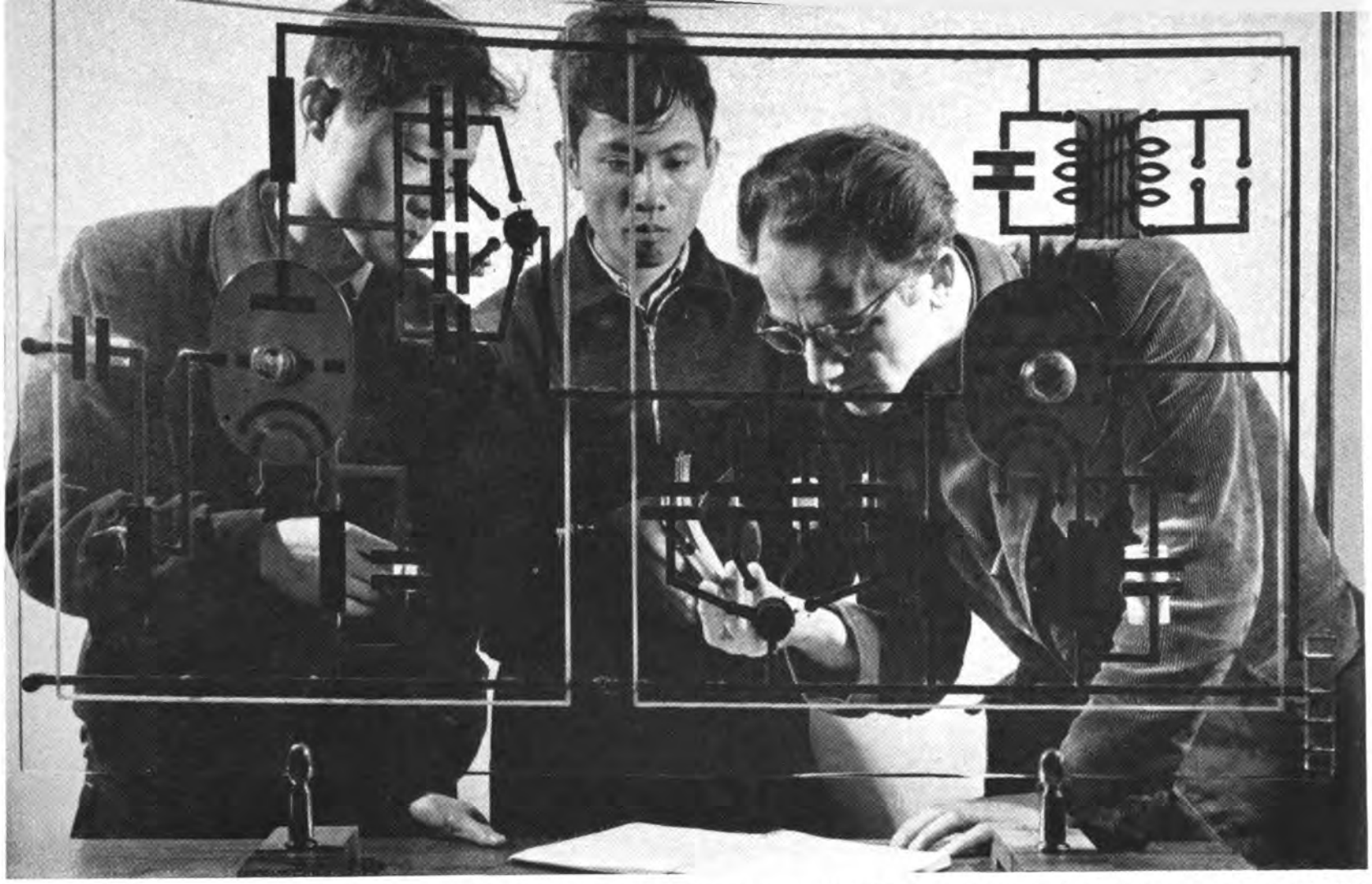
TWO BULGARIANS MEET RUSSIAN GIRLS AT PARTY.

LEBANESE SPIRO FAHURI IS STUDYING MEDICINE.

Students in the Soviet Union

By Adolph Pikov

THE YOUTH OF DIFFERENT COUNTRIES STUDYING TOGETHER—KOREAN, INDIAN, CHINESE AND RUSSIAN STUDENTS LISTEN CAREFULLY TO EXPLANATIONS OF A MUSEUM GUIDE.



LIU SUNG-LIN (CHINA), NGUEN KIM LIET (VIETNAM) AND VICTOR GOZZA (CZECHOSLOVAKIA) ARE ALL PURSUING A COMMON OBJECTIVE IN THEIR STUDY OF PHYSICS.

POLISH HISTORY STUDENTS XANA MAXIMIUK AND BOLESLAW KAPITAN.

FRANCISCO FERNANDEZ DE LA ROSA, FROM MEXICO, GETS SWIMMING INSTRUCTION AT MOSCOW UNIVERSITY.

Foreign Students

Continued

writing, he chooses his field of study and the college he wishes to attend.

The preference of foreign students is toward the technical and natural sciences, followed, in the order given, by medicine, the agricultural sciences, economics, the humanities and the arts.

The Soviet college course is five years, except for the medical school course, which is six. The academic year is nine months long. The average age of the graduate is 23.

During the first year, attendance is required at all lectures. In the second year there are some lectures which the student may attend or not as he chooses. The number of such non-obligatory lectures increases with each succeeding year of study.

Specialization begins in the third year. The main part of the work is done in class and attendance is obligatory. Since classes are small—usually some ten students—faculty members can devote attention to every student individually.

Education in all colleges and universities, including graduate work, is free. Every student with good progress receives a monthly stipend at state expense.

Moscow University

The majority of foreign students in Moscow are enrolled at two of the city's medical schools, at the Bauman Higher Technical School, the Power Engineering Institute, the Timiryazev Agricultural Academy and, of course, Moscow University.

Moscow University is, to all intents and purposes, a multilingual school. In addition to the 60 Soviet nationalities represented in its student body, it has students from 30 foreign countries. Its student body of 24,000 includes 1,500 from abroad. Most of the foreign students are enrolled in the natural sciences and humanities courses.

The science faculty includes such men of international reputation as Academician Nikolai Semenov who won the Nobel Prize in 1957, Academicians Pyotr Rebinder, Alexander Oparin, Andrei Kolmogorov, Pavel Alexandrov, Sergei Sobolev and Alexei Balandin.

Lectures are frequently given by eminent foreign scholars. There are some 50 who have lectured at the University during the past few years.

It has also become the custom for leading statesmen and men in the arts who visit the Soviet capital to address the student body. Within the relatively recent past Jawaharlal Nehru, Jules Moch, President Sukarno, Edgar Faure and Jean Paul Sartre have spoken before Moscow University students.

The University library has literature in all fields and all languages. It maintains a book exchange with 50 foreign countries.

Students live in university dorms in single rooms, with shower and toilet for every two rooms. The rent is 15 rubles monthly. Each floor has a lounge with piano, radio, TV, and easy chairs for the interminable student talk on every subject under the sun.

Each wing of the large dorm building has a dining room where meals are served at modest prices. A typical breakfast costs two and a half rubles.

Extracurricular

International student forums and seminars have become traditional in the Soviet Union. Leningrad architectural and construction engineering students are now preparing for a forum on "The Modern City." In Moscow a seminar will be held for students of Russian language and literature in which prominent writers will participate. Another seminar, on the peaceful uses of atomic energy, is scheduled for science students.

For the less scholarly side of college life there are frequent student parties and get-togethers. The various national holidays of countries from which the foreign students come are observed with appropriate ceremonies.

Students from foreign countries studying in Moscow have organized their own national fraternities on a city-wide basis where they thrash out their common problems. The leaders of these fraternities maintain contact with the administration of the colleges in which their members are enrolled.

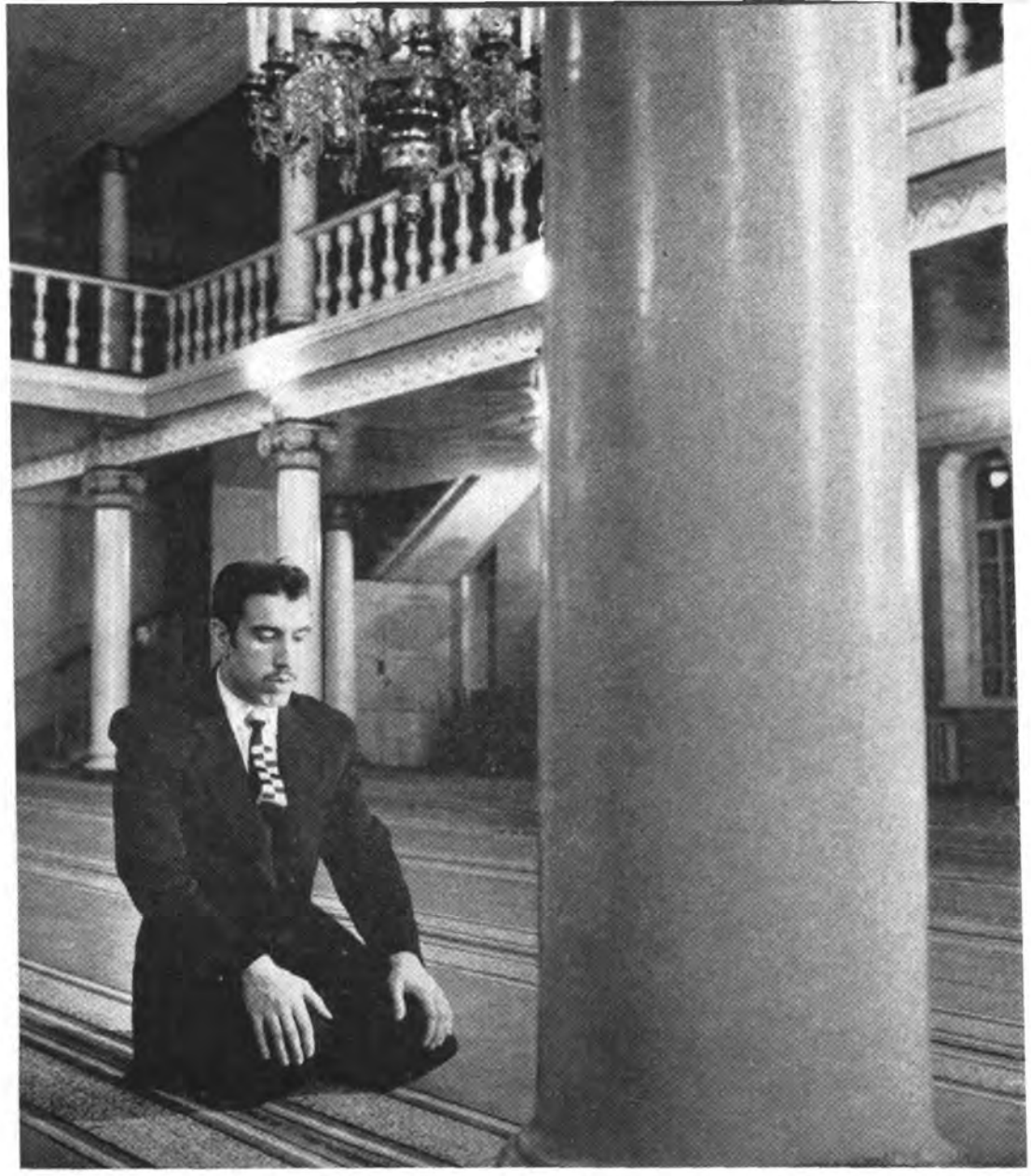
Foreign students are active in hobby clubs

Continued on next page

MOKHAN PARADKAR, ENROLLED FROM INDIA, IS AN EAGER PUPIL AT HIS FIRST LESSON IN RUSSIAN DANCING.

A UNIVERSITY INSTRUCTOR HELPS CHINESE, CZECH, RUSSIAN AND TATAR STUDENTS WITH A RESEARCH PROJECT.

FUTURE MOVIE ACTORS, PRODUCERS AND CAMERAMEN FROM USSR, POLAND AND BULGARIA SHOOT A SCENE.



DJAFAR DECK EL-BAB, A STUDENT FROM SYRIA, GOES TO PRAYERS IN MOSCOW AS HE WOULD BACK HOME.

Foreign Students

Continued

and circles. On March 1 of this year they presented a big variety show which was televised by the Moscow network. They participate in most indoor and outdoor sports.

The youth organization in every college not only helps the foreign students in their studies but also does its best to make their leisure time enjoyable. During semester breaks the student-guests, like their Soviet friends, stay at one or another of the country's many vacation resorts or go on tours to various cities and places of interest.

These young people are convinced, on the basis of their own experience, that there is no better way to mutual understanding than for students of many countries, many backgrounds, many religious and political beliefs to study and live together.

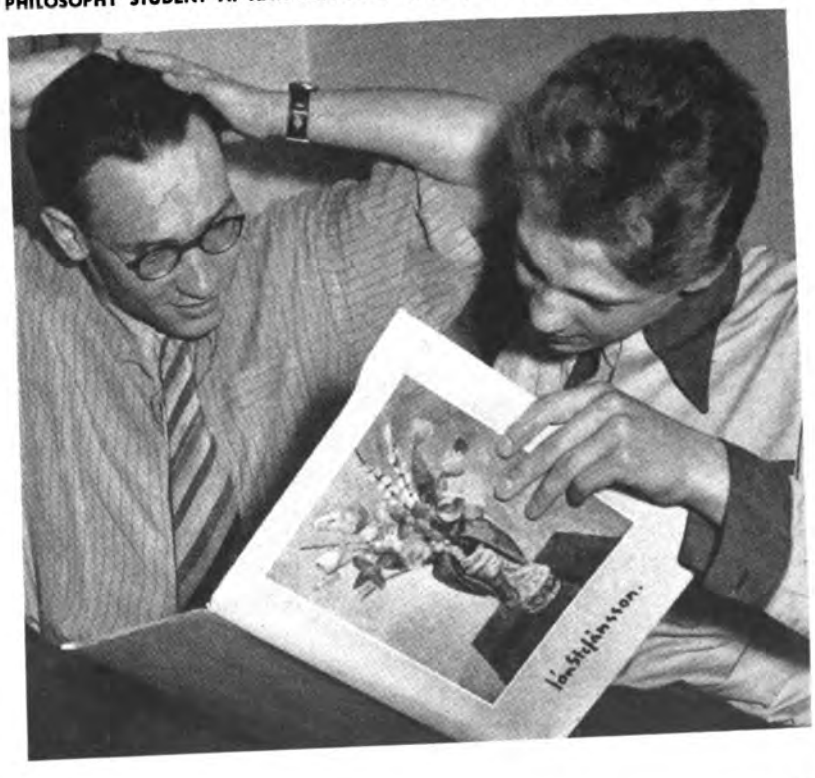
That sentiment, too, is implicit in the pleasure which Professor Kuzma Ivanov, vice president of Moscow University, expressed when he heard of the USA-USSR agreement to exchange students. "We will be happy," he said, "to welcome American students to the University and will spare no effort to make them feel at home." ■

THIS INDONESIAN STUDENT FINDS IT HARD TO GET USED TO THE COLD RUSSIAN WINTERS. IT TAKES A WHILE FOR VISITORS FROM WARMER CLIMATES TO BECOME ADJUSTED.

LAJOS RADICS, A STUDENT FROM HUNGARY, IS GUIDED IN HIS RESEARCH WORK AT MOSCOW UNIVERSITY BY ACADEMICIAN NIKOLAI SEMENOV, A NOBEL PRIZE WINNER.

ANTONIAS PROTOPOPAS (RIGHT) FROM CYPRUS, AT A RUSSIAN LANGUAGE LESSON.

PHILOSOPHY STUDENT A. HANNIBALSSON (RIGHT) OF ICELAND, AND RUSSIAN PAL.



Twelfth Row Orchestra

By Alexei Morov

WHAT'S the audience like at a concert in a Soviet city? To find out I talked to a row of people in the Gorky Conservatory Hall at a symphony concert conducted by Semyon Lazerson. They were, I should suppose, as representative a group of concertgoers as you would be likely to find anywhere, and as individual—with individual likes and dislikes, individual musical idiosyncrasies and individual reactions to program, conductor, and everything else.

Gorky is an overnight express train ride from Moscow and hears many of the country's leading artists. Its big musical events last year included a violin ensemble from Moscow's Bolshoi Theater; the Pyatnitsky, Urals and Volga choruses; the composers Dmitri Shostakovich and Marian Koval in performances of their own compositions; recitals by the Berlin Opera star Margaret Klooze and by several leading Soviet singers.

Among the instrumental performers were such world renown artists as David Oistrakh, Emil Gilels, Mstislav Rostropovich, Daniil Shafran, Igor Oistrakh, Igor Bezrodny, Galina Barinova, Victor Merzhanov and the Bulgarian pianist Snezhanka Barova.

Dance groups from Leningrad and Warsaw performed for Gorky audiences, as did a variety band from Armenia, a folk instrumental group from Hungary, the "Moryana" ensemble made up of Caspian fishermen, and a troupe of young singers and dancers from China.

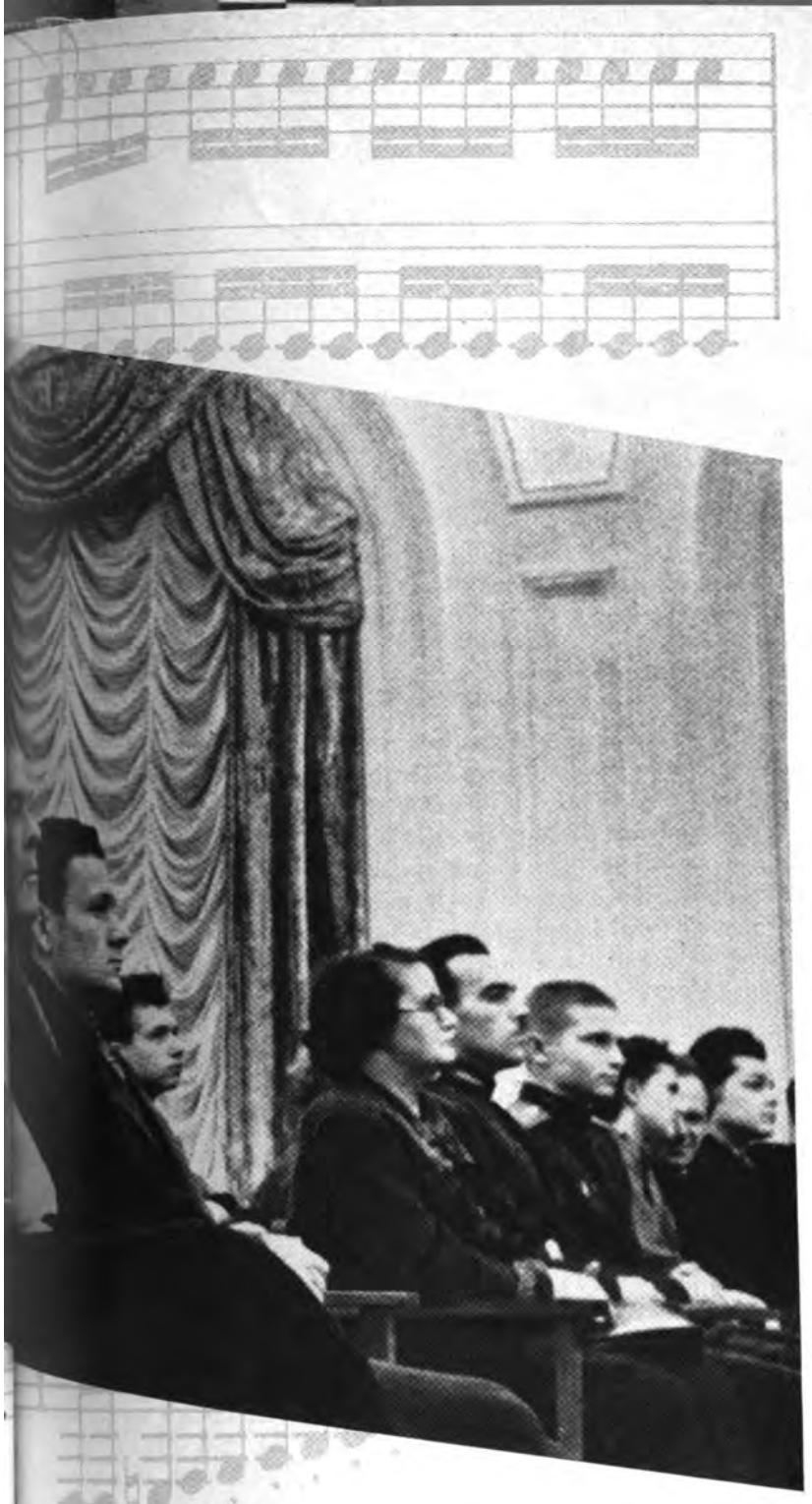
It is apparent that Gorky people are hardly starved for music. On the whole, I should say, because of the many opportunities to draw comparisons, they make up rather critical and musically sophisticated audiences, as I discovered when I talked to my fellow concertgoers in the twelfth row.

Teacher, Soldier, Student

Sitting in the seat next to me was an older man, Pavel Vinogradov, a university instructor. We spoke together during intermission and he told me that the local music society was an old one. He compared the five or six annual musical events that the society used to arrange back in the old days with the very abundant musical fare the city could now choose from.

He had been particularly pleased, he told me, with the summer concert series of the Gorky Philharmonic Orchestra led by the nationally known guest conductor Kirill Kondrashin of Moscow. Vinogradov thought the orchestra's best performance had been the Tchaikovsky Sixth Symphony. He admitted to being partial to Tchaikovsky music, but, said he, "even for friends of mine who do not share my partiality for Tchaikovsky, it was a concert to remember."

With Vinogradov was his daughter Tanya. How did she like the program, I asked. It was made up of Beethoven's Seventh Symphony, the overture to Wagner's *Rienzi*, and a Brahm's violin concerto, with Igor Politkovsky as soloist. Tanya said she liked Tchaikovsky too, but this time had come particularly to hear the Brahms concerto.



SEMYON LAZERSON CONDUCTING GORKY PHILHARMONIC IN BEETHOVEN'S SEVENTH.

STUDENTS OF THE GORKY CONSERVATORY FOLLOW CONCERT WITH MUSICAL SCORE.

Two army men sat alongside the Vinogradovs, Sergeant Vladlen Nechmoglot and Private Yevgeni Krylov. The sergeant, I learned, was a graduate of a music school and until a short time ago led the amateur chorus in his unit. Someone with a better musical background is now chorus leader and he sings solo parts and accompanies the group on the accordion.

When I asked him why he had come to the concert, the Sergeant explained that he rarely missed either a symphony or opera performance when he had time free. "I like music," he said simply. That seemed to be adequate enough reason. Private Krylov shared his friend's love of music.

Farther down the row sat Galina Shchelokova, who is doing graduate work in medieval history at Gorky University. She confessed that she didn't attend symphony concerts too often. She prefers lighter music and has records at home with popular jazz tunes. Among her favorites are the French Yves Montand and the American Duke Ellington. She also likes Negro folk songs.

Why did she come to the concert, then? Oh, to hear Wagner. She likes Wagnerian music because it has "a medieval quality," and medieval history is her field. Among Russian composers her favorite is Rimsky-Korsakov for his *Scheherazade.*

The young man with her, Lazar Shereshevsky, a philology student, was a regular concertgoer, with decided musical opinions. His prefer-

Continued on next page

SERGEANT NECHMOGLOT AND PRIVATE KRYLOV DISCUSS THE PROGRAM'S MERITS.

Students Galina Shchelokova and Lazar Shereshevsky love music but have different tastes.

Engineer Vitold Strelkov (left) and his friend, dental technician Lev Vovse during intermission.

It was not that he loved music less but that he needed sleep more, said artist Boris Krotikov.

Twelfth Row Orchestra

Continued

ence, if he is "pushed to a choice," is chamber music, and he prefers Beethoven to all other composers. After Beethoven, in no particular order, he likes Moussorgsky, Scriabin and Shostakovich. Of Shostakovich's compositions, he finds the Seventh Symphony particularly moving because of its associations with the war.

The most interesting concert he had heard in recent years was a performance of Verdi's *Requiem* by the Gorky Orchestra and the Russian *a cappella* choir with Kirill Kondrashin conducting. "A talented conductor," Shereshevsky said, "and a rare performance that really got into Verdi's great work."

Regular Concertgoers

Farther down the row sat the Naumovs, Alexander and Anastasia, an elderly couple. Alexander retired as of six months ago. For the 37 years before, he had sailed big rafts down the Volga from Gorky to Saratov and Stalingrad. Now he spends most of his time gardening.

The Naumov's are regular subscribers to the Gorky Philharmonic concert series. This season they will be hearing violinists Igor Politkovsky and Olga Kaverzneva; pianists Stanislav Neigaus and Isaac Mikhnovsky; singers Natalia Schpiller, Georgi Dudarev and Sergei Shaposhnikov, and balalaika player Pavel Nechiporenko.

Mechanic Yuri Kuryshev, another season-ticket holder in Row 12, was an old-time concertgoer, too. He had heard composers Tikhon Khrennikov and Dmitri Kabalevsky in performances of their own works, and a good many years ago, he reminisced, he had heard Reingold Gliere conduct the overture to his opera *Shah Senem*.

"The one recent concert I could kick myself for missing," he said, "was when David Oistrakh and his son Igor played together. By the time I got to the box office, there was not even standing room left."

One or two people in Row 12 were following the music with scores and I passed them by. They were obviously either students or musicians. A man two rows ahead of me, I had noticed, was having trouble staying awake during the *Rienzi* overture. I uncharitably buttonholed him during the intermission. It wasn't the music that had put him to sleep, he said laughing, he was an amateur fiddler himself. It was just that he had stayed up late the night before and he guessed he needed sleep more than he needed music.

Critics

I was beginning to think that everyone in Row 12 liked the performance until I met a couple of rather outspoken critics, Emilia Galygina, a teacher of music in one of Gorky's high schools, and Anna Goldina. Emilia thought that the conductor, Semyon Lazerson, was much too smooth and gentle in the Beethoven symphony, that his interpretation lacked the fire that the symphony demanded.

Anna delivered herself of a rather sweeping criticism. "I don't like lukewarm tea," she said, "and I don't like music played without feeling. I can't for the life of me understand why with all the fine musicians the orchestra has, the music is so cold and unfeeling. And it's not the first time," she added, heating up to her subject. "Take last year's performance of the Beethoven Ninth that Boris Khaikin conducted. He's a first-class musician and he worked hard with the orchestra. But somehow it wasn't the way the Ninth should have been interpreted. Somebody I know in the orchestra told me that Khaikin spent so much time rehearsing the chorale that the other movements were neglected.

"Or take today's program. It's obvious that the orchestra didn't spend enough time rehearsing the Brahms concerto. And they gave the oboe solo to an inexperienced conservatory student. With that kind of thing, what can you expect?"

She was prepared to go on with other examples to make her point, but I excused myself to talk to Vitold Strelkov, an engineer, and his friend Lev Vovse, a dental technician.

Strelkov told me he was very fond of symphonic music. Vovse confessed that he'd take a jazz concert any day. He goes to an occasional symphony concert as a sort of educational duty he owes himself. But, says he, "when a famous jazz band comes to town, I'm first in line for tickets."

He plays percussion—drums and xylophone—in an amateur band. The band, he told me with excusable pride, has been around. It went to Moscow to compete in a nationwide amateur band contest, and he himself won first prize at a Gorky music festival.

Well, that's for the audience, or the representative slice of it that sat in Row 12. What about the men and women who make the music? Do they like Gorky audiences? When I asked this question, I was given the Visitor's Book to leaf through—guest musicians always write a greeting or a comment along with their names after a performance. This one, by singer Ivan Petrov, is typical of many others in the book.

". . . It was gratifying to have an audience listen so appreciatively to the music of Glinka, Tchaikovsky and Kabalevsky. . . . I hope that I shall have the opportunity to perform for Gorky audiences many more times. It was a great pleasure. . . ." ■

(Abridged from the magazine *Musical Life*)

Pensioner Naumov and his wife look forward to such musical evenings.

Mechanic Kuryshev's season ticket assures him a seat at all concerts.

Jewish Folk Singer

By Alexei Grigoriev

ZINOVI SHULMAN, FOLK SINGER, OFFERS OLD AND NEW YIDDISH SONGS.

THERE is a considerable audience for Jewish songs in the Soviet Union, to judge by the popularity of folk singer Zinovi Shulman. His concerts of old Yiddish favorites and of new songs written in recent years have won him a large following.

Shulman has a busy concert schedule. Last year he gave 80 recitals on a tour of the country and managed besides to do a good deal of radio and recording work.

SHULMAN'S CONCERTS ALWAYS ATTRACT BIG CROWDS.

On his return to Moscow after a recent tour of the Volga region and the Urals he presented a series of recitals in the capital to enthusiastic audiences. Now he is on a four-month tour of the Ukraine.

Zinovi Shulman has been singing professionally for some 30 years now. He inherited his love for the old Yiddish songs from his father and began singing when quite young. His voice, strong and mellow, attracted the attention of musicians and he was urged to take professional training.

He studied at the vocal division of the Institute of Theatrical Arts and then joined the Stanislavsky Music Theater. His strong interest lay in concert work and in Yiddish folk-singing, and he left the theater for his long and successful concert career.

His wide repertoire includes such old and well tried favorites as "Nohemke Mein Zun" ("Nohemke, My Son"); "Mahetoneste" ("Son-in-law's Mother"); "An Alte Vig Lied" ("An Old Lullaby"); the poor man's song "Nitu Kein Brot" ("No Bread"); the song of the young shepherd who lost his only lamb, "Yunge Yorn" ("Young Years"); "Der Frailicher Shnaiderl" ("The Merry Little Tailor") and many, many others.

Shulman's repertoire also includes such modern Yiddish songs as "L'Haim" ("Toast to the New Life"); "Pioneer Moishele"; "Mein Shtetele," a song about a little town that was razed by the fascists and rebuilt from the ruins; the partisan song "Hand in Hand"; "Tefe Gruber" ("Deep Graves"), written by Mikhail Weinberg to words by Samuel Galkin; "Shpilt a Freilahs" ("Play a Merry Tune") with music by Mikhail Polonsky and text by Itsik Feffer.

Not infrequently, people in the audience will give Shulman songs he is unfamiliar with. This happened at a recital he gave not long ago in Tashkent. An old man came up after the recital and sang some very old Yiddish folk songs for him. Shulman subsequently added a number of them to his repertoire.

Like most folk singers he is constantly on the hunt for songs, new and old. With the help of the staff of the Lenin Library in Moscow—the Soviet Union's largest—he constantly adds to his repertoire songs from the library's rich collection of Yiddish folklore, some of them a hundred years or more old.

Following the lead of Esther Rochl Kaminskaya, the remarkable Jewish actress who widened her repertoire from the purely Yiddish play to the great classic plays translated into Yiddish, Shulman now includes in his recitals Werther's aria from Massenet's opera of same the title, Mozart's "Lullaby," Schubert's "Organ Grinder" and Canio's aria from *Pagliacci*.

Sung in Yiddish, this interesting departure from the customary folk-song recital has been most warmly received by audiences. Shulman has recently added to this group a number of songs by Tchaikovsky which he sings in Yiddish.

His audiences are by no means confined to Yiddish-speaking people. The Russians, Ukrainians, Lithuanians or Uzbeks who come to hear Shulman may not understand the language, but they are charmed with the lovely melodies and the singer's moving renditions.

Shulman is one of a number of Jewish folk singers who sing to large audiences in Soviet cities. Others are Sidi Tal, Emil Gorowets, Marina Gordon and Anna Guzik, all talented singers who are warmly received by appreciative listeners throughout the country. ■

WHO WILL GET THE PUCK? NIKOLAI SOLOGUBOV (RIGHT) IS TAKEN ON BY WELDON OLSON (NO. 8) AND GORDON CHRISTIAN. SOLOGUBOV CAPTAINED THE SOVIET TEAM.

Implementing Cultural Accord

American Hockey Team plays picked Soviet Squad in Moscow

By Lev Petrov

SOON after the windup of the world ice hockey championship games in Oslo, 20 young men in short, gray overcoats bearing the shield-shaped emblem of the U. S. Amateur Hockey Association landed at Moscow airport. They included 17 players and three members of the managerial staff of the American squad that had placed fifth in the international contest.

The Americans came to Moscow at the invitation of their Soviet colleagues. The visitors' roster included such celebrated players as Dan McKinnon, defense man; John Mayasich, wing; and Willard Ikola, goalie, whom the hockey fans remembered from the games at Cortina d'Ampezzo. They also included the youngsters of the team—18-year-old Oscar Mahle, wing; Larry Lawman, defense; the three Christian brothers, Gordon, Roger and William.

The American athletes aroused the great interest of the country's millions of hockey fans. It was not only because there was a big demand to see the American team in action, but also because this was the first visit in the program of strengthening sports ties between the United States and the Soviet Union as envisaged in the agreement signed last January for exchanges in the fields of culture, technology and education.

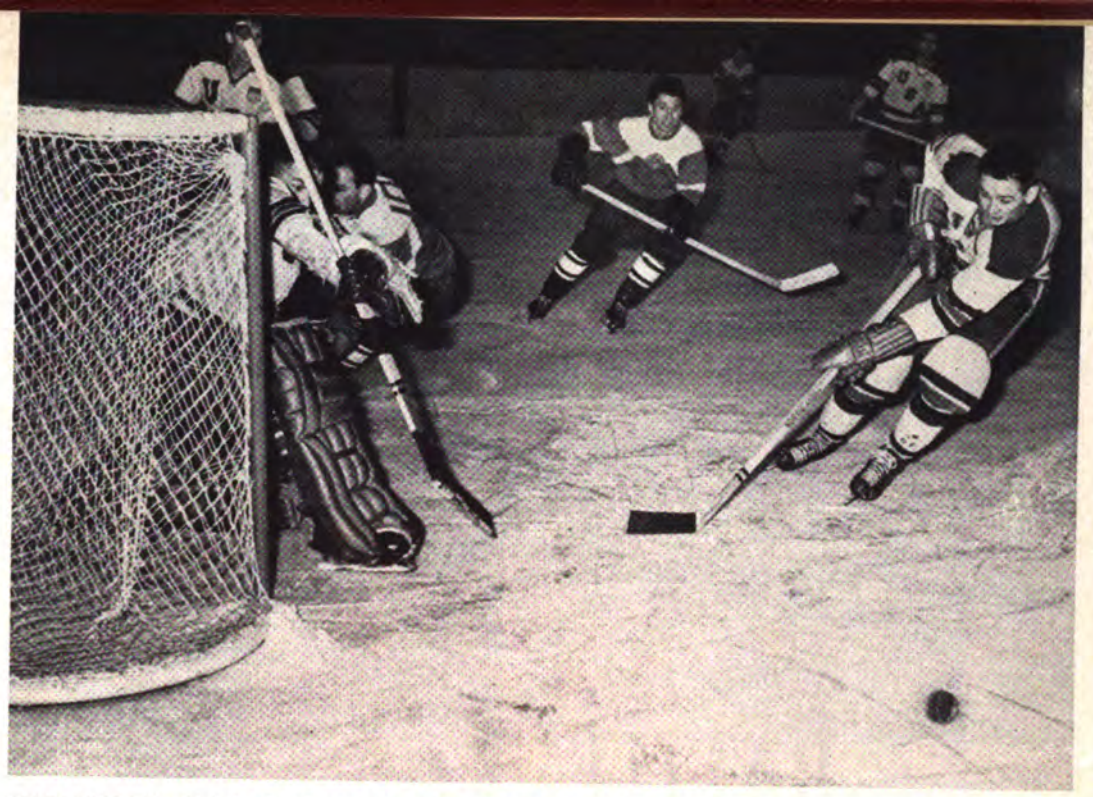
Addressing the sports people and representatives of the press, radio and television welcoming them at the airport, Manager Donald Clark of the American team said that all the members of the U. S. team had waited impatiently for the moment when they could come to Moscow. He described the arrival of the American hockey team in the Soviet Union as a firm confirmation of the necessary and important agreement recently concluded. He said that the more there are of such meets, the better it will be for the peoples of the United States and the Soviet Union.

During the following three days the American stick-wielders made their acquaintance with Moscow, and despite the shortage of time.

ey were shown all of the principal sights of e capital.

Trainer Stanley Wilson, who hadn't seen all e wanted to, put it this way: "Never mind, is is a sort of reconnaissance for us. Next me we come to Moscow, we'll stay longer. 'e'll play more games with the Muscovites, nd they'll show us a greater number of inter- ting sights."

In general, Wilson was luckier than the thers. He had made friends in Oslo with ikolai Sologubov, captain of the Soviet na- onal team, and the Russian took charge of Vilson's schedule during his stay. He came or Wilson in a car and drove him about town ll day long, showing him the sports acilities in the capital. Wilson used three olls of film in his Rolleiflex, anxious not to iss a single shot. He took everything: the inter open-air swimming pool with its heated ater, located in the center of the city; the ports club of Moscow University; numerous



GOOD DEFENSIVE WORK OF U.S. GOALIE WILLARD IKOLA CLEARS A DANGEROUS SHOT DURING A MOSCOW GAME.

AMERICAN TEAM AT THE TRETYAKOV ART GALLERY.

projects for turning Dynamo Stadium into an immense indoor sports palace; wrestlers, gymnasts and weightlifters in training; and even a ski-jump with skiers in action.

The rest of the delegation took in the Kremlin, Moscow University, the Moscow subway, the Lenin and Stalin Mausoleum, and the art exhibition at the Tretyakov Gallery.

But the highlight of their stay in Moscow, of course, came with the encounters on the hockey rink.

In their two contests—against both the Moscow and the national picked teams—the Americans displayed great skill and technically splendid individual play along with strong determination. Although they finally lost both matches, holding the short end of 1:2 and 3:5 scores, they went down hotly contesting their opponents until the final second. The fans also rose to the occasion, justly appraising the skill of individual players in particular and of the entire play in general.

Coach Cal Marvin, addressing the press conference just prior to the team's departure for home, said: "I like your fans very much. They are absolutely objective and forgive neither their own players nor the visitors for mistakes. In general, the atmosphere of friendship and hearty hospitality which we felt at every step was in many ways conducive to clean and highly technical play.

"As we left for the Soviet Union," he went on, "we weren't counting too much on a victory over the Russian national team. We saw the Soviet hockey players in action in Oslo, and we know that they are now in excellent playing form. But our boys, too, had plenty of fight in them. It is true that the leading players on our team unfortunately could not take part in these games, since almost all of them suffered severe injuries, but despite this we did our best to win and to show the Soviet fans a good game of hockey."

In bidding farewell to Moscow and the Soviet team, the Americans expressed confidence that they would even the score in the 1959 Winter Olympic Games which are scheduled to be held in California. ■

HARRIET CLARK AND JOHN MAYASICH THUMB THROUGH AN ENGLISH-RUSSIAN DICTIONARY.

THE AMERICANS WERE SHOWN THE HISTORIC SIGHTS OF THE KREMLIN.

BATTLE of the CHESS MASTERS

MIKHAIL TAHL RECAPS MOVES IN A CRUCIAL GAME, AFTER RETAINING SOVIET UNION CHESS CHAMPIONSHIP.

By Grandmaster Alexander Kotov

A WHOLE MONTH was spent in Riga recently to fight out the chess championship of the Soviet Union. At the same time this battle was to decide on the foursome who would qualify to participate in the Interzonal tournament—the bridgehead for the final battles of the best players from various countries for the world chess crown.

Mikhail Tahl, the 20-year-old grandmaster, repeated his remarkable performance of last year in beating the country's leading players to win the USSR chess crown once again. Following him, in order of victory, came grandmasters Tigran Petrosyan, David Bronstein. Yuri Averbakh, Yefim Geller and Boris Spassky.

Tahl's was brilliant playing, especially in his game with Yefim Geller. This was a real struggle for mastery. The diagram on the opposite page shows how the game shaped up after Black's 17th move.

Playing Black, Geller had just captured the Pawn on Kt5 with his Bishop. He was hoping also to take the Q-Pawn after the retreat of White's K-Rook. But Tahl evidently had no intention of bothering about a measly Rook.

18. R-Kt1!	BxR

It turns out that Black not only wants to capture the Rook, but is actually forced to. In case of 18. . . . KtxP decisive is 19. BxPch KxB 20. Kt-Kt5ch with a very strong attack.

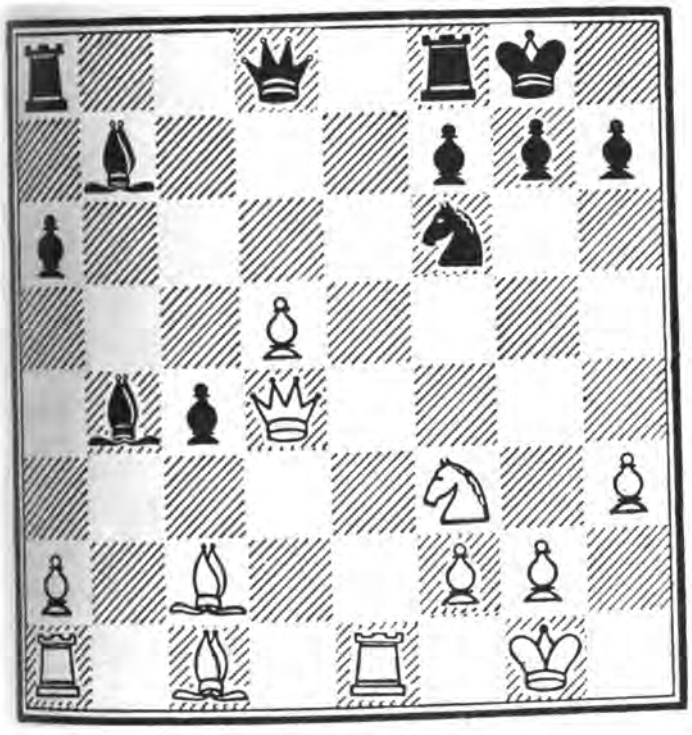
19. RxB	R-K1
20. P-Q6	Q-B1
21. B-Kt5!	R-K7!

Both are playing an intricate situation brilliantly. By compelling White to exchange the formidable Knight for his inactive Bishop, Geller very considerably reduces the strength of his opponent's threat.

22. R-B7	Q-K3
23. KtxB	RxKtch
24. K-R2	R-Q1!
25. BxKt	. . .

The logical continuation of the attack tied in with a cunning trap. If Black now takes the Bishop with the Queen, after 26. QxQ PxQ 27. P-Q7 the result would probably lead to a draw. But Geller is so carried

GRANDMASTERS ALEXANDER KOTOV (LEFT) AND DAVID BRONSTEIN CAUGHT IN TENSE MOMENT OF STUDY DURING THEIR ENGAGEMENT IN THE USSR NATIONAL TOURNAMENT.



away by his anxiety to get more out of this position, that he overlooks Tahl's plot.

25. . . . PxB?
26. R-K7! . . .

This move was impossible previously because of the Rook's capture by Black's Queen. Now the situation is changed. The capture is not dangerous because White's intermediary check on Kt4 puts him a Bishop ahead.

26. . . . QxPch
27. QxQ RxQ
28. RxR . . .

and, possessing an extra Bishop, White wins easily.

Tahl's big rival was Grandmaster Tigran Petrosyan. Tahl is a native of temperate Riga on the Baltic Sea, while Petrosyan is from the torrid Caucasus. But they seem to have exchanged traditional temperaments. Tahl is fiery, impetuous, audacious in his moves, while Petrosyan is the very model of sagacity and prudence. He plays with the care of a man many times his age.

Petrosyan reminds one of Jose Raoul Capablanca, his technique is so fine. His games in this meet were worked out with such beautifully involved design that chess fans readily forgave him for not going in for head-whirling combinations.

Yuri Averbakh played with a similar style. He is the author of a study on the end-game, the first volume of which has already been published. Perhaps this might explain why he always strives to exchange as many pieces as possible and bring the game into the position he describes in his book. Whatever the case may be, he owes his success in this tournament to a delicate and intricately designed pattern in the concluding stage of each game.

David Bronstein had a very practical task in the Riga meet. In order to take part in the subsequent struggle for the world chess crown, he first had to qualify for the Interzonal Tournament by taking one of the four top places. In spite of a poor start, he succeeded in capturing the third prize and ensuring a berth for himself at this year's Interzonal in Portorozo, Yugoslavia.

A short word about the unlucky ones at the Riga meet. Boris Spassky led the field for a good part of the match, but he couldn't stand the tense pace at the home stretch and he picked up only 1½ points in the final six games. It was not enough to place, even with his winning start.

Yefim Geller was especially unlucky. He started with a bang, but his playing in the latter half of the tournament was simply unrecognizable. Blame it on the costly oversight in his game with Tahl which was shown here. It must have thrown him off badly.

Soviet Team To Meet U.S. Players

Most probably the quartet of grandmasters who won top billing at the Riga match will be among those representing Soviet chess in the match with the United States. The Soviet national team will also include grandmasters Vasili Smyslov, Mikhail Botvinnik and Paul Keres. These three chess musketeers didn't play at Riga, but they are in fine match shape.

Then there is a "second line reserve" in the persons of grandmasters Isaac Boleslavsky and Mark Taimanov, whom American players know from the 1954 and 1955 matches, and the young grandmaster Victor Korchnoi, who has come to the fore in recent tournaments. They are all in fine shape and it is not their fault that there were only four prize places in the USSR championship.

Soviet players are waiting eagerly to meet with the latest American tournament winners. None of our men has had the chance yet to play against Bob Fischer, but everyone recognizes him as a strong and interesting opponent. We look forward to seeing him across the board at the forthcoming American-Soviet meet and to renew old friendships with William Lombardy, Samuel Reshevsky, the Byrne brothers, Arthur Bisguier and Larry Evans. ■

IN MOSCOW'S GORKY CENTRAL PARK, ONE OF 10 IN THE CITY. ITS 470 ACRES ON THE MOSCOW RIVER INCLUDE BOTH FORMAL GARDENS AND UNTOUCHED NATURAL AREAS

Merryland –

TRY ROLLING THIS AWKWARD BALL STRAIGHT FOR 50 YARDS.

OPEN-AIR THEATER SEATS 10,000. LEADING ARTISTS APPEAR ON THE PARK'S CONCERT STAGES.

SPORTS FIELDS, BOATING STATIONS, PLAYGROUNDS, MANY AMUSEMENT PARK FEATURES, EXHIBITIONS, LIBRARIES AND THEATERS OFFER REST AND RECREATION FOR ALL.

One of Moscow's City Parks

AQUATIC STATION FEATURES RACES BY THE BIG SPORTS SOCIETIES.

LAKESIDE CAFES, SNACK BARS AND FINE RESTAURANTS CATER TO EVERY TASTE.

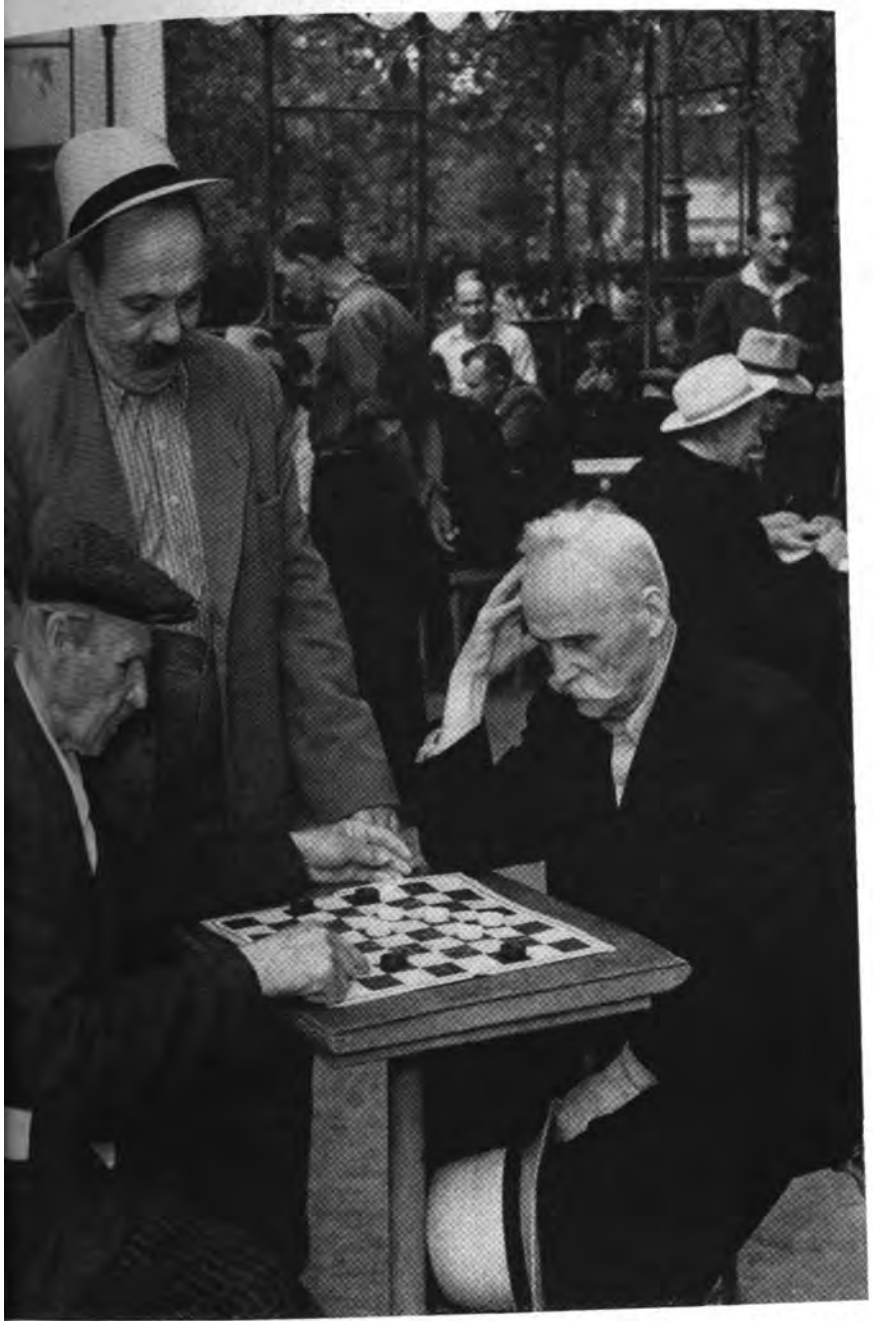
Merryland—One of Moscow's City Parks

Continued

THE YOUNGER SET FINDS ENDLESS DIVERSION IN BOATING.

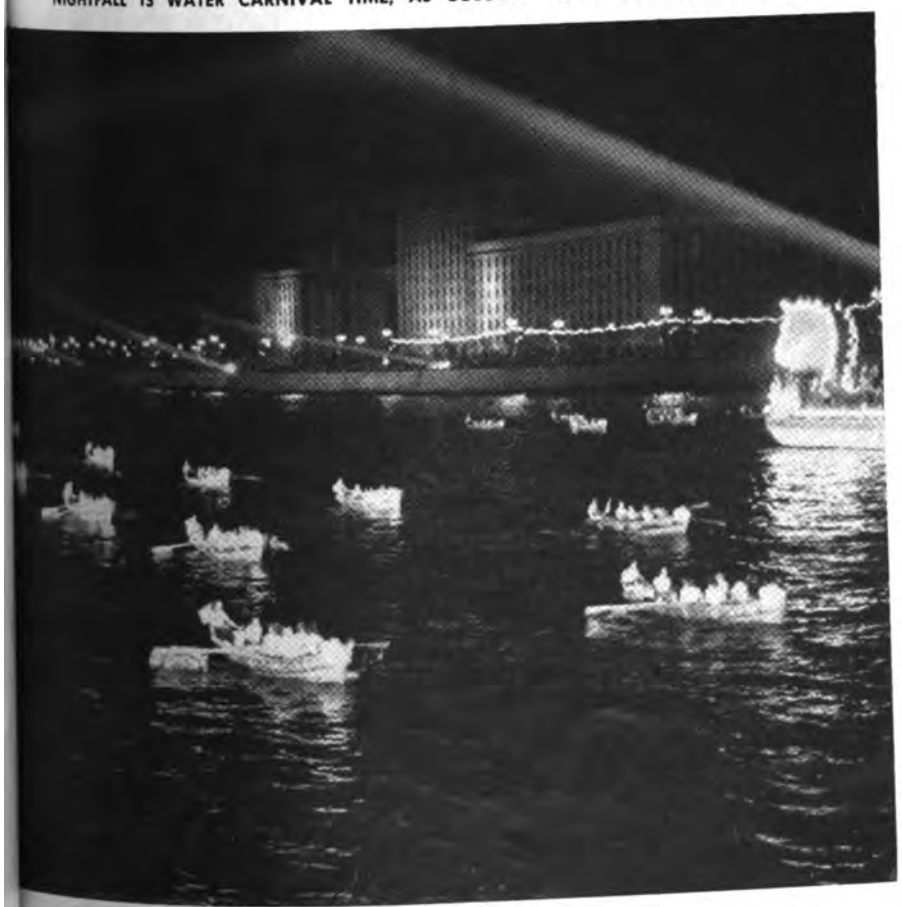
THE TEEN-AGERS ALWAYS FLOCK TO THE SECTION OF THE PARK WITH AMUSEMENT ATTRACTIONS.

FOUNTAIN SQUARE AND THE SURROUNDING GARDENS OFFER A RIOT OF COLOR AND THE DELIGHTFUL FRAGRANCE OF COUNTLESS VARIETIES OF SUMMER FLOWERS IN BLOOM.



IN A SECLUDED SPOT THE OLDER GENERATION MATCHES WITS AT CHESS AND CHECKERS.

NIGHTFALL IS WATER CARNIVAL TIME, AS COLORED LIGHTS PLAY OVER THE BOATERS.



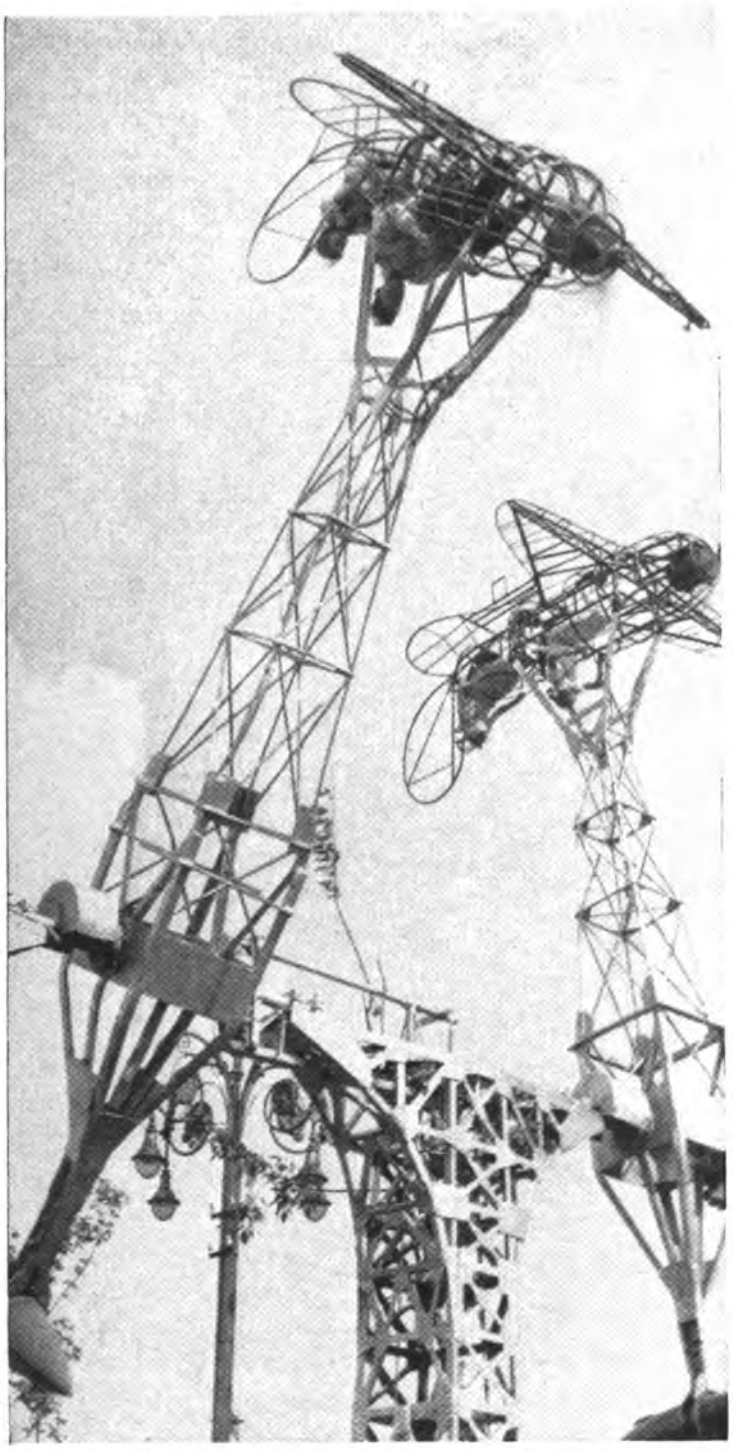
THE SLIDES AND SAND PILES GIVE PLEASURE TO THE LITTLE ONES.

FERRIS WHEEL OFFERS A BIRD'S-EYE VIEW OF THE GREAT PARK.

Merryland—One of Moscow's City Parks

Continued

STREAMS OF COSTUMED CELEBRANTS FLOCK TO THE PARK FOR A CARNIVAL NIGHT.

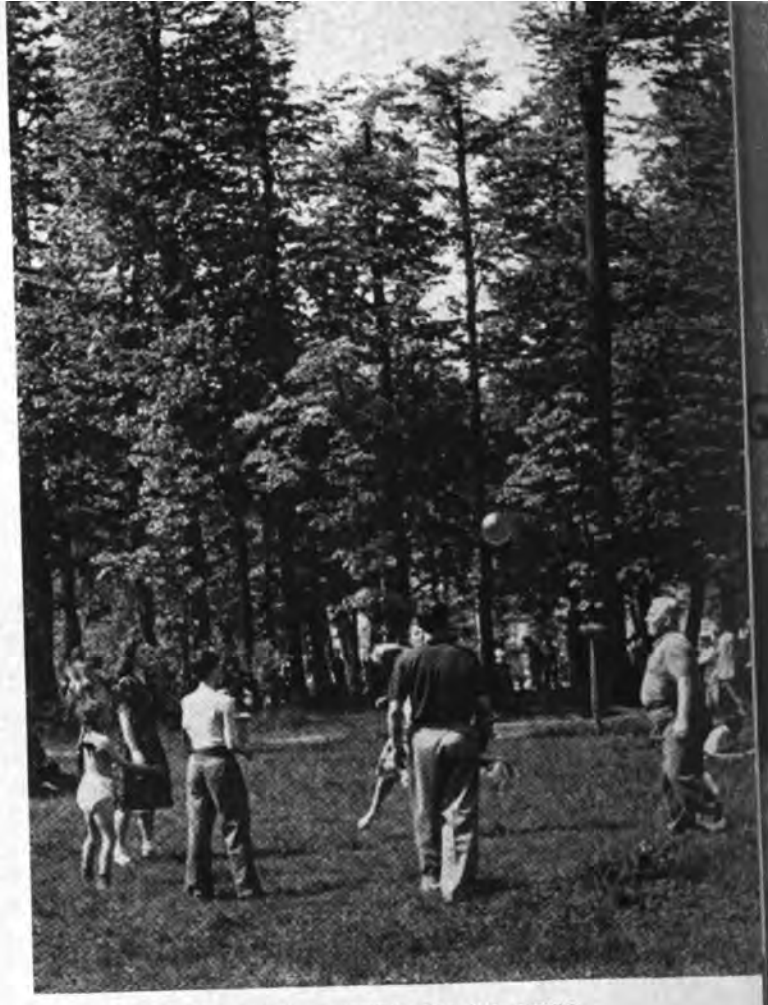


ALL THE THRILLS OF STUNT-FLYING ARE EXPERIENCED VICARIOUSLY HERE.

THE PARK HAS BOATHOUSES ON RIVER FRONT AND TWO LAKES FOR CITY SAILORS.

READING ON THE VERANDA OF A PARK LIBRARY IS A PLEASANT WAY TO SPEND LEISURE HOURS, BUT STUDENTS, ALSO, COME HERE TO STUDY IN QUIET COMFORT.

THESE SWIFT STEEDS OF THE COLORFUL MERRY-GO-ROUND ARE EAGER FOR JUST ONE MORE RACE.



FAMILY BALL GAME WHETS APPETITES FOR THE PICNIC.

NO PARK WOULD BE COMPLETE WITHOUT SHADED WALKS LIKE THIS ALONG THE MOSCOW RIVER.

ARTISTS FIND SUBJECT MATTER IN PICTURESQUE NOOKS.

THIS YOUNG FATHER SEEKS THE PARK'S QUIETER SPOTS.

AMERICAN AND SOVIET TRACK AND FIELD ATHLETES BECAME FRIENDS AT THE MELBOURNE OLYMPIC VILLAGE IN 1956.

USA-USSR TRACK and FIELD STARS to COMPETE in MOSCOW

By GAVRIIL KOROBKOV

USSR State Coach

VERA KREPKINA IS OFF IN THE 100-METER DASH. THE SOVIET UNION WOMEN'S TEAM IS SHOWING PROMISE.

WHEN the U. S. Amateur Athletic Union (AAU) accepted the invitation of the USSR Track and Field Section to compete in Moscow this July, sports fans all over the world, I am sure, were very pleased. Those of us in the Soviet Union who had made friends with American athletes at the Olympics and other tourneys were gratified at the chance to renew old friendships and make new ones.

Coaches in the Soviet Union don't go in for predictions. We leave that to sports editors and radio and TV commentators. Our job is to train our men to put on their best possible show, and perhaps, if we are fortunate, even a little more than the possible.

Here in the Soviet Union, we had been following the progress of American track and field athletes for a considerable time before we first met them in competition at the Helsinki Olympic Games in 1952.

The next time we met was at Belgrade

Continued on page 62

ITALI CHERNOBAI, ONE OF THE BEST SOVIET POLE VAULTERS, IS SHOWN HERE CLEARING THE BAR AT THE HEIGHT OF 14 FEET 9 INCHES AT A MOSCOW MEET.

WORLD RECORD HOLDER YURI STEPANOV BELIEVES HIS 7 FEET 1 INCH IN THE HIGH JUMP IS NOT THE LIMIT.

USA-USSR TRACK and FIELD STARS to COMPETE

Continued

three years later. Sprinters Rodney Richards and Dick Maioccio, pole vaulter Robert Smith and runners Lang Stanley and Joe La Pierre were competing. The group was coached by Clyde Littlefield of the University of Texas, one of the four U.S. coaches at the Helsinki Olympics.

It didn't take us long to get acquainted and soon after we met we were using first names. Our athletes Leonid Bartenev, Ardalion Ignatiev and Vitali Chernobai were managing to do a good deal of talking with Bob, Rod, Dick and the other Americans in spite of language difficulties.

But it was at the Olympic village in Mel-

ANATOLI MIKHAILOV, WHO SEEMS TO BE FLYING THROUGH THE AIR, WAS TIMED AT 13.8 SECONDS IN THE 110-METER HURDLES—VERY CLOSE TO THE WORLD RECORD.

bourne in 1956 that we really got to know each other. The day after the American team arrived, there was a knock on the door of the cottage where the Soviet decathlon men were quartered. Yuri Kutenko answered and there at the door stood a stocky, broad-shouldered fellow in a blue track jersey with the striped shield emblem of the U.S. team sewed on his sleeve.

He looked at Yuri and asked, "Kutenko?" Then he pointed to himself and said, "Richards." That was the start of a warm friendship between our decathlon men Yuri Kutenko and Vasili Kuznetsov and famous "Flying Pastor" Bob Richards, twice Olympic pole vault champion.

Later on that evening Richards introduced them to Rafer Johnson, holder of the world decathlon record. After that, they did all their training together.

Richards, a first-class decathlon man himself, once said to them, "I'll teach you how to jump very high with a pole, if you teach me the other nine events." His laugh was so infectious that everyone around joined in, even those who hadn't understood him.

Another time he asked our athletes whether they prayed before a meet. When they told him they didn't, he said, "I pray and I find that it helps me. Of course," he added with a laugh, "training helps a little bit too." Our different approach to religion and politics was no barrier when it came to being friends. We respected each other's convictions.

We coaches also made friends with Dan Ferris, Jim Kelly, Jessie Mortensen, Frank Anderson and other athletes of the American group. We all had a grand time together and we all of us hoped to be together again at some future USA-USSR track and field meets.

It was Dan Ferris, secretary-treasurer of the AAU who promised me at Melbourne that he was going to manage somehow to arrange such a meet. And he did, just before retiring after a half-century of service in amateur athletics.

The July Meet

The Moscow meet will be held on July 27 at Lenin Stadium. We expect that the American athletes will be in top form, since they will be coming so soon after the June U.S. meets.

That holds for our athletes too, who will be competing earlier in July for a place on the national team that will be representing the Soviet Union in the Sixth European Championship games scheduled for August 19-24 in Stockholm.

As far as the sports fans are concerned—the 110,000 who will be crowding into the stadium and the many hundreds of thousands who won't be able to get in and who will have to content themselves with seeing the meet on TV—they are certain to be in top form, even without training, and are eagerly looking forward to the great sport event of the year.

Some of our athletes who will be competing are known to American track and field fans—hammer thrower Mikhail Krivonosov, 400-meter runner Ardalion Ignatiev, long-distance runner Vladimir Kuts, high-jumper Yuri Stepanov, hurdler Yuri Lituyev, javelin throwers Vladimir Kuznetsov and Inessa Jaunzemė and shot-putter Galina Zybina.

ENGINEERING STUDENT OLEG RYAKHOVSKY IS THE WORLD RECORD HOLDER IN THE HOP, STEP AND JUMP.

Others will be new names. Anatoli Losev, student at the Leningrad Institute of Pedagogy, is one. At a meet last year he did 100 meters in 10.3 seconds. This may be a unique performance for him—he is a young and inexperienced track man—but it is also possible that at the Moscow meet he may do the century in 10.2 seconds, which would be champion performance. We hope so.

Another is Jonas Pipine, from Lithuania, a junior track champion who did the 1,500-meter run in 4 minutes 24 seconds when he was 16. Last year at the Third International Youth Games he defeated two world record-holders in the metric mile race—Stanislaw Jungwirth, the Czech star, and the famous Hungarian runner, István Rozsavölgyi—and set a new USSR record of 3 minutes 41.1 seconds. Jonas is now studying at the Kaunas Institute of Pedagogy.

Then there is Oleg Ryakhovsky, a student

Continued on next page

R
d FIELD
OMPETE

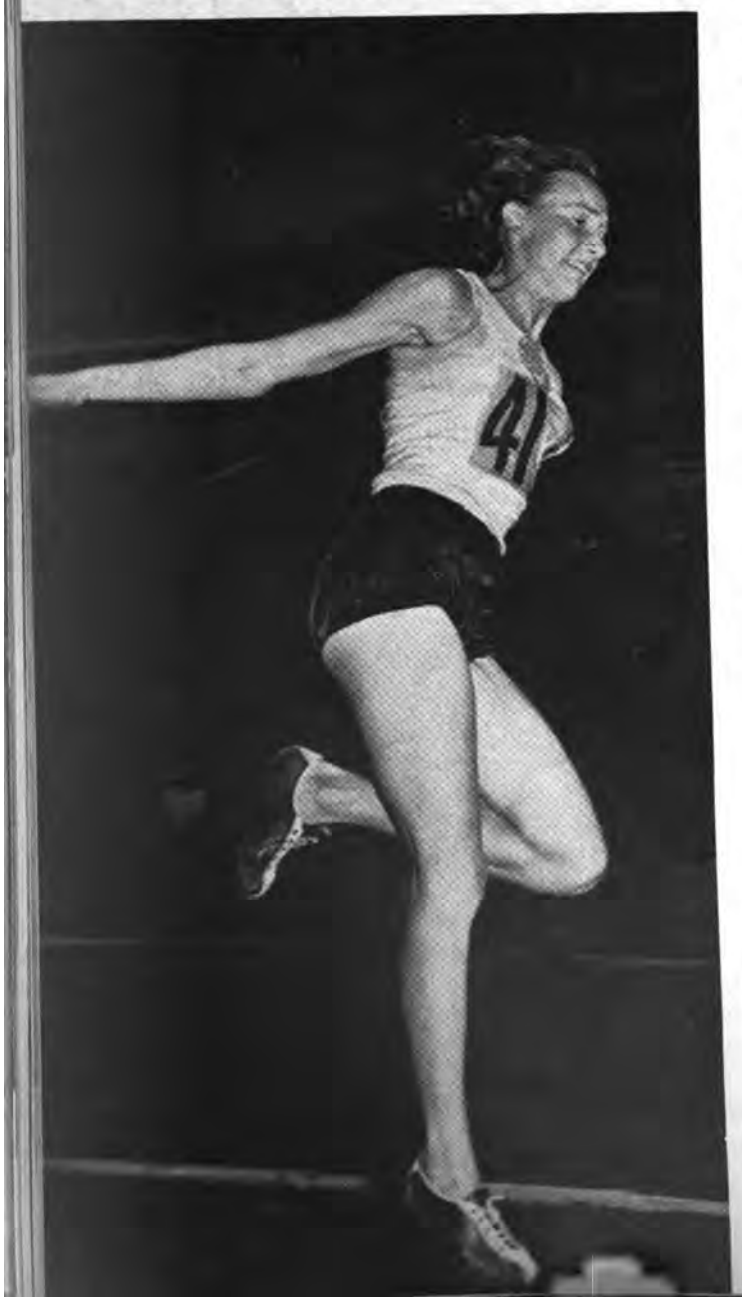
Continued

PYOTR BOLOTNIKOV IS OUTPACING ALAN LAWRENCE IN THE USSR-BRITISH MEET HELD IN MOSCOW IN 1957.

at the Tashkent State University who last year chalked up a new world record in the hop, step and jump—53 feet 5 inches.

Igor Ter-Ovanesyan, a Lvov student, is the son of Aram Ter-Ovanesyan, a veteran Soviet track man. Igor, all our experts agree, has an amazing potential in sports. What his particular forte is going to be is something for the future to decide. But as of now, at 19, he has chalked up this kind of record: 25¼ feet in the broad jump, 10.4 seconds in the 100-meter dash, 6½ feet in the high jump—this in a decathlon competition!—and 6,782 points in his first try at the decathlon. Besides all this, he is a talented hurdler and nobody will be surprised to see him doing the 110-meter hurdles in under 14 seconds before very long.

NINA KAZMINA COVERS 21 FEET IN THE BROAD JUMP.



Among the ladies, we have Nina Kazmina, a student at the Krasnodar Medical Institute who does 20½ feet in the broad jump with ease and who has done 21 feet without any overstepping whatsoever. I am not going out on a limb when I guarantee that Nina will register 21 feet in the July meet.

All through 1957 we had young and upcoming athletes offering very serious competition indeed to old Olympic champs. At the USSR Competition, Alexandra Zolotukhina did better in the women's discus throw than Nina Ponomaryova. Anatoli Mikhailov outran Boris Stolyarov in the 110-meter hurdle. So did Mikhail Nikolsky running against Ardalion Ignatiev in the 400-meter race and Pyotr Bolotnikov in the 10,000-meter run against Vladimir Kuts. It looks as though our young people are going to be offering equally stiff competition to our American friends.

Mutual Learning

Although our track and field men have advanced to first place in Europe, this is a very new sports area for us. We first began competing in international meets in 1946. In the United States track and field goes back a hundred years or so. We believe our athletes have much to learn from American experience.

Our young people can learn by watching Bob Morrow, Lindan King, Greg Bell, Parry O'Brien, Robert Gutowski, Glen Davis and other outstandng American athletes. We have long admired American sprinters, hurdlers, jumpers and throwers for their technique.

There are questions like these we hope to find answers to: Why do Bob Morrow, Thane Baker and Ira Murchison get off to a faster start in the sprints than our Yuri Konovalov, Leonid Bartenev and Boris Tokarev?

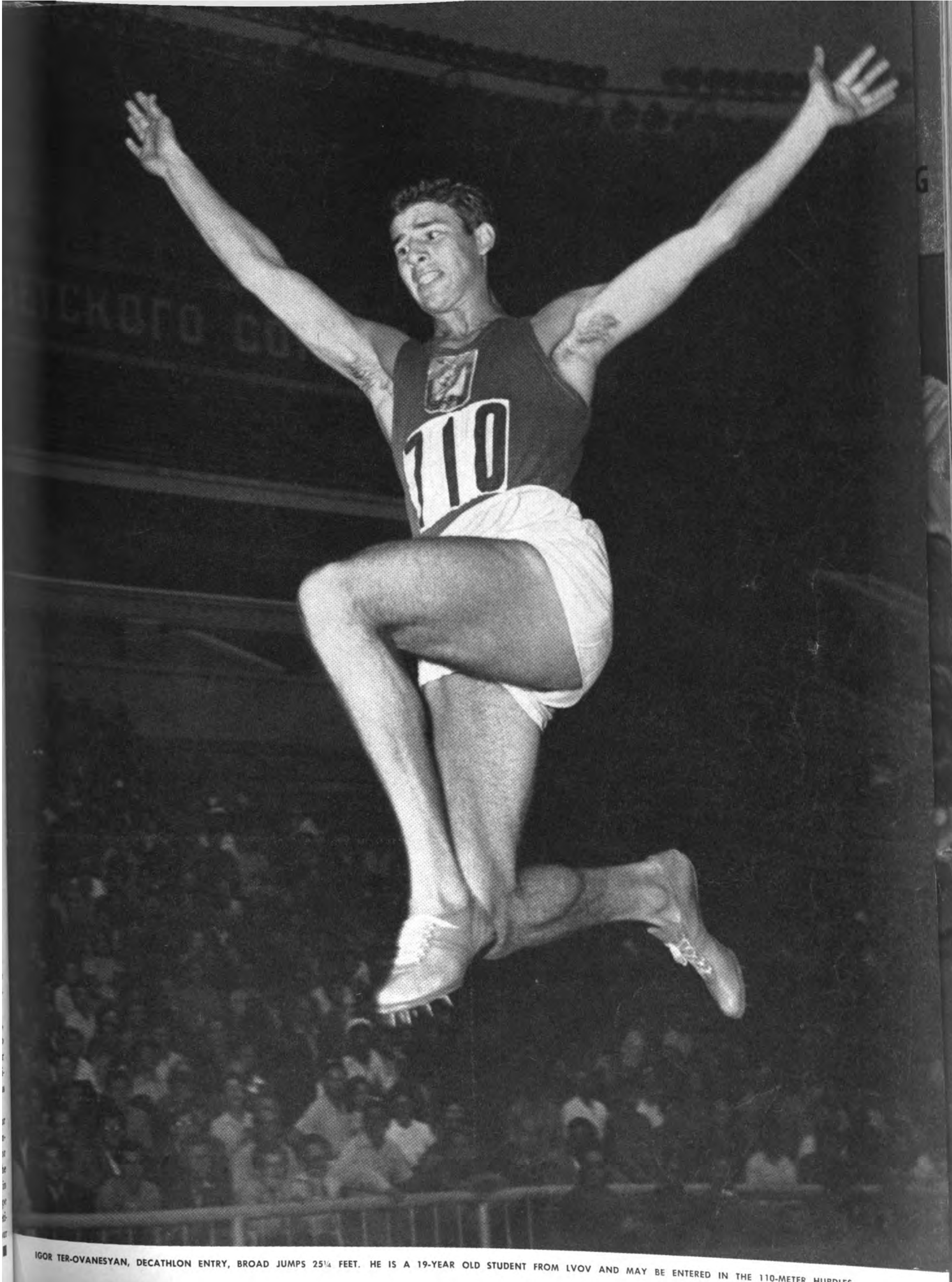
Does the secret of Robert Gutowski's spectacular vaulting—he has almost approached the coveted 16-foot mark—lie in his pole?

How did "Human Cannon" Parry O'Brien develop the "explosive power," you can almost call it, to throw the shot, a 16-pound slab of metal, the phenomenal distance of 63 feet, 1½ inches?

Not that we don't think that American track and field doesn't have its weak points. We feel that the standards of women's track and field sports in the USA lag noticeably behind those of the men's. Then again the U.S. Olympic team didn't finish at the top in the hop, step and jump; the walks, the steeplechase and marathon.

I venture a guess that the American hop, step and jump contenders might be able to pick up some points here and there from our Leonid Shcherbakov; Max Truex from Vladimir Kuts; and Earline Brown from Galina Zybina and Nina Ponomaryova.

As far as we are concerned, we are all for this mutual learning. It makes for better understanding. And we are going all out for this Moscow meet and look forward to the return visit of our athletes to the U.S. in 1959. This is the beginning of what we hope will become a tradition of friendly competition in track and field between athletes of our countries. ■



IGOR TER-OVANESYAN, DECATHLON ENTRY, BROAD JUMPS 25¼ FEET. HE IS A 19-YEAR OLD STUDENT FROM LVOV AND MAY BE ENTERED IN THE 110-METER HURDLES.

SETTING UP CAMP *(See story on page 32)*

No. 7(22)

We Are Willing To Trade with All Countries

Says the President of the USSR Chamber of Commerce

Foreign trade is more than a statistic, it is a measure of the general state of health of our economically interdependent world. With this in mind, we asked the Chairman of the Chamber of Commerce of the USSR, Mikhail Nesterov, to give us a picture of Soviet trade relations, particularly with the United States.

Question: Did the Soviet Union expand its foreign trade relations in 1956?

Answer: Considerably. We signed trade agreements for mutual delivery of goods with Canada, Indonesia, Yemen and Pakistan. An agreement was signed with Egypt for an exchange of 200,000 tons of wheat and 300,000 tons of crude oil for Egyptian goods.

The Soviet Union at present trades with sixty-odd countries. These figures will give an idea of our foreign trade increase. On the eve of the Second World War, we stood twenty-second on the list of countries engaged in foreign trade; in 1955 we stood sixth. Or take these figures: our foreign trade in the early years totaled around one billion rubles annually; in the thirties it increased to seven billion; and in 1955 it came to more than 25 billion.

Along with increasing trade, the Soviet Union is expanding its scientific and technical cooperation with other countries.

We concluded agreements in 1956 with the People's Republic of China for the construction of fifty-five new industrial enterprises amounting to roughly two and a half billion rubles. The agreements provide for the construction of a new railway from Lanchow in Central China to Aktogai, a station in the Soviet Republic of Kazakhstan, and for supplementary deliveries of goods by both countries. This is in addition to earlier agreements which are in effect and have been carried out without any hitches.

Scientific and technical cooperation with Yugoslavia has been developing successfully. It includes assistance in building a nitrate fertilizer plant, a superphosphate works, a 100,000-kilowatt thermal electric station and the reconstruction of three mines.

The Soviet Union is helping to construct more than 500 factories and plants in Poland, Hungary, Rumania, Bulgaria, India, Burma, and Afghanistan. Long-term loans amounting to more than 21 billion rubles were granted to various countries in 1956 on very favorable terms.

We have found that one of the important contributing factors leading to increased foreign trade is contact with businessmen. Last year we were visited by trade delegations from India, Pakistan, Egypt, Argentina, Japan, Denmark, Sweden, Britain and other countries. These delegations were able to become familiar not only with their own areas of manufacturing and trade, but with the way the Soviet economy operates.

We also took part in a number of international fairs last year as another step toward improving economic and cultural relations with other countries.

All these things, it seems to me, point to the fact that our country is following a consistent policy of developing mutual trade relations with all countries, regardless of their social systems.

Question: What would you say about the present state of Soviet-American economic contacts?

Answer: Unfortunately, I would have to say that it is not very satisfactory. For the first half of 1956 American exports to the Soviet Union amounted to only a little more than two million dollars. This is a drop in the bucket compared with 100 million dollars a year in the thirties.

MIKHAIL NESTEROV, PRESIDENT OF THE USSR CHAMBER OF COMMERCE.

Question: Are the possibilities present today for increasing Soviet-American trade? What could the USSR buy from the United States, and what could it offer for sale?

Answer: All the possibilities for increased trade exist. This last year showed that American business firms were increasingly interested in mutual trade. Take the visiting delegations of American farmers and of businessmen and manufacturers; or the interest shown by American fur dealers who came to the Leningrad fur auction.

Both countries produce goods that provide a basis for exchange. The USSR could buy industrial equipment, machinery, instruments and apparatus which American manufacturers want to sell. Besides our usual export items like manganese ores, furs and lumber, American buyers are interested in certain types of industrial equipment we turn out. Dresser Industries, for example, found our turbodrills very satisfactory. If this is true when economic ties are almost non-existent, it certainly demonstrates the possibilities for trade development with better relations.

Question: What do you think needs to be done to develop healthy trade relations?

Answer: It is obvious that extensive trade between two people or two countries can be carried on only if there is complete equality of the parties concerned. That is true in any case, and particularly so when the countries concerned are sufficiently independent to get along even if they do not do any business with each other but wish to trade in order to profit from what I might call division of labor.

Trade relations that really amount to something between the USSR and the United States promise many advantages to both countries. That is why I am inclined to be optimistic about the prospects for not only the resumption of healthy trade, but even its expansion much beyond the prewar level. ■

FORTY-FIVE AMERICAN BUSINESSMEN TOURED THE SOVIET UNION RECENTLY. THEY VISITED MOSCOW, LENINGRAD, KIEV AND KHARKOV. HERE ARE FOUR OF THEM IN A SHOP
THE FIRST MOSCOW BALLBEARING PLANT. THEY STOPPED TO TAKE PICTURES AND ASK LOTS OF QUESTIONS. A STORY ABOUT THEIR TRIP WILL APPEAR IN THE NEXT ISSUE OF

FRANK CONVERSATIONS

By Boris Polevoi

I was glad to have the opportunity to say a few words to American readers through the magazine *USSR*. Perhaps this brief message will reach the people who received me so warmly during my tour of the United States with six other Soviet journalists in 1955. With great pleasure I recollect frank conversations and friendly discussions which gave me a chance to see personally the desire for peace, so strong in the average American.

The same desire is found in the people of my country and the world over. During the summer my wife and I spent our vacation visiting a number of European countries. Everywhere we toured—in Bulgaria and Greece, Italy and France, Holland and Sweden—we could feel the growing tendency toward mutual understanding among different countries. Once under way, this general tendency toward the development of the contacts and cooperation works like a chain reaction.

As the father of three and as a man who has experienced war, I welcome mutual understanding in international relations. I hope that friendship between peoples of varying views and countries with different systems will grow in geometrical rather than arithmetical progression.

Boris Polevoi was born in Moscow in 1908. His first work was a book of short stories published in 1927, and in 1939 his first novel was published. During the Second World War Polevoi was a correspondent for *Pravda*, and his reports from various fronts were printed in that newspaper and then in the book *From Belgorod to the Carpathians*, published in 1945.

The wartime assignments gave Polevoi the theme for the novel which established him as a first-rate writer both in the Soviet Union and abroad. It was in 1943, while writing from the front, that he met Alexei Maresyev. Early in the war Maresyev's plane had been shot down, and he had lost both legs. This Soviet pilot's fight to fly again, to live a normal life, is *A Story About a Real Man*, which came out in 1946.

Among Polevoi's other books, published after the war, are *We Are Soviet People*, *He Has Returned*, *Gold* and *Contemporaries*. Like the top-notch journalist he is, Polevoi writes what he sees, and all his novels are factual portrayals of Soviet people and their life.

In 1955 Polevoi visited the United States, heading the delegation of Soviet journalists. When he returned to the Soviet Union, he spoke at various meetings and wrote a series of articles describing his impressions. This, in brief, is what he had to say in an article in *Pravda*:

INTERESTING TOUR OF AMERICA

"Touring America . . . we heard all the same questions about our Soviet life . . . And we saw how happy the people were, yes happy, to hear our lively refutations of all anti-Soviet legends. We saw with what great interest they listened to the stories about our life, about our gigantic construction projects, about our social achievements, about our plans and our dreams.

"We saw a great deal of interest in America. But of all we saw and heard, we liked best the frank conversations and hearty talks when we visited Americans in their homes. These were talks in which real mutual understanding was being established.

"Unacquainted people of different nationalities, with opposing political beliefs, somewhat hampered by their suspicion of each other, sat around a family table. And then the simplest truth became clear: both love their countries, both love their families, both love their national customs and traditions, and both are striving for peace and mutual understanding, for the re-establishment of friendship . . .

"Now, when I think about our interesting tour of America, I remember first of all not the skyscrapers, not the excellent roads, not the miracles of Hollywood technique, but the good open faces of average Americans. I recollect the hearty, frank conversations which we enjoyed of an evening in their homes. I believe that this nation, like any other nation the world over, doesn't want war, doesn't want destruction of what was created by the skillful hands of the country's people, doesn't want senseless sacrifices and sufferings. I believe that average Americans, like any other people, want to live in peace and to cooperate with other nations."

American Doctors Visit the Soviet Union

By Leon Bagramov

Both the United States and the Soviet Union have a common enemy in heart disease. That statement of Dr. Paul White, leader of the medical delegation that visited the Soviet Union last summer, is perhaps the most eloquent summary of the nine-day tour of hospitals and research institutions. Besides Dr. White, who is President of the International and the American Society of Cardiology, the delegation included Dr. Ancel Keys of the University of Minnesota; Dr. Howard Rusk of New York University; Dr. Herman Hilleboe, Commissioner of Health of New York State; Dr. James Watt, Director of the National Heart Institute; and Dr. Mark Field, sociologist.

When Dr. White was asked what he would especially like to see of Soviet medical practice, he replied, "I am a clinical physician and, therefore, principally interested in the patient."

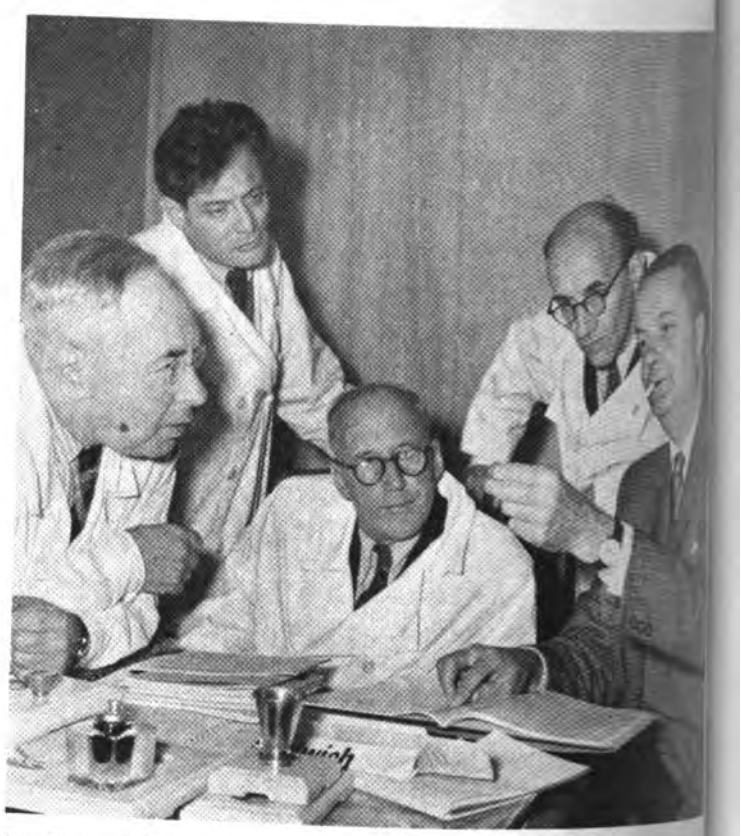
That became increasingly evident during the short but very crowded nine-day visit. Everyone was impressed with the tireless energy of the seventy-year-old doctor in examining patients, with his searching questions and with his interest in the smallest details of hospital procedure.

A Stitch in Time

"What is the patient's name?"
"Julia Korolyova."
"Age?"
"Thirty."
"Work?"
"Engineer."
"What's wrong with her?"
"Nothing right now. She's well," the attending physician, Dr. Helena Damir, answered.

Continued on page 44

Dr. Paul White, left, head of the American medical delegation w visited the USSR, agrees with his host, Professor Alexander Bakulev, the visit "is a very good thing," both for the advancement of science, for the promotion of mutual understanding between the two coun



Dr. Howard Rusk, member of the staff of New York University, recou an experience for these four Soviet colleagues with scientific data

WARD SECTION, BOTKIN HOSPITAL IN MOSCOW, WAS VISITED BY THE AMERICANS.

I LIKE MY JOB

says Ivan Begoun, Construction Worker

People I meet for the first time always ask me how I got my nickname. I tell them it isn't a nickname, it's the one I was born with—Begoun, it means racer.

But it's a good description of the way things have been moving for me the past couple of years, especially this last one.

I came to Leningrad only four years ago. I had just finished my army service. I went to work in construction—a building for a clinic that the Lenin Machine Plant was putting up for its workers. My job? Heave and grunt work; I didn't have any kind of trade.

We finished the clinic and I went to work on another job for the same plant, two apartment houses for the factory personnel. Then we put up a five-story apartment house for the construction workers. That's when I got this apartment. While all this was going on I also acquired a wife and daughter.

When I tell you that during all these four years I was learning construction, both on the job and in study after work, you can see that I didn't have any trouble filling up my time. Now I'm leader of a team.

Last spring the chief engineer asked me if I wanted to take a crack at a different type of construction. It was a project for a whole block of buildings. The unusual thing about the job, for most people on construction around here anyway, was that it was the first job in Leningrad in which a whole block of buildings was being put up with big prefabricated sections.

I jumped at the chance, of course, because it meant learning how to handle these big sections. That's the job I'm working on now and I like it. It still gives me a kick to signal the crane operator and watch him maneuver the big panels into place. They are pretty nearly finished when we get them, the exterior side all set, the interior side already plastered and painted, the window panes all set in, and even the sashes done. A house goes up fast this way. We figure an apartment finished every day and a whole floor in a week.

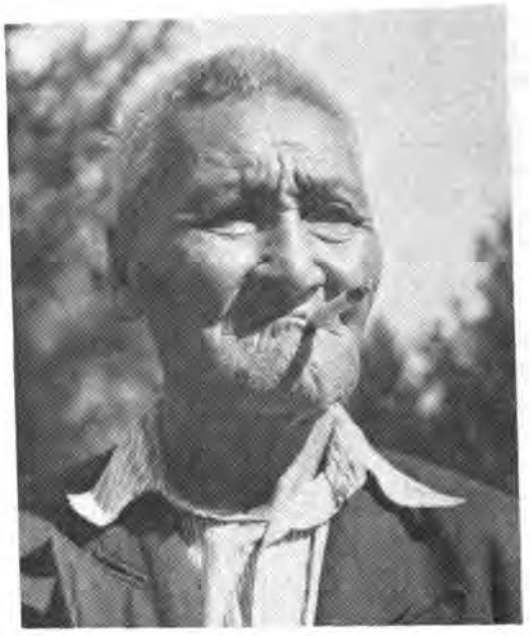
We work on schedule, and if we look as if we're going to fall behind, the sidewalk superintendents—we've got a bunch of steady customers there—let us know soon enough.

Generally I'm the one they hand out advice to. They yell up, "Come on, Racer, get a move on." ■

"BRING HER DOWN!" CRIES IVAN BEGOUN TO THE CRANEMAN.

the year ahead . . .

. . . THE YEAR BEHIND



REINDEER BREEDER AT 102

The Most Important Thing

By Ivan Alexandrov

You want to know what happened to me in 1956? Listen and I'll tell you.

First, there was my wedding. Not a regular wedding, of course. I'm a little too old for that. It was our diamond wedding, and all the members of our collective farm helped us celebrate. As for Ulyana, my wife, she told me that except for an item here and there, she likes me as much as she did 75 years ago, when we were first married.

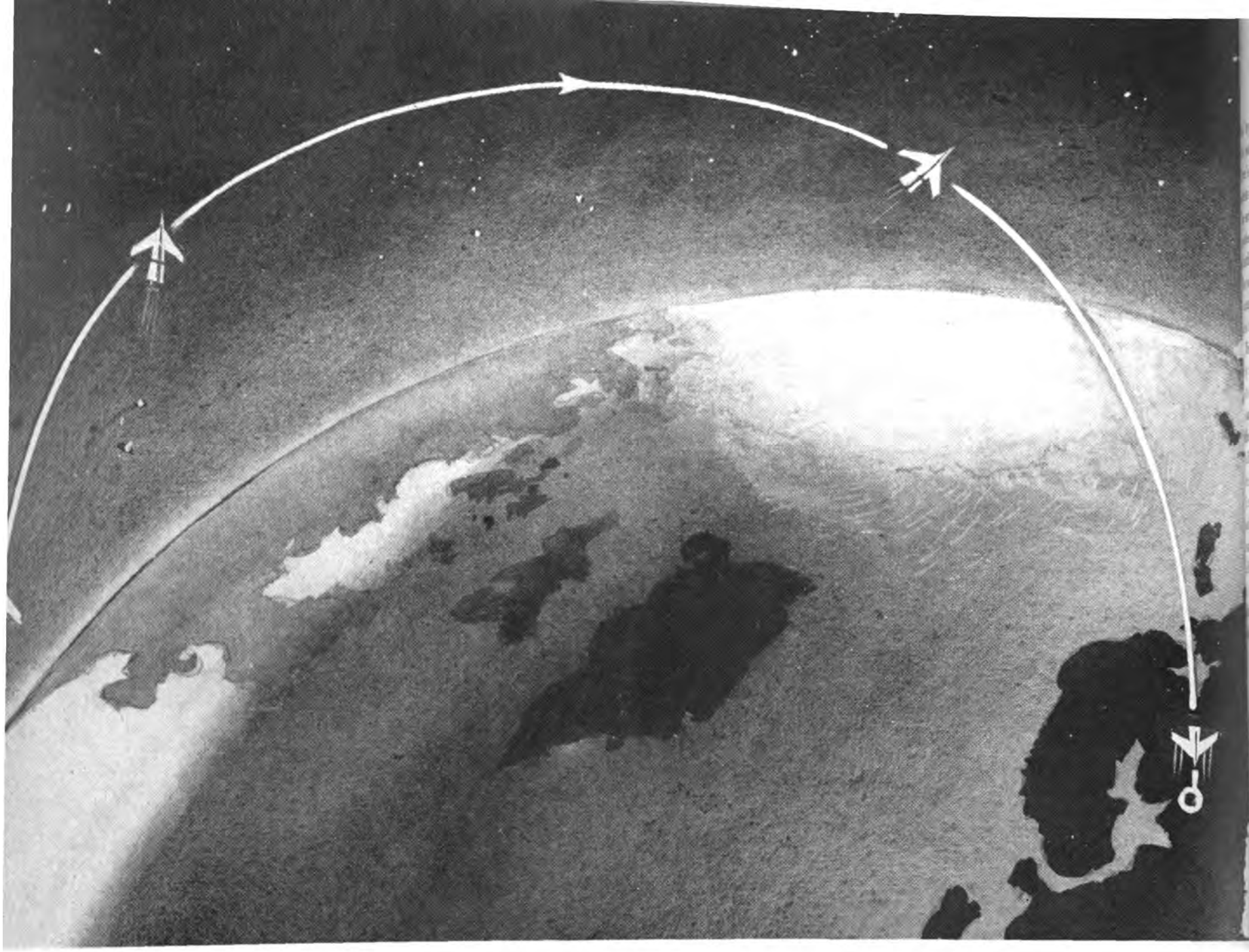
That was last spring, the wedding, and in the summer they picked me, as one of the prize reindeer breeders and hunters, to go to the Agricultural Exhibition in Moscow. It was a long trip by water and then by train. I had a good time, but as far as I'm concerned, Moscow is a place to visit, not to live in.

For me, I'll take Yakutia. I get homesick without animals around. I've lived in Siberia all my life, hunting and trapping and breeding. I love to have trees and space around me. I can't understand how people can like being cooped up in cities.

Another important thing that happened last year is the university which opened in Yakutsk. My granddaughter, Natasha—she's a very smart girl—was accepted as a student.

Now that the new year is here, I hope it will bring good things like that for everybody. After all, the most important thing about living is for a man to be happy. I've lived 102 years, and I ought to know. ■

Interviews continued on page 14



VIA INTERCONTINENTAL PASSENGER ROCKET LINER

From Leningrad to New York and Return

By Karl Gilzin

An enormous sphere, 8,000 miles in diameter, tears along in boundless cosmic space. Surrounded by the radiating corona of the atmosphere, it rotates slowly about an invisible axis. The shape of continents emerge, surrounded by dark spaces of seas and oceans. Mirrored in them is a tiny sun, twinkling like a bright star.

This is our familiar, strangely beautiful planet as seen by a cosmic traveler approaching the earth in his space ship.

The earth draws nearer and nearer. Now it is only a thousand miles from the approaching space ship. There are the Arctic ice fields and the North Pole.

Suddenly the ship's delicate instruments, its eyes and ears, alert. Sensitive indicators begin to vibrate, colored lights begin to flash on and off and buzzers to sound.

An outline of an object takes shape on a phosphorescent emerald screen. The instruments record that it is moving toward the space ship at an incredible speed from the lighted part of the earth's surface. Is it an intercontinental missile our space traveler sees?

The ship's uncannily sensitive instruments fix the trajectory of the object. It is moving along the arc of a huge ellipse. Is it threatening the space ship?

Suddenly the buzzers sound again and the lights flash. On the screen appears a tiny image of another missile speeding toward the ship, this time from the other side, the shadowed part of the earth's surface. Two missiles rushing toward the ship and each other. They are close now, dangerously close.

But our traveler in his space ship remains unperturbed. His instruments have fixed the trajectories. The two missiles pass clear of each other in space, pass clear of the ship, draw farther and farther apart, each one speeding along toward the part of the earth from which the other took off a little while ago.

Our imaginary traveler has just witnessed two intercontinental rocket ships passing each other for an instant high over the earth's pole.

Not Fantasy

This hypothetical meeting of two intercontinental rockets over the earth's pole is not nearly as fantastic as it sounds. Certainly in our children's lifetime, perhaps in ours, we may witness such a meeting. Scientists and engineers are already working on just such rockets.

The secret lies in speed. You could throw a stone from one continent to another if you threw hard enough. The harder you threw, the faster and farther it would go and the higher it would rise.

The powerful force of the stream of gases escaping from a jet engine has catapulted planes at a dizzying speed and has sent up research rockets to an altitude of hundreds of miles to the edge of the ocean of air. This, of course, is still some way from an intercontinental rocket. But by using a jet engine a rocket can be raced up on a short take-off strip to the colossal speed of several miles a second. Over all the rest of the course, from continent to continent, the main engine does not work, and the rocket flies along the arc of a huge ellipse according to the laws of ballistics—the same laws which govern the motion of artillery shells or the stone in our example cited above.

To make an intercontinental flight an initial speed of several miles a second is required. In such a flight a rocket will ascend to an altitude of more than six hundred miles. For achieving high initial speed new and high-calorific fuel must be used and the rocket has to be a sectional one. made up of two or three rockets connected with one another. As the fuel is consumed, sectional rockets drop off and the required speed is built up.

A Man-Made Moon

What has made the intercontinental rocket a real possibility is the rapid development of jet propulsion engineering.

The first ballistic rockets, the V-2's, were used in the latter stages of the Second World War. Flown across the English Channel by the Germans, they brought destruction and death to the British capital. Each of these death-dealing rockets, whose speed outstripped the sound of their flight, carried nearly a ton of high explosives.

The scientists and inventors whose ideas laid the foundation for modern work in jet propulsion engineering dreamed of other kinds of pay loads. Konstantin Tsiolkovsky, the Russian; Robert Goddard, the American; Hermann Oberth, the German; Esnault Pelterie, the Frenchman, must have seen visions of thousands upon thousands of rockets of all kinds carrying not bombs, but scientific instruments; flying not to destroy, but to build knowledge and advance humanity.

Hundreds of ballistic rockets in these last few years have already ascended to the upper strata of the atmosphere carrying sensitive instruments which have returned with scientific information. Much of this information, invaluable to progress in astronomy, nuclear physics. meteorology, radio engineering, geodesy, cartography and scores of other areas of knowledge, could have been obtained in no other way.

Ahead, and not far off, lie still greater possibilities. High-flying research rockets have been limited by their very short flight duration. Work on long-flying rockets has been going on for a considerable time now and has progressed far beyond the experimental stage. In another year or so, such rockets will be seen blazing across the sky—artificial earth satellites traveling in an orbit around the earth not for brief minutes, but for days and weeks, perhaps for months, their instruments recording important data for the world of science.

These artificial satellites will be the highlight of the International Geophysical Year which begins July 1, 1957, to last for a full eighteen months. At least forty-seven nations of the world will be setting a pattern for cooperation and exchange of knowledge.

Fast Mail

Ballistic rockets have a long record of service. They have been used to render assistance to ships wrecked at sea, and to mountain settlements cut off from the rest of the world by avalanches. They have been used to deliver mail to isolated and inaccessible areas.

We can, without stretching imagination too much, think of regular mail delivery by rocket. In half an hour mail could be delivered to any point on the globe. That would be postal service indeed!

And why only mail? How about drugs for epidemics? Fast newsreel delivery? Perishable fruits? Intercontinental rockets could carry freight over regular routes extending far out into the cosmos to people

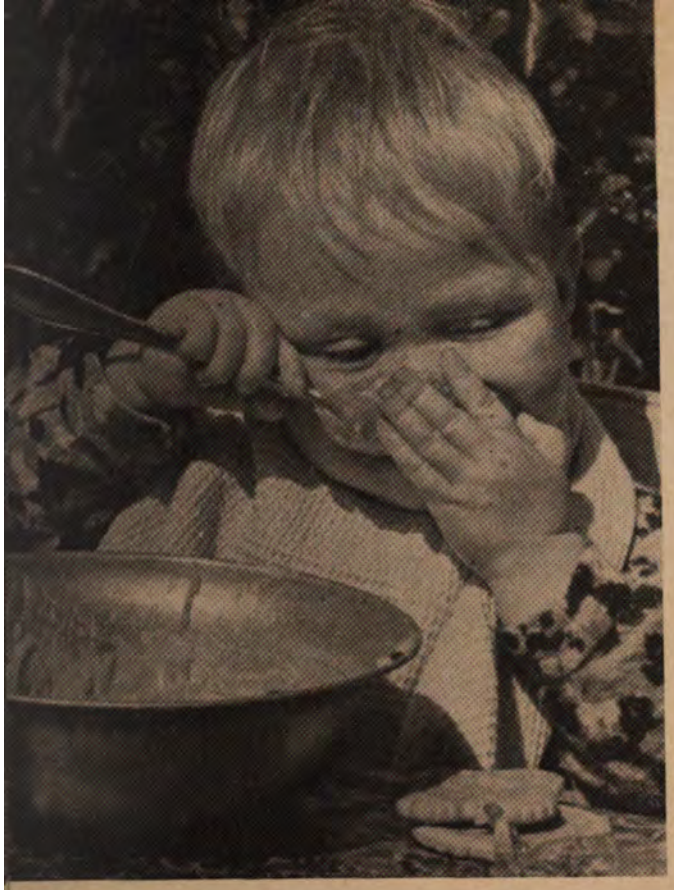
who are impatiently waiting for delivery on the other side of the globe.

We need not even stop here. How about intercontinental rocket airliners? Granted this is more difficult than freight rockets, passengers being a rather crotchety and delicate kind of pay load, but the possibilities are all there. Much will have to be done before the first rocket travelers will be carried from continent to continent. But science has no doubt that the day will surely come, whether five, ten or twenty years from now. With our eyes focused to a not too distant future, we can see the same picture of the earth which our imaginary interplanetary traveler saw on the screen of his space ship.

A Week-End with Friends

A deafening roar blasts across the rocketdrome just outside the big city. Inside the intercontinental rocket liner, however, passengers are

Continued on page 48



THIS LITTLE GIRL'S NAME IS AISHET. SHE IS DAUGHTER OF A KIRGHIZ SHEPHERD WHO CALLS HER MOUNTAIN FLOWER.

THEY WERE BORN ON NEW LANDS

By Semyon Freedlyand

The virgin-land expanses of Kustanai Region in Siberia were beautiful last fall. Whichever way the eye chanced to turn, it encountered a golden sea of tall wheat reaching to the distant steppeland horizons. As I was jotting down in my notebook some information about the new state grain farm, young in years but rich in events, I was thinking what figures would best show the beauty of the abundance created on land where only two years ago wild grasses were bowing before the wind.

Patiently answering the questions I asked him, Alexei Grachov, who is in charge of machinery on the Buskul State Farm, suddenly said:

"Would you like to take a look at another crop of ours, a crop even more valuable than this first-class wheat? Of course, there is really no comparison between the two, but I can guarantee that you'll enjoy seeing it."

Our jeep, barely taller than the bright tops of the ears of grain, sped back to the farm community, stopping near a sunny birch grove. The serious look on the face of my companion gave way to a pleasant and slightly sly smile. We entered a shady corner of the woods, an ideal spot for a landscape artist.

"Here's our second wonderful crop!" Grachov said as we approached the grounds of the farm's nursery and kindergarten. Scores of noisy toddlers were taking their evening walk. Dressed in red, yellow and sky-blue shirts and matching caps, from a distance they looked amazingly like bright wild flowers dotting the green lawns.

Some had evidently learned to walk recently, and they were bravely employing their new-found maneuverability with obvious pleasure. Their younger colleagues were noisily and persistently practicing crawling on wide sheet-covered blankets.

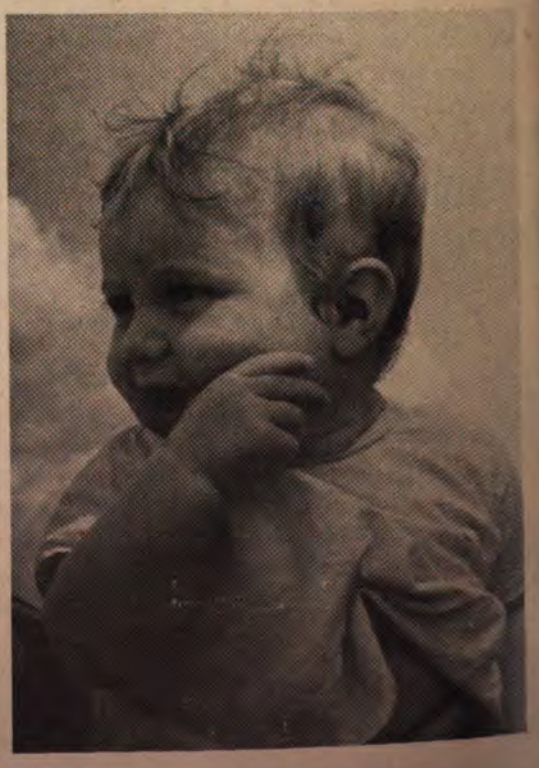
"How are you?" I asked the nearest toddler, a blue-eyed little boy. His interest in the horned beetle he was watching was tinged with apprehension.

"Good," he answered laconically.

If Seryozha Serov's vocabulary had been larger and if he had been a few years older, he could have gone on to say that he had lots of fun at the nursery. He probably would have told me that in the two years the Buskul State Farm has been in existence, 149 children, as healthy and strong as he, had been born there. He surely would have said that he and his playmates had recently moved into a new and comfortable building in which there were many bright rooms and even more diverting toys. Perhaps he would have told me about his daddy, a big and jolly tractor driver.

But, alas, the interview did not materialize. Another youngster tried to get hold of the beetle Seryozha had picked up, and in the battle that followed Seryozha completely forgot the reporter.

But was there really any need for an interview? I think the camera did the job very well. Just looking at the wonderful sturdy children born on this generous new land—the children of tractor drivers, combine operators, engineers and builders—shows what deep roots life has taken in the new land. ■



PUTTING FINISHING TOUCHES ON THE CLUBHOUSE

WOOD CARVERS AND ARTIST DISCUSS CLUB DESIGN

A Tajik Village Club

Tajikistan is one of the Central Asian Republics of the Soviet Union, bordering on China and Afghanistan. Until the twenties of this century it was a region of abject poverty and almost total illiteracy. One would hardly have thought of social centers or clubs in these mountain communities so far removed from progress.

Today the club is a regular feature of many villages, not to mention cities. And the older, more modest clubs built before the Second World War no longer satisfy Tajik farmers. Their new centers are modern, spacious and well-equipped.

One of these was built by the collective farm at Undzhi, in the northern part of Tajikistan. This village club is richly decorated with the work of Tajik artists and wood carvers. It has a theater with 1,600 seats, a moving picture hall, a large gymnasium and a well-stocked library. Special clubrooms are provided for amateur groups, among them dramatics, chorus, music and dancing. There are also studios for painting and handicraft.

TAJIK DESIGNS SHOW EXQUISITE USE OF COLOR

Constructed at an outlay of approximately ten million rubles, the center belongs to the farmers of the community. They chose the building design and paid for construction out of funds from the collective farm's treasury.

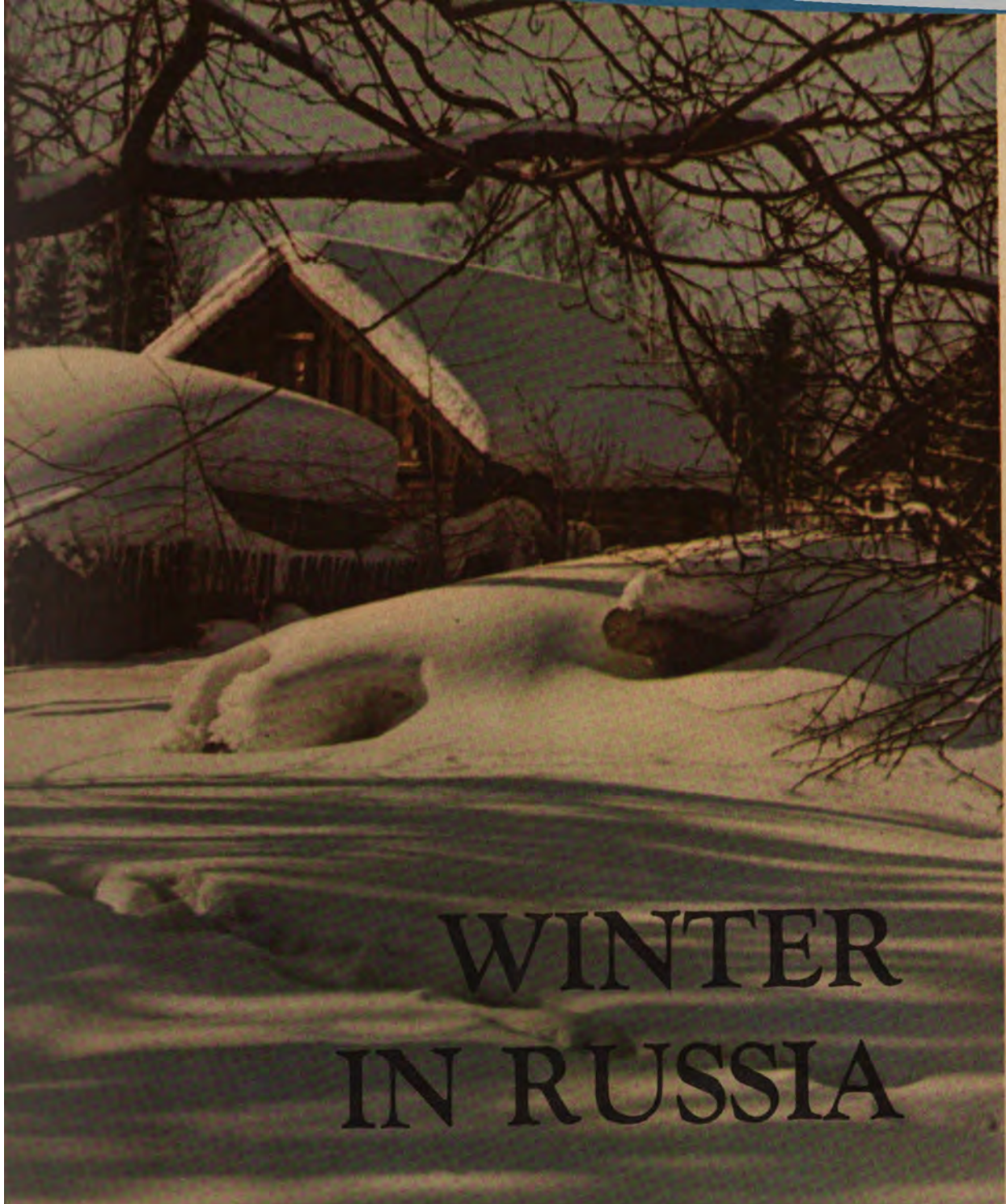
The Undzhi farmers are very proud of their social and recreation center. They call it a palace of culture, and it really deserves that name. A building like this would do justice to a large city, let alone a small village.

Many changes have taken place in the economy of Tajikistan and in the lives of its people since it became a Soviet Republic. Farm machinery and irrigation, combined with modern agricultural science, have resulted in bumper crops of cotton and fruit and great flocks of pedigreed sheep. Millions of rubles are added every year to the income of Tajik collective farms.

It is for this reason that money is available for clubrooms with activities that help to enrich the lives of these farmers.

The Tajik farmer of today has leisure time that he likes to spend with friends in pleasant surroundings. He has learned to enjoy the theater and concerts. He likes to read newspapers and magazines, and he finds all these in his village club. ■

A CORRIDOR OF THE CLUB AS IT NEARS COMPLETION ▶



WINTER IN RUSSIA

By Gennadi Sibirtsev

There is something breathtaking in the Russian winter. Majestic pines weighted with snow, the steppes like a white frozen sea, city streets glistening with frost.

The famous troikas that one time were a sight in Moscow have been supplanted by automobiles and buses. But in the villages the tourist can still see horse-drawn sleighs on the country roads. And on the same roads, trucks and cars pass the horses with their tinkling bells.

To Russian children winter means sleighing. To athletes it brings thoughts of skiing, skating and iceboating. To hunters it means open season. And to poets it means new and glittering phrases. Pushkin, Gogol, Nekrasov and Yesenin all paid their tribute to the magic of winter.

But to city janitors it seems like an endless sweeping of snow and scraping of ice from sidewalks. And to the whole army of men in charge of keeping the roads in shape for traffic it often means working all night with the snowplow so that morning finds little sign of the quiet storm of the night before.

What winter means for everybody is fur caps, mittens, warm coats and fur-lined shoes.

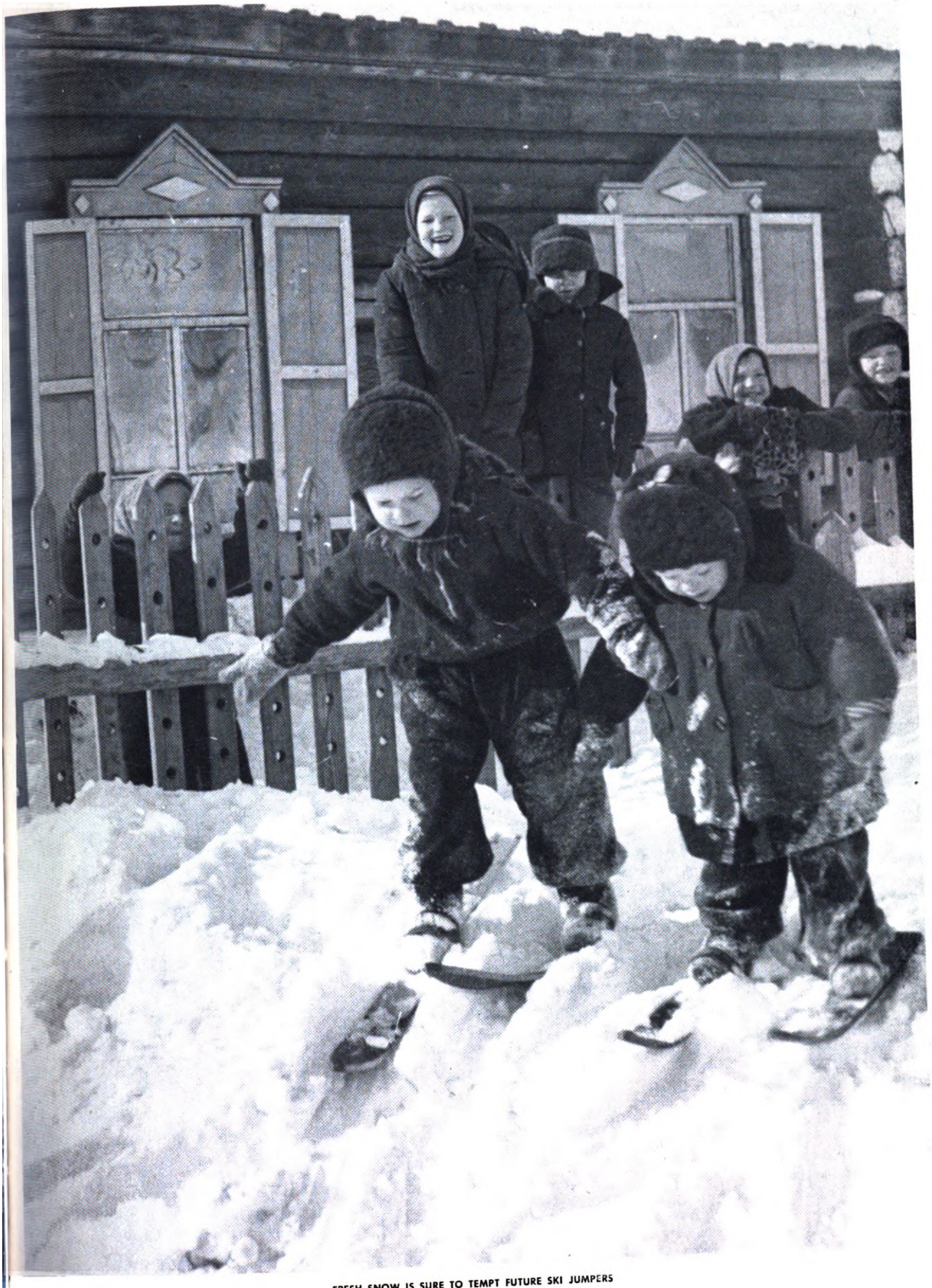
For everybody? Not quite. While people who live in Eastern Siberia, for example, begin to put on fur coats in September, people on the Black Sea coast in the Caucasus are sun-bathing on the sandy beaches.

During the winter, weather reports from different parts of the country show the same sharp contrasts, with temperatures ranging anywhere from forty below to sixty above zero.

But, even so, winter now lords it over large sections of the country. ■

IT'S FUN TO SKI WITH DADDY

FLOODED CITY PARK LANES MAKE GRAND RINKS



FRESH SNOW IS SURE TO TEMPT FUTURE SKI JUMPERS

the year ahead . . .

. . . THE YEAR BEHIND

ARAM KHACHATURYAN

Tells About His Year's Music

I always prefer talking about work I have already finished rather than the work I plan to do. There are too many factors that interfere with good intentions, particularly in creative work.

My work last year was principally with the cinema and the theater. I wrote the music for four films, including *Othello,* and the Maly Theater production of *Macbeth.* For a long time, I have been interested in creating a musical setting for Shakespeare's characters, a task both difficult and challenging.

For the new production of the ballet *Gayane* at the Bolshoi Opera, I reworked the score and added some scenes.

Last year I also wrote a vocal-symphonic work, *Ode to Joy,* for forty violins, ten harps, and a mezzo-soprano, accompanied by a mixed chorus.

Now I am eagerly awaiting the production of my new ballet, *Spartacus,* which is to run in two theaters—the Kirov Opera House, in Leningrad, and the Bolshoi, in Moscow. I have tried in this work to express in music the spirit and feeling of ancient Rome.

In addition to my creative work, I teach composition at the Moscow Conservatory and the Gnesin School of Music. I have some very promising pupils.

Andrei Eshpai and Lev Laputin have already taken their places alongside the best of the young composers. Eshpai has done concertos for piano and violin, and Laputin has written the ballet *Masquerade,* based on a story by Lermontov, which has been having a successful run in a Novosibirsk theater.

Then there is another bit of work I have which I am very fond of. I am the director of an amateur music group for a factory club. Our young people are fond of music, and it is always a pleasure to get together with them.

I traveled a good deal last summer. My most enjoyable visit was with Jan Sibelius in Finland. Of course we talked about music—modern music and its problems.

"Music springs from the heart," said my ninety-year-old host, to which I added, "That is why it needs no translators."

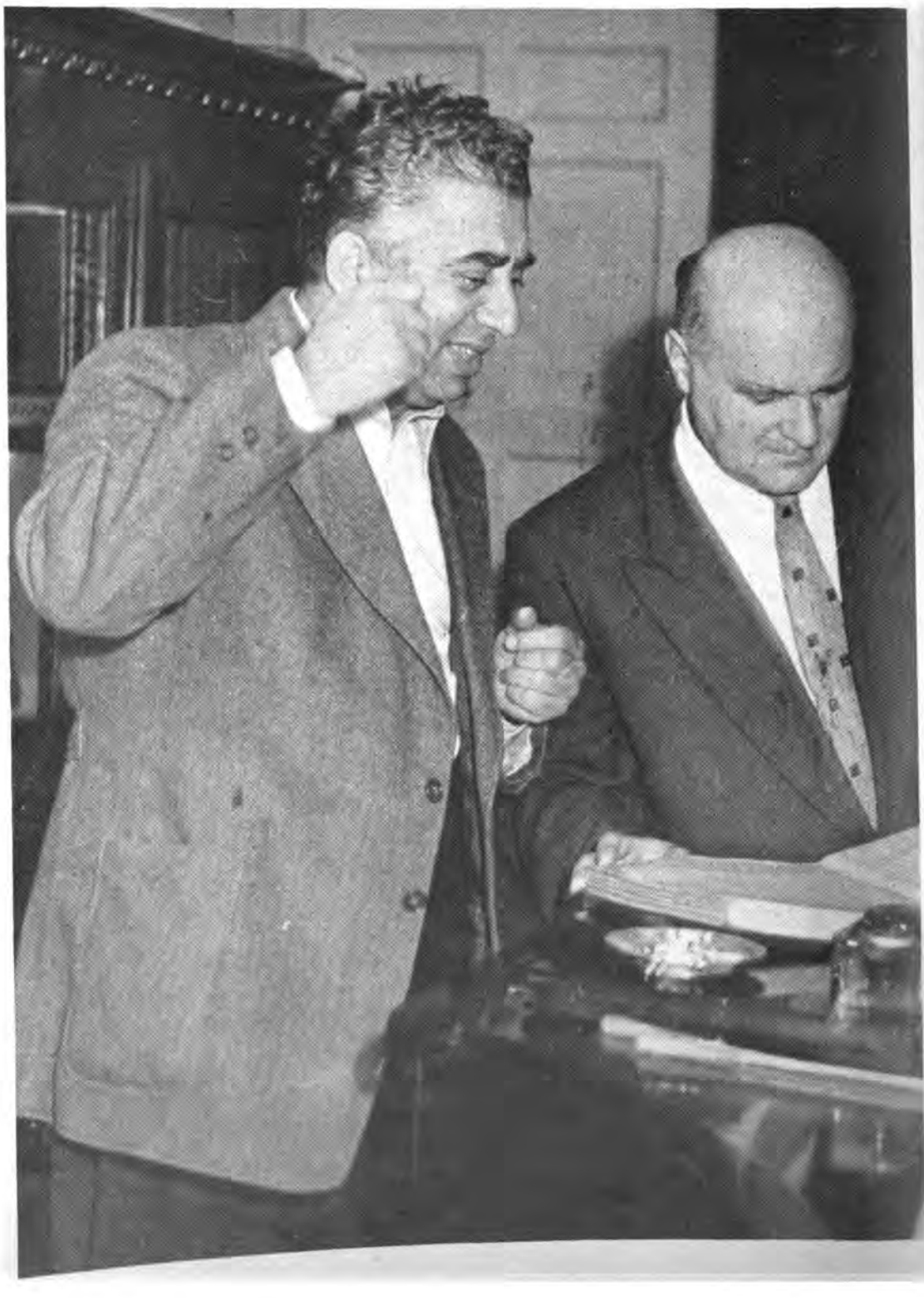
I was especially heartened last year by the increasing exchange of friendly visits between our artists and those abroad. Communication is as necessary as breath itself for the creative growth of artists the world over.

Although this cultural exchange as yet is only of modest proportions, it is a most encouraging beginning. I am sure that my colleagues in other countries will agree with this.

Our recent American guests, the violinist Isaac Stern and the conductor Charles Munch, and the musicians of the Boston Symphony Orchestra will, I am sure, have told American musicians about the very hearty welcome they received from audiences in our country. We shall be happy to welcome other American artists as well, and I, personally, am especially eager to meet the composers.

For my part, I hope to make a concert trip to the United States this year. ■

ARAM KHACHATURYAN (LEFT) SHOWS A FRIEND HIS LATEST COMPOSITION.



NEW LIGHTS OF IRKUTSK

By Alexander Rydannikh, Excavator Operator

For me the most outstanding event in our country in 1956 was the opening of the first units of the Irkutsk Hydroelectric Station.

I remember when I came here and saw the swift-flowing chilly Angara for the first time and estimated the distance from one bank to another. Frankly, I was a bit puzzled. I wasn't convinced that it was possible to tame such a mighty river in only a few years.

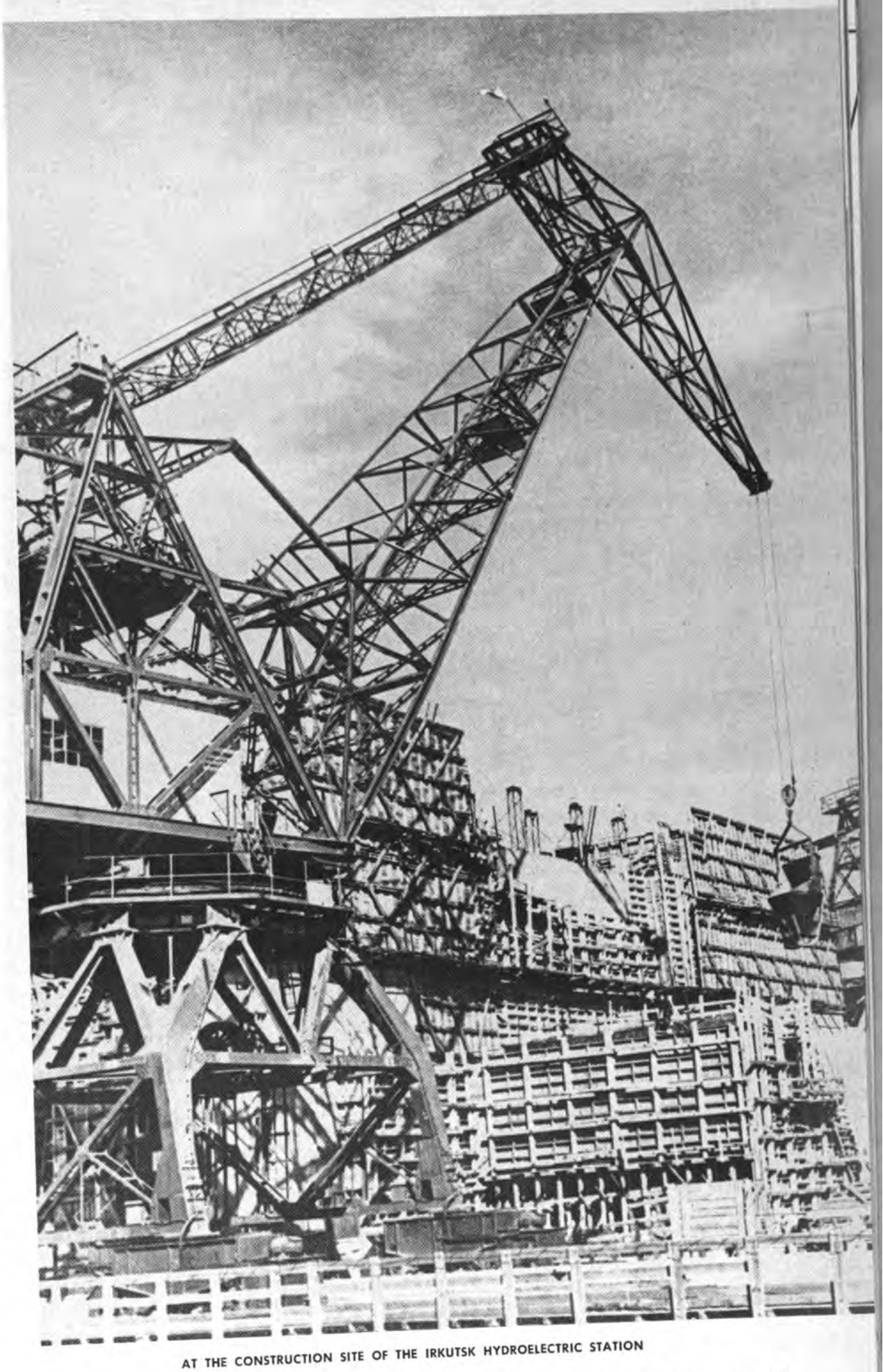
I didn't say anything about how I felt. I had come here to work because I wanted to get my hands on a mobile excavator, and there are many at the construction site. I had dreamed about it ever since I learned about these huge machines.

But it wasn't so easy. I was told: "You have to begin by studying. Your high school education will help, but it's not enough to run such a machine. You have to learn about it first."

Well, within six weeks I passed my examination proving that I knew how to operate an excavator. Since then I have been a member of the crew of the huge machine made by Urals workers.

I saw the Angara River harnessed with my own eyes, and I did my bit to help. Straddled by a dam, the river for the first time in its history had to halt its impetuous run. Our dam, after all work is completed, will be 6,900 feet long. The power generated by the new station will infuse the rich Siberian area with new life.

ALEXANDER RYDANNIKH OPERATING HIS EXCAVATOR



AT THE CONSTRUCTION SITE OF THE IRKUTSK HYDROELECTRIC STATION

The Irkutsk Station is the first to go up on the river. It will be followed by others of the magnificent Angara cascade which will be generating tens of billions of kilowatt-hours annually. The other stations are under construction and within ten years the entire development will be completed. Although I came here to satisfy a personal ambition, I must say that it makes me feel good to take a direct part in such a big job.

When I first came here I lived in a hostel. Now I have a two-room apartment of my own. It is not completely furnished as yet. I have enough money to buy the furniture—I make over 2,000 rubles a month—but so far I haven't been able to find any I like. But this will soon be remedied, especially since I have a good adviser in this respect. Her name is Lida. She works as a draftsman at our project and intends to enroll in a correspondence building institute this year. I'll join her if she doesn't mind. ■

Interviews continued on page 24

SETTING UP CAMP *(See story on page 32)*

No. 7(22)

BEFORE

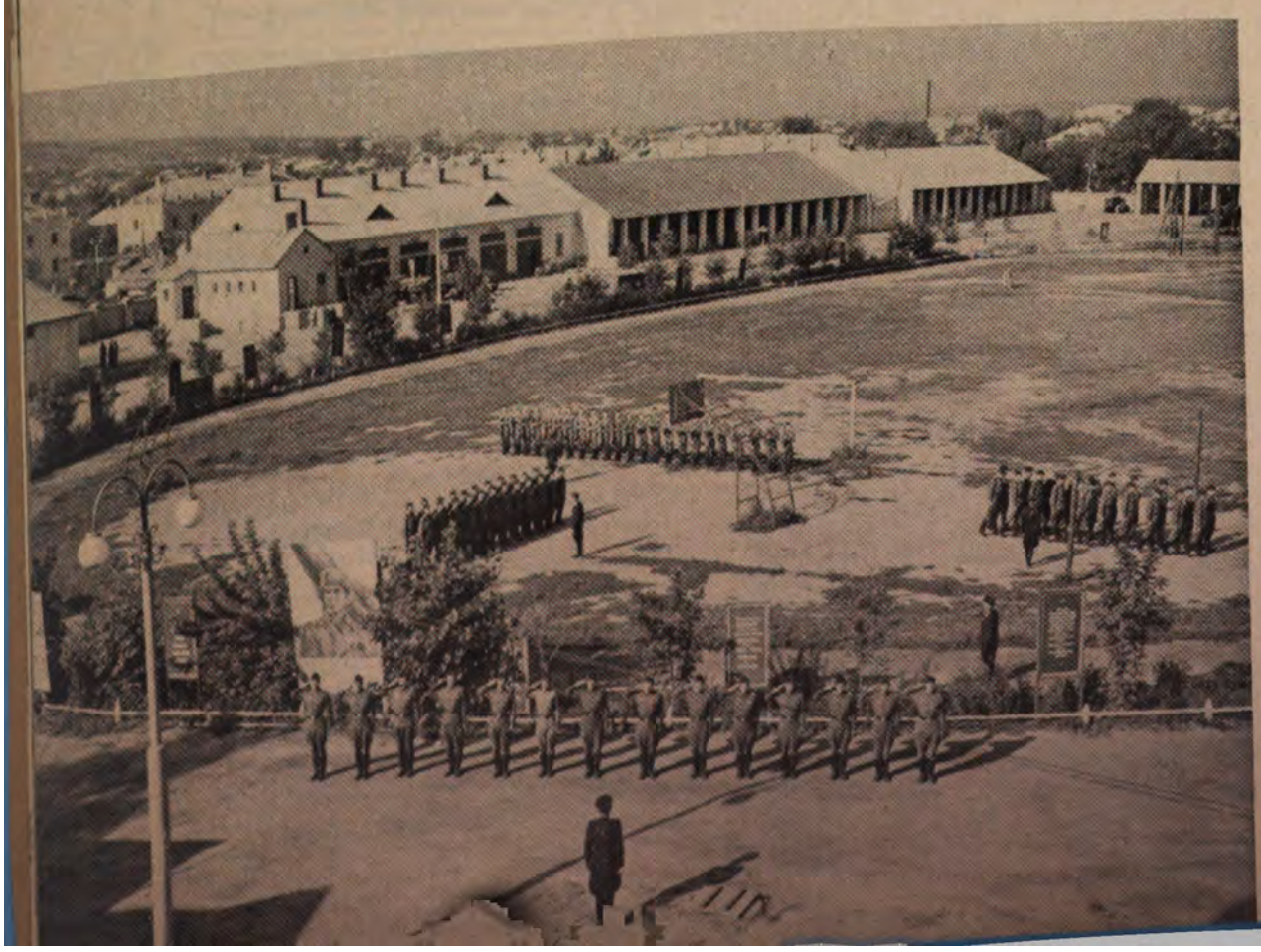
AFTER

BEFORE

AFTER

The Last Days of a Military Academy

By Georgi Pavlov and Alexander Cheprunov



The parade ground, busy here, is now a quiet and deserted spot on the Academy's grounds.

"It's a little like ordering my own discharge," General Mikhail Bogdan told us. He smiled, but it was a melancholy kind of smile, in keeping with the words. "In five days I shall read the order for the closing of the Academy—our swan song, so to speak. Then we pack up and leave. Both cadets and instructors will be demobilized."

The Belgorod Artillery Academy, which General Bogdan heads, was shutting down. And we had come to this pleasant sunny town four hundred miles south of Moscow to report the last rites.

Tribute to a School

For two decades the Academy had trained artillery officers. Its thousands of graduates won an honored place in Soviet Army history, with more than their proportionate share of brigade and regimental commanders. During the Second World War many Belgorod-trained officers won the highest military honors for valor and distinguished service in the field.

The Academy was staffed by experienced officers. General Bogdan himself was appointed superintendent of the Academy not too long before the decision was made. He had previously been a regimental and divisional commander and in 1945 was heralded by the newspapers as "the first to enter Berlin."

Following the decision of the Soviet Union to curtail its armed forces in the interests of world peace by 1,200,000 men by May 1957—this is in addition to the 640,000 men demobilized in 1955—a reduction in the number of trained officers and professional soldiers was naturally indicated. The Belgorod Academy was one of the military schools ordered closed by the decision.

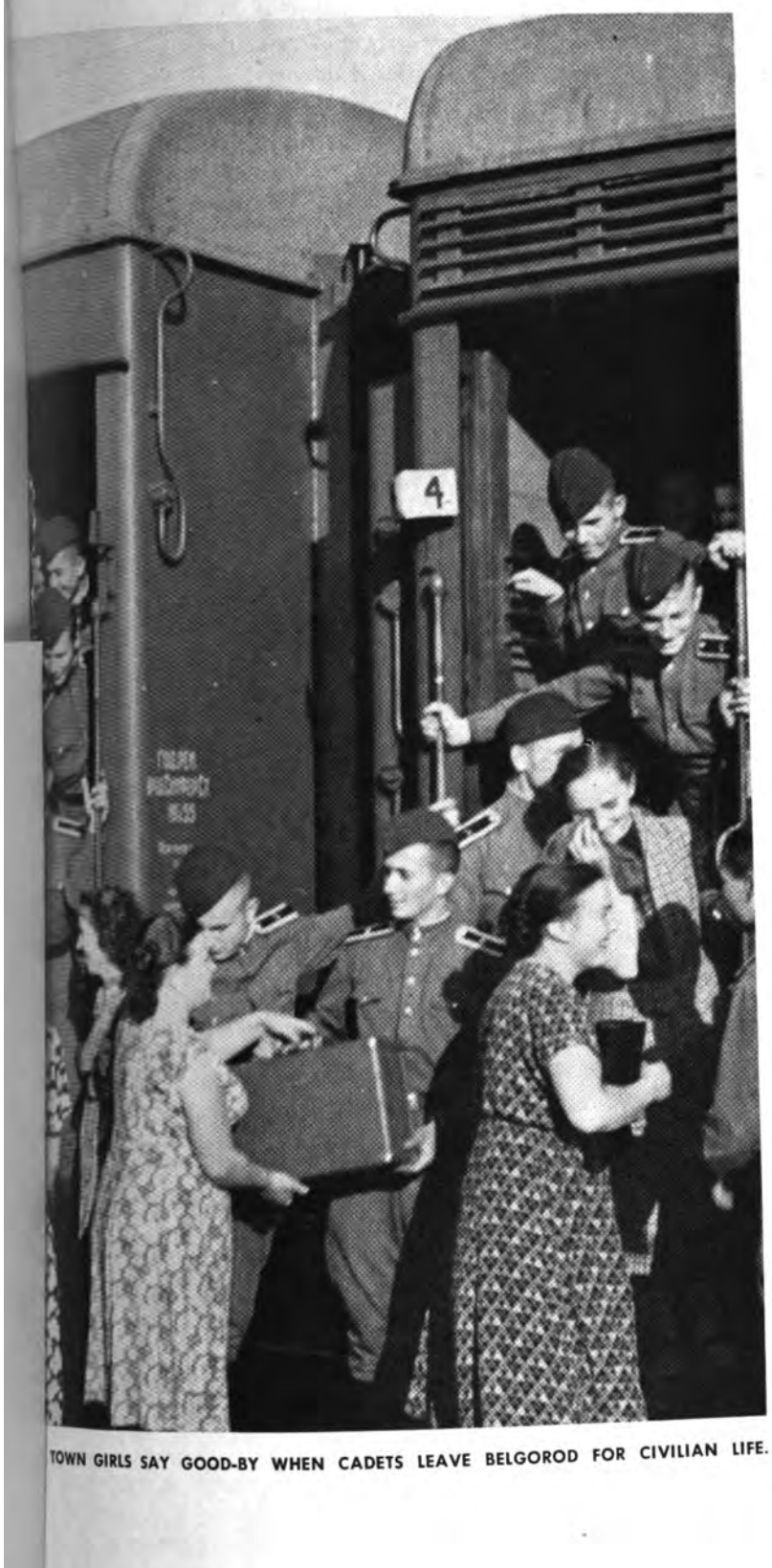
We visited the Academy a number of times during its last five days. Had we not been aware that the school was to close, we would have detected no outward change in the strict and ordered military routine. The physical training, drill, sentry duty and classes followed each other in their prescribed and seemingly permanent order.

As a matter of fact, the General commented that the cadets were particularly meticulous in observing the smallest details of military ritual. Their salutes were brisk, and the drills moved like clockwork. It was as though they were standing at attention as a sort of tribute to the faculty until the formal order was given to close the school.

After Thirty Years of Service

On the final day, when the order was given by General Bogdan, there was a change which was almost startling, it happened with such speed. The auditoriums and classrooms emptied, military equipment vanished from the drill fields. Even the atmosphere suddenly altered from military to civilian, the barracks

AT A FAREWELL SUPPER FACULTY STAFF MEMBERS HAVE A FRIENDLY TOAST.



TOWN GIRLS SAY GOOD-BY WHEN CADETS LEAVE BELGOROD FOR CIVILIAN LIFE.

PACKING THE ACADEMY'S REGIMENTAL STANDARD FOR SHIPMENT TO A MUSEUM.

PROTECTING THE RIGHTS OF CITIZENS

By Anatoli Volin,
President of the Supreme Court of the USSR

Chief Justice Volin is a typical representative of the middle generation of men and women who hold public office in the Soviet Union. The son of a fisherman, during his early youth he worked in a fishery and studied after working hours. He secured admission to Leningrad University where he studied law. He has had a long career in law, both practicing and teaching. For some years now he has sat as President of the highest court of appeal in the Soviet Union. We asked Justice Volin to tell our readers how the rights of the individual citizen are protected by the Soviet courts.

The major function of our judicial system is to safeguard the personal rights of citizens guaranteed by the Soviet Constitution.

Our Constitution secures to all citizens the inviolability of person and home. It establishes the equality of men and women and the equality of all races and national groups. It guarantees the right to a job, to security in old age and illness or disability, the right to personal property, the right to an education. It further guarantees freedom of worship, speech, press and assembly, including the right of citizens to hold mass meetings, street processions and demonstrations, and their right to unite in public organizations.

Any denial of these constitutional guarantees or violation of these personal rights or liberties is deemed a criminal offense punishable by the courts.

CHIEF JUSTICE VOLIN OF THE USSR SUPREME COURT

Righting Injustice

The serious abuses of the basic rights of citizens and miscarriage of justice practiced by Beria, Minister of Internal Affairs before 1953, and by his accomplices have been the subject of intensive re-examination by our courts. The Soviet courts rehabilitated the innocent people who had been unjustly convicted and punished those responsible for the criminal perversion of justice.

Punishment for crime under the Soviet law and Constitution can be meted out only by a court and in conformity with due process of law.

The highest judicial body in the country is the Supreme Court of the USSR. It exercises supervision over all judicial bodies of the country. The President of the Supreme Court may, on the appeal of a person convicted or on his own initiative, demand and obtain the record of any trial to judge whether sentence was legal or warranted by the circumstances of the case.

Here are a few of the cases concerned with the fundamental rights of Soviet citizens which have come up before our courts for decision.

The Right to Work

Dr. Maria Nemirovskaya worked as a physician in a children's hospital in Odessa. Over her objection she was transferred by the director to a hospital in one of the outlying districts of Odessa. She brought suit for reinstatement. The lower court decided against her.

She appealed to the Supreme Court. The court ruled that under Soviet law a worker may not be transferred from one locality to another without his consent. Dr. Nemirovskaya was reinstated and awarded full wages for the time lost.

This case had wider ramifications, however, than was at first evident. The appeal disclosed that similar illegal transfers of physicians had been made in some other cities as the result of instructions issued by the Minister of Public Health of the Ukrainian Republic. The Supreme Court revoked the instructions.

On Pensions for Disability

Pyotr Boykov worked as a loader in a woodworking factory in the city of Ashkhabad. While handling logs he fractured his leg. He was granted a pension based upon partial disability.

Boykov sued for the difference between the wages he received before the injury and the amount of the pension. The record disclosed that the factory management was responsible for the accident since it had failed to institute

safety measures for loading operations. The local court awarded Boykov the decision. It ordered the defendant, the woodworking factory, to pay the difference, which amounted to 789 rubles a month.

Freedom of Worship

Soviet law, in the spirit of the Constitution, guarantees the right of citizens to unite in religious associations.

Believers so united are given for use, free of charge, special buildings and objects required for their religious worship, and any encroachment of this right is severely punished by law.

There are special bodies concerned with the affairs of the Russian Orthodox Church and other denominations. They see to the enforcement of the laws, but they do not interfere in the internal affairs of the religious associations.

The district authorities of Kobrin, a town in Brest Region, Byelorussia, passed a decision closing the Russian Orthodox Church in the village of Cherevatichi for failure of the congregation to pay the insurance and land rent. Without waiting for approval by the regional authorities, the head of the Kobrin Finance Department had the church closed and sealed, making it impossible for the congregation to worship. The Council for the Affairs of the Russian Orthodox Church brought the matter to the attention of the regional authorities. The illegal decision of the Kobrin district authorities was revoked, and the head of the Finance Department was reprimanded.

In another case, a complaint by the Reverend Konoplev, chief priest of the Troitsa Church in Moscow, was entered against three men who walked into the church while services were in progress. They refused to remove their hats, although requested by members of the congregation to do so. They were tried and convicted as hoodlums.

An Eviction Case

Under Soviet law tenants enjoy unlimited occupancy. The bulk of housing is public property and does not, therefore, serve as a source of income for anybody. The rental is just enough to cover necessary repairs and maintenance. If a tenant repeatedly fails to pay his rent, the law permits eviction.

An action for eviction was brought against Voldemar Alperin for failure to pay rent three months in succession. At the trial the tenant pleaded temporary financial difficulties. The court refused to order the eviction. It decided that although the tenant had failed to pay, cancellation of the lease was permitted only if non-payment was deliberate. In this case it was not.

Illegal Arrest

Soviet law sharply defines those cases in which a citizen may be arrested. Violation of personal liberty is a criminal offense.

Police officer Vladimir Lopatchenkov detained Fyodor Kononov for selling articles without a license on the platform of the Kursk railway station. Kononov was taken to the police station and was fined.

While in the station the police officer searched Kononov, although the law prohibits searching persons who are summarily fined. When Kononov protested, police officer Lopatchenkov put him in a cell and kept him there for forty minutes. When the case was brought to trial, the court found the police officer guilty of exceeding his authority and sentenced him to three years in jail.

EVERY CITIZEN HAS THE RIGHT TO BE RECEIVED BY THE CHIEF JUSTICE.

Right to Defense

In all Soviet courts cases are tried in public. Only in exceptional instances, where state security or the intimate relations of litigants are involved, are cases heard behind closed doors. The decision of the court is always made public.

Proceedings are conducted in the language of the particular republic or national group. Persons who do not know the language are given an interpreter. The accused may employ a lawyer. If he is unable to pay for the services of a lawyer, the court will appoint one for him. A sentence passed by a court in violation of the rights of the accused to defense will be reversed by a higher court.

A man by the name of Vostrikov was sentenced by a local court in the Tajik Republic following conviction for robbery. The testimony made it abundantly clear that Vostrikov was guilty. The lawyer for the defense did not appear at the time of trial. In order not to delay the case. the court suggested to Vostrikov that he waive his right to a lawyer and had him sign a statement that he would act as his own counsel.

The decision of the Supreme Court was that the defendant's waiver of his right to a lawyer was forced on him and, therefore, his right to defense had been violated. It reversed the decision and ordered a new trial.

These are a few of the many instances which show how our courts in their day-to-day work protect the rights of the individual citizen guaranteed to him by our Constitution. ■

THE RAILROAD DEPOT AT NOVOSIBIRSK

NOVOSIBIRSK, THRIVING CITY

A FACTORY CLUB BUILDING

By Arkadi Uralov

A VIEW OF THE CITY'S MAIN THOROUGHFARE

gine that! I got out of the taxi, looked
d, and ducked back.
hat's wrong?" the driver asked.
u brought me to the wrong place," I
led. "I told you to drive to Yeniseiska-
eet!"
t this is Yeniseiskaya!" exclaimed the
, a little annoyed.
driver was right. I hadn't recognized
vn street, it was so changed. There were
ouses and a big park around the cor-
here I remembered only a rickety old
e. The young poplars along the side-
were new, too. And I had been away
home only about 18 months . . .
s was an incident which really did hap-
o an old-timer of Novosibirsk, Feodor
an accountant who sat next to me on the
w-Novosibirsk plane. The incident typi-
e growth of Siberia's largest city.
lless and rapid changes are really the
characteristic features of Novosibirsk.
ity is expanding so quickly that it al-
has streets which have not yet been given
s and houses which have not yet received
numbers.
thirteen prewar years the population of
sibirsk quadrupled. Today the popula-
xceeds 730,000, almost twice the prewar
.
vosibirsk was a small settlement founded
end of the last century near a railway
n on the bank of the Ob, in the wilds of
iberian forests. Before the eyes of my
mporaries it has developed into a big,
ng modern city, with tall apartment
s, wide boulevards and beautiful squares.
e city is the embodiment of the bubbling
y with which the Soviet people are culti-
g the vast expanses of Siberia, tapping
exhaustible wealth. At first only an ad-
trative center of West Siberia, it has
lly spread out into a big industrial and
ral center.
ven flour mills constituted the peak of
trial achievement of pre-Soviet Novo-
sk. Today it is known for the powerful
generators and other modern machines
at its factories.
ice college-trained specialists could liter-
be counted on one's fingers at Novosi-
. Now competent engineers, pedagogues,
rs and musicians are educated in the city
, which has nine colleges, including a
ervatory of music opened last year. There
hree theaters—an opera and ballet thea-
a drama theater, and a theater for chil-
and young people. Novosibirsk has hun-
s of schools, clubs, libraries, two muse-
a planetarium and many motion picture
ters. It has its own newspapers, maga-
s, book publishers and telecast service.
nd most important, Novosibirsk is steadily
ncing along with Siberia as a whole. New
ks and streets are being built in the city,
e its old streets are being modernized.
ramshackle wooden houses are being torn
n, and buildings with all modern con-
ences are replacing them. ■

LOCAL BRANCH OF THE USSR ACADEMY OF SCIENCES

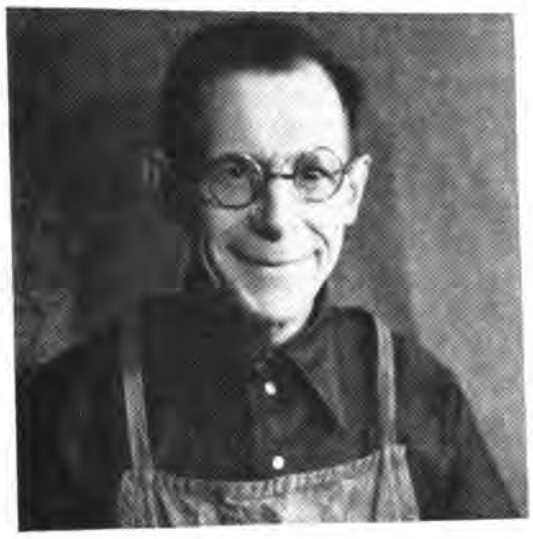
APARTMENT HOUSES ON THE OUTSKIRTS OF THE CITY

the year ahead . . .

. . . THE YEAR BEHIND

When a Man Starts Getting Old

By Mikhail Yezhov, shoemaker



This year starts my seventh decade. I've just rounded out my sixties. And all my life I spent in the shoe repair business. I've put in 24 years in this shop alone. So I guess I ought to be pretty good at the work.

Was there anything new in my family's life last year? Yes, of course.

First of all, my son Vladimir came home after his five years of service in the Baltic fleet. He was so tall and husky when he walked in that we hardly recognized him.

Before he went into the service he became an apprentice in a jewelry shop. He didn't forget the work while he was in the navy, and now he makes rings, brooches, earrings and bracelets. That's good clean work, and he brings home a thousand rubles a month.

He met his wife in the same shop. She works there as bookkeeper. Her name is Lyusya. They had a good wedding, and they get along fine.

My daughter Margarita is graduating from high school next spring. She wants to be a fabric designer. The entrance exams for the Textile Institute are very hard, but she's got real talent for drawing. Let her try, I say, it's a young people's world.

What else can I tell you that's worth telling? My wife and I do not go out much. We like to stay home. So I bought a television set. This last year we have seen more new things than in our whole life before—plays, songs, music, all kinds of things.

I'm not planning to retire yet although I'm entitled to my pension. I want to work for a few more years. I'm used to working, and I don't like the idea of sitting around with my hands folded doing nothing. That's when a man really starts getting old. ■

The Pleasures and Perils of My New Profession

By Ruth Peramets

Announcer, Tallinn TV Studio, Estonian Republic

Another year has just passed. And it seems that the years come too quickly—or is that only a woman's reaction?

It seems only recently that I was working as an engineer, satisfied with my profession and not dreaming of anything else. Then after an amateur theatrical performance in which I appeared, the managers of the Tallinn Film Studio offered me a part in the film *Andrus' Happiness*. This was soon followed by the movie *Yachts Take to Sea*. Then at the same time I was offered a job as announcer for the recently constructed television studio in Tallinn.

I accepted and found new interests and cares. Yes, and excitement too. But perhaps we'd better go back and take this chronologically.

When an individual changes his profession, the consequences are not immediately apparent. True, I got to know what was expected of me quickly enough and was glad to learn from many TV fans that our programs were not inferior to those of Moscow or Leningrad. But I did not even dream that the new job would bring with it some ticklish problems.

The point is that I receive many letters. There is nothing really wrong in that. They come almost daily from Estonian cities and small towns, as well as from Finland, where our programs come in loud and clear, as Helsinki is only 43 miles away. And a New Yorker wrote for my autograph after viewing me on the screen of a Finnish set.

But not all the letters are of such a modest nature. Many ask point-blank whether I am married and, sometimes without waiting for a reply, the writer offers me his hand and heart along with a real or imaginary list of his personal merits and charms.

One day my four-year-old, Priit, got into those letters while I was out with my husband. He spread them out fan-wise across the room. When we returned home, my husband had a good laugh reading some of them. But it might not have been so funny if he had taken them seriously.

With the new year under way our TV station will soon double its power and put permanent relay stations into operation in Kohtla-Jarve, Pärnu, Tartu, Viljandi and other Estonian cities. We began a special program for Finland last October, and we will have relay lines to Moscow, Leningrad, and also to Riga along with our own teletheater. Also, I don't think it would be too bad to organize an exchange of TV programs with other countries this year.

All these developments mean that our audience will increase, and so will the number of those letters. ■

Interviews continued on page 39

RUTH PERAMETS IS HERE ANNOUNCING THE NEXT TV PROGRAM.

Terenty Maltsev Transforms Agriculture

TERENTY MALTSEV (THIRD FROM LEFT) DISCUSSES HIS METHOD WITH VISITORS AT THE USSR AGRICULTURAL EXHIBITION IN MOSCOW

THE FARMER WHO REJECTED A FACT

By Gennadi Fish

There are certain ideas which everyone accepts as self-evident until someone else comes along and begins to ask questions. And it turns out that what seems to be a self-evident fact is not a fact at all.

One of these "self-evident" ideas that has been current for more than two centuries is that if you want to grow a good crop, you have to plow the soil and turn it over.

Previous to the eighteenth century the plow was no more than a hoe dragged along the ground. It merely scratched the surface of the soil. Early in the century the moldboard plow—that is the type everyone is familiar with—was introduced into England and from there spread throughout the world. The new moldboard plow was able to dig down below the surface, turn the soil over and expose the undersurface to the action of the weather. For these hundreds of years, the moldboard has been thought of as one of the simple inventions which changed agriculture completely.

But in 1943 an American by the name of Edward Faulkner wrote a book called *Plowman's Folly*. He posed a simple question: "Is it necessary," he asked, "to plow in order to get a good crop?" And he answered the question himself with a good deal of supporting evidence and sound sense. His answer was, "No." He went even further. He claimed that if land is *not* plowed, it will produce larger crops. A revolutionary idea!

A few years afterward Terenty Maltsev, Soviet farmer, quite independently came to the same conclusion and proceeded to confirm it by an experiment on an area of several thousand acres, a highly successful experiment which promises to change the whole nature of farming.

The idea behind Terenty Maltsev's new method of farming, now being tested in every corner of the Soviet Union, on collective and state farms and by research institutes, can be found in embryo in the writings of the ancients. It was also reflected in the writings of the Russian scientists Mendeleyev and Kostychev during the nineteenth century and worked out in greater detail by their Polish contemporary, the agronomist Owsinsky.

But Maltsev took the idea a step further. He shaped it into a consistent and theoretically sound system of farming and then proceeded to prove the correctness of the theory

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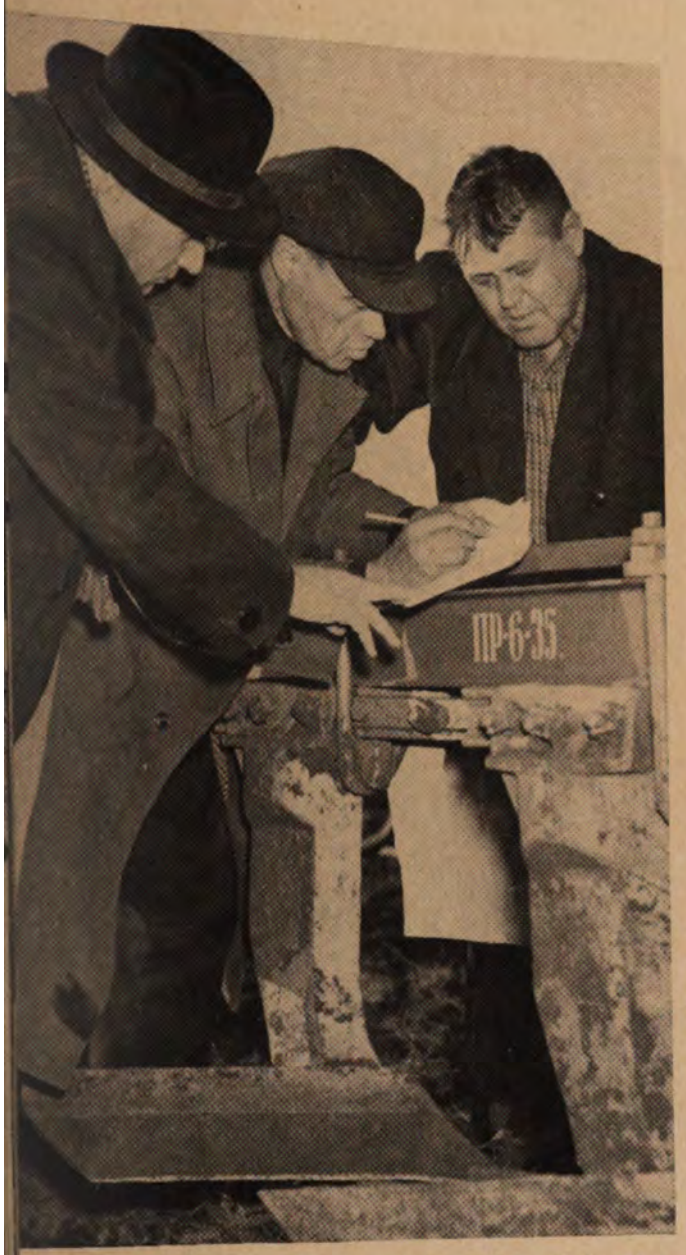
THE FARMER WHO REJECTED A FACT



Terenty Maltsev and observers with the plow he designed without the customary moldboard.

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by putting it to work on several thousand acres.

When the first outlines of the new system of farming began to take shape in his mind in 1948, Terenty Maltsev was already 52 years old. Aside from five years of army service in the First World War, he had spent his life farming.

He was never able to attend school. He taught himself to read and write. His passion for books and learning converted the simple farmer into a creative scientist. Today this untutored farmer is the author of many scientific works, a regular contributor to newspapers and agronomy magazines, and a participant in scientific congresses. Last year he was elected Honorary Member of the USSR Academy of Agricultural Sciences.

Testing a Fact

In 1930, when the Zavety Lenina Collective Farm was organized in his village, Terenty Maltsev was asked to take over the care and supervision of 7,500 acres of fertile plowland. In the years that followed he set up 3,000 experimental plots to work on difficult crop problems.

He improved scores of varieties and worked out growing techniques which enabled his collective farm to obtain high and stable yields in spite of the harsh and capricious climate of the Transurals.

But the practical significance of his work began to be widely recognized only in the spring of 1948, when, for the first time, he sowed spring wheat in an unplowed field and gathered a larger crop than he had in previous plowed sowings.

He was testing out in practice the old truism, accepted without question for centuries, that wheat must have a thoroughly plowed and pulverized soil.

In 1949 he once again sowed spring wheat on a plot of unplowed land which he had disked only to loosen the soil. His experiment was again successful.

He began to draw the tentative conclusion pointed to by these experiments. Perhaps land should not be plowed every year, he conjectured. There are times when a tractor drill passes along the edge of a road and the end disks accidentally push wheat seeds into the compact, trampled soil. What happens is that wheat sprouts up along the edge of the road and its spikes are even larger than planted wheat.

One question led him to another. If we stop plowing, he thought, will there be enough air in the soil to keep the useful bacteria developing? There seemed to be enough for the two crops. There should be enough for more. Perhaps we ought to plow, but at much longer intervals. And then we ought to plow as deep as we can.

So he began another series of experiments. He worked out a six-field rotation which was to be plowed only once in six years. The first year the land lay fallow, the second year perennial grasses were sown and for four years the fields were sown to grain in unplowed, loosened soil.

HEAVY-HEADED WHEAT IN A FIELD SOWN UNDER THE METHOD DEVELOPED BY MALTSEV. HIS METHOD IS NOW BEING TESTED IN EVERY CORNER OF THE SOVIET UNION.

Wheat, high and thick, covered the unplowed fields that fall. But Maltsev was not convinced that the good harvest was due only to the elimination of plowing. Perhaps it was the perennial grasses that were responsible for the success. What if the grasses were omitted? And so he tried the five-field rotation without perennial grasses, plowing only once.

The next step was to replace the traditional type of moldboard plow. This plow digs in deep, as much as ten inches, and then turns up the lower soil layers. In the process of turning up the lower soil, it buries the surface mulch, plant rubbish and decaying leaves. Maltsev wanted the mulch left on the surface. to prevent evaporation and preserve moisture.

He took the moldboards off the tractor plows and had the plowing done without them. The shares of the plow ripped the surface, loosened the soil but did not turn it over. There was plenty of room for air and moisture, and the microbes that work deep in the soil, like cooks in a kitchen, could prepare food for a new generation of plants. The results exceeded his expectations.

Collective Farm into Experimental Station

In September, 1950, I visited the Zavety Lenina Collective Farm. To the right of the road was a thick stand of ripe, clean wheat that reached to a man's chest. To the left was another stand—not nearly as good. In some places it had lodged because of rain.

"Here," Maltsev pointed to the right, "we sowed wheat on an unplowed field, the soil was cultivated only with a disk paring plow. The wheat on the left was sown on a plowed field. You can see the difference."

Later, over a cup of tea, he told me about his new plans. He was very pleased with the support the Government was giving his experiments. An experimental station of a very special type was to be organized on the collective farm with the specific function of carrying on Maltsev's experimental work.

The entire project was to be financed by a state subsidy. The experimental station was to be the whole collective farm. Its director was Maltsev. Aside from four specialists, the remainder of the workers at the station were to be the collective farm members. The income of the farm members would depend upon the success of the experimental work done.

To Convince the Skeptics

It is four years now since the experimental station was organized. The high yields achieved have more than confirmed Maltsev's ideas. In August, 1954, a conference was held to study his methods.

From Moscow and Alma-Ata, from Omsk and Barnaul, from all parts of the country, agronomists, collective farm chairmen, directors of machine and tractor stations, government officials and professors came to Maltsev's village, more than a thousand persons in all. To house such a large number of guests the collective farm had to set up a whole town of tents.

The conference had its usual quota of

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TERENTY MALTSEV SHOWS FARMERS AND AGRONOMISTS THE STRUCTURE OF SOIL AFTER PLOWING BY HIS METHOD.

HE'S TRULY TICKLED WITH HIS HOBBYHORSE PRIZE.

Saturday Night Dance

By Nikolai Rozhkov

We had our dances in the old days when I was younger, but they were a much different kind of affair from the ball at the House of Trade Unions in Moscow that I attended, not to dance, but to write a story about.

I grew up during the twenties. These were hard years. The country had been laid bare by a long and destructive war, and we had no one to depend on but ourselves. We knew that only the concerted efforts of all the people could keep us from economic beggary.

We young people had our fun, we played and we danced when we found time, but we had to rebuild a country. We were like the hard-working young man, who, building a home without credit, spares no effort, watches every minute and gladly deprives himself of the transient pleasures of the present for the sake of the future.

Our dances and balls are different today because the lives of our young people are different. I could write a whole book about the dances our young people attend.

Very likely I'm old-fashioned, but I have my own reactions to these affairs.

Some of our balls are dedicated to holidays, either national holidays or such holidays as New Year's. These functions always strike me as a little on the pompous side. Other balls, held in factory and village clubs to celebrate a local event, seem to me a trifle too familiar and sometimes resemble family get-togethers.

Last summer combining fashion shows with balls was the rage. Judging by their popularity, I suppose many people liked them. But I find it hard to see how people can amuse themselves with competitive exhibits of women's clothes. But then, I don't wear dresses. That's undoubtedly a factor in my reaction. And as I said, I'm past the first blush of youth.

The kind of ball I like is one where all sorts of people, mostly young ones, get together in clubs or halls to have a good time in a holiday atmosphere. A nice, simple, enjoyable Saturday evening dance.

And that's just the kind of dance that was waiting for me—and the photo-reporter who was with me—at the House of Trade Unions.

The House of Trade Unions is one of the best of the Moscow concert and amusement halls. It appeared to be more holiday-looking than usual that evening. The main hall was decorated with flowers, and the white marble columns reflected the play of chandeliers and spotlights. But as beautifully arranged as the hall was, its gay young guests were its brightest attraction.

I don't know whether everyone would have agreed that each one of the girls met all the qualifications for a beauty prize winner, but

THE BOUNCING BALLOONS ALWAYS MAKE QUITE A STIR.

A DASHING MUSTACHE TRANSFORMS OUR YOUNG HERO.

GIRL TALK—IT'S THE SAME EVERYWHERE.

to me they were all very young and all very lovely.

Most of the guests were students and workers. The hosts had arranged all sorts of entertainment to suit varied tastes. In one of the smaller halls there was a lottery with trick prizes. In another, guests walked out with huge handle-bar mustaches and big pink false noses. In the most unsuitable corner we found the usual pair of chess players frozen over a board, each one with a cluster of advisers grouped behind him.

But when the music struck up in the main hall, the chess players promptly agreed to call it a draw and hurried off with everybody else.

The dance was followed by a concert of popular singers. Then came a comic act. Then a magician solemnly swallowed a string of long pins and promptly produced them again before the audience could begin squealing.

Then the dancing began again. While the dances changed, a group of judges, elected on the spot, grappled with the problem of choosing the best dancer, both in jazz and folk dancing, the best jokester, the best reciter, and the prettiest-dressed girl. All this with much laughing and its normal quota of excited argument.

And as always, there were pairs of young people who walked around in a blissful fog, oblivious of everybody but themselves.

This was my Saturday night at a ball. A long way from the balls I danced at in my day. But perhaps not so different after all—we were young, happy, active and perhaps even as beautiful as these young people.

I really should confess—I danced, too, that night. The girls insisted.

Pictures on following page

THE DANCE LASTS FAR INTO THE NIGHT. ▶

THIS YOUNG COUPLE TAKES TIME OUT FOR REFRESHMENT

SATURDAY NIGHT DANCE

Continued from page 29

CROWD JOINS IN ON A NEW SONG WITH THE M.C.

EXCURSION INTO THE FUTURE

By Vasili Zakharchenko

The dreams of scientists must be very strange indeed, their realities are so fantastic. With thinking machines, artificial satellites, and only science knows what else, we would seem to have broken down whatever distinction once held between the real and the imaginary.

Let Us Build Another Sun!

Imagine an artificial satellite of the earth shot up into cosmic space. It flies around our planet at an altitude of hundreds of thousands of miles. Somewhere inside this little satellite, the future source of heat is born, thermonuclear reaction sets in. The small sun was set aloft by man, and this sun flies over the regions of the earth where warmth and light are inadequate. It sheds its light over those regions of the planet where the darkness of Arctic night hovers for six months. Over certain spots the artificial sun sheds its heat sparingly, while over others it flashes forth with greater intensity. At the lofty height where the man-made sun, our "helio-satellite," moves, it cannot cause any harm, it only changes the earth's climate. As months go by, the helio-satellite exhausts its energy, but a new sun has already been catapulted into the sky.

It is possible! Man has reached out for sources of light and heat which are truly inexhaustible. Experiments are now in progress with the aim of trying to secure control of the most powerful of all forms of energy existing on the earth, thermonuclear energy. The idea of building a new sun for the earth and making it move along the orbits predestined by the human mind may seem like imagination run riot. But when man learns to control thermonuclear sources of energy—and that day, relatively speaking, is around the corner—the

Continued on page 32

The artificial sun will travel at an altitude of thousands of miles.

THE HELIO-SATELLITE WILL BRING LIFE AND WARMTH TO THE BARREN REGIONS OF THE EARTH.

THE GREAT DAM CONNECTING ALASKA AND CHUKOTKA ACROSS BERING STRAIT WILL BAR COLD ARCTIC WATERS FROM THE PACIFIC.

EXCURSION INTO THE FUTURE

Continued from page 31

problem of building another sun may become quite real.

Central Heating for the World

The Soviet poet Vladimir Mayakovsky says in one of his poems that our planet is poorly equipped for happiness. So far as climate is concerned, that is certainly so. Unendurable cold in Siberia and Alaska and unendurable heat in the tropics. And the temperate zone, where conditions for life are most favorable, is largely filled up by oceans.

Is it too fantastic to think of re-equipping our planet properly?

Consider, for example, one of the local problems of climate change which scientists have long been studying.

A glance at the map will show that America is very close to the Soviet Union. A few dozen miles separate the shores of Alaska and Chukotka. There was a time when that gap between the continents we now call the Bering Strait did not exist. It was all one land mass. And in those prehistoric times, science says, our distant forbears could move freely by land from Asia to America.

The climate was milder then. There was no strait, and the cold currents of the Arctic Ocean could not pass through to Alaska and Kamchatka, so that the warm waters of the Pacific washed the shores.

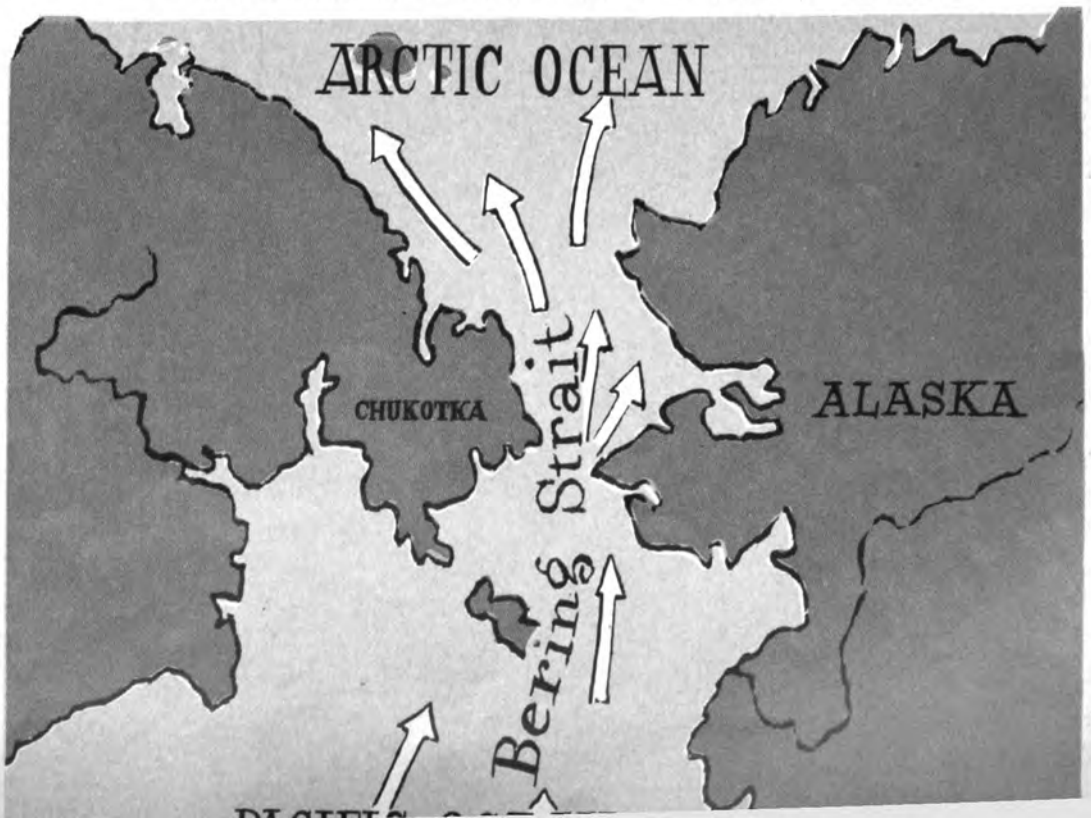
Let us ask this "fantastic" question—suppose the Bering passage were closed again! The strait is only about fifty miles wide and about 150 feet deep on an average. What if the gap were filled up and the icy door shut tight? For science and engineering today this is far from an impossible job.

Suppose a dam were built at that point. The cold waters of the Arctic Ocean would be diverted, and temperatures would rise sharply through a vast area of land and water in the northern parts of Asia and America.

Scientific thought explores even further. What if the huge source of heat represented by the Pacific Ocean could be put to work as a central heating system for the whole of the North!

Let us imagine that huge pumping stations have been constructed. Built into the body of

WARM WATERS PUMPED INTO THE ARCTIC OCEAN WILL PUSH BACK THE ICE BARRIER.



dam, they trap the warm currents and drive
n farther to the North. A current equal in
er to the Gulf Stream skirts the northern
emity of Siberia and Alaska. The ice bar-
is pushed back to the North. The soil
ered by ice for thousands of years becomes
st and soft, and orange groves begin to
ssom in Kamchatka and Alaska. . . .

But, yes," the skeptics—they are always
h us—will say, "it is easy to imagine a new
lf Stream crossing the Bering Strait, but
will need fantastic power to do it."

cientists have already figured that it will
a capacity of two million kilowatts. A lot,
ainly. But would it be necessary to build
-tension lines from the faraway rivers of
eria and America to the Bering dam? Or

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Moscow says it
with Flowers

Muscovites like flowers. They decorate squares and boulevards, gardens and parks. Even industrial plants are spotted with flower beds.

Moscow grows more flowers every year, l and tended by a large staff of gardeners. 56 two million roots, bulbs and shoots l varieties were planted to add to the millions of flowers which adorn the city dy.

ny thousands of amateur flower growers oscow do their own window-box and ny gardening. Others lay out colorful r beds in their country homes or on out- wn garden plots. There are few homes oscow which do not have at least a flower

e most enthusiastic of these amateur eners are organized in flower clubs. They ge lectures and flower shows and ex- ge seeds and bulbs. Many of the mem- grow rare plants and hybrid novelties.

e autumn flower exhibit shown here drew sual large crowd. Flowers of all sizes, es and luxuriant colors were exhibited. ne layman who came to look on, each of lowers shown seemed perfect in its own But the experts were of a much more nding opinion. They decided that none e exhibits merited a first prize.

her cities vie with Moscow in their floral ays. Even Karaganda, in Central Asia, s flowers in its rocky, sun-scorched soil, Norilsk in the frozen ground beyond the c Circle. ■

A YOUNG IVANOVO TEXTILE WORKER

MANY GIRLS ATTEND NIGHT SCHOOL

A VISIT TO A TEXTILE MILL

By Yakov Usherenko

The Dzerzhinsky Textile Mill is typical of the many thousands of industrial plants in the Soviet Union.

How does it operate?

Where do its workers come from?

What happens to its profits?

What about wages, working conditions, housing, child care, medical treatment?

I visited the mill to find the answers to some of these questions.

The Dzerzhinsky Mill is in Ivanovo, the biggest textile center in the country. It was built twenty-nine years ago, a group of light and airy four-story buildings, in sharp contrast to the dark squat shops of Ivanovo left over from czarist times.

When the mill was opened it had 115,000 spindles. Now, with 228,000, it is one of the largest spinning mills in Europe.

The equipment of the mill has also gone through a process of evolution, with the installation of automatic machinery, powerful openers and scutching machines of the latest design. Only at the beginning of the spinning process, when the cotton is placed in the machine, and at the end, when the woven fabric is removed, does the human hand touch the material. Every day the mill turns out sixty tons of yarn, which goes into the production of hundreds of thousands of yards of all kinds of plain and decorative fabrics.

The Mill Is One Big School

Since the mill has been expanding steadily, it has a permanent problem of shortage of the skilled workers needed for the spinning departments and the weaving shops. This is true even with the high level of automation. As a result, it has to train its own workers, and the management maintains a network of various free courses.

The mill has its own vocational school which admits young people who have finished seven years of schooling. The course of study is one year, and from the day they enroll these future workers are paid a stipend. When they graduate, they are placed in one of the shops.

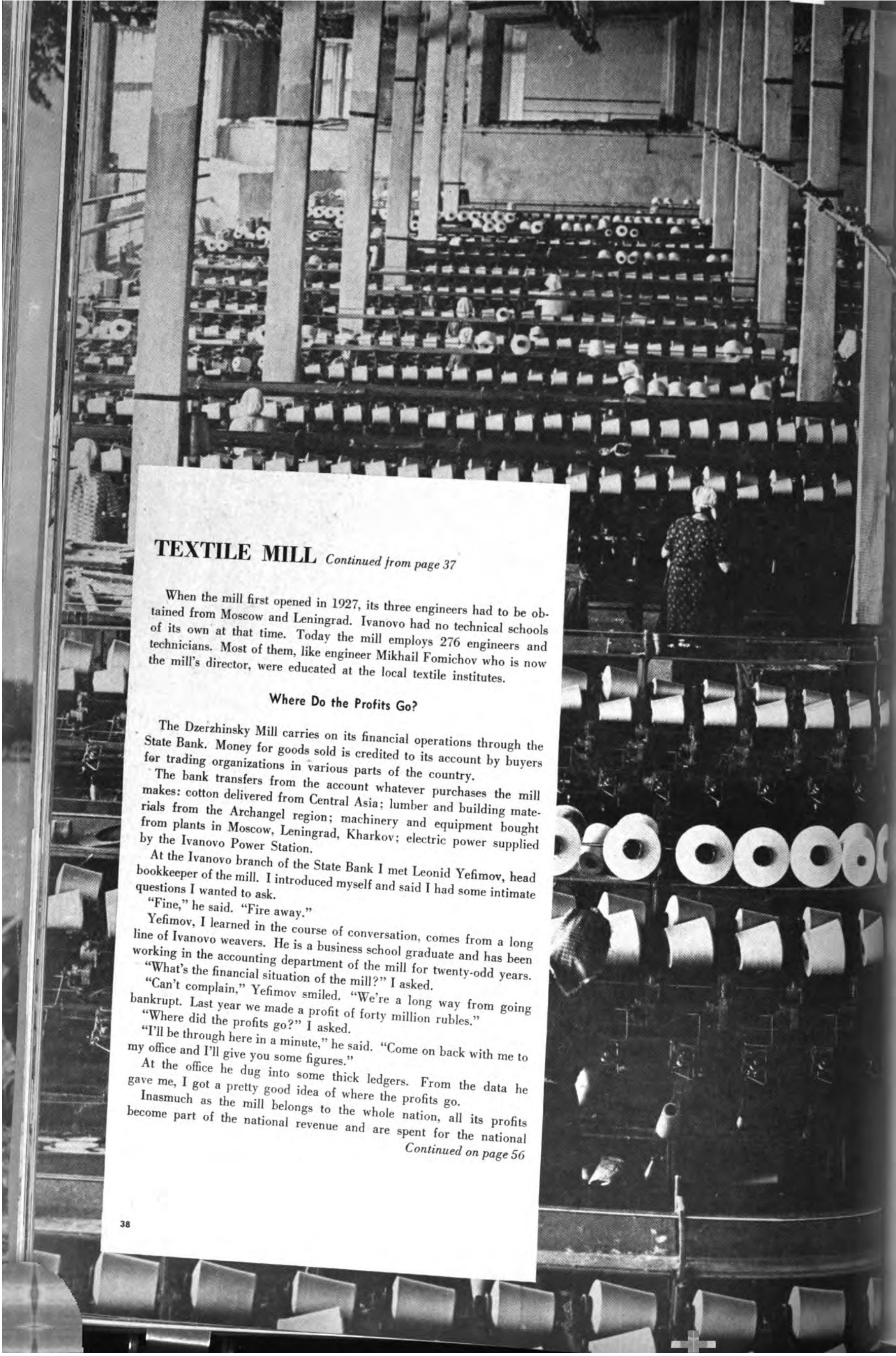
Although 250 to 300 workers are trained at the school every year as spinners, rovers, warpers, or weavers, there are not enough workers to fill all the jobs. That is why another kind of training is also used. Apprentices are assigned to a teacher who gives them instruction right on the job. This is supplemented by a theoretical course of lectures given by mill engineers and technical-school teachers. This kind of training usually lasts six to eight months. During this period the trainees are paid 275 rubles a month.

In addition to elementary training, the mill offers a whole group of advanced technical courses. More than 2,000 workers in the last four years have perfected their skills and raised their wages through these courses.

Some of the workers continue their studies in their free time at the Ivanovo technical schools and institutes. There is also a branch of the Ivanovo Textile Technical School at the mill where correspondence courses are given. With all these facilities at their disposal, it is not surprising that dozens of workers have become engineers, fabric designers, technicians and executives. *Continued on page 38*

VETERAN FOREMAN SERGEI BEZENOV INSTRUCTS A BEGINNER AT THE MACHINE ▼

A NIGHT VIEW OF THE DZERZHINSKY TEXTILE WEAVING MILL AT IVANOVO ▲



TEXTILE MILL *Continued from page 37*

When the mill first opened in 1927, its three engineers had to be obtained from Moscow and Leningrad. Ivanovo had no technical schools of its own at that time. Today the mill employs 276 engineers and technicians. Most of them, like engineer Mikhail Fomichov who is now the mill's director, were educated at the local textile institutes.

Where Do the Profits Go?

The Dzerzhinsky Mill carries on its financial operations through the State Bank. Money for goods sold is credited to its account by buyers for trading organizations in various parts of the country.

The bank transfers from the account whatever purchases the mill makes: cotton delivered from Central Asia; lumber and building materials from the Archangel region; machinery and equipment bought from plants in Moscow, Leningrad, Kharkov; electric power supplied by the Ivanovo Power Station.

At the Ivanovo branch of the State Bank I met Leonid Yefimov, head bookkeeper of the mill. I introduced myself and said I had some intimate questions I wanted to ask.

"Fine," he said. "Fire away."

Yefimov, I learned in the course of conversation, comes from a long line of Ivanovo weavers. He is a business school graduate and has been working in the accounting department of the mill for twenty-odd years.

"What's the financial situation of the mill?" I asked.

"Can't complain," Yefimov smiled. "We're a long way from going bankrupt. Last year we made a profit of forty million rubles."

"Where did the profits go?" I asked.

"I'll be through here in a minute," he said. "Come on back with me to my office and I'll give you some figures."

At the office he dug into some thick ledgers. From the data he gave me, I got a pretty good idea of where the profits go.

Inasmuch as the mill belongs to the whole nation, all its profits become part of the national revenue and are spent for the national

Continued on page 56

YOU CAN CALL THEM DREAMS

the year ahead . . .

. . . THE YEAR BEHIND

By Professor Venedict Dzhelepov,
Nuclear Research Scientist

Looking back on those events of 1956 in which I participated directly, I find it hard to pick out any single one that I can call the most important, or the most unusual. These, after all, are relative concepts.

For example, a group of us completed a series of studies in 1956 that related to the dispersal of neutrons. Our findings were reported to the Geneva Conference. And three groups of scientists headed by Professors Mikhail Meshcheryakov, Bruno Pontecorvo, and Mikhail Kozodayev completed important studies at the nuclear research laboratory dealing with the formation and dispersal of pi-mesons.

These studies, by the standards of a few years ago, would have set the scientific world astir. Today they are accepted as more or less commonplace.

Progress in science is so rapid that the extraordinary thing of yesterday becomes the ordinary thing today. And although as an exact scientist I do not usually go in for paradoxes, I am tempted to say that it is perhaps this commonplace character of the unusual that characterizes the scientific events of this last year.

1956 will also be associated for me with scientific meetings where I met colleagues from other countries. We met at the Moscow conference on the physics of high energy particles, at Geneva and at Amsterdam.

On three different occasions last year I had the pleasure of meeting the American physicist Emilio Segre and his collaborator, Owen Chamberlain, who discovered the anti-proton. Unfortunately, our conversations were confined to science and we had no time for closer acquaintance. Professor Segre's group is working on the anti-neutron now. I hope that we shall get the good news this year that the investigation was successfully concluded.

Last summer, during our stay in Switzerland, a group of us together with the American Professor Donald Glaser, who developed the bubble chamber method, took a trip to Chamonix, one of the most picturesque spots in the French Alps. The Professor told us he was planning to build a big xenon chamber in 1957 and he spoke of it with the same enthusiasm as he did about his music—he plays the viola.

One of the people I was happy to meet was the remarkable American physicist, Wolfgang Panofsky, of Stanford University. I remember him saying that one of his daughters was studying ballet and that she dreamed of becoming a ballerina, "no worse than Ulanova."

I have a couple of dreams of my own. Who of us hasn't? Perhaps to sound scientific, I should call them projects.

First, this year I want to begin research on the properties of new particles by means of a big diffusion camera placed in the magnetic field of a synchrophasotron to be put into operation at our institute. In this massive and complex machine, which is worked by remote control, a beam of protons acquires the enormous energy of ten billion electron volts, almost equal to that propagated by solar light.

And second, during our vacation this summer, my wife and I want to visit the Altai area to see the beautiful mountain country of this Siberian Switzerland. ■

PROFESSOR V. DZHELEPOV HEADS A LABORATORY IN THE INSTITUTE OF NUCLEAR RESEARCH IN MOSCOW.

MORE LETTERS FOR EVERYBODY

By Zakhar Boroday, Postman

I've been a postman in the Ukrainian city of Dniepropetrovsk for going on forty-three years now, and I wouldn't want to change my job for any other kind I can think of. A postman gets to know so many people that he can teach a writer something about their lives.

Last May I dropped in on my old friend Grigori Kovalenko—he's a steelworker, and I brought him the newspaper.

"Read it carefully," I said, "there's an item in it that has to do with your family."

He looked through it and sounded annoyed, "Is this your idea of a joke, Zakhar? I don't see anything here about my family."

So I showed him the news about the reduction in the armed forces. "Doesn't this have to do with your family?" I said, "You ought to be seeing your son Nikolai home from the army pretty soon."

A few days ago I met Kovalenko in the street and he was grinning all over.

"Zakhar," he called to me, "you old crystal-gazer. Nikolai just got back home."

About myself? Nothing special I can think of. My wife and I live a quiet life. My Darya is a first-class cook and baker. If you happen to be in the neighborhood, drop in and we'll give you Ukrainian borshch and dumplings like you've never tasted before.

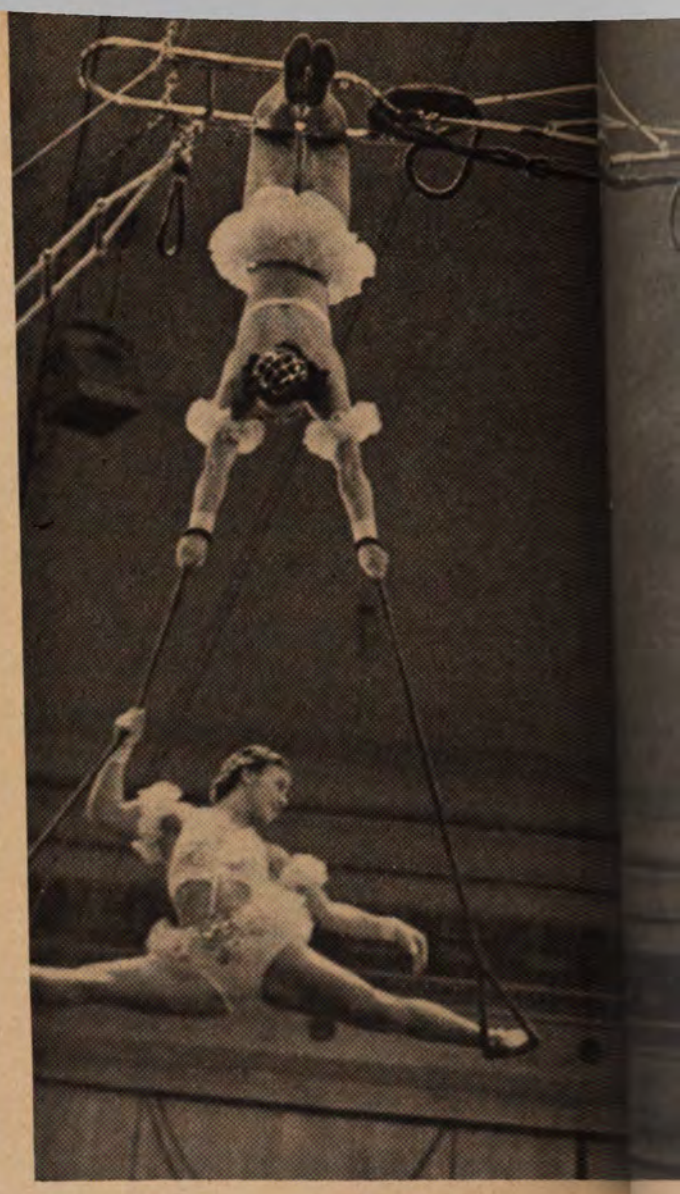
We live pretty well. The children help out a little. My daughter is an engineer, and my son, for some reason, has decided to become an artist. When he was young he used to mark up all the walls with pictures. He wrote us a letter from Kiev a short time ago to tell us that his picture won first prize. Well, I said, let him go ahead and paint.

You want to know my wishes?

Well, I'd like for everybody to receive more letters. The way I see it, the more letters you get, the more friends you have. ■

Interviews continued on page 51

UNDER the BIG TOP



By Yuri Dmitriev

Yuri Dmitriev is historian for the Soviet theater, circus and vaudeville. His book, *Russian Circus*, and his biographies of great actors are read not only by theater people, but by a very wide public. He is a regular contributor to literary and theater magazines and is professor at the Lunacharsky State Theater Institute in Moscow.

Whether it's under canvas in a small village square way off the beaten path or in a magnificent theater in Moscow, the circus is still the greatest show on earth. In our country it is favorite entertainment for old and young. The names of circus performers—clowns, aerial artists, equestrians, magicians—are as familiar as those of movie stars. Often enough they are movie stars.

Karandash (Pencil)—his real name is Mikhail Rumyantsev—is the most popular clown in the Soviet Union. Films in which he is featured run for months everywhere in the country. His picture appears in children's books, and statuettes in porcelain of him are sold in stores.

A Grand Entrance

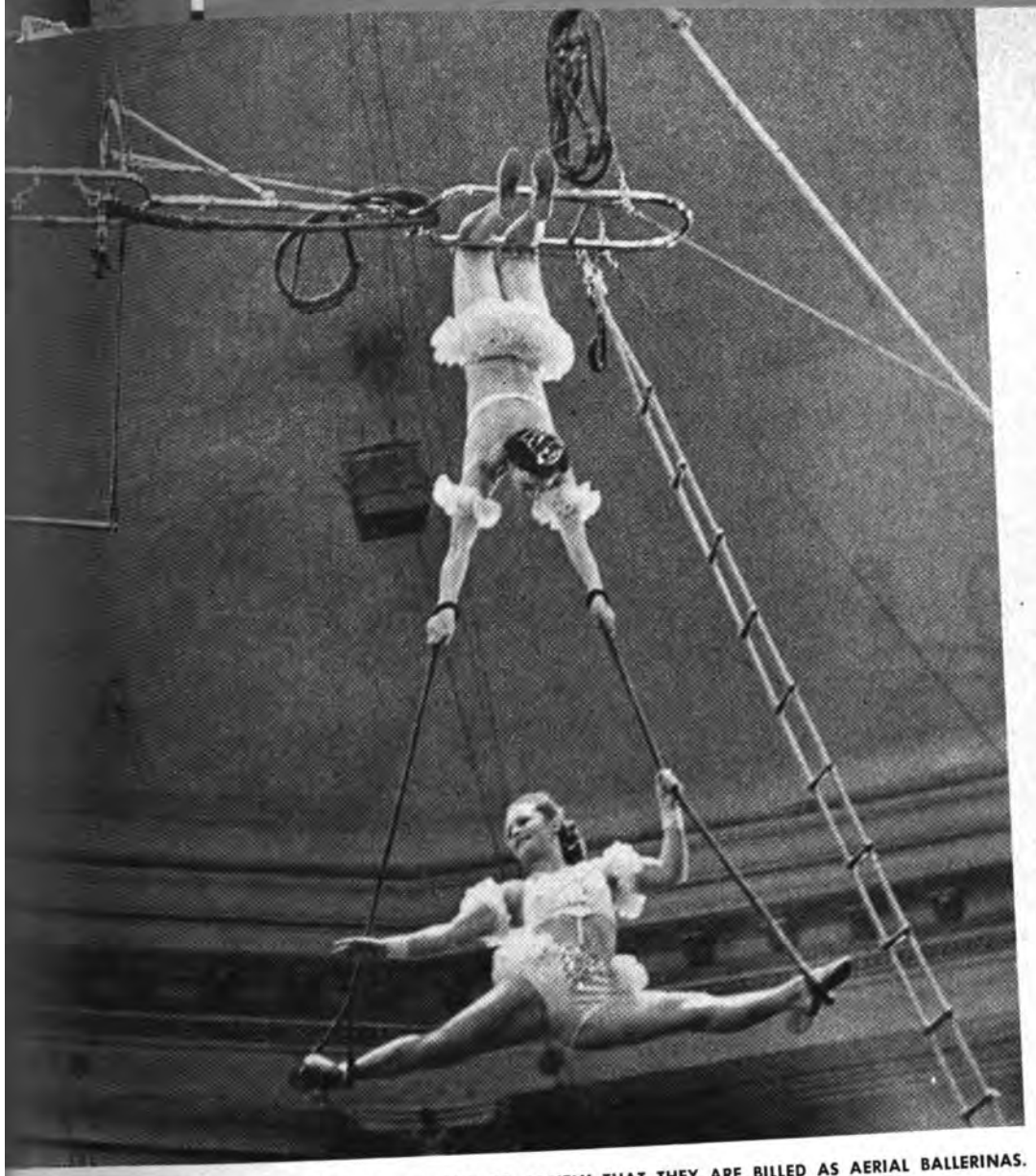
The lights are dimmed, the audience tense, waiting for the daring trapeze act. The spotlight points a circle of bright yellow light. Karandash wanders in, looks around him vaguely, hunches his shoulders, warms his hands in the rays of the spotlight. With a single gesture, he shifts the mood and the audience goes into gales of laughter. He skates away on the sawdust like a boy on ice and appears a moment later, a desperado mounted on a donkey equipped with automobile license plates, horn and bicycle pedals.

Karandash does not use the traditional make-up of the clown. A speck of mustache, a dark hat and baggy suit, and he is the musty bachelor, the bookkeeper who sees only numbers, the absent-minded pedagogue

Bareback riders Isabella and Mikhail Korolev are favorites.

Clown Mikhail Rumyantsev, known as Karandash (Pencil), and his ever-popular act with Vaska, the jackass.

Vera Vorobyeva and Yevgeni Ivanov are top-notch acrobats.



THE FLYING BUBNOV SISTERS ARE SO GRACEFUL AND SO LOVELY THAT THEY ARE BILLED AS AERIAL BALLERINAS.

too engrossed to care much for his appearance.

Oleg Popov, another very familiar circus name, is a juggler, tightrope walker and acrobat, but these are talents he builds into his act as clown. His comic ingenuity has delighted millions in the Soviet Union and in Warsaw, Brussels, London and other European cities.

Aerial Artists

But clowns, as important as they are, do not make a circus by themselves. There are the feats of strength and daring and artistry.

The drums roll out, the curtain parts and a great bird sweeps into the air. It pulls a brightly colored chariot carrying trapeze artists Victor Lisin and Elena Senkovskaya, a pair that perform in the air as though it were their natural medium.

The "Four Beautiful Bubnovs" are so graceful and so lovely in their act high under the big top that they are billed as aerial ballerinas.

The jugglers Kiss and Shirai keep eight rings or balls whirling in the air at one time, while they balance tables on their foreheads.

The four equestrians of the Aleksandrov-Serzh troupe do a thrilling simultaneous jump on a horse at full gallop.

An acrobat of the Kozhevnikov troupe is tossed high from a springboard, does an aerial somersault and lands on the top shoulders of a pyramid built by his three partners.

Magic

Kio the magician has an entire program of tricks he has originated. A horse-drawn cab appears with a young man and two women in it. They all get out and run off behind the scenes. The inside of the cab is curtained off for no more than a second. When the curtains are opened, the same young man and the two women are sitting in the cab.

How did they ever get back? The cab stands in the center of the ring. There is not a stick of scenery around it, and besides, the eyes of the audience have been glued on it. You ask Kio how he does it and he says, "It's simple enough, but if I tell you how it's done, I'll have to change my profession and I like it too well."

Caravans and Acrobats

The inspiration for Soviet circus art derives from folk art, performers say. It is changed and tailored to suit the spirit and special requirements of the ring.

The sounds of tambourines tinkle out a slow Oriental melody and a camel caravan moves swiftly into the ring. Then, with a brilliant display, acrobats somersault on the backs of the running camels. The acrobats and riders of the Kadyr Gulyam troupe, Central Asian performers, make their entrance that way.

The Ali-Bek Kantimirovs, equestrians, tumble on the backs of swift pedigreed horses, or hang from the saddle by a single heel with their heads inches away from the flashing hoofs.

Popular circus figures are the Tsovkra tightrope walkers, men from mountainous Daghestan, where rope running is a national pastime.

Then there is Nikolai Zherebtsov, who does an old-time strong man act. He places a merry-go-round with twelve riders on his

Continued on page 42

Featured clown Oleg Popov is a center-ring star, widely acclaimed last year in London.

Jugglers Violetta and Alexander Kiss combine grace and precision in their act.

The boxing bears of Alexander Filatov shown here in the ring are internationally famed for their excellent performances.

Continued from Page 41

chest, bends horseshoes and swings two oxen on his mighty shoulders.

Performing Bears

Performing brown bears have entertained Russians from the earliest days of the country's history. They are still frequent guest performers, their repertoire modified to conform with the times. The bears roller-skate, bicycle, do motorcycle racing, switching the headlights on by themselves when the arena is darkened. They stand on one forepaw and juggle a stick with the hind paws. They do tightrope walking. Valentin Filatov, Elvira Padchernikova and other trainers have done such marvels that it would seem impossible that more could be done. Nevertheless, every season brings new bear tricks.

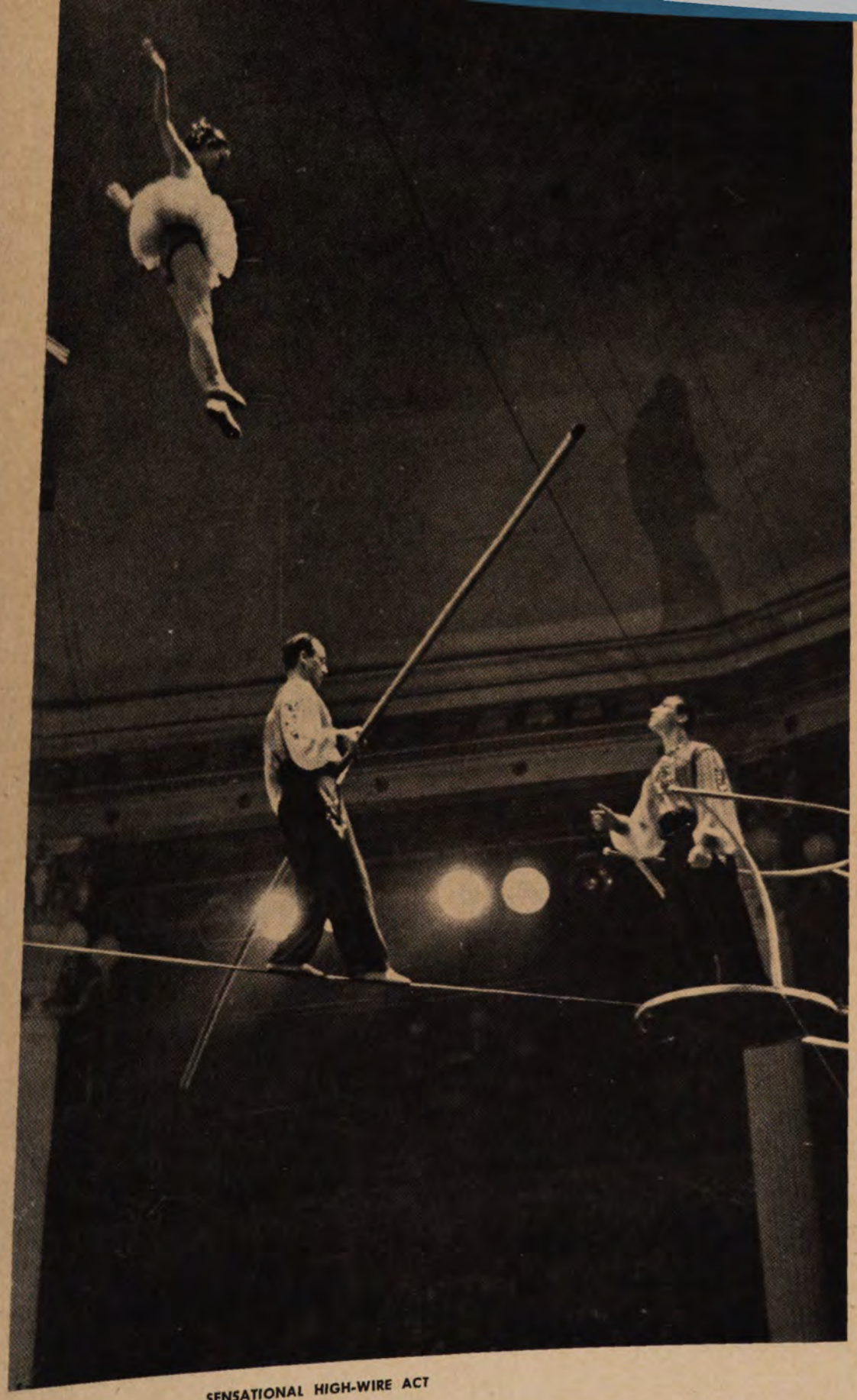
The Durov family of clown-animal trainers have been performing for generations now. Two of the Durovs, Vladimir and Yuri, are present day representatives of the family. There seems to be no bird or animal they have not been able to train. Doves and golden eagles, white mice and elephants, squirrels, foxes, zebras and seals are transformed into musicians, equestrians, barbers and football players.

Enthusiastic Audiences

Soviet circuses do not display freak shows, do not stress the element of danger to work up an audience, and avoid off-color material. Acts which are offensive to taste or humiliating to the artists are welcomed neither by the audience nor by performers.

Evening after evening the many circuses which play the country perform before packed houses. With that young enthusiasm so characteristic of circus audiences the world over, spectators applaud the daring skill of the acrobats, the courage of the animal trainers and the zany happiness of the clowns.

The circus is the oldest form of theater, but the big top seems not only to have learned the secret of perpetual youth; it has been able to keep its audiences young along with it. ■



SENSATIONAL HIGH-WIRE ACT

LION-TAMER IRINA BUGRIMOVA

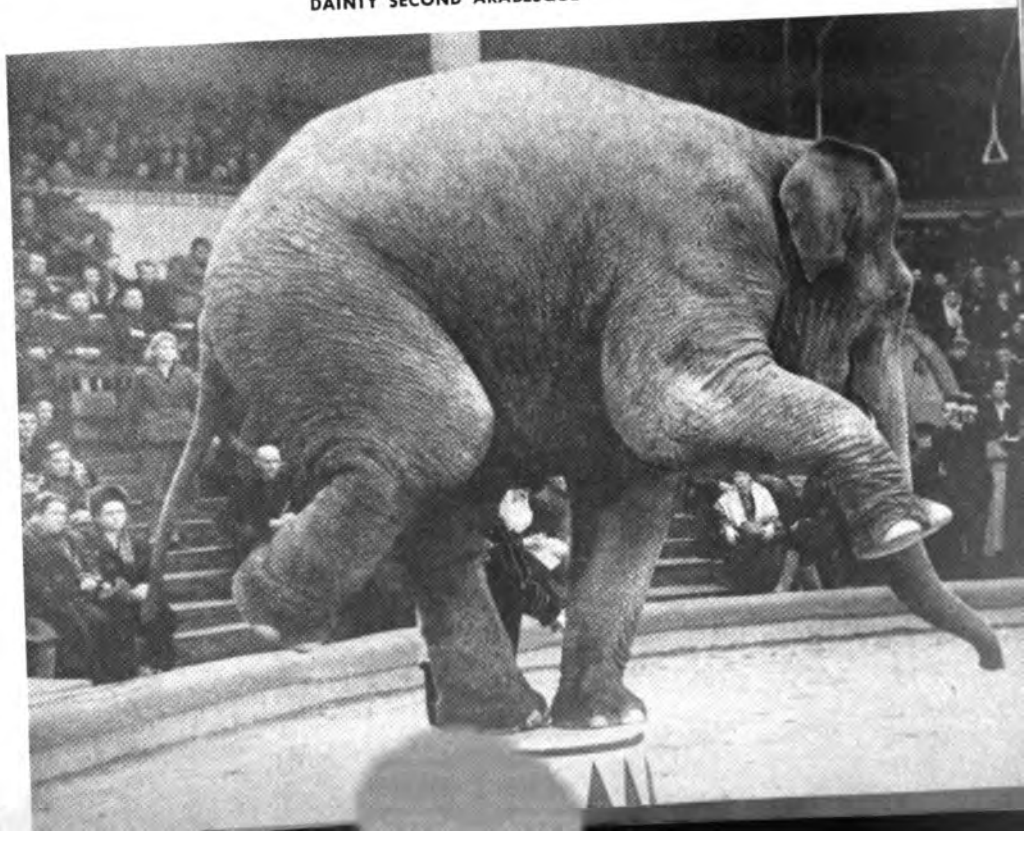
CLOWN BORIS VYATKIN

CLOWN AKRAM YUSUPOV

"SCULPTURE IN BRONZE"

BRUINS ON THE TIGHTROPE

DAINTY SECOND ARABESQUE



American Doctors

Continued from page 4

"If she's healthy, why is she in the hospital?" asked Dr. White.

"Well, you see, Doctor, that needs a bit of explanation. The patient suffered from a heart ailment, mitral stenosis. She was so weak that she was scarcely able to move, and her condition became steadily worse. Two years ago she underwent a cardiac operation. Now she is back at work and is leading the active life of a normal person, even goes in for sports. We have her in now for re-examination. We do that with all our patients."

Dr. White and his colleagues were interested in that phase of Soviet medical practice, with its emphasis on preventive or prophylactic medicine. They visited Pervomaiskaya, a rural hospital, where 5,000 farmers are registered for complete medical examination twice a year.

Thoroughgoing prophylactic examination has long been the rule in all Soviet plants, factories, mines and other work establishments. Each of these usually has its own clinic whose function is not only to treat sick people or those hurt in accidents, but primarily to prevent injury or sickness by steps taken in time. The personnel of the clinics are responsible for periodic examination of workers, for the physical working conditions in shops and for seeing that the plant provides special lunch facilities for workers who need special diets.

Who Pays for Hospital Services?

I talked to Alexandra Ikonnikova, assistant to the chief at the Botkin Hospital in Moscow, during the long stretches when Dr. White and the other American physicians were examining patients. I asked her how many beds the hospital had.

"Two thousand four hundred," she answered, "but they are not always all occupied."

"It sounds like a big set-up," I commented.

"It is," she said and gave me the impressive statistics which proved it. The hospital's twenty-eight blocks of buildings stretch over sixty-two acres, an area big enough to contain a sizable town. It has 400 doctors, 800 nurses and 1,200 medical assistants. Its annual budget

THIS HOSPITAL IS ONE OF 24,000 MEDICAL INSTITUTIONS IN THE SOVIET UNON.

exceeds 45 million rubles, about three-fifths that of a town with a population of 100,000.

"Do you have any idea what the care and treatment of each patient costs the hospital?" I asked.

"That, of course, depends on what we are treating. One patient may be here for a day or two and another for several months. Some need expensive medicines, others only rest and quiet. I can give you some average figures if you like. We spend 47 rubles a day per patient. Our cost for maintaining a single hospital bed comes to 15,600 rubles annually."

"That seems like a very high figure."

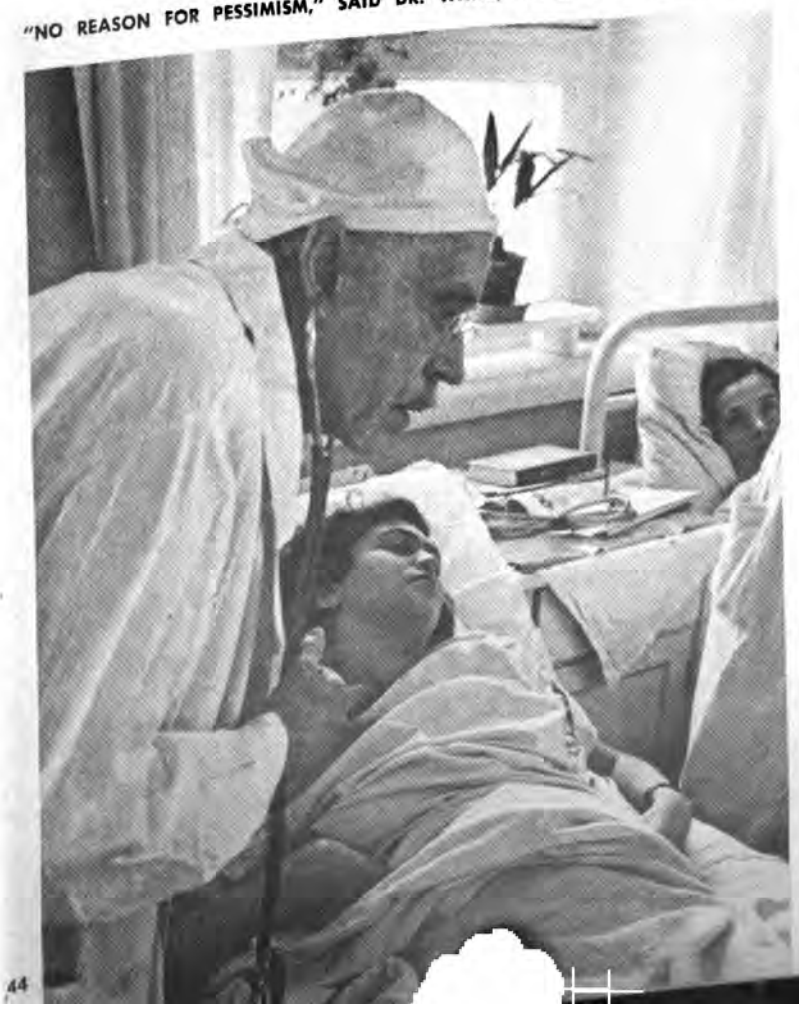
"One of the British physicians who recently paid us a visit made the same comment," Dr. Ikonnikova said. "I explained that it was high because our patients do not pay for any hospital services—the cost of all medical treatment is carried by the state. I assured him that if he needed our services while he was in the country, he too would be entitled to free medical treatment. He laughed and said that he was so impressed with our services that he was almost sorry he didn't have to take advantage of our offer."

The American doctors asked much the same questions when they visited the Academy of Medical Sciences in Moscow. The Academy is the clearing house for Soviet medicine. It coordinates the work of dozens of research institutions that work on problems of medical theory and practice.

How many doctors do you have? How many beds? These are telling questions because they are indexes of over-all public health work.

The number of hospital beds in the Soviet Union as of 1956 total

"NO REASON FOR PESSIMISM," SAID DR. WHITE, AFTER THE EXAMINATION.



QUARTZ LAMP TREATMENTS ARE GIVEN TO UNDERGROUND COAL AND ORE WORKERS.

MOSCOW MEDICAL INSTITUTE STUDENTS GIVE THE AMERICAN PROFESSOR A ROUND OF APPLAUSE AFTER HIS LECTURE.

Prof. White tells the medical students that we often blame work for our illnesses instead of ourselves.

,000, that is, 65 beds for every 10,000 of the population. This e times more than in 1913. The number of doctors as of 1955 334,000, 16.7 for every 10,000 of the population. The compar- figure in 1913 was 1.7.

for medical schools, there are 68, graduating from 13,000 to)0 doctors annually. The total number of students attending in -56 was 135,000. Tuition in medical school is free. State stipends given to students making satisfactory progress, and living accom- ations are provided for students who need them.

Rest Homes

hile the other five Americans were looking at Moscow hospitals, James Watt spent several days visiting the therapeutic bath centers resorts on the Caucasian coast of the Black Sea.

iere are 3,117 sanatoria, health resorts and rest homes in various s of the Soviet Union. They accommodate five million patients and)rs annually.

these rest homes and sanatoria, guests in most cases pay only per cent of the cost for vacation or treatment; the remainder id for by the trade unions to which they belong and by the state. y workers pay no charges at all. Sanatoria which care for children which treat tuberculosis admit patients free of charge.

is last statistic best serves to indicate the development of public h. The death rate in the country as a whole was 3.6 times greater 13 than in 1955. Average life expectancy has more than doubled mpared with pre-revolutionary Russia.

A Summing Up

a press conference held in the offices of Maria Kovrigina, Min- of Health of the USSR, and at a later farewell dinner, the visiting rs summed up their trip.

. Rusk spoke of his visit to the home for the aged in the suburbs oscow. He was impressed, he said, with the healthful and sym- tic atmosphere of the home and with its constructive program tivity and rest.

. White was pleased to note that so many of the doctors and al students were women. He had been struck by the devotion ctors and nurses to their work.

White, a leading heart specialist himself, stressed the fact that cardiology was a medical problem of primary importance in both countries.

"Are there differences in treatment?" he was asked by a correspondent.

"Naturally," he answered. But these differences serve to stimulate scientific inquiry. Research must be international to take account of the differences in geography and in living habits. That is why, he went on to say, exchange of knowledge and experience was so important to scientific progress. Friendship among nations has a direct bearing on the health of mankind.

"May we thank you," Dr. White said, in farewell, "for the kind invitation to come to talk to you about a few of our mutual medical problems, for your warm hospitality, and for the friendly spirit with which we have been received everywhere, and which augurs so well for the future." ■

MARIA KOVRIGINA, MINISTER OF PUBLIC HEALTH, BIDS DR. WHITE FAREWELL.

THIS IS THE CITY OF KOMSOMOLSK, FOUNDED 25 YEARS AGO ON THE AMUR RIVER IN THE SOVIET FAR EAST.

YOUNG LEGISLATOR for a YOUNG CITY

By Dmitri Gudkov

Alexei Voitovich is a young legislator who represents a young city. It is 25 years old, founded and built entirely by young people in 1932.

When their ship, appropriately named *Columbus*, sailed up the Amur River that spring, the hundreds of young people aboard must each have felt like that intrepid discoverer and explorer of a new continent. They were traveling into the heart of the taiga, far from the world of comforts and commonplaces.

Under their axes, shovels, tractors and machine tools, the wilderness moved back, gave way to streets and parks, to apartment houses, stores, schools and factories. They named the city "Komsomolsk," the city of young Communists.

Komsomolsk is represented in the Soviet parliament by steelworker Alexei Voitovich. Like his city, he is young, both in years and in energy and enthusiasm. And like his constituents, he has ambitious plans for his city.

When they elected him, his voters gave him a list of things they expected him to do. Item number one on the list was Komsomolsk—to make it bigger and better.

At one of the early sessions of the parliament, therefore, the new legislator put in a bid for funds to develop the new city. He did not leave it at that, but buttonholed every person of any importance whatsoever who could get anything done for Komsomolsk, its industry, its housing, its schools.

His key point of buttonhole concentration was the Ministry of the Iron and Steel Industry. Komsomolsk is a steel town, and everything else flows from steel. If he could get the steel shops expanded, everything in Komsomolsk would expand with it.

Legislator Voitovich recently gave his constituents a full report of his activities. Komsomolsk, he said, would celebrate its twenty-fifth anniversary as one of the largest industrial and cultural cities in the Far East. He pointed out that Komsomolsk has by no means reached its pinnacle, that the emphasis now being placed on the development of the Far Eastern regions of the country and Siberia prophesy an even greater future for this young city.

The city now has a population of 170,000. It has five specialized secondary schools, two colleges, a theater, and several stadiums. A television station is almost finished. So is a new streetcar line which crosses the city with links to its outlying districts. Two hundred apartment houses were built in each of the last two years.

The legislator's report pleased everyone but himself. He cited all the things yet to be done.

ALEXEI VOITOVICH AT HOME WITH WIFE AND SON

VOITOVICH PAUSES FOR A SMOKE WITH A PAL.

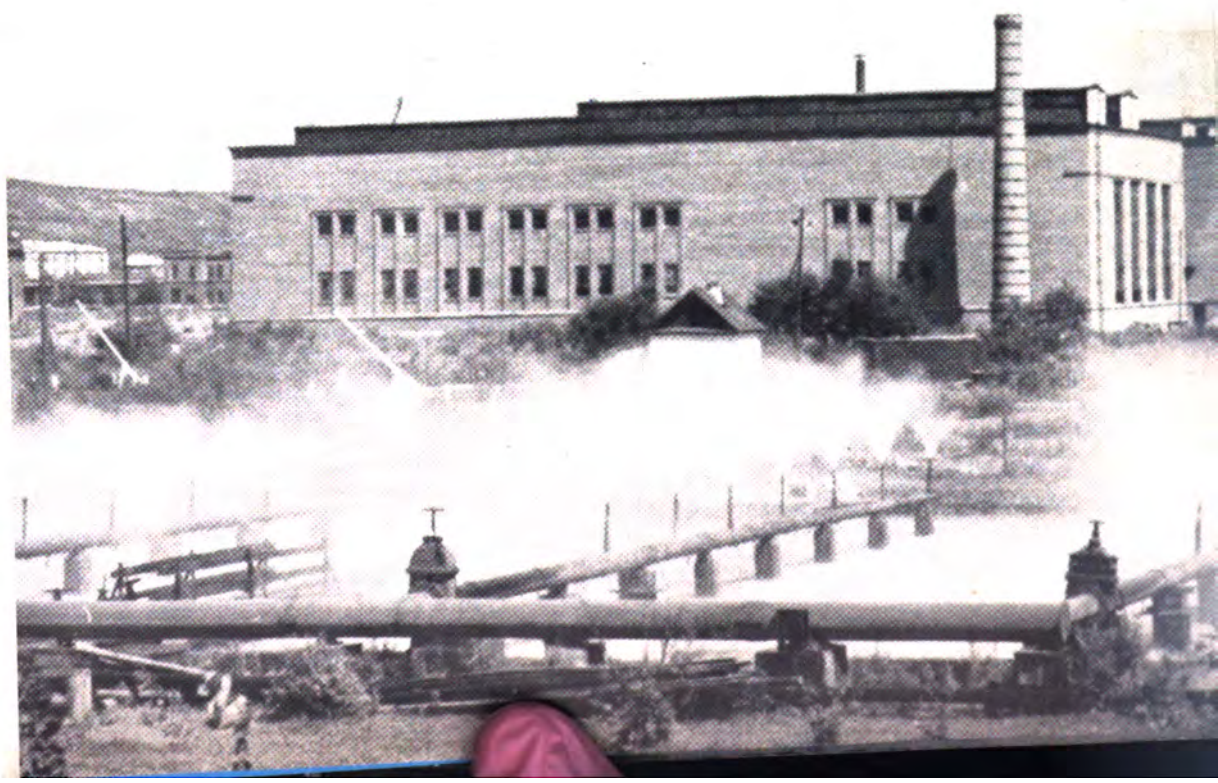
But even he had to agree that it wasn't too bad for a start.

How a Legislator Spends His Time

Alexei Voitovich does not have to worry about what to do with his time.

There is his work as legislator, which means weekly meetings, conferences, and two evenings a month when his constituents drop in to see him. There is his job at the steel plant and three evenings a week at the Polytechnical Institute for study. And there is his gardening. He likes it, and more important, it gives him a chance to spend time with his family. His wife and his young daughter are as proud of their gladiolas, dahlias and asters as he is.

When Voitovich can steal a little time from gardening and Komsomolsk, he takes the family in his motorboat to one of the green islets that spot the Amur. He pitches a tent and then wanders off along the beach with his fishing rod. But it is likely that between bites he is thinking of whom to buttonhole next time he is in the capital to make Komsomolsk bigger and better for its next birthday. ■



THE STEEL MILL WHERE VOITOVICH IS EMPLOYED.

INTERCONTINENTAL ROCKET

Continued from page 7

talking quietly and making themselves comfortable just before take-off.

Some of them take a last look through the portholes at friends who have seen them off. They can't make them out, of course. From the great height of the rocket, people on the rocketdrome field look like pygmies, the rocketdrome like a group of toy buildings outlined by the searchlights.

The pretty young stewardess says, "Ladies and gentlemen, please fasten your seat belts. We are taking off."

The pilot pushes a button and the silvery-blue rocket slowly and majestically leaves the ground and soars upward.

Its speed increases with every fraction of a second. Now it is about a mile off the ground. The starting rockets which helped to take off drop to the ground by parachute and the ship picks up speed. It is flying on powerful liquid jet engines fed by liquid oxygen and a new high-calorific fuel.

The engines run for only a few minutes until the required speed has been reached. Then they are shut off. The rocket has escaped from the gravitational pull of the earth. It is in free flight now and at once the force holding the passengers down in their seats disappears. They have become weightless. They could, if they wanted to, float up to the ceiling of the rocket plane. But that is not considered good traveling manners. And besides, there is the neat sign alongside each seat which reads, "Passengers who wish to leave their seats will please attach magnetized soles to their shoes."

The earth looks like a huge sphere. Despite the bright sun, which has again appeared at this altitude, there are myriads of stars in the black sky. Inside the plane everybody has settled down. The stewardess offers passengers coffee and liqueur. This is served in curious looking "interplanetary glasses" shaped like tubes. Since there is no gravity, liquids will not pour, they have to be squeezed out of the container. One of the passengers, a stout man, seems to be especially enjoying his coffee and cigar. He is probably pleased to have lost all of his 225 pounds at once, even if it is only for the duration of the flight.

The rocket has been off the ground only a quarter of an hour, but it is already over the Arctic Region. Most of the passengers are apparently old travelers. They do not bother to look at what was once an icy waste, now dotted with towns and cities.

None of the passengers noted the precise moment when the rocket reached the altitude required for the distance it is traveling and began to descend. Twenty-five minutes have now elapsed since the take-off, and the whole rear part of the rocket, which makes up about two-thirds of its length, becomes detached from the passenger section to drop to the earth by parachute. It will be used again for the next scheduled flight. The now considerably smaller rocket ship keeps going down at an increasing speed, and the landing engines are started to slow the rocket's fall.

The rocket lands on the water, a mile from shore. A tug tows the rocket to the landing platform. The passengers walk out on land which is flooded with bright morning sunshine.

Where Are We?

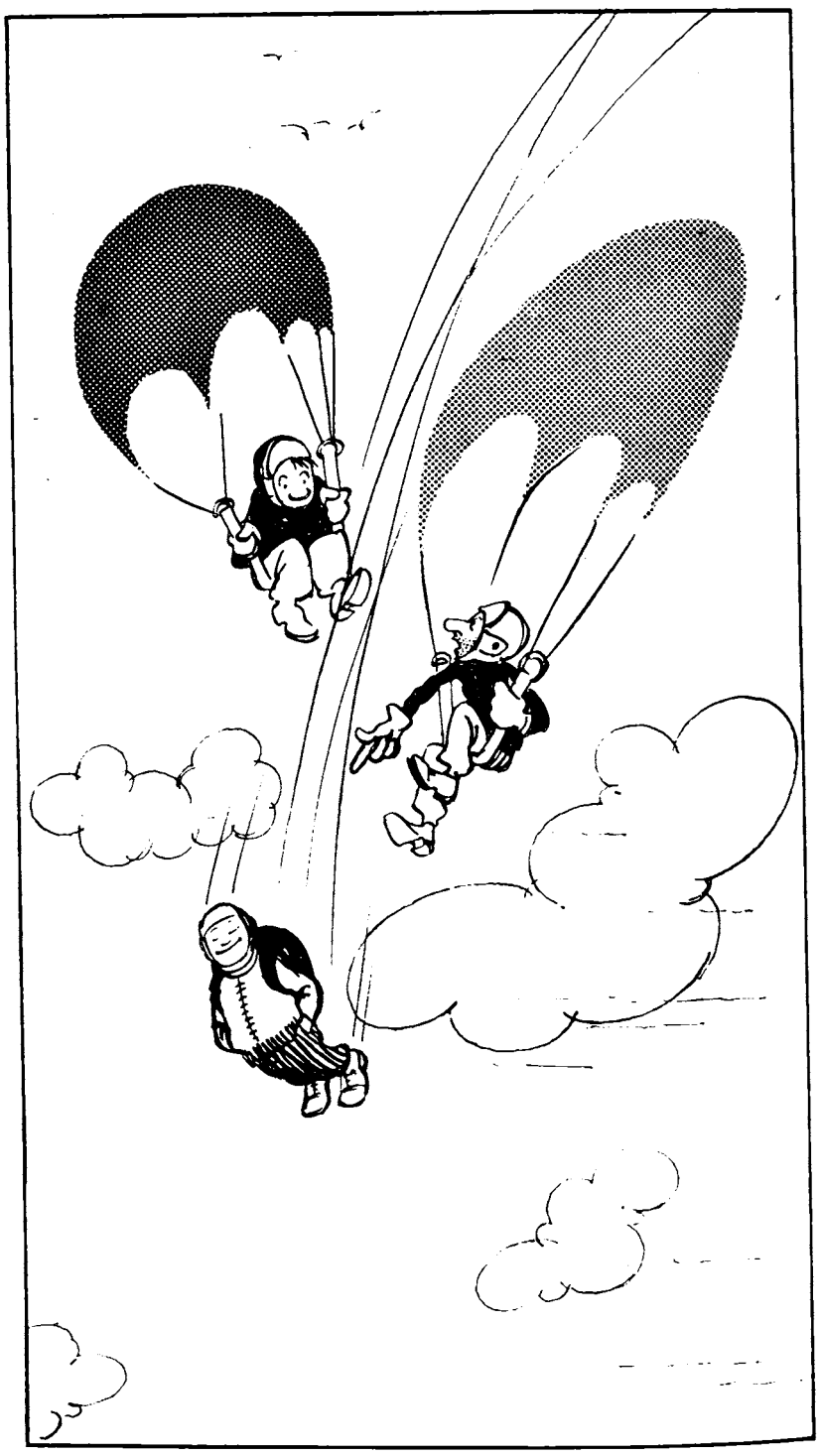
But we do not yet know what city the rocket ship left from and where it arrived. And how it is that taking off in the evening, the ship landed in the morning, when it was in the air only half an hour.

You will remember that our imaginary interplanetary traveler in his space ship saw two rockets meeting over the North Pole. One was flying from New York to Leningrad and the other from Leningrad to New York. The passengers were going to spend the week-end with friends on the other side of the globe. We have been traveling with one of these rocket ships. We can choose whichever one we prefer.

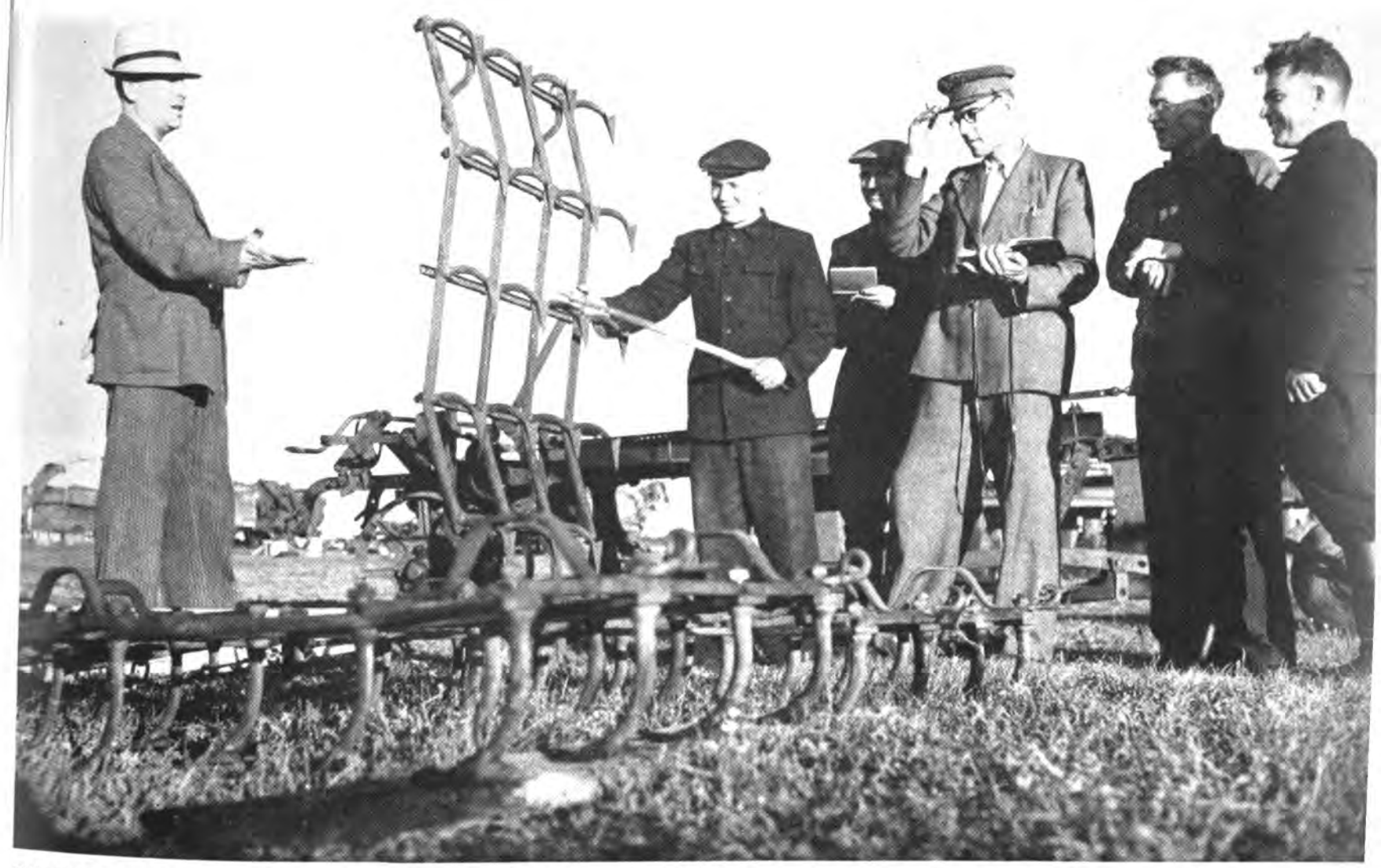
Scientifically speaking, we must qualify our story a little. Actually the two rocket ships could not have met over the Pole. Clocks in New York are twelve hours behind those in Leningrad.

But the time difference is the only thing that would make such a meeting impossible. The other vastly more important factors—growing international scientific cooperation and the very real possibility for intercontinental rocket liners—will see such scheduled trips within a generation, probably offered to passengers at excursion rates. ■

"LOOK AT HIM! HE ALWAYS FORGETS SOMETHING."



THE FARMER WHO REJECTED A FACT



FARMERS FAMILIARIZE THEMSELVES WITH MALTSEV'S GRAB HARROW WHICH IS USED IN BLACK FALLOW AND AUTUMN PLOWING BEFORE SOWING WINTER WHEAT.

Continued from page 27

skeptics who attributed the high yields to soil, to good rainfall, to everything but Maltsev's simple discovery that plowing is not necessary.

But even the most obdurate of the skeptics stared open-mouthed at the stands of heavy golden wheat in fields which had not been plowed for three years.

They bombarded Maltsev with questions. How should we apply your methods in Karelia? What sowing dates do you recommend for the Smolensk region? How many years should we leave land unplowed in the Ukraine?

Maltsev had only one answer to all these questions. "I don't know. I cannot prescribe methods that will meet every situation and will work in every locality. A stereotyped approach is harmful. I don't want you to copy my methods. Use what is good and work out your own variations to suit your special conditions."

In the two and a half years since this conference was held, the new system of farming has been tested in various parts of the country, under differing climatic conditions, in the Ukraine, in Kazakhstan, in the Caucasus. In the Transurals, Maltsev's method has already been applied over an area of close to two million acres. It is altogether likely that within a few years the unorthodox method of Terenty Maltsev, which developed out of his unwillingness to accept a "self-evident fact," will be in common use not only throughout the Soviet Union, but in many other food-producing countries in the world. ■

U.S. TOURISTS IN THE KREMLIN

ANASTAS MIKOYAN, FIRST VICE-CHAIRMAN OF THE USSR COUNCIL OF MINISTERS, RECEIVES A GROUP OF AMERICAN TOURISTS WHO VISITED THE USSR LAST FALL.

GUESTS FROM THE UNITED STATES IN ONE OF THE HALLS OF THE KREMLIN IN MOSCOW.

ADIL EFENDIEV (CENTER) DISCUSSES A COVER DESIGN FOR A FORTHCOMING BOOK.

READERS ARE NEVER SATISFIED

By Adil Efendiev, Director of Azerbaijan State Publishing House

The trouble with my job is that I can't ever satisfy the people who write in to me. I'm a publisher, and every morning my secretary hands me a big stack of mail. It comes from all parts of Azerbaijan. Whether it's a vine-grower in a mountain village, a school child, or an oilworker, my correspondents have one complaint in common—not enough books.

In 1956, our publishing house issued 350 titles with a circulation of more than five million volumes.

Because of the great demand for Azerbaijan classics we published a volume of verse by the twelfth century poet Meskhety, the selected works of Natavan, a poet of the last century, and the tales of Alezker.

In modern Azerbaijan literature we published the works of Mirza Ibragimov, Suleiman Rustam, Rasul Rza, Samed Vurgun, Mamed Ragin and other authors and poets.

For translations from Russian, we have under way a fifteen-volume edition of Maxim Gorky's works in Azerbaijan, and we have just published a six-volume translation of Nikolai Gogol.

Works of foreign authors such as Charles Dickens, Alexander Dumas, Theodore Dreiser, Lu Sin and Yaroslav Hashek, in mass editions, were sold out as soon as we got them to the book stores.

Our publishing house is the largest in the republic, but not the only one by any means. Each one of them publishes thousands of volumes, to say nothing of the books Azerbaijan gets from other parts of the country. But there still aren't enough to meet the demand. so that we have a perpetual job of trying to catch up.

This year we expect to publish half a million volumes more, and our translations will include Shakespeare, Schiller, Heine, Victor Hugo. Rabindranath Tagore, Saadi and Krishna Chandr.

For myself this last year? Well, in some ways it was not so good. I was the first to translate from Russian into Azerbaijan the works of Leo Tolstoy, Pushkin, Turgenev and Gorky. But last year my own work as translator had to go by the board because of the press of work at the publishing house. I'm hoping that I can find time for my own literary work this year. ■

the year ahead . . .

. . . THE YEAR BEHIND

I Studied Life On Mars

Says Astronomer Gavrila Tikhov

Since I am an astronomer, I'm inclined to see important events through a telescope. For the year 1956, September 10 stands out for me because Mars was then at favorable opposition, the closest approach to Earth in sixteen years.

We made some very interesting observations. Because of the comparative closeness of Mars to the sun, the temperature in the southern hemisphere of the planet rose sharply. This caused strong atmospheric turbulence, with snow in the median latitudes and sand and dust storms in the red Martian deserts. The sand and dust formed clouds which hid the southern polar cap from view and even penetrated beyond the equator into the northern hemisphere. In the middle of September the dust cloud settled down and we were able to observe a small polar cap lying on what was evidently a hill.

This gives us something to think about. The dust we observed in the Martian atmosphere makes it necessary to reconsider previous calculations of the density of the planet's atmosphere and of the planet's surface. What also has to be re-examined are calculations on the temperature of Mars.

Observations made by observatories all over the world, when they are collated and studied, will help to advance all work on the presence of terrestrial-type forms of life on Mars.

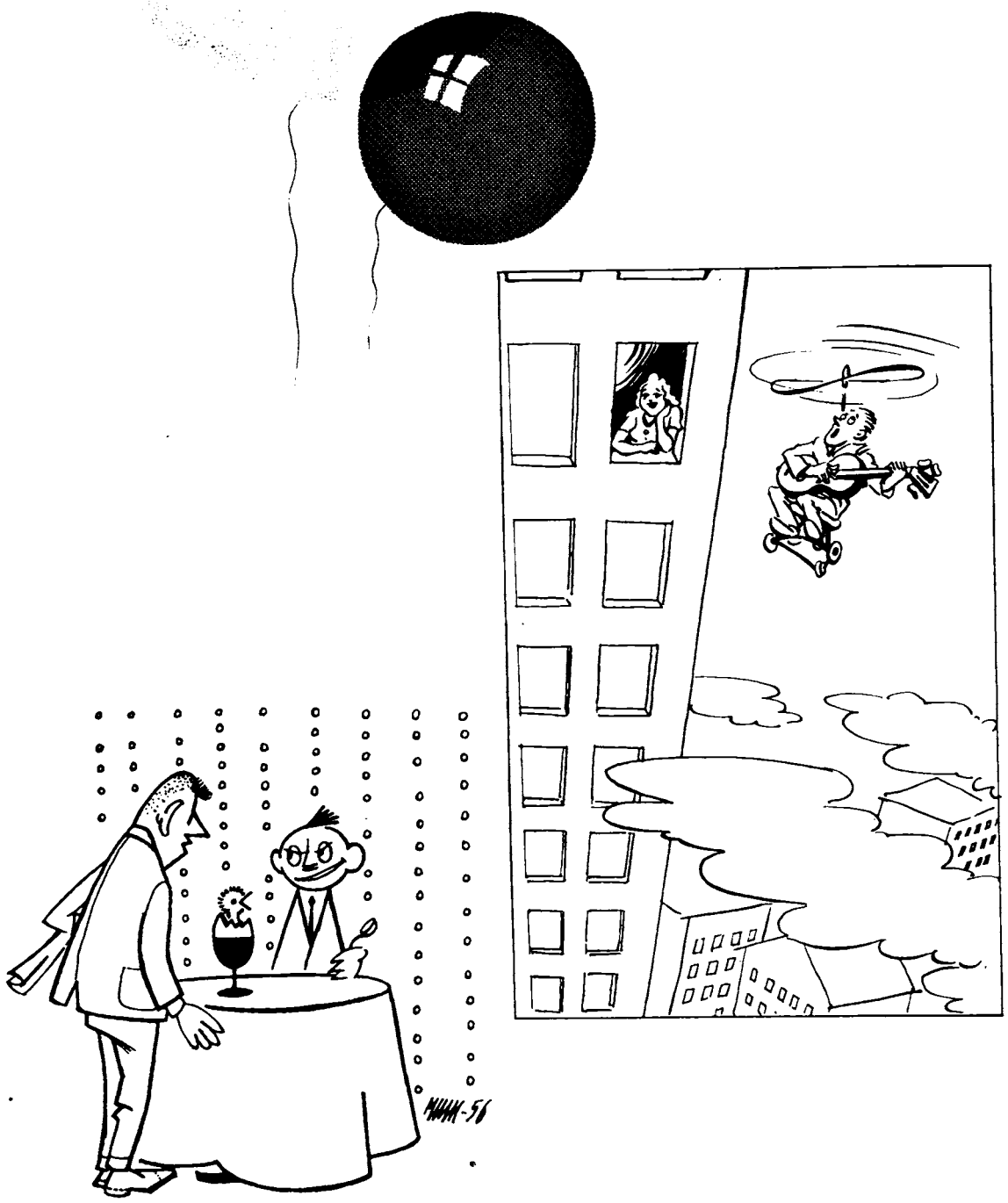
One other important event for all of us at the Astrobotanical Institute last year was the trip made by one of our graduate students. Sergei Stanko, to Yakutia, where he came across growing conditions which almost duplicated those on Mars. He found that the spectral qualities of the Yakut plants were very similar to those of Mars.

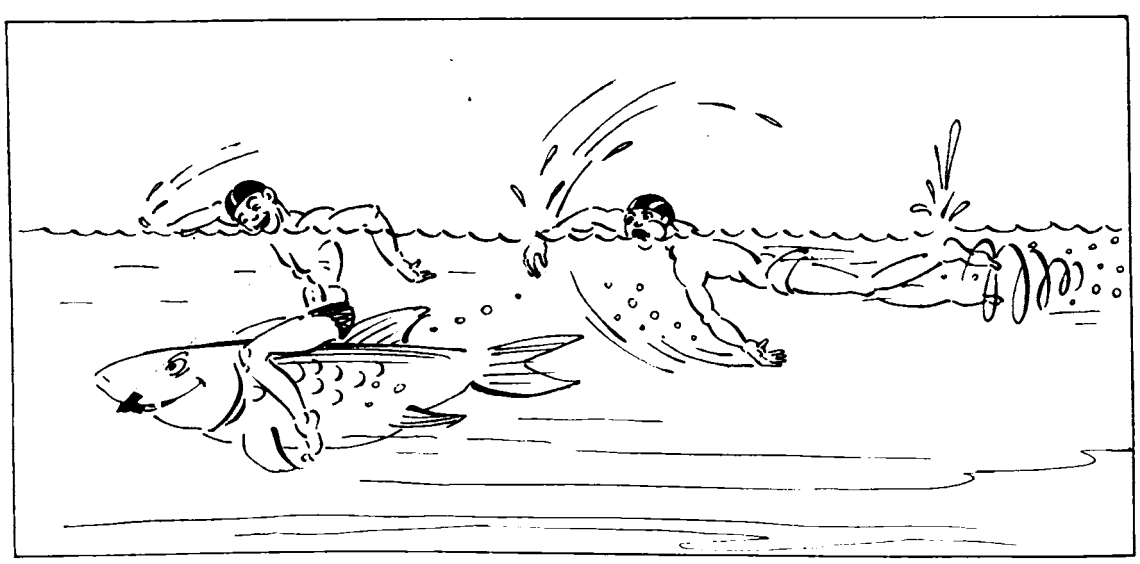
This year I hope that we can set up an international institute of astrobiology with representatives of all the related sciences: astronomy. physics. chemistry and biology. ■

Interviews continued on page 52

SOME INTERESTING OBSERVATIONS

Cartoonists Corner





THAT IS QUITE ENOUGH

By Zulfa Pogarskaya,

architect

I graduated from the Institute of Architecture in Moscow six years ago, and since then have been working with one of the biggest designing organizations in the capital. I have helped to draw up plans for three apartment houses, each with 2,000 apartments, and one big office building. Last year I did the plans for another house of 1,000 apartments in the southwest district of Moscow.

Incidentally, there's a story connected with my plans for that house. The biggest critic of my plans proved to be my husband, who is also an architect. During the hot discussions we had he went so far as to call my ideas "half-baked." You can imagine how that contributed to peace in the family.

It turned out all right in the end, of course. But after that I decided not to subject our family ties to such a strain any more. So I suggested that we agree not to discuss architecture at home. The one who violated the agreement would have to buy the other a present. We put the agreement in writing, and both of us signed it. Since then, for almost a year, peace has reigned in our home, bolstered up every once in a while by a nice present from my husband.

My plans for 1957? I want to see the house I designed completed; I also want to do graduate work at the Academy of Architecture, visit Paris and, it goes without saying, strictly keep up our family agreement.

I think that is quite enough. ■

Interviews continued on page 64

Zulfa Pogarskaya, architect, supervising the construction of the apartment house she designed. ▶

TRACKS AND HUNTERS

HUNTER AT READY

BEAR HUNTING

By Vadim Gippenreiter

The chill silence amid the slimy bogs of the dark forest is shattered by a thunderous roar. There is a crash of heavy bodies in the underbrush, a snarling, and then silence again.

At dawn ravens fly low, circling over the spot to the chatter of magpies. The broken, uprooted trees tell a plain story. The struggle was brief, and well-concealed in moss and twigs lies a big elk, hunted down by a bear. Another sign of Bruin's good hunting is the bark of a pine torn some six feet from the ground. That is where he cleaned his teeth and claws after an ample meal. He'll be back for another helping, and the wide-awake hunter will be waiting for him.

The bear is a cunning and mistrustful animal—not an easy prey. He will lie for hours listening to the forest noises before he returns to his kill. His astounding sense of smell has saved his life more than once.

There are all sorts of bears in our forests—from the huge animal weighing half a ton in Kamchatka and the fairly large bears of Siberia and European Russia, to the small Himalayan bears with black fur and white collars in the Far East, and the light brown ones of the Caucasus and of Central Asia.

To outwit the vigilance of a bear a hunter must be both capable and ingenious. His clothes must be well aired, so that there remains not even the remnant of a whiff of smoke; he must sit still for hours, scarcely daring to breathe; and he must hunt at dusk or at night for the best results.

I've followed the trail of a bear in the virgin forest of Archangel Region in the northwest of the country many times with a light and reliable 30-30 Winchester. Each hunting trip has new and exciting experiences, but there is one in particular I'll never forget. I was alone in the Archangel forests some 12 miles from the nearest settlement. There was a lot of goose grass there, tiny tubers like onions, rich in starch. The bears eat them with relish to store up fat for their winter sleep.

The woods were not very thick, mostly small pines and birch trees, and everything was quiet. Here and there I could see patches of black earth dug up in the moss by the bears. The ground was soft, and I had to scramble over swampy mounds. There were fresh tracks everywhere. As time passed, I grew uneasy. Had I or had I not heard the grunt of a bear somewhere? I was startled even by the piping of a thrush and cocked my gun.

Within a few seconds a bear came rolling out among the birches. He was moving toward me quickly and not in the least clumsily. I pressed the trigger, and the impact of the bullet seemed to wheel him in his tracks. He rose on his hind legs, fell, but rose again. I fired again, never noticing the kick of the gun nor the sound of the shot. The only thing I was conscious of was that the animal in my field of view lay still.

But there was the snarl of a second bear. I could just see him flash by the trees and through the bushes. He was trying to escape. Raising the front sight a bit, I shot into the underbrush.

The third or fourth shot felled him, but he was up again and making for the woods. I could see the splash of red on his side. And then he was out of range.

Should I let him go? It was dangerous to go on alone—without dogs. A wounded bear is an ugly customer.

"He's a small bear," I thought. "I'll get him from a distance. The trees are not thick here and I can see him well."

The bear kept going, and I followed slowly. Then the trail showed that he had made a loop.

I stood for a second, wondering. Then something pounced upon me from behind, slightly from one side. I caught a glimpse of flattened ears, hairy legs and fangs. I fired wild. The animal was on me, I fell under him in the slushy moss. Kicking to keep my face from his claws and fangs, I grabbed my rifle and brought the butt down on his head just as he was about to lunge again. That finished him.

It was hard to get back to the camp, and it wasn't until I was sitting before the fire that I recovered.

Later, while skinning the bear, I saw that my last bullet had smashed his forepaw. "You were born lucky, brother," said my companion. "If he had been just a bit bigger, it would have been all up with you."

◀ TAMARA ROMANOVA, THE MILL'S YOUNGEST WEAVER, ENJOYS HER JOB.

TEXTILE MILL *Continued from page 38*

economy and the needs of the population as a whole. But after Yefimov had given me a breakdown of the allocations received by the mill for its own needs, I could see that a considerable share of the profit goes back to the mill's personnel. Here are some figures for 1955:

11 million rubles for mill equipment,
2.7 million for maintaining mill kindergartens and nurseries,
1.4 million for new housing,
0.5 million for personnel training,
0.3 million for medical services at the mill,
0.1 million for the mill's technical library.

Besides, the director of the mill is given a special fund each year. In 1955 it came to two million rubles. The disbursement of this fund is decided in consultation with the mill's trade union local.

Here is how the money was spent in 1955. Bonuses were given to 400 workers who submitted suggestions for improving work. Several hundred thousand rubles were appropriated to pay for rest home accommodations for mill workers. This was over and above the sum allocated for this purpose from the social insurance fund which is handled by the trade union organization. Considerable sums were spent for the upkeep of the summer camps for children which the mill maintains and for allowances to workers with large families.

Wages

The wage scale, I learned, is established by annual agreement between the mill management and the trade union organization.

Wages are paid twice a month. For those of the mill's employees whose work can be rated, a piecework system operates. Workers get additional pay for larger output, for extra-high quality output, for efficient use of equipment, and for economical use of raw materials.

The average mill wage, varying with the trade, runs from 800 to 1,000 rubles a month. The director gets 2,500 rubles a month, shop superintendents from 1,200 to 1,600, and foremen from 1,100 to 1,200 rubles.

A bonus system operates for managerial and technical personnel, as well as for spinners and other workers. If a shop turns out more yarn than the original quota calls for, the personnel of the shop as a whole benefits. That means technicians, foremen and spinners all get a premium for each ton of yarn produced over and above the quota.

◀ FACTORY AND OFFICE WORKERS LIVE IN THIS APARTMENT HOUSE BUILT BY THE MILL.

THESE FIRST-GRADERS ATTEND THE ELEMENTARY SCHOOL NEAR THE MILL. ▶

In Addition to Wages

Wages in the Ivanovo mill, like wages of Soviet workers generally, do not reflect many very important benefits and services which either the government or the mill is responsible for providing. These include vacations with pay, free medical care, free education from elementary school through college and pensions.

The mill has an assistant director who is responsible for extra services. The job is held by Alexei Kurbatov. The son of a worker, he himself started at the textile mill when he was fifteen.

Housing is one of his responsibilities. In the past three decades the mill has built an entire street of apartment houses. Several new apartment houses are now under construction, one of them with 76 apartment units and another with 72. The mill builds and maintains these apartment houses. The rent and utilities come to no more than five per cent of the worker's wages. For workers who build their own homes, the mill provides building materials, hauling and professional advice.

The mill maintains two nurseries for 300 youngsters from three months to three years of age, and three kindergartens for 340 children from three to seven. The children are taken care of by experienced nursery-school teachers and pediatricians. Another kindergarten building to accommodate 110 children is now going up near the mill.

For kindergarten service the mill provides 500 rubles a month for each child and the parents from 35 to 110 rubles a month, depending upon their wages.

One of the wings of the mill's office building is occupied by the medical clinic, open from 8 A.M. to 8 P.M. and staffed by fifteen physicians in all the specialties and thirty-two assistants. At night a central first-aid station is open with a physician, two assistants and two nurses on duty. Every shop has a first-aid station open twenty-four hours a day. Each of the women's rest rooms in the various shops has a nurse on duty.

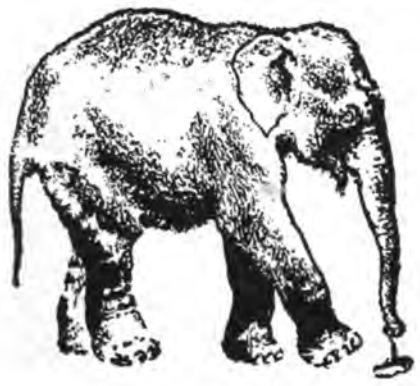
Another wing of the office building is a cafeteria. There are five other cafeterias in the shops which provide hot meals around the clock.

This is a picture of the Dzerzhinsky Mill as I got it, a picture different only in details from other plants, factories and mills throughout the length and breadth of the Soviet Union. The impression I carried away from conversations with workers, engineers and shop superintendents perhaps explains more than anything else the mill's success—the awareness of each of these many people I talked to that the better the mill. the greater the well-being of its workers. ■

CENTER PICTURE:
THE NEW PIANO BOUGHT BY A MILL WORKER PLEASES HIS 5-YEAR-OLD DAUGHTER.

EXPERIENCED TEACHERS KEEP THE YOUNGSTERS HAPPY AT THE MILL'S NURSERY. ▶

ZOO BABIES



BABY ELEPHANT

They brought young elephant a shoe,
He took it, stared at it through and through,
And then remarked in some surprise:
"I need at least *ten* shoes this size!"

BABY PENGUIN

My front is white, my back is black,
My shape is like a flour sack.

A sporting bird I used to be,
I chased the ships that sail the sea.

But now I paddle in this pond,
And of the Zoo I'm very fond.

BABY OSTRICH

My neck is like a piece of string,
I stretch it when I run.
I wish that I knew how to sing,
It must be lots of fun.

When I am very mad, I swing
A hard and horny paw.
But oh, I wish that I could sing,
I cannot even caw.

SAMUEL MARSHAK

Drawings by Vladimir Lebedev

Samuel Marshak was born in Russia in 1887. He began to write when he was nineteen and has devoted much time to translating the world's greatest poetry into the Russian language. His translations of Shakespeare, Burns, Byron and Heine retain the flavor, rhythm and depth of the originals. But he is best known as a writer of children's works. It would be quite safe to say that there is hardly a child in the Soviet Union who does not know his *Zoo Babies* and *In the Van*.

In the Van

A lady sent in the van:
A bag,
A box,
A divan,
A hamper,
A sampler,
Some books,
And a wee little doggy named Snooks.

At the station in Red Banner Street
She was handed a yellow receipt
That listed the things for the van:
A bag,
A box,
A divan,
A hamper,
A sampler,
Some books,
And a wee little doggy named Snooks.

When the luggage was brought to the train,
It was counted all over again,
And packed away in the van:
The bag,
The box,
The divan,
The hamper,
The sampler,
The books,
And the wee little doggy named Snooks.

But off the wee doggy ran
As soon as the journey began.

And only on reaching the Don
Was it found that the doggy was gone.
All the luggage was safe in the van:
The bag,
The box,
The divan,
The hamper,
The sampler,
The books,
But—where was the doggy named Snooks?

Just then an enormous black hound
Came over the rails at a bound.
It was caught and put in the van
Along with the bag and the box,
The hamper,
The sampler,
The books,
Instead of the doggy named Snooks.

The lady got out of the train
At a station in southern Ukraine.
She called to a porter, who ran
To bring her the things in the van:
The bag,
The box,
The divan,
The hamper,
The sampler,
The books,
And the dog—that was *not* named Snooks.

The hound gave a terrible growl,
The lady emitted a howl.
"You robbers, you rascals!" cried she,
"This isn't my dog, can't you see?"

She tore at the handles and locks,
She kicked at the bag and the box,
The hamper,
The sampler,
The books:
"I *will* have my doggy named Snooks!"

"Just a minute, dear madam, don't shout,
And don't throw your luggage about.
It seems that you sent in the van:
A bag,
A box,
A divan,
A hamper,
A sampler,
Some books,
And a wee little doggy named Snooks.
"But the smallest of dogs, as you know,
In the course of a journey may grow."

THE MILLER, THE BOY, AND THE ASS

I

An old man,
A miller,
Was riding
An ass.
His grandson
Was walking
Behind
On the grass.

"Look!
A disgrace!"
Was the villagers'
Talk.
"Granddad
Is riding,
But grandson
Must walk!

II

"Who ever
Heard of it?
There is no
Word for it!
Granddad
Is riding,
But grandson
Must walk!"

Quickly
The miller
Dismounted,
And put —
The boy
In the saddle,
While he
Went on foot.

III

"Goodness,
No manners!"
An old woman
Said.
"Age
Walks behind,
While Youth
Rides ahead!

"Who ever
Heard of it?
There is no
Word for it!
Age
Walks behind,
While Youth
Rides ahead!"

IV

Granddad
And grandson
Both mounted
And rode.
They came
To a man
Who was hauling
A load.

"Ugh!"
Said the man,
"No shame,
Not the least!
Two men
On the back
Of that poor
Little beast!

V

"Who ever
Heard of it?
There is no
Word for it!
Two men
On the back
Of that poor
Little beast!"

Granddad
And grandson
Both went
On foot.
On grandfather's
Shoulders
The donkey
Was put.

VI

"Ha, ha, ha!
Ho, ho, ho!"
Roared a man
With a sack.
"An old ass
Has put
A young ass
On his back!

"Who ever
Heard of it?
There is no
Word for it!
An old ass
Has put
A young ass
On his back!"

THE BEST PLAYERS FROM ARGENTINA FACE THE SOVIET CHESS TEAM.

CHESS MARATHON

By Grandmaster Alexander Kotov

The chess teams of thirty-four nations—a record number—assembled in Moscow in September 1956 for the Twelfth Chess Olympics. More than 1,000 battles took place on the chessboard between 220 world masters of the game.

Held bi-annually, these competitions are the most exciting of all international chess meets. The first tournament took place in London in 1927. Since then the world's best chess players have met eleven times to match their skill. These competitions ended with the U. S. players winning the Challenge Cup four times, the Hungarians twice, the Polish, Germans and Yugoslavs once each, and the last two championship meets were won by the Soviet players.

The intricate problem of dividing the thirty-four teams into four semi-final groups of approximately equal strength was solved by having the team captains hand in lists of their teams in the order of strength they considered proper.

Each of the thirty-four lists was then added up, and the team with the lowest number was first in the general list, the next one was second, and so on. Then the general list was divided into four groups approximately equal in strength.

The results of the preliminary division and the results of the Olympics coincided to a remarkable degree. In the general ballot the first four teams were from the USSR, Yugoslavia, Hungary and Argentina. These teams were actually the winners in all the four semi-final divisions, and they finished in that order in the finals.

The semi-finals were only the prelude to the real struggle, only the means for distributing the participating teams into three succeeding tournaments: the winners, who were to continue their battle for the championship crown, and two classification groups. And only after that did the real battle begin, since each of these groups consisted of teams more or less of the same class, of equal strength. In the classification tournaments the frays were no less fierce than in the final tussle of the winning teams.

"What kind of world tournament is yours?" joked the representative of Scotland, whose team was playing in the second classification division with the twenty-fifth to thirty-fourth places in the Olympics at their disposal. "Well, take a look at the teams playing in the finals: the USSR, Yugoslavia, Denmark, Switzerland. These are all European countries, located near each other. But what do we have? The Philippines, India, Mongolia and, besides, Scotland, Puerto Rico and Luxembourg. Different continents, all the mainlands. This is indeed a real world tournament!"

He was joking, of course. The attention of the whole chess world was held by the main tournament—the contest of the twelve winning teams. They were contending for gold medals and the Golden Challenge Cup of the world champion team.

The Soviet Union immediately forged into the lead. It beat the English team to the tune of 4:0 in the first round, and by the third encounter had a two-point margin over its chief rival, Yugoslavia. In the fourth round the Soviet grandmasters lost to the Hungarians. This loss, however, roused the Soviet grandmasters, and they won all the six following encounters. By the next to the last round they had already ensured themselves first place. In the end they gained a wide margin of 4½ points over the Yugoslav team, which was next in line.

The struggle for second place, which the experts had forecast for either Yugoslavia or Argentina, developed into a keen battle. But these forecasts were not fully realized. The Hungarian chess players displayed sound tactics and good team work. At one time they even contended for top place. But in the end they took the third rung, conceding the leadership to the USSR and Yugoslav teams. The Argentinians, this time playing less assuredly, were compelled to be satisfied with fourth.

The results of the Olympics proved very interesting. The audience applauded enthusiastically when the title of International Grandmaster was conferred on the 21-year-old Danish master Bent Larsen. His results in the Olympics really deserve special mention.

Playing on the first board and competing against the world's leading grandmasters, Larsen chalked up the best total: 14 points out of 18. This result was better than that of World Champion Mikhail Botvinnik, who scored 9½ points out of 13.

Several of the games played by Larsen in Moscow are noteworthy. Here is the ending of one of them. (See Diagram No. 1)

This position arose in the Balanel-Larsen encounter (the Denmark-Rumania match) in the finals. In this trenchant and intricate situation the young grandmaster discovers a correct path to victory:

60. . . . P-R7! 61. P-Q7 RxKtch!

A beautiful sacrifice as a result of which Black's two Queens set up an irresistible attack against White's King.

62. KxR

No better is 62. QxR Q-Kt8ch and 63. . . . P-R8=Q.

62. . . . Q-K5ch 63. K-Q2 Q-Kt5ch 64. K-K2 P-R8=Q. 65. P-Q8=Q Q(R)-K5ch 66. K-Q1 Q-Kt8ch 67. K-Q2 Q-Kt7ch 68. K-Q1 Q-KR8ch!

White resigns for on 69. Q-K1 the simplest is 69. . . . Q-R4ch with inevitable mate.

Diagram No. 1

B. Larsen

I. Balanel

Diagram No. 2

D. Bronstein

I. Aloni

Another surprise at the tournament was the excellent play of the Philippine chess player R. Cardoso. His result of 13 points out of 17 is very good. Only Soviet grandmaster David Bronstein was able to surpass this rival of his. Bronstein gathered 11 points out of 13 and established an absolute record for the Twelfth Chess Olympics.

I would say that the most interesting game played by Bronstein was his encounter with Aloni in the USSR-Israeli match. The Soviet grandmaster sacrificed three pawns in a row for the sake of obtaining an attack. Here is how it happened. (See Diagram No. 2)

In the position shown on the diagram Bronstein unexpectedly played:

14. . . . P-QKt4! 15. PxP PxP 16. Kt(B)xP P-B5!

Black doesn't worry about the Pawns. The main thing here is to attack the King!

17. QxP Q-R4 18. B-Q4

Somewhat better is 18. B-Q2, after which it is more difficult for Black to develop his attack.

18. . . . KR-B1 19. B-B3 Kt-Q6ch 20. BxKt BxB 21. KtxB PxB 22. RxP Kt-K4

White has three extra Pawns. Black's offensive, however, is very formidable: all his pieces are taking part in the attack against White's King. No wonder that after another several moves Master I. Aloni is compelled to capitulate.

23. R-K3 R-Q1 24. Q-K7 R-Q2 25. Q-B6 Q-B4. 26. Kt-B2

The only defense against the threats of capturing the Rook or the Knight on R3, as also against the check from his Q3-square.

26. . . . Kt-Q6ch 27. RxKt

A forced return of material. On 27. K-Kt1 there at least follows 27. . . . Q-Kt3 with unavoidable threats.

27. . . . RxR 28. P-QR3 Q-B7 29. R-K1 R-Q7

White resigns for he loses a piece.

The Moscow chess festival was an outstanding one in many respects. This gala event of the world's strongest men players was enhanced by the competitions held among the women and the appearance of a new world champion—Olga Rubtsova, who emerged victorious from a three-cornered match with her compatriots Yelizaveta Bykova and Ludmila Rudenko.

Teams from India, Iran and the Mongolian People's Republic took part in the Olympics for the first time, making it a real tournament of nations.

An interesting commentary on the caliber of their game was supplied by Miguel Najdorf, the expansive Argentine grandmaster, during one of the semi-final rounds. "It's getting more and more difficult to play," he complained good-naturedly. "New chess players have come from India and Mongolia. They are participating in an international meet for the first time, and yet they know the theory of openings up to the twenty-fifth move!"

The pleasure of meeting the new chess players partly made up for the absence of some of the old ones. It was especially disappointing that the United States team didn't attend. It might well have finished among the prize winners in the Olympics.

The contending teams left Moscow hoping to meet over the chessboard more often in the future. ■

A SECTION OF THE HALL DURING THE TOURNAMENT

HONORING OLGA RUBTSOVA, NEW WOMEN'S CHESS CHAMPION.

EXCURSION INTO THE FUTURE

Continued from page 33

to build huge heat-driven power plants near the future dam?

No, because the electricity supplied by atomic power plants would obviate the need for all that!

Some day, not too far in the future, this daring project will become an actuality. When Japanese scientists learned of these dreams of Soviet scientists, they acclaimed them enthusiastically. And a group of German engineers proposed to arrange international cooperation to prepare the groundwork.

The Man Who Slept a Thousand Years

But what has the science of the future in store for man himself, for that complex and often unfathomable machine—his body?

The man is lying on a glittering white table surrounded by corrugated tubes and wire. Instruments record the last beat of his dying heart, the last twitch of his collapsing lungs.

The man is dying, but it is a different kind of death. He has taken antibiotics into his blood stream, has felt drugs seeping into his body. Now as he lies, barely alive, the men in white smocks bending over the table inject a compound into his veins which spreads into the finest blood vessels covering the cerebral cortex, to protect it against disintegration.

He is asleep, for a hundred years, or a thousand.

When the instruments have recorded that prescribed measure of time, the tubes surrounding him will once again pulse, the current will once again run through the wire. A blanket of electric current will warm his frigid body, an artificial heart will drive the first stream of warm blood through his blood vessels and the first thought will originate somewhere deep in the recesses of his awakened consciousness.

The man asleep—or dead—for a thousand years will open his eyes on a world of the future, bright and shining, and certainly, we should like to believe, happier than the world in which he fell asleep.

The Dream and the Reality

A physiologist's dream? Not altogether. Here is the reality.

In Professor Sergei Bryukhonenko's laboratory I was shown a small piece of apparatus built of glass, stainless steel, and rubber tubing. A commonplace looking instrument with an incredible function. An artificial heart.

Oxygen permeates the very fine hematoid foam warmed to body temperature. Tiny electric pumps, imitating the beat of the human heart with remarkable accuracy, drive the blood through the living organism.

I watched the physiologists join the artificial heart to the circulatory system of a dog who had been dead for fifteen minutes. The dog came back to life.

I looked on unbelieving. "And a man," I asked Professor Bryukhonenko when I had recovered my breath, "could a man be restored to life?"

"Yes," he answered simply, "but no later than six or eight minutes after death takes place. Once the irreparable process of disintegration begins in the human cerebrum, it is impossible to revive a man with all his normal functions. That is, impossible today. But in the future . . ."

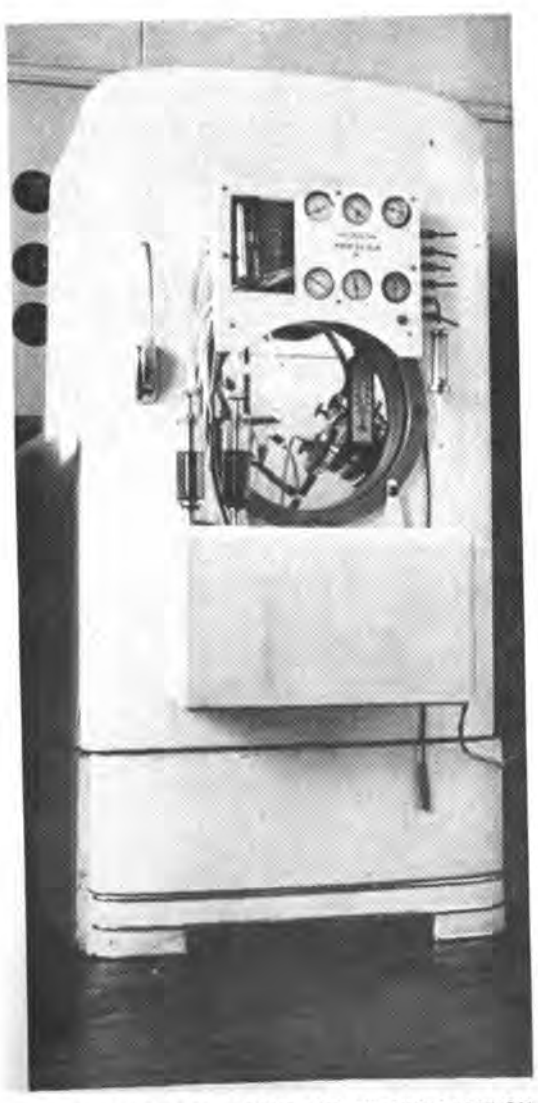
The Professor did not complete this last sentence. Instead he told me about an experiment he had recently performed.

The body of a girl dead eighteen hours was brought to his laboratory. It was cold and rigid. The artificial heart was joined to the still warm arteries of the corpse. It was set beating. As the scientists watched, color began to appear in the cheeks, the body warmed and began to relax. Then the arm of the corpse moved. It moved slowly up, and the girl placed it under her head.

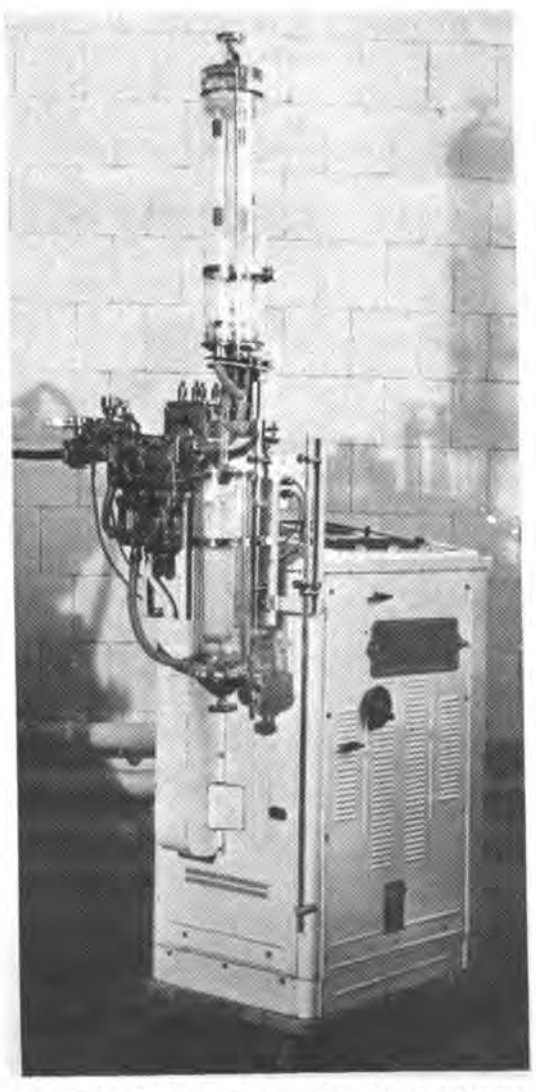
"That was as close to a miracle of science as anything any of us had ever seen," the Professor said, his voice still excited at the recollection. "But it was still not life. The cerebrum injured by death was passive, but all its cells eighteen hours after death had not yet died. Some tiny center must still have been alive with enough force to raise the girl's arm, although she could no longer be revived."

Science, the Professor told me, has had to pause before one of its great problems, safeguarding the brain from disintegration. When this is solved, it will be possible to revive a man long after he has died.

Here is a fantastic reality indeed. ■



DEVICE PRESERVES ORGANS FOR TRANSPLANTATION



AN ELECTRONIC HEART-AND-LUNG MACHINE

ELECTROCARDIOGRAPH TELLS THE HEART'S STORY

THE OLYMPICS IN RETROSPECT

OLYMPIC CHAMPION VLADIMIR KUTZ AND HIS WIFE RAISA

By Victor Kuprianov

Through the passing weeks since the Olympic flame was extinguished in Melbourne sportsmen around the globe have continued to comment on the contests there. And they will continue to make barbershop conversation probably until the next Olympics in 1960. So I take the opportunity to add my own comments, like a Monday morning quarterback or Hot Stove Leaguer.

I remember how much crystal gazing there had been before the Olympic games started. And I also remember that not many forecasters were able to predict the final medal tally—Gold: USSR 37, USA 32; Silver: 29 to 25; and Bronze: 32 to 17.

Soviet fans were naturally jubilant. But there is something that will keep us up burning the midnight oil. For me the reason is that the Soviet performance ranged from surprisingly good to disappointingly bad. That must make the coaches think when preparing another squad for the 1960 games.

The track and field events came as a hard jolt to our fans. To begin with there was the clean sweep made by Australia in the women's track events and the comparatively poor showing made by Soviet sprinters. And our stars in other events did not come up to expectations—in fact, showings were often lower than those in our Olympic tryouts.

Much speculation has been raised as to this point. Some observers seemed to feel that the Soviet athletes were not in peak form at Olympic time.

There are other reasons that should be taken into consideration, and the most important is competition. The best training without competition won't get an athlete very far. And the Soviet squad had very few meets on the international level before the Olympics.

Another point often discussed is the question of age. On the whole the Soviet team had perhaps the widest range of age groups. Its track and field stars are older than their American opposite numbers. It's true the Soviet team had a good sprinkling of youngsters, but it seems to me that the lower our age average—the better.

While our women athletes have not brought home too many turkeys (or is it medals they offer at the Olympic games?), they have certainly proved one interesting point: husbands and babies do not interfere with a woman's career in sports. About half the track and field squad are married, and approximately every third star has a baby.

The Olympic games were a test not only of individual skill and techniques but of tactics and schools of training. Distance runner Vladimir Kutz is an excellent case in point. He not only won two gold medals (for the 5,000- and 10,000-meter races), but he suggested that the conventional system of racing tactics might have to be revamped.

Ordinarily in distance running the idea is to let the other man take the lead and pace you until you dash out from behind and win. The man in the lead at the start was always considered to be at a disadvantage psychologically, since he could not see what was going on behind him and had no way of knowing whether he was going too slow or too fast.

In the 10,000-meter race Vladimir Kutz ran ahead to the lead with the starter's gun. Britain's Gordon Pirie kept on his heels all the way—until the last 1,600 meters anyway. Under ordinary circumstances Pirie's tactics were correct, in fact winning tactics. But these were no ordinary circumstances.

First of all, Kutz learned to race all by himself—he needed no one to pace him. Kutz also learned to rest while he runs. He changes his pace all along and runs according to a strict schedule that any railroad superintendent would be proud of.

At the Olympic games Kutz wore his opponents down by his fatiguing pace. With 1,600 meters to go the pace proved too much for Gordon Pirie and he began dropping back. Kutz continued to lead and broke the tape 27 seconds ahead of the Olympic record belonging to Emil Zatopek.

Kutz repeated his tactics to win the 5,000-meter gold medal as well. And when it was all over, he said he felt fresh enough to run the marathon.

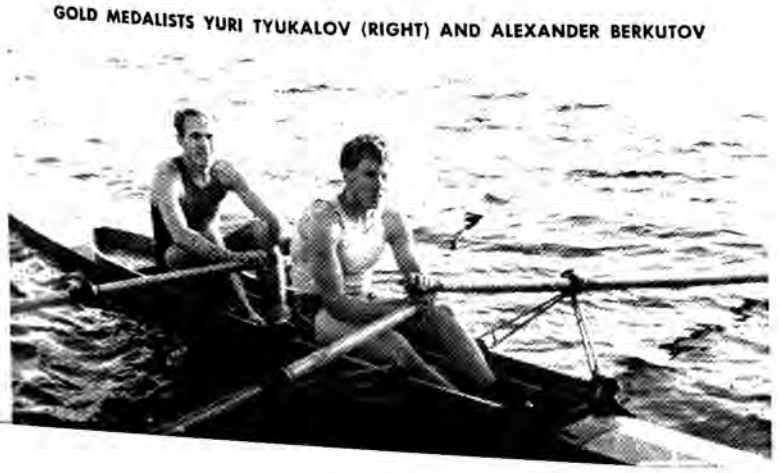
I will admit—Kutz is a phenomenal runner, one that isn't born every day. But the point I want to make is: the Kutz way of running will make coaches sit up and wonder "isn't it time to change running tactics?"

There are some who profess surprise at the outcome in boxing which saw us put four men into the finals and take three gold medals, but I think there is no justification for surprise. Our school of boxing now is closer to the amateur ideal. We emphasize ring tactics, defensive skill and boxing know-how rather than the slow slugger with dynamite in his fists. We had been criticized sharply in previous contests, and it appears now that we are on the right track.

But I believe there was a genuine surprise in the rowing lineup of our squad. Young Vyacheslav Ivanov, who made his debut in singles sculling just over a year ago, outstroked Olympic Champion Yuri Tyukalov in our trials. Tyukalov, however, was determined to go to the Olympics, so he teamed up with our number three singles rower, Alexander Berkutov, to form a double sculls team that went on to take the gold medal at Melbourne.

That brings us to gymnastics and wrestling and a point that I feel needs making. The Olympic games have a long and honorable history in international amateur athletics. There has been some criticism of the retention of gymnastics and Greco-Roman wrestling in the games from some countries that have limited interest in these events. Gymnastics are scored on form and grace just as are the more popular or "accepted" events, such as diving or figure skating. The true Olympic spirit does not divide sports into first and second classes. The goal is to try one's best in all the events. ■

GOLD MEDALISTS YURI TYUKALOV (RIGHT) AND ALEXANDER BERKUTOV



OLD TAJIK ARTIST WORKING ON A NATIONAL DESIGN. ▶
See story on page 10

the year ahead . . .

. . . THE YEAR BEHIND

AS LYDIA BELOUSOVA SEES IT

LYDIA BELOUSOVA, SAVINGS BANK MANAGER.

"I know, I look very young for the job, and so on and so forth. I'm beginning to feel like a phonograph record, the number of times I've had to recite my biography. I'm 22 and I came to work straight from business school. I worked as control clerk for a year and a half, another eighteen months as head clerk and then early last year I was appointed manager."

"That must have made the year very special for you. And how do you find business?"

"Fine. Total deposits at our bank increased by fifty per cent during the year."

"Can you think of any interesting incident that happened to you or the bank last year?"

"Well, let me tell you about one of our oldest depositors. I'm sorry I can't cite his name, because this is against our banking regulations. In the last eleven years he has made a deposit of 350 rubles every month like clockwork. He has never missed a month, and didn't make even one withdrawal during these years.

"One day last fall he came in and made out a withdrawal slip for 6,000 rubles. We were all very curious, naturally, and we asked him what had happened.

" 'Nothing,' he said, 'I just decided to take a trip.'

" 'Six thousand rubles' worth?' we asked.

" 'And why not?' he said.

"With the new pension law, adopted last year, his old age pension had jumped up, so he didn't have to save so much for his retirement. And he's not the only one among our depositors.

"It's not a very exciting incident, is it? But then bankers make it a rule to have their accidents and exciting incidents only after banking hours. It's safer for depositors." ■

AN IMPORTANT YEAR FOR A FORMER ACTOR

By Ilya Lavrov, Writer

For me, 1956 was what I might call a decisive year. For the last few years I have been an actor, I flatter myself, a moderately good one. I toured most of the country, met all sorts of interesting people and thought that so far as my work was concerned I was set for life.

But for a long time I must have been feeling dissatisfied with the stage and its natural limitations. I suppose half-consciously I was groping for a wider medium of expression. So about a year and a half ago I tried my hand at writing.

I was playing in Chita then, set in the beautiful Siberian region beyond Lake Baikal. It is a sizable city with a good theater, schools and publishing houses, and more important for me, a good many writers live in the area, so that Chita has a local organization of the Writers' Union.

I submitted my first story with the usual qualms of an amateur. It was accepted for publication. Any budding writer will understand how I felt—as close to heaven as I suppose I'll ever get. Then I wrote two more and they were also published. No more acting.

Last year I was invited to the nation-wide Conference of Young Authors held in Moscow. We met with many of the older writers for discussion and criticism of technique. Much of it was helpful and encouraging.

Shortly after the conference my first book, *Undying Song*, a collection of short stories, was published in Moscow. So far it has brought me royalties of 90,000 rubles. That means I can spend the next three or four years doing full-time writing.

I was also admitted to membership in the Writers' Union, a voluntary association of professional writers. Membership in the union offers many advantages. The union helps writers with grants and loans; it finances trips for research; it maintains hostels and resorts where writers can work undisturbed. Funds for these activities come from the publishing houses.

For this year I have my work pretty well lined up. I am doing a novel about the theater and translating into Russian some of the Buryat writers.

The Buryats are a small nationality in the trans-Baikal region. Within the last few decades Buryat doctors, teachers, engineers and writers have developed. Baldanzhabon is the best-known of the Buryat writers. I am translating two of his novels.

All in all, looking back on it, 1956 was certainly a busy year for me. I have an idea, from the way things are shaping up, that this year is likely to be even busier. Did I tell you that I'm also working on a play I hope to finish before the end of 1957? ■

ILYA LAVROV, WRITER AND FORMER ACTOR.

USSR

EXCHANGE PROGRAMS IMPROVE UNDERSTANDING

8 (23)—20 Cents

U.S. BASKETBALLERS POSE FOR A PICTURE IN FRONT OF THE CZAR GUN, AN OLD RELIC ON THE KREMLIN GROUNDS.

USSR

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Front cover: American pianist Van Cliburn, winner of the International Tchaikovsky Music Contest, is congratulated by Nikita Khrushchev at a Moscow reception.

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3

The Soviet Union Favors More Scientific, Cultural and Trade Exchanges with the United States

LINKS OF GOOD WILL

THE most important word in today's international dictionary is coexistence. Translated into any language, coexistence means neighborly relations, and neighborly relations means peace for a troubled world.

From its founding the Soviet Union has worked to develop friendly relations with all countries, to broaden the area of mutual understanding and trust through cultural, scientific and trade exchange.

International agreements for reciprocal visits of artists, actors, dancers and athletes, scientists and teachers, farmers and businessmen, people in a large range of occupations and avocations have been increasingly fostered by the Soviet Union. Such agreements have been concluded with many countries, including the West European nations, and cover exchange of people, films, publications, broadcasts. With many of these countries mutually beneficial trade agreements have been negotiated.

The value of these exchanges and trade agreements can hardly be overstressed. Aside from their more direct service in providing for an exchange of cultural, technical or scientific work or an exchange of goods, they contribute immeasurably toward that mutual understanding which the world so sorely needs today.

When people are given an opportunity to get together, to sit around a dinner table as guest and host, to discuss problems in an effort to reach a common meeting ground, suspicion and mistrust dissolve. As people learn about each other they find similarities and sympathies that are larger than their differences and disagreements.

Certainly that has been adequately shown by the reception accorded Van Cliburn and the Philadelphia Orchestra in the Soviet Union and by the equally warm response to the Moiseyev dancers in the United States. It has been demonstrated, in every one of the exchanges, whether of musicians, or farmers or college students. The exchanges have all been most successful, there have been no failures.

Each visit has brought a wish and a demand for more—more tours and concerts, more athletic contests, more meetings of scientists. So, too, with commercial agreements. They have invariably been followed by renewals on a larger scale and a greater scope wherever they have been concluded.

The progress of American-Soviet exchanges in the few months since the agreement was signed last January is a hopeful promise for the future. Premier Khrushchev expressed the feelings of all Soviet people in his June 2 message to President Eisenhower, when he wrote:

"The recent Soviet-American agreement on exchanges in the fields of culture, technology and education was, I believe, a good practical step toward rapprochement between our countries.

"It is gratifying that this agreement has been widely approved both in the Soviet Union, and the United States, and in other countries. This, I believe, is due primarily to the fact that the peoples have seen it as concrete proof that Soviet-American relations can really be bettered, holding out hopes for a general improvement of the present unstable and alarming international situation."

The agreement is regarded in the Soviet Union as a foundation stone upon which a solid structure of Soviet-American understanding can be built, rather than as a hard shell within which the accord is to be confined. The Soviet Union is eager to broaden the exchange program, to provide many more opportunities for the people of our countries to get to know each other.

We should like to see more tourists traveling both ways, more exchanges of delegations, more pooling of knowledge and experience. We should like to see a resumption of large-scale trade between our two countries, trade that could run into billions of dollars, with benefits equally advantageous for both sides. We should like to see Soviet and American scientists teamed in an all-out attack against the scourge of cancer, and Soviet and American research pooled in a joint exploration of the cosmos.

The prospects for exchange and cooperation for the world's good are boundless. All that is needed is trust and good will. The Soviet Union is ready to join forces with the United States to work toward these great objectives.

U.S. PIANIST VAN CLIBURN AND HIS SOVIET CONDUCTOR, KIRILL KONDRASHIN.

SIX MONTHS OF USSR-USA EXCHANGE

By ALEXANDER KUZNETSOV

Vice Chairman, USSR State Committee for Cultural Relations with Foreign Countries

THE Moiseyev dancers and Van Cliburn have become popular household words in both the Soviet Union and the United States in a relatively short period. The mention of either of these ambassadors of friendship is generally enough to convince even the most doubting skeptic of the actual value of the exchange agreement signed six months ago by representatives of our two countries.

The joint communiqué issued last January hailed the agreement as "a significant first step in the improvement of mutual understanding between the peoples of the Union of Soviet Socialist Republics and the United States . . . It is sincerely hoped that it will be carried out in such a way as to contribute substantially to the betterment of relations between the two countries, thereby also contributing to a lessening of international tensions."

This agreement is extremely important and the first one in twenty years between the two powers. Its signing and implementation proves that it is possible for the two countries to confer and reach decisions on important questions between them.

The Soviet Union has similar agreements with some 90 foreign countries. All of them have had a most favorable effect on the development of friendly relations and have contributed to mutual understanding. The atmosphere of good will, which is the natural by-product of these agreements, motivates further efforts to extend them, since we believe this would help improve the international climate.

When Van Cliburn won the Tchiakovsky Piano Competition in Moscow, he became friendly with his Soviet conductor, Kirill Kondrashin. That relationship grew to the point that when Cliburn was about to return to America, he invited Kondrashin to accompany him. Kondrashin conducted the orchestra in the pianist's appearances in the United States and then in Europe, too.

Our mutual agreement provides for exchanges in such media as motion pictures, radio and TV programs, and in a number of cultural, educational and technical fields. It covers the exchange of scientists engaged in research, of students and university instructors, of physicians and artists, of agricultural and industrial experts and of athletic teams. I think that the experience of these six months since the agreement was concluded has been found most promising by both sides.

Although we have had some exchanges with each other prior to this agreement, they have been occasional and rather piecemeal. There was the American *Porgy and Bess* company that was very warmly received when it performed in Moscow and Leningrad in 1955. Then there was the Boston Symphony last year, which also was widely hailed by our audiences.

But as a result of the present agreement, the exchanges are now definitely planned. They cover a much larger area and are the rule instead of infrequent exceptions.

American music lovers turned out in throngs for the recitals given by two visiting Soviet artists, the pianist Emil Gilels and the violinist Leonid Kogan. The American opera star Blanche Thebom was given an ovation when she sang the lead in *Carmen* before a standing-room audience of thousands at Moscow's Bolshoi Theater. Then there were the brilliant concerts of the Philadelphia Orchestra conducted by Eugene Ormandy. Later, when Leopold Stokowski conducted Soviet symphony orchestras in Moscow, Leningrad and Kiev, there was not nearly enough

room to seat everybody who wanted to attend.

As a parallel to this there followed the reception given the Moiseyev Folk Dance Ensemble in many American cities which found every ticket sold months in advance of the performance. There is no reason to believe a less enthusiastic reception will be accorded the Beryozka Folk Dance Company when it starts its United States concert tour later this year, or the famous Bolshoi Theater's Ballet when it dances in 1959. Soviet audiences are eagerly awaiting the appearances of scheduled American artists at about the same time.

The representatives of the Soviet and American governments agreed to an extensive program on the exchange of motion picture productions that includes the purchase of films, the exchange of motion picture industry experts, the joint production of films, and provides for a Soviet Film Week in the United States coupled with an American Film Week in the Soviet Union at the end of 1958.

All of these questions were discussed in the initial conferences between the delegation of Soviet film experts and the Motion Picture Association of America during last March and April in Washington. We hope that at the second conference to be held in Moscow both sides will agree upon the commercial exchange of film productions and other pending questions.

Joint film production is under consideration and Soviet producers have suggested that they would like to join the Americans in filming three features: *Martin Eden* based on Jack London's novel; *Sergei Rachmaninov*, a biographical film of the great composer; and *Airlines of Friendship*, which is built around the nonstop flight from the USSR to the USA of the Soviet airmen Chkalov, Belyakov and Baidukov in the thirties.

Soviet proposals have also suggested the joint production of several documentary and popular science features. These might include a color film of interesting buildings in the two countries, a full-length documentary in color on the work of scientists in the International Geophysical Year, one on the peaceful uses of atomic energy in both our countries, another on farming, and a series of nature films done in both countries.

Another section of the agreement covers exchanges of radio and TV programs in such subjects as science, technology, industry, farming, education, public health and sports, and for the exchange of delegations of radio and TV experts.

We feel that the exchange of authors and artists, including sculptors, as provided in the agreement, will be beneficial to the public of both countries in helping convey the realities of the life of each people through these media.

In June a group of editors of American student newspapers and magazines toured the Soviet Union for one month while their Soviet counterparts were visiting educational institutions in the United States. The student journalists of both countries were given a complete picture of college life and saw many other things of interest while making new friends abroad.

In July the agreement was further implemented when 20 Soviet and 20 American students exchanged visits following a plan worked out between the Committee of the USSR Youth Organizations and the USA Council of Student Travel.

There are another 20 undergraduate and graduate students of Moscow and Leningrad Universities who will start their work at Harvard, Columbia, Chicago, California and George Washington Universities, while 20 American undergraduate and graduate students will enroll in Moscow and Leningrad Universities. The number will reach 30 from each country in 1959.

The students of Columbia University have already started to make the acquaintance of their Soviet colleagues through programs prepared with the help of the radio and newspaper facilities of Moscow University. The broadcasts introduce Soviet students and professors, familiarize the Americans with procedures of Moscow University, its studies, extracurricular activities, athletics and sports. They generally give the visitors a preview of Soviet university life.

Another section of the agreement between our countries covers the exchange of scientists in various fields to conduct studies and to lecture before groups on their specialties. There has already been some activity in this area coming from arrangements concluded by the Academies of Sciences of our countries. Physicians in a broad list of medical fields have also made a number of exchange visits.

In the field of education the program is already under way. A large delegation of American educators visited the Soviet Union last June to study the Soviet school system. This group, headed by Lawrence G. Derthick, U.S. Commissioner of Education, visited several Soviet cities during their month-long stay.

Commissioner Derthick recalled that all members of the American delegation were qualified specialists. Despite this, he said, they were amazed to find how little they knew about the Soviet system of education. This once again emphasizes the importance of exchange in all spheres.

Other delegations of Soviet educators and school experts are now visiting the United States, while American groups are visiting our schools and colleges to learn our methods and approach.

Several American delegations representing different sections of U.S. industry visited Soviet factories while reciprocal visits of American plants were being made by Soviet engineers and managers. During the first six months of the agreement more than ten such American delegations visited the Soviet Union, and some twelve Soviet groups of specialists in automation, plastics, agriculture and other fields inspected American institutions.

We have both witnessed a healthy degree of activity in our sports exchange program during this period. We have had competition in basketball, in wrestling and weightlifting, along with track and field sports and ice hockey games. In every instance the public of both countries manifested keen interest and appreciation.

Over-all, it can be seen, almost every section of the agreement has been put into action or will soon be implemented. The first six months have demonstrated good results and have shown the desirability of extending our contacts with each other. ■

LEOPOLD STOKOWSKI ACKNOWLEDGES DMITRI SHOSTAKOVICH AFTER PLAYING HIS 11TH SYMPHONY IN MOSCOW.

Anatoli Sofronov
Writer

As a writer, and especially as the editor of a widely read magazine—the illustrated weekly *Ogonyok*—I was really pleased that our two countries signed an exchange agreement. We writers feel that this agreement has special importance for us. By meeting your artists, athletes, farmers and scientists, and the average tourist, too, we'll get a better picture of your life and be able to convey it to our readers. When I was in the United States two years ago as a member of a delegation of journalists, I had a chance to travel through the whole country. Everywhere our delegation had to answer lots of questions about every aspect of life in the Soviet Union. By the same token, the Soviet people want to know more about the Americans. The agreement provides for all kinds of exchanges and will thus make it possible for us to really get to know each other. This is the surest way to better understanding.

SOVIET PEOPLE

Tamara Abalkina
Dressmaker

I am always on the lookout for new ideas and often find things I consider attractive in American fashions. All women like to be well-dressed and want smartly designed clothes for business and social wear. I think it would be a fine idea if we exchanged the best of our fashions.

Irina Semyonova
Housewife

Mothers the world over have much the same feelings about their children. Women who have borne children and have helped them grow to adulthood have a special stake in peace. That is why we are glad that an agreement was signed which will help strengthen friendship between our peoples.

Ivan Kuznetsov
Sales Clerk

Working behind a counter for years, as I have, you really get to know people—their characters, tastes, even their hopes. It's the same with trade between countries. I am sure that this would be still another way for us to find out how much Soviet and American people have in common.

Mikhail Kalatozov
Movie Director

Toward the end of the Second World War I had a chance to visit the United States and meet many people working in the movie industry. At that time Samuel Goldwyn, well-known producer, asked me: "When do we start joint productions?" The agreement enables me to answer his question: "Now."

Dr. Yevgeni Korovin
USSR Academy of Sciences

Recent Soviet-American contacts in the fields of culture, science and education are concrete manifestations of the principle of coexistence of states with different social and economic systems. Of course, what has been done so far is only the beginning, but we are headed in the right direction.

PN USSR-USA EXCHANGE PROGRAM

Alexander Yakutin
Mechanic

As far as I know, Americans are a business-like people who can turn out a good job. That's something I like. I'm sure that if I happened to meet an American mechanic, we'd understand each other right away, without an interpreter. People who work at the same trade speak the same language.

Larisa Sadkova
Student

When I learned that 20 American students would be coming to the Soviet Union this fall in exchange for 20 Soviet students who will go to the United States, I was very pleased. We have students from many foreign countries in our colleges and now will be most happy to welcome Americans as our guests.

Natan Zaidman
Chairman, Printshop Union Committee

In my position I get to know the opinions of those who are represented by our shop committee. I can say without any qualification that our workers and office personnel are heartily in favor of the exchange program. We are sure it will help us find new ways to cooperate for our mutual benefit.

Sergei Romanovsky, ***Chairman, Committee of Youth Organizations***

The American people have a wise saying: "Where there's a will, there's a way." It comes to mind involuntarily when the conversation turns to the Soviet-American agreement on cultural exchange. To live in peace is the cherished dream of all young people. And no matter how great the obstacles, when we work together, we can find a solution. Young people are curious. They want to know, see and hear for themselves. Our young men and women are eager to meet the young people of America, to make friends with them, find out what their lives are like. They want to visit the United States and have American youth visit the Soviet Union. The agreement has taken this out of the realm of dreams and made it a living reality. Plans for exchanges have already been made in various areas of interest to youth. Some have been carried out, others are scheduled for the near future.

Zinaida Lebedeva
Director of the TB Institute

As a doctor, I would like to see all physicians join forces to eliminate disease. As a deputy to the USSR Supreme Soviet, I would like to see more contacts between legislators. A better understanding between our countries will go far toward helping to relieve the tension in international relations.

SOVIET PEOPLE ON USSR-USA EXCHANGE PROGRAM

Alexei Surkov, ***First Secretary, Union of Soviet Writers***

Friendliness and understanding between our peoples will increase daily with the implementation of the agreement. How much better it is to compete in the creation of cultural values to enrich the life of humanity rather than in new ways to destroy it. We have made a good start. Let's expand and broaden it!

Matvei Ospishchev
Army Officer

I met American officers and soldiers on the Elbe in April 1945, and we liked each other on sight. The friendship between our countries helped win the war. There is as much reason for us to work toward the same friendly relations to win the peace. The exchange agreement is a step in this direction.

Varvara Detkova
Collective Farm Woman

I've heard a lot about the achievements of American farmers. We here in our country have a slogan: "Let's surpass America in the per capita production of meat, milk and butter." I don't think the Americans will hold this against us, since no one can lose in this kind of peaceful competition.

AFTER SEEING AND PHOTOGRAPHING ALL THE EXHIBITS AND PAVILIONS, AMERICAN TOURISTS PAUSE FOR A PICTURE AT THE AGRICULTURAL EXHIBITION GROUNDS IN MOSCOW.

VISITING THE SOVIET UNION

CROWDS of tourists in increasing volume arrive from all parts of the world in cities, towns and villages across the expanses of the Soviet Union. Tourist travel has grown especially in the past years.

Official statistics show 485,000 foreigners visited our country in 1956, while last year the total topped 550,000. In 1957 there were 1,500 visitors from the United States, while the first half of this year showed a total of almost 2,500.

The flow of tourist travel is not at all one-sided. In 1956 there were 561,000 Soviet tourists abroad, while last year the number reached 716,000.

Choice of 40 Tours

Intourist, Soviet travel agency maintaining connections with travel agencies throughout the world, offers a choice of 40 tours. They range from a five-day junket to an extensive 23-day itinerary to principal cities. These tours are available in four classes of service: de luxe, first class, and tourist classes A and B. The price of each tour covers everything from hotel accommodations and meals, to interpreters, excursions and travel reservations for the entire period of the visit.

There are also tours for those who wish to drive their own cars and a service for guests who prefer to travel on their own routes and follow their own schedule.

Tours by Intourist include free passage between any two cities on an itinerary within a 600-mile limit and also discounts from regular rail and plane fares. Additionally, there is a substantial saving in the special tourist rate of currency exchange. For Americans this provides ten rubles for each dollar instead of the official 4 to 1 rate.

Foreign guests who consider a short visit to the Soviet Union are offered five-day tours for either Moscow or Leningrad. Then there are tours covering both Moscow and Leningrad or other two-city combinations extending from six to ten days. The Intourist itineraries also include a variety of tours covering three or more cities selected by the visitor. These tours range from 12 to 23 days and afford an opportunity to see both the European and Asian parts of the Soviet Union.

Tourist Visas

Americans desiring to visit the Soviet Union can make their arrangements through any of the two dozen travel agencies in major U.S. cities with which Intourist deals. The agencies will provide all the information needed as to itineraries, prices and other details.

Visas are issued promptly through the Soviet Embassy in Washington once the proper documents are filed by the travel agency. There are no consular fees for tourist visas.

Regardless of what type of tour is taken, the visitor will find a hearty and cordial welcome everywhere in the Soviet land.

Continued on next page

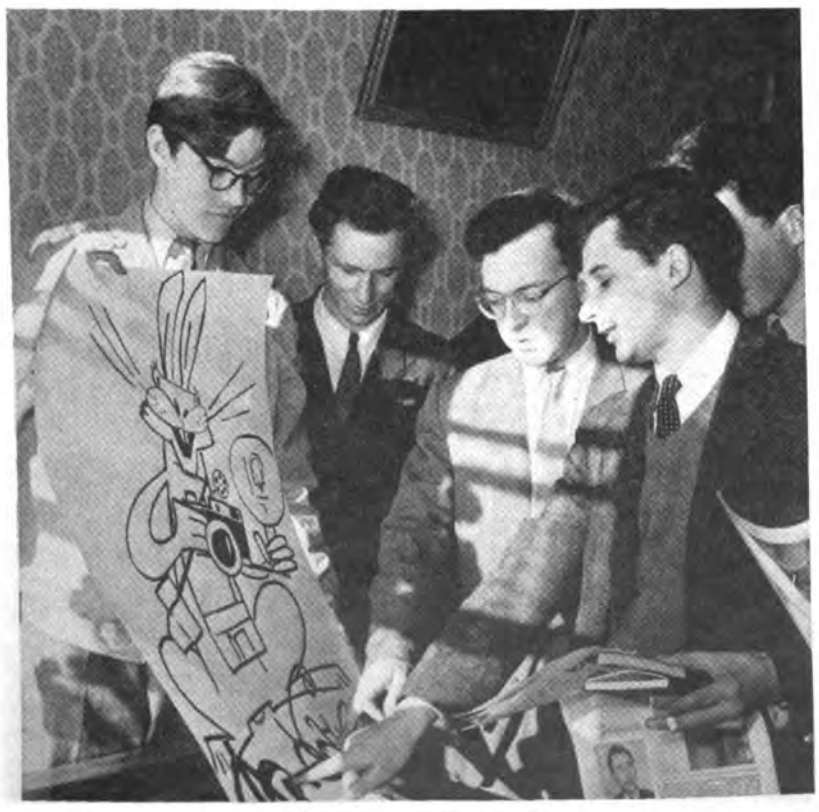
Visiting the Soviet Union

Continued

VISITING AMERICAN CATERERS SAMPLE FOOD SERVED AT MOSCOW UNIVERSITY.

PROF. W. M. STANLEY, NOBEL PRIZE WINNER, GIVES A TALK ON VIRUS AND CANCER.

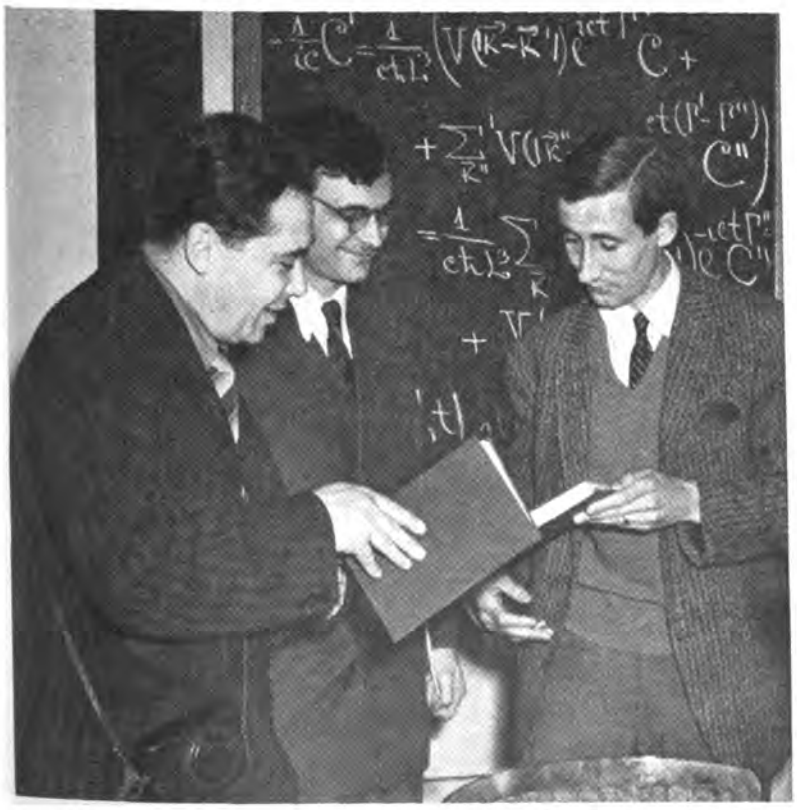
VALENTINA LEONTIEVA, A MOSCOW TV ANNOUNCER, AND AN AMERICAN FRIEND.



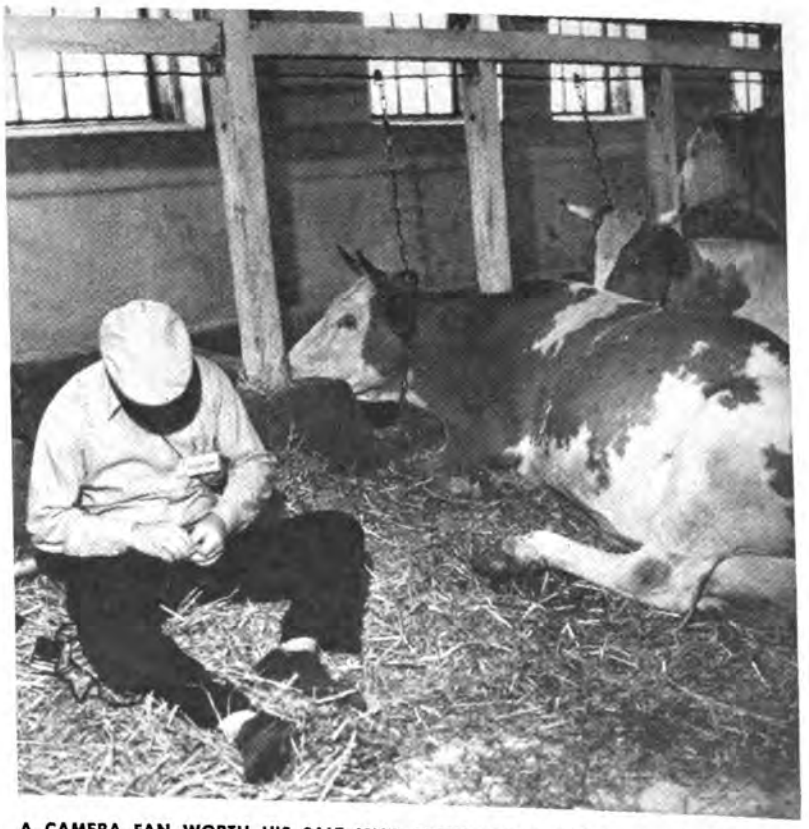
U.S. UNIVERSITY EDITORS VISIT THE OFFICE OF THEIR LENINGRAD COLLEAGUES.

SOVIET ACTRESS TAMARA MAKAROVA CHATS WITH SAM SPIEGEL, U.S. MOVIE DIRECTOR

AMERICAN VISITORS MADE A TOUR OF ONE OF THE NEW APARTMENT PROJECTS IN MOSCOW'S SOUTHWESTERN SECTION, A RESIDENTIAL AREA STARTED JUST A FEW YEARS AGO.



PROFESSOR DAWSON (RIGHT) FOUND MUCH TO DISCUSS WITH SOVIET PHYSICISTS.



A CAMERA FAN WORTH HIS SALT ISN'T FUSSY ABOUT WHERE HE CHANGES FILM.

Visiting the Soviet Union

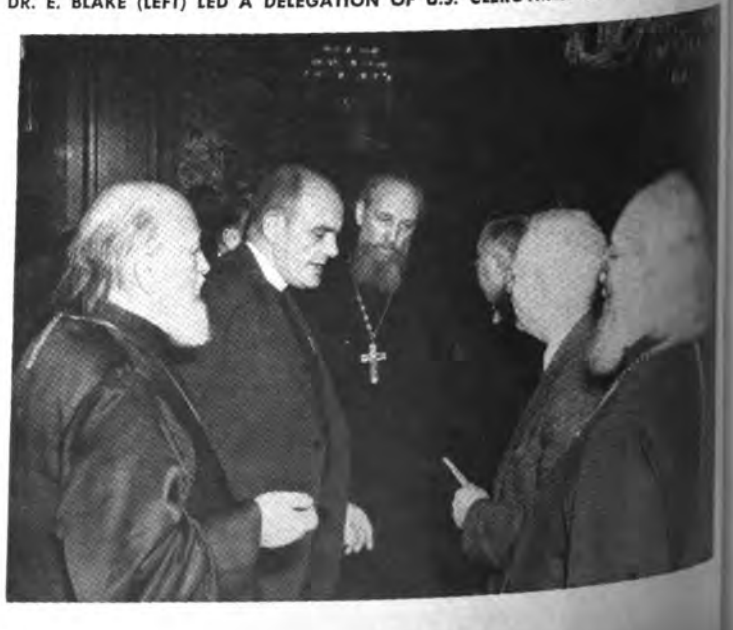
Continued

IVAN LOVEIKO, MOSCOW'S CHIEF ARCHITECT, SHOWS AMERICANS THE CITY'S PLAN.

A DELEGATION OF AMERICAN SPECIALISTS HEADED BY PROF. TUN Y. LIN OF THE UNIVERSITY OF CALIFORNIA INSPECTS CONCRETE CONSTRUCTION IN A HOUSING DEVELOPMENT

THE HISTORY OF LENINGRAD AND ITS BUILDINGS CAPTURED ON TOURISTS' FILM.

DR. E. BLAKE (LEFT) LED A DELEGATION OF U.S. CLERGYMEN ON A MOSCOW VISIT.



THIS IS A GOOD START

—says Robert Dowling

AMONG the recent American visitors to the Soviet Union was Robert W. Dowling, New York real estate executive and Chairman of the Board of the American National Theater and Academy. He also heads this organization's International Cultural Exchange Service. Mr. Dowling and his wife were the guests of the USSR State Committee for Cultural Relations with Foreign Countries.

During his stay, Mr. Dowling visited a number of cultural institutions and colleges in Moscow, Kiev and Leningrad. He was also in attendance at concerts and theatrical performances and met with representatives of the arts and professions, including leaders of various Soviet societies and organizations.

Mr. Dowling discussed means for furthering Soviet-American contacts, conferring with Georgi Zhukov, Chairman of the host Committee, Nikolai Mikhailov, Minister of Culture, and Nina Popova, Chairman of the Presidium of the Union of Soviet Societies for Friendship and Cultural Relations with Foreign Countries.

Before his departure Mr. Dowling was received by Prime Minister Nikita Khrushchev.

In an informal statement released to the press, Mr. Dowling recalled that this was his second visit in slightly more than a year and stated that it was all the more gratifying to find that cultural relations between the two countries had been so markedly broadened in that period. He said it seemed deeply symbolic to him that at a time when Americans have been enthusiastically applauding the performances of the Moiseyev Dance Ensemble, Muscovites were according a tremendous reception to the young American pianist, Van Cliburn.

The agreement between our two governments for exchanges in the fields of culture, science and technology, Mr. Dowling said, has furnished the basis for the development and reinforcement of contacts in the cultural field. Figuratively speaking, he concluded, the seeds we planted have sprouted and are already showing signs of a good crop. But this is only a start. Let's keep on broadening our contacts. ■

On his arrival at the Moscow Airport, Robert W. Dowling told correspondents and his hosts of his pleasure at coming back to the city once again.

Nina Popova gives Mr. Dowling answers to his questions. She heads the Union of Soviet Societies for Friendship and Cultural Relations with Foreign Countries.

Film producer Grigori Alexandrov entertains the Downings (at the right) at his suburban home. Georgi Zhukov is third from the left.

GREAT POSSIBILITIES OF SOVIET–AMERICAN TRADE

Soviet Purchases of American Goods Could Run into Billions

By Oleg Bogomolov USSR Economic Research Institute

THE Soviet Union is prepared to purchase American goods to the value of several billions of dollars within the next few years, declared Premier Khrushchev in a letter addressed to President Eisenhower in June of this year.

Trade between the United States and the Soviet Union would not be a new and untried venture. Prior to the war the Soviet Union made large purchases from companies like Ford, General Electric and International Harvester. And for a short time after the war trade between the two countries reached a high level.

During the past ten years, however, American-Soviet trade has been reduced almost to the vanishing point. At the present time the United States is the only great power which does not have a trade agreement with the Soviet Union. The relatively small amount of business done by Soviet foreign trade organizations with American firms does not even begin to approach the posssibilities.

The Soviet Union has declared time and again that it is prepared to place large orders with American firms. There can hardly be any doubt that these orders would help to spur American industrial activity. For the Soviet Union purchases from American firms would help to speed development in such industries as synthetic fibers and plastics and would increase the amount of consumer goods available for the home market.

Ready to Buy and to Sell

"I want to stress particularly, Mr. President," says the Soviet Premier's letter, "that in putting forth this proposal of greater Soviet-American trade, the Soviet Government does not mean armaments or equipment for the defense industry."

The proposal envisages purchase from American firms of industrial equipment for entire factories and plants, agreements for the use of industrial processes, the employment of American technical consultants, exchange of technical information and joint American-Soviet research in new types of synthetic materials and technological processes.

The Soviet Union is prepared to buy equipment for consumer goods production. It can use American refrigerators and air-conditioners; equipment for cellulose, paper and woodworking plants, and for textile, leather and shoe factories; television equipment; automatic machinery for packing, sorting and weighing; pumps and compressors; machines for the manufacture of building materials; mining machinery; transport equipment and a long list of materials like rolled ferrous metals, piping for city gas installations, chemicals, medical supplies.

Soviet Imports

The volume of Soviet foreign trade has increased more than six times over in comparable prices since 1938. The increase as compared with 1956 is 13 per cent. The Soviet Union now trades with some 70 countries.

Imports make up approximately half of Soviet foreign trade. In addition to its own multifaceted machine-tool production, the country is a large-scale importer of machinery, industrial and transport equipment.

During the postwar years the Soviet Union purchased abroad about 25,000 metal-cutting machine tools, nearly 27,000 railway cars, many freighters, fishing boats and passenger ships. It has been increasing its purchase of

THESE GOODS FROM ABROAD ARE BEING UNLOADED ON A FREIGHT WHARF LOCATED IN THE PORT OF ODESSA.

ALL TYPES OF FOREIGN FABRICS LIKE THESE YARD GOODS ARE IN BRISK DEMAND IN SOVIET RETAIL SHOPS.

foreign equipment for metallurgy, power, mining, chemical, building, printing, food and many if its light industries.

The Soviet Union also imports rolled iron and steel, some nonferrous metals, chemicals, rubber and other materials to supplement the quantities produced by its own industry. It imports large stocks of foods and consumer goods. In the years after the war some 100 million yards of woolen fabrics and 55 million pairs of shoes were among the many consumer items bought abroad.

Successfully concluded were negotiations between representatives of the Soviet foreign trade organization Tekhnopromimport and a large group of British firms for purchase of a complete plant for making tires. The cost of equipment bought from these British firms will exceed 14 million pounds sterling. The plant will be the largest in Europe.

The Soviet proposals on USA-USSR trade forecasts similarly large-scale purchases from American firms to build up its synthetic materials industry.

Soviet Exports

With expanding industrial production, the export lists of the Soviet Union grow longer each year. There are now several hundred different types of Soviet metal-cutting machines exported, many kinds of tractors and other farm machines, road-building machinery and heavy equipment for the metal, oil and power industries.

Soviet-manufactured goods of all kinds are displayed at world trade fairs and expositions and command the attention of buyers from many countries. Freighters leaving Soviet ports carry timber and wheat—the traditional Soviet export items—as well as iron, manganese and chromium ores, nonferrous metals, oil and oil products, coal, asbestos, mineral fertilizers and a host of other raw materials and finished goods.

Soyuzpromexport, one of the largest Soviet organizations exporting raw materials, last year shipped abroad a total of 11 million tons of iron ore, more than a million tons of manganese and chromium ores, 11 million tons of solid fuels and hundreds of thousands of tons of fertilizer, among other exports. It has commercial relations with business firms in 36 countries.

Trade Agreements

Trade relations are arranged on a goods exchange basis for the most part. Agreements are long-term, for periods of three, four or five years. This allows for bilateral planning and provides safeguards against the inevitable hazards and accidents that may beset short-term agreements.

The Soviet Union now has trade agreements with more than 45 countries—all the socialist countries, almost all the West European countries, many of the Asian and African countries, and, on the American continent, with Canada and Argentina.

The presently operating agreement with Italy, that covers the period of 1958-1961, is typical. The agreement will more than double Italian-Soviet trade. It provides Italian firms with a stable four-year market for various machine tools and equipment for building, food and a number of light industries. In addition, the Soviet Union has contracted to buy Italian rolled iron and steel, cables, citrus fruits, staple fiber, artificial fiber yarn, chemicals and other goods.

Under the terms of the second five-year agreement between Finland and the Soviet Union, running from 1956 through 1960—the first ran from 1951 through 1955—Finnish shipyards are guaranteed a stable market for many hundreds of their seagoing, lake and river freighters. By the terms of the agreement, the Soviet Union buys from Finnish firms, machinery, lumber, paper and manufactured goods. This steady and profitable market is no small factor in keeping Finnish factories busy and Finnish workmen employed.

The three-year agreement with West Germany for 1958-1960 provides for the purchase of German equipment for mining, metallurgy, chemical and plastics production; automatic machine tools; equipment for whalers and fish canneries; rolled iron and steel; chemicals and many other types of goods. In exchange, West Germany buys such Soviet raw materials as timber, cellulose, oil and oil products, grain, asbestos, manganese and chromium ores, ferroalloys, cotton, flax, hemp and tobacco.

The trade agreements with West Germany, Austria and Italy provide for a doubling of trade within a short space of time. The agreement with France for the period 1957-1958 envisages an even larger increase, a trebling of trade between the two countries by comparison with 1956 figures.

These long-term trade arrangements can unquestionably provide a powerful stimulus to a country's economy during periods of industrial slowdown. During the depression of 1929-1933, Soviet orders kept many industries operating in Germany, the United States and other countries. The present large Soviet orders placed with West German firms are undoubtedly having a beneficial effect on the West German economy.

In the early thirties nearly 40 per cent of all machines and industrial equipment exported by the United States was being bought by the Soviet Union. There is no question that large purchases which the Soviet Union stands ready to make now in the United States can have a favorable effect on the economies of both countries.

Exchange of Goods and Credit

As to payment for large purchases, the Soviet Union can pay with deliveries of raw materials and manufactured goods of interest to American industry. These include manganese and chromium ores, ferroalloys, platinum, palladium, asbestos, potassium salts, timber, cellulose and paper goods, chemical products, furs, machines and equipment. The Soviet Union is prepared to consider developing mining of iron ore for export to the United States, if American firms are interested.

Since American firms are more concerned at the present time with selling rather than buying, the Soviet Union is prepared, for the first few years, to buy more than it will sell, if the United States agrees to the usual long-term credit and installment payment arrangements normal in international trade.

An American-Soviet long-term trade agreement would have elements more significant than just the usual profit to the two countries immediately concerned. It would serve as a powerful stimulus to world trade. And even more important would be its beneficial effect on international relations.

Premier Khrushchev, in his letter to President Eisenhower, emphasizes this point with a comment attributed to Cordell Hull, Secretary of State under Franklin Delano Roosevelt, that trade and exchange contacts can be an antidote to war. "You will agree, I think," writes Premier Khrushchev, "that the world needs this antidote now as perhaps never before." ■

KAVKAZ FARM LIBRARY DISPLAYS LATEST BOOKS ON STOCKBREEDING UNDER SIGN: "LET'S OVERTAKE IOWA."

Kuban Farmers and Iowa

By Mikhail Sukhanov

IT IS three years ago this August that a group of Iowan farmers touring the Soviet Union paid a visit to the Kavkaz Collective Farm in the Kuban region. The American farmers were received with the traditional ceremony when they arrived—they were presented with a huge loaf of newly-baked bread and a salver of salt.

William Lambert, head of the American delegation, interviewed by a magazine upon his return home, said he understood that bread and salt symbolized heartfelt wishes for health and a long life. They got enough bread, the Iowan said, to feed an enormous family, and so much salt that they felt like deep-water sailors.

The delegation spent two days at the Kavkaz Farm looking at fields, livestock and dairy sections. They went out to the field camps and were much impressed with the comfortable quarters, canteens and sport facilities the farm provided for those who worked five to ten miles away from Kurgannaya, the farm's main village, during the sowing and harvest seasons.

Nikolai Tabakov, the collective farm chairman, recollects Ralph Olsen, one of the Iowans, commenting on the tall corn the farm grew. "If I were wearing a hat," Olsen said at the time, "I'd take it off to you people for this corn." Marion Stedd, a hog-breeder, spoke in high praise of the farm's white breed of hogs.

But the Kuban farmers, pleased as they were with the compliments, were much more interested in the critical comments the Iowans made. This was comment from people who knew their business.

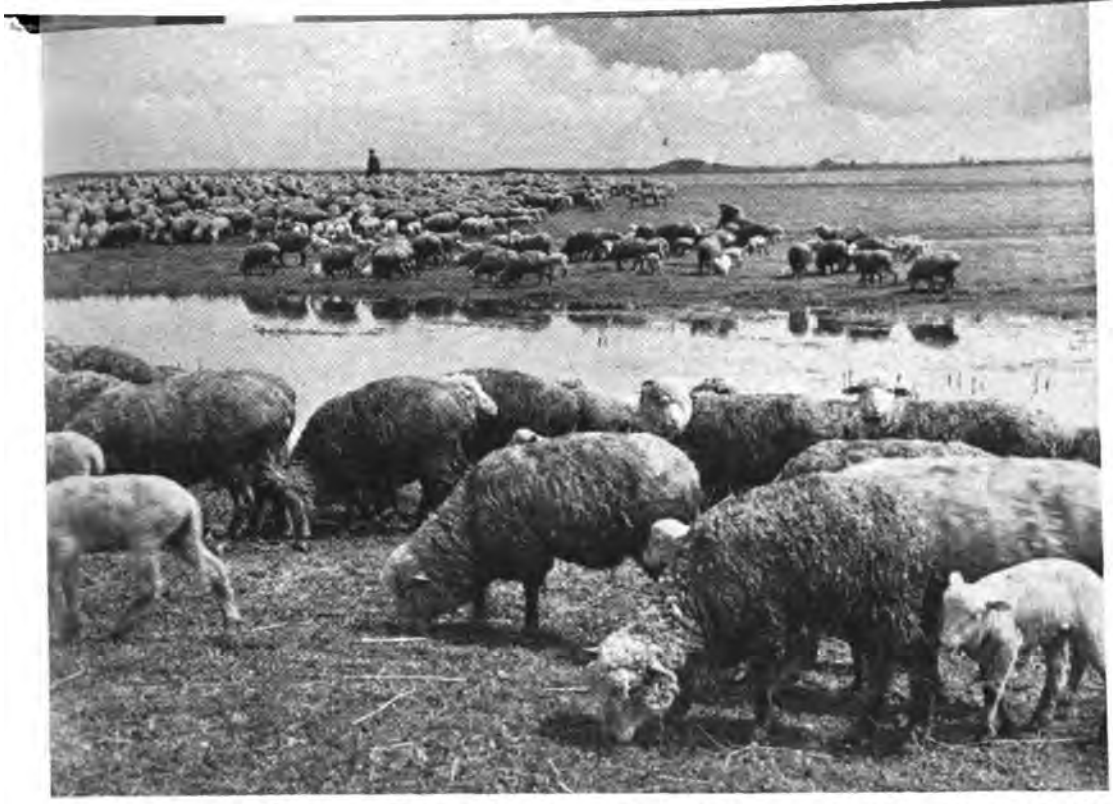
Iowa farmers hold first place in the United States for dairy and meat production. Many of the suggestions the Americans made were worked into farm practice during the three years since their visit—automatic feeders, electric herdsmen, and the practice of letting the hogs roam free in fields sown to fodder crops, among other things.

A Challenge

When Soviet farmers last year pledged themselves to overtake the United States in per

SEED SELECTION IN FARM LAB PRIOR TO SOWING.

AGRONOMISTS, STOCKBREEDING SPECIALISTS, ECONOMISTS AND ENGINEERS OF KAVKAZ COLLECTIVE FARM.



COLLECTIVE FARMS' GROWING HERDS INCREASED THE KUBAN'S MEAT OUTPUT BY 37 PER CENT LAST YEAR.

POULTRY NETS A SIZABLE PART OF THE PROFITS.

capita production of meat, milk and butter in the near future, farmers in many parts of the country chose regions in the United States similar to their own to compete with. They read available statistics on American crop yields and livestock output. When farm delegations were exchanged, they listened eagerly to the experiences of their American counterparts and told about their own.

Soviet farmers have a deep respect for the achievements of the Americans because they know it took lots of hard work to earn the reputation of being the world's leading agricultural producer, but they also have confidence in their ability to match them.

The Kuban collective farmers set as their particular goal the high Iowan production level. The choice was partly due to sentimental reasons—the visit had left a very warm memory. It had its practical side, too. The Kuban region is a rich farm country, similar in its agricultural potential to Iowa.

Located in the southern part of the country, the Kuban region is famous for its high yields. Its black soil is rich, its climate is mild, with abundant rainfall during the growing season. Washed by the waters of the Black and Azov seas, watered by many deep rivers, and protected by the spurs of the Caucasian Mountain range, it has almost never experienced the destructive effects of drought. Under the warm skies, tea, tangerines, lemons, grapes and other fruits grow in rich profusion. More than a hundred crops are raised by the region's 500 collective and 130 state farms.

Top acreage until recently was given over to wheat, but with the new grain base created through the cultivation of new lands in the country's eastern regions, the Kuban has been shifting over to livestock production with very promising returns. The changeover marks the most profitable use of the land in the interest of both the national economy and the local producers.

From the progress Kuban livestock breeders have already made this year, the goal of overtaking and perhaps surpassing Iowa farm production quotas hardly seems extravagant. The area sown to fodder crops has been greatly expanded to supply feed for the large herds planned for.

The Kuban increased its milk production within the year by 28 per cent, and its meat by 37 per cent. In 1957 its average milk production was already higher than Iowa's.

Iowa is still producing considerably more meat than the Kuban, but Kuban farmers have stepped up their pace very sharply. In 1956 they produced an average of 32 pounds of meat per acre; in 1957 they increased the figure to 60, and this year they expect to raise the figure to 70 or even 80 pounds.

Continued on next page

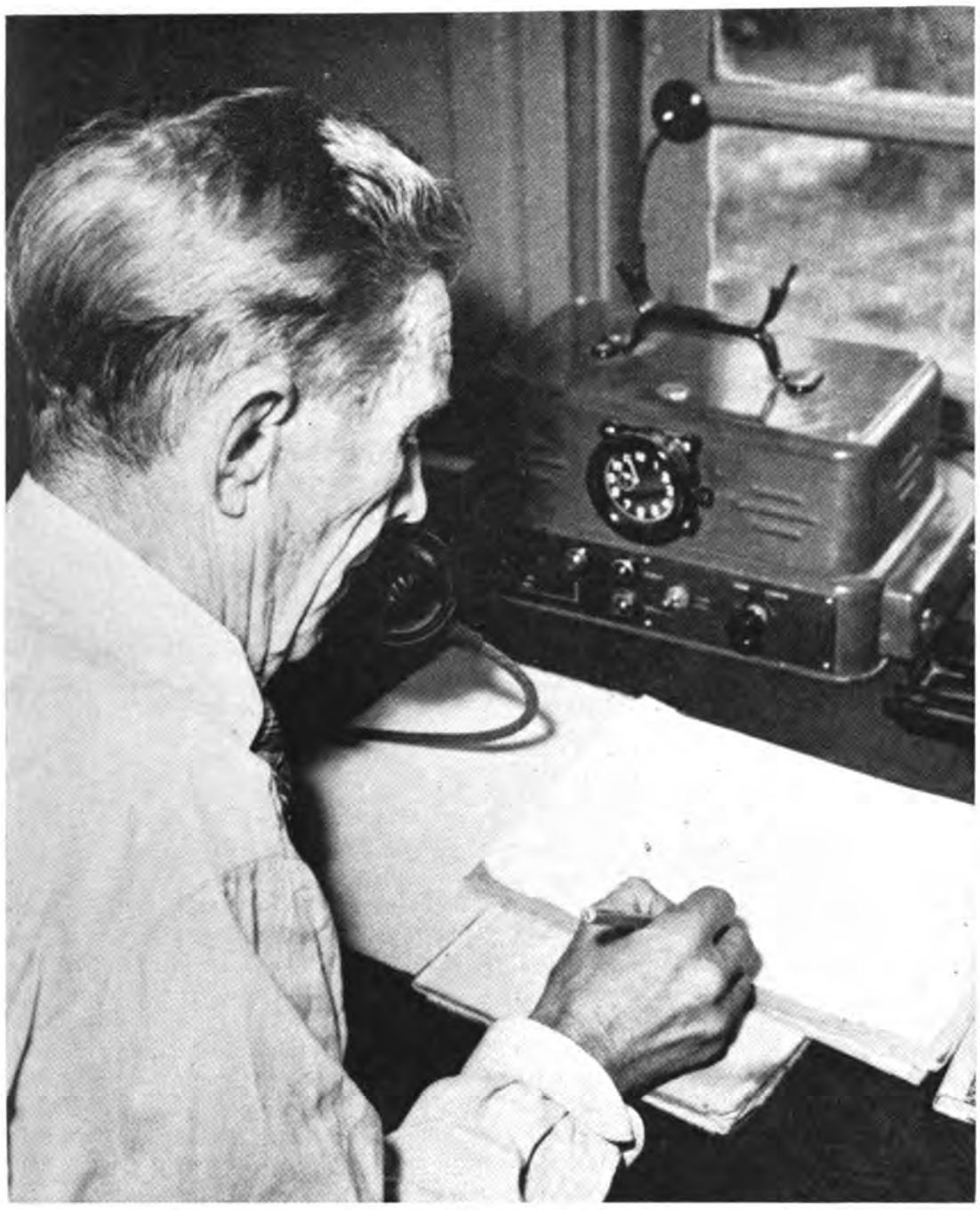
PIGS ARE LET OUT IN FIELDS OF FODDER CROPS.

KAVKAZ FARMERS CHECK DELIVERY OF NEW MACHINES.

THIS IS JUST ONE OF THE FARM'S TRUCK GARAGES.

The Kuban Farmers and Iowa

Continued



KAVKAZ FARM COVERS SCORES OF MILES, AND RADIO IS USED TO CHECK ON THE PROGRESS OF FIELD WORK.

Three Busy Years

The Kavkaz Collective Farm has been moving right along with the rest of the Kuban in raising its productive potential.

This progress is true for the rest of the country, too. Productivity in agriculture has increased considerably not only for individual farms, but for whole regions and even republics. The progress made can be seen on every hand.

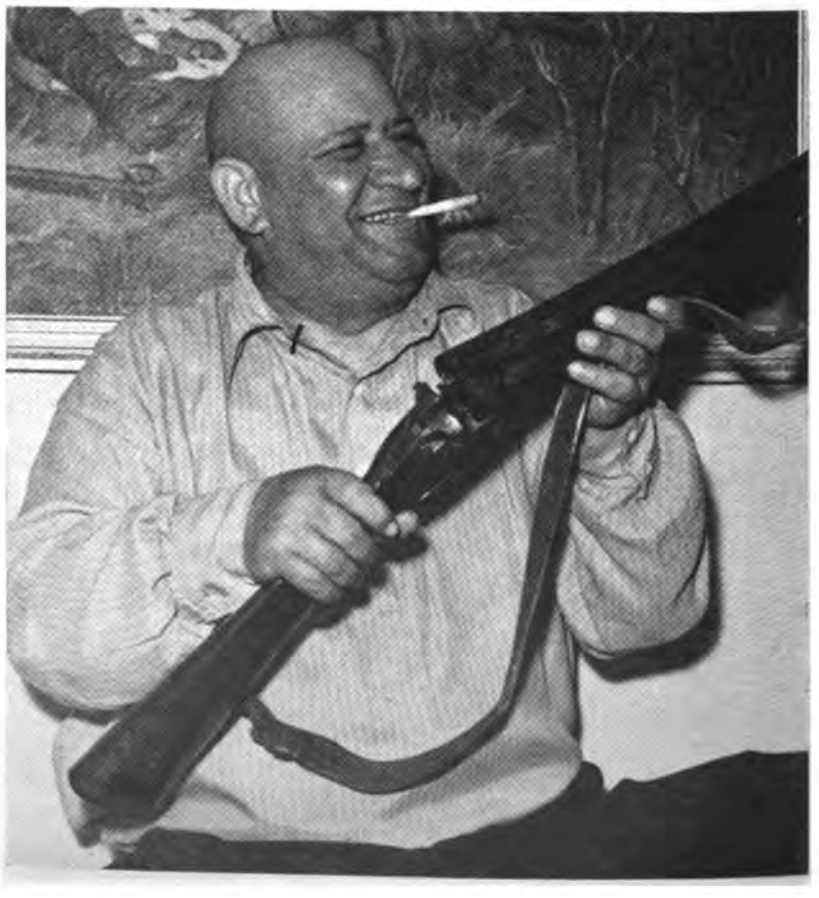
Following the decision of the Soviet Parliament to change the state-owned machine and tractor stations into sales and service agencies —up to then their machines and operators had worked the collective farm fields on a contract basis—the Kavkaz Farm bought 63 tractors and 61 harvester-combines from the local station, which was selling out its machinery. It also bought haymowers, plows, seeders, seedling planters and other machinery.

All this equipment cost the farm approximately three million rubles. The estimated income of the farm for the current year will be beyond 25 million rubles, so that the purchase is no heavy drain on this year's income, let alone the farm's capital assets.

Tractor drivers, combine operators, a mechanical engineer, an agronomist and zoo-technicians formerly employed by the ma-

TECHNICIAN VLADIMIR DENISENKO IS ON DUTY AT THE FARM'S POWER PLANT.

NIKOLAI TABAKOV, COLLECTIVE FARM CHAIRMAN, IS AN INVETERATE HUNTER.



THE FARMERS CAN PURCHASE PRACTICALLY EVERYTHING THEY NEED FROM THE WELL-STOCKED VILLAGE STORES.

CLASSES ARE OVER AT KURGANNAYA GRADE SCHOOL.

chine and tractor station readily joined the Kavkaz Farm. Now the farm has a total of 32 trained specialists.

Victor Gorban, former chief agronomist of the machine and tractor station, is now working on the farm in the same capacity. He is developing plans for improved cultivation and is gathering data for a soil chart. The farm's chief engineer, Andrei Kurakin, who also came from the machine and tractor station, is mechanizing work in the livestock division. Agnia Usoltseva, an experienced zootechnician, is experimenting with improved cattle breeds.

The farm has been budgeting larger sums for capital construction. With 200 electric motors now in operation, it has expanded its power sources with a newly-built, 720-kilowatt power plant.

In the farm village of Kurgannaya, which the Americans admired for its wide streets and greenery three years ago, they would find many changes. Building has been going on apace. In 1957 alone, 220 collective farm families moved into newly-constructed houses.

A new two-story community center stands next door to the farm office building, and there is now an extension division of the Kuban Agricultural College in the village, with many young students like milkmaid Nina Sotnikova, tractor driver Vladimir Voroshilin, and hog-breeder Raya Derzayeva, completing the college courses in their specialties.

Long Distance Conversation

Last spring, Nikolai Tabakov and Charles Hearst, one of the Iowans who was the reason for a long-to-be-remembered birthday party when the Americans visited Kurgannaya, had an unusual sort of exchange of recollections.

On a radio broadcast, Tabakov spoke of the visit of the Iowan farmers, challenged them to a friendly competition in cattle raising, and invited them to visit Kavkaz again to see what progress had been made in the three years. Speaking on the program with him was one of the young Kavkaz hog-raisers, Lidia Ananieva, a recent graduate of the Kuban Agricultural College. She emphasized the value of this peaceful competition between American and Soviet farmers to raise more foodstuffs. "It's to everyone's advantage," she said.

Charles Hearst answered in an article published in the *Des Moines Register*. "I cannot think of any more splendid sphere for competition and for promoting good relations," he wrote in reply. ■

LIDIA ANANIEVA, HEAD OF A HOG-BREEDING SECTION, PARTICIPATED IN THE KUBAN-IOWA RADIO HOOK-UP.

THE ADVENTURES OF TOM SAWYER

Books b

HOW I EDITED AN AGRICULTURAL PAPER

A TALK WITH AN INTERVIEWER

THE CELEBRATED JUMPING FROG OF CALAVERAS COUNTY

FRONTISPIECE AND TITLE PAGE FOR SINCLAIR LEWIS' *ARROWSMITH* ILLUSTRATED BY ALEXEI VASIN

DREISER'S *AN AMERICAN TRAGEDY* ILLUSTRATED BY VLADIMIR MINAYEV

American Authors Illustrated by Soviet Artists

RIP Van Winkle and Tom Sawyer have many devoted friends in the Soviet Union, where Washington Irving and Mark Twain are widely read. Also popular among Soviet readers, especially young people, are Mayne Reid, Bret Harte and Jack London. The Soviet people know and appreciate the best literary works of all countries of the world, including those of the United States.

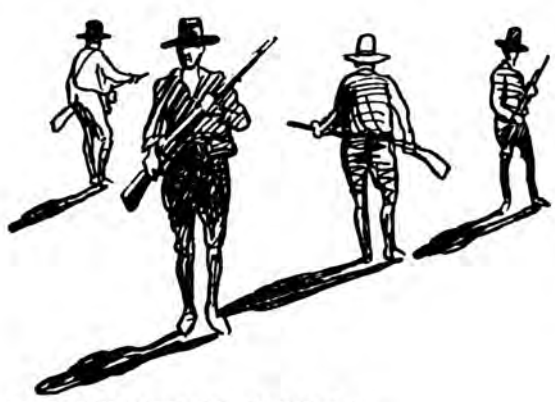
American classical novels and many books by contemporary American authors are published in huge editions. During the Soviet years works of American fiction and poetry have been published in a total of more than 77 million copies in 50 languages of the peoples inhabiting the Soviet Union.

Books by American writers have inspired many fine illustrations. Soviet artists have succeeded in capturing the spirit of the pioneers on the Western prairies and intrepid seafarers, southern farmers and Connecticut miners, pretty girls and stern scientists, who come to life on the pages of many wonderful books. Most Soviet illustrators find accurate and expressive means of conveying the appearance and traits of the literary characters.

Some of the illustrations for works by American authors are so eloquent that they have acquired independent artistic significance and have been successfully exhibited at art shows. *Continued on next page*

UPTON SINCLAIR'S NOVEL *JIMMY HIGGINS* ILLUSTRATED BY ANATOLI KOKORIN

Books by American Authors Illustrated by Soviet Artists *Continued*



JOHN STEINBECK'S *THE GRAPES OF WRATH* ILLUSTRATED BY LEV BRODATY

ERNEST HEMINGWAY'S *THE OLD MAN AND THE SEA* ILLUSTRATED BY ALEXANDER KLYACHKO

DEXTER MASTER'S *ACCIDENT* ILLUSTRATED BY PYOTR PINKISEVICH

ARTHUR MILLER'S *ALL MY SONS* WAS FIRST STAGED IN THE SOVIET UNION IN 1947. ITS PRODUCTION BY THE MOSCOW DRAMA THEATER WON A NATIONAL PRIZE.

American Plays on the Soviet Stage

By Georgi Zlobin, *Theater Critic*

SOVIET theater audiences see many more American plays, I venture to say, than Americans do Russian plays. Leafing through a program of Moscow theater presentations for a typical week, I found scheduled, alongside plays by Schiller, Tolstoy, Chekhov and Leonov, productions of *All My Sons*, *The Theft*, *Ladies and Gentlemen (Another Part of the Forest)* and *Uncle Tom's Cabin*.

At the beginning of this last season, five of the biggest Moscow theaters were each doing an American play. At the same time, Hemingway's *Fifth Column* was showing in Leningrad.

American plays have been popular with Soviet audiences for a long time. The Moscow Maly Theater staged *Anna Christie* and other Eugene O'Neill plays a quarter of a century ago. Before the war we saw the plays of Clifford Odets and Sidney Kingsley. I still have the newspaper clipping in which a Leningrad theater critic describes Clifford Odets' *Golden Boy* as a play "with a wealth of ideas, emotions and passions that carry the playwright's message of the essential goodness of people."

According to the Burns Mantle Theater Yearbook, *Deep Are the Roots*, the play by James Gow and Arnaud d'Usseau, was the Broadway hit of the first postwar season, with 289 performances. Presented in the Soviet Union, it was equally popular. It was produced by two theaters in Moscow and one

Continued on next page

LILLIAN HELLMAN'S *AUTUMN GARDEN*. ALL OF HER PLAYS HAVE BEEN VERY POPULAR WITH SOVIET AUDIENCES.

CHARACTERS APPEARING IN THE STAGE VERSION OF MAYNE REID'S NOVEL *THE HEADLESS HORSEMAN*, AS PORTRAYED BY ACTORS OF THE MOSCOW CHILDREN'S THEATER.

American Plays

Continued

theater in Leningrad at about the same time, followed by productions in other cities. Somewhat later the play was published here in the original and then translated into the Georgian, Kazakh, Estonian, Lettish and Ukrainian languages.

Lillian Hellman is probably the most popular of American playwrights with Soviet audiences. Almost all of her plays have been translated and staged. The first was *Watch on the Rhine*, which the Komsomol Theater in Moscow produced in 1945, under the rather curious title *The Forellis Lose Their Peace of Mind!*

It was followed almost at once with a production of *The Little Foxes* by the Moscow Theater of Drama, and then by *Another Part of the Forest*, produced under the title *Ladies and Gentlemen* and directed by the very well known Nikolai Okhlopkov.

Autumn Garden was presented in a superb production by the Moscow Art Theater, with memorable performances by the gifted actor Ktorov as Crossman and Popova as the willful old lady, Mary Ellis.

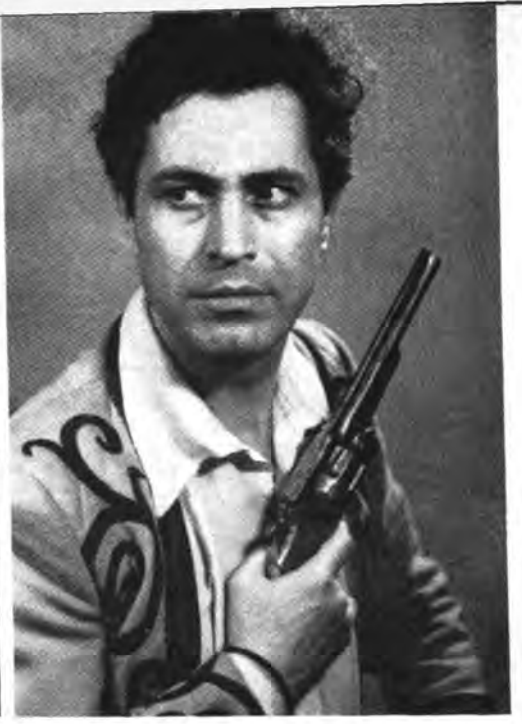
Soviet theatergoers think of Lillian Hellman as a playwright in the Chekhov tradition. Her action seems always to be restricted to a world of broken hopes and lost illusions, but one senses a profound social significance in the subtle, sometimes barely perceptible suffering of her characters.

Arthur Miller's plays are extremely popular. *All My Sons*, in a Vakhtangov Theater production in 1947, was the first of Miller's plays to be done here. The Moscow Drama Theater subsequently included the play in its repertory. Produced by Sudakov, it won a prize at a nationwide drama contest.

The Crucible was done by the Komsomol Theater of Leningrad under the title *Salem Trial*. In the judgment of critics, the production lacked dramatic impact and failed to convey the overtones of modern meaning implicit in the playwright's treatment of the 17th century witchcraft trials. A later production by the Lithuanian Academic Theater of Vilnius won general approval from critics and audi-

DREISER'S *AN AMERICAN TRAGEDY* HAS BEEN STAGED IN MANY OF THE SOVIET THEATERS SINCE 1934.

JACK LONDON'S *THE THEFT* ON MOSSOVIET STA



ences. The Moscow Art Theater is now preparing to produce *Death of a Salesman.*

We have had many successful stage adaptations of American books. Mark Twain's wonderful *The Prince and the Pauper* was adapted by Sergei Mikhalkov, and *Uncle Tom's Cabin* by Alexander Brustein. According to my far from complete figures, *Uncle Tom's Cabin* has been staged in some forty Soviet cities.

Theodore Dreiser's *An American Tragedy*, adapted for staging under the title *Law of Lycurgus*, had its Soviet premiere in 1934 at the Central Theater of the Soviet Army in Moscow. Since the war it has been staged in Moscow, Omsk, Vladivostok, Saratov and other cities. The latest production, so far as I can check, was one by the drama theater in the small city of Vladimir last year.

SCENE FROM DUBOIS' HISTORICAL DRAMA, *HAITI.*

Among the most distinctive adaptations done since the war were Jack London's *Martin Eden*, by the Latvian State Theater in 1948, and the Moscow Satire Theater's production in 1949 of *Sack of Temptations*, based on Mark Twain's *The Man Who Corrupted Hadleyburg.*

A great many American plays have been translated into Russian in the past few years. They are published both in literary magazines and as play scripts for use by theaters. The magazine *Novy Mir (New World)* has translated Arthur Miller's *Death of a Salesman*, and the magazine *Inostrannaya Literatura (Foreign Literature)* ran a translation of *A View from the Bridge.*

Other American plays translated within the recent past include Lillian Hellman's *The Searching Wind;* Elmer Rice's *Counsellor-at-Law*, published as *Root of Evil;* James Gow's and Arnaud d'Usseau's *Legend of Sarah;* N. Richard Nash's *The Rainmaker;* Howard Teichmann's and George S. Kaufman's *The Solid Gold Cadillac;* Jerome Lawrence's and Robert Lee's *Inherit the Wind.*

Soviet periodicals publish a sizable amount of material on American plays and playwrights. Within the relatively recent past evaluative and critical articles have been done on Eugene O'Neill's *Long Day's Journey into Night;* William Saroyan's *Cave Dwellers;* George Bellak's *The Trouble Maker;* and *Career* by the young playwright James Lee.

American theater activity is covered fairly comprehensively in the magazine *Theater.* Its department "Theaters of the World" presents a periodic bird's-eye view of plays staged in other countries.

Soviet theater groups have performed on the stages of many countries and have been host to many foreign groups. We would also welcome the chance to see plays not only written by Americans but produced and acted by Americans, and our artists would like to perform in the United States. This kind of exchange could broaden the public's knowledge of the drama in both countries, acquaint us with the differences as well as the similarities in our interpretation and approach, and give us both a real insight into each other's culture. ■

JACK LONDON'S *THE THEFT* ON MOSSOVIET STAGE.

THE THEFT NOW RUNS IN SEVERAL SOVIET CITIES.

BORIS POLEVOI IS GREETED ON HIS WASHINGTON ARRIVAL BY JOSEPH POLOWSKY.

Soviet War Veterans Visit Washington

By Boris Polevoi

It was thirteen years ago that American and Soviet soldiers shook hands at the historic link-up of the two armies at the Elbe River in Germany. It was a memorable day, one commemorated in 1955 when a group of American veterans of the link-up visited the Soviet Union. Upon the invitation of the American Veterans of the Elbe River Link-Up, a delegation of the Soviet War Veterans Committee recently visited Washington. Boris Polevoi, Soviet writer who headed the delegation, gives his impression of this visit.

LINK-UP HANDSHAKES REPEATED. SOVIET AND AMERICAN VETERANS MEET AGAIN AS THE VISITORS ATTEND REUNION OF THE AMERICAN ELBE RIVER VETERANS GROUP.

As soon as we got off the plane at the Washington airport, we were surrounded by a noisy, happy group of people welcoming us. While Alexei Maresiev, a member of our veteran's group, was exchanging greetings with our old friend Joseph Polowsky, whom we had met in Moscow when he visited with the delegation of American veterans three years ago, there was a general hubbub of excited talk around us, of cordial hand-shaking and of flower presenting. Then came the formal ceremony arranged by the American Veterans of the Elbe River Link-Up.

Representatives of the Elbe veterans had come from all over the United States to greet us in Washington. We met a textile mill foreman from South Carolina, a New York librarian, a Baltimore filling-station owner, a New York butcher, and many other friends we were glad to shake hands with.

I should judge that by political persuasion most of these people were miles removed from us. But there was a real tie and mutual sympathy that came not only from our allied effort during the war, but also from the profound realization that friendship between our two countries is the only way of preserving world peace. One was struck by the frequency with which this sentiment was expressed at the dinners, at the reception held by Soviet Ambassador Mikhail Menshikov, and at the two press conferences.

In Washington we made the acquaintance of Colonel W. E. Leonard, Director of Veterans Affairs of the District of Columbia. Speaking at a reception held on April 25, the day which commemorates the link-up, he moved listeners with the intensity of his feelings. He spoke, he said, "as a veteran, as a man who saw war"—of his deep concern for peace, one shared by veterans of both nations. He said he had invited the Soviet veterans to be his guests at home and that his daughters had baked a pie specially for them. It was a pie they had baked for friends, and it was eaten in an atmosphere of friendship and mutual understanding.

We were invited to a big-league baseball game played at Washington's Griffith Stadium. We five veterans had just taken our seats when baseball stars Mickey Mantle of the Yankees and Roy Sievers of the Senators came up to be photographed with us. They, too, were war veterans, they told us. The pictures were snapped on the field, with the players in their baseball uniforms. When the announcement was made over the public address system that Soviet veterans of the Elbe link-up had come to see the game, all the 28,000 spectators stood up and welcomed us most warmly for a full five minutes.

Included in our luggage for the trip to the United States was a large wooden box containing a bratina, a large ceremonial drinking bowl symbolizing friendship, for presentation to President Dwight D. Eisenhower. It was a gift from Soviet veterans of World War II and their families to the President in warm appreciation of the great contribution that American armed forces had made during the war.

On April 25 our Soviet delegation called at the White House and learned that the gift would be accepted for the President by his military aide, Col. Robert Schulz, and the bowl was presented to him.

Together with our American friends, we laid a wreath on the grave of the Unknown Soldier in Arlington Cemetery, with a military band playing the funeral march. Many of the bystanders came over to shake hands with us and to say a few words about peace and the need for friendship between nations.

When we left for home, we were seen off at the airport not only by the Elbe link-up veterans and Colonel Leonard, but by representatives of another veterans' organization. We were assured that the friendship struck up during those days when our armies fought together against a common enemy in World War II—the friendship cemented by the handshake on the Elbe—has not been forgotten in America.

The most gratifying thing about our visit to the United States, we all felt, was the warmth of our welcome, the very great interest shown by Americans in Soviet culture, science and engineering, and their profound wish for peaceful coexistence. ■

CEREMONIAL DRINKING BOWL SYMBOLIZING FRIENDSHIP, A GIFT FROM SOVIET WORLD WAR II VETERANS TO PRESIDENT EISENHOWER, IS ACCEPTED BY HIS MILITARY AIDE.

THE *UKRAINIAN SUITE VESNYANKI* IS ONE OF THE 13 NUMBERS ON THE PROGRAM PERFORMED BY THE MOISEYEV DANCE ENSEMBLE FOR AMERICAN AUDIENCES.

Soviet Dancers Meet America

By IGOR MOISEYEV

Director, USSR Folk Dance Ensemble

THE COSTUMES IN EVERY DANCE DUPLICATE THE NATIONAL DRESS IN ALL THEIR INTRICATE DETAIL.

THIS REEL FROM THE *SUITE OF OLD RUSSIAN DANCES* IS FULL OF COLOR, LYRICISM AND GRACE.

OUR first performance at the Metropolitan Opera House in New York was an experience no member of our dance company is ever likely to forget. It was our first introduction to an American audience, and a more enthusiastic, more exciting one it would be hard to imagine.

For us the welcome was doubly gratifying since we had come to dance for American audiences with some misgivings. We really had no idea of what we could expect. We were afraid, for one thing, that Americans would not understand our dancing and perhaps might not take to it. And there was some justification for our feelings because of the lack of any real contact between our two countries over these past years. For ourselves, the lack of contact made it very hard for us to gauge the tastes and interests of Americans, what they would or would not understand of

Continued on next page

Soviet Dance

our national art. But we were in for the most happy kind of surprise.

Responsive Audiences

From our first performance to our last, we were met with a cordiality which went far beyond our most hopeful expectations. And as important—for us as dancers even more so—a complete understanding of what we were attempting in our folk art. We felt that understanding in the response of audiences everywhere we danced, in the many newspaper reviews, in innumerable conversations we had with people in many American cities, in the fan mail we received that talked of "the traditionally beautiful and varied reflections in your dances of the life of the Soviet Union."

It was an unexpected and happy surprise for us to find how much American audiences had in common with the Soviet people. We found the same warmth, the same openness and expansiveness, the same feeling for humor. It was a constant astonishment to us to see how similar the reactions were.

Our dance *City Quadrille* evoked the same spontaneous laughter in America as it would in any Soviet city. There was the same kind of understanding applause for the *Suite of Old Russian Dances*, the Moldavian *Zhok*, the *Ukrainian Suite Vesnyanki* with its fast *Hopak*, the same delighted chuckles for our comic *Two Boys in a Fight*.

There was not the slightest change we had to make in any of our dances so they would be understood and appreciated by American audiences. This natural and thoroughly spontaneous reaction was evidence not only of what our peoples had in common but of how much we could contribute to each other. I felt this in very personal terms.

American Folk Dances

Before I came to the United States, I, of course, knew something about the American dance, but my knowledge was hardly very detailed or specific. There was much I absorbed and learned as we traveled through the United States and much more I should have learned if our schedule had not been so overcrowded.

Now I certainly have a much clearer picture of America that I hope to use as a basis for further study and perhaps for the creation of a serious dance work sometime in the future.

American folk dances are greatly varied since they are conceived in widely separated parts of the country with different folk customs, traditions and ways of living. Like the folk dances of any nation, they can serve, it seems to me, as rich raw material out of which fine choreographic productions can be developed.

Creating the Stage Version

We used much the same basic raw material to build our dances. To create our *Hopak*, for example, we went to different parts of the Ukraine, watched the *Hopak* danced in village after village, noted the variations, chose a dozen or so for study. We took the typical steps and movements, generalized them and around them built the version which we staged.

I think that the same process of research and selection applied to American folk dances would produce some very exciting results. I talked to many American choreographers and they found the idea most stimulating. I even received several invitations to come again and work with them.

Meet America

Continued

A FAST *VIRGINIA REEL* WAS AN ENCORE FROM THE THIRD PERFORMANCE OF THE MOISEYEV GROUP TO THE LAST.

And I do hope to return to the United States, especially to study American dances. We would like to include some of them in our permanent repertoire. Among our 160 dances we have quite a few from countries outside the Soviet Union.

Learning the *Virginia Reel*

We did try one American dance, the *Virginia Reel*. We learned it at a very pleasant gathering arranged for us in New York where we met many choreographers and lovers of the folk dance. First they danced it for us. Then a few of our people joined in.

As the dance proceeded, more and more of our group joined in, while the Americans dropped out to make room for them. Finally, only our dancers remained on the floor.

We staged the *Virginia Reel* two days later, immediately after our last number on the program, with no break for costume change. And so, an American dance was performed in Ukrainian national dress—and the audience reaction was wonderful.

Seeing Is Knowing

We in the Soviet Union are very much interested in things American. We know your literature, both classical and contemporary, stage many of your plays and study your art. All of this helps us to get a picture of American life. But without direct contact, it is necessarily an incomplete picture.

Even in some European countries which have closer contact with the United States there are certain misconceptions about American culture. I have met Europeans who told me, for example, that the United States did not have much in the way of theater. Amer-

Continued on page 33

IN EVERY CITY THE DANCERS VISITED DURING THEIR TOUR, THEY MADE NEW FRIENDS AT INFORMAL GATHERINGS.

Soviet Dance

A LITTLE MORE PRACTICE AND HE WILL BE ALMOST SURE TO GET TO THE TOP OF A NEW YORK SKYSCRAPER.

AUTOGRAPH HUNTERS ARE THE SAME IN EVERY CORNER OF THE WORLD.

VISITING SIGHTSEERS READY CAMERAS FOR ACTION.

AN AMERICAN CUSTOM IS QUICKLY ADOPTED.

GAIETY AND CONGENIALITY WERE INTERMINGLED DURING THE ENTIRE THREE-MONTH TOUR OF THE UNITED STATES.

t Meet America

Continued

AMBASSADOR MIKHAIL MENSHIKOV, IGOR MOISEYEV, IMPRESARIO SOL HUROK AND MME. MOISEYEV AT A PARTY.

THE DANCERS FOUND HONEYMOON FALLS INTERESTING.

AN AMERICAN FAMILY GUIDED THE DANCERS ON A BOAT TOUR AROUND MANHATTAN.

IT WAS PLEASANT TO HEAR PETE SEEGER SINGING AMERICAN FOLK SONGS.

Continued on next page

MAIDEN'S DANCE FROM THE *MOLDAVIAN SUITE*—A SERIES OF COUNTRY DANCES BASED ON A STUDY OF FOLKLORE, AS ARE ALL OTHER DANCES PERFORMED BY THE ENSEMBLE.

Soviet Dancers Meet America *Continued*

DANCE OF THE KAZAN TARTARS IS A LIVELY AND HUMOROUS PORTRAYAL OF THE CUNNING OF TWO VIVACIOUS YOUNG GIRLS WHO PLAY A TRICK ON TWO UNSUSPECTING MEN.

ican moving pictures were very good, they said, but unfortunately the films had harmed the theater art.

While I was in the United States I saw several plays and came to quite a different conclusion. As a matter of fact, I was very pleasantly surprised at the fine quality of American theater.

I consider *West Side Story* really good theater, done with beauty and with great skill. *The Diary of Anne Frank*, I thought, too, an extraordinarily moving production. I must also mention *My Fair Lady*, whose staging and technique, I feel, strike a very high artistic note.

On the other hand I expected too much of movies and was often disappointed. Mind you, I have no intention at all of dismissing American movies as nondescript. Such a splendid movie as *The Bridge on the River Kwai* is only one of many fine pictures which movie makers in the United States have turned out. But I agree with those American movie critics who say that many first-rate films are somehow lost in the flood of second-rate productions.

Friendship Tour

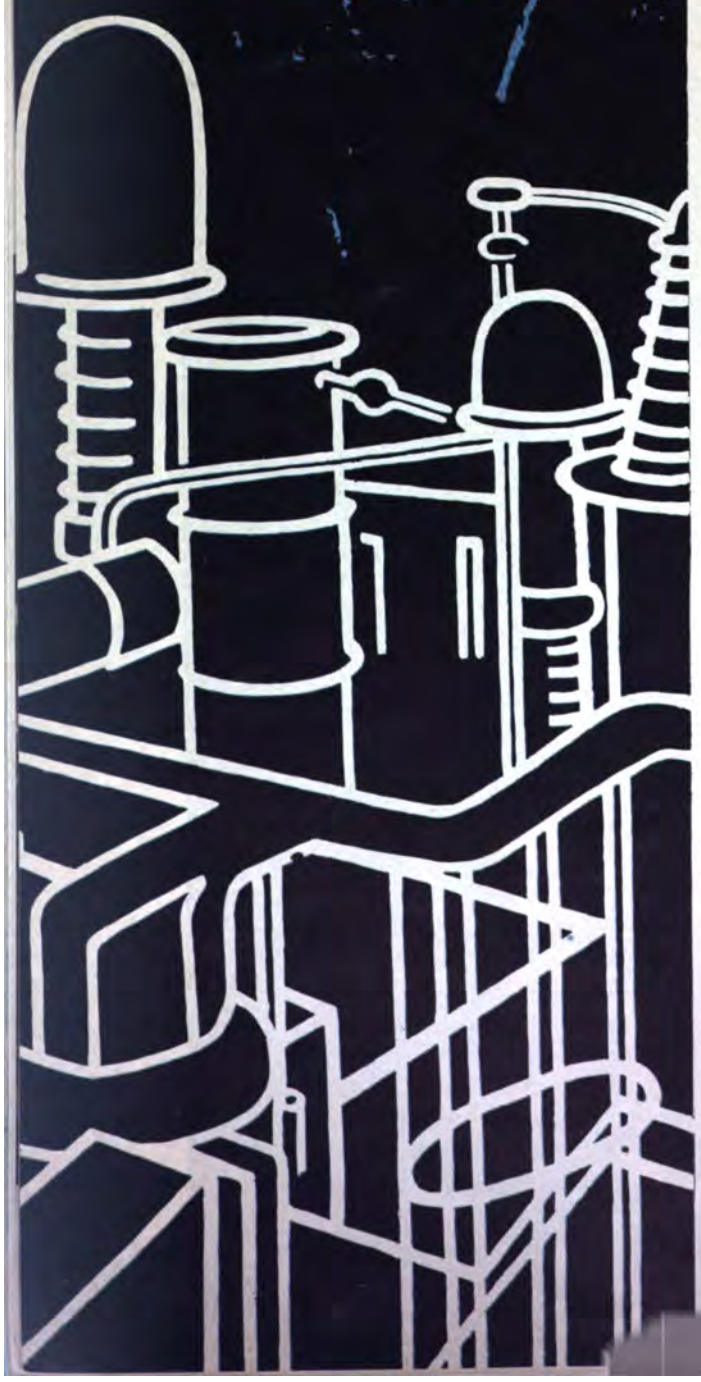
But this is by the by and the impression of a hasty, crowded but wonderfully stimulating visit which I hope will be the first of many—traveling both ways.

Ours was a tour of friendship and good will beneficial for both our people. We certainly learned very much about Americans, and I am sure that the Americans we met have now a better understanding of Soviet people. This is bound to happen if we widen our range of contacts—and a very good thing it would be for all of us. ■

THE *CITY QUADRILLE* IS AN EPISODE FROM THE CYCLE OF FOLK DANCES ENTITLED *PICTURES OF THE PAST*.

H-Power For Peace

An Unlimited Source of Energy



By IGOR KURCHATOV

Director, Atomic Energy Institute, USSR Academy of Sciences

AT the close of the first half of our present century, science and engineering solved the problem of utilizing the energy locked in the atomic nuclei of uranium and thorium. But there is comparatively little of these fuels in the earth's crust. If all power plants the world over were to be converted so they could use uranium and thorium as fuel, at the present rate of increasing use of power, the earth's supply would be exhausted in one or two centuries. In about the same span of time the earth's reserve of coal and oil is also likely to be exhausted.

The great work of science and engineering in the second half of this century is to unite effort and knowledge to produce an ultimate source of power by controlling thermonuclear reactions.

What goes on in a thermonuclear reaction is an enormous release of energy as a result of nuclear fusion when hydrogen is transformed into helium. It is the process which takes place when a hydrogen bomb explodes. But to get a commercial source of power supply, this thermonuclear reaction must be controlled so as to proceed quietly and slowly.

Inexhaustible Fuel Supply

The thermonuclear reactors of the future will not be using ordinary hydrogen; their fuel will be heavy hydrogen. A thermonuclear reaction can be controlled most easily by use of a mixture of equal parts of deuterium, the hydrogen isotope with an atomic weight of 2, and tritium, the hydrogen isotope with an atomic weight of 3.

Although the amount of tritium to be found in nature is insignificant, it can be produced in sufficient amounts by bombarding lithium with neutrons. That, however, is expensive.

Of principal importance in the future will be reactors using pure deuterium. It is found in plain water and there is quite enough of it in nature—for every 6,000 nuclei of ordinary hydrogen there is one nucleus of deuterium. So far as its store of energy is concerned, a gallon of ordinary water is roughly equivalent to 400 gallons of petroleum.

Even assuming the most rapid growth of power demand, there is a sufficient reserve of deuterium in our earth's oceans to supply fuel for hundreds of millions of years.

In the next 15 years the coal and oil output of the Soviet Union will reach an annual total of a billion tons or more. Only 400 tons of deuterium could do the job that needs this vast amount of coal and oil.

Twenty years ago a few hundred tons of deuterium seemed like an immense amount to obtain. Before the war we had a difficult time getting hold of a few grams for use in our work with the cyclotron in Leningrad. It came from Dniepropetrovsk, where heavy water was being produced in a laboratory set up by the Ukrainian Academy of Sciences.

Today we have an abundant supply produced through a variety of methods. The most progressive method, one worked out by the Institute of Physical Problems of the USSR Academy of Sciences, is the deep-cold method by which deuterium is produced at a temperature of —250 degrees centigrade. Its cost as a fuel is less than one per cent that of coal.

Temperatures in the Millions

To produce a thermonuclear reaction, deuterium must be heated to 300-400 million degrees centigrade; a mixture of deuterium and tritium, to 40-50 million degrees. Only at these temperatures will hydrogen nuclei fuse at an intensity at which the energy released, including radiation losses, will be greater than that spent to heat the hydrogen.

But to heat hydrogen to a temperature of hundreds of millions of degrees, certain conditions must be met.

In ordinary gaseous deuterium at room temperature and normal pressure, molecules move at a velocity of about 3,000 miles an hour. Now suppose we collect this gas in an imaginary vessel capable of withstanding enormous temperatures and pressures. If we were to heat the gas to 100,000 degrees, its pressure would reach about 1,500 atmospheres, and the atoms of deuterium would disintegrate into positively charged nuclei and electrons. The gas would be completely ionized and become what is termed plasma.

The nuclei of deuterium in this state would be moving at a velocity of more than 60,000 miles an hour. But to overcome the very strong mutual electrostatic repulsion, the nuclei must move at still greater speed. At a temperature of 100,000 degrees, only two nuclear fusions will take place in a quart of deuterium plasma in a thousand years.

If, however, we were to increase the temperature to 100 million degrees, the nuclei of deuterium would speed up to a velocity of some 600 miles a second and would react with one another almost instantaneously. In a single quart of deuterium plasma the fantastic amount of 100 million kilowatts of power would be released.

At this point of our imaginary experiment we would still have to put in more energy than the fusions release. But it would be rather close to the conditions under which a self-sustaining thermonuclear reaction is possible.

Insulating the Reactor

The deuterium plasma heated to 100 million degrees would have an enormous pressure of 1.5 million atmospheres. We cannot even think of a thermonuclear reactor with such a pressure. To keep the gas pressure within controllable bounds, we must start with a very thin deuterium. Even if we start with

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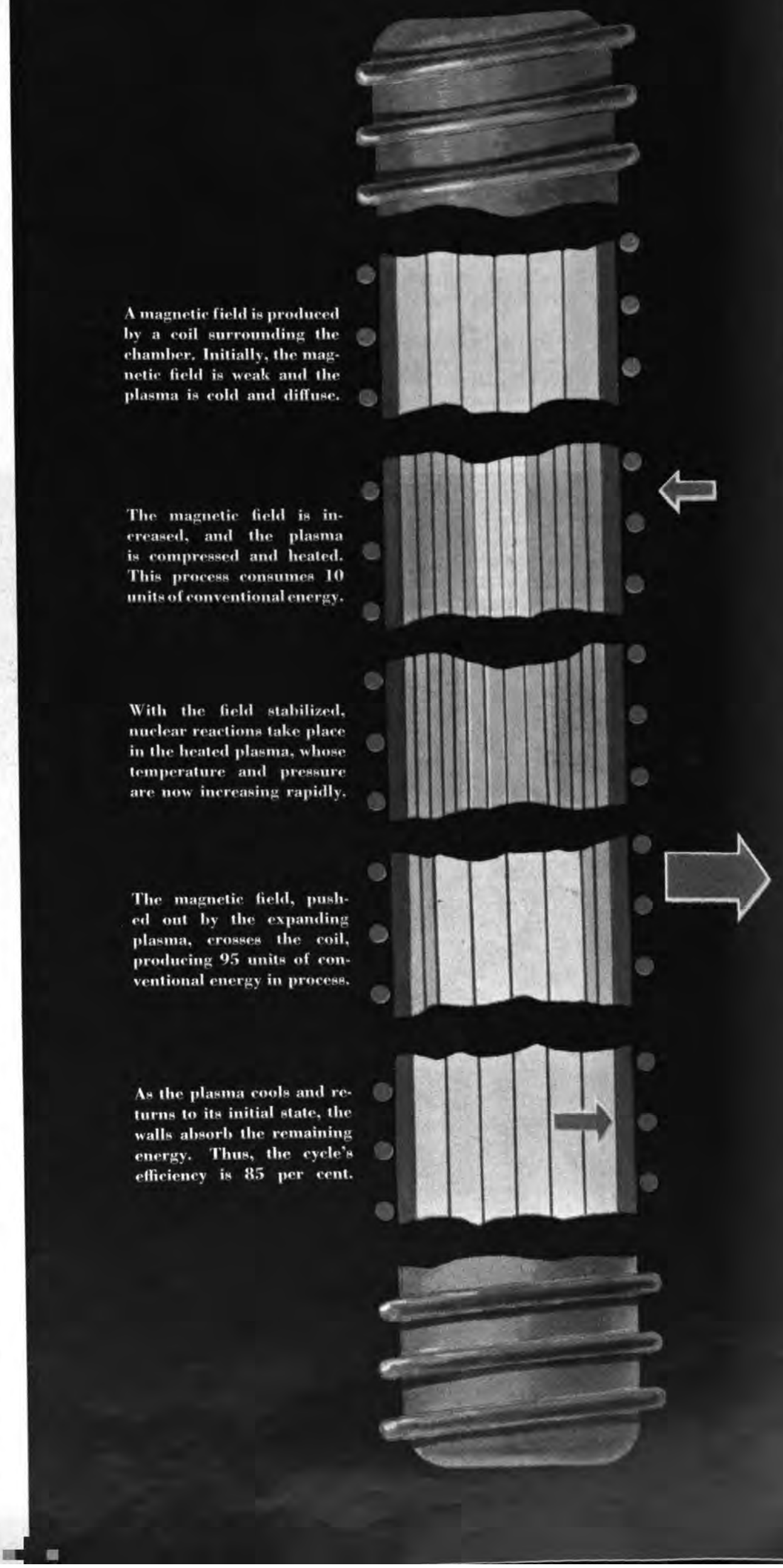


H-POWER FOR PEACE

Continued

what would be considered practically a vacuum, the pressure of the plasma will reach tens of atmospheres due to the tremendous temperature.

At first glance the problem of building a thermonuclear reactor would appear insoluble, since we have no refractory materials capable of withstanding forces already present at a temperature of 3,000 degrees. And what complicates the problem is that the hot plasma must not be permitted to touch the walls of the chamber, because their rapid vaporization would immediately cool the plasma and quench the reaction.

Fortunately, plasma has properties which provide a solution to these problems. By making use of the principle that charged particles cannot move freely across magnetic lines of force, we can produce adequate heat insulation to prevent the hot plasma from coming into contact with the walls.

The thermonuclear reactor of the future will have a hermetically sealed chamber with air pumped out before the reaction is started. Whatever air pressure remains will be in the neighborhood of a ten-millionth part of an atmosphere. The plasma will be "suspended" inside the reactor and kept away from the walls by the magnetic field.

To prevent the hot plasma from expanding, there is no need at all of walls of any material. Through the magnetic field keeping the plasma back, the mechanical force will be transferred to the coils which carry the field.

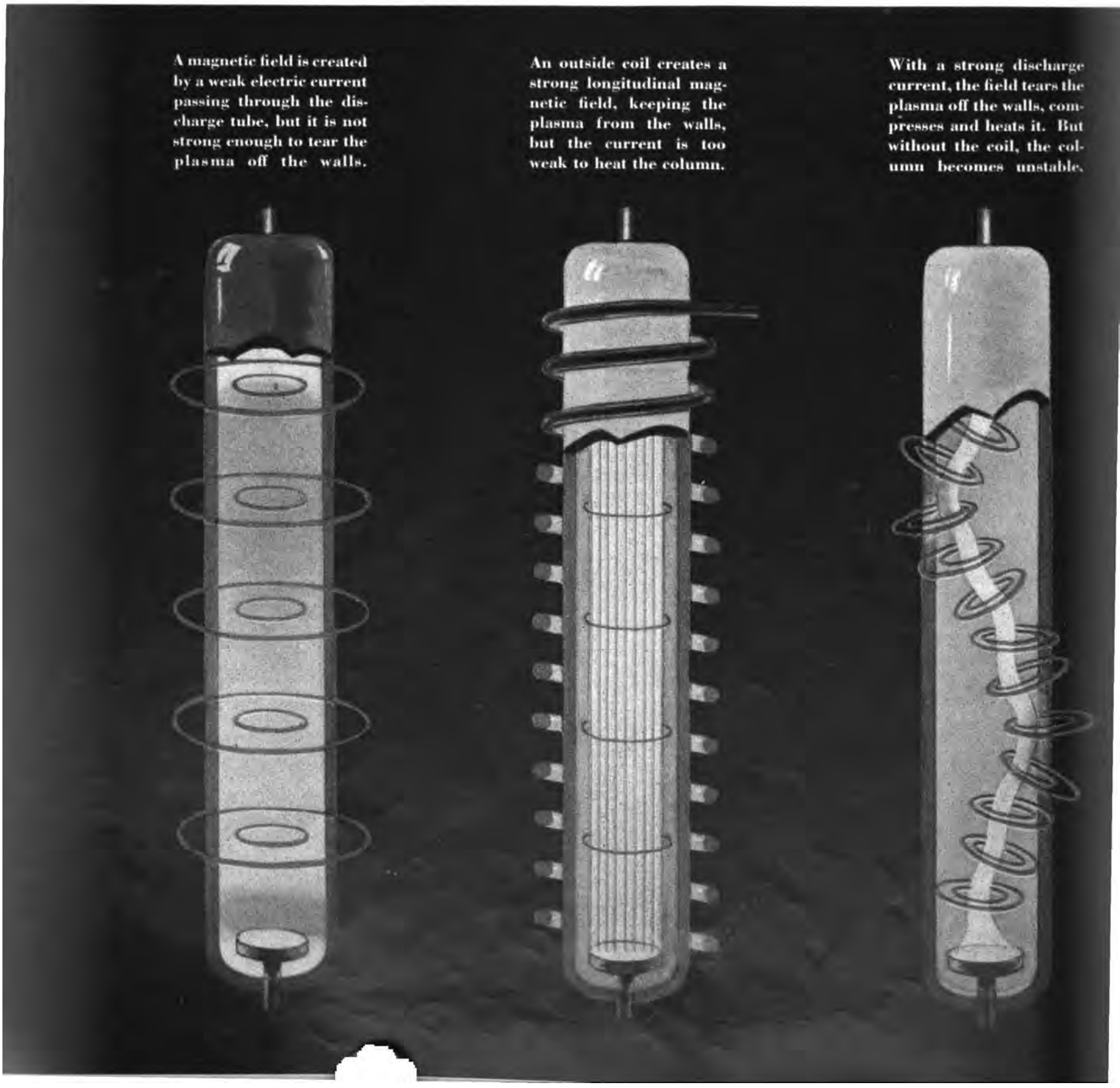
There is also another method of providing insulation. If a strong electric current is passed through the plasma, the magnetic field produced can act as the insulator.

To achieve this, the walls of the chamber must be made of thick conducting materials. If the current passing through the plasma is excited by impulse, the magnetic field surrounding the plasma cannot rapidly penetrate the metal of the walls. As a result, this magnetic field will not allow the plasma to come into contact with the walls of the chamber.

The principle involved here may be illustrated by the fact that a magnatic field produced above the surface of copper will penetrate it to a depth of only 10 centimeters in a second. Therefore it is technically possible to make such thick-walled chambers where the magnetic field of the current flowing through the plasma would provide heat insulation for approximately a second, the time required for the reaction to take place. In this case the pressure of the heated plasma will not be transferred to the walls by the impact of the molecules, as in cold gas, but will be absorbed by the magnetic field.

Insulation is by no means the only problem with which designers of thermonuclear reactors must grapple. There is the very complex problem of radiation.

We know that bodies subjected to high tem-



eratures glow brightly and radiate much eat. If hydrogen were to radiate heat and ght as intensively as solids, its radiation ould instantly vaporize any material at a mperature of a million degrees. There is no ay we have at present to prevent this evap- ation by forced cooling.

Heated hydrogen, however, is transparent id it radiates heat in inverse proportion to e number of times it is more transparent an a solid. One meter of hot area in a actor at a temperature of 50 million de- ees will thus radiate no more intensively an a solid of the same dimensions at a tem- rature of only 5,000 degrees.

But that is still an immense stream of en- gy and the problem is one which will give signers much difficulty before it is solved.

Size of Reactors and Their Types

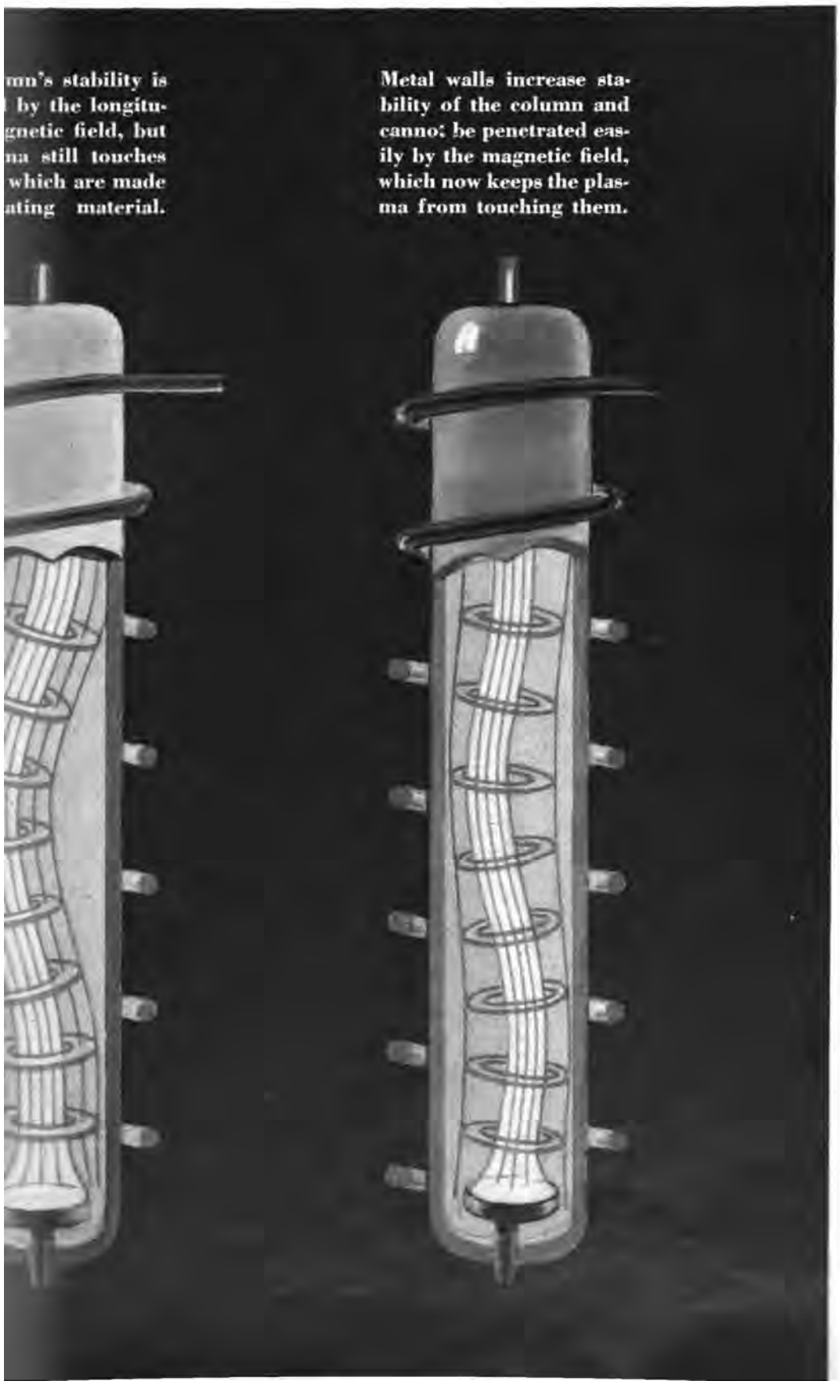
In any thermonuclear reactor, energy must cessarily by expended to sustain the work- ing regime. The larger the reactor, the more energy it releases in proportion to energy expended. There is, therefore, a minimum size a reactor must have to enable it to produce more energy than it consumes.

For a reactor operating with a mixture of deuterium and tritium, the minimum size of the active zone is likely to be somewhere in the neighborhood of a meter; reactors operating on pure deuterium will be larger. Pure deuterium thermonuclear reactors will, therefore, be suitable for stationary power plants of large capacity.

Thermonuclear reactors will be used as a source of heat to make steam, which will generate electric power by means of the usual cycle through steam turbines and generators. There is also the possibility of direct production of electric energy by means of reactors without having to go through the intermediary heat cycle with its low efficiency.

This was suggested in 1954 by Gershel Budker of the Atomic Energy Institute of the USSR Academy of Sciences. The basis for this possibility rests in the fact that in deuterium plasma more than two-thirds of the energy released is in the form of kinetic energy of charged particles. These particles are held back by the magnetic field, and their kinetic energy can be transformed directly into electrical energy.

Let us imagine, for example, that the plasma is held back by the outer magnetic field produced by the current in the coil encompassing the thermonuclear generator. If the field is slightly increased, the heated and expanding plasma would tend to push outward, expelling the field. The magnetic lines of force would cross the coil and generate an electric current in it.



Work by Soviet Physicists

Work on the development of controlled thermonuclear reactors was begun more or less simultaneously by scientists in the Soviet Union, Great Britain and the United States. The beginning of Soviet research was marked by Academicians Andrei Sakharov and Igor Tamm in 1950, when they suggested the first model of a magnetic thermonuclear reactor.

Since that time work has been moving along a number of lines, with several groups of scientists and engineers actively engaged in research. In a paper I read at an international gathering of nuclear physicists at Harwell, England, I described one of the lines along which our Atomic Energy Institute has been working.

At about the same time our Institute published a number of papers on work being done by a group of scientists led by Academicians Lev Artsimovich and Mikhail Leontovich. In these studies, rarefied deuterium was heated to a temperature of more than a million degrees by the use of a two-million-ampere electric current, and the emission of neutrons was observed. This research was further described in papers at a symposium in Stockholm on cosmic electrodynamics.

This coming September, the second international conference on the peaceful uses of atomic energy will be held in Geneva. The first conference did much to stress the need for unity of effort of scientists of all countries. It did not, however, discuss problems of controlled thermonuclear reactions. For this coming congress it will be a major item of discussion. Soviet nuclear physicists will describe work under way.

There has been little exchange by scientists of different countries on controlled thermonuclear reactions up to the present due to the fact that reactors can be used for military as well as peaceful purposes.

One can hardly expect that scientists in different countries will openly exchange information on controlled thermonuclear reactions so long as atomic and hydrogen weapons are not banned. We Soviet scientists consider this banning an urgent necessity.

The great work of science in the latter half of this century is to unite the efforts of science to achieve a virtually unlimited source of cheap energy. Soviet scientists are ready to work on this great project with men of all countries, including American scientists, whose achievements we rate very highly. ■

58

Brussels Fair

THE SOVIET PAVILION

AS YOU BEGIN YOUR TOUR OF THE PAVILION, YOUR EYES ARE DRAWN TO SCULPTURED FIGURES AND FRESCOES GLORIFYING LABOR, TO SPUTNIKS AND TO MODERN MACHINES.

By LEV PETROV

AT the Brussels World's Fair they call the Soviet Pavilion the crystal palace. It is a luminous structure built of steel, aluminum and glass, 72 feet tall, 492 feet long and 236 feet wide. You ascend the broad stairs to a great open portico where 15 flags, one for each of the Soviet Republics, flutter in the breeze. Above the entrance, the metal letters URSS (the French abbreviation for Union of Soviet Socialist Republics) glint against the opaque glass.

You enter the huge hall bright with red and silver columns. The eye is drawn everywhere at once, to the brilliant frescoes glorifying labor, to the majestic sculptured figures of a worker and a farm woman, to the big machines, to the models of the first sputniks to be launched into outer space. And at the far end of the hall stands the giant figure of Lenin.

Displayed on the three floors of the Pavilion are eighteen major exhibits—samplings of every aspect of Soviet life.

Continued on next page

INTERPRETERS ANSWER QUESTIONS IN FRENCH, ENGLISH AND GERMAN EXPLAINING SPUTNIK'S TECHNICAL DETAILS.

58

Brussels Fair

THE SOVIET PAVILION

Continued

Industry, Farming and Science

The largest is a picture of industry—metallurgy, chemicals, oil, electric power. Models, charts, and complete operating machines and installations show progress in engineering, development in automation, the industrial direction of the future. At every machine stand technicians ready to answer questions in three languages—French, English and Flemish—and to give each interested visitor a souvenir—a detail turned out by the machine he is looking at.

The Industry Exhibit spreads outside to the open air. Here is a completely mechanized

A LOT OF TIME HAS PASSED SINCE THE FIRST SOVIET SPUTNIKS WERE LAUNCHED, BUT THE PUBLIC'S CURIOSITY AND INTEREST IN THEM HAS BY NO MEANS DIMINISHED.

and operating coal mine, an installation for drilling mine shafts, another for sinking two oil wells simultaneously. This open-air exhibit always draws throngs of visitors even though it is some distance removed from the Pavilion.

The Agriculture Exhibit is a dramatic picture of the huge scope of virgin land cultivation, of mechanized farming, of rural electrification. Here is the scale model of a collective farm. A push of a button lights up barns, stables, machinery and the rest of the farm's equipment.

The Science Exhibit is an almost continuous display of great achievements. There are the sputniks, of course, and pictures of the first dog space-traveler, and models of sputniks of the future. But there are also exhibits of comparable scientific achievements in astronomy, optics, automation, computing machine development and a host of other fields.

Education and Art

The most striking display in the exhibit on Soviet education is the model of towering Moscow University, a vertical, self-contained city with 40,000 rooms—dorms, classrooms, laboratories, lecture halls—big enough in area to contain a town of some 50,000 population.

The unified educational system of the country is shown, its links from pre-school training through university, illustrating 40 years of progress in which mass illiteracy has been replaced by an annual enrollment of more than 30 million pupils in schools and two million students in colleges and universities.

The Art Exhibit seems like a haven of silence after the bustle of the other display areas. Visitors move slowly from one painting to another, exchange quiet impressions or sit for a while to rest and listen to the music of Tchaikovsky and Prokofiev, or to Russian

Continued on next page

THERE IS MUCH TO INTEREST STAMP COLLECTORS.

CROWDS GATHER AROUND THE MODERN SOVIET CARS.

Brussels 58 Fair

THE SOVIET PAVILION

Continued

folk melodies played as harmonious background for the vivid imagery of the canvases.

Housing and Consumer Goods

In the exhibit on mass housing construction are displayed furniture, kitchen appliances, TV sets and completely furnished apartments. The greater number of visitors here are women. That is true also, and understandably, for the display of rich natural and artificial furs that shade from a startling lemon to the most delicate blue.

On the lower floor one of the centers of attention is a great 280-pound globe of carved chocolate, a masterpiece of the confectioner's art, surrounded by a tempting display of wines and table delicacies that may be sampled in the restaurant on the first floor.

Next-Door Neighbors

The achievements, wealth, talents and skills of the peoples of 50 countries are on view at the Fair. The participation of the two "giants," as the Belgian press refers to the United States and the Soviet Union, has given the Fair a special character and interest.

Our two countries are next-door neighbors at this world exposition, and—perhaps a hopeful forecast for the future—there is a free flow of visitors from one to the other, of Soviet people through the American Pavilion and the other way round. Comparisons are made, virtues and omissions in one or the other of the displays discussed, but completely without rancor. This is an interested and sympathetic exchange of reactions—competition of a desirable sort, both Soviet and American visitors seem to be saying.

Alexei Ivanov, an electronics engineer from Leningrad, is impressed with American color television. Talking to the attendant at the display booth, he says: "We Russians still have some way to go to catch up with you people there."

Soviet film director Roman Grigoriev is very much taken with the American circarama. "It creates a wonderful illusion of audience participation," he comments.

Continued on page 44

NEW SOVIET JET AIRLINERS ARE ONE OF THE CROWD-STOPPERS.

David Belinkov and Gabr Bezalev, Israel: "Excellent Building machines."

An American girl Jackie Wellington, commented very briefly: "Not bad."

New Yorkers Le Baron and Doris Franke: "We liked books and music."

An American visitor, R. McKinney: "My wife and I liked it very much."

Another American, Raymond Gandry: "Marvelous, that's all I can say."

The restaurant offers a broad choice of national dishes of various peoples inhabiting the country.

Chocolate cake dedicated to world peace invites this sample bite from a pretty feminine visitor.

The Art Exhibit shows the works of old masters as well as contemporary paintings and sculptures.

Onlookers spend much time at the Soviet furniture exhibit, including modern furnished home.

Brussels 58 Fair

THE SOVIET PAVILION

Continued

Natalia Solovyova, dress designer at the Moscow Fashion House, says of the American gowns: "They're a little too extreme for my taste—put me in mind of 1923 styles. But I did like a number of the less extreme designs, which I hope to present to Soviet women."

Young architect Alexei Knyazev commented on the design of the American Pavilion. "It's a fine design for display purposes, but I don't think the exhibits give as broad a picture of America as they could if there were more of them and if they were better grouped."

They Liked What They Saw

The Soviet Pavilion is host daily to Americans of the most diverse interests and occupations—tourists on a European vacation, newspaper correspondents, businessmen, engineers, soldiers and officers on duty in Germany.

Harold Stewart, president of an Oklahoma radio and television company, went through the Soviet Pavilion with two other Americans who are presidents of oil companies. They were much interested in drilling installation asked questions, took a bookful of not snapped photos, and crawled under and around and over the machines for a closer view.

George Samuelson, a California executive, wrote this comment in the Pavilion's guest book: "I haven't seen such excellent equipment in all my 45 years in the oil industry."

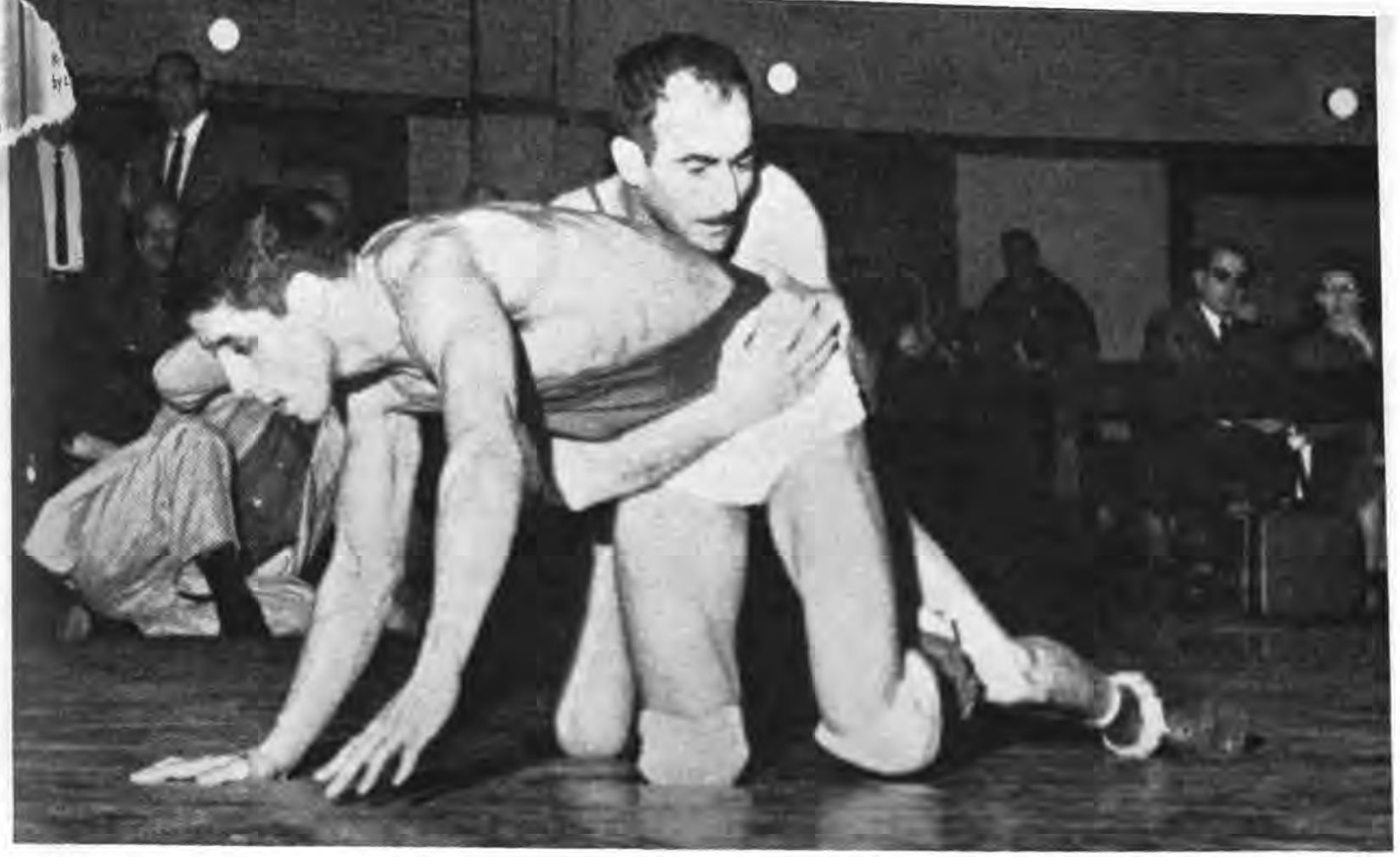
Dr. Raymond Henry of Stamford, Connecticut, is in Europe to see his son, who is in the army. He went through the medical exhibit at the Soviet Pavilion and was much impressed with our free public health system. He hadn't been aware of the extent of free services covering every phase of treatment and was much surprised to learn that a worker gets up to 90 per cent of his pay during illness.

W. Le Baron, a New York student now serving with the American forces in Germany, visited the Fair with his girl friend. They both liked the art exhibit especially. "Doris and I," said Le Baron, "spent a wonderful day. We came away with an armful of books by modern Russian authors and Russian folk music records."

R. McKinley, a Texas highway construction engineer, spent a lot of time looking over road construction machines, oil-drilling derricks, the big atom-smasher model. "It was a couple-of-hour trip to the Soviet Union," he said on leaving. "After seeing the Soviet Pavilion, I must get to see the country itself."

As you walk from one exhibit to another, you can hear comments on the various displays in the Soviet Pavilion. Some are complimentary, some critical. But on one thing everybody agrees, and that is that this is a good way for people to get to know more about each other. ■

BUILT OF STEEL, ALUMINUM AND GLASS, THE SOVIET PAVILION DESERVES TO BE CALLED THE CRYSTAL PALACE.



SOVIET-AMERICAN WRESTLERS' MEET. MERIYAN TSALKALAMANIDZE, SOVIET OLYMPIC CHAMPION, HOLDS DICK DELGADO, AMERICAN ATHLETIC UNION CHAMPION.

FRIENDSHIP IN ATHLETICS

By MIKHAIL PESLYAK

Vice Chairman, USSR Committee for Physical Culture and Sport

UNTIL very recently athletic contacts between our two countries have been limited, for the most part, to international matches. That has been unfortunate for more reasons than one. We are both of us sport-loving countries, with amateur athletes reckoned in the millions and fans in the tens of millions.

When our athletes have had occasion to meet, they have come away with a healthy respect for each other's athletic talents and sportsmanship. More than that, in athletic competition they have managed somehow to cut through national and political differences.

Last April I was in Tulsa, Oklahoma, with the Soviet wrestling team. It had been a hard and rough match, with a good deal of floor-pounding about equally distributed between the Soviet and the American contestants. But just as soon as the match was over, the two men threw their arms around each other's shoulders, slapped each other's backs, and in two different languages tried to compliment each other on good wrestling.

An elderly man came up to me and said: "I like that kind of thing!"

So do we here in the Soviet Union. That's why athletes and fans were very pleased that the agreement for cultural exchange was concluded between the United States and the Soviet Union. It provides for reciprocal visits of basketball, track and field and wrestling teams and other sports exchanges this year and next.

I found, during the recent tour of the Soviet wrestling team in the United States, that American athletes were as pleased as we were at the opportunity to compete and were eager to expand the program.

Mr. D. Ferris, a veteran official of the USA Amateur Athletic Union, wrote in that vein to the USSR Olympic Committee. "I am happy to inform you," his letter read, "that the exchange foreseen by the agreement has evoked wide interest in our country and that our sportsmen are waiting impatiently to compete with Soviet athletes. We are confident that these exchanges will help to strengthen the friendly ties that now exist between sportsmen and sports officials of our countries."

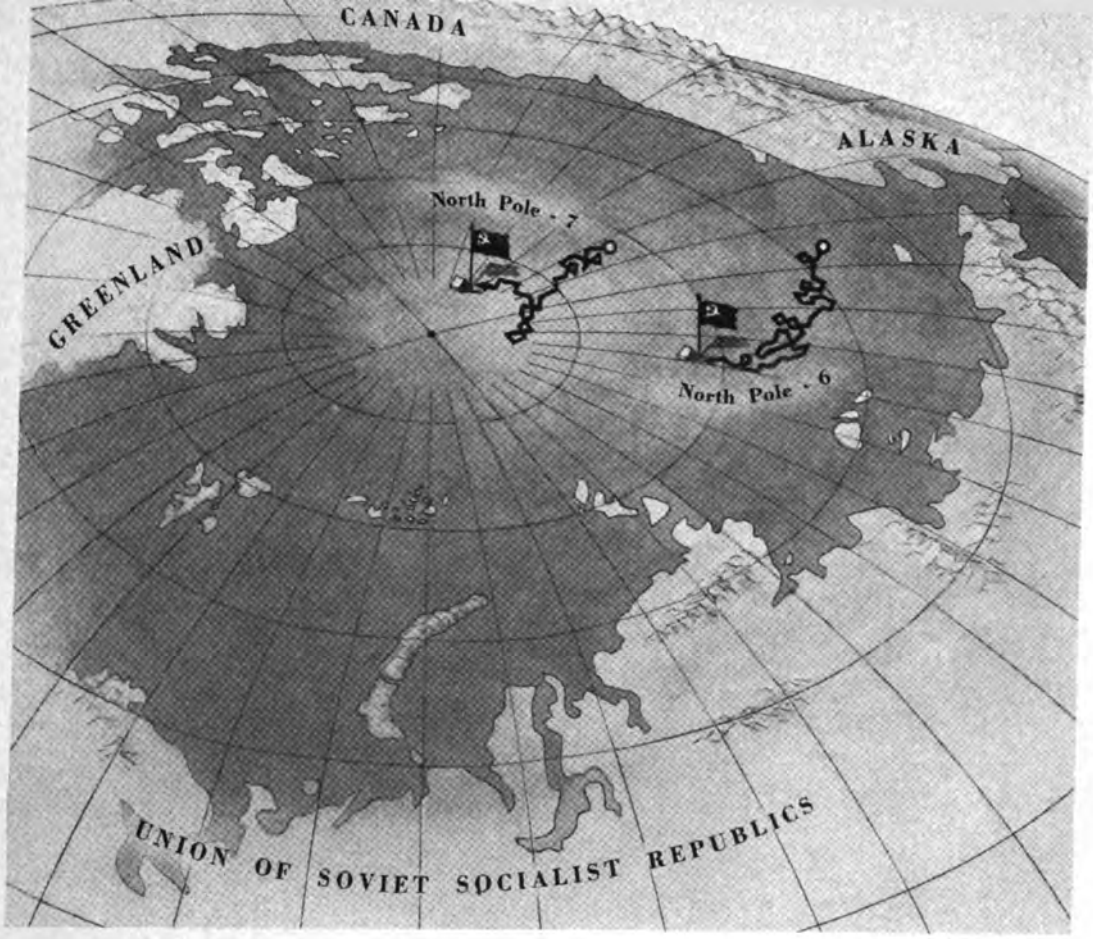
Two Soviet sports delegations have already visited the United States, the wrestlers in April and the weightlifters in May. At about the same time, the American ice hockey team and the men and women's basketball quintets were playing in the Soviet Union. American gymnasts and marksmen participated in the World Meets held at Moscow this summer, and of course there was the mammoth track and field meet in Moscow in July.

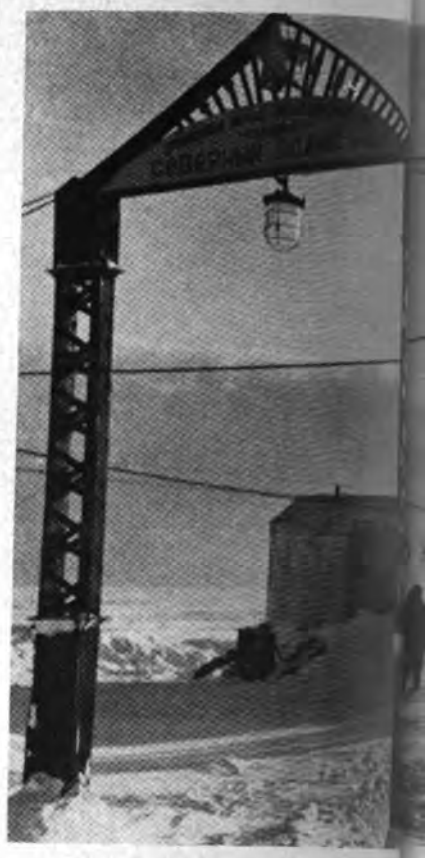
This isn't a bad showing for the short time since the agreement was signed. It certainly stacks up exceedingly well against the past ten years or so, when about all the sport exchange visible was the visit of the American weightlifters to Moscow and Leningrad in 1954, and trips both ways by a few individual athletes.

But despite these very meager exchanges, there was a real feeling of warmth—not to say interest—between Soviet and American athletes when they met at international games. I was at the 1952 Olympic games in Helsinki and the 1956 games in Melbourne, and I kept being struck by it time and time again. When Tommy Kono, the American weightlifter, ascended the dais of honor, the first to offer warm congratulations was his Soviet rival, Fyodor Bogdonovsky, and when the Soviet wrestler Meriyan Tsalkalamanidze won the Olympic title, the handclasp of his American opponent, Dick Delgado, was just as hearty.

In Melbourne, there were the long-to-be-remembered get-togethers of Soviet and American athletes to exchange ideas about sport, to share techniques, or just to have fun.

So far as fans go, the same interest, warmth and friendliness holds true. The Soviet wrestlers and weightlifters were delighted with the warm reception they got from spectators when they toured the United States. And the American athletes visiting our country receive a welcome as hearty as our music lovers gave your fine pianist from Texas ■





FROM ARCTIC TA

TH POLE—6," A SOVIET ICE-DRIFT RESEARCH STATION IN THE ARCTIC OCEAN.

NTARCTIC

By Vladimir ~~Belousov~~ Shksinik

Vice President, Soviet IGY Committee

WITHOUT fanfare and flourish, scientists of 52 nations participating in the International Geophysical Year have been quietly setting a pattern for world cooperation. At the Soviet and American Antarctic bases, Mirny and Little America, meteorologists of the two countries have been living together as colleagues and friends.

The American scientist Gordon Cartwright made a long stay at Mirny, and Soviet meteorologist Vladimir Rostorguyev lived at Little America. Now Morton Rubin and Pavel Astapenko are trading visits. Regular radio-telephone communication goes on between the polar observatories for the exchange of scientific information.

Mirny was host to a party from the American wintering expedition which arrived on the icebreaker *Berton Island*. The group was headed by Captain Ketcham, assistant to Rear Admiral Dufex, chief of the U.S. Antarctic Expedition. Philip Low, the famous Arctic explorer, has been a guest at the Soviet scientific base. The Australian physicists Keith Mazer and James Goodspeed have also visited to study the work done at Mirny.

These personal visits and regular exchanges of information have been going on with expeditions from dozens of countries, not only in the Arctic and Antarctic, but at many hundreds of stations everywhere in the world.

THE MAIN BASE OF THE SOVIET SCIENTIFIC EXPEDITION IN THE ANTARCTIC.

600 Soviet IGY Stations

Enlisted under the world IGY program are more than a hundred Soviet scientific bodies which direct the work of many thousands of researchers, technicians and observers. Some 600 special stations set up on the territory of the Soviet Union are carrying on observations in various fields to obtain data on phenomena affecting the earth and its atmosphere. More than 20 Soviet scientific expeditions are conducting studies from their bases in the Arctic and Antarctic, from the high peaks of the Pamirs and the Tien-Shans and from seagoing laboratories cruising the Atlantic, Pacific, Arctic and Indian oceans.

Scientific groups of the nations participating in this world scientific effort are researching from bases spread to cover the whole of our globe. The coordination of their investigations makes it possible to say that our planet is really being studied under a gigantic cooperative microscope.

The data collected by participating countries are filed with universal world centers set up in the United States and the Soviet Union for the duration of the geophysical year. The centers are in permanent contact with each other. All information is available to researchers anywhere in the world.

The close collaboration of the scientists of all countries is particularly important now, during the concluding stage of the IGY, when the preliminary results are to be summarized. At the universal center in the Soviet Union work has been under way with computing machines and

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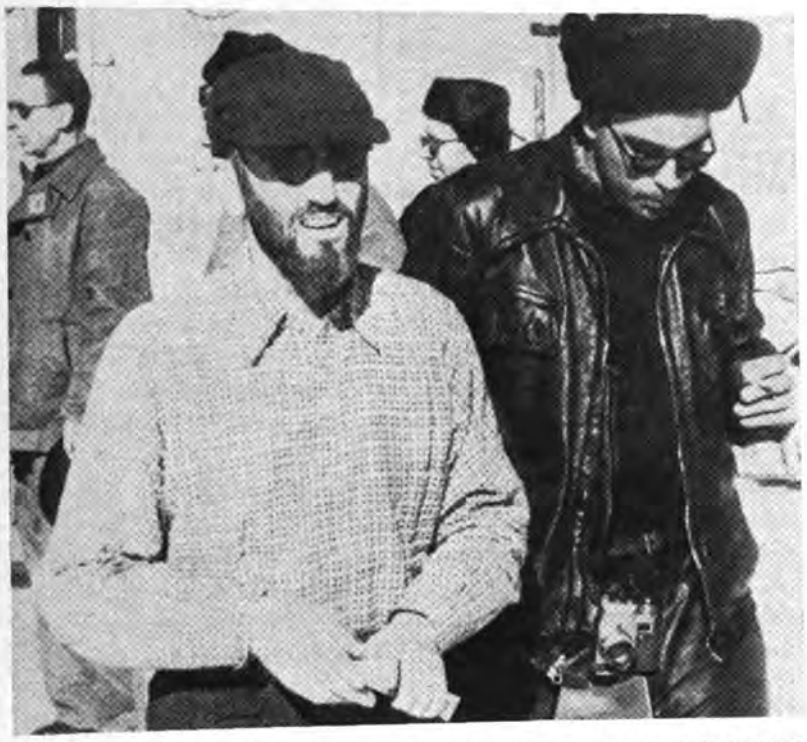
AMERICAN SCIENTIST GORDON CARTWRIGHT MADE A LONG STAY AT MIRNY.



ANTARCTIC EXPLORERS—AUSTRALIAN PHILIP LOW AND RUSSIAN ANDREI KAPITSA.

SOVIET SCIENTIFIC STATIONS ARE ESTABLISHED IN VARIOUS POLAR REGIONS.

FROM ARCTIC TO ANTARCTIC

Continued

other instruments to collate and analyze the data accumulated. The material is being microfilmed and duplicated to make it readily available to researchers whenever and wherever they need it and for study by the Fifth Assembly of the Special International IGY Committee, which is meeting in Moscow this August.

IGY Research by Sputnik

A high point reached by the IGY program was the successful orbiting of artificial earth satellites. These cosmic laboratories provided invaluable information for studies that will be keeping scientists busy for a long time to come.

Preliminary study of the data received here from the Soviet sputniks reveals that the density of the upper layers of the atmosphere is some five to ten times greater than had been thought hitherto. Previous conclusions had been based on atmosphere models built around rocket measurement.

Sputnik observations also supplied new data on the outer section of the ionosphere at heights above 185-250 miles. The data was obtained by measuring diffusion of radio waves of various frequencies radiated by sputnik instruments at different altitudes.

For cosmic ray study, data recorded by Sputnik II indicates that from the minimum height of the orbit (140 miles) to an altitude of some 430 miles, the intensity of cosmic radiation increases by approximately 40 per cent. The intensity of fluctuation of the radiation was also recorded. With instruments located on the earth's surface, it had previously been impossible to record this type of data.

Sputnik II, with its dog as passenger, recorded pioneering information on the influence upon a living organism of weightlessness over an extended period, the effects of primary cosmic and solar radiation, and other such factors. The presently analyzed data shows that immediately after launching, the frequency of heart contractions increased approximately threefold. No symptoms of malfunctioning of the heart were indicated by the electrocardiogram records. During the period when the satellite was traveling in its orbit, the electrocardiograms showed that the heartbeat began to approximate that of the animal before flight. Despite the condition of weightlessness, the animal's mobility was moderate.

Thus we may conclude that the dog satisfactorily withstood both the launching and the flight in orbit. The information obtained from this experiment is of tremendous importance for working out a program of investigations with the aim of ensuring safe cosmic travel by human beings.

Seagoing Laboratories

Twelve large Soviet vessels are sailing the ocean lanes to collect data along routes prearranged by the IGY program. Soviet hydrographers have found that the warm Kuroshio Current in the Pacific has shifted 175 to 250 miles northward. The *Zarya*, a non-magnetic vessel, the only one of its kind in the world, has already studied the Baltic Sea and the Atlantic Ocean. Corrections are being made in magnetic charts based on the precise measurements made by the *Zarya*.

In the Southern Hemisphere, the research vessel *Vityaz*, sailing in the region of the Mariana and Caroline Islands, has traveled more than 30,000 miles in its 300 days at sea and has crossed the Equator several times. Its staff has been studying the northern and southern trade winds

and the equatorial countercurrents, and conducting geological, meteorological and biochemical research.

Geologists of the *Vityaz* followed a regular tack over the Mariana Deep and plumbed a record ocean depth of close to 36,000 feet. The ship's depth-finder discovered a submarine mountain whose summit is 820 feet below sea level. *Vityaz* biologists have dredged up some interesting specimens, among them a deep-sea fish whose mouth is six to eight times larger than its girth.

Oceanographic study is being carried on by the scientific expeditionary vessel *Lena* of the water and ice exchange in the strait between Greenland and Spitzbergen. The *Lomonosov*, another seagoing research laboratory cruising the Bering and Chukotsk seas, is studying the water exchange between the Pacific Ocean and the Central Arctic Basin passing through the Bering Straits.

Soviet scientists have flown to the most remote parts of the Franz Josef Land archipelago by helicopter to study and chart the waters in the face of bad ice conditions, heavy fog, and thick snowfall. On Hays Island, Soviet researchers have set up the northernmost scientific observatory to study the upper layers of the atmosphere by means of meteorological rockets equipped to record temperature and pressure of air during flight. The Hays Island station is completely electrified and has comfortable living quarters for stays of long duration.

The Frozen Continent Studied

In that barely explored region of our globe beyond the Arctic Circle, Soviet IGY groups have been conducting research from "North Pole—6" and "North Pole—7" ice-drift stations. Research groups are also flown to various points to establish radio beacons and drifting radio-meteorological stations.

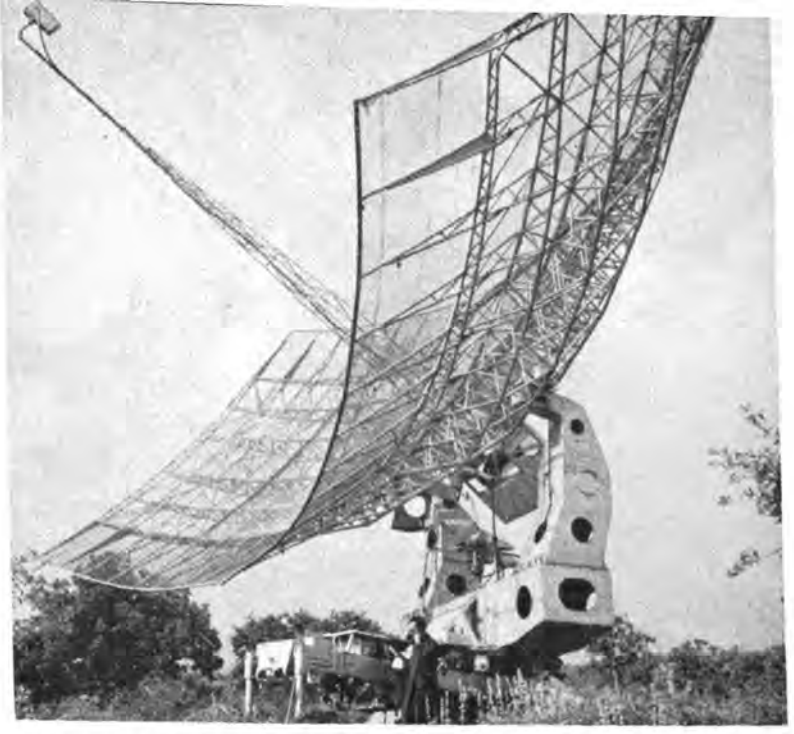
Expeditions floating through the ice between Greenland and Spitzbergen have been making important discoveries. Where the Nansen Sill was believed to be, they have found a submarine strait connecting the Arctic and Atlantic oceans.

In the South Pole, work of particular scientific interest has been going on at the main base at Mirny and its subsidiary stations, Pionerskaya, Oasis, Komsomolskaya and Vostok. Especially important work is being done at Vostok by virtue of its location in the region of the southern geomagnetic pole. All these stations were set up under extremely difficult and hazardous conditions, with staff and equipment sent out from Mirny on tractor-drawn sled trains.

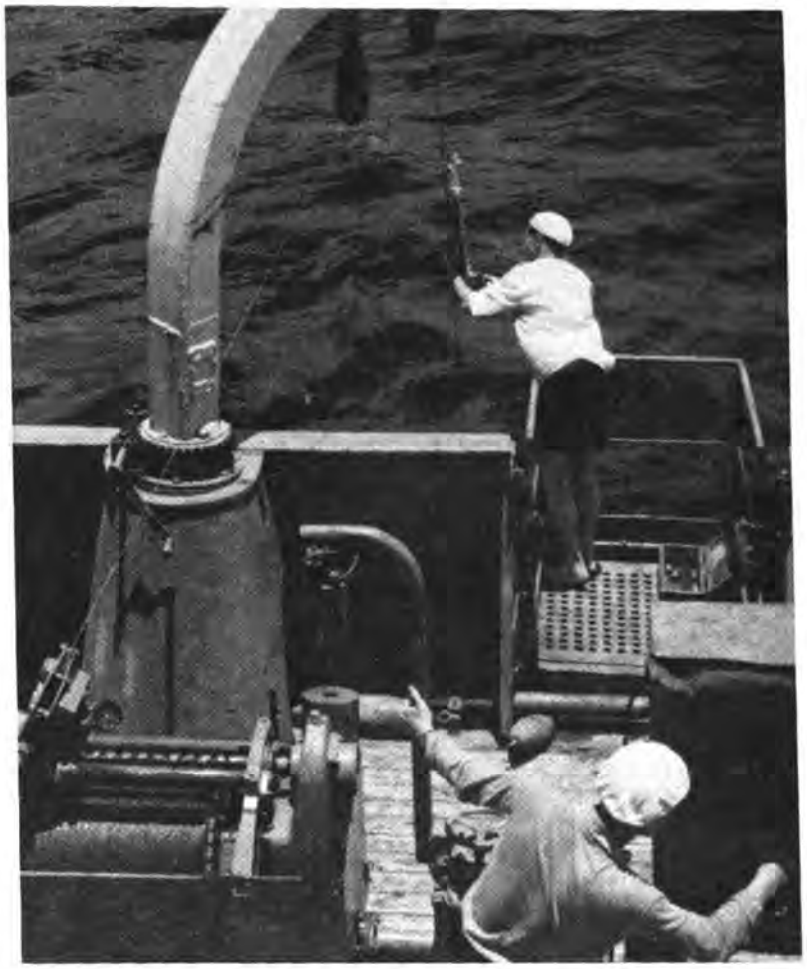
By setting up the Sovietskaya station in the region of the Pole of Relative Inaccessibility, at an altitude of more than 12,000 feet above sea level, Soviet scientists have fulfilled the last of their IGY commitments to establish Antarctic stations. The Sovietskaya station is studying the peculiarities of geophysical processes in the interior of the Antarctic.

Work done by these stations has cast doubts upon a number of previously accepted ideas about the Antarctic. There is reason to believe that the huge ice sheet of the Antarctic does not rest on solid land, but on individual mountainous islands. The Antarctic, then, would not be a sixth continent, but an archipelago.

This is a listing of only a few of the high points of scientific activity, and those of but one of the nations participating in this extraordinary world undertaking that combines the resources, the knowledge and the instrumentation of half a hundred countries. ■



RADIO TELESCOPE AT ONE OF THE 600 IGY STATIONS ON SOVIET TERRITORY.



THE SHIP *VITYAZ* HOLDS ONE OF THE 20 SOVIET EXPEDITIONS ON IGY PROBLEMS.

MIRNY KEEPS IN CLOSE CONTACT WITH FIVE OTHER SOVIET ANTARCTIC STATIONS. ALL DATA COLLECTED ARE FILED AT WORLD CENTERS AND MADE AVAILABLE TO RESEARCHERS.

IN ADDITION TO PURE THEORY, STUDENTS IN HIGH SCHOOL ARE TAUGHT THE MOST IMPORTANT CHEMICAL PROCESSES AND THEIR APPLICATION IN INDUSTRY AND AGRICU

SCHOOL and VOCATIO

By ANATOLI YANTSOV
Academy of Pedagogical Scien

SCHOOL STUDIES INCLUDE AGRICULTURAL SUBJECTS.

LEARNING TO USE A LATHE IN THE SCHOOL WORKSHOP.

EXTRACURRICULAR STUDY IN BOTANY CLASS

) relate the school to life is the ever-pres-
nt problem of the educator, and, by its
nature, an ever-changing one. As science
technology change the character of our
new learning situations arise which the
ol must meet.

ne curriculum of the Soviet school, one
h is followed throughout the country, has
e broad aims—to teach the child the natu-
nd social sciences and the humanities; to
him a scientific and ethical world outlook;
rovide him with an over-all grounding in
tical work so that he may later choose his
tion wisely.

his third aim is covered under the head of
technical training, which is designed to
uaint the child with the most important
nches of modern industrial and farm pro-
tion, to teach the skills required to handle
most commonly used tools and materials,
to develop a sense of his relationship to
ally useful labor.

t has been the feeling of Soviet educators
this aspect of the curriculum has not
ays kept pace with the very great changes
have been taking place in industry and
iculture and with the great spread of
cation. Thus, life itself neccessitates a
iodic reappraisal of what and how we teach,
we are constantly improving the school
riculums.

We have had three types of schools—the
r-year, the seven-year and the ten-year
ool. By 1952 the seven-year school was uni-
sal and compulsory. That same year we
began gradually to shift over to compulsory and universal ten-year schooling, and in some of the republics to eleven-year schooling. Since 1956 ten-year schooling has obtained all through the country.

Educated Workers

The total number of boys and girls now in the eighth, ninth and tenth grades is close to seven million. This is six times as many as were enrolled in these grades at the end of the war. At many factories today there are whole shops in which all the workers are secondary school graduates. At many collective farms, too, whole sections are staffed by secondary school graduates.

The general course of study in the secondary school covers the native language and literature, a foreign language and literature, mathematics, physics, chemistry, biology, history, geography, drawing and drafting, singing and physical education. These are supplemented by extracurricular activities—amateur dramatics, orchestra, fine arts, ballroom dancing and similar out-of-class activities.

With Soviet industry and agriculture developing at the pace they have, there is an ever-increasing need for well-educated workers. The problem still to be solved, however, is how to train these workers with good general educational backgrounds for the more specialized requirements of industry and farming, how to combine a high level of general education with elementary vocational training.

This has been for some time now the central point for discussions held by the Academy of Pedagogical Sciences in various cities. Revision of the polytechnical curriculum in rural schools was the focal point of a conference in Krasnodar, a central city in the southern farm region. Conferences have been held in Novosibirk and Moscow on vocational training in urban schools as related to general school studies.

Participants in these conferences were teachers, educational researchers, parents, industry and farm people. Recommendations made by these conferences were transmitted to the Ministry of Public Education for study and action. The changes that are being introduced into the curriculum stem from suggestions made by groups of this kind.

Revised Course of Study

Teaching of the natural sciences has been revised. Without lowering the general scientific level, more stress is placed on the study of physics, chemistry, biology and mathematics as they relate to the fundamentals of modern techniques and production, and more time is allotted to field trips and practical work.

In drafting, more emphasis is placed on technical and architectural drawing. The hours assigned to laboratory, shop, and to excursions to farms and factories have been increased.

Manual training, introduced in the lower

Continued on next page

H EMPHASIS ON POLYTECHNICAL EDUCATION IN THE SCHOOLS TODAY, THE DRAFTING COURSE HAS BEEN BROADENED TO INCLUDE TECHNICAL AND ARCHITECTURAL DRAWING.

FIRST STEPS IN LEARNING TO WORK INDEPENDENTLY ARE SKILLFULLY GUIDED IN THE LOWER GRADES.

SCHOOL and VOCATION

Continued

grades, includes shop work and work on school garden plots. A new subject for the senior grades is fundamentals of production.

In urban schools this course goes into the fundamentals of machine operation, basic electrical enginering and industrial production at a nearby factory. Rural schools study plant-growing, livestock breeding and the principles of farm mechanization and electrification. As part of their practical study, the children participate in the work of the farm or industrial plant.

The revised course of study provides for elective courses to permit students to develop individual abilities and to test their inclinations toward particular vocational areas.

In drawing up the revised curriculum the preliminary experience of the best schools was carefully studied. It was then tested experimentally in 500 secondary schools for a year, and only then introduced on a wider scale.

Present experience shows that the new curriculum, while maintaining the same high educational level as the old one, does a more effective job in polytechnical and vocational training.

Links in Educational Chain

Just as the Soviet elementary school prepares the child for secondary school, the general secondary school provides the background either for specialized secondary school or for college. The choice is determined only by individual preference and ability to pass the entrance examinations; money is not a factor, since all schooling through the university and professional level is free.

The number of students attending colleges and universities has grown steadily—from 730,000 to 2,000,000 since the end of the war.

Those who prefer to go to work after completing secondary school have every opportunity to go on to college after they have worked for a few years. As a matter of fact, their job experience gives them an advantage over those who apply for college entrance immediately after secondary school graduation.

With the general rise in the country's cultural standards and the great increase in the number of people who want to continue their schooling, the colleges and universities have had to raise their entrance requirements. Applicants are judged now not only by their secondary school and entrance examination grades, but also by the amount of practical working experience they have acquired.

Preference is given to applicants with job experience. Of the 430,000 college students who completed their first year last spring, 290,000 had enrolled after a few years of work. Educators feel that these students will do better work in their specialized training as a consequence.

Curriculum Experiments

Various other types of experimental secondary school curriculums are being tested now. In one group of 50 urban and rural schools, upper-grade students are spending half of the school time on jobs and receive the prevailing wage for the type of work they do. Their course of study is 11 years instead of the usual 10, and upon graduating they receive, in addition to their diplomas, a category rating in one or another of the industrial trades.

In Krasnodar School No. 42, two new courses have been added to the regular curriculum—machine operation and electrical engineering. Students do their practical work in a neighboring industrial plant in the winter and switch to farm work in the spring and fall. The teaching staff has 14 instructors with technical background to supervise the practical work and to teach production and the natural sciences.

Rural schools in Stavropol Region have been doing some interesting curriculum experimentation. They have set up student work teams on a purely voluntary basis. Each team is assigned a plot of land which it farms under the direction of a teacher and a collective farm agronomist, with machinery provided by the farm. The first team was formed in 1955 at the Grigoropolis School and now has the use of six tractors with various farm tools, and is going in for experimentation with select seed.

Other schools in the region have followed suit and now almost 90 per cent of the eighth, ninth and tenth grade students are members of work teams.

It has been found that the opportunity given the student to apply his classroom theory to practical work at factories and farms facilitates his grasp of the subject. The experience gained while working is summed up in class and makes his studies more comprehensible. On the other hand, his theoretical training makes it possible for him to see beyond the superficial aspects of a job and prepares him for independent work when his schooling is over.

Creative experimentation with curriculum is the only way, Soviet educators are convinced, to relate school study to the changing realities of living. They see curriculum experimentation as a continual, never-ending process. ■

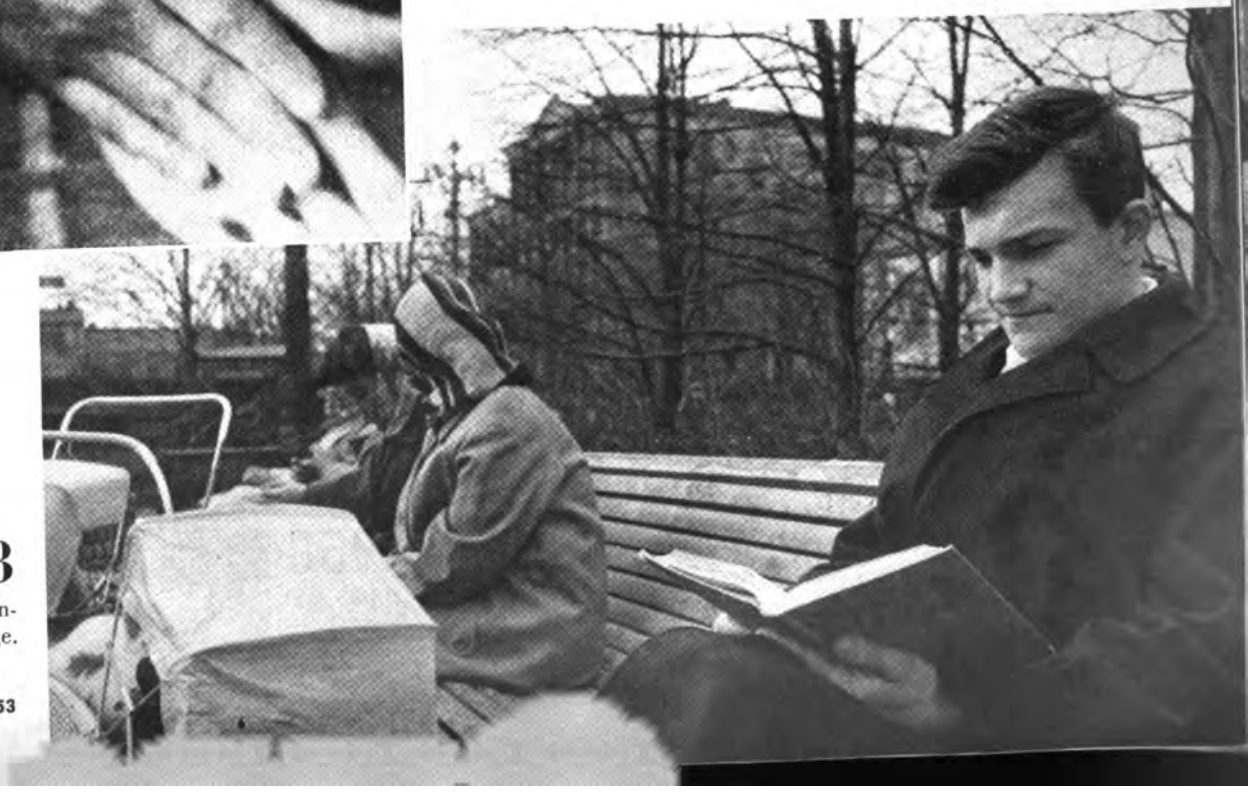
In the machine shop the boys can take equipment apart and get to know how things really operate.

1956–1958: *Two Years in the Lives of Graduates of a Moscow School*

This is Secondary School No. 166 in Moscow. Its course of study is typical for the country's general schools: the native language and literature, math, history, geography, science, a foreign language and literature, sports and fundamentals of production. The pictures on this and the following two pages tell what happened to a few of the students who graduated in 1956.

1956

The self-satisfied look on Vladimir Novikov's face comes from relief at having passed the final exams.



1958

After working two years as a lathe operator, he is planning to enroll at the Chemical Machine-Building College.

1956

Among the school graduates that year were Liza Sibanova, Zina Soboleva and Albert Timofeyev.

1958

Albert is now a lathe operator, Liza a school-teacher and Zina combines work with study.

ZINA HAS A JOB IN A COSMETICS FACTORY . . .

LIZA IS BACK AT HER OLD SCHOOL AGAIN . . .

1956

Georgi Piyevsky is having a little trouble with his literature examination, but he passed both his machine study and shop courses with ease.

1958

His choice was clear-cut from his high school record. He enrolled at the Moscow School of Mechanics and is making radio work his specialty.

AND ALBERT WORKS AT A METAL PLANT. HE MAKES SURE THAT ZINA SPENDS ALL HER FREE EVENINGS WITH HIM.

1956

Oleg Rastorguyev always had a group of students around him asking questions about class work.

1958

He's still answering questions. Here on the grounds of the Building Exhibition he diagrams the solution to a complex problem for Valentin Glazunovsky. They are both enrolled at the Moscow Building Institute.

The Soviet iron and steel industry's expansion is reflected in the building of this blast furnace. It is at the Dniepropetrovsk plant where 2,000 new workers were hired in five months.

GROWING YOUNGER EVERY DAY

By Boris Yurin

THE older steel mills in the Soviet Union are getting younger every day. A paradox, but true. The seventy-year-old Dniepropetrovsk Iron and Steel Mill, to cite one instance, has been undergoing a rejuvenating process these past months, a thoroughgoing modernization to boost its output.

Large-scale capital improvement is under way in the whole of the Soviet iron and steel industry. In various cities new coke batteries, blast and open-hearth furnaces, metal foundries and rolling mills are being built and old ones modernized.

During the January frosts the foundations were laid for seven blast furnaces. Soon they will be smelting as much pig iron as did all the furnaces built in the Soviet Union from 1929 to 1937. There will be nine new coke batteries operating by the end of the year. Three open-hearth furnaces and seven rolling mills will start working soon after.

The interesting and characteristic feature of this big construction is that practically all of it is going on at operating plants. There is no need to post a sign at the mill gates that reads: "Work going on as usual during modernization." This is obvious in the smoking chimneys and the crowds of steelworkers who pour through the mill gates at shift changes.

This rejuvenation process is not confined to plant and structure. It is true of personnel also, evident in the preponderance of young faces that one sees in the steel mills. The industry has never had so many young people moving in on all levels.

The Dniepropetrovsk mill, during the first five months of this year, hired nearly 2,000 new workers, practically all young people, many of them fresh out of secondary school. A sizable number of these building workers, open-hearth and blast furnace men and rolling mill operators, are getting advanced technical schooling at the evening or correspondence divisions of the city's colleges attached to the mill.

Nineteen-year-old bricklayers Vasili Kirillovich, Alexei Bely, Ivan Shoot and Ivan Laptev started work at the plant last year after graduating from a building trades school. All four of them are going on with their schooling after working hours.

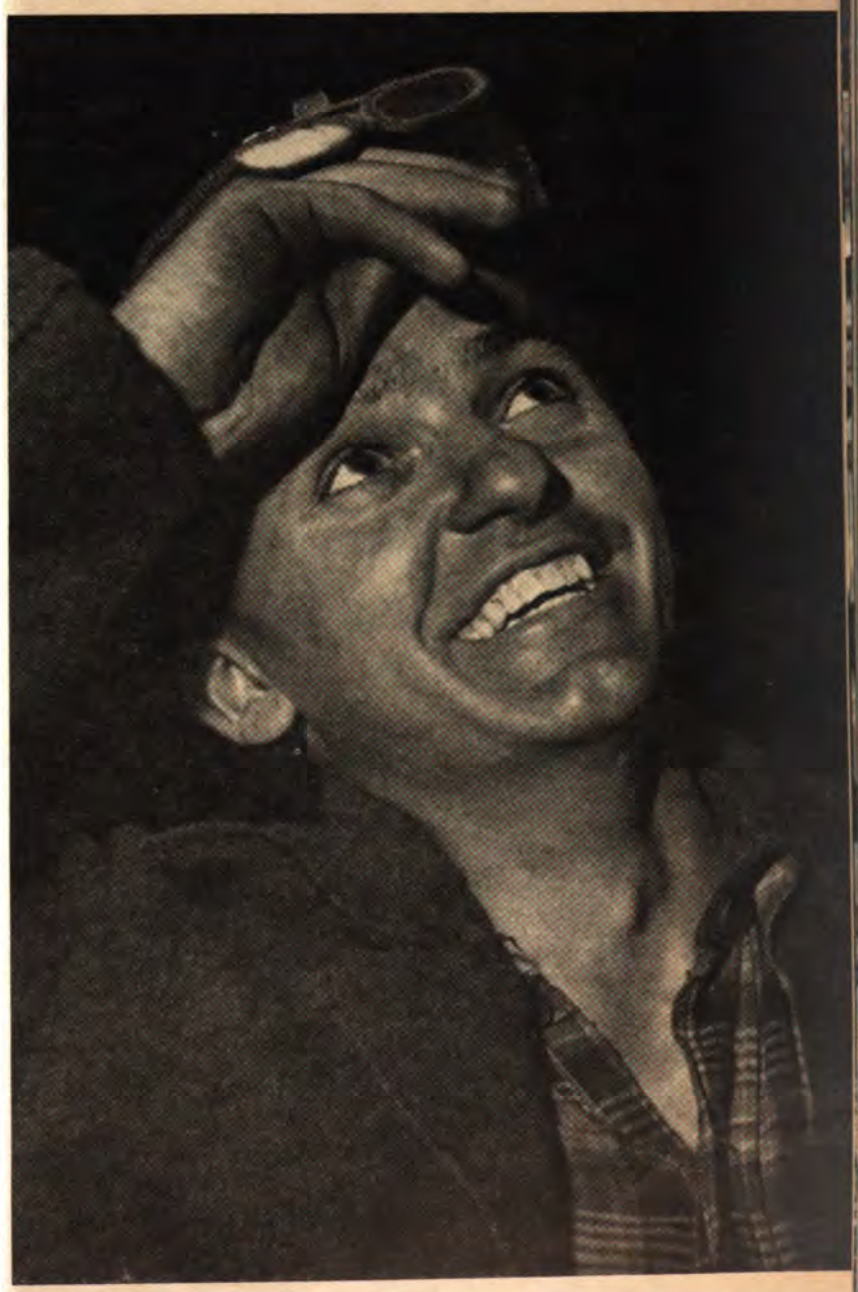
Part of the modernization process at Dniepropetrovsk, and of other mills as well, was to enlarge training and advanced education facilities. Young workers who have the required educational background of secondary school are urged to continue their schooling.

When workers enroll at the evening or correspondence divisions of the colleges, they are allowed time off with full pay to take entrance and term-end examinations. When they complete the course, they are guaranteed jobs of higher grade.

Ivan Pischchida is one of the many young Dniepropetrovsk steel workers who is taking advantage of his educational opportunities. After he was demobilized from the navy, he went to work at the mill, starting as a fitter. He is foreman in one of the equipment repair shops and is taking his senior year of study at the Metallurgy Institute.

Continued on next page

Presenting three young workers of Dniepropetrovsk. From left to right: Valentina Lisogor, a skilled welder who likes the profession she learned at the mill; Dmitri Pralya, a recently demobilized soldier who is now an electrician; and Victor Gerasimchuck, a furnaceman studying for his degree.



At the end of the day shift, open hearth men Nikolai Frolov, Mikhail Grinberg and Vladimir Konashevich head for a shower before starting for their homes.

GROWING YOUNGER EVERY DAY

Continued

Dniepropetrovsk is a large industrial city and a railway junction for all parts of the Ukraine. It has, of course, theaters, motion picture houses and athletic parks. But the main center of social life for the young people is the mill Palace of Culture, with its lively round of activities—dances, concerts, lectures, amateur dramatics and craft activities.

Ballet is one of the popular interests of the young people at the mill. Acknowledged prima ballerina is mill engineer-economist Svetlana Kenis, who first became interested in the ballet while she was studying at the Metallurgy Institute. She got her dance training at the Dniepropetrovsk Student Club.

Svetlana Kenis, engineer-economist of the rail and girder shop, and Georgi Senchkovsky, teacher in the plant's evening school, presented the Adagio from Tchaikovsky's *Swan Lake* at a shop evening concert and received rounds of applause.

I saw Svetlana at a concert given by the mill's amateurs in the rail and girder shop. This concert also featured the jazz band, with mill engineer Lyubov Bibik singing a comedy song composed by technician Lev Chebyshev.

The mill's amateur dramatic group does some of the standard repertory plays with an occasional venture into a home-made product. One such was *At Our Side*, a play written by Arkadi Dnieprov, staff member of the mill newspaper, which was built around local material gathered from the life and experiences of mill steelworkers.

The leading roles were played by milling machine apprentice Svetlana Vatchenko, instrument maker Boris Kravchenko, deputy transport chief Pavel Volkhovsky, and fitter Victor Gubenko—all young people. Major acting honors, however, went to the single oldster, Pyotr Chubarov, deputy chairman of the plant's trade union committee, objective evidence that the older steelmen were far from ready to be put in the shade. And that, said Pyotr after the performance, goes for steelmaking as well as amateur dramatics. ■

The Hopak, one of the most popular Ukrainian dances, is always included on programs of the plant's dance ensemble for concerts at the Palace of Culture.

These young people of Dniepropetrovsk plant organized their own jazz band. The soloist here is Lyubov Bibik, an engineer, who loves to perform the comic song written by Lev Chebyshev, a technician whose hobby is composing music. The band enjoys wide popularity, both in the plant and the city.

"THE CRANES ARE FLYING"

By Gennadi Sibirtsev

ONE of the most discussed Soviet motion pictures of the year was *The Cranes Are Flying*, awarded the Golden Palm at the International Film Festival at Cannes, France, last May. In winning the top award of the Festival, it elicited enthusiastic comment from foreign cinema experts and critics, too, one of whom termed it "the Russian film Sputnik."

The film, an extraordinary beautiful and moving treatment of the effect of war upon the individual, was directed by Mikhail Kalatozov, and brilliantly photographed by Sergei Urusevsky. It stars Tatiana Samoilova as Veronica, and Alexei Batalov as Boris.

The time of the setting of the film is the Second World War. As the picture opens Veronica watches a flock of cranes fly high over the quiet city in the early morning sky. She feels as though she were flying with them. Her heart is too light, too buoyant, to be anchored to the earth. She is 18, in love with Boris, wondrously happy.

They are preparing to marry when the war breaks out. Boris volunteers, the marriage postponed until the war ends. Before leaving for the front, Boris drinks a parting glass with his father, sister and his cousin, Mark, a gifted pianist whose draft into the army has been deferred. Boris waits until the last possible moment for Veronica, but she has been unable to make her way through the solid column of armored vehicles.

Boris leaves for the schoolyard which is the rallying point for the volunteers. A huge crowd mills about, volunteers and those who have come to see them off. The camera records grim, tense smiles, barely hidden tears, gay laughter. Impartially it records youth and love and the sorrow of parting and the cruel reality of war. Veronica searches desperately through the crowd for Boris. He searches for her. They do not meet.

Veronica has as keepsake Boris' last gift —a toy squirrel with a little basket of golden nuts. It is her treasure, this toy—symbol of the love she will store up for Boris until he comes back to her. Nothing can change that love, she feels; not the war nor parting—nor even death.

But war and a stray bullet are to test her pledge of eternal love. Boris is killed as he is trying to rescue a wounded comrade. Just before he dies he dreams of Veronica in a wedding dress, of himself and of his cousin Mark standing alongside.

Boris is the man true to himself, to his love, to his country in its time of trial and affliction. Mark is the man of outward charm and inward corruption, the man concerned with his own needs and his own small desires. And Veronica? Does she epitomize the people who are broken by war's horror or those who are just not strong enough to stand up and give battle?

Veronica was the subject for much of the discussion that went on about the motion picture and of most of the letters written in by viewers.

Veronica is carried out of her bombed house by Mark. Both her parents have been killed. She is weak, shaken by death all around her, brokenhearted by grief. She agrees to marry Mark, although there has been no official confirmation of Boris' death.

VERONICA, AFRAID OF AWAKENING NEIGHBORS, USES HER HANDS TO SET TOMORROW NIGHT'S DATE FOR SEVEN.

But Veronica finds no peace in the quiet life with her husband in the little town far to the rear. She feels that she has deserted the front line of battle for the safety of the rear, that in marrying Mark, a man she did not love, she betrayed not only Boris, who might still be alive, but herself also. It is love that she has betrayed.

She finds the courage to break with Mark. She lives on an illusion of hope—hope that Boris was not killed—that he will come back to her. She holds desperately to the thought that there was no official notification of his death.

As the film closes, the first troop train returns from the war. Veronica goes to the station. Again the excited crowd is milling about. She searches for Boris, and once again she does not find him. And once again the camera records smiles and tears and joy and the hopelessness of those whose men would never return. And once again the cranes fly against a brilliant blue, unending sky.

The Cranes Are Flying evoked widespread interest and much discussion. While critical of one or another element of the production, reviewers were lavish in their praise of the film as a whole.

So, too, for the audiences, indicated by the fact that the film ran to packed houses for many months. Nobody who saw it remained indifferent, and as is usual on occasions like this, letters poured into newspapers and magazines.

Much of the comment and discussion centered on the characterization of Veronica. G. Vnukovsky, a fitter who works in Kubinka near Moscow, writes: "I do not think that Veronica should be the heroine of this film. A person who is not true to her love is not a worthwhile human being."

A. Ponomaryov and B. Zamskov, two engineers from Novokuibyshevsk on the Volga, disagree. They wrote: "What happened to Veronica was hardly her fault. She was not prompted by philistine sentiments or the desire to use her husband's back as a shelter from the storm. She was spiritually broken. It was the war and its attendant horrors that was responsible."

A. Potapenko, a college student from Leningrad, takes much the same view. "Veronica never loved Mark. When she lost her parents she was so grief-stricken, so shaken morally, that she was indifferent to everything, even to death. Mark's depravity lies in the fact that instead of offering his moral support, he took advantage of her grief."

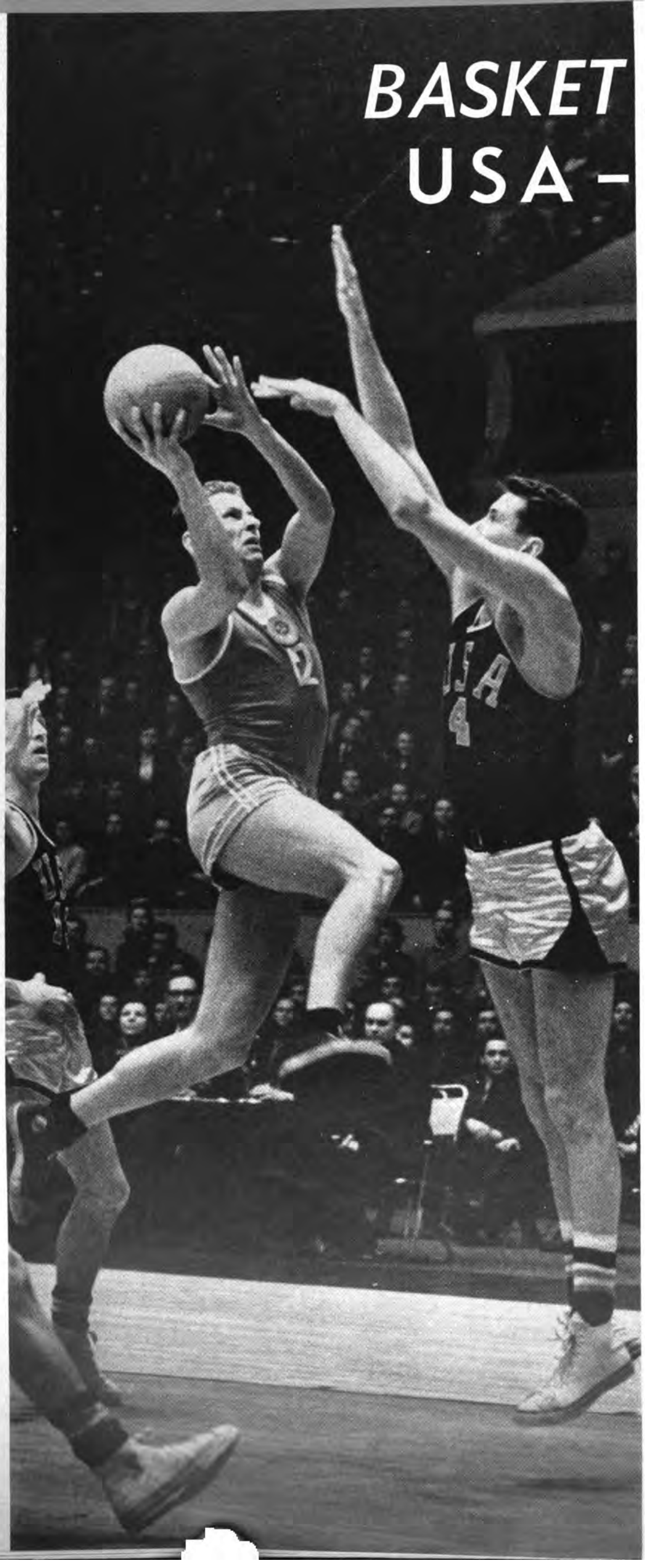
V. Shugarev, from Vinnitsa in the Ukraine, is critical of the direction. He says: "The film director failed to show Veronica's inner world, or explain the circumstances which drove her to act the way she did. And that, I believe, is the crucial point on which the whole character hinges."

But among the many thousands of letters there is scarcely one which did not make a point of the beauty of the film, its very penetrating insight into human behavior, its profound antiwar sentiment, and its outlook for a better, happier world—a world, as Z. Shcherbakova, a Moscow music teacher writes, "in which the cranes will always be flying in peaceful skies." ■

"HE WAITED LONG FOR YOU," GRANDMOTHER SAID, "AND THEN LEFT A TOY SQUIRREL FOR YOUR BIRTHDAY."

JUST BEFORE CRAWLING TO HIS DEATH IN EFFORT TO RESCUE A COMRADE, BORIS DREAMS OF HIS FIANCÉE.

IN THE WAKE OF THE BOMBERS, HERE IS WHAT WAS LEFT OF VERONICA'S FORMER HAPPINESS AND CHILDHOOD.



BASKET BALL USA – USSR

By Victor Kuprianov

IT WAS "tall men's" night on that drizzly April evening when the plane carrying the American basketball teams landed at Moscow airport for the first of a series of exchange games. Everybody who was anybody in Soviet athletics was there—players, coaches, and fans by the score. The outsize Americans dwarfed everybody present, although there were plenty of king-size Russians around.

Muscovites like ceremony. There were greetings all around—official and unofficial—and an impromptu speech of welcome by president of the USSR Basketball Association, Sergei Bessonov. Mr. Johnson, president of the USA Amateur Athletic Union, who accompanied the teams, had this to say in reply:

"My dear friends in the Soviet Union. We are delighted to have this opportunity to visit your beautiful city and country and to enjoy the fellowship and friendship of these games. We wish you success and look forward to your return visit to the United States. We have had some of your athletes visit us recently and we enjoyed their visit with us. Thank you for inviting us. We hope you will like our playing."

And Muscovites certainly did like their playing. Fans watched spellbound as the tall Americans sank balls into the baskets with that very special downward flick of the wrist, something very few Soviet players can do.

The Soviet men's team, which has always trailed the Americans, hoped to turn the tables this time. They counted on speed to neutralize the American height advantage, and on a skyscraper player by the name of Jan Kruminsh to keep their tally mounting. But that hope faded quickly. Result: a clean sweep of all six games by the U.S. men's team.

The American women's team started a little slow. They dropped the opening two games to the USSR national team which was able to avenge a setback at the world championship. But the American ladies made up for it by outplaying the other four teams.

All the games were played to capacity audiences. It was at these games that fans realized how little space a human can squeeze himself into if he has his mind made up to see crack basketball played.

Said Mr. Greims, president of the International Basketball Federation, speaking of the

fans: "The reaction of the crowd was very sportsmanlike. I was really gratified at the respect they showed the players."

The Americans had a packed schedule and not all of it was basketball. There was a lot they wanted to see and not enough time to see it all. But they managed to get in a good deal, nevertheless, and were met with cheers and warm greetings, both on the courts and by people in the streets.

The Americans made life a little difficult for people sitting behind them at places like the Bolshoi Theater, where they went to see the ballet *Don Quixote*. One bearded gentleman who must have suffered said wistfully during intermission: "Oh, for the good old days, when basketball players were the same size as other people."

The playing schedule of the Americans took them to Tbilisi in Georgia. The rush for tickets was so great that it was decided to hold the games in the open at the Dynamo Stadium. But the weatherman refused to cooperate and the rain came down in torrents. The crowds in the stands wouldn't budge, rain or no rain, and the Americans got a hearty round of applause when they agreed to wait the rain out.

It must have been this gesture of good sportsmanship that disarmed the weather gods. The clouds dispersed and the game got going after Mr. Womble, coach of the men's team, drew a laugh and a cheer when he marched around the stadium with a moistened finger lifted in the air to gauge the direction of the wind.

In the evening the American squad got a taste of real Georgian hospitality. Each player and official was presented with the traditional Georgian drinking horn filled to the brim with wine.

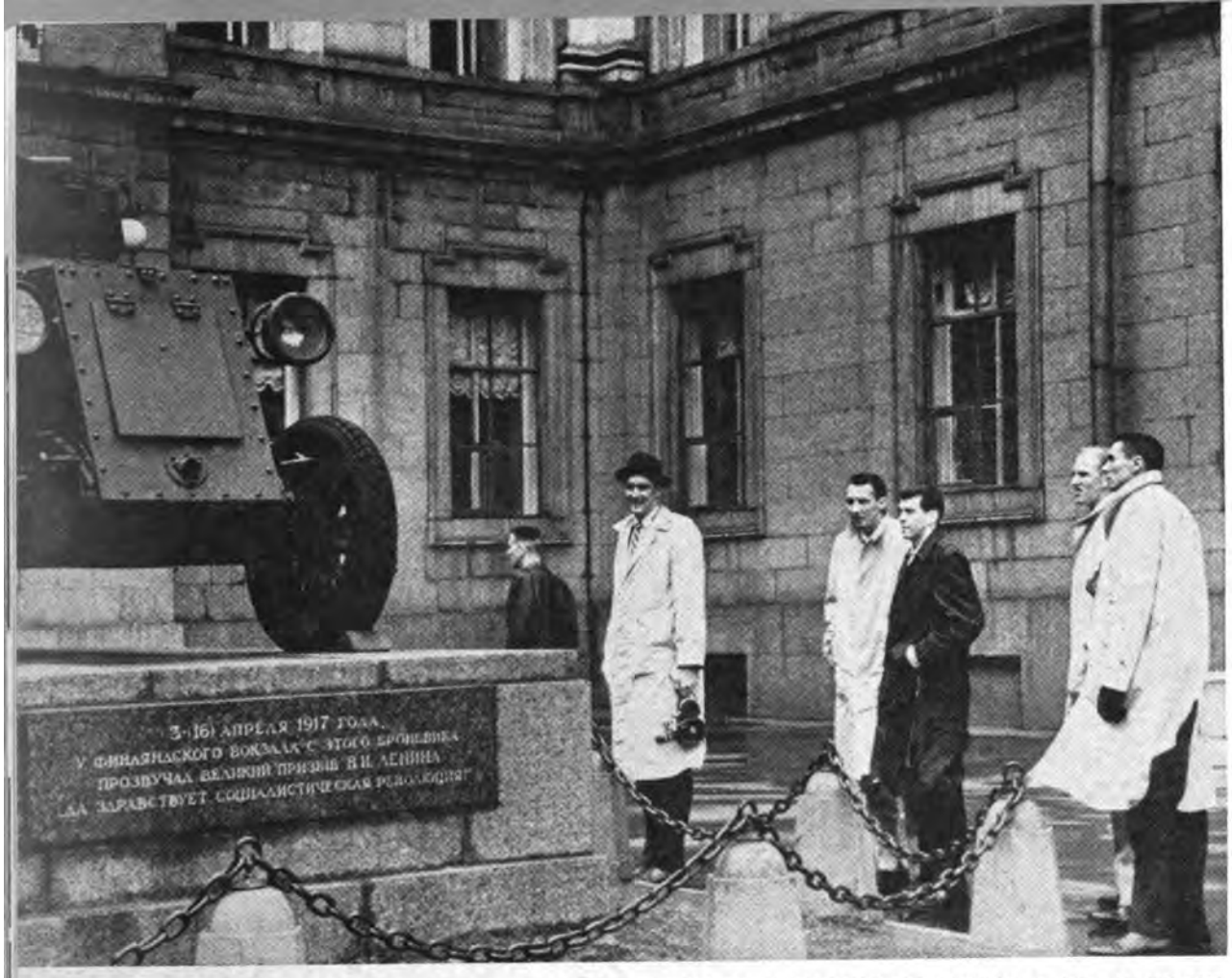
A drinking horn is a problem. You can't put it down because it won't stand. The only

Continued on next page

JUST BEFORE STARTING WHISTLE. OVERFLOW CROWDS PACK THE STANDS FOR ALL INTERNATIONAL CONTESTS.

THE COACHES AND SUBSTITUTES ON THE U.S. BENCH EAGERLY FOLLOW THE PLAY.

AUTOGRAPH FANS CROWD AROUND THESE AMERICAN GIRLS TO TRADE SIGNATURES.



A GROUP OF U.S. PLAYERS AT ENTRANCE TO THE MUSEUM OF THE REVOLUTION DURING A SIGHTSEEING TRIP.

TAKING PICTURES OF MOSCOW TO SHOW AT HOME.

THE WOMEN PLAYERS HAD A LONG LIST OF THINGS TO SEE, BUT THERE WASN'T ENOUGH TIME FOR EVERYTHING.

BASKETBALL
USA–USSR *Continued*

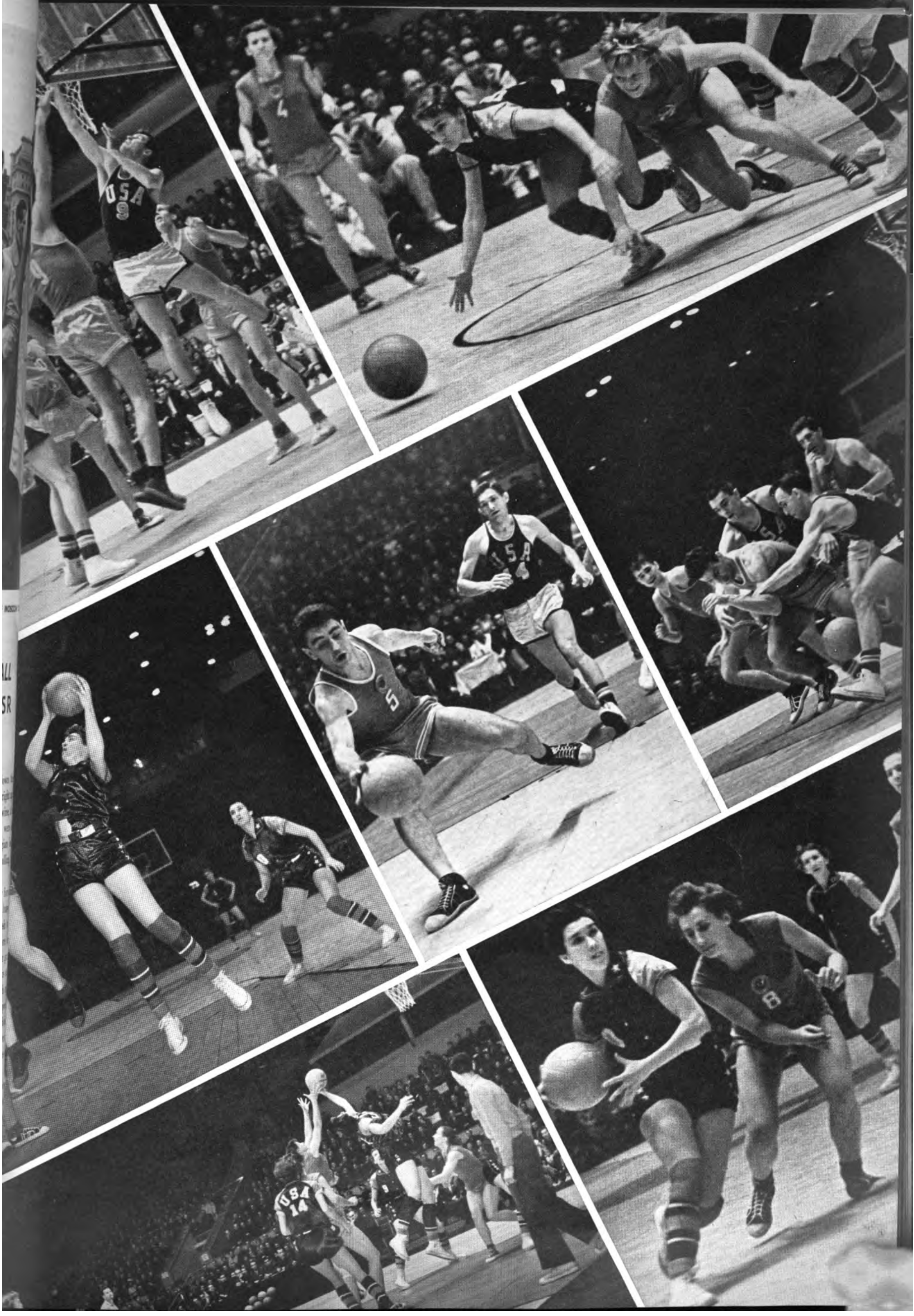
thing to do is to down the contents. The host, of course, fills it right up again. Warmed by the fragrant local wine, it didn't take long before the Americans were learning how to dance the fiery Georgian lesginka, and the hosts were rock-and-rolling. It was a fine evening all around.

Then back to Moscow for a sight of the big May Day parade, with a busy time for camera bugs, followed by a dash to Leningrad for more basketball and more sightseeing. One of the sights was a soccer game at the Kirov Stadium, where the visitors stopped the game until the crowd got through applauding.

The Americans were peerless basketball players and fine ambassadors of good will. Whatever the basketball score may have read, there were no losers at these games—everybody made friends.

Mr. Head, the women's coach, put it this way during the tour: "We certainly have been treated royally . . . . People have been wonderful to us. We hope to be good representatives of our country, and before we leave to make many friends and to do a wonderful job in promoting better relations between our two countries."

The American players, both women and men, did all of that—and more. ■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8

DANCERS OF THE MOISEYEV ENSEMBLE IN THE UNITED STATES. *See story on page 28.*

USSR

WIDER HORIZONS FOR SOVIET YOUTH

MAY 23 1960

No. 9 (24)—20 Cents

VOCATIONAL SCHOOL GRADUATE ALEVTINA GOLUBEVA HAS JUST BEGUN TO WORK IN A TEXTILE MILL.

USSR

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MINING SCHOOL STUDENT ALEXEI KOZMIN (RIGHT) STARTS HIS APPRENTICESHIP IN A COAL PIT UNDER THE EXPERIENCED GUIDANCE OF VETERAN MINER IVAN VESNYANKO.

EDUCATION FOR A JOB

By **GENRIKH ZELENKO**

Head of the USSR Vocational School Administration

VOCATIONAL training in the Soviet Union is more than training in a narrow skill. It is training the future craftsman as a rounded person who can contribute to the industrial or agricultural life of the country both as skilled worker and as educated citizens. Teaching of the skill is, of course, the primary function of every vocational school, but the job training is built around a solid core of general subjects and extracurricular activities.

The nationwide vocational school system was set up in 1940. Now it covers in 3,200 schools, at least one in every town of any considerable size, with a total student body of one million. These schools train boys and girls for 700 different trades in industry and agriculture, transport and construction.

As new skills are required by modern developments in technology and farming, they are added to the vocational school program. Among the newest are those which have grown out of developments in electronics, automation and other relatively new areas.

Last year the vocational schools graduated 696,000 skilled workers. In the 18 years since these schools were founded they have equipped more than 9.5 million young workers for jobs in industry and agriculture. Everywhere in the country they rate high for efficiency, skill and originality.

There are many plants where vocational school graduates form a large proportion of the workers in the skilled trades. At the Magnitogorsk iron and steel works, to cite one example, 80 per cent of the blast furnacemen, steelmakers and rolling mill operators learned their trades in vocational schools.

From Six Months to Four Years

Prerequisite for admission to the vocational schools is graduation from the seven- or the ten-year school. The course of study varies in length. Some of the simpler trades do not require more than six-months of training. Others, which train skilled operators for modern machine units, senior technical personnel, or craftsmen in the applied arts, offer courses from one to four years long, depending on the previous schooling of the student and the character of the trade.

For seven-year school graduates vocational training usually lasts from two to four years. Mining schools, for example, offer a two-year course. They train operators for coal-cutting machines and coal combines, drillers and tun-

Continued on next page

EDUCATION FOR A JOB

Continued

VALENTINA VASENKO LEARNS GILDING IN HER CLASS.

CLASS IN LENINGRAD VOCATIONAL SCHOOL NO. 2 HEARS GRADUATE LATHE OPERATOR YEVGENI SAVICH LECT

nelers, maintenance mechanics and mine electricians. In the engineering industries the course of vocational training for the workers in the basic trades is no less than two years, while for such highly skilled jobs as regulating automatic and semi-automatic equipment it is four years. Some 800 of the vocational schools specialize in the training of farm machinery operators with the course of study taking one or two years. The training in the applied art schools lasts three or four years.

With the introduction of compulsory ten-year schooling during recent years, more a more high school graduates have been ent ing all branches of the country's economy. equip them for the jobs they choose, a spec type of technical school was established, wh the program of training takes into accoun good background in the sciences and pa technical subjects received in general sch The course of study in these schools is one two years, and they train highly quali workers for the leading trades and also sen technicians.

Besides the nationwide vocational sch system, there are on-the-job training cours and schools at each of the big plants. Appre tices are taught either individually or groups by skilled workers and foremen. Th apprenticeship system is used for the less d manding trades which can be taught fair quickly.

Both the vocational schools and on-the-j training courses are maintained entirely state expense and are free to everyone. The are special provisons within the country's sy tem of vocational training for children brou up in orphanages. Beginning at the age seven they may attend a twelve-year sch which provides them with a general educat and trains them for a skilled trade as well.

SCHOOL SHOPS HAVE ALL THE EQUIPMENT NEEDED TO TEACH FUTURE MACHINISTS LATHE OPERATION.

Course of Study

The course of study in the vocation schools, although varying with the skill taught is built on the principle, common to all, of in tegrating theory with practical training. Maj teaching emphasis and major teaching time from 50 to 85 per cent, depending upon the type of school and complexity of future oc cupation—is devoted to production training.

The instructors are men and women who combine teaching ability with a background experience in the particular area of industry

or farming. There are teacher-training schools in many industrial centers especially designed to prepare instructors for vocational school teaching.

Teaching methods stress the use of such visual aids as slides, films, and working models of instruments and machines. Laboratories and shops are equipped with the modern tools and appliances used in actual production. Students move from construction of simple devices to those increasingly more complex and are stimulated to think imaginatively and creatively as they shape metal, wood or whatever material they may be working with into the functional finished product.

In these school shops students each year turn out many thousands of tools and machines which are used in industry. All work is done by the student with only consultative help from the teachers. The best are sent to the National Vocational School Exhibition in Moscow. Work done by vocational students is now displayed in the Soviet Pavilion at the Brussels Fair.

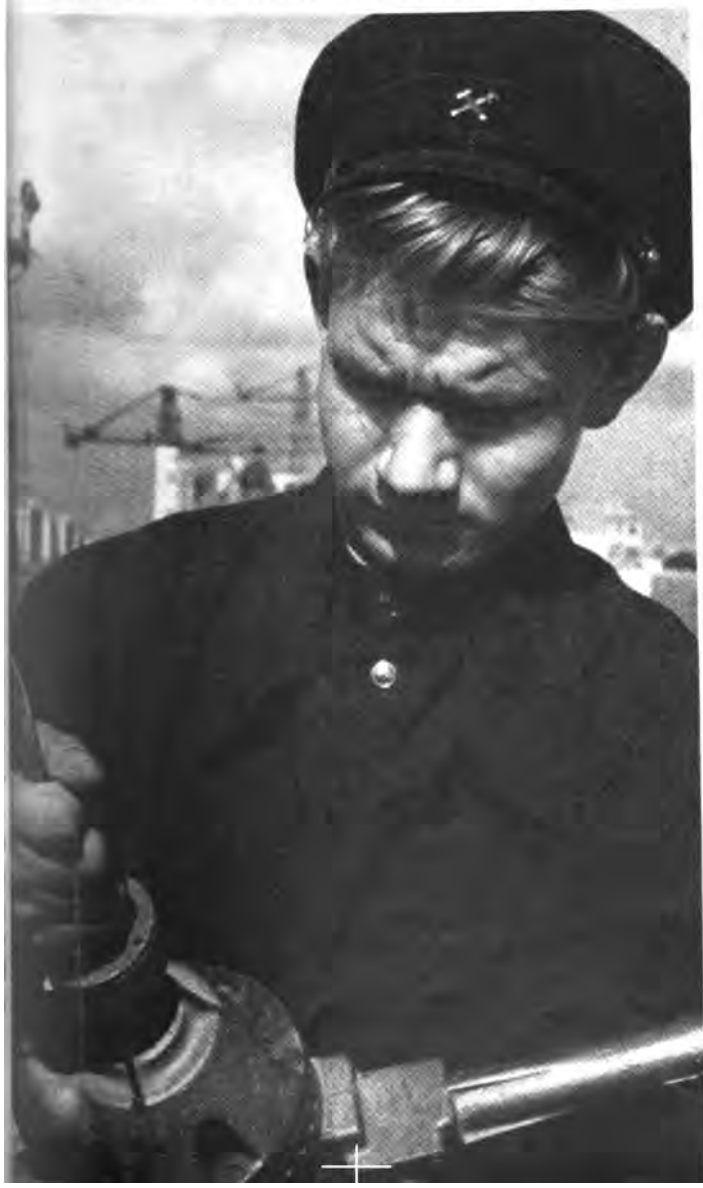
After students have achieved reasonable mastery of the skill in the school workshops, they get actual production training in factories, mines and farms. This is an intrinsic part of the course of study, with on-the-job teaching done by veteran workers. Following a period of production training, students are prepared to take the examination to qualify for the trade.

Should a student decide, while at vocational

Continued on next page

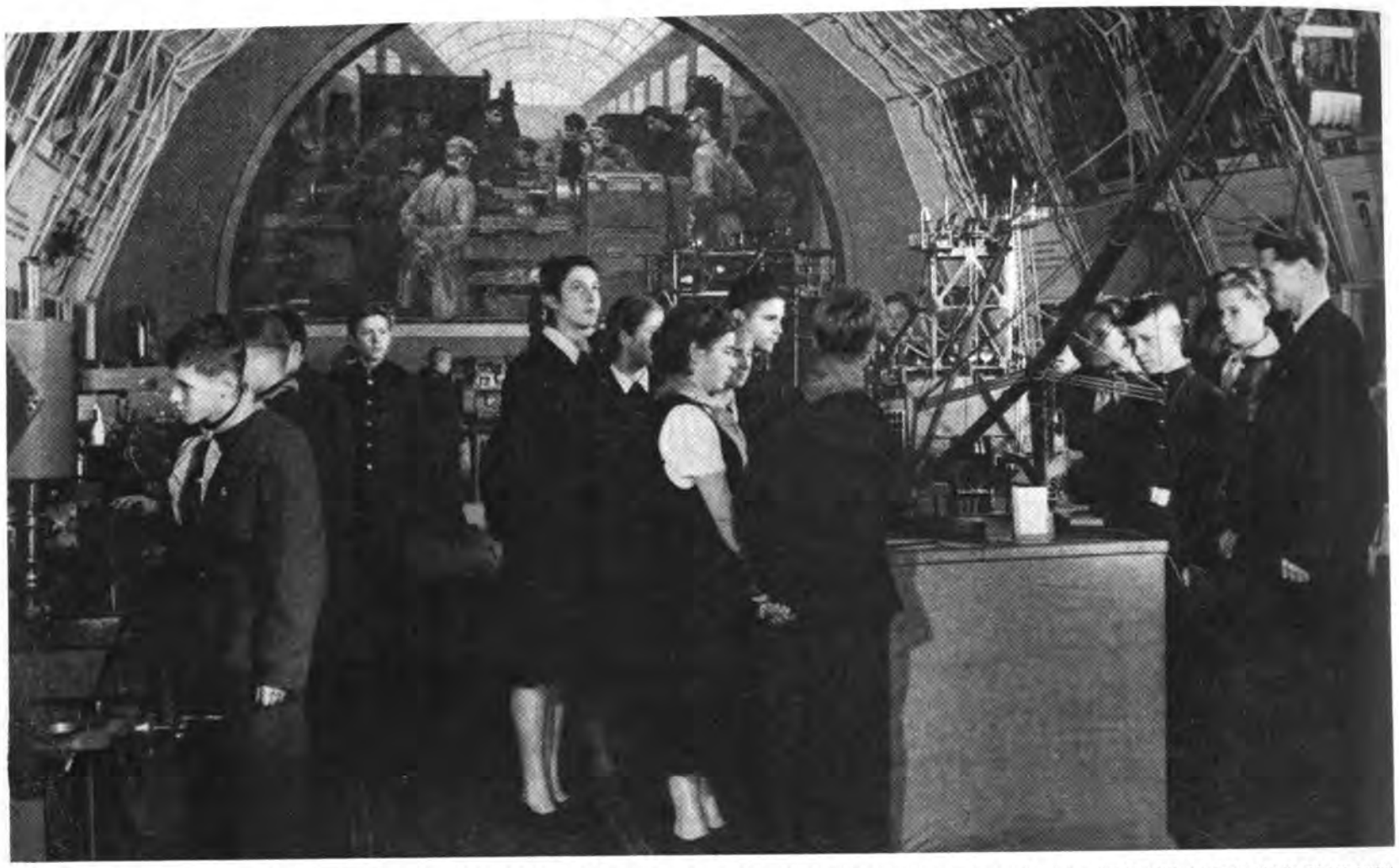
GRADUATION EXAMINATIONS ARE OVER—AND VOCATIONAL SCHOOL STUDENT YURI KOROCHKIN GETS HIS DIPLOMA.

MANY GRADUATES ARE ATTRACTED BY CONSTRUCTION PROJECTS.



ANATOLI BABLO (LEFT), IS NOW SHOP FOREMAN.

ANATOLI BABLO IN 1940, STARTING TRADE SCHOOL.



THE NATIONAL VOCATIONAL SCHOOL EXHIBITION IN MOSCOW DRAWS MANY JUNIOR HIGH STUDENTS WHO CONSIDER LEARNING INDUSTRIAL SKILLS AFTER THEIR GRADUATION.

EDUCATION FOR A JOB *Continued*

school, that he would prefer to change his trade or to try for entrance to some other type of school—a medical institute, or one of the technical colleges, for example—there is no difficulty about his making the changeover if he qualifies for admission.

Future of Graduates

After graduating from vocational school young workers may go on with their education on any level they wish. Money presents no difficulty since all schooling is free. Many graduates of vocational schools are now first-rank engineers and plant directors. Some have won a distinctive and honored place in the country's industrial history.

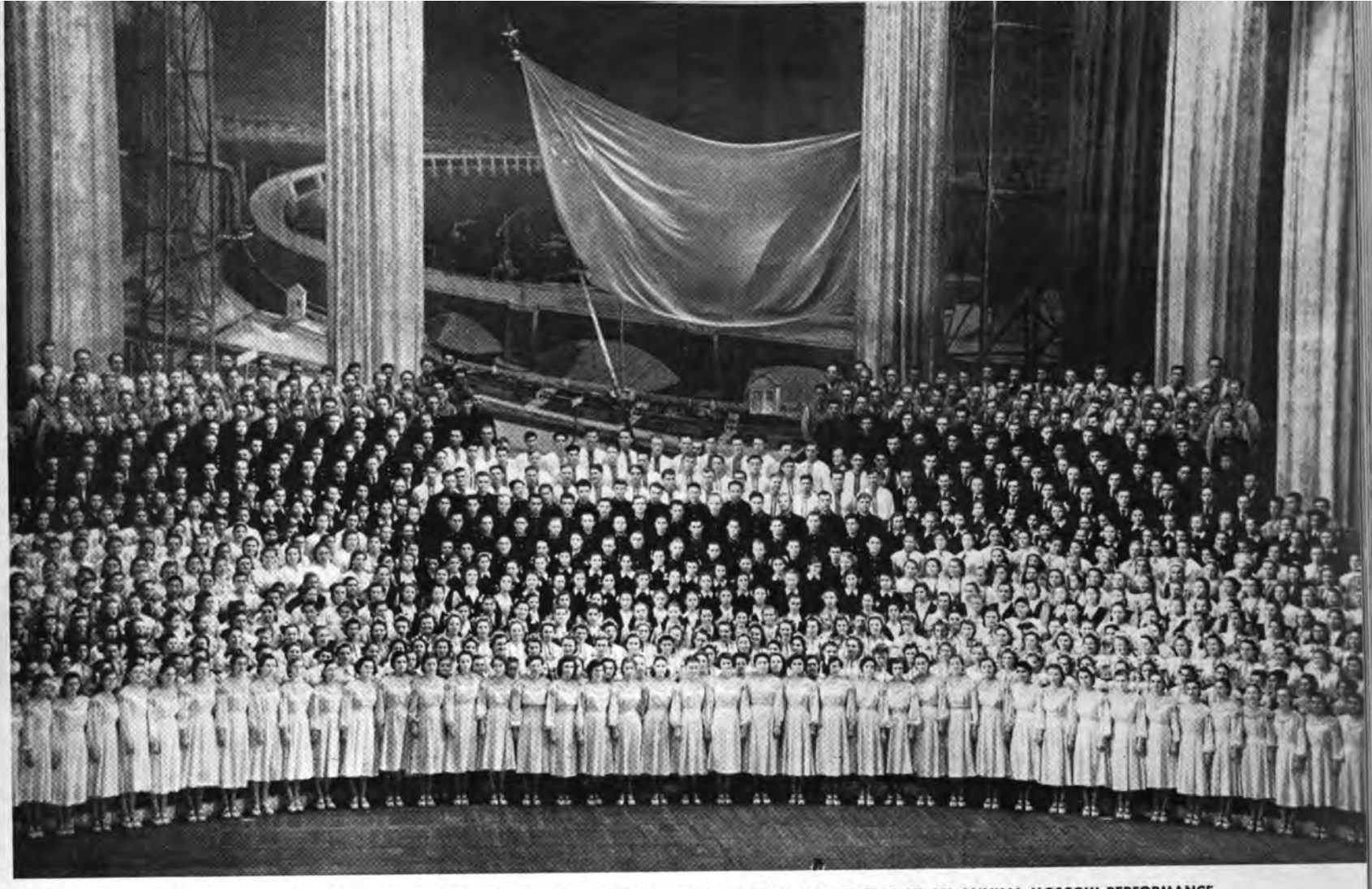
Ivan Antseshko, a Byelorussian construction worker, helped build the street in Minsk which now bears his name. He learned his trade at a building trades vocational school.

Vasili Kucher is another vocational school graduate. He is famous throughout the Donbas coal basin as the miner who contributed many improvements which were incorporated into the coal combine.

Jan Grejtan came to the Riga shipyards straight from vocational school only five years ago. He very recently received a telegram of thanks from sailors on the steamship *Kooperatsia* cruising Antarctic waters for the fine work he did as leader of a team of mechanics in preparing the ship for its long trip.

The graduates of the vocational schools are young people with a broad cultural and technical background. They have a grounding in their native and the Russian languages and

AS PART OF THEIR COURSE IN VOCATIONAL SCHOOL, STUDENTS VISIT VARIOUS HISTORICAL AND ART MUSEUMS.



GATHERED IN A COMBINED CHORUS, VOCATIONAL SCHOOL STUDENTS OF THE SOVIET UNION'S 15 REPUBLICS APPEAR IN AN ANNUAL MOSCOW PERFORMANCE.

literature, in a foreign language, in history, geography, biology, mathematics, physics and chemistry, besides their vocational training. The combination gives them a flexibility and mental breadth which makes for resourcefulness and inventiveness.

This versatility is further stimulated by extracurricular activities which center in school clubs and stadiums. The Labor Reserves Sports Society is one of the leading in the country, with members participating in every conceivable sport. There are music groups, amateur theater groups, dance groups —some 10,000 of them in the vocational schools—to meet a wide diversity of young people's interests.

These groups have developed and fostered talents in many of the arts. Valentina Klepatskaya sang in a vocational school chorus in Sverdlovsk. Today she is a soloist at the Moscow Bolshoi Theater.

Vasili Savin, one of the dancers of the Moiseyev Ensemble, first learned his dancing in an amateur group at the vocational school where he was learning the trade of lathe operator.

Zoya Kusik and Sergei Naumov first displayed their talents as acrobats at one of the sports and art festivals held periodically for vocational school students. Now they are nationally known circus performers.

Once the vocational school graduate has learned his trade, he has wide horizons open before him. His skill is in high demand in any of a number of enterprises. His livelihood is assured and the speed with which he moves upward is determined by his own ability. ■

POLONAISE AS IT IS PERFORMED BY THE DANCE ENSEMBLE OF ONE OF THE VOCATIONAL SCHOOLS.

CITIES, TOO, CAN BE FRIENDS

FOREIGN GUESTS TOUR STALINGRAD TO SEE ITS RECONSTRUCTION.

LAST spring John B. Hynes, the mayor of Boston, voiced his view that it would be a useful and advantageous thing if delegations of mayors of the principal cities of the United States and the Soviet Union exchanged visits.

Mayor Hynes' statement was made during an interview he gave a correspondent of *Soviet Russia*, and soon afterward the same paper carried an open letter of reply.

The answer, signed by Nikolai Smirnov, chairman of the Executive Committee of the Leningrad City Soviet, was addressed to Mayor Hynes under the headline: "We Are Willing To Receive Your Delegation."

Leningrad's chief municipal executive said his city "is ready to receive a delegation of the mayors of the major cities of the United States during the current year. This would be a very good thing." Nikolai Smirnov added that the Americans would "receive a most ardent welcome."

"Besides," he continued, "we are willing to establish steady contacts with the municipal authorities of any American city. Just as you have never been in Moscow or Leningrad, I have never visited Washington or Boston. Frankly speaking, I would like very much to visit American cities and get acquainted with their large and intricate municipal activities. Mayors should be aware of what other cities have that is interesting and instructive. Only in that way can the needs of city folk be more fully and better satisfied—by creating maximum comfort in all the world's large cities.

"I personally am ready at any time to join a delegation of the representatives of the cities of our country to make a trip to the United States. I have no doubt at all that representatives of other Soviet cities, such as Moscow, Kiev, Minsk and Stalingrad, would gladly agree to take part in this trip.

"I am confident that reciprocal visits of the mayors of American and Soviet cities will lead to better understanding between our peoples and will contribute to the cause of establishing good relations between the USSR and USA."

In May the Moscow City Soviet played host to Fredric R. Mann, a member of the Philadelphia City Council. Interviewed during his stay, he said:

"This is my first visit to Moscow. The capital's City Soviet has given me the opportunity to become acquainted with the municipal economy, its various establishments and the city's cultural facilities. Your capital is a very large and beautiful city, and very well kept. The city transport operates with great precision, and especially the subway."

Mann spoke of the cultural advantages of Moscow, its theaters and opera, and declared himself very grateful for the invitation to visit there. He said he expected to speak about Moscow on his return to the United States and than extended an invitation for the Mayor of Moscow to visit Philadelphia and become acquainted with its activities. He indorsed the the mutual contacts as beneficial to both countries.

The idea of inter-city exchanges also carries the authority of the Soviet-American cultural exchange agreement signed earlier this year. The document says:

"Both parties will promote the development and strengthening of friendly contacts between Soviet and American cities."

There actually is a much longer history to the idea of inter-city friendly contacts. It was perhaps ten years ago that two of the most terribly damaged cities of World War II, Britain's Coventry and Russia's Stalingrad, first established friendly relations. It all started through correspondence and its purpose was for the two to become better acquainted and to exchange experiences.

Then a delegation from Coventry, headed by its Lord Mayor, was received by Stalingrad's officials. The British delegation was given a most hearty welcome. A year later a delegation of the Stalingrad City Soviet made a return visit to Coventry. And not long ago the two cities exchanged photo exhibits showing the progress of their postwar restoration and the life of their citizens.

Stalingrad has been especially active in its exchanges. Among its friends are such cities as Kemi in Finland, Ostrava in Czechoslovakia, Egypt's Port Said, Warsaw and Poznan in Poland, and the Japanese cities of Beppu and Hiroshima. Stalingrad is also developing

connections with Saint-Etienne in France and the Belgian city of Liége.

There is no end to the foreign delegations and tourist groups which visit Stalingrad. Alexander Dynkin, its Mayor, has on more than one occasion expressed the opinion that visits in which Russians and Americans meet face to face are invaluable in fostering mutual understanding. He has often spoken of the city's wish to see that friendship and unity which played so great a part in the common war extended also to the common peace.

Leningrad, too, has established extensive contacts with foreign cities. A delegation of the Leningrad City Soviet visited the British city of Manchester and later the visit was returned by a delegation from Manchester headed by its Lord Mayor Regan. In both cases the visitors were given tremendous welcomes and shown the sights, the industry and the life of the people.

The Urals city of Sverdlovsk and Birmingham, England, have a friendship that is growing stronger with time. And in this case the contact was made not only by the municipal authorities of the two communities, but also by the labor movements of each—the trade union councils of Birmingham and Sverdlovsk also exchanged visits.

Among other Soviet cities maintaining contacts with British cities are the Black Sea ports of Odessa and Novorossiisk, and the Ukrainian city of Stalino, center of the Donbas coal fields. Visitors to the history museum in Novorossiisk are sure to see the colorful albums with views of Plymouth, England, and a golden warder, the symbol of authority of this historic British port. These are souvenirs presented by the Lord Mayor of Plymouth and his party when they were guests of the city.

The Finnish city of Lahti and Zaporozhye in the Ukraine are also old friends, exchanging delegations and New Year's greetings as well as friendly cables on the occasion of national holidays.

These contacts are not confined to Europe, but embrace other continents as well. Tashkent, capital of the Uzbek Republic, has warm ties with the Indonesian city of Bandung.

In the case of the United States, there are many interesting possibilities for the development of inter-city contacts and visiting. Pittsburgh might send its steelmakers to the Ukrainian metallurgical center of Dniepropetrovsk. Miners from the Birmingham region could well visit the cities in the Donbas coal fields. Furniture makers from Grand Rapids might invite their counterparts from the Western Ukrainian center of Uzhgorod to show how things are done in Michigan. Textile loom fixers from Charlotte, N.C., might be interested in seeing the weaving machinery in Ivanovo. Fish processors of Gloucester, Mass., would be quite at home in the Caspian port of Astrakhan. Philadelphia radio and TV workers could see the assembly lines of plants in Riga, the Latvian capital.

The friendly ties between Soviet cities and those of other countries result in mutual benefits and, in the end, serve the interests of all mankind. The Soviet people are ready to expand these contacts immediately, and especially so with American communities. ■

MAYOR LADVISHCHENKO OF ODESSA GREETS LIVERPOOL'S LORD MAYOR JOHN SHEEHEN AND HIS PARTY.

MR. AND MRS. FREDRIC R. MANN OF PHILADELPHIA (LEFT) VISIT WITH MAYOR BOBROVNIKOV OF MOSCOW.

AT TASHKENT'S AIRPORT, MAYOR TURSUNOV HAILS MAYOR RADEN PRIATNAKUSUM OF BANDUNG, INDONESIA.

ROCKETS EXPLORE
the Upper Atmosphere

EXPLORATION of the upper atmosphere by means of rockets is an important part of the International Geophysical Year program. Coupled with the investigations carried out by artificial earth satellites, it essentially helps to encompass the entire mass of the air ocean that envelops our planet and to provide a correct idea of the various processes and phenomena in the top layers of the atmosphere and in the neighboring regions of outer space.

From the Early Thirties to the IGY Program

Rocket investigations of the atmosphere in the Soviet Union date back to the early thirties. The first rocket with a liquid-fuel engine was launched in 1933. Beginning with 1949, instrument-equipped rockets became one of the principal means for study of the upper atmosphere.

The first vertically-launched rocket, in May 1949, reached an altitude of 68 miles and was followed by a series of rockets of the same type. The instruments carried by these early rockets weighed some 265-285 pounds all told, as compared with 3,300 pounds carried by rockets launched within recent years.

A new type of rocket launched in May 1957 carried a pay load of 4,850 pounds and climbed to an altitude of 132 miles. Both instruments and experimental dogs were brought back safely to earth from that height. This launching and similar flights made after it marked a new advance in the exploration of the upper atmosphere.

The main questions that Soviet scientists have been studying with the aid of rockets as part of the IGY program cover determination of the temperature, pressure and electron composition of the atmosphere at different altitudes; investigation of the properties of the ionosphere, such as concentration of ions and electrons and electronic temperature; research on cosmic rays, on the short-wave ultraviolet part of the solar spectrum, and on meteors. To conduct these studies, rockets of various types and designs have been launched.

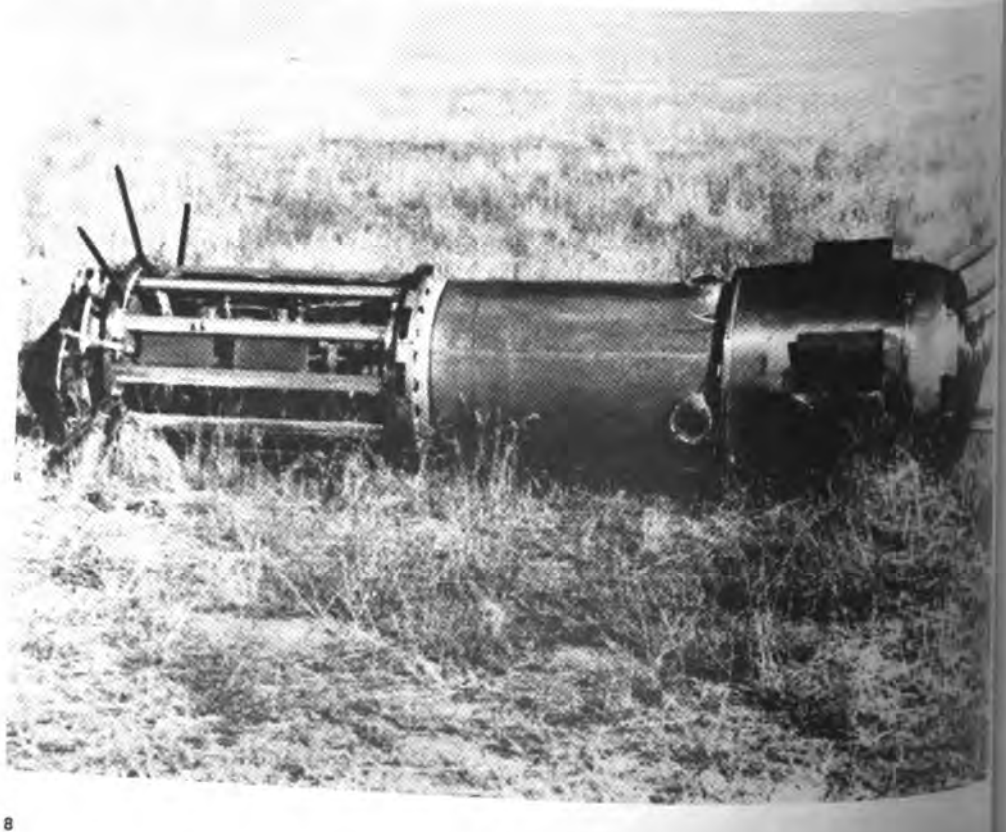
Rocket launchings under the IGY program are made from three points: from Franz Josef Land in the Arctic, from the middle latitudes of the European part of the Soviet Union, and in the Antarctic from a site near the Soviet scientific base Mirny and from the ship *Ob* along the Antarctic coast.

A total of some 165 launchings are planned from these three points. The launching sites of rockets as well as the orbits of the spaceships are chosen with a view to obtaining data from different regions of the earth, and primarily in different latitudes.

Record Launching on February 21, 1958

On February 21 of this year a one-stage geophysical rocket launched from the middle latitudes of the European part of the Soviet Union ascended to the height of 294 miles. Both for height reached and for range of research, this ascent set a new world record for rockets of this class.

CONTAINER WITH GEOPHYSICAL INSTRUMENTS AFTER ITS DESCENT FROM A ROCKET FLIGHT 132 MILES HIGH



February 21, one-stage rocket rose 294 miles with 3,350 pounds of scientific equipment.

The rocket carried a bank of scientific instruments weighing 3,350 pounds. Ionization and magnetic manometers measured air pressure. Piezoelectric gauges recorded the energy and numbers of micrometeors which collided with the rocket. Dynamic electrometers registered the tension of the electric field on the rocket's surface. A radiofrequency mass-spectrometer measured the ion composition of the rarefied gases in the upper atmosphere. Ion traps measured the concentration of positive ions. The electronic temperature was measured by the method of probing. The concentration of electrons in the different regions of the ionosphere was measured with a dispersion interferometer. A spectrometer photographed the solar spectrum in the short-wave ultraviolet region.

The rocket flew up at a small vertical angle in the preset direction and came down exactly in the area it had been designed to land in. Throughout the flight, including the time it was flying by inertia, it was kept stable by devices which prevented it from rotating around its vertical and horizontal axes. This made for greater accuracy of measurements. Findings were transmitted to ground recording stations by radiotelemetering or were recorded on board the rocket on tape which was later brought down to earth.

Air Pressure and Composition of Atmosphere

Until recently rocket studies measured air pressure up to an altitude of 100 miles. As for higher altitudes, scientists had only very general knowledge, much of it contradictory.

In the February 21 experiment, air pressure was measured up to an altitude of 162 miles. The measurements were taken while the rocket was ascending and again when the container with the instruments was parachuted back to earth. A pressure as low as 10^{-7} mm. on the mercury column has been registered.

The composition of the atmosphere had previously been studied from samples of air which were trapped in special cylinders sent up to altitudes of slightly more than 60 miles. For various reasons it is difficult to trap an air sample at higher altitudes that is large enough to be analyzed. Therefore, the composition of the atmosphere at these altitudes with respect to either neutral or ionized molecules has been unknown.

The February 21 rocket measured ion content at altitudes from 65 to 128 miles. The data indicated the predominance at these heights of ions with mass number 30, presumably those of nitrogen oxide. At the upper part of the rocket's path the instruments registered ions with mass number 16, presumably those of elemental oxygen.

Micrometeors

The study of micrometeors which enter the atmosphere from the cosmos is of more than theoretical interest to geophysicists. Involved is the practical problem of collision with rockets and artificial satellites in outer space.

What the February 21 experiment tried to determine was the concentration of meteoric particles and their energies. The instruments took reliable measurements of the movements of micrometeors up to an altitude of 185 miles.

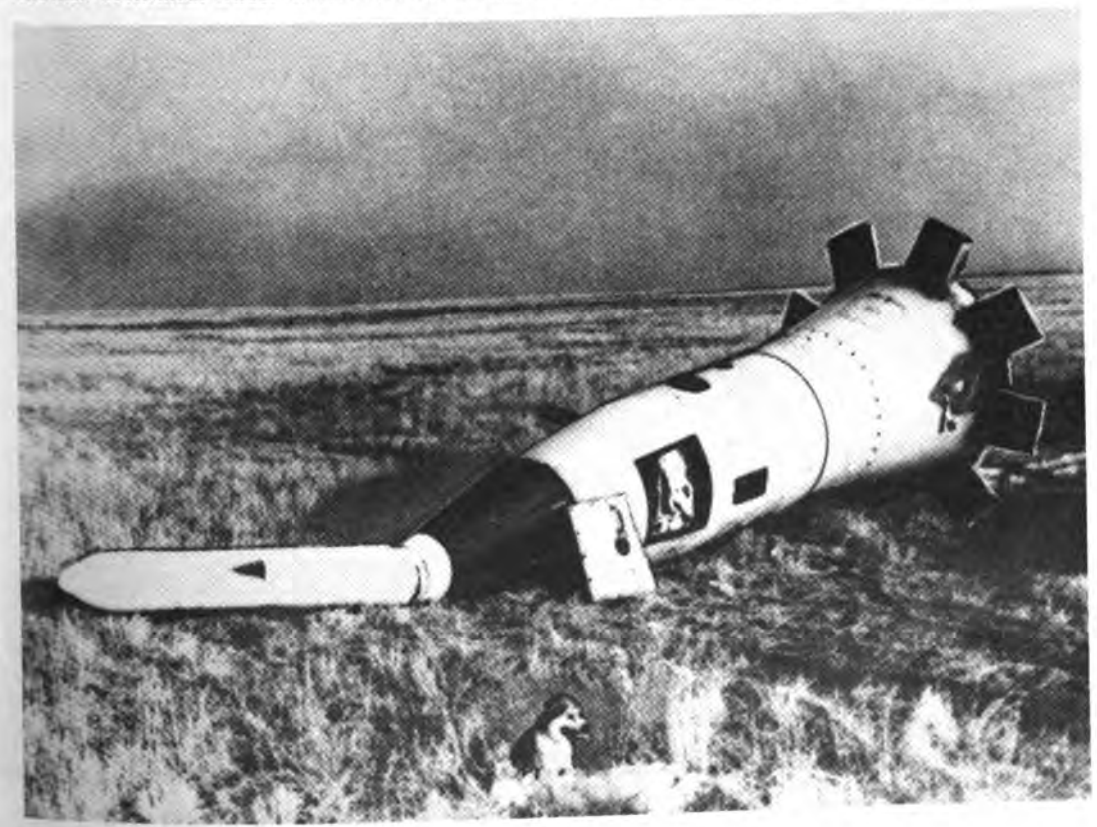
During the rocket's ascent from 75 miles to 185 miles the instruments registered 268 collisions of micrometeors with the surface of the gauges. While between 75 and 155 miles there were 44 collisions per square meter of surface, at higher altitudes to 185 miles, there were nine collisions per square meter.

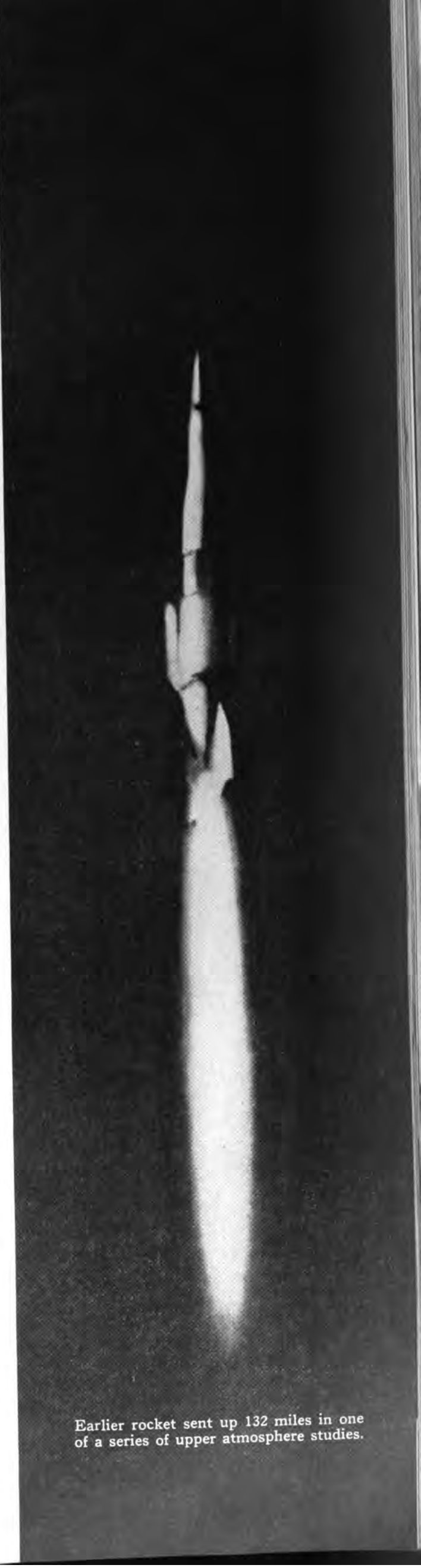
Radio Waves

In the region of the atmosphere lying 30-40 miles above the surface of the earth, there

Continued on page 12

ANOTHER CONTAINER SAFELY BACK FROM UPPER ATMOSPHERE WITH INSTRUMENTS AND A DOG (IN FOREGROUND).





Earlier rocket sent up 132 miles in one of a series of upper atmosphere studies.

SPACE SHIP MODEL MADE FROM DESIGNS OF ROCKET THEORIST TSIOLKOVSKY.

THE FIRST SOVIET RESEARCH ROCKET LAUNCHED IN 1933 (LIQUID FUEL POWERED)

HEAD

EAD OF TODAY'S STANDARD METEOROLOGICAL ROCKET WITH ITS EQUIPMENT.

ROCKET CONE SCARRED BY METEOR PARTICLES DURING UPPER ATMOSPHERE TRIPS.

DEVICE FOR MEASURING ELECTRONIC CONCENTRATION.

THESE IONIZATION AND MAGNETIC GAUGES ARE BEING TESTED PRIOR TO THEIR INSTALLATION ON ROCKETS.

ROCKETS EXPLORE *the Upper Atmosphere*

Continued

are large quantities of free charged particles, which affect the propagation of radio waves. One of the main characteristics of this region, which is called the ionosphere, is electronic concentration, or the number of free electrons per cubic centimeter. The velocity and path of propagation of the radio waves change in accordance with the magnitude of electronic concentration. Long-distance radio communication is possible only because radio waves are reflected from the ionosphere.

Prior to rocket studies of the upper atmosphere, electronic concentration at different altitudes was determined indirectly by the reflection from the ionosphere of radio waves of different frequencies emitted from the earth. These measurements showed that at altitudes in the neighborhood of 65-75 and 155-185 miles, there are areas of maximum ionization.

It was concluded that the ionosphere was composed of a number of strata. The stratum at roughly 60 miles was labeled E, and that at roughly 155 miles was labeled F. However, with this indirect method it was rather difficult to study the region between stratum E and stratum F, and it was altogether impossible to study the region above stratum F.

The problem is that for radio communication in outer space flights and for radio measurements connected with such flights, the characteristics of the entire mass of the ionosphere must be known. With instruments carried in rockets into the ionosphere it became possible to take measurements directly.

Most of the measurements made heretofore with rocket-launched instruments have been at altitudes of up to 125-150 miles. This is below the maximum ionization of stratum F. These measurements substantially changed previously held views of the structure of the ionosphere in this region.

The view that there is a sharply defined ionospheric stratum E at altitudes of 65-75 miles is now considered erroneous. In fact, above the maximum electronic concentration at these altitudes there is a region in which the ionization changes are insignificant. The increase begins evenly in the area of stratum F.

American and Soviet Studies

These conclusions were drawn from results obtained with a number of geophysical rockets launched by the USSR Academy of Sciences between 1954 and 1957, and with rockets launched in the United States by the Naval Research Laboratory.

As for the region of the ionosphere lying above the maximum of stratum F, in what is called the outer ionosphere, the only known data on the distribution of electronic concentration previous to the February 21 experiment had been obtained by Berning in the United States. In his experiment, a two-stage rocket, made up of a German V-2 and a Wac-Corporal, rose to an altitude of some 235 miles. According to the Berning data, electronic concentration above the maximum of stratum F, which was at an altitude of 185 miles during the experiment, declines rapidly, shrinking to practically zero at an altitude of roughly 235 miles. These results are now cited in all geophysical literature.

Data from the Soviet rocket of February 21 supply a picture of electronic concentration at altitudes of up to 290 miles. The results obtained in this experiment considerably differ in principle from those of Berning's, although the time of day, season of the year and phase of solar activity cycle during which the measurements were taken make the two experiments quite comparable.

At an altitude of 290 miles the electronic concentration was found to be one million electrons per cubic centimeter, while in the American experiment it was already insignificant at an altitude of 235 miles. The results obtained with the Soviet-launched rocket are quite new—they point to a very slow decline in electronic concentration above the maximum of stratum F.

According to existing ideas, the concentration of neutral particles at altitudes in the neighborhood of 310 miles only slightly exceeds the concentration of free electrons found at these altitudes. Therefore, it must be assumed that there is an intensive diffusion of charged particles from the lower and denser regions of the ionosphere. This is of considerable interest for understanding the physics of phenomena in the outer ionosphere.

The experimental method through which these results were obtained are based on the principle of the dispersion interferometer suggested by Soviet scientists Mandelstam and Papaleksi in 1937. Phase-coupled radio signals emitted from the rocket are picked up by receiving stations on earth. The continuous registration of the differences in the phases of the signals and the simultaneous measurements of the rocket's coordinates make it possible to determine the distribution of electronic concentration in the ionosphere at various altitudes.

Both the American and the Soviet experiments were conducted in much the same way. The Soviet experiments, however, used shorter radio waves, which helped reduce the influence of the earth's magnetic field on the results of the measurements.

The Biology of Space Flight

The studies of the upper atmosphere, besides their more immediate purely theoretical implications, are a prelude to man's goal of outer space travel. But there are many biological and medical problems to be solved before this becomes a reality. Research in these directions has been going on in the Soviet Union since 1949.

During the first stage of study scientists experimented with dogs rocketed to altitudes of 60 to 130 miles. Hermetically sealed compartments in which the air was regenerated were used in test launchings. It has been proved that throughout the flight, the required barometric pressure, temperature and normal composition of the air can be maintained in the compartment with two dogs staying there for a total of three hours.

When the preset altitude was reached, the compartment automatically separated from the rocket and descended by parachute, thus bringing the dogs safely to earth. Specially designed instruments registered the condition of the animals during the flight—both ascending and descending—blood pressure, respiration, pulse, biocurrents of the heart, temperature, as well as air pressure within the compartment and other pertinent factors.

Such flight factors as accelerations on the rocket's take-off and during the descent of the detached compartment, and the zero-gravity state which lasted from 3.5 to 6 minutes, resulted in no noticeable changes in the condition of the test animals. Even when the dogs were rocketed into the upper atmosphere repeatedly, their health did not suffer, as shown by the examinations immediately afterward and during the long period of observation which followed the flights.

During the second stage of study scientists investigated the possibility of returning the animals and instruments from the rocket to earth by catapulting with subsequent parachuting. Special space suits were used to ensure satisfactory conditions for the dogs while they stayed in the rocket and during their descent. The catapulting devices ensured safe departure from the rocket at altitudes of up to 70 miles and at flying speeds of about three-fourths of a mile a second.

To perfect the rescue operation means, tests were made under the most critical conditions —on the descending path when the rocket's flight was not stabilized. In some cases the parachute systems were put into play immediately after catapulting the experimental dogs, at altitudes of 53-47 miles. In other cases the dogs were catapulted at altitudes of 29-24 miles and the parachute opening was delayed until the animals had dropped to about 2½ miles from earth. When the animals left the rocket at the higher altitudes, their descent to earth took more than an hour.

The experiments conducted in greatly varied conditions have demonstrated the dependable operation of systems that guarantee safety of flight and landing of the dogs—space suits, catapulting devices, parachutes and automatic gear. No harmful effects were observed either during the catapulting and the parachuting or during the flight in the upper atmosphere. Methods have been worked out to ensure the best conditions in rocket flights, and to effect emergency rescues.

By now scientists have gathered valuable data on the biology of high-altitude flights based on observations carried on over a period of years. The results of the rocket investigations were further verified by data on the dog carried in Sputnik II.

Greater Pay Loads

A distinguishing feature of the Soviet geophysical rockets and earth satellites is the large pay load they carry. In Sputnik II, for example, the scientific equipment weighed more than 1,100 pounds.

If the weight were cut down to a few pounds, it would be possible to launch an artificial satellite to the moon. But the scientific value of such an experiment would be small, since weight considerations would not permit carrying instruments of any importance necessary to measure and to transmit observations back to earth.

Rapid development of rocketry gives reason to believe that this difficulty will be resolved in the near future. Further advances will make it possible to launch sputniks with greater pay loads to expand the studies of the upper atmosphere and outer space. This will mean a new stride toward the goal of interplanetary travel. ■

This little dog dressed for cosmic travel has just landed from a hop and seems a bit hungry.

Another space traveler, back on earth after a trip, rests amid instruments in his compartment.

MALYSHKA, LINDA AND KOZYAVKA SEEM UNIMPRESSED BY THEIR FAME AT A PRESS CONFERENCE AFTER THEIR FLIGHT IN A ROCKET TO A HEIGHT OF MORE THAN SIXTY MILES.

VOLUNTEERS FOR SPACE TRAVEL

HISTORY did not leave us the names of those who offered to sail with Columbus when word went round that he was outfitting ships to venture into unknown seas. There must have been many hundreds—sailors and landsmen, geographers and mapmakers—all of them pioneers looking to break past old horizons.

Our 20th century unknown is the cosmos. When Sputnik I was launched, we pushed our horizon out into space.

There is an agency of the USSR Academy of Sciences whose name is a curious combination of fantasy and rather businesslike phrasing—the Interdepartmental Committee for Interplanetary Communication. Its

THESE STUDENTS OF MOSCOW'S MINING INSTITUTE ARE SET TO FLY INTO OUTER SPACE—TOGETHER OR SEPARATELY, DEPENDING UPON THE SIZE OF THE COSMOS-PIERCING ROCKET.

function is to coordinate research data—technological and biological—on future space flights.

Since the day Sputnik I was launched, the Committee has been flooded with phone calls, telegrams, letters from thousands of volunteers who want to man the first space ship launched. Most of the volunteers are young—very naturally. They are typical of the Soviet youth who volunteered for work in the barely habited virgin farmlands of Siberia, those who helped build power stations on the Volga and pushed railroads through dense forest regions.

Letters from Future Explorers

Of all the letters which the Committee receives, only a few come from those whose reasons for volunteering are obviously personal or romantic. The overwhelming majority are motivated by the same urge for pioneering exploration, the same desire to be of service to science that is expressed in a letter from Gennadi Nikolayev, 20-year-old worker from the Ural city of Berezniki.

"I followed the news on the flight of Sputnik," he writes, "with a feeling of tremendous pride. As it sped through the sky it opened wide the gateway to an unexplored road. I have complete faith in the success of Soviet science that has set itself the goal of space travel. It is this faith that has prompted me to write to you. I ask you to enroll me in the ranks of those men who will be the first to set foot on the Moon and Mars. I would be happy to learn that I can be of benefit in this glorious and truly fabulous mission."

Or this letter from serviceman Victor Kabalin:

"If there is room for a human being in the next Sputnik, please reserve it for me. If a person with technical knowledge is needed, I promise you that I will on your instructions acquire it in a very short time."

There are no heroics in most of these letters sent to the Committee. For the most part they are as matter of fact as Victor Kabalin's. Some of them mention the hazards and dangers, but the mention is incidental. There is youth in the letters and eagerness and even some impatience that it is likely to be a while before the first manned space ship is launched.

Technically Soviet rocketry is already prepared to launch a manned rocket, but there are other considerations that are involved. Before man travels out into space, there must be a guarantee that he will return safely.

The problem of re-entry of a man-carrying rocket to earth has not yet been solved. Nor has there been sufficient research in the medical and biological problems that are involved. The flight of Laika, the Sputnik dog, furnished important information. However, space travel still has many questions which science must find answers to.

There is no predicting exactly when the first manned rocket will be launched. But that it will be launched in a future not too distant there is no doubt. And when it is, it will very likely be manned by young men like these letter writers who are volunteering to explore the future. ■

The morning mail at the Interdepartmental Committee for Interplanetary Communication is filled with applications of space flight candidates.

Lev Rudovsky, a factory technician, is ready for the sputnik's take-off. Like many others, he filed a written application asking to be included.

Lydia Skugorva, who has a master's degree in engineering, wrote the USSR Academy of Sciences of her dream of taking the first space trip.

SOVIET TOURS ATTRACT

"Your success proves the importance of our music exchange," Soviet composer Aram Khachaturyan told U.S. conductor Eugene Ormandy.

Edward Stern and Joseph Brandle, announcers of an American TV company, arrived in Moscow to see the city's TV center in operation.

Leopold Stokowski said in Moscow: "If our peoples could meet, I am sure they'd understand each other well—they have so much in common."

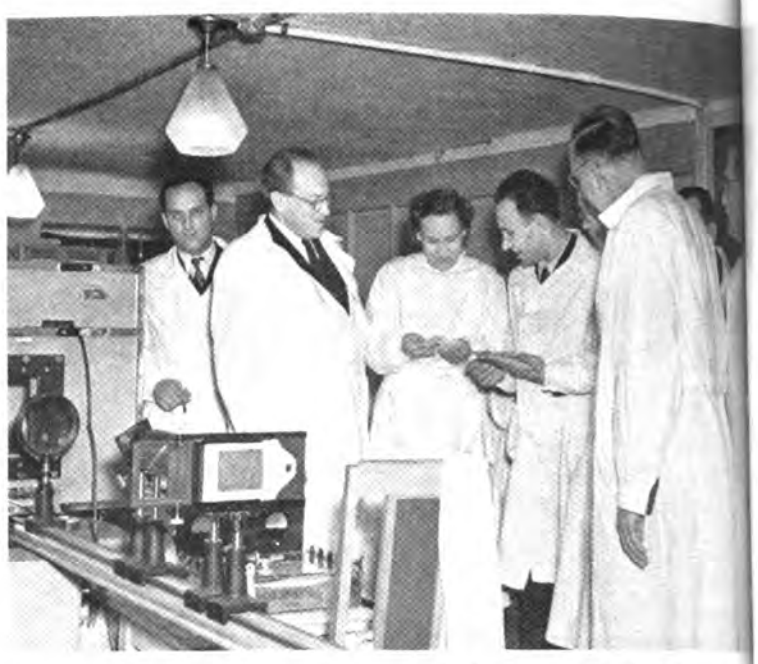
MORE AMERICANS

Professor John McClellen of Columbia University's Teachers College visited a children's club in Moscow with other Americans. The usual group of rooters stand by while he matches skill over the chess board with Alexander Repansky, a member of the club.

Leonard Warren, eminent American operatic star, was highly acclaimed at the Bolshoi Theater after he had sung the title role in *Rigoletto*.

Students of Kansas State University on a visit to the Soviet Union are shown through Moscow Radio Center's broadcast studios.

Russell Mahoney (center), president of a plastics corporation, was head of a chemical group which visited the Soviet Union.



American physicians are shown around the Institute of Epidemiology and Microbiology, one of the country's leading research centers.

SOVIET TOURS ATTRACT MORE AMERICANS

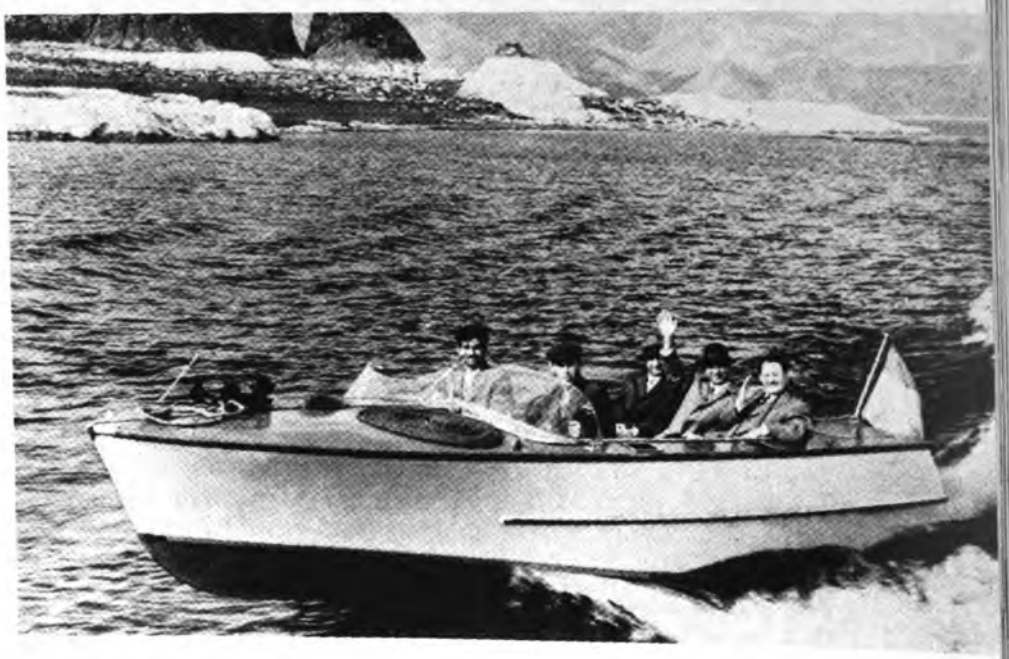
Continued

Robert Condon of New York was interested in seeing as much of the country as he could squeeze into his two-week tour. He plans to make his own film and write a book about his experiences.

These American tourists have just arrived to look at the large new housing developments that are going up in the southwestern outskirts of Moscow. Visitors have a choice of tours across the country that gives them a chance to see places in which they are most interested.

A delegation of women medical workers inspected the country's public health system.

Sightseeing tours take American guests to all parts of the Soviet Union. This group visited the Armenian countryside and took a trip on Lake Sevan.



Before leaving Moscow, American guests usually stop at the souvenir shop of department stores to pick up mementos.

The Rev. Paul Godill, pastor of a church in Memphis, Tennessee, addresses the congregation of a Leningrad Evangelical Christian group.

TRILLION ELECTRON-

PROFESSOR VLADIMIR VEKSLER, ***one of the world's outstanding nuclear physicists, is a member of the USSR Academy of Sciences and Director of the High Energies Laboratory at the Dubna Nuclear Research Institute. This article is based on his report at a recent meeting of the Academy in which he reviewed the progress that has been made in the field of accelerating atomic particles.***

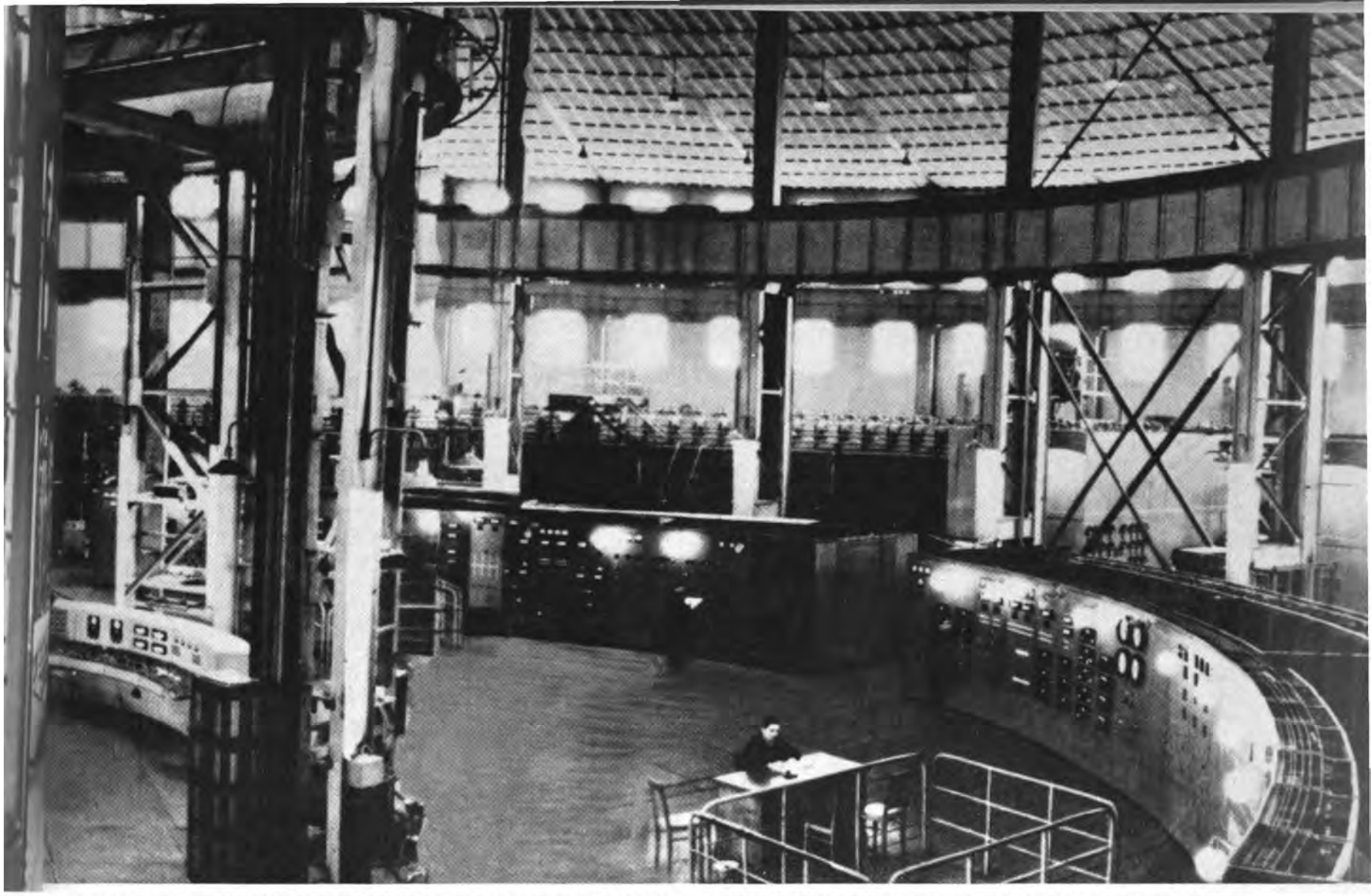
PROFESSOR LINUS PAULING OF THE USA AND HIS WIFE (LEFT) ARE SHOWN WITH VLADIMIR VEKSLER IN DUBNA.

By Vladimir Veksler

IN recent years experimental science has entered on a competition with nature. It has built accelerators—atom smashers—that artificially impart the energy of many billions of electron-volts to elementary particles—electrons and protons.

With these accelerators we have been able to investigate phenomena of fundamental importance in the physics of the atomic nucleus. Out of these investigations, which discovered the existence of heavy neutral mesons, antiprotons and antineutrons, a most promising field of modern nuclear physics has developed —the physics of high-energy particles.

There are various types of accelerators of charged particles. Among them are synchrotrons used for accelerating electrons; and phasotrons used for accelerating protons, deutons and alpha particles, and for obtaining mesons. About a dozen phasotrons are in operation in the world today, the largest of them in the Soviet Union.



THE SYNCHROPHASOTRON AT THE NUCLEAR RESEARCH INSTITUTE IN THE TOWN OF DUBNA, RATED AT 10 BILLION ELECTRON-VOLTS, IS THE WORLD'S LARGEST ATOM SMASHER.

TRILLION-VOLT ATOM SMASHERS

Synchrophasotrons are another type of accelerator. They include the American cosmotron of 3 billion electron-volts; the American bevatron of 6.3 billion electron-volts; and the Soviet synchrophasotron of 10 billion electron-volts at the Dubna Nuclear Research Institute. Experiments with the Dubna accelerator are proceeding on a rapidly growing scale.

Boosting Energies

To boost the energy produced by accelerators to a still higher level presents certain difficulties. Boosting the energy of the particles and the corresponding expansion of the radius of the accelerator's orbit would make it necessary to increase the height and width of that part of the space in which the particles move. To accomplish this, the weight of the electromagnet would have to be increased.

In the Dubna synchrophasotron the width of the "path" in which the particles move is about 1.5 meters. If we were to increase the maximum energy of the particles to 30 billion or 50 billion electron-volts, using the same principle on which the synchrophasotron is

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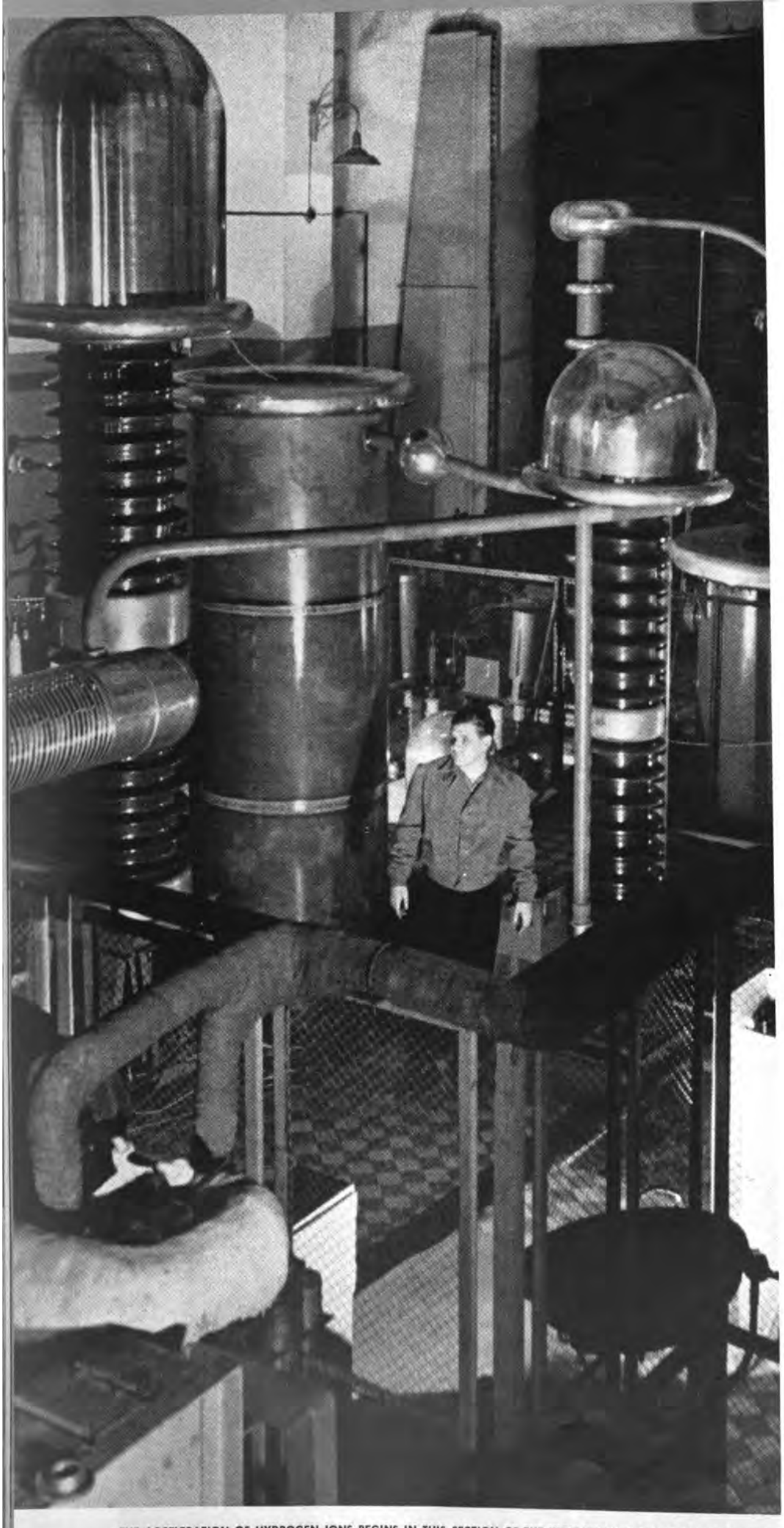
FRANCIS PERRAIN, FRENCH HIGH COMMISSIONER ON ATOMIC ENERGY, HAS ALSO BEEN AMONG DUBNA'S VISITORS.



THE ACCELERATION OF HYDROGEN IONS BEGINS IN THIS SECTION OF THE HIGH ENERGIES LABORATORY AT DUBNA.

TRILLION ELECTRON-VOLT ATOM SMASHERS

Continued

based, its electromagnet would have to weigh close to a million tons. This approach is obviously unreal.

Some few years ago a group of American physicists proposed a clever way around the difficulty. The method they developed is called rigid focusing. Accelerators using this principle are now being designed and built in a number of countries. Switzerland and the United States are building 30-billion-electron-volt accelerators of this type and the Soviet Union is building one of 50 billion electron-volts.

But despite the ingenuity of this new method, its use will allow for only a several-fold increase in the maximum energy of the accelerated particles. To solve the problem of sharply increasing the intensity of their beams and to obtain particles with energies of hundreds and thousands of billions of electron-volts new methods must be found.

New Approaches

There are several new approaches which are being suggested. One of the suggestions links the problems of obtaining high currents to those of obtainng high energies of accelerated particles.

Ordinarily an experimenter will use an accelerated particle as a missile directed to collide with a resting particle used as a target. But, the question is asked, why must the target necessarily be at rest? Why not have the target move at high speed toward the beam of particles used as missiles?

If two protons—each with an energy of, let us say, 10 billion electron-volts—collided, the process of interaction would be the same as though one of them had been at rest and the other had moved with an energy of some 200 billion electron-volts. We would then have an accelerator with ultra-high energy equal to double the product of energy of the colliding beams of particles.

But to use this method of counter-beams we must boost the instantaneous currents produced by our present accelerators 500- to 1000-fold. Ingenious methods to get around this problem were advanced in 1953 by Soviet physicists Petukhov, Rabinovich and Kolomensky, and somewhat later by Kerst, Simon and other American physicists. Suggested were new magnetic systems with a magnetic field constant in time which would make possible a considerable boost of the current of the accelerated particles.

Veksler's Own Method

Another new principle for accelerating atomic particles has come to be known as the coherent method. This method makes it possible to accelerate the blobs of plasma which are large bunches of particles. In theory, particles may be accelerated to energies of a trillion electron-volts and more.

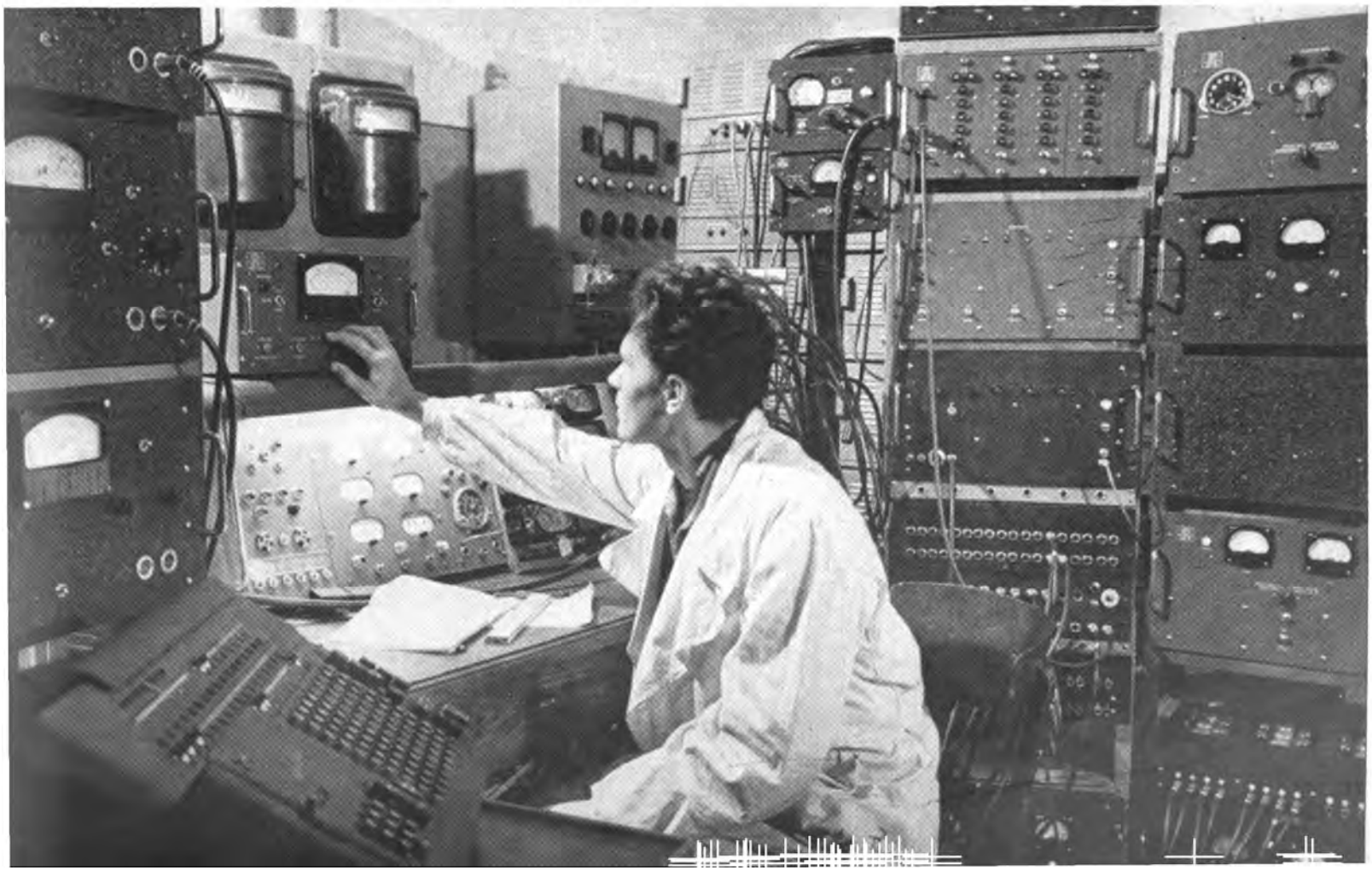
ESSOR FRANCIS LOW OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY (AT THE BLACKBOARD) TOOK PART IN MANY SUCH CONFERENCES WITH SOVIET PHYSICISTS.

he important part played by plasmatic esses in nature has become clearer in re- years. Scientists believe that there is the ibility of generating electromagnetic radi- n of the same type as is conditioned by novement of plasma in the magnetic fields ars. In astrophysics, the problem of ac- ating charged particles is very closely connected with the peculiar properties of plasma.

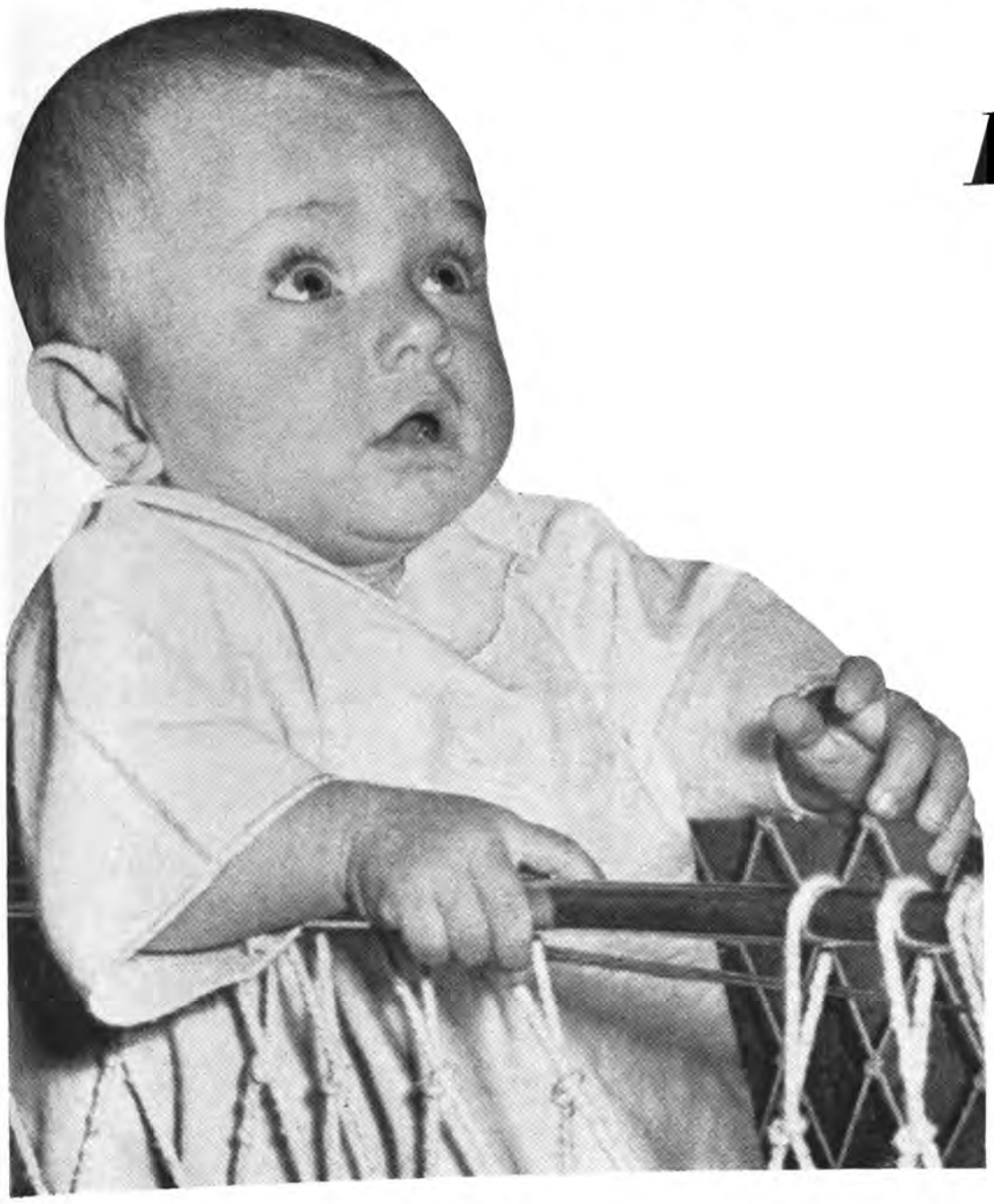
The fascinating problem which physicists and engineers are now grappling with is to attain the enormous energies of thousands of trillions of electron-volts generated in outer space by stellar accelerators, whose mechanism is still unknown to us, and to use the artificial missiles thus obtained for the study of the elementary particles.

In a short span of time physicists have traversed the long way from hundreds of thousands of electron-volts to thousands of millions. Now day by day they come closer to enormous accelerations of trillions of electron-volts in their competition with nature. ■

NSTRUMENT PANEL OF ONE OF THE NEWEST TYPES OF PARTICLE ACCELERATORS IN DUBNA. MANY FOREIGN SCIENTISTS STUDY THE WORK DONE AT THIS INSTITUTE.



A SON IS BORN



Photos by Alexander Agapov

ALTHOUGH statistics show that the world birth rate is so high that the number of sons and daughters greeted daily is an astounding figure, each birth is always the biggest and most important event of the year to at least two persons.

So it was to Yuri and Tonya Andreyev when their first son was born. Yuri is employed in a Moscow watch factory, while his wife works for a post exchange. Their story began when she told him the big news while they walked in a Moscow park last fall.

At the maternity center, Tonya was examined periodically by her physician before and after delivery of her baby. There is no charge for the service.

Buying the layette at a department store, the young couple looked over practically everything that the pre-school age section had in stock.

It was a big moment for Tonya when her son was brought in by the nurse. Somewhat earlier a flower basket sent by the infant's father had arrived.

Little Alyosha goes home. The pediatricians and nurses from the child consultation center will help Tonya keep her son healthy and strong.

At the watch factory the proud father was the recipient of a long series of congratulations and handshakes from the coworkers in his department.

Three months have passed and the boy can already stand—courtesy of his doting grandmother. He is the center of attraction at this family celebration.

ALTHOUGH STUDENTS SPEND QUITE A LOT OF TIME EACH DAY ON STUDY, THERE ARE ALWAYS AMPLE OPPORTUNITIES FOR FUN-MAKING, SPORTS AND OTHER ACTIVITIES.

AFTER CLASSES

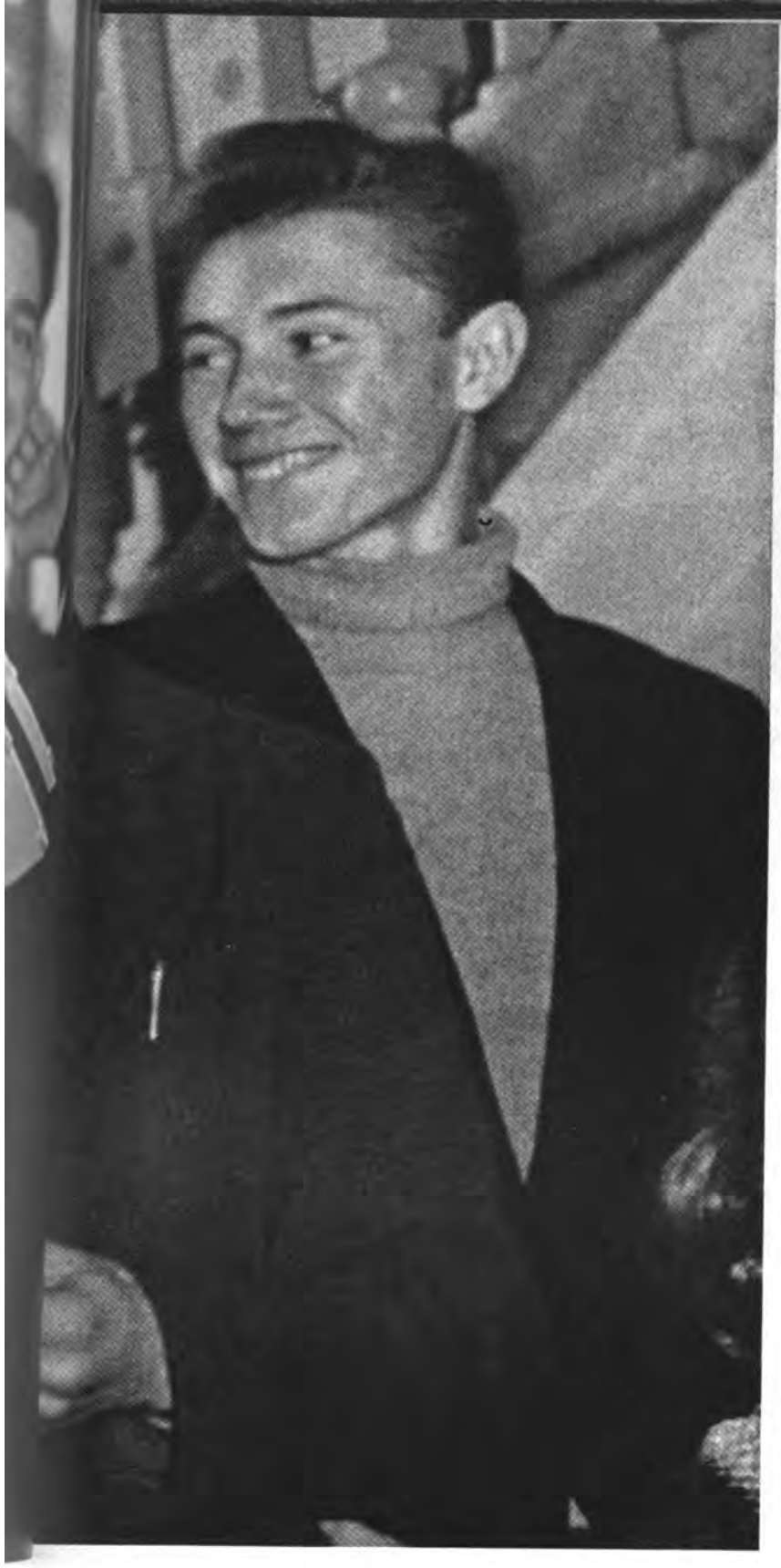
By Adolf Antonov

Photos by Yuri Chernyshov

NOVOSIBIRSK, with its dozen colleges, has a student colony of 50,000. This is equal to the total population of the city four decades ago. Each student thinks his college the most important, but there may be a good case for those who put the Construction Engineering Institute at the top of the list.

Novosibirsk is situated in Siberia, a rapidly growing part of the country. The city itself is one long construction site, where new communities are cropping up all along a 25-mile stretch down the Ob River.

No one would dispute the importance of learning construction engineering. But it is not only lectures, lab studies, calculations at drawing boards and homework that make up life at the institute. When the bell rings announcing the end of the day's classes, the



Felix Grachov's saxophone provides him with all the extra-curricular activity any student needs.

Where one's husband is an architect, study becomes much easier. Graduation will find her entering the field that he has chosen.

Art students everywhere are very close to their work. This girl is happy at her easel for hours.

students are not particularly anxious to leave.

The day we visited there we saw groups of excited boys and girls clustering around the latest edition of the wall newspaper. They were all interested in the results of a poetry contest. Each poem evoked lively comment, and the pen names set everybody guessing at the true identity of the aspiring poets.

Literature is not the only rage with these budding builders. Nearly all the students closely follow the activities of the amateur movie studio called NISI Films (NISI is the Russian abbreviation for Novosibirsk Construction Engineering Institute). When the tryouts were announced for the first film, *Spring, Love and Exams*, each girl secretly hoped she would be picked for the lead.

The film turned out to be a lively comedy, and it was even shown in Moscow. The studio is now preparing to shoot another comedy entitled *In Love with a Theodolite.* It also makes newsreels of institute current events.

The institute has better than its quota of jazz fans, both listeners and players. As a matter of fact, there is nothing passive about this group. Everybody wants to perform. Since no band is big enough to include them all, an elimination contest had to be held to whittle the number down. A giant band of 60 was finally settled on, and now it plays at all student gatherings. Strong rivals of the jazz band, in the number of participants, are several folk instrument orchestras and a dance group of 120.

The institute's auditorium seating 600 is

Continued on next page

AFTER CLASSES

Continued

Graduates of the institute write back news of their progress to students left behind. Sometimes, as in this case, the letter is so important it must be shown to a friend.

Yuri and German Koval are off to hunt birds. Other students prefer fishing nearby waters.

often the scene of concerts given by amateur groups from other colleges. There is a kind of exchange program in this field—the hosts always return the performances.

Music and the theater are great favorites. Attend any performance at the local conservatory, the Philharmonic Society, drama theater or opera and ballet house and you are sure to run into students—couples, small groups and even hundreds at a time. They very often buy a block of tickets for a theater party. And whenever pianist Svyatoslav Rikhter or violinist David Oistrakh appear in the city, you can always count on the students for the most enthusiastic response in the audience.

Painting is another much loved hobby. Many future builders sketch on the banks of the Ob, or right in the streets of the city. Some of them are inspired by the austere Siberian landscape, others by the modern skyline of their city in construction.

The students go in for sports, too. The institute has its own stadium, gyms, sports fields and tennis courts. Its track and field teams, swimmers, basketballers, volleyballers and soccer players vie successfully for first place at city competitions, and their star sportsmen take part in countrywide contests. The meditative and philosophically inclined prefer the more ancient forms of sport—fishing and hunting.

It is a truism that students are the most argumentative segment of any population. As for the construction engineers, they argue about everything under the sun—architecture and building, music and psychology, Homo sapiens and sputniks. The whole senior class recently took part in a debate entitled "Real and Pseudo Culture."

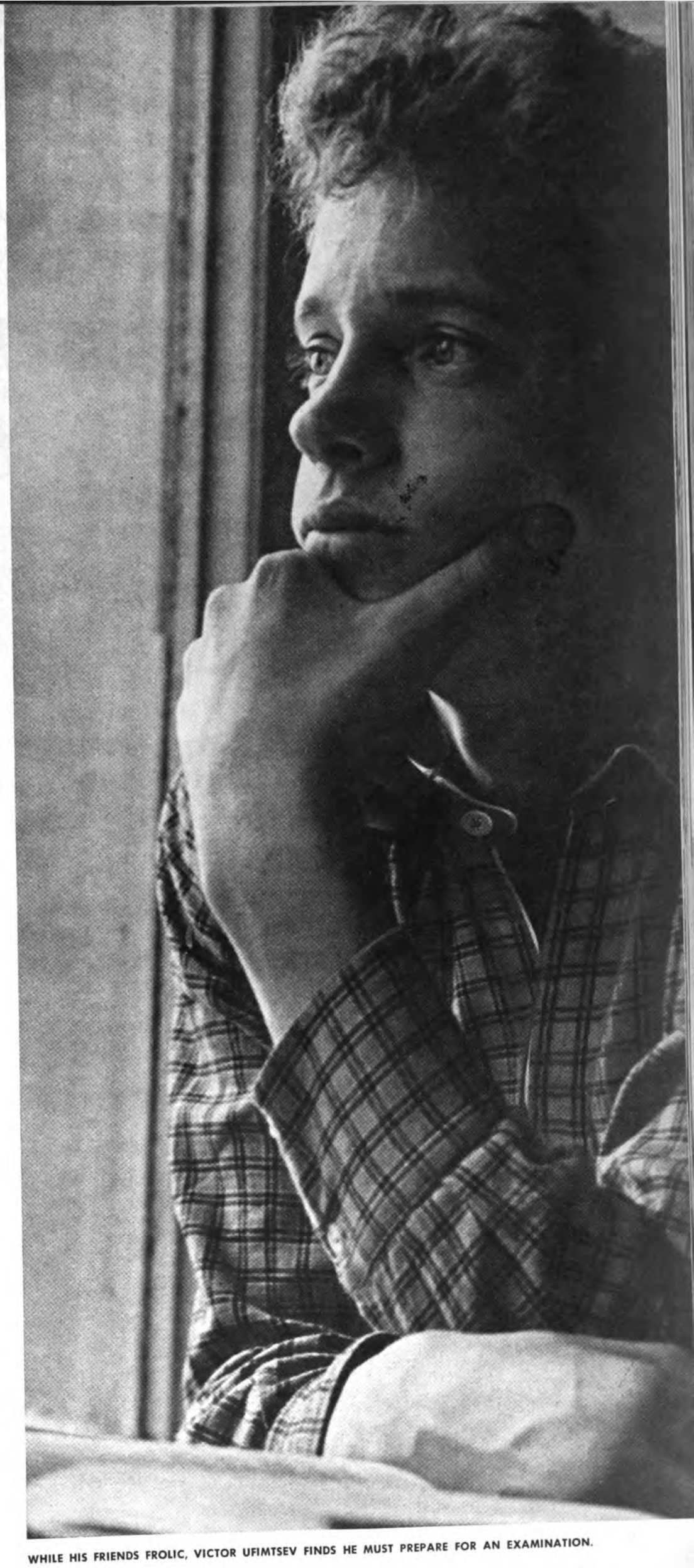
No picture of student life would be complete if it omitted the "quiet type," the students who prefer to read a book in solitude after class or lock themselves in their room to cram for exams, or those who spend half the night in the labs testing, experimenting, questing. There are a great many in this category.

But to be absolutely accurate, it is almost impossible to draw the line between the student engaged in scientific research and the student who sits listening spellbound to music or whirls in a gay Russian dance. They are always changing places. ■

Wedding party is a big event. The couple, Anatoli and Zoya Shestopalov, are in the rear.

This player has just scored with a sizzling shot. Table tennis ranks high with students along with soccer and ice hockey.

Music of symphony concerts, always drawing large audiences, has deeply entranced this student couple listening closely.



WHILE HIS FRIENDS FROLIC, VICTOR UFIMTSEV FINDS HE MUST PREPARE FOR AN EXAMINATION.

RUSSIAN FOLK ART OBJECTS GO FAST AT BRUSSELS FAIR.

Russian Folk Art

By Tamara Mitlyanskaya

RUSSIAN painted wooden dolls called matryoshkas, Vyatka clay toys, Palekh jewelry boxes, Khokhloma decorative bowls, Vologda carvings on birch bark and Kholmogory bone carvings are among the souvenirs eagerly sought by the foreign tourist. He regards them as exotic objects of his trip abroad, although for the Soviet people they are articles long familiar and ever beloved.

First created in the distant past to make household things needed in daily life, these handicrafts have long since lost their utilitarian value. Today they flourish as a unique branch of Russian national art. The artisans have carefully preserved both the historic traditions of their crafts and the old methods of painting.

Gorky Region produces wooden bowls decorated with Khokhloma paintings. It is a complicated process. The bowl requires two priming coats, then it is covered with linseed oil and powdered aluminum on which the pattern is painted in oil and lacquered. After being tempered in an oven under temperatures up to 212° F., the metal background under the lacquer turns gold, and makes the traditional black and red tones seem particularly festive and decorative. Into an arbitrary pattern of sprigs, flowers and herbs, the Khokhloma artists weave images of birds and fish.

The village of Bogorodskoye, near Moscow, is widely known for its statuettes carved of wood. The material used is the linden or aspen tree. The outline of the object is of a general character, details being added through a few apt and accurate cuts. These statuettes, as a rule, are not painted. The favorite theme of the Bogorodskoye artists, the dashing troika (three-horse sleigh), has become traditional.

The famous matryoshkas are made by handicraftsmen of the Moscow suburban village of Babenka. Each of these toys, hollow inside, dismantles into an upper and lower section. The largest matryoshka contains a smaller one, which holds a still smaller doll, and so on. Some contain up to 24 matryoshkas. Painted in bright colors and covered with lacquer, the dolls depict Russian peasant women in their vivid national costumes.

Vying with the matryoshkas for color and brilliance of execution are the clay toys of Vyatka. The technique for their production is quite simple. The toy is molded of plain red clay, then baked and covered with a coat of mixed chalk and milk. The white background is painted with aniline dyes mixed with egg. The colors of these paints are astonishing for their brightness. Bits of gold tinsel are frequently added to a pattern for even greater attraction.

Birch bark carving has long been practiced about the town of Veliki

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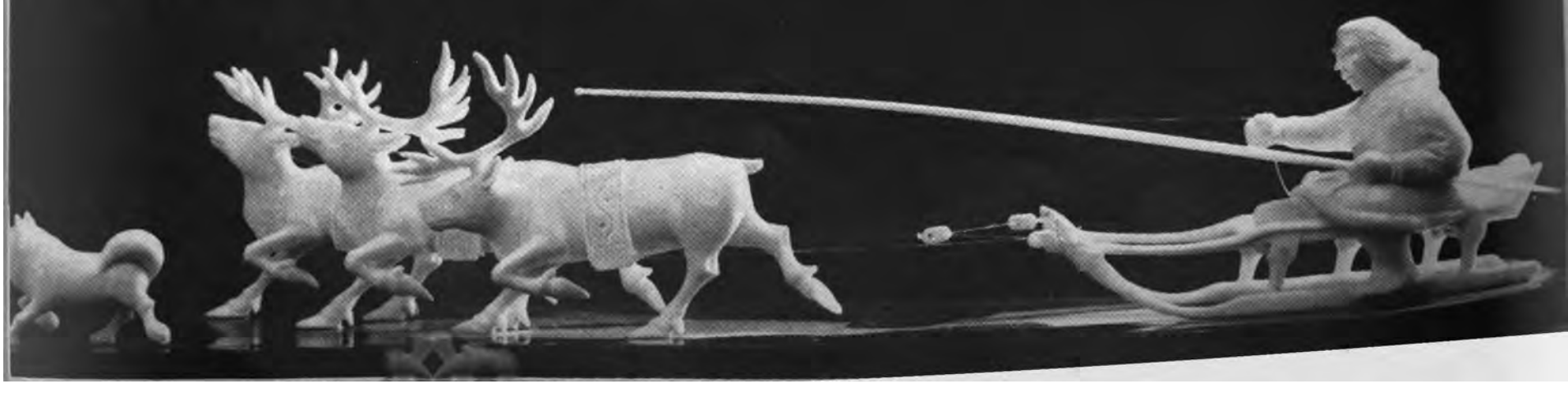
RACING REINDEER—A CARVING FROM WALRUS TUSK BY KHOLMOGORY CRAFTSMEN.



DUCK BOWL AND MATCHING LADLE WITH KHOKHLOMA PAINTING.

MATRYOSHKA DOLLS MADE IN BABENKA VILLAGE.

Russian Folk Art

Continued

Ustyug in Vologda Region. Since the olden days birch bark has served to make bast baskets decorated with prints or simple geometrical carvings. The artist first outlines his drawing with a dull knife and then carves the details with a shaper instrument. The finished pattern is glued to previously prepared jewelry boxes or casks. The designs of these carvings are rhythmic and harmonious compositions of waving grass, leafy plants and flowers. They resemble Russian laces and recall the images traced on windows by wintry frosts.

The art of the bone carvers of Kholmogory village, in Northern Russia, was mentioned as far back as 1650, when the czar invited some of the craftsmen to work in Moscow's Armory Chamber, then the center of Russian decorative and applied art. Walrus tusks from the White Sea were the chief material employed, and the Kholmogory artists still make graceful toilet articles, frames for mirrors, goblets with filigree work of amazing delicacy. They usually carry images of northern animals—the marten, reindeer, sable and squirrel.

Bone carving is also practiced in the town of Tobolsk, in Siberia, where the craftsmen use excavated mammoth tusks instead of walrus. These Tobolsk carvers depict the life and customs of the peoples of the North. Their favorite theme is the reindeer race.

As far back as the eighteenth century, artistic castings in iron were made in the Urals town of Kasli. Cast iron provides an excellent medium for the reproduction of the tiniest details, and the foundrymen of Kasli still cast statuettes that serve as handsome table ornaments.

The Urals is rich in semi-precious stones and artists of these mountains have cut jewelry boxes, small chests and trays from such hard materials as malachite, rhodonite and jasper. The natural beauty of the stones is brought out by the work of these masters.

The painting of miniatures on papier-mâché holds a special place in Russian folk art. The best masters in this field are the craftsmen of Palekh village, whose art has deep roots in ikon painting of the old days. Now the subjects of their miniatures are drawn mostly from fairy tales, folklore and heroic legends. They inherited most valuable traditions of ancient Russian painting: smooth and harmonious lines, clear and bright colors, and a feeling for rhythm and ornamentation.

The Palekh artists use distemper mixed with egg yolks to produce especially clean and ringing colors. The black backgrounds of their pictures as well as their delicately gilded borders lend a colorful fairy effect to their works. On a disk no more than an inch and a half in diameter, they can portray a historical scene with numerous figures in full color.

A unique craft of painting metal trays has long been practiced in the village of Zhostovo near Moscow. These masters cover their black, red and blue backgrounds with vivid oil paintings of bouquets, garlands and wreaths, doing their work in free, bold strokes.

There have been new sources of folk art developed in recent times. They include bone carving in Khotkovo, near Moscow, and in Kislovodsk, in the Caucasus, as well as the production of glass art objects in the

CLAY FIGURES FROM VYATKA.

RUSSIAN LEGENDARY THEME PAINTED ON A PALEKH JEW

village of Krasnaya Ushna near the old Russian town of Vladimir.

The works of the folk artists are assembled in museums throughout the country and annual contests are held by the Museum of Folk Art in Moscow to find the best masters of each field. Special courses of training have been established for them in the Institute of Applied Art Industry.

Each of these folk arts has developed amazingly during Soviet times. The economic position of the artists has been immeasurably improved. The once isolated, lone artists completely dependent on speculators are now united in specialized cooperatives belonging to a national association of craftsmen. Once relatively ignorant people, they now receive not only a general education but also special art training. Theirs is a folk art that unerringly follows the ancient traditions but at the same time is constantly enriched by modern life and carefully developed by new generations of artists. ■

DECORATED TIN TRAY FROM ZHOSTOVO.

CAST IRON DEER FROM **KASLI**.

TROIKA WOOD CARVING DONE IN BOGORODSKOYE.

LATVIA TODAY

Factory mechanic Woldemar Bus designed an automatic line to make relay springs.

Paper mill worker Emma Kulite at the republican song festival during the traditional Latvian holiday Ligo.

August Kirchenstein, Vice-President of the Latvian A emy of Sciences, has developed new vitamins for

By **VILIS KRUMIN**

Vice Chairman
Council of Ministers, Latvian Republic

THE phrase, "The Thousand Blue Eyes of Latvia," figures in song and legend to describe the innumerable aquamarine lakes of this lovely country washed by the Baltic Sea. It is a clement land of mild winters and pleasant summers, with a third of its area covered by forest. Wooded hills alternate with deep valleys inland, and on the coast the sand dunes, overgrown with scrub pine, rise and fall like gently swelling waves.

Two million people live in Latvia. In 1940 they proclaimed a Socialist Republic and joined the Soviet Union. Much has been done since that time to improve the standard of living of the people. Workers without jobs in the cities and farmers without land in the villages, once a characteristic feature of Latvian life, are no more than a sad memory.

Jobs are constantly looking for people to fill them, and that is the best assurance that the workers' right to a livelihood is guaranteed. Village life, too, has undergone a transformation. Former peasants who worked individually with primitive implements formed cooperatives and are now prosperous collective farmers with high personal incomes.

Villages have become modern communities with well-equipped schools, libraries and social and recreation centers. More than 40,000 new houses will have been completed in the republic's farm villages by 1960, and in the towns and cities some 30,000 new apartments will be built within the next three years.

Medical services are financed entirely from the national budget and are free to every citizen. They include the attending physician, hospitalization, maternity care and surgery as well as convalescent treatment—every possible medical need with professional emphasis placed on preventive care. In the past decade the number of clinics and hospitals have increased three times over. Compared with twelve doctors for each 10,000 people in 1940, there are now twenty-two.

Education for Every Citizen

The school system has been largely expanded, as it has been in every one of the Soviet Republics. Tuition in all schools, from the elementary grades through the university and graduate work, is free, the cost borne by the national government. In addition to free tuition, all students who do satisfactory work receive a state stipend.

Seven-year schooling is compulsory. The ten-year combined elementary and high school has been introduced in big cities and will soon be general throughout the republic's rural and urban areas. There are any number of evening schools on all levels for adult workers and vocational training courses of both long and short duration offered by factories and collective farms.

New schools on the college level have been founded and the old ones enlarged to admit more students. Higher education was once the privilege of the well-to-do; now the only requirements for admission to a college or university are the educational prerequisites and the willingness to study.

The republic's concern with making the world's heritage of culture available to every citizen can be gauged by the public libraries which are situated everywhere—15 times as many libraries as existed in 1940. Theaters, concert halls, motion picture houses are to be found in towns large and small, with audiences in the many hundred thousands.

The national arts of Latvia have been experiencing a renaissance in music, in painting and sculpture, in the dramatic and the movie arts. The high esteem in which Latvian culture is held throughout the country is evident from the success of the festivals of Latvian art and literature in Moscow, the capital of the Soviet Union. Latvian film workers have attracted large audiences everywhere in the Soviet Union and in countries abroad. Dozitra Ritenberg, a young film actress, was awarded a prize at the Venice Film Festival for the best performance of a female part.

Latvian scientists working in the republic's sixty research centers have made major contributions in many fields of study. The Latvian Academy of Sciences with its institutes

Continued on next page

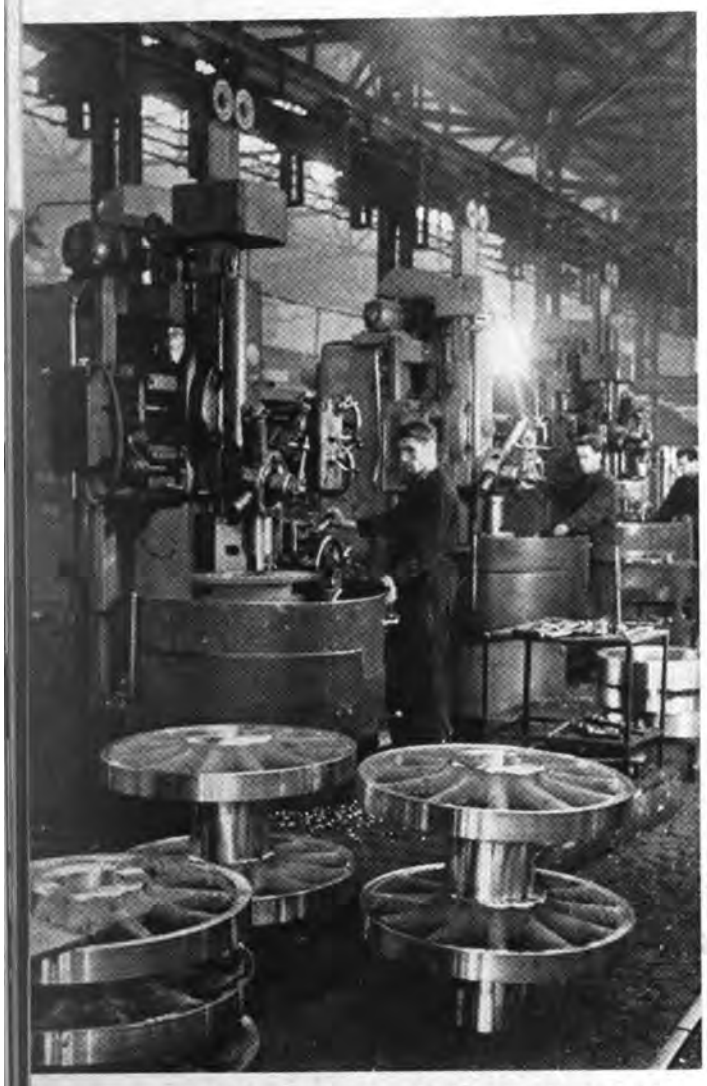
Candy plant worker Mirdza Rosenthal and her family find gardening a good hobby.

The prominent Latvian author Andrei Upit whose works are out in a 22-volume set.

Laima confectionery factory kindergarten has nurses and teachers to care for youngsters.

Scrubbing down the ship. Woldemar Kakste and Nikolai Petrov are young deck hands of the republic's growing merchant fleet.

Vases, china and metal work are among the items produced by Latvian craftsmen.



The Riga railway car building works. Latvia's industrial output is eight times more than in 1940.

Land improvement is a continuous process on Latvian collective farms. In the past two years some 100,000 acres were drained, a total equal to all land drained during 1900-1940.

LATVIA TODAY *Continued*

is the main body for research in the theoretical and applied sciences.

Economic Growth

Latvia's economic growth has been remarkable within the past eighteen years. Not only have the living standards of the people increased far beyond the 1940 level, but light and heavy industry, deep-sea fishing, agriculture and commerce have made swift and solid advances.

A year after Latvia joined the Soviet Union, the invading Nazi armies ruined its factories and farms, towns and villages. It was a calculated policy of material destruction that resulted in a loss equivalent to five billion dollars.

All Soviet Republics pooled their efforts to rehabilitate the devastated areas of the country. Leaning on this help, the Latvian people restored their economy within a short space of time. Ruined plants were reconstructed, new ones built and farm lands were considerably expanded.

Compared with 1940, the total industrial

Continued on page 38

Latvian-made electric trains are used throughout the Soviet Union. The republic also produces radio and telephone equipment, textiles and furniture.

Farmers of Latvia have always raised fine pigs. Here Jan Zarins, a Riga packing plant worker, examines porkers' carcasses to be cured for bacon.

THOUSANDS OF RESIDENTS OF RIGA SPEND THEIR SUMMER HOLIDAYS AT THE SEASHORE. THE FAMOUS BEACHES RUN SOME TWENTY MILES AND MAY BE QUICKLY REACHED BY TRAIN.

A scene from Andrei Upit's play *Green Earth* on a Riga stage. There are ten legitimate theaters in Latvia for opera, ballet, drama and comedy.

When Latvia joined the Soviet Union, some 11 per cent of its population could neither read nor write. Today the republic has universal literacy.

LATVIA TODAY *Continued*

output of Latvia has increased eight times over. In certain areas—machine building and metal working are examples—the growth has been phenomenal, a 42-fold increase. Many industries new to Latvia have been developed.

In pre-Soviet Latvia the major branch of the economy was light industry. Now it is principally machine building and electro-technical industries, and the chemical industry producing fertilizers, plastics and artificial fiber.

Latvian industry is an integral part of the entire country's economy, and it has profited greatly from cooperative relations with the other Soviet Republics. It gets coal from the Ukraine's Donbas, oil from Bashkiria, cotton from the Central Asian Republics, materials for its machine-building plants from the Urals, industrial equipment, farm machinery and consumer goods from Moscow, Leningrad and other manufacturing centers of the country.

While expanding the basic industries, Latvia has developed a definite specialization. One of the main lines is the manufacture of railway cars, including electric trains for suburban lines. Both are now widely used in the rail system of the Soviet Union.

Another important specialization is radio and telephone equipment for the domestic market as well as for export. Many of the hydropower stations in Byelorussia, Moldavia and Georgia are equipped with turbines manufactured in Latvia, and Latvian-made electric motors can be found both in industry and agriculture in every part of the country.

Latvian factories have won nationwide recognition for such consumer goods as furniture, textiles and footwear. Latvia is also famed for its bacon, dairy products, canned and smoked fish. And there are people who think that the best candies in the world are produced by the Laima factory in Riga.

Collective Farming

Large-scale agriculture with its attendant benefits of farm mechanization was made possible only after Latvian peasants decided to work collectively. Twenty years ago a tractor was something a peasant traveled miles just to see. Now all field work on collective farms is done by tractor. The difference can be measured in crop and livestock yields.

On lean, boggy soil Latvian farmers have developed large-scale dairy farming and hog breeding. The Latvian brown cow is a breed famous for its high milk yield with rich butterfat content. Milk production throughout the republic has increased by 24 per cent in the past two years, and the average yield for grain crops has increased by 3.5 to 4 bushels per acre.

Reclamation of bog land by pipe drainage has been receiving concentrated attention. In the past two years almost 100,000 acres were drained—as much acreage as had been drained in the 40-year period of 1900-1940. At present, reclamation work is in progress on another 170,000 acres.

For 18 years now Latvia has been governed by its own people, the average citizen, and the republic's economic and cultural development during this time fills the Latvians with pride. They believe they have done a good job and look forward to even greater successes in the future, secure in the knowledge that they hold the key to a better life in their own hands. ■

AMATEUR ART GROUPS NUMBERING 3,000 IN LATVIA HAVE A MEMBERSHIP OF ABOVE 100,000. THE BEST GROUPS APPEAR IN LATVIAN ART AND LITERATURE FESTIVALS.

RIGA
Latvian Capital

By Jan Vanag

RIGA is an old city, one of the oldest in Europe, but it has been growing younger with each day, especially in recent years. Since time Latvia joined the USSR, the new Soviet Republic began reshape its capital to meet the growing needs of the city's population 565,000.

This is a city where straight avenues alternate with crooked lanes d modern buildings shoulder ancient houses with gabled roofs. The story of the Latvian capital can be traced by the many medieval uctures concentrated mostly in what is known as Old Riga, a part of e city adjacent to the Daugava River. The farther you go from the ver, the more modern are the streets.

The landmarks of the city's latest history are new apartment houses d public buildings. Some were finished in postwar years and many e still under construction. In 1958 the amount of new housing will ave more than doubled the number of apartments built last year. Just utside the city proper are one-family cottages built by industrial orkers on streets so new that some of them have not yet been named.

But with all this new construction, the century-old landmarks, the raceful cathedrals and splendid castles, are carefully preserved. They ower over the silvered surface of the Daugava River, with its new mbankment and bridge designed to blend harmoniously with the old Gothic architecture. Part of the city skyline as viewed from the iver front is the tall building of the Palace of Science built recently o house the Latvian Academy of Sciences.

Riga's green boulevards and shady parks give portions of the city an almost rural air. It is a rare square that does not have its flocks of pigeons. They are almost a tradition in Riga, but recently the black and white swans on the canal, new feathered additions to the city's attractions, have been stealing the show. *Continued on next page*

THE CAPITAL OF LATVIA IS AMONG EUROPE'S OLDEST CITIES AND A BUSY PORT.

FREIGHTERS FROM SOME FIFTY COUNTRIES DOCK AT RIGA'S WHARVES ANNUALLY.

THIS THEATER IN RIGA IS HOME OF LATVIA'S BEST OPERA AND BALLET COMPANIES.

THE SKYLINE OF RIGA AS SEEN FROM THE DAUGAVA RIVER INCLUDES BLOCKS OF MODERN APARTMENT HOUSES ALONG WITH THE DOMES OF ANCIENT CATHEDRALS AND CASTL

RIGA *Continued*

THE CITY'S BIG SPORTS STADIUM IS USUALLY PACKED WITH ATHLETES AND FANS.

A characteristic feature of postwar Riga is its rapid industrial dev opment. More than thirty new plants have been built within the pa few years and many old ones have been expanded and modernized. A a result, whole new industrial sections have grown up on the city outskirts.

As new plants are constructed, residential communities with every convenience of a modern city are built around them to accommodat the workers. From the very beginning trees, shrubs and landscaping plans are as carefully thought out as the weight loads of the foundation and rafters of the structures. Electric trains and highways connect the suburbs with the city, and the residents are within easy reach of down town Riga while enjoying all the beauties of life in the countryside.

One of the new communities is built around the big Electrical Ma chinery Plant which stands on the ruins left by the Nazi invaders after they retreated from the city. This is a modern plant manufacturing electric motors and other equipment for domestic use and for export sale. Its neighbor is a diesel engine plant completed in 1950. Although it is also a relatively new plant, its trade mark is known at home and abroad.

Riga's electrotechnical plant VEF, famous throughout the Soviet Union and many foreign countries for its excellent radio sets and tele phone equipment, was likewise rebuilt on the rubble left by Nazi de struction. This big modern and thoroughly equipped plant in no way resembles the small workshops which existed before the war. The same radical transformation characterizes the postwar expansion of the plant producing railway cars, the shipyards, textile mills and shoe factories.

Riga today produces many goods which were never before listed in the catalogues of its factories. Among them are electric trains and street cars, turbines and marine tugboats, grab cranes and mobile electric

ower plants. Also new is the production of synthetic fibers and plastics hich are used on a growing scale in manufacturing a variety of prod-cts, ranging from women's stockings to children's toys. Riga's 2,500 chibits on view at the World's Fair in Brussels offer only a small mpling of the rapidly developing potential of Latvian industry.

Riga is a busy seaport, with merchant ships flying as many as 45 to 0 foreign flags moored at its docks within a single shipping season. oods from many parts of the Soviet Union arrive here in an endless tream for shipment abroad. In reverse direction, cargoes of all kinds ass through the port of Riga marked for a long list of Soviet cities.

Riga has an active and stimulating cultural life. Its theaters are mmensely popular, rarely playing to less than full houses and standing oom audiences. There are drama theaters, a theater for musical omedies and operettas, a children's theater, puppet theater, the Latvian Opera and Ballet Theater and a Philharmonic Symphony Society.

Performances are given in Moscow, Leningrad and other cities by raveling casts from Riga's theaters, and guest performances are reg-ularly offered by visiting troupes from other republics. For those who prefer their entertainment at home, Riga has a TV center that devotes a arge portion of its broadcast program to dramatic productions.

The people of Riga, friendly and hospitable, welcome visitors both rom other republics of the Soviet Union and from abroad. They love their city and are justly proud of its neat, green appearance. They are also proud of the famous bathing beaches, some 20 minutes from the city's center by electric train. Vacation and health resorts, stretching for 20 miles along the seacoast, attract people from every corner of the country.

The new and yet old capital of Latvia wants more visitors to see its beauties, get to know its life and become friends with its citizens. ■

RIGA MEDICAL STUDENTS. LATVIA HAS TWICE AS MANY DOCTORS AS IN 1940.

LATVIAN FISHERMEN

COOPERATIVES LIKE THE RED BEACON HAVE CHANGED FISHING INTO A LUCRATIVE OCCUPATION FOR LATVIANS, WHO HAVE AN OLD REPUTATION FOR BEING GOOD FISHER

Arvid Anderson and other Red Beacon fishermen use motor vessels and modern gear. The days of dangerous open boats are just a dimming memory.

The most common Baltic fish are sprats, cod, flounder and salm
These fishermen display salmon caught by their cooperative's

Arvid with his friends. The Baltic gives their coop an annual income of above twelve million rubles.

leader Janis Steinberg and skipper Arvid Anderchart the course for their next trip out to sea.

r spending long days on the open sea, Arvid is eager to rn to his family with a present for his little daughter, Anita.

Traditional good-bye to a fisherman. "Have a safe trip and come home soon," says Arvid's wife.

Secondary school No. 7 in Tallinn, like all the schools of Estonia, has domestic science courses.

DOMESTIC SCIENCE CLASSES I

By Nina Khrabrova

FOR two hours a week the girls of the seventh grade of High School No. 7 in Tallinn, capital of Estonia, "adopt" a family of four or five—their classmates—and learn how to feed and care for its home needs. They take turns at being the mother and mother's helpers. Here is a family where no one escapes her rightful share of responsibilities.

All of Estonia's schools have introduced domestic science as a required course. The youngest pupils begin by working with paper, modeling clay, cardboard and needle and thread in the lower grades of elementary school. In the fifth grade the girls, as well as the boys, are taught to work with metal and wire. The boys then go on to workshop courses and the girls to housekeeping courses.

The future housewife learns how to knit and embroider, sew aprons, pillow cases and other simple things. In the seventh grade the girls are taught how to shop for food, cook and set the table, how to furnish a comfortable home and keep it clean.

Twice a week these girls become "housewives" and feed a "family."

From the eighth grade until the young miss completes her high school course, she learns to prepare more difficult dishes and make clothes. She is also instructed in the care of clothes and shoes, in proper laundering and ironing methods of various fabrics and in simple gardening techniques.

This is not training for a housekeeping career. The girls all have more ambitious plans for the future. But each one also dreams of a family of her own some day, and the many skills learned in the school's domestic science classes will help her slip into the role of wife and mother naturally, with understanding and ease. ■

OVIET SCHOOLS

Ulve Samm, who is the domestic arts teacher in charge of the culinary department, keeps her eye on her charges as they mix and blend dishes for lunch.

While the girls are busy whipping up a menu, the boys peek to find out what they will eat.

"It's rather good, but I believe you haven't added quite enough salt," Hele Johanson advises Merike Pigel after sampling a bit of her soup.

Sketches Fro

A Thousand-Mile D

By Alexander Chernomordik

"Remember, old friend, *you* insisted that the luggage compartment of this car would hold everything we needed on the trip. Maybe so. But now we have to toss to see which of us shall walk to the Crimea."

Our idea was to rest awhile and drop our lines into this promising stream, but actually we stayed for most of the night. Somehow, the fish just laughed at our efforts to get something for dinner.

When we were stopped by a properly vigilant highway patrolman, I was artfully honest in face of emergency, and said: "Sorry, officer, I missed the sign."

[y Motor Trip

A Crimean Vacation

About a hundred miles from nowhere, the motor stopped again. Gas tank and spares were empty. Gloomily, we waited hours.

Difficulties, as the old saying goes, often come in pairs. We proved this correct when the motor conked out in a village, and some enthusiastic kids shoved us to a mechanic.

We made good time to Yalta. Picking up our little car easily, a dockside crane readied us for Sochi.

After a day's run we pitched our tent in one of the picturesque mountain tourist camps. Thus, the second phase of our vacation was off to an encouraging start.

DIGGING UP TWENTY-FOUR CENTURIES

HEAD OF A QUEEN SCULPTURED IN CLAY.

KHOREZMIAN BOWL OF 4th CENTURY B.C.

By Sergei Tolstov

USSR Academy of Sciences

FOR twenty years our archaeological expedition has been digging up ancient Khorezm, buried for 24 centuries under desert sand, an empty dead world that was once a flourishing center of Asian civilization.

This mighty state with its towns and villages once stretched along the lower reaches of the great Amu-Darya River and on the southern coast of the Aral Sea. What data we have is fragmentary, but the fragments tell a story of feudal wars, of a country destroyed and rebuilt, of a proud people whose life was transformed and altered by successive conquests, and of a culture incredibly old. Attesting to the state's hoary age is the fact that the oasis has been called Khorezm since the first millenium before our era.

Signposts of Ancient Civilization

In these past twenty summers our expedition of 100 archaeologists and assistants has been uncovering a chapter—perhaps one of the most revealing, certainly one of the most interesting—in all of ancient history. We have been digging up walled cities of fortresses. towers and castles, roads which once connected them, farmlands and irrigation canals long since dead.

Our expedition has been using the most modern of 20th century tools and machines to uncover these buried signposts of an ancient civilization. We use bulldozers to clear the sand and electric belt conveyors to carry it away. We use trucks and planes for our desert explorations.

From the air one can trace the outline of ancient Khorezm. These windswept low mounds that stretch for dozens of miles amidst the desert are the ancient canals that once irrigated fields, orchards and vineyards.

Just as the civilization of ancient Egypt was built around the annual flooding of the Nile, so the Khorezm civilization was dependent on the waters of the Amu-Darya River. In times of peace Khorezm extended its system of irrigating canals and the state bloomed and prospered. In time of war the canals were destroyed and flourishing oases and farmlands reverted to the desert.

As long ago as the second millenium before our era the people of the Bronze Age strove to make use of the capricious waters of the Amu-Darya River. We found fields and small canals along the side channels of the Amu-Darya delta.

As experience accumulated and with the development of Khorezm as a state in the 7th century before our era, great trunk canals leading directly from the Amu-Darya were built. Much later, some time in the 2nd to the 4th centuries A.D., a new and much im-

CLAY WATER JUG WITH ANIMAL FIGURE.

BAS-RELIEF FIGURE CARRYING WINE JAR.

HOUSEHOLD FIGURES ON WOODEN TABLET.

ANAHIT, KHOREZM FERTILITY GODDESS.

GRACEFUL ORNAMENTED WATER FLASK.

CERAMIC GOBLET FROM A PALACE PANTRY.

FRAGMENT OF VESSEL HAS STAR DESIGN.

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The towns of ancient Khorezm were built on the branches of irrigation canals and on river banks. The later feudal stage was characterized by the construction of large walled towns. The ruins of towns, castles and fortresses built of mud brick that have withstood the ravages of time witness a remarkable knowledge of building materials and of architectural planning.

The Arts of Khorezm

In the last ten years our expedition has been excavating two buildings which are of prime

Continued on page 51

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The progress made in the forty years since can be measured by the important contributions which the Uzbeks, Turkmenians and Kara-Kalpaks, the descendants of the ancient Khorezm people, have made in every area of the country's life. ■

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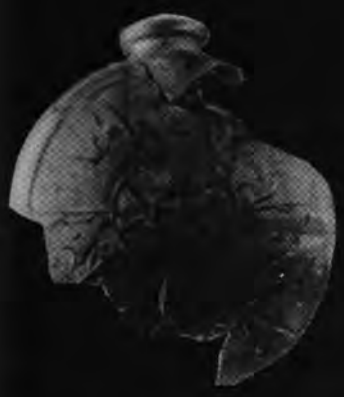

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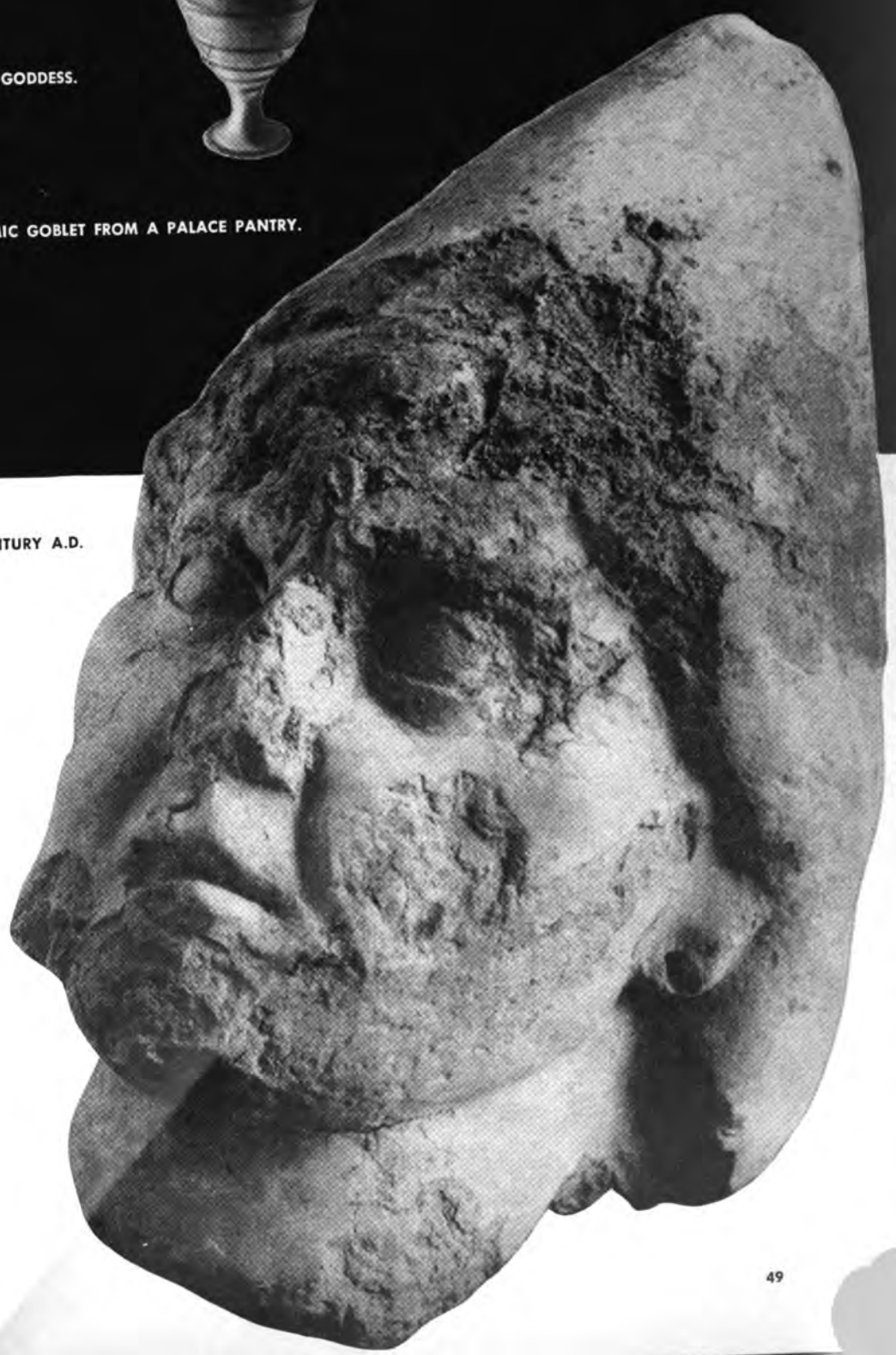

WARRIOR'S HEAD, 2nd CENTURY A.D.

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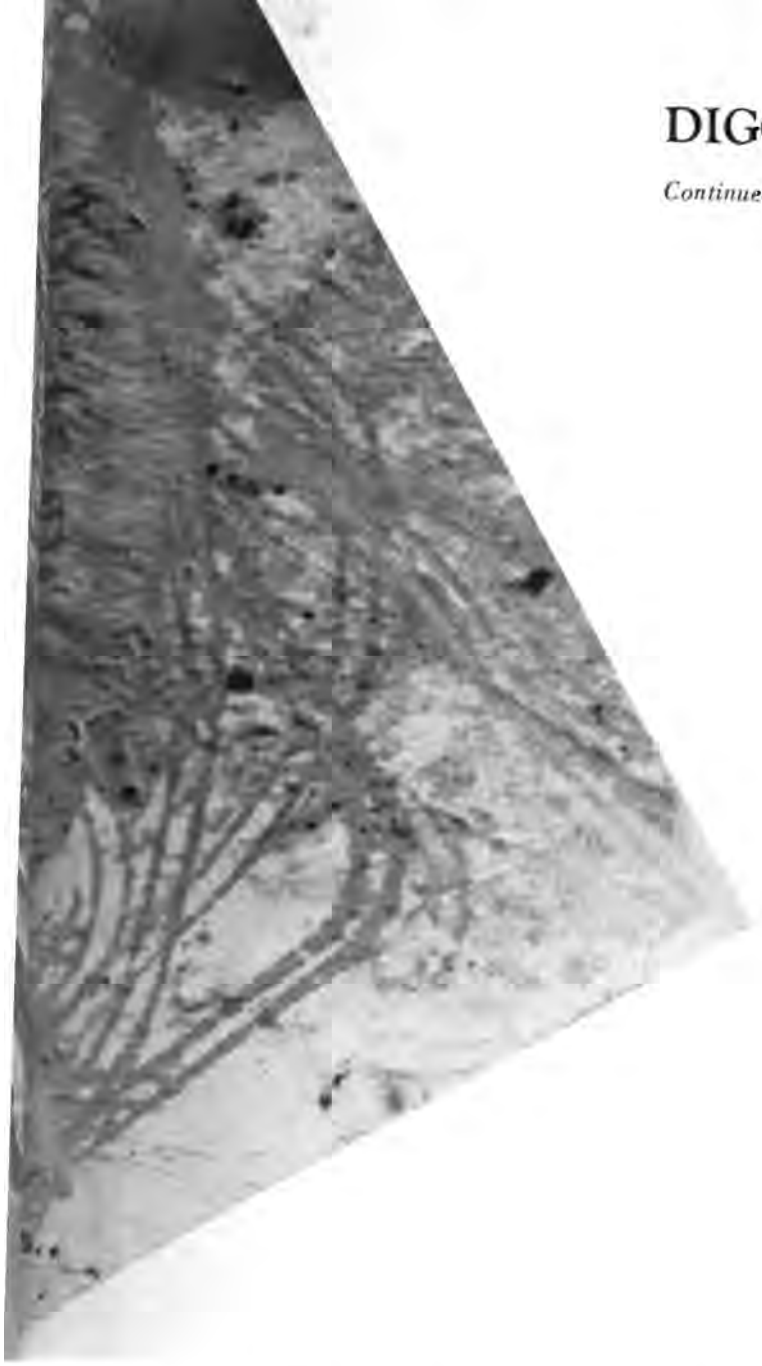
The Arts of Khorezm

In the last ten years our expedition has been excavating two buildings which are of prime

Continued on page 51

THE FORTRESS OF KOI-KRYLGAN-KALA (TOP) AND THE PALACE OF KINGS IN TOPRAK-KALA (BELOW) WERE BURIED FOR 24 CENTURIES BY THE DESERT SANDS OF CENTRAL ASIA.



DIGGING UP TWENTY-FOUR CENTURIES

Continued

WOMAN PLAYING HARP—FRAGMENT OF MURAL FROM TOPRAK-KALA PALACE.

importance in filling in our very scanty knowledge of the Khorezm culture. One is the palace in the ancient town of Toprak-Kala which we excavated in 1945-49. It dates back to the 3rd century A.D. The other is the circular fortress Koi-Krylgan-Kala, built at the end of the 4th century B.C., which we worked on from 1950 to 1957.

Among other things we found a number of flasks decorated with intricate and colorful reliefs. They picture a group of armed horsemen, a warrior with a helmet adorned by a bird's head, a mother carrying a child, a man holding a cluster of grapes and carrying a wine jug strapped to his back.

In Koi-Krylgan-Kala we found terra cotta sculpture of Anahit, the goddess of fertility; the patron god of wine, the Khorezm version of Dionysius; the mother goddess and some other Khorezm gods.

The unusual shape of Koi-Krylgan-Kala and its unique layout together with the sculptured figures we found there point to the use of the structure as a temple where the heavenly bodies were worshipped—an interesting relation here between religious worship and the material needs of the society. Khorezm needed to gather astronomical knowledge to develop its irrigation system. Dependent on the mercies of the Amu-Darya, the Khorezm people identified the river with the fertility goddess Anahit.

Toprak-Kala palace is representative of the golden age of Khorezmian painting and sculpture in the early centuries of our era. In the palace we found multicolor mural paintings and monumental clay sculpture which reflect connections with Indo-Hellenic art.

Murals covered the walls of most of the rooms. One of the large ceremonial halls, a great room with a flat ceiling supported by four columns, is decorated with a mural brightly and elaborately designed. Against a background of dark yellow stripes ornamented with hearts, rosettes and leaves are musicians at their instruments. One shows a woman harp player, the oval of her face and the curve of her shoulders reproduced with great skill. The murals are quite unique and would seem to indicate that Khorezm was an important artistic center of the ancient world.

We found the sculptured clay statues in one of the halls of Toprak-Kala that must have served as a portrait gallery for a dynasty of Khorezm kings. They are done with extraordinary realism and artistic skill.

The portrait sculptures were identified by the lucky discovery of two pieces of headgear. They proved, on comparison, to be identical with the personal crowns worn by two Khorezm kings of the 3rd century A.D. which had been pictured on coins of the period.

A Most Ancient Inscription

But where we found numerous specimens of painting and sculpture, it was many summers before we came on our first inscription. The oldest inscription we found—oldest not only for Khorezm but for all Central Asia—is carved on a water jar and is evidently a proper name.

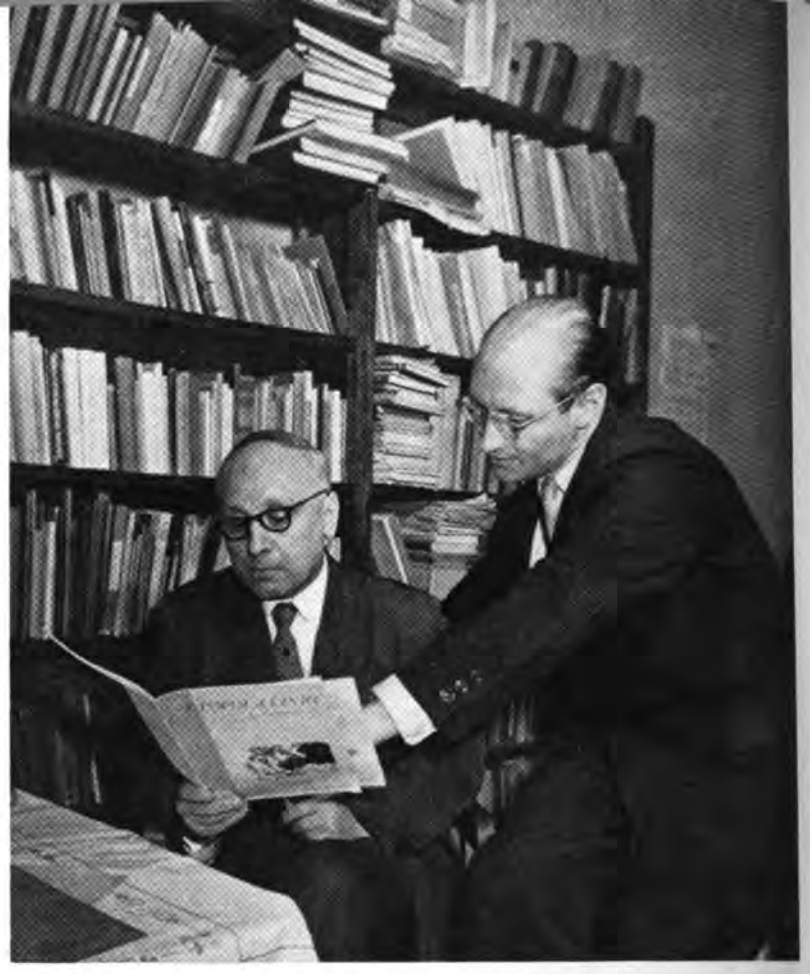
One of the most important of our finds was a collection of about a hundred records inscribed on leather and wood. Some of these, principally household records, are unfortunately in a poor state of preservation. The documents inscribed on leather provide dates by which we can confirm certain of our deductions. We found the collection in Toprak-Kala palace.

The town of Toprak-Kala is representative of feudal Khorezm of the 4th to 8th centuries of our era. This was the time when the irrigation network was greatly reduced as a result of the influx of nomad tribes.

Khorezm was at its zenith during the 11th to 13th centuries, when its dominance extended from the northern coast of the Caspian Sea to the Persian Gulf, and from the Caucasus to the Hindu-kush. But after the invasions of Genghis Khan and Tamerlane, it declined into the backward Kiva Khanate and remained a region altogether removed from the mainstream of modern life, until the October Socialist Revolution in 1917.

The progress made in the forty years since can be measured by the important contributions which the Uzbeks, Turkmenians and Kara-Kalpaks, the descendants of the ancient Khorezm people, have made in every area of the country's life. ■

ESPERANTO



Dr. Yevgeni Bokarev (left) and Victor Grigoryev of the Linguistics Institute are looking through a magazine that was published by Chinese Esperantists.

By Yevgeni Bokarev

Assistant Director
Institute of Linguistics, USSR Academy of Sciences

AMONG the many artificial languages created—the list includes Volapük, Ido, Mondolingue, Kosmos, Myrana, Idiom Neutral—Esperanto is the only one which has become internationally popular. It is studied and spoken in a majority of the countries of the world.

The universal language was conceived in Warsaw 70 years ago. The first textbook was published in Russian in 1887. Two years later, Henry Phillips, secretary of the Philadelphia branch of the Esperanto Association of North America, published the first American textbook. At present dictionaries and textbooks are put out in more than 50 languages and some 100 magazines appear regularly. Esperanto is used for original and translated fiction and for technical and political literature.

The language has had many noted champions in Russia. Leo Tolstoy was highly appreciative of the value of Esperanto, and the composer Sergei Taneyev spoke actively on its behalf. Konstantin Tsiolkovsky, who formulated the theory of rocket propulsion, the physiologist Ivan Pavlov, the writer Maxim Gorky—all advocated Esperanto as an international language.

Many of the Russian classics—the fables of Krylov, the poems of Pushkin and Lermontov, the sketches and stories of Gogol, Turgenev and Chekhov—have been translated into Esperanto. Among modern writers the poems of Mayakovsky, the stories of Alexei Tolstoy and Ilya Ehrenburg and novels by Dmitri Furmanov and Mikhail Sholokhov are available in Esperanto.

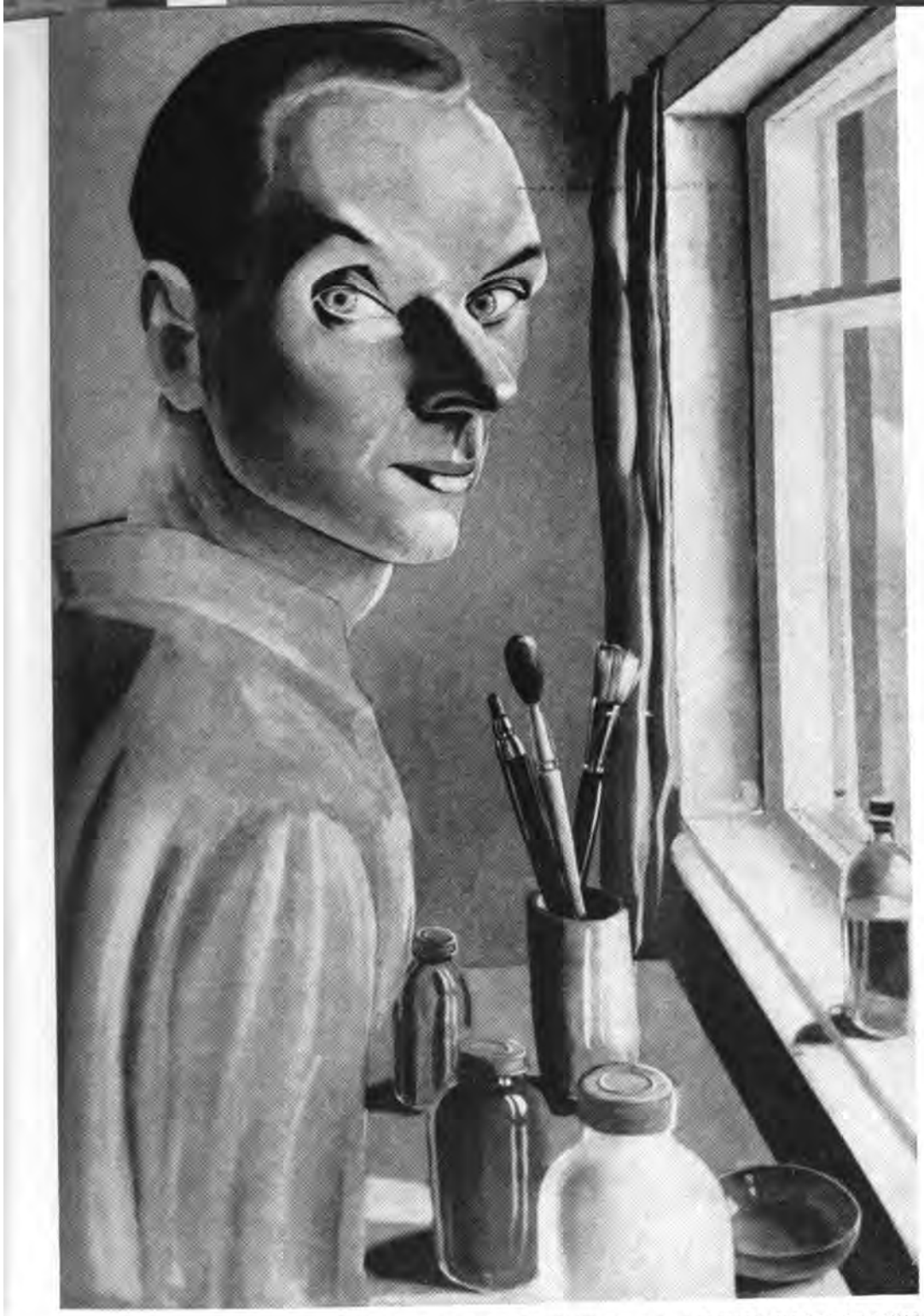
One can read in Esperanto the verse of the Ukrainian poet Taras Shevchenko, the Byelorussian classic Yanka Kupala, the Latvian writer Janis Rainis, the Armenian poet Avetik Isaakyan—to cite only a few examples. In this way Soviet Esperantists acquaint their foreign colleagues with the best works in the treasury of the country's literature.

There is a rapidly growing interest in Esperanto in the Soviet Union attested by the very quick sale of a 95,000-copy edition of a textbook by Nikolai Andreyev. Esperanto dictionaries have been printed for Lithuanians and Estonians. Russian-Esperanto and Esperanto-Russian dictionaries are being prepared for publication. The new magazine *Armenian Esperantist* has a considerable following. Many clubs for the study of the international language are actively functioning in Soviet cities.

Linguists are interested in Esperanto from the theoretical point of view. The use of this artificial language on a large scale makes it possible for philologists to observe the methods by which a language develops. The vocabulary of Esperanto is constantly being added to as current needs make additions necessary, and even popular expressions have begun to be used and to circulate.

More and more, Esperanto is becoming a medium for international contact. It facilitates international communication and can be a helpful instrument in fostering understanding between nations. ■

GROUP OF MOSCOW YOUNG PEOPLE DEVOTED TO SPREADING ESPERANTO ISSUE A PAPER IN THAT LANGUAGE.



A SELF-PORTRAIT BY NIKOLAI AKIMOV. HIS FIRST CHOICE AMONG ALL THE ARTS HAS REMAINED PAINTING.

Pages from an Unwritten Autobiography

By NIKOLAI AKIMOV
Producer and Scene Designer

NIKOLAI AKIMOV *is one of many experimenters who have won for Soviet stagecraft the applause of audiences and the commendation of dramatic critics the world over for the creativity and originality of its productions. He doubles as producer and scene designer.*

Akimov was born in the Ukraine in 1901, the son of a railway office worker. The family later moved to St. Petersburg where he studied painting at the Society for the Encouragement of the Arts and at the New Art Studio.

Akimov the scene designer began to work in the theater in 1920, ten years sooner than Akimov the producer. His stage sets and posters are distinguished for their subtle shadings and imaginative texture. There are critics who disagree strongly with the principles underlying Akimov's work and with his insistence upon experimentation. They object to the fantasy and inordinate foreshortening of his sets and would prefer more lyricism in his painting. But whatever the disagreements, there is no denying Akimov's thorough knowledge of the theater, his talent or his originality.

*As producer, Akimov is particularly successful with satire. This is the perfect vehicle for his exaggerated and caricatured portrayals that have the feeling of cartoons. His best productions—*The Case *by Sukhovo-Kobylin, Saltykov-Shchedrin's* Shadows, *Lope de Vega's* Widow of Valencia *and* Dog in the Manger *and Yevgeni Schwartz's* Cinderella*—are extraordinarily moving. They convey profound social overtones—the work of a gifted artist who will not compromise with hypocrisy and pretense.*

In his 38 years of work in the theater Akimov has designed the sets for 200 productions and has produced 50 plays. For the past 23 years he has directed the Leningrad State Comedy Theater.

HOW did I become an artist and play producer? What are my thoughts on the theater, on painting? I have had to answer these questions more than once.

When I was still a boy, my mind was firmly set on becoming a painter. And to this day painting remains my favorite among the arts. Or perhaps I should put it this way—a bad painting annoys me more than poor work in any of the other arts.

By chance, however, I began to work in the theater as a set designer. I soon found it almost impossible to work with the producers. It seemed to me that they were all wrong. I was certain I could do better.

In 1929 an old producer for whom I was designing a set showed an unprecedented degree of principle. Before the opening was announced, he told the managers of the theater that credit for the production was due more to me than to him and insisted that we be billed as joint producers. The managers conceded and my name appeared in the program as co-producer.

In 1930 I proposed my plan for a production of *Hamlet* to the then young Moscow Vakhtangov Theater. I produced the play the following year. It created something of a sensation and let loose a flood of controversial comments in the press. With the following results:

Both the critics and the public accepted me as a producer. That was good.

At the same time I was branded a most dangerous formalist. That was bad.

And most unexpected was the reaction of the Vakhtangov Theater managers. They decided that I was useful as a set designer but altogether impossible as a producer. That was worst of all.

Stubbornness, if nothing else, impelled me to win a place as producer whatever it cost.

The Leningrad Music Hall had decided to organize an experimental studio at that time and was willing to have me direct it. I assembled a group of young people with a leaning toward experimentation—actors who

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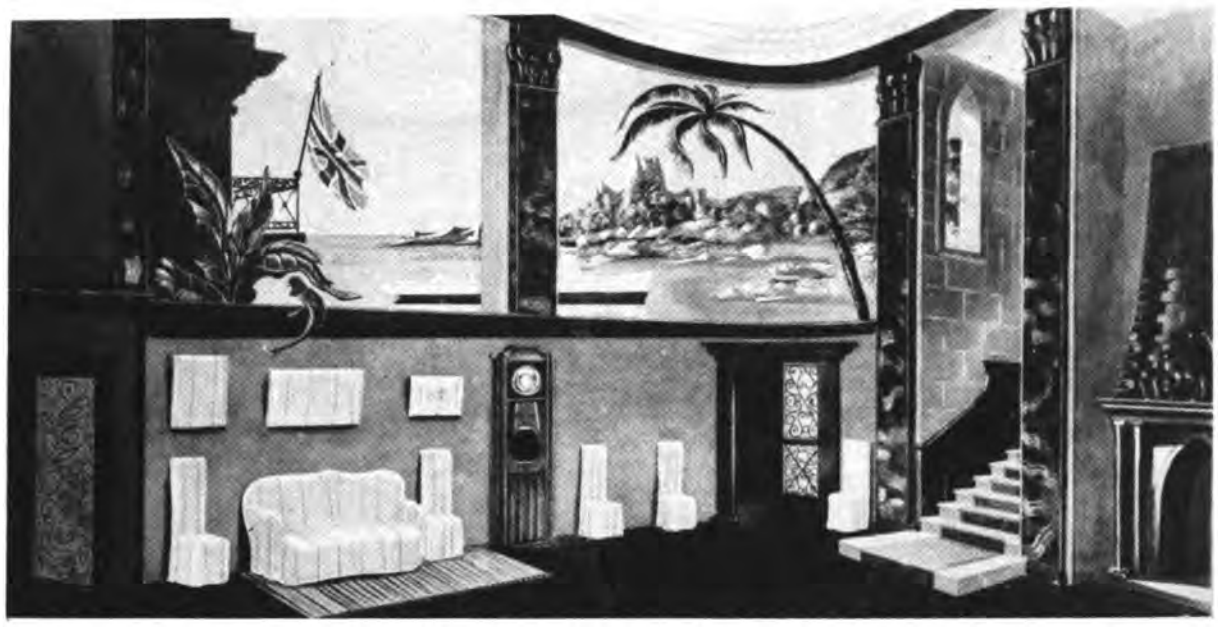
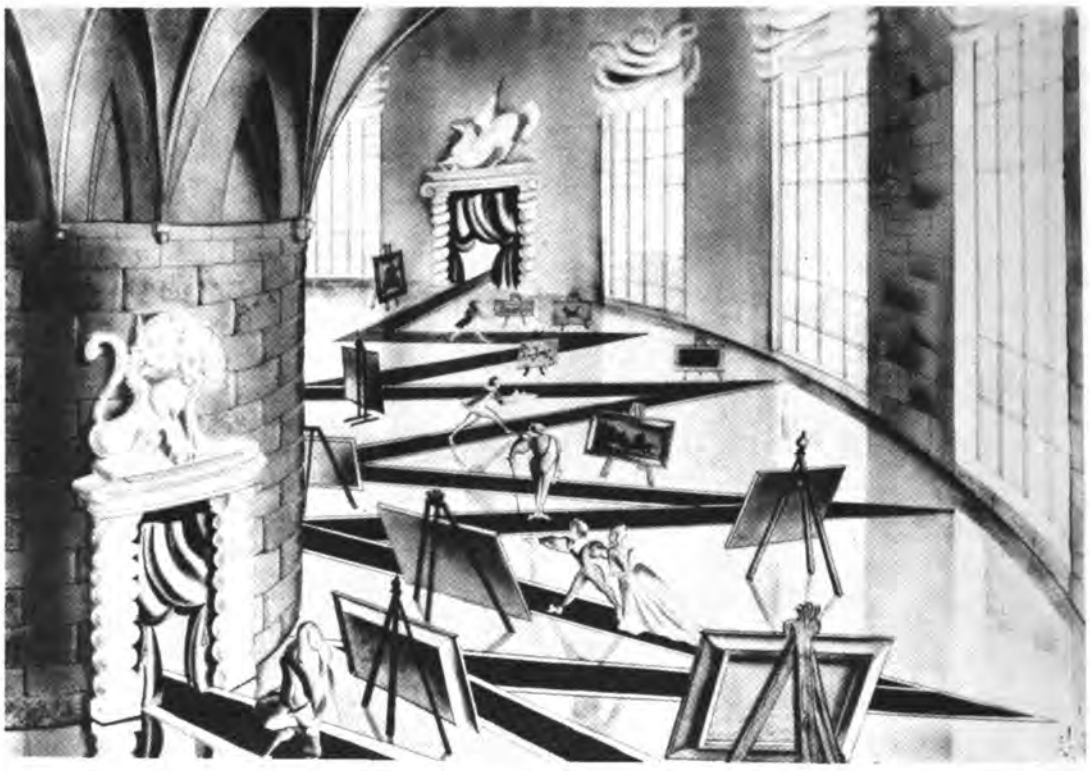


THE SET DESIGN FOR YEVGENI PETROV'S *ISLAND OF PEACE* DEMONSTRATES AKIMOV'S ABILITY TO CREATE AN ATMOSPHERE.



INTERPRETATION OF A TRIP THROUGH THE PALACE'S PICTURE GALLERY FOR THE FILM VERSION OF *CINDERELLA*.

COSTUME FOR ONE OF THE SISTERS IN *CINDERELLA*.

Pages from an Unwritten Autobiography

Continued

could sing and dance, acrobats, jugglers, ballet dancers and an orchestra.

We used as basis for our production an ancient vaudeville sketch, *Doit on le Dire* by Eugene Labiche, and converted it into a luxurious musical performance. It was a success, ran in Leningrad for several months and then in Moscow.

A year later, in 1935, I was called by the director of the board of the Leningrad theaters. "We have the Comedy Theater," he told me. "It's not much of a theater. We shall probably have to close it down altogether. But we're willing to try another season if you agree to make something out of it."

I agreed.

All the young people from my experimental studio joined the Comedy Theater. Since that time I have been directing this theater almost uninterruptedly.

Audience support has been a constant source of gratification for us. We find the

AKIMOV DURING REHEARSALS IN THE LENINGRAD COMEDY THEATER, WHERE HE HAS BEEN DIRECTOR SINCE 1935. HIS LATEST WORK IS *CHAIR NO. 16*, A SATIRICAL COMEDY.

opinion of the spectators most important, not only their reaction to content, but to theatrical forms of production also. I am inclined to think that Soviet theater audiences were sometimes ahead of critics in approving new forms which only later were accepted by the critics.

Recently I was preparing for publication a collection of articles I had written on the theater during the past 30 years. I found that they were all based on a few fundamental ideas which I should suppose represent my artistic beliefs.

If, after close to four decades of work in the theater, I were to write a book about the principles I think are basic to art, it would be no longer than two or three pages. This is what I would write:

Art is a second language, a special language with which one can speak more eloquently and can explain more completely many very important things which cannot be expressed adequately in ordinary language.

But there are some ideas—those dealing with science and business, for example—which are expressed with more accuracy in ordinary language. These two languages ought not to be substituted.

Every language, the language of artistic imagery included, is only a means for communicating ideas and feelings to other people. The quality of a language is determined by the accuracy and comprehensibility with which it communicates.

The quality of an art is determined by the degree to which it reflects reality in artistic imagery. The content must rule the form.

If the audience has felt and understood everything that the artist set out to say, we would conclude that the artistic language—his form—has been phrased perfectly.

The artist must bring to his art some new element or quality if he is to make a contribution. There is no value in reinventing the multiplication table. Ideas which have been repeated *ad nauseam* are rarely thrilling, even though they are put in fine language.

A living art is like a bicycle—it either rides or it falls down, it does not stand still. The academic mind which is determined to maintain the *status quo* in art inevitably makes for retrogression.

By a study of the great art traditions of the past the artist accumulates the knowledge that will help him move beyond them to create new values. But blind imitation of these traditions can produce no more than second-rate copies.

Traditional to the Soviet theater is experiment with substance and form. This tradition is characteristic of the Soviet theater today. Experimentation is made possible by virtue of public ownership of all theaters and by state subsidies which the theater regularly receives. An unsuccessful theater experiment does not

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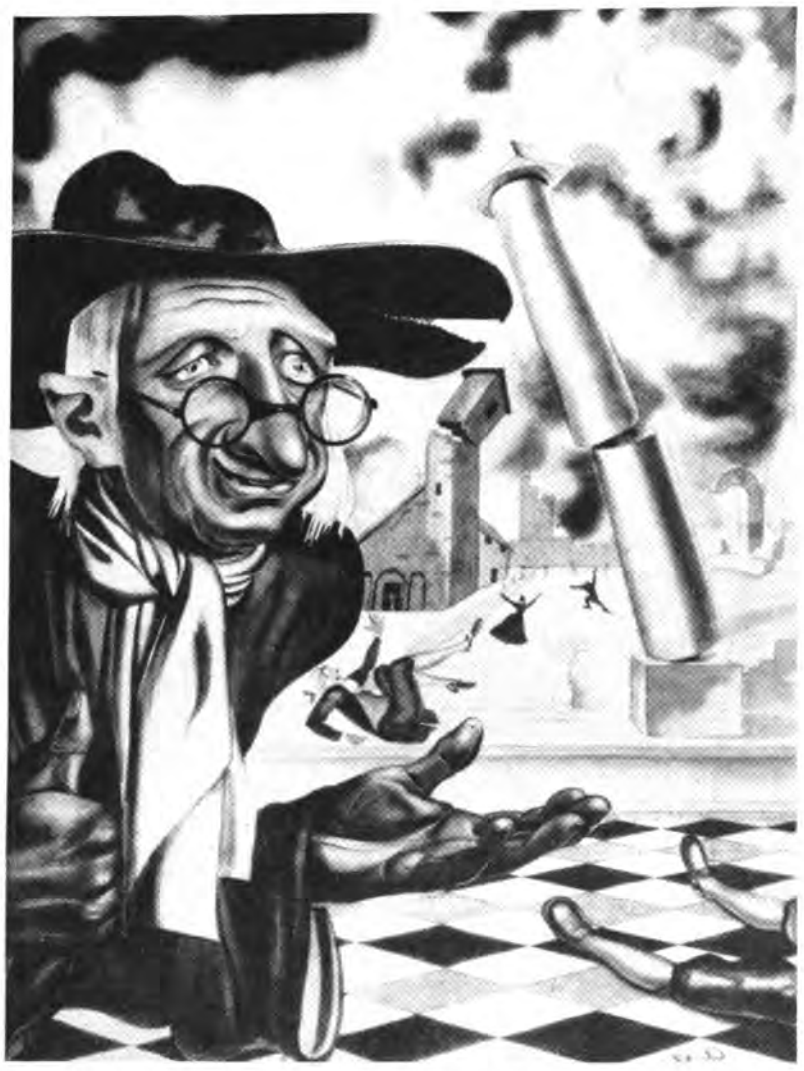
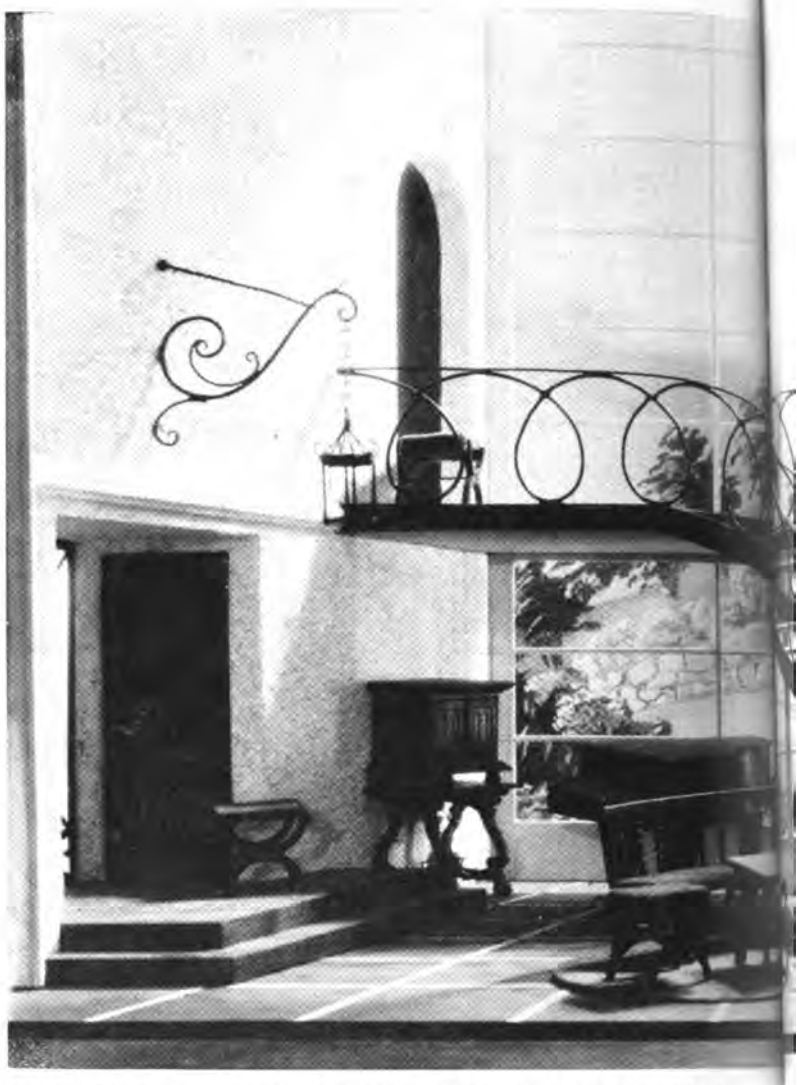


THE LISBON EARTHQUAKE—AN ILLUSTRATION BY AKIMOV FOR VOLTAIRE'S *CANDIDE*.



THE SET DESIGN FOR ALEXANDRO CASONA'S PLAY *TREES DIE STANDING UP*.

Pages from an Unwritten Autobiography

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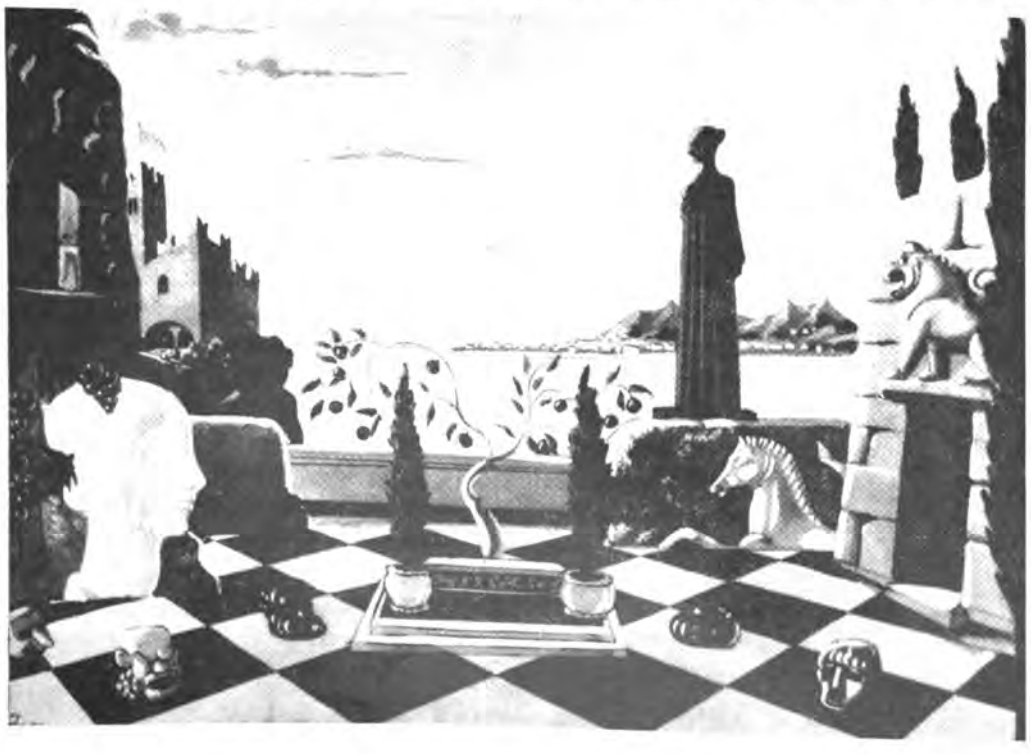
THE ARTIST'S ORIGINALITY SHOWS IN THIS SET FOR YEVGENI SCHWARTZ'S PLAY, *AN ORDINARY MIRACLE*.



mean, therefore, the bankruptcy of the theater. This is most important.

The value of one or another creative method must be decided by the effectiveness of the production which has used it. A method becomes apparent once the artist's masterpieces are analyzed. Declarations on one or another method without masterpieces to document and to illustrate it are of small value.

It is interesting to note that importunate insistence on a particular method in art is advocated, as a rule, not by the founder but by his followers. Some of Stanislavsky's followers tried at one time to fix his method as binding upon all theater workers—to the inevitable detriment of the method. They insisted upon freezing it as a code of irrevocable and unchangeable laws in spite of the fact that Stanislavsky himself had warned against rubber-stamping and was constantly in search of new directions.

I think a study of the experience of our great producers—men like Vakhtangov, Meyerhold and Tairov—is as essential as the study of Stanislavsky. An artist must study everything that will open his eyes to new impressions, that will help him grow in his work.

My schooling in the theater was based on elements as disparate as Russian iconography of the 13th to 16th centuries, the writings of Gogol and Dostoyevsky, the works of the serf artists of the 18th and 19th centuries, the vaudeville skits of Labiche, the heritage of Corneille, Voltaire, Anatole France, Botticelli, Pinturicchio, Daumier, Van Gogh, the cartoons of French and British artists, the history of films beginning with Max Linder and fin-

AKIMOV'S POSTER FOR ALEXANDER SUKHOVO-KOBYLIN'S PLAY *THE CASE.*

g with the latest Italian films shown to-

ıave learned more about composition and uction from all of this than I have from ketful of theories.

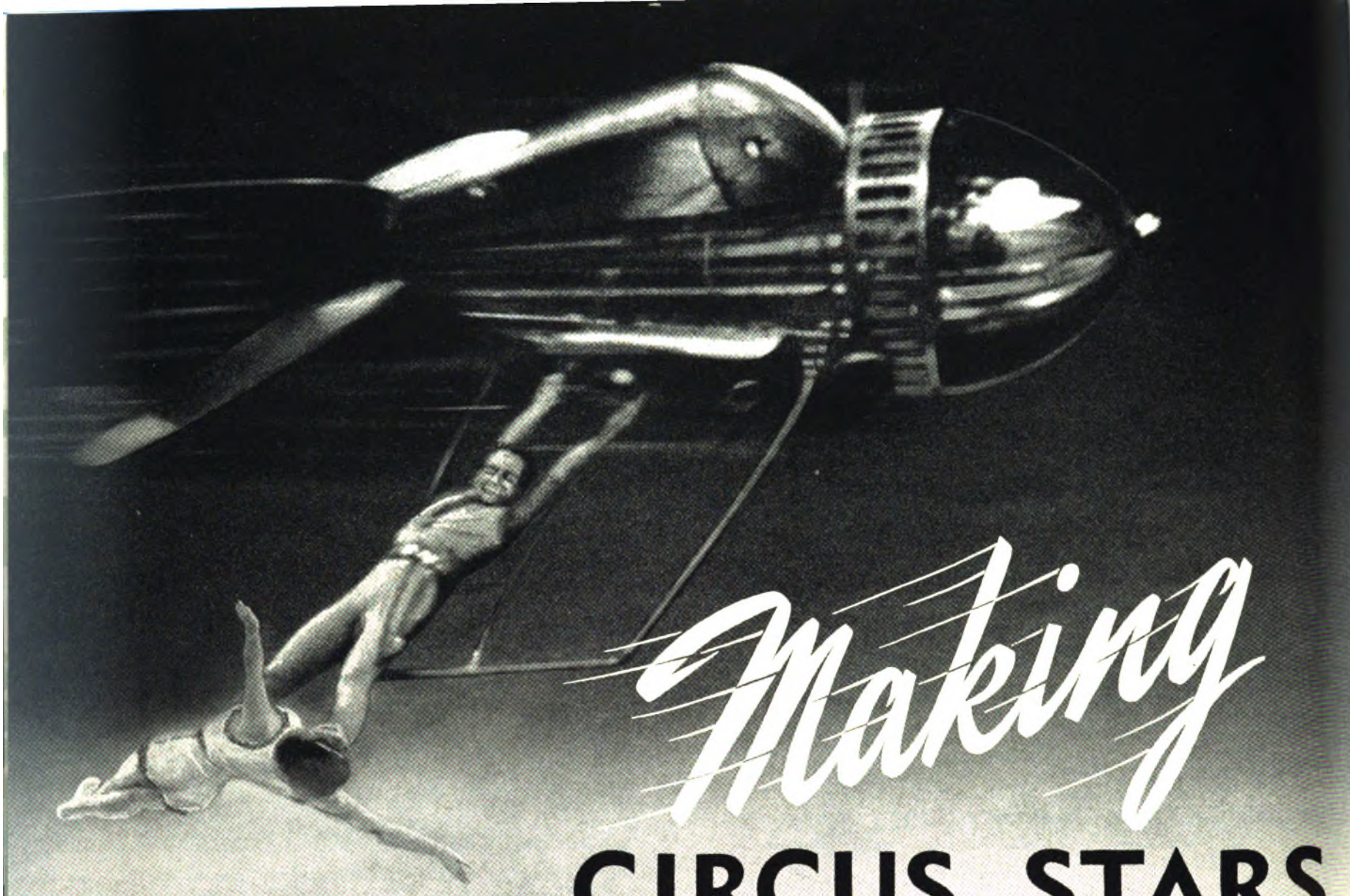
ere is one more element I should have d—perhaps the most important—observ- ife around me in all its enormous diver- But neither these observations nor these s and pictures will be the same for some person. Another producer will be learn- rom other books and pictures and will be rving other things around him that I ot.

ıe theater is built of two components. The is made up of actors, producer, designer, wright, etc. The second—which usually ives much less attention—is the audience. vitally important though often neglected ıent in the producer's art, to my way of king, is a close study of audience reaction a production has been staged. One of the t fascinating aspects of the work on the luction comes when changes and refine- ts are being made as a result of this study. re can be no greater compliment for a lucer than an understanding and approv- audience.

here are many naive people who think that e are ready recipes for art. There may be pes, but they have never done anyone any l. Search and dare! New epochs bring new tance, and new substance demands new ıs.

his is what I would write in the first two or e pages of my book—the rest of it I would with the work I have done. ■

COSTUME DESIGN FOR SALTYKOV-SHCHEDRIN'S *SHADOWS.*



Making CIRCUS STARS

By Mikhail Dolgopolov
Photos by Georgi Petrusov

THIS is where the unusual is normal, the odd is expected. Here is a group of boys and girls standing on their heads. Above, a young girl dangles head first from a frail trapeze. Below, and off to one side there's a young man in front of a large mirror. He squints as he daubs his chalk-white face with curious lines and spots of bright color. And sounding over all comes the raucous blare of trombones blasting through closed doors.

This is the Circus School in Moscow. Everything that would seem out of place in the customary art school is absolutely approved and normal here, and perhaps even a part of the regular curriculum.

As we moved into the training ring, we saw a large, highly polished table in its center. Three boys in eccentric costumes, Victor Ferroni, Victor Tolkachov and Yuri Lyubimov, were putting the finishing touches to their diploma number for the graduation exams. Their teacher, Nikolai Bauman, an accomplished circus acrobat and juggler, was looking on.

The future artists went through their comedy juggling act. Tossing their clubs nonchalantly, two jumped up on the table over which a cloth had been thrown. Immediately the third performer jerked it from under them and they went crashing to the floor. A comic quarrel followed, but they soon made up and resumed exercising with the clubs. Then one of the performers "accidentally" pushes his partner, starting another melee.

At this point the teacher stepped in and stopped them. He demanded more grace and greater speed in their tossing the twirling clubs.

A trapeze was next lowered from the rafters of the circus building. Two young blondes linked arms and legs in an aerial act, wheeling around the trapeze in lithesome slow-motion. Beneath them, a third blonde stood watching. All three looked amazingly alike.

"Those are our triplets—Vera, Nadezhda, and Lyubov Podlesnykh," we were advised by their teacher, Georgi Arkatov. "They're sophomores and very capable girls. I'm going to stage an aerial number for them, in which each will do independent figures on her own trapeze."

Every available spot in the arena and foyer was the scene of action as training groups worked out at an exciting pace.

Most of these young people had come to the Circus School from various sports societies. And here, under the friendly guidance of experienced teachers, all famous circus performers of the past, they are being taught to become acrobats, gymnasts, jugglers, high-wire artists, clowns, eccentric musicians and dancers.

This school counts among its many famous graduates the popular comedians Karandash (Pencil), the thin clown whose real name is Mikhail Rumyantsev, and another stellar clown Oleg Popov, who has been highly acclaimed not only at home, but in Britain and other countries. And there are also the Bubnov sisters, whose aerial performances and gymnastic skill has won them world fame.

The course of study, we found, is four years. The first two are devoted to training in acrobatics, gymnastics, juggling and equilibristics. During the third year the student turns to specializing in the type of performance for which he has shown the most inclination. In the senior year he prepares for his final examination with the teacher's aid.

The teacher is assisted by a stage director, costume designer, composer and sometimes an engineer. The student then demonstrates his diploma number, prepared completely at the school's expense, including costly technical equipment and sets.

There is a good deal of friendly competition between the students in the various "courses," and along with it comes a spirit of helpfulness in which the students themselves suggest improvements in acts and generally cooperate with one another. Additionally the great stars of the circus drop in frequently to lend a hand with the novices, to encourage them in their circus studies.

Over and above the special circus course, all students take the subjects which are taught in general schools, such as the Russian language, mathematics, physics, biology, geogra-

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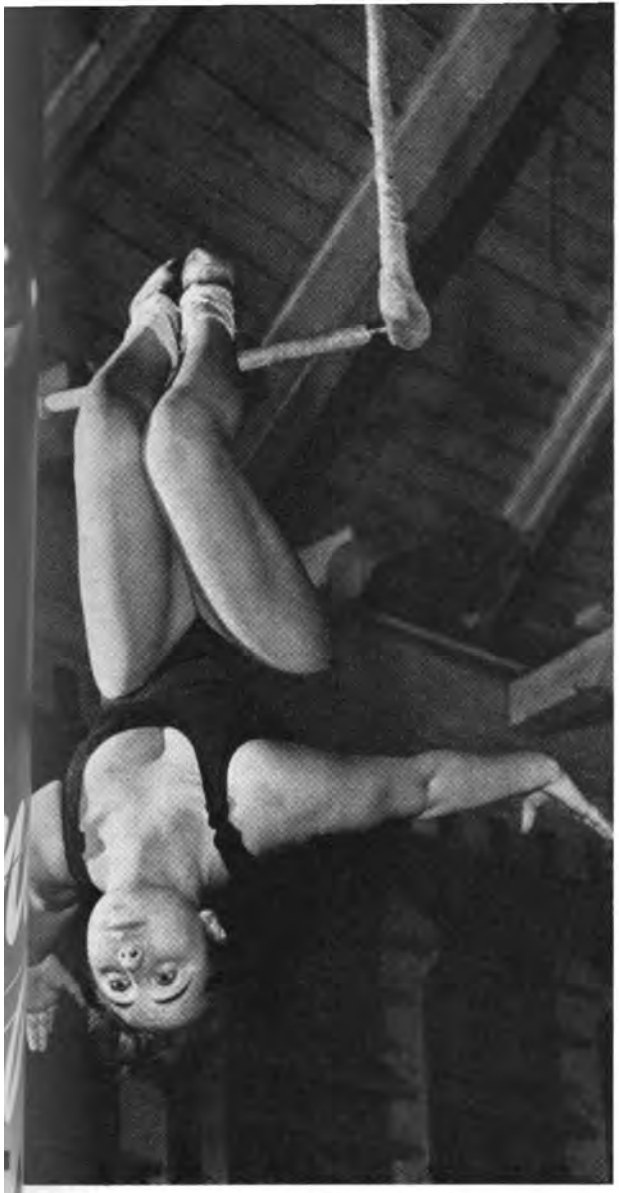
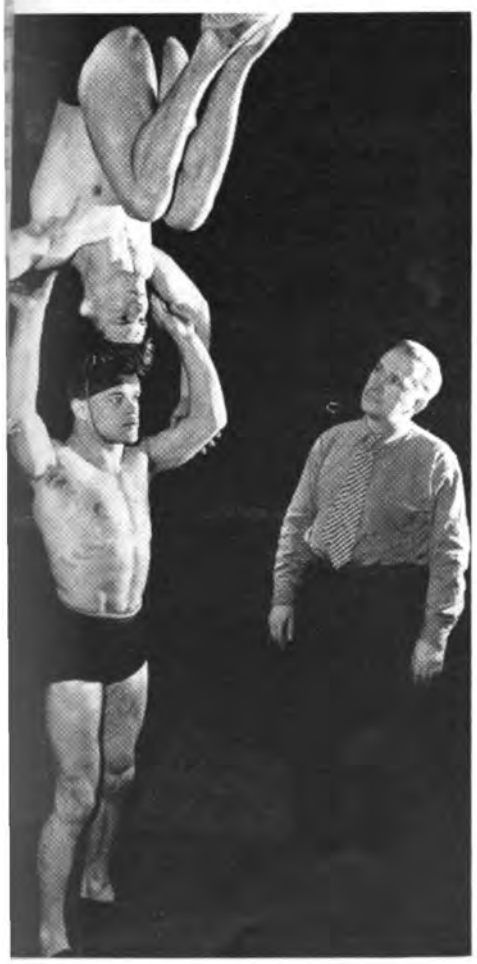


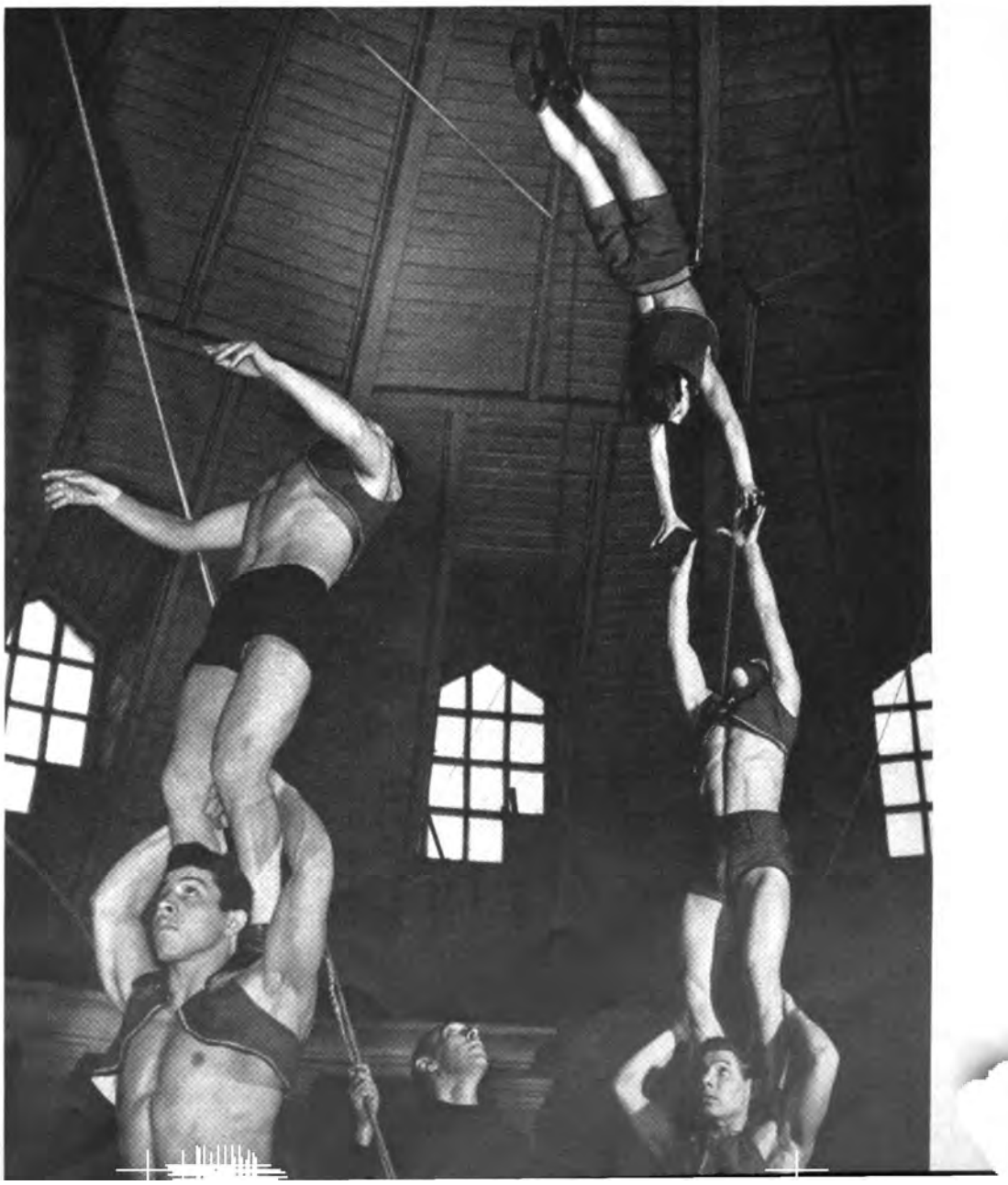
L BOGATAYA, SENIOR, WILL SOON BE AN AERIAL GYMNAST.

ANATOLI AND BORIS SHULYAKOVSKY LEARN BALANCING FROM TEACHER SERGEI CHEBULOV.

NOVICE ACROBATS PRACTICE INTRICATE BALANCING WITH THE TOP MAN PROTECTED BY A SAFETY BELT.

NING COURSES IN ACROBATICS ARE VARIED.





FIRST-YEAR CIRCUS STUDENTS LEARN THAT PHYSICS IS A REQUIRED COURSE.

FUTURE STARS ARE GIVEN AN ANATOMY COURSE AS A BASIC PART OF CIRCUS WORK STUDIES.

AS A JUNIOR, SVETLANA MOROZOVA IS NOW WELL-VERSED IN WORLD HISTORY.

Making CIRCUS STARS

phy, history and literature. The school also offers courses in the fine arts, stagecraft, make-up and classical dancing. Thus trained, the circus performers graduate as persons intelligent of mind, plastic and graceful of body.

All circus school students receive state scholarships or stipends, the size of which depends upon their progress, and all tuition is free.

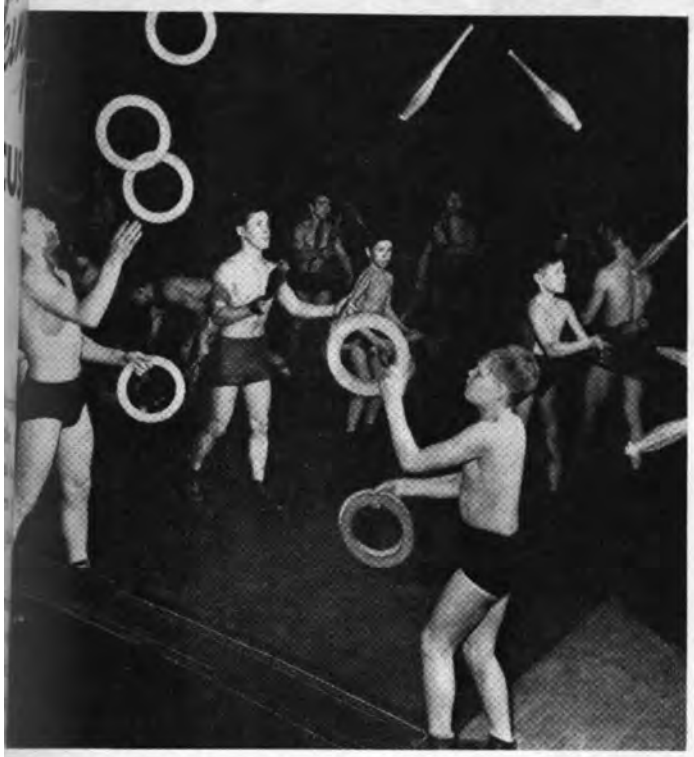
There are always plenty of jobs waiting for the students as soon as they graduate. Soyuztsirk, the National Association of Circuses, is a clearing house for the profession. It obtains acts for circuses and jobs for performers, obviating the need for agents.

When a graduate joins a circus, he receives payment on the same basis as all other performers—it depends only on the originality, difficulty and attractiveness of his number. As his skill improves and he becomes more inventive, he is paid more.

There are 51 stationary circuses in the Soviet Union along with 15 traveling tent circuses. The latter visit more than 150 cities each year, moving across the country and winding up their season in November. In addition to these, there are more than 50 traveling circus companies that perform on variety theater stages. They appear in small towns and collective farms. Altogether the Soviet circus gives tens of thousands of performances every year and is viewed by some thirty million spectators.

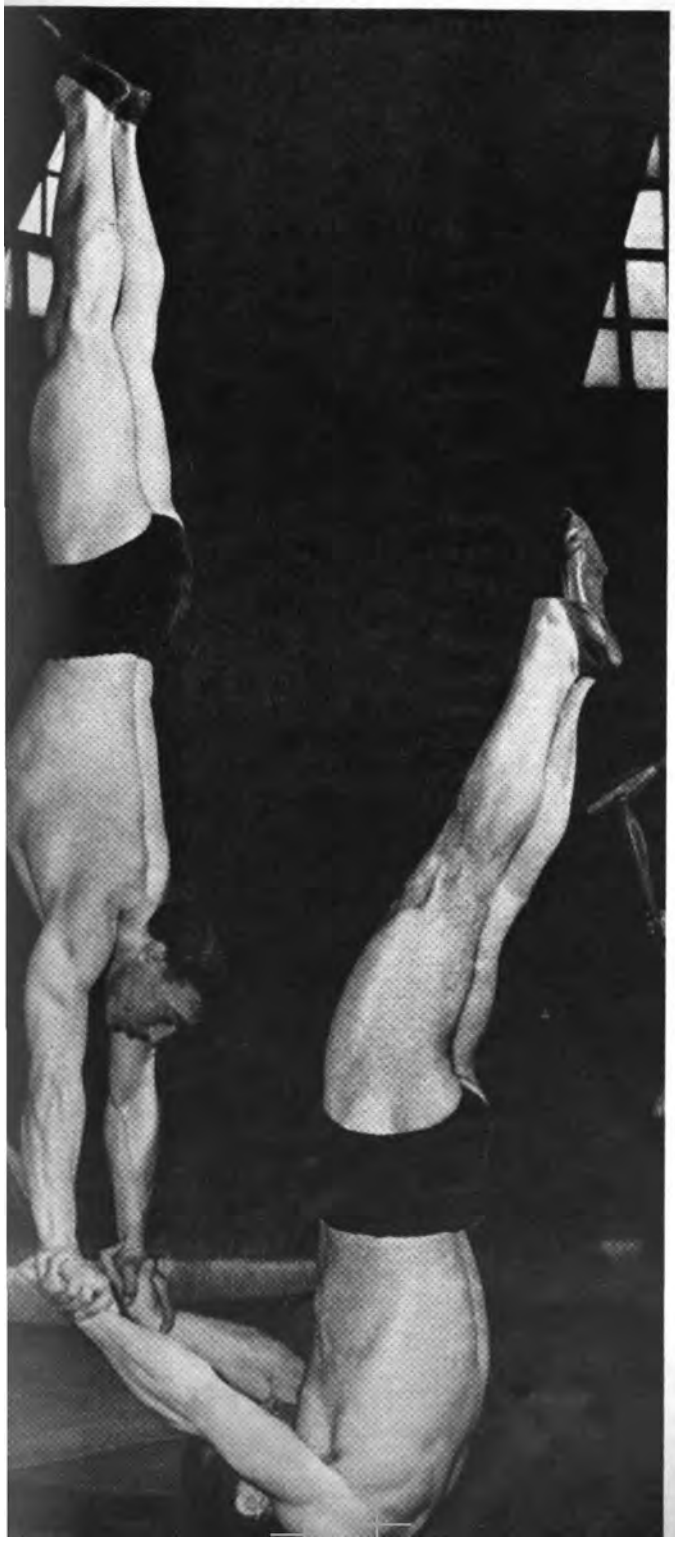
Soviet circus performers are also frequently seen abroad. During the past spring alone they did their acts in France, Sweden, Rumania, Czechoslovakia, the United Arab Republic, Belgium and Japan.

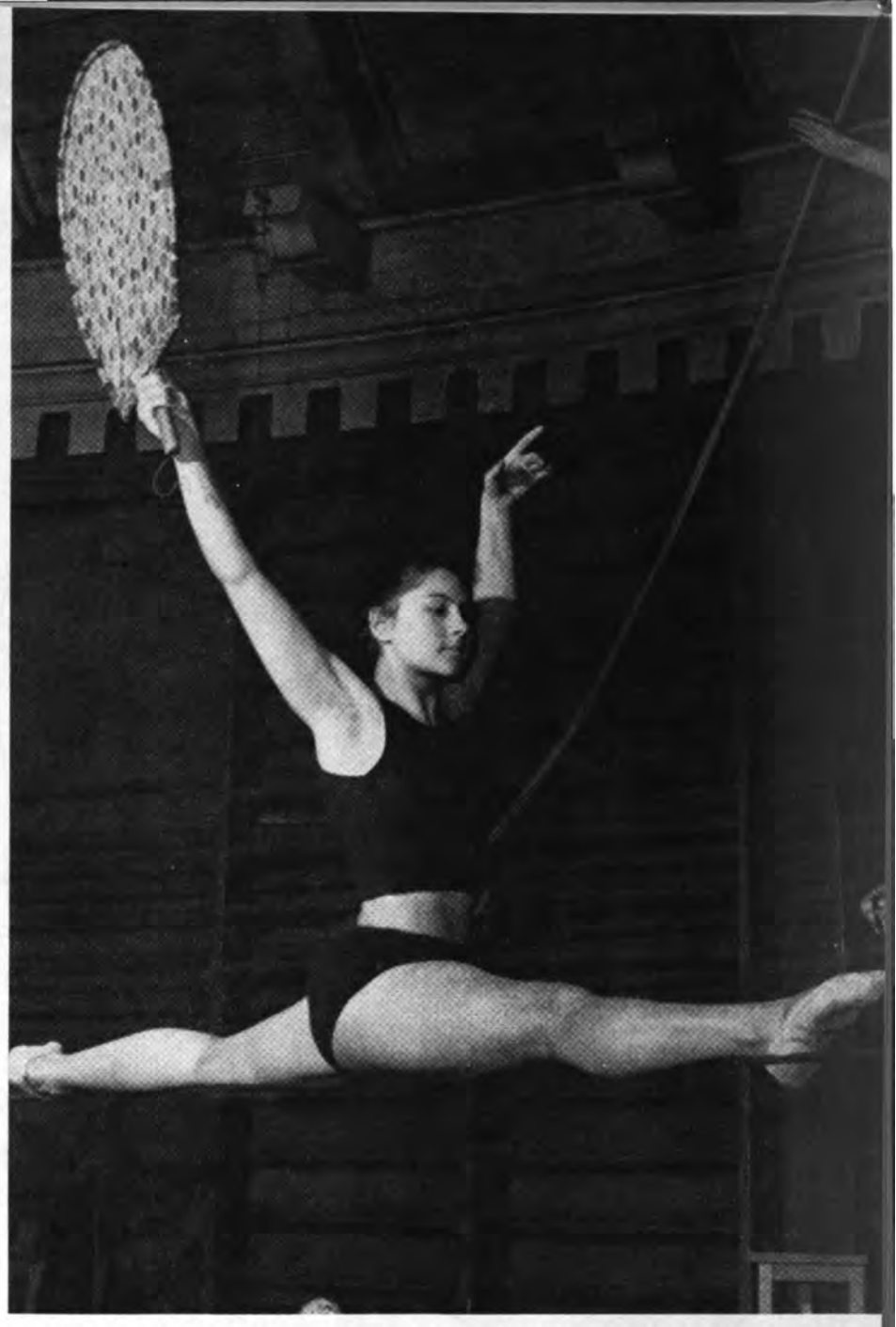
PROPER HAND-STAND FORM IS SHOWN A BEGINNER.



LING FUNDAMENTALS ARE DEMONSTRATED HERE BY FIRST-YEAR BOYS.

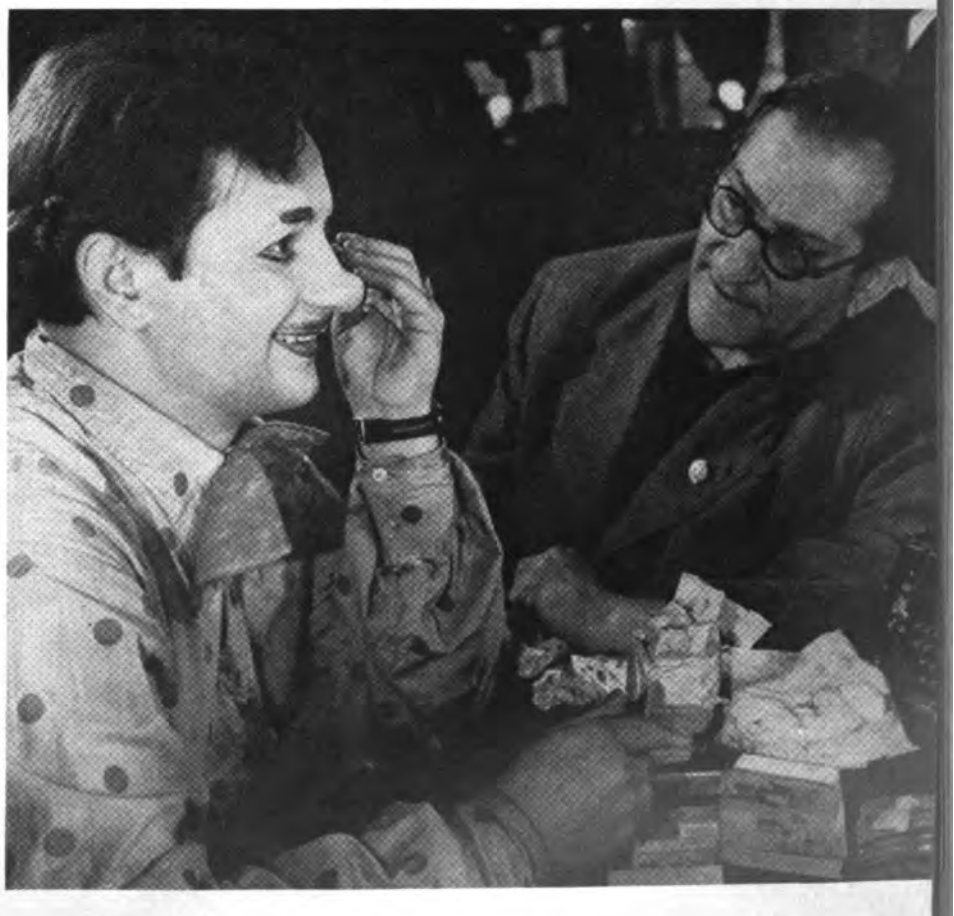
BATS YURI WOLFSON AND STANISLAV SHABUNIN DO A SPECIALTY ACT.





SENIOR TATYANA VASILYEVA IS TIMED IN DOING A PERFECT TIGHTROPE SPLIT.

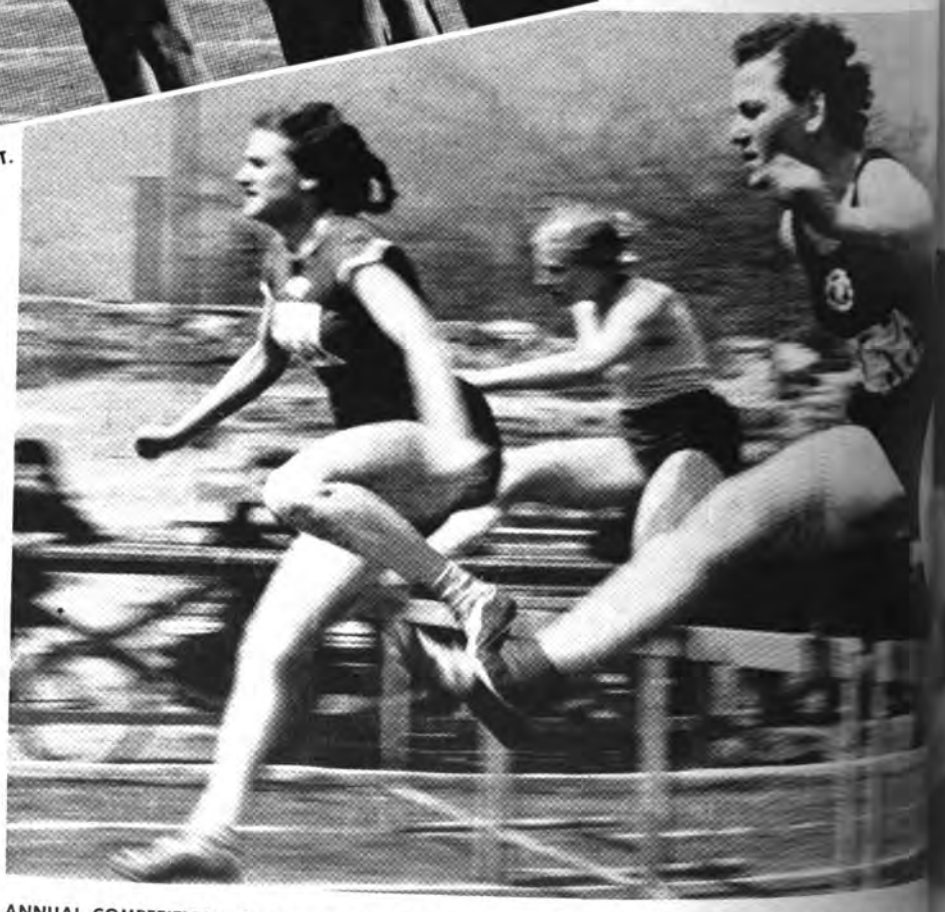
TEACHER LEONID LEMPERT WATCHES VICTOR ROZHKOV MAKE UP AS ZOOT SUITER.



VOCATIONAL SCHOOL SPORTS SOCIE

NOW 15 YEARS OLD, THE SOCIETY IS AMONG NATION'S BEST.

600,000 ATHLETES
WITH THE EMBLEM
THE LABOR RESERV



ANNUAL COMPETITIONS OF THE SOCIETY PRODUCE MANY STARS, SOME FOR THE NATIONAL TEAMS

By Yuri Aratyunyan

QUITE like young people in other countries, Soviet boys and girls are intensely sports-minded. Every village, town and city has one or more sports clubs devoted to the needs of youthful athletes and providing them with equipment, facilities and coaching in various sports.

One of the largest sports societies in the Soviet Union concentrates its activities within the country's vocational school system and is known as *Trudoviye Rezervy*, or Labor Reserves in English. Generally its members and sports fans call it *TR*.

In stadiums and on sports fields throughout the country you can always see young athletes whose jerseys bear the white gear-wheel emblem of the society with the letters *TR*. Among them are novices as well as champions.

It was fifteen years ago, during one of the big sports competitions, that the attention of the spectators was first attracted by young athletes entering the grounds under the emblem *TR*. It was an unknown group until the announcement came over the public address system that the newcomers represented the Labor Reserves Sports Society which had been formed earlier that season.

As time passed *TR* grew in membership and prestige. Today it is the largest and most popular society of its kind in the nation. Although many champions have emerged from its ranks, the principal purpose of the society is physical development of young people studying in vocational schools, to improve their health and build stronger bodies.

The society today has a membership of 600,000. It operates 3,605 basketball and 1,780 volleyball courts along with 591 soccer fields and 1,180 gymnasiums. It also has 104 stadiums and 49 big swimming pools. There is an indoor aquatic station with three swimming pools to be dedicated by *TR* in Moscow later this year. It will be one of the largest of its type on the continent. And within the next year or two, dozens of other sports establishments will be completed in Moscow and elsewhere in the country.

The mass exhibitions of the Labor Reserves Sports Society are an attraction enjoyed by all who appreciate health, strength and beauty. They look something like this:

At one moment the center of the huge, packed stadium is empty. Then the blue and white banners with *TR* across the gear-wheel appear at the gate leading to the field. Wide streams of young athletes flow onto the field, led by a girls' band playing fanfares. Making a circle in center field, they sound the signal for the participants to begin.

There are many hundreds of boys and girls in formation. The light blue dresses of the girls and the richly bronzed bodies of the youths make an unforgettable sight.

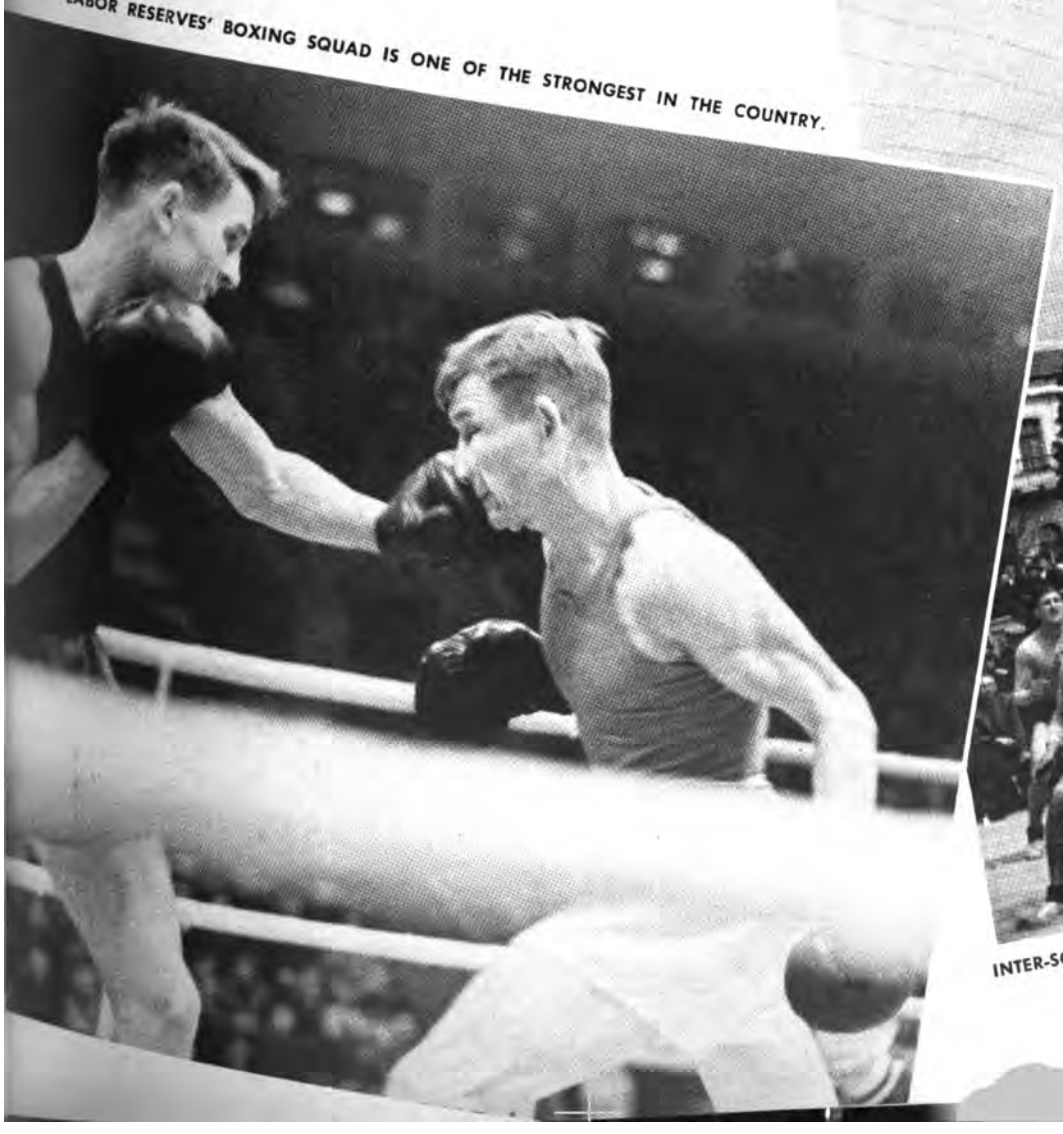
The gymnasts perform many kinds of intricate designs on the field—there is a bed of living flowers aglow with color, next a constellation of stars in whose rays acrobats are performing. The display is a veritable personification of youth itself.

When the society holds its national championship meets in any single sport, the contestants include hundreds of first-class masters, many of whom are champions and record holders of the Soviet Union, of Europe and the world. And in most cases each of them won his first athletic crown as a member of his vocational school team.

That is precisely the way Vladimir Engibaryan, twice named European boxing champion and an Olympic title-holder in the lightweight division, began his sports career in his native Yerevan. Many still recall Engibaryan's clash in Melbourne with the then European champion, the Polish boxer Drogosh. In the opening round the Soviet boxer loosed his favorite blow, a sharp left hook that sent his opponent to the canvas. Although the remainder of the bout was about even, Engibaryan's early advantage won him the decision.

Another brilliant success was scored by Nikolai Solovyov, graduate of the Leningrad Trade School of Applied Arts, in the world wrestling championship. Solovyov lost his first match with the Turkish entry, Erbas, but then went on to pin all of his opponents in the remaining encounters. In his final appearance against World Champion Fabre of Italy, he had his man down solidly in 11 minutes flat and became the first Soviet wrestler to win a gold medal.

Vladimir Struzhanov, holder of the world's record in the 400-meter swimming race; Tamara Lomova, the European women's shooting champion; the boxers Adois Tumins and Yevgeni Feofanov, champions of the Third World Youth Sports Games; Anatoli Olizarenko and Alexei Petrov, the winners of a recent international bicycle marathon race in Egypt—are all inspirng examples for *TR* youngsters. *Continued on next page*



LABOR RESERVES' BOXING SQUAD IS ONE OF THE STRONGEST IN THE COUNTRY.

INTER-SOCIETY VOLLEYBALL MEETS ARE ALWAYS DRAWING CRACK TEAMS.

Yacht club members of Riga's vocational sch
on a week-end outing down the Daugava R

Labor Reserves are proud of Anatoli Olizarenko and Alexei Petrov who won the bike marathon in Egypt.

VOCATIONAL SCHOOL SPORTS SOCIETY

Continued

When a member of the Labor Reserves Sports Society wins a championship in an athletic event abroad, his clubmates have a triple reason for pride—for their country, for their sports society and for the vocational school in which the new champion received his first training.

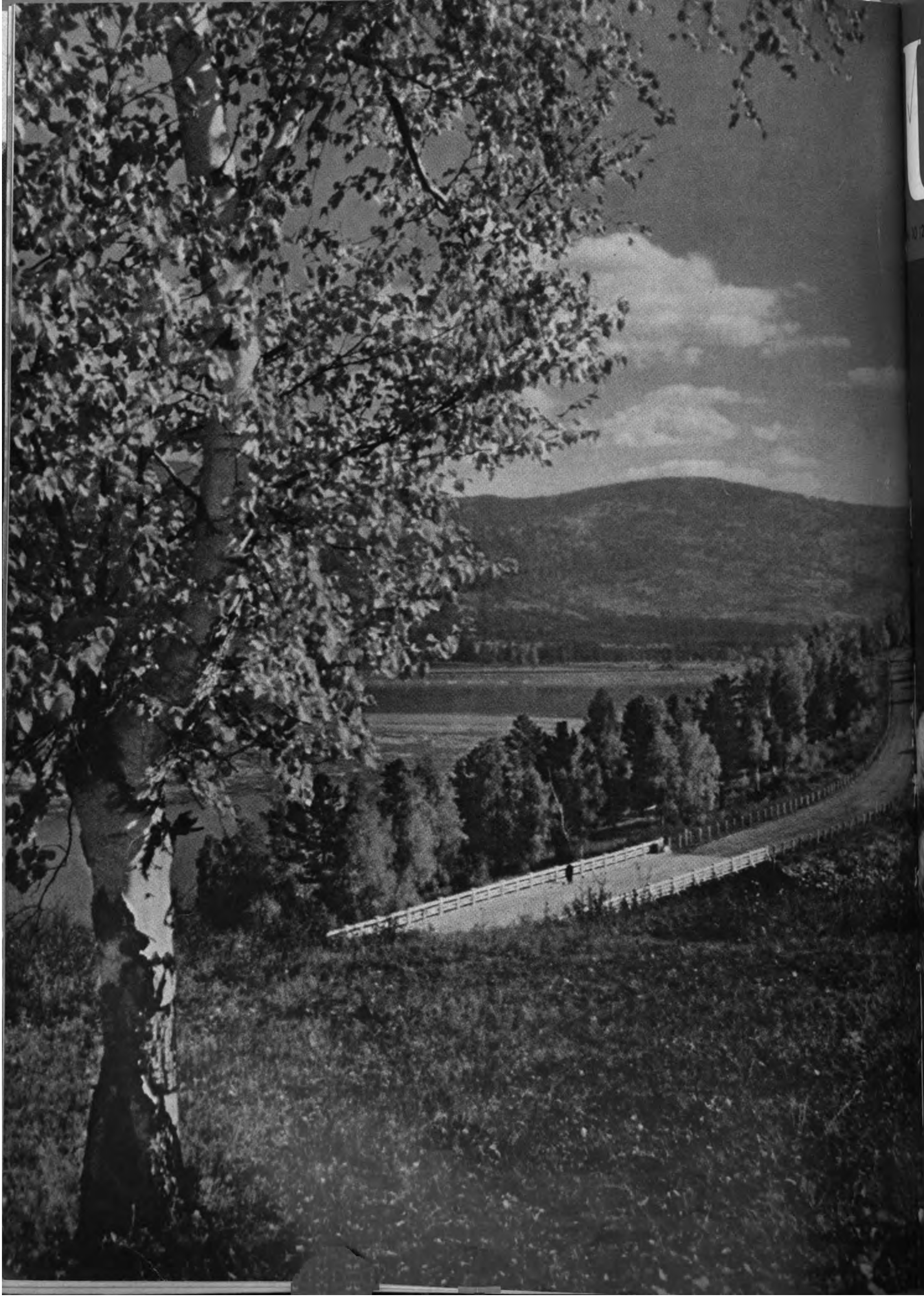
This training in sports starts with the first day of school. Every morning begins with obligatory setting-up exercises to limber up. At midday there is another five-minute physical exercise period. After classes almost all students play volleyball, basketball or soccer, go to swimming pools or try out their skill on gymnastics apparatus. At first the youngsters are shy and perhaps a bit awkward. But under the eye of experienced coaches, the novices soon turn into good athletes.

THE SOCIETY MEMBER VLADIMIR STRUZHANOV SETS A NEW WORLD RECORD IN THE 400-METER SWIMMING RACE.

MASS EXHIBITION DRILLS BY THE LABOR RESERVES ATHLETES ALWAYS ATTRACT LARGE CROWDS TO STADIUMS.

The question most frequently asked after outlining the society's accomplishments is usually how many coaches, trainers and instructors are needed to carry out its program. Of course it requires a great many. They are trained at a special physical culture school set up by the society in Leningrad. Since its establishment twelve years ago, it has graduated 1,700 experts in various sports activities.

Each year as the vocational schools send their graduates into industry and agriculture, the sports society parts with its advanced group with a feeling of having contributed to their over-all health and well-being. And at the same time it gains a group of newcomers who join the sports activites upon enrolling in the schools. They are the challenge and the opportunity for the Labor Reserves Sports Society. ■



USSR

PUBLIC SCHOOLS

—See Page 1

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ON THE FIRST DAY OF SCHOOL EACH YEAR, IT IS AN OLD TRADITION FOR THE TENTH-GRADERS TO GREET THE YOUNGEST PUPILS WITH FLOWERS AND WARM WORDS OF WELCOME.

The Public School in the Soviet Union

THE GOAL of the Soviet public school is the broadly educated citizen, not the narrow specialist. It aims at education in the round—to provide the student with the cultural and pre-vocational background with which he can interpret the past and contribute creatively to build the present and the future.

This article has been prepared especially for the magazine USSR *by the editorial staff of* Uchitelskaya Gazeta *(Teachers Newspaper), the leading publication of the country's educational workers.*

All children between the ages of 7 and 16 are obliged by law to attend school. Parents are required to enroll children yearly and attendance is carefully checked and followed up.

There are more than 200,000 public schools in the country with 30 million children in attendance. A school will be opened wherever there are children—even though there may be no more than a half-dozen within the school district area.

Schools are to be found in the most remote parts of the Soviet Union. In the Far North, beyond the Arctic Circle, for example, there are some 5,000 schools for the children of the Evenki, Chukchi, Eskimo and other peoples. Before the Socialist Revolution of 1917 these peoples had no schools at all; nor did they have a written language.

There are no national or racial restrictions in the Soviet schools. Children study in their native tongues. Textbooks and visual aids are prepared in 59 of the languages spoken in the country.

Although schools are supervised by local

Continued on next page

IT BEGINS WITH THE QUERY: "WHAT'S YOUR NAME?"

THE SOVIET SCHOOLS

Continued

boards of education and curriculum is planned by the Ministry of Public Education of each of the Soviet Union's republics, all schools are part of the single nationwide system and are supported by government funds. About 13 per cent of the entire national budget is allocated to education; for 1957 this came to 78.9 billion rubles.

Since the end of the Second World War new schools have been built at an extraordinarily rapid rate. From 1946 to 1955, the government built 29,555 schools to accommodate 5,006,000 children. By 1960 another four million children will be studying in newly built schools.

Types of Schools

There are three types of schools. The primary school covers grades 1 through 4; the seven-year school, grades 1 through 7; the ten-year school, grades 1 through 10. The type of school opened in any given locality is determined by the number and ages of the children in the school district. All schools are coeducational.

In addition to the general schools, there are special schools for children gifted in music, dance, dramatics and the fine arts which combine general education with special training. There are schools for physically and mentally handicapped children and what we call the sanatorium or forest schools for children in delicate health. There are also many evening schools for those young people who work during the day and who want to complete their courses for secondary school graduation.

The curriculum, drawn up by the Ministry of Public Education of each republic after consultation with teachers, parents, leaders in industry, agriculture, science and culture, is followed by all the schools of the particular republic. When necessary it is, of course, modified to conform to local needs and revised to meet the rapidly changing requirements of modern life and the findings of science and technology.

The Course of Study

In the Russian Federation—to use the largest republic in the Soviet Union as illustration—the curriculum for the first three years includes Russian language, arithmetic, drawing, singing, physical culture and introduction to manual training. In the 4th grade elementary biology, geography and history will be added.

In the middle and upper grades the subjects are grouped into the humanities—Russian language, literature, foreign language and history; the science and mathematics courses—arithmetic, algebra, geometry and trigonometry, physics, chemistry, botany, zoology, anatomy, principles of Darwinism, geography, astronomy and drafting; polytechnical training—which includes the principles of industrial and agricultural production and practical work; and aesthetic development—singing, drawing and physical culture.

The six years of grades 5 through 10 will have a total of 7,196 instructional hours. Of this total, 2,499 hours will be devoted to the humanities; 3,009 to the science and mathematics courses; and 578 to principles of production and practical work in school shops. In addition, fall and spring work on school experimental plots and practical training at the end of the school year add up to 294 hours in city schools and 330 hours in rural schools.

THE SCHOOL PROGRAM

In the Russian Federative Republic
For the Primary, 7-Year and 10-Year Schools in 1957-58

SUBJECTS	Number of hours a week in the different grades										Total number of hours		Additional number of hours a year	
	1	2	3	4	5	6	7	8	9	10	per week	for the year	city schools	village schools
Russian language and literature	13	13	13	9	9	8	6	5	4	4	84	2,856	...	...
Mathematics	6	6	6	6	6	6	6	6	6	6/5*	59.5	2,023	...	...
History	..	..	..	2	2	2	2	4/3*	3/4*	4/5*	19.5	663	...	...
Geography	..	..	..	2	3	2	2	2/3*	3	..	14.5	493	...	...
Biology	..	..	..	2	2	2	3	2	1	..	12	408	...	...
Physics	..	..	..	..	..	2	3	3	4/3*	4	15.5	527	...	...
Astronomy	..	..	..	..	..	..	..	..	..	1	1	34	...	...
Chemistry	..	..	..	..	..	..	2	2	2	4	10	340	...	...
Foreign language	..	..	..	..	4	4	3	3	3	3	20	680	...	...
Physical culture	2	2	2	2	2	2	2	3	3	3	23	782	...	...
Drawing	1	1	1	1	1	1	..	..	..	..	6	204	...	...
Drafting	..	..	..	..	..	..	1	1	1	1	4	136	...	...
Singing	1	1	1	1	1	1	..	..	..	..	6	204	...	...
Introduction to manual training (1-4 grades); work in school shops (5-7 grades)	1	1	2	2	2	2	2	..	..	..	12	408	...	...
Fall and spring work on school experimental plots (5-7 grades); practical training at end of school year (5-6 grades)	..	..	..	..	..	..	..	..	..	..	..	...	102	138
Principles of production	..	..	..	..	..	..	..	3	4	4	11	374	...	...
Practical training at end of school year (8-9 grades)	..	..	..	..	..	..	..	..	..	..	..	...	192	192
Excursions	..	..	..	..	..	..	..	..	..	..	..	...	191	191
Total number of hours	24	24	25	27	32	32	32	34	34	34	298	10,132	485	521
Elective practical courses	..	..	..	..	..	..	..	1	2	2	5	170	...	...

*The numerator indicates the number of hours in first half-year, denominator in second half-year.

Required Subjects

Russian language and literature readings are taught through the 7th grade; course of literature begins with the 8th grade; history and a foreign language, with the 5th.

The curriculum of each republic provides for study of the native language and literature. In these schools Russian becomes an additional language which the children will learn.

Among foreign languages most widespread are English, French and German, although the study of Chinese has lately been gaining considerable ground, as has Hindi, Arabic, Farsi and Urdu. Only one foreign language is required, but a student may, if he wishes, study a second in one of the extracurricular language clubs.

Mathematics is studied in every grade. The study of physics begins with the 6th grade; chemistry and drafting with the 7th; the principles of production with the 8th. Geography and biology are studied from the 5th through the 9th grades and astronomy in the 10th.

As part of the polytechnical training for grades 8 through 10, one day a week is devoted to instruction in a factory or on a farm, depending upon whether the school is urban or rural. This work aims to give children the feel of real productive labor and to relate their class study in the sciences to living situations and problems.

Optional Courses

Besides the required courses, students may choose one of the optional practical courses designed to give them the basic elements of certain special knowledge and skills. This may be some trade, stenography and typing or domestic sciences.

Every school also offers the child a wide choice of extracurricular activities—clubs in mathematics, physics, chemistry, history, geography, literature, a foreign language. There are circles for embryo botanists, technicians, aircraft designers, writers, artists, dancers, musicians and for the future housewives, dressmakers and athletes.

Children may join these clubs or not, as they choose; they are not obligatory. The concern of the teacher is to see that children do not overburden themselves with extracurricular activity to the detriment of health or studies.

Progression in Studies

The area covered in any one subject in successive grades could be roughly diagrammed as a series of concentric, ever-widening circles. As the children move upward in the grades, they return to the same areas of the subject covered in the earlier grades, but the study is given much more depth.

In study of the Russian language, for example, children in the primary grades are taught reading, oral and written Russian and the very minimum of grammar they can manage with. In the 5th-7th grades, when formal grammar is given, the same points will be covered but with the more intensive approach suitable for the older group.

TOTAL NUMBER OF HOURS
(in the schools of the Russian Federative Republic)

SUBJECTS	Grades		
	1-4	5-7	8-10
Russian language and literature	1,632	782	442
Mathematics	816	612	595
History	68	204	391
Geography	68	238	187
Biology	68	238	102
Physics	...	170	357
Astronomy	...	...	34
Chemistry	...	68	272
Foreign language	...	374	306
Physical culture	272	204	306
Drawing	136	68	...
Drafting	...	34	102
Singing	136	68	...
Introduction to manual training; work in school shops	204	204	...
Principles of production	...	...	374
Practical training	...	102* 138**	192
Elective practical courses	...	...	170

*in city schools
**in village schools

In the 5th-7th-grade literature readings the children read and discuss various literary works suitable for their age level. They include books or extracts from the classics of Russian literature, the works of Soviet and foreign writers. Among the English and American writers read are Charles Dickens, Sir Walter Scott, Jonathan Swift, Daniel Defoe, Mark Twain, Harriet Beecher Stowe and Jack London.

In the upper grades students are given a fairly intensive course in the history of Russian literature from the earliest days to the contemporary period; the literature of the peoples of the Soviet Union; and the writings of the great among West European writers—Shakespeare, Goethe, Cervantes, Molière, Schiller, Byron, Balzac, Stendhal, Shaw and other world classics.

History

In some fields the progression in studies from grade to grade would diagram as a continuous unbroken line rather than as a series of concentric circles. History is a case in point. The whole course is studied in chronological sequence.

While in the 4th grade children are acquainted with certain of the outstanding events in the history of the country, it is all still very general. They are presented through stories read or told by the teacher and through pictures and movies.

The actual study of history in a formal way is not begun until the 5th grade with ancient Greece and the ancient East. In the 6th grade the children continue with the history of ancient Rome and the beginning of the medieval period. In the 7th grade they complete their study of medieval history. In the 8th, 9th and 10th grades they go on to modern and contemporary history and at the same time study the history of the peoples of their own multinational country.

Mathematics

Mathematics receives particular attention in Soviet schools because of its close relation to so many branches of knowledge, both theoretical and practical, and its value in developing logical thinking.

Primary-grade arithmetic is continued with a formal course of elementary arithmetic in the 5th and 6th grades. In the 6th grade they

Continued on next page

TEN YEARS LATER IT IS: "SHALL WE GO STEADY?"

THE SOVIET SCHOOLS

Continued

IT'S ALL SO FASCINATING FOR THE FIRST-GRADERS.

begin the study of geometry and algebra and go on with these two subjects through the 10th grade. In the 9th and 10th grades they study trigonometry as well.

In mathematics teaching emphasis is upon mastery of basic mathematical concepts and methods and their application, but as tools rather than as dogma. Class work is related as much as possible to the solution of practical problems, to surveying in the field and other such real situations. Students are taught to use tables, computing apparatus and measuring and drafting instruments.

Physics and Chemistry

Physics is studied for five years. The course of study in the 6th and 7th grades is introductory. Students are given an elementary knowledge of mechanics, heat and electricity. They do simple laboratory experiments and learn to use apparatus and measuring instruments. They make excursions to factories, power stations and construction sites.

In the 8th and 9th grades they study the principles of molecular physics, mechanics, sound and heat. In the 10th grade they study the structure of the atom, electricity, radio and optics.

In their studies students learn how the laws of physics are applied in production and they acquire an understanding of the underlying physical foundation of modern industry. They study the principles governing the structure and functioning of hydraulic, thermic and electric engines; of various machines and vehicles; of transmission mechanisms and methods of transmitting energy over great distances.

This knowledge is both broadened and deepened during their later study of the principles of production and study of machine engineering and electrotechnics. Students spend considerable time doing laboratory experiments and practical work, making instruments and models and going on excursions.

The major goals in the study of chemistry are to develop an understanding of chemical reactions as they are explained by modern chemical theory; to develop an ability to observe and explain the chemical phenomena which occur in nature and in industry; to learn laboratory skills; to learn the basic applications of chemistry to power, industry, farming, transportation; to understand the relation of chemistry to everyday living.

WHILE LEARNING TO WORK WITH VARIOUS MATERIALS, THE FOURTH GRADE DRAWING CLASS MAKES BOOK COVERS.

Art and Music

The curriculum emphasizes art and music, both as appreciation and as active participation studies. The study of history and literature is given deeper meaning by frequent excursions to museums. Creative ability and interest in the fine arts is fostered by the study of drawing in the first six grades, accompanied by talks on the world's noted painters and sculptors, and on schools of art.

Class studies are further supplemented by extracurricular clubs in painting, modeling and art history for those children who are interested. There are, in addition, art classes at special children's studios and Young Pioneer clubs with yearly exhibitions of children's work shown in many of the country's larger cities.

In music the children are taught solo and choral singing. The teacher tells them about the works of the classic and modern composers. They learn to appreciate music by both listening and singing. For those who wish to play an instrument there are optional classes in piano, violin and folk instruments.

Throughout school the children are given physical culture and participate in extracurricular gymnastics and sports.

Polytechnical Training

A basic aim of Soviet education is to acquaint children with an understanding of modern industrial and agricultural production and to provide them with the fundamental skills which will help direct them to the vocation of their choice. This emphasis, termed polytechnical, includes practical work, school courses in the principles of production, and an orientation in study of the sciences which relates theory to practice.

Children art taught to do manual work beginning with the first grade. They work with paper, cardboard, fabrics, modeling clay, wood, white metal and wire to make simple toys and models. On the school farm plots they grow plants and take care of animals. In the process of this work they apply their class learning in arithmetic, the natural sciences and drawing. *Continued on next page*

In the 5th-7th grades work-study is done in the school shops and experimental plots. Children learn to work wood and metal with hand tools and machines; to assemble simple electrical equipment; to make and to read simple technical diagrams and working drawings.

In the summer 5th and 6th grade students do practice work in plant growing at collective and state farms for periods of 6 to 12 days, working four hours a day. They keep written records of their observations. There are quite a few schools where students, guided by teachers, have been doing very serious experimental growing which has resulted in the development of new kinds of plants and hybrids or in the improvement of existing work methods.

There are "factories" and "plants" specially set up to introduce children to production work. There are such "plants" at the Ushchelninskaya School in the Crimea and the Lvovskaya School in Moscow Region. There is a printshop at Boarding School No. 19 in Moscow. In other schools there are many other "shops" and "commercial enterprises."

There is of course an element of play in all this, as there should be. The children play at being real builders and erect their own "plant." But there is also a good deal of room here for real work and learning and for mastery of practical skills.

Principles of Production

The course in principles of production is the core subject around which polytechnical study is built. It is given in the 8th, 9th and 10th grades.

In the 8th grade pupils study machine engineering—the elements of technology of metals and the basic data on mechanisms and machines. They work metal and wood, set up and assemble simple machine units. In the 9th grade they study the principles of industrial production in operation at a specific plant. The course, given four hours a week, includes theoretical studies, excursions and practical work. Tenth grade study consists largely of practical work and study of the automobile and electrotechnics.

In rural schools the course in the principles of production is organized somewhat differently. Elements of plant growing are studied in the 8th grade and elements of livestock breeding in the 9th. Farm machine engineering is studied in both the 8th and 9th grades. In the 10th grade pupils study the automobile, the tractor and electrotechnics.

Eighth and ninth grade students in both rural and urban schools do practical work-study in the summer, in addition to their practical work during the school year.

Practical Work-Study

School No. 85 in the Ukrainian city of Dniepropetrovsk is a typical Soviet secondary school. Students in the 8th, 9th and 10th grades receive their practical training at a large coke and chemical plant. Here is what fifteen-year-old Pyotr Andreyev, a 9th grade student, wrote in his diary about the things he learned at the plant.

ALL SORTS OF VISUAL AIDS ARE USED IN THE CLASSROOM. THIS GEOGRAPHY LESSON ENDS WITH A FILM.

AS MUCH EMPHASIS IS PLACED ON THE PUPIL'S PHYSICAL WELL-BEING AS ON HIS MENTAL DEVELOPMENT.

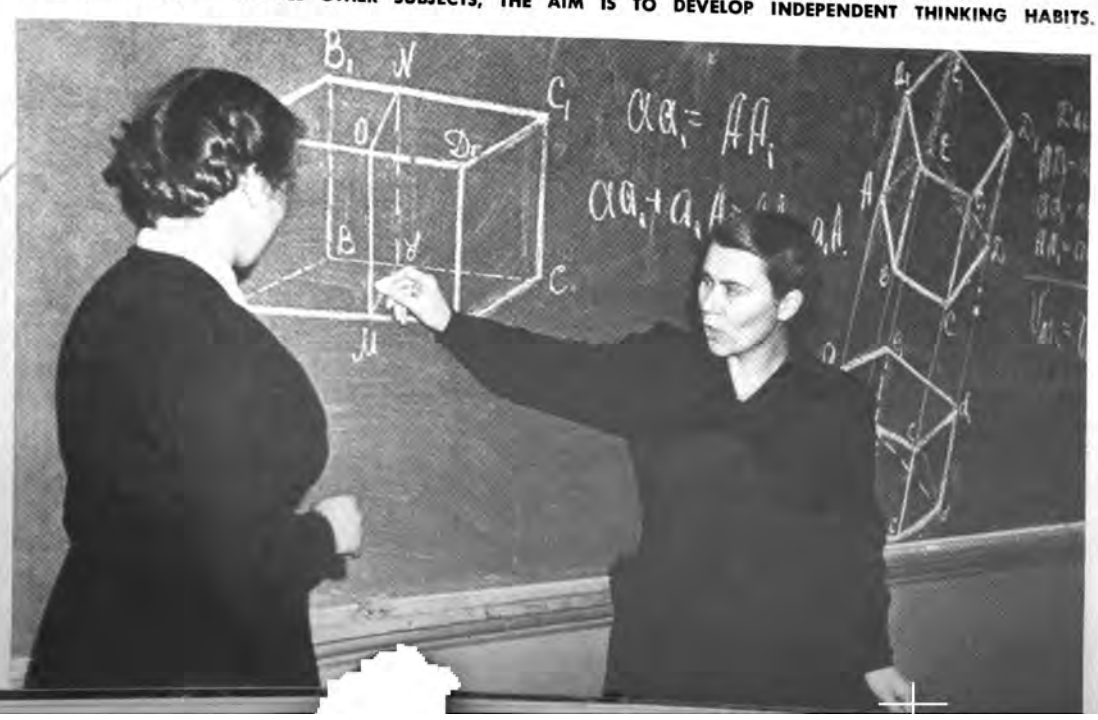
THE MORE DIFFICULT AND DEMANDING SUBJECTS ALTERNATE WITH THOSE REQUIRING LESS MENTAL EFFORT.

THE PROBLEMS GET HARDER IN THE UPPER GRADES.

A COMPREHENSIVE COURSE IN CHEMISTRY BEGINS WITH THE SEVENTH GRADE AND ENDS WITH THE TENTH.

BY THE TENTH GRADE STUDENTS HAVE LEARNED TO USE COMPUTING, MEASURING AND DRAFTING INSTRUMENTS.

IN MATHEMATICS, AS IN ALL OTHER SUBJECTS, THE AIM IS TO DEVELOP INDEPENDENT THINKING HABITS.



THE SOVIET SCHOOLS

Continued

He describes the coke-and-chemical industry, its significance in the national economy and the products turned out by the plant. He reports on the chemical substances he worked with, their physical and chemical properties and their application. He outlines the scientific principles behind the production of chemicals which he had learned earlier in class and was now observing in application at the plant. He writes in technical terms of the increase in the concentration of reacting substances and their circulation, of the increase in the surface of contiguity, the application of optimum temperatures, counterflow and catalyzers. He discusses uninterrupted production, mechanization and automation.

This student, like all others during the practical training periods, develops a real sense of the meaning of scientific principle—of physics and chemistry—as the foundation of modern production. At the same time he acquires valuable skills and a working discipline.

The School Year

The organization of the school year is essentially the same for all schools in the country. The school year begins on September 1 and ends between May 20 and June 20, depending upon the grade.

All children go to school six days a week. A lesson is 45 minutes long with a 10-minute recess. The lunch-hour recess is 30 minutes.

The 1st and 2nd grades have 24 lessons a

IN THE SIXTH GRADE AN INTRODUCTORY PHYSICS COURSE IS GIVEN WHICH INCLUDES SIMPLE EXPERIMENTS AS WELL AS THEIR PRACTICAL APPLICATION IN EVERDAY LIFE.

week; the 3rd grade, 25; the 4th grade, 27. The number of lessons in the upper grades varies somewhat with the republics: in the Russian Federation, the 5th-7th grades have 32 lessons a week and the 8th-10th have 34 lessons, while in the Ukraine and some other republics the 5th-7th grades have 34-35 hours and the 8th-10th have 35-37.

For the 1st, 2nd, 3rd and 10th grades the school year is 34 weeks; for the 4th through the 9th grade it is 35 weeks, with one week specifically allocated to excursions. Besides the long summer vacation children have a 12-day winter holiday early in January and a 10-day spring holiday late in March.

The school year is divided into four quarters. Marks are given for each quarter, upon which the final marks and promotion to the upper grades are based. Children who receive unsatisfactory marks are either left back to take the year's work over or are given a summer assignment to do.

At the end of the 7th and 10th grades students take final examinations. In the other grades there are no examinations in the schools of the Russian Federation and most other re-

Continued on next page

PUPILS MUST TAKE EXAMINATIONS AT THE END OF THE SEVENTH AND TENTH GRADES.

INDEPENDENT RESEARCH AND OBSERVATIONS ARE PART OF EIGHTH GRADE BIOLOGY.

EXPLANATION OF HOW THE TELEPHONE OPERATES.

THE SOVIET SCHOOLS

Continued

publics. In the schools of the Ukraine all students from the fifth grade upward take examinations.

Textbooks and Teaching Aids

There are textbooks and teaching aids for every subject in the course of study. They are standard for all the schools of a given republic and present in systematic form the knowledge to be mastered at a particular level. They also contain questions and assignments for home study. All the texts are richly illustrated.

Additional teaching aids include readers in literature, history and geography; exercise and problem books in mathematics, physics and chemistry; and a large literature for extracurricular reading in all the fields of school study.

All republics publish textbooks in their languages, usually in enormous editions. The publishing house of the Ministry of Public Education of the Russian Federation—the largest of its kind in the country—last year published 1,700 different textbook titles in a total printing of 198 million copies.

Textbook authors are scientists, professors of pedagogy and practicing teachers. Frequent contests are held with handsome prizes awarded to the writer of the best textbook on one or another subject.

Usually new textbooks are published experimentally in relatively small editions, tried out in schools, and the text revised if necessary. Only after this testing is the textbook finally approved by the Ministry of Public Education of the republic for general use and issued in the usual large edition.

Teaching Methods

In the 1st to 4th grades all class subjects are taught by a single teacher except for drawing, singing and physical culture which are taught by special teachers. In the 5th through 10th grades each of the subjects is taught by a specialist in that field.

The more difficult and demanding subjects are usually taught in the earlier part of the school day. Subjects that require greater mental effort are arranged to alternate with shopwork, drawing and singing.

Teachers work from lesson plans which they prepare for each period. These serve as guides for the material to be covered rather than as rigid plans to be strictly followed. They will be altered as the lesson proceeds, depending upon the pace at which the children move along.

The major teaching aim is to develop the initiative of the child and to lead him on to independent thinking and study. Throughout there is constant emphasis upon relating theory to practice.

The teaching process at all times combines a review of material already studied with the learning of new material in order to foster independent and creative thinking. This approach holds for every subject studied. Assignments frequently require independent research.

In the chemistry laboratory students are required to draw conclusions independently —guided, of course, by the teacher—about the properties of the substances they combine in experiments.

In mathematics they will be asked to prove a theorem which they have not yet studied, to derive a new formula or to find a method for solving a new type of problem.

In a literature class they will be asked to analyze a new book for content and for style. Reports will be written or oral and may take the form of discussions, debates or round table forums.

But throughout all this the teacher directs the student's work. He tries to have him master the scientific knowledge actively and consciously. The aim is to develop the personality of the young person, as well as his thinking and creative abilities.

Homework

In addition to class work students are given daily home assignments, except on Saturdays and before holidays. Homework may be of a theoretical or practical character and may be a textbook assignment, supplementary reading, problem solving, performing an experiment, drawing or making a diagram or model.

THE GIRLS EMBROIDER APRONS AND OTHER THINGS FOR THE HOUSE IN SEWING CLASS.

THE BOYS LEARN TO USE A LATHE AND OTHER MACHINES IN THE SCHOOL WORKSHOPS.

The school maintains close ties with parents through individual consultations, parents' meetings, and lectures for adults on child problems.

Some schools have organized rather comprehensive courses for parents on bringing up children. Every school has its parents' committee, elected by the parents themselves to work with the teachers and school administration.

Bright and Backward Students

Homework and classwork are checked daily. Marking is done on the five-point system—with five the highest mark and one the lowest. The best students are awarded honor certificates and prizes, usually books. Gold and silver medals are awarded at graduation for outstanding work.

Soviet schools do not punish pupils for poor work in studies. The lazy student feels the very strong moral pressure not only of teacher and parent, but of his classmates as well. With education so easily available and intellectual and practical achievement so honored in Soviet life, this kind of social censure is usually sufficient to make the able but lazy student toe the mark in his studies.

The willing but backward student is given every help and encouragement by both teachers and fellow students. If, however, in spite of special help the student is unable to master the required material and receives more than two unsatisfactory marks at the end of the year, he must repeat the work of the grade. If he receives one or two unsatisfactory marks, he will be given assignments in the failing subjects to be completed during the summer and his promotion decided in the fall.

Not only backward students but students of outstanding ability are given special attention. The teacher will try, as far as possible, to encourage and develop natural abilities and talents. It is the usual thing for the teacher to give additional and individual assignments to the very good students as well as the very poor ones.

Classroom Work

A 7th grade geography lesson at school No. 27 in the city of Kazan may serve as an illustration of classroom work. The theme of the lesson is rivers of the East European plain.

The lesson begins with a study of the new material to be learned. The children are asked to find the largest rivers on the map, to trace their sources and to find which sea basins they flow into. The teacher then suggests that by using the scale of altitudes, they can calculate the approximate altitudes of the sources and find the lengths of the rivers by using a corresponding scale. A motion picture is then shown.

This is followed by a general discussion during which the teacher describes the rivers of the northern and southern parts of the East European plain and their use in the national economy. At the end of the lesson the children tell of their own observations of the Volga River, on whose banks their city is situated. They recall songs they have heard and poems they have read about this great river.

Continued on next page

IN VILLAGE SCHOOLS THE PUPILS LEARN NOT ONLY HOW TO OPERATE A TRACTOR BUT EVEN WHAT MAKES IT GO.

BEFORE THE YEAR IS UP, EVERYBODY WILL HAVE HAD A TURN WAITING ON THE TABLES.

FIFTH GRADE SHOP CLASSES ARE FOR BOTH BOYS AND GIRLS. THEY WORK WITH WOOD, METAL AND WIRE.

A WEALTH OF EXTRACURRICULAR ACTIVITIES COMBINE RECREATION WITH LEARNING.

THEY ADD QUITE A BIT TO THEIR CLASSROOM KNOWLEDGE AT THE BOTA

THE SOVIET SCHOOLS

Continued

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Here is a 10th grade physics lesson given at secondary school No. 23 in the town of Vladimir. The lesson begins with a quick review of uniformly alternate motion, acceleration, the formula for deriving velocity and distance covered during uniformly accelerated motion, and Newton's laws. It is followed by laboratory exercises.

The teacher then asks a series of questions which require that the students explain a new physical phenomenon using the laws they have studied: "To what altitude did our second sputnik ascend? What was its velocity at the moment of launching? What velocity did it have at the moment it went into orbit?"

After the students give the answers, the teacher asks that they determine the time it took the rocket to reach a given altitude and the value of its acceleration. The students set about their calculations.

Valeri Kalachikhin has the answer first. "The rocket's acceleration," he says, "was 20 meters per second every second."

Nikolai Litvinov, another student, has calculated that the rocket reached the given altitude of 1,600 kilometers in 400 seconds.

Both answers check with those of the other students.

The teacher says: "Let's think about the figure we've arrived at for the high acceleration reached by the sputnik. Where do we have such great accelerations? What can these accelerations be compared with?"

The students answer that the acceleration of the sputnik was more than twice the acceleration of the earth's gravitation.

"Very good," says the teacher. "We solved the problem we set ourselves but there are some slight inaccuracies in the answer. What are they?"

Students Volkov and Zhiltsov raise their hands.

"When we solved the problem we assumed that the sputnik was flying along a straight path. Actually the direction of its flight changed."

"We did not take into consideration the changing resistance of the air. We assumed that the acceleration was uniform throughout."

"True," says the teacher. "As a result the figure is somewhat different from the accepted one." He asks another question. "Once the sputnik entered its orbit, how did the sputnik continue flying around the earth without engines?"

"The property of inertia kept the sputnik moving," answers a student.

"Let's recall what inertia is and Newton's first law of motion," continues the teacher. "Is inertia always a helpful property? When would we be able to reduce the speed of an airplane if we wanted it to land safely?"

"We could have air brakes. . . . Increase the head resistance. . . . Use a rocket thrust to retard motion. . . . Open parachutes." These are some of the answers elicited.

The lesson is concluded with a motion picture which explains Newton's first law.

The Teacher

More than 1,800,000 teachers are employed in the schools of the Soviet Union. All have had pedagogical training.

ASPIRING YOUNG WRITERS READ AND DISCUSS EACH OTHER'S WORK AT A MEETING OF THE LITERATURE CLUB.

FT DESIGNERS OF THE FUTURE MAKE INTRICATE MODELS AND FLY THEM TOO.

THE STUDY OF HISTORY IS GIVEN DEEPER MEANING BY FREQUENT TRIPS TO MUSEUMS.

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he teacher's salary scale is equal to that skilled engineer, with periodic increments. eacher with 25 years of service receives, in ition to his salary, a bonus amounting to per cent of his salary. There is a two-nth paid vacation.

Teaching is a highly respected vocation in Soviet Union. More than 122,000 teachers deputies to the national and republican islatures and the city, town and village ncils. More than 270,000 teachers have n awarded medals for merited service or tributions to pedagogical theory and prac-e.

Look into the Future

There can be little doubt that Soviet prog-s in science, technology and the arts owes ch to the scope and quality of the country's educational system. But the pace of this progress makes ever greater demands upon the school for even better trained, more broadly educated workers and citizens. There is consequently a continual search for ways and means of improving curriculum, teaching methods and school organization.

This search is not confined to specialists in pedagogy. Since the quality of the school so profoundly affects every area of living, everyone discusses school problems—parents, teachers, scientists, industrial and farm workers.

Widespread discussion is going on now with regard to such educational problems as how better to prepare school graduates for professions and trades; how better to achieve an integration of classroom and production work, of general and polytechnical education.

It is too early to predict the results of this nationwide consideration of current school problems. Proposals are legion, and experimentation going on now will unquestionably bring changes.

Education cannot be static; it must be ever receptive to the new thoughts and new approaches that new times inevitably bring. That is the main guiding principle of the Soviet school. ■

This is the first of a series of articles on Soviet education. Next issue: *Colleges and Universities.*

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U.S. EDUCATORS Inspect Soviet Schools

FOUR DELEGATIONS of American educators visited the Soviet Union this past summer as part of the USA-USSR cultural exchange program. Soviet educators will visit the United States this fall.

The most representative of the American delegations was composed of ten leading U. S. educators interested in observing various aspects of the country's education program. They visited all types and levels of schools and extracurricular educational facilities in various cities. The guests had conferences with officials of the Ministry of Public Education and the Academy of Pedagogical Sciences of the Russian Federation and the USSR Ministry of Higher Education.

Summing up the delegation's four-week stay in the Soviet Union, its head, Dr. Lawrence Derthick, U. S. Commissioner of Education, said that all the members were amazed to find out how little they knew about the Soviet system of education. He went on to say: "This once again emphasizes the great importance of cultural exchanges in all spheres. We can learn a lot from each other. We can make use of some of the experiences of Soviet educators, and the delegation of Soviet educators which is to come to the United States on a reciprocal visit will also learn a lot from their trip.

"During our visits to schools we saw that Soviet children and teachers strive to learn more about other countries. This is evident from the correspondence they carry on with the children of many countries and the exhibitions they exchange. I hope that similar ties are established between the children and teachers of the USA and the USSR. This will be another channel for improving relations and mutual understanding between our countries."

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AMERICAN EDUCATORS INSPECT THE GEOLOGY DEPARTMENT OF MOSCOW UNIVERSITY.

A RECEPTION FOR THE AMERICANS AT THE ACADEMY OF PEDAGOGICAL SCIENCES.

MEETING VALENTINA SHATSKAYA OF THE CHILDREN'S ART RESEARCH INSTITUTE.

BETWEEN EXAM SESSIONS COLLEGE STUDENTS CLUSTER ABOUT ONE OF THE GUESTS AND PLY HIM WITH QUESTIONS REVEALING SPECIAL CURIOSITY TYPIFYING YOUTH.

HELEN MACKINTOSH IS INTERVIEWED BY STAFF MEMBERS OF A STUDENT NEWSPAPER.

LAWRENCE DERTHICK MEETS STUDENTS OF MOSCOW'S TEACHERS TRAINING INSTITUTE.

VYACHESLAV YELYUTIN (CENTER), USSR MINISTER OF HIGHER EDUCATION, WITH EDWARD LITCHFIELD, HEAD OF THE UNIVERSITY PRESIDENTS DELEGATION, AND HARRY GIDEONSE.

U.S. EDUCATORS

Continued

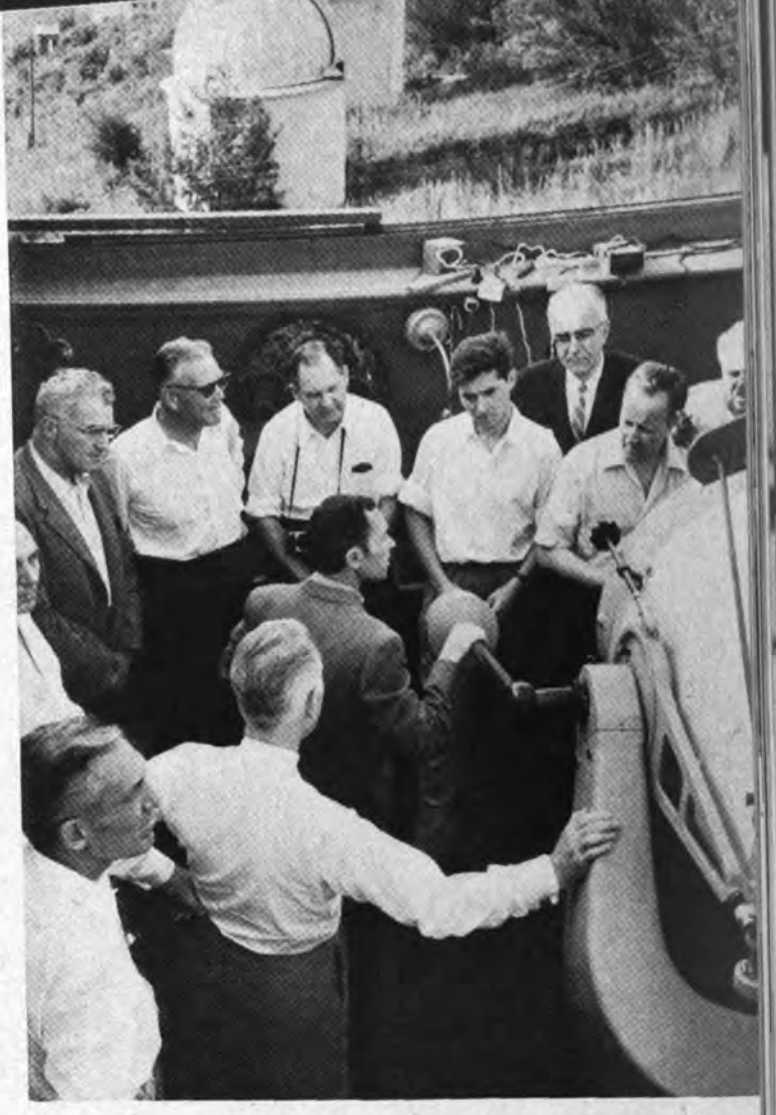
Of the three other delegations of American educators that came to the Soviet Union to get acquainted with its educational facilities, one was composed of university presidents and the other two of professors and instructors in the fields of liberal arts and natural sciences. Edward Litchfield, President of the University of Pittsburgh, headed the delegation of university presidents. Commenting on what they saw, he cited Kazakhstan as an example:

"We were amazed by the tremendous progress of the Kazakh people who only forty years ago were illiterate and now have not only college-trained specialists but scientists as well. I have traveled a good deal, but nowhere have I come upon so many people working for doctorates. All modern sciences are represented in the Kazakh Academy." ■

U. S. GUESTS INSPECT EQUIPMENT AT A MOSCOW MACHINE-BUILDING SCHOOL.

AMERICAN UNIVERSITY PRESIDENTS VISIT THE LIBRARY OF A JUNIOR COLLEGE.

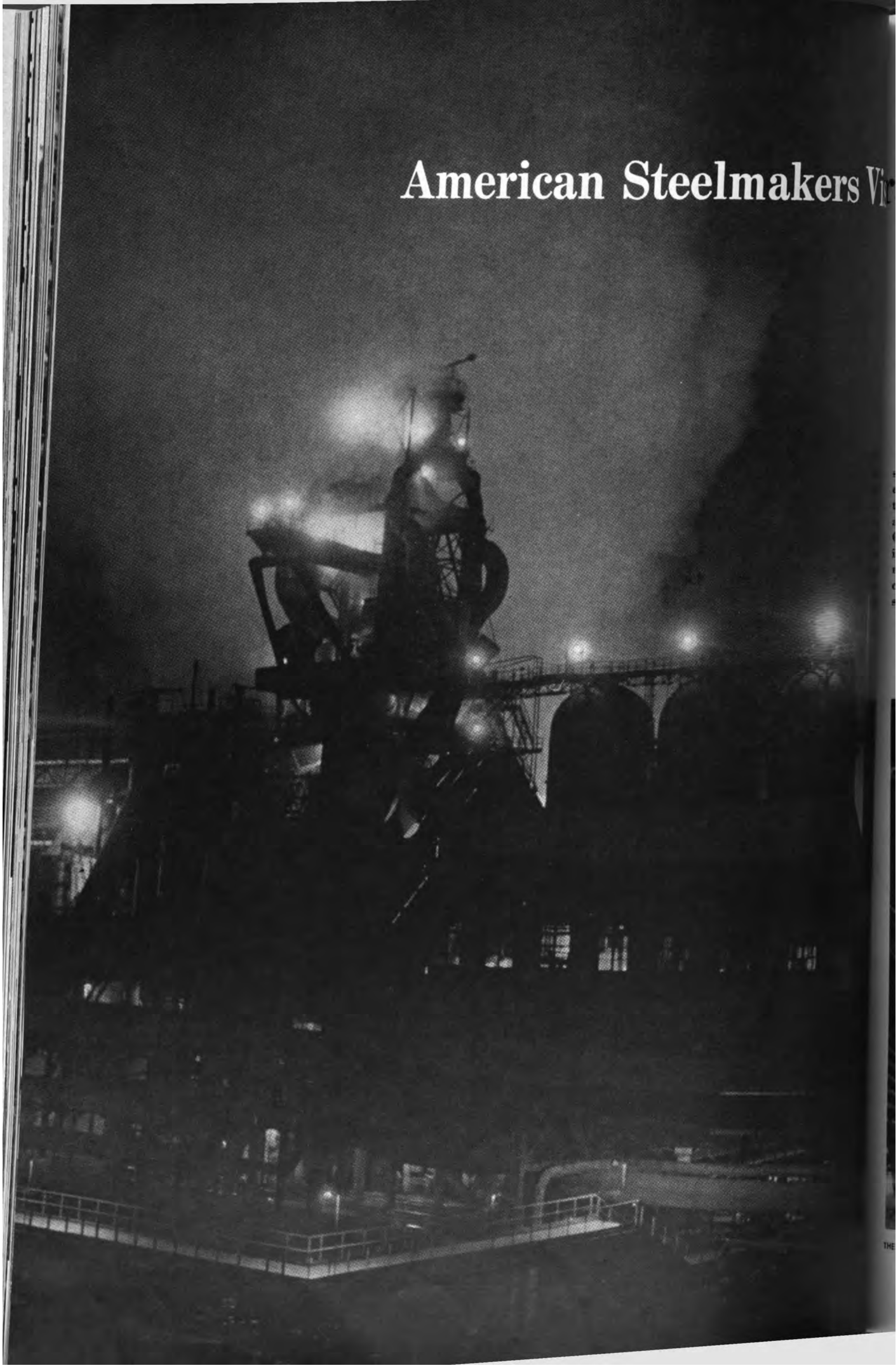
RECEIVING A GIFT FROM SAKSAGAN BAISHEV, VICE PRESIDENT OF THE KAZAKH ACADEMY OF SCIENCES.



AT THE KAZAKH ASTROPHYSICAL INSTITUTE'S OBSERVATORY.

CONFERENCE WITH PROFESSOR TEMIR DARKAMBAYEV, RECTOR OF KAZAKH UNIVERSITY, TOUCHED ON VARIOUS PHASES OF REPUBLIC'S EDUCATIONAL AND SCIENTIFIC WORK.

American Steelmakers Vi



rals Plant

By Yuri Grafsky

Nineteen American engineers, research workers, economists and specialists in the ferrous metal field visited the Soviet Union as guests of the Science and Technology Committee of the USSR Council of Ministers. These American iron and steel experts toured the main metallurgical mills and plants and became acquainted with the work of research centers in Moscow and Leningrad.

THE AMERICAN IRON AND STEEL EXPERTS WERE HEARTILY GREETED BY WORKERS OF THE MAGNITOGORSK MILL.

THE VISITORS FROM THE USA FIRST INSPECTED THE RECORD-SETTING BLAST FURNACE.

THE MAGNITOGORSK Iron and Steel Mill in the Southern Urals was one of the first to be erected in the dawn of industrialization of the Soviet Union in the early thirties. Since then the plant's capacity has steadily increased and yearly reports showed it marking up higher production totals. When it was announced that Magnitogorsk's blast furnaces had succeeded in smelting 250 metric tons at a single melt, American engineers who helped in the construction of its first furnaces simply refused to believe such productivity was possible.

Tour of the Magnitogorsk Mill

And now a group of American iron and steel experts came to Magnitogorsk to see for themselves. They were met by Feodosi Voronov, director of the mill. He told them that "the Magnitogorsk mill embraces eight blast furnaces and 28 open-hearth furnaces. The average volume efficiency of blast furnaces is 0.63. The steel smelters obtain about nine tons of metal per day for each square meter (10.763 square feet) of open-hearth space.

"Production keeps increasing constantly," Voronov continued. "In 1957 we produced 1.5 times more cast iron, 37 per cent more steel and almost 35 per cent more rolled metal than in 1952. By 1965 the volume of production will reach even higher levels: we shall turn out 48.2 per cent more steel and 43 per cent more cast-iron than last year, while the production of rolled metal will be up by 1.5 times."

After the "theoretical" part of the visit had concluded with the director answering questions, the American guests were conducted on a tour of the mill. From the mining district where the ore is extracted by the open-cast method, they went to the agglomeration factory. Some of them took samples of caked agglomerate from the conveyor and Michael Holowaty commented: "Very good. The whole factory reflects efficient operation."

The visitors reached the blast furnaces just as the men were ready to cast the iron. The Americans gathered to watch the process they had come so far to see. Was it really true that Magnitogorsk furnaces had

Continued on next page

American Steelmakers Visit a Urals Plant

Continued

THE GUESTS WATCH A BLOOMING MILL IN OPERATION FROM THE CONTROL ROOM.

such a huge efficiency? One by one the great ladles were filled until there were four and a half, which added to exactly 250 tons.

"This is excellent," said Earle Smith, one of the delegation, "and is another proof that you have done a fine job in organizing production."

The visitors were also impressed by other shops of the plant. They lauded the open-hearth workers on the quality of their steel. Of particular interest for them was the method of pouring out the steel with a double ladle. Stephen Jenks, a vice-president of the U. S. Steel Corporation, praised the fine state of the mill's equipment and the perfect order in which the shops were maintained. Commenting on the use of chromomagnesite brick in the open-hearth furnaces, he said: "This brick is essential for the length of service of furnaces. And we don't have such raw material at home."

The Americans walked from one shop to another, stopping at each new machine to ask questions. They were interested in everything. They wanted to know the results of high-temperature blasting and the effectiveness of using hot agglomerate. They were very attentive as Ivan Sagaidak, head of the blast furnace shop, explained the system of repairs. Here they found out that Soviet blast furnaces have an operational life about twice that of furnaces in the United States.

Questions and Answers

As the Americans toured the Magnitogorsk shops, they, too, had to answer lots of questions. Floyd Eckhardt, for example, explained the method of oblique rolling that is widespread in American plants. Detailing this method, he traced a diagram and gave it to Valentin Kozhevnikov, chief rolling mill expert at Magnitogorsk.

"This is very interesting," said Kozhevnikov, thanking his colleague. "We'll be glad to try your method."

It went on this way throughout the visit, the American and Soviet iron and steel experts sharing experiences and becoming better acquainted. When Stephen Jenks learned that Foreman Grigori Kubov had spent 36 years in the industry, he firmly embraced him, saying:

"I've also been working in metallurgy for 36 years. And we'll smelt a lot more steel, old man, won't we?"

From the shops several members of the party moved to the office of Vasili Kiselyov, chief engineer of the Magnitogorsk mill. John Stephens wants to know how rapidly the number of workers increases.

"About 1,500 people a year," Kiselyov replies. "That's mainly because we are expanding production. Another reason is the transition

BLAST FURNACE HEAD IVAN SAGAIDAK REPLIES TO QUESTIONS ABOUT PRODUCTION.

to a seven-hour workday and forty-hour week, which started a year ago."

"Suppose I wanted to work here," Stephens says. "What would I have to do?"

"Well," Kiselyov replies, "let's go to our personnel department and find out."

Boris Buivid, head of the personnel department, met them in his office.

"Mr. Stephens would like to know how to get a job here," Kiselyov explained following the usual introductions.

"If this is your first job, you'll have to fill out a short questionnaire, giving your name, age, address and trade. A person who has worked before presents his work-book, which contains all the data we need. We took on twelve workers today. If Mr. Stephens decides to take a job, he will be No. 13."

"But suppose my specialty doesn't fit your needs?" Stephens asked.

"Don't worry about that," Buivid said, smiling. "In most cases we accept people who are not specialists, but they readily acquire a specialty right here at the mill. We operate our own vocational school and also offer on-the-job training courses for new workers. In addition we have courses where some seven thousand workers improve their skills each year. They study new equipment and all the innovations in iron and steel production."

One of the visitors wanted to know how much this instruction costs a worker.

"Nothing," was the reply. "On the contrary, every novice gets an apprentice wage of about 300 rubles a month."

Kiselyov next invited the guests to see the polyclinic, which provides free medical service for the mill workers. It also puts all workers through periodic examinations and this has helped to eradicate occupational diseases such as silicosis. The day's tour of the mill was concluded in the workers' cafeteria of one of the shops.

Summing up the impressions of the tour, John Stephens said: "It is apparent that everything needed for the workers is provided here, and that's why they're doing such a good production job."

At the Workers' Club

In the evening the Americans visited the Palace of Culture of the Magnitogorsk iron and steel workers, which was built at the same time as the mill. The performance opened with a symphony orchestra on the stage. All its members were workers and many of them had spoken to the visitors during the tour.

The first number was a rendition of Franz Schubert's *Unfinished Symphony*. It was followed by vocal solos. Semyon Karmanov, a technician, sang a Urals folk song, then Valentina Kazanina, an employee of the executive offices, charmed the audience with her remarkable soprano. Accompanied by the orchestra and chorus, she sang the "Habanera" from *Carmen*. An amateur dance group concluded the program with national dances.

The American guests were pleased and applauded enthusiastically. When the curtain fell, they went backstage and thanked the performers. Shaking hands with Galina Karamysheva, chairman of the board of the Palace of Culture, John Stephens said: "It was worth traveling to the other end of the world to attend such a concert and listen to such a chorus and orchestra."

"We'll have to work pretty hard to keep up with you when your iron and steel delegation comes to the States," Mr. Merle Thompson added.

THE VISIT TO MAGNITOGORSK WAS NOT ALL MILLS, FURNACES AND PRODUCTION.

DR. MICHAEL HOLOWATY FOUND THAT THE AGGLOMERATE USED WAS OF TOP QUALITY.

The guests left the Urals the next day. Mr. Edward Ryerson, as chairman of the delegation, readily agreed to write a few words for *USSR* on his impressions. He was joined by Messrs. Jenks, Strassburger, Stephens and Vedensky. They wrote:

A Few Words for *USSR* Magazine

"Most important among our observations so far is the warm, friendly way the Russian people have received our delegation from the United States iron and steel industry. We have been greeted with the utmost cordiality everywhere, and the excellent entertainment of music and dancing given at Magnitogorsk was enjoyed by us all.

"Our brief visits to the iron and steel works of Chelyabinsk and Magnitogorsk have given us an excellent opportunity to observe the high quality of production being maintained at these plants.

"We have been impressed with the productivity of the furnaces, rolling mills, mines and all departments, and particularly the progress in new construction and the interest exhibited by the employees in their work.

"So far our trip has been most interesting, but it must be realized that the time we have been here is as yet far too short.

"We shall look forward to the time when we shall have the opportunity to entertain the representatives of the Russian iron and steel industry when they come to the United States.

"In this statement we are expressing the views of all our associates.

Edward Ryerson, Chairman
John Stephens, Industrial Relations
Stephen Jenks, Steelmaking
Julius Strassburger, Blast Furnace
Dmitri Vedensky, Raw Materials"

This comment serves as a sort of summing up of the visit of the American iron and steel men to the Urals, a visit that proved valuable to both American guests and their Soviet hosts. ■

INSPECTOR NIKOLAI KOZIENKO (LEFT) CHECKS CONDITIONS IN THE CONTROL ROOM.

SAFETY Is My Job

As told by Nikolai Kozienko

I WORK as a crane operator in the rail-and-beam department of the Nizhni Tagil Iron and Steel Mill in the Urals. Four years ago I was elected a voluntary safety inspector by the trade union group of crane operators. There are 44 voluntary safety inspectors in my own department and 1,200 in the whole mill. Our job is to keep a weather eye on labor protection and safety.

Why so many? To cover every possible source of accident, to think up ideas that will make for better and healthier working conditions. No one is better equipped to do that than the men who actually work on the job. They know the shop and its problems and they know the production process. They know best what will make their jobs, and everybody else's, easier and healthier.

The plant is gone over periodically by government safety inspectors besides. We work with them closely to see that ventilating systems are operating efficiently, that safety devices are properly installed, that workers in hot shops are protected by water curtain arrangements and that a hundred and one other safety and health measures are in operation. No plant is allowed to operate unless it comes up to labor protection standards.

Safety measures add to costs and are often expensive, but the protection of workers is our most important job and no task holds a higher priority. In my own department, which has several thousand workers, the number of accidents on the job was reduced by 50 per cent last year. In 1956 there were approximately four accidents per 1,000 workers, and last year there were only two. The number of sick days have also been cut from a total of 2,300 days in 1956 to 550 days in 1957.

Clauses regulating safety, health and working conditions make up a sizable part of the yearly union-management contract.

Our contract, or collective agreement, as we call it, indicates general safety standards to which the management is required to conform. It stipulates particular safety measures which must be included in shop reorganization programs. It even specifies in detail that the manage-

"Safety glasses must be worn, not carried in your pocket," insists Dr. Serafima Dyagileva, who is making regular rounds with the safety inspectors.

Nothing escapes the eagle eye of the inspector, and if he finds that the safety guards are not working properly, he stops the machines at once.

ment provide workers with special clothes and footwear. But no agreement can provide for every detail. That is where we voluntary inspectors step into the picture.

The mill appropriates several million rubles a year for safety measures and improved working conditions. In my department the sum allocated last year was 32,000 rubles. But when additional measures recommended by the trade union safety inspectors had been carried out, it was found that actually 146,000 rubles had to be spent by the management.

What I Do

Ivan Bazhin works a crane which brings ingots to the soaking pit. He is a healthy, strapping fellow, but last year, in hot weather, he kept coming down with one cold after another. The doctor couldn't figure out why, and neither could Bazhin. I watched him working for a while and there it was—a simple enough reason. When his crane moved near the soaking pit, Ivan was in a spot where the temperature hit 160 degrees; when he moved away, he was right in the middle of a stream of cold air. No wonder he had colds.

I went to the department superintendent and told him about it. My recommendation was that the crane cab be glassed in. This suggestion was adopted, and soon after all the crane cabs were glassed in and provided with asbestos curtains.

Mostly it's a matter of knowing your job well enough to figure out what the accident possibilities are. Take this one: Once I happened to be in a situation where I had to stop the crane cantilever suddenly. The knife switch was located on a platform over the cab. That meant I had to waste precious time to get out of the cab. It was no problem at that particular time, but it occurred to me that in an emergency situation this might mean just the difference between an accident and none.

I talked it over with the other crane men and everybody agreed that the switch was badly placed and should be inside the cab, near at hand. When the labor protection and safety part of the union agreement was being discussed with the management in a shop meeting, I proposed that the switch be shifted. The other crane operators supported my proposal and a special clause to that effect was written into the contract. As a result all switches were gradually shifted inside the cabs.

Continued on next page

SHOP SUPERINTENDENT GUBERT MEETS REGULARLY WITH THE SAFETY INSPECTORS.

Inspector Victor Labetsky puts his demands before the management.

Safety in the furnace department is steelworker Andrei Turanov's job.

Inspector Ivan Deryabin requested changes that would bring drinking water directly to the workbenches.

Fitter Pyotr Vasin, crane repairs section inspector, insists that the control of the cranes be simplified.

SAFETY Is My Job *Continued*

All our safety inspectors work along these same lines. Vasili Alexeyev and Pyotr Zhidelyaev, who are rolling mill operators, spent some time looking into the control cabins from which the rolling mills are operated. They felt that more could be done to guard against sharp temperature fluctuations in the cabins. First, health was involved, and second, efficiency. So the safety inspectors proposed that in addition to the air-conditioning, which was already there, all control cabins be equipped with double walls and that the capacity of the water-cooling system be increased. The suggestion is now being put into practice.

Health Inspection

Another of our jobs is to work with the medical station in each of the departments. Our shop doctor is Serafima Dyagileva who has been working with us for three years and knows the shop problems as well as we do. When the safety inspectors make the weekly rounds of the department, she always joins us.

Each worker gets a free medical examination every six weeks. Our department medical station is equipped not only with first-aid materials, but is set up like a full-scale clinic. Dr. Dyagileva gives vaccinations, injections, heat therapy. She has regular visiting hours daily, both at the department station and at the big polyclinic attached to the mill. The polyclinic has 40 offices equipped for treatment of all kinds of ailments.

With Dr. Dyagileva, we inspectors also supervise the department cafeteria. We see to it that the menu is nutritive and varied and that it meets the standards recommended by the Nutrition Institute of the USSR Academy of Medical Sciences.

On the initiative of our safety inspectors, the union shop committee asked the workers for ideas and suggestions on improving safety. We got more than 300 responses and a committee made up of five representatives of management, three members of the union shop committee and nine safety inspectors was chosen to look them over.

The committee approved 166 of the proposals. Many of the less complicated ones were put into operation immediately. Among them was the suggestion of Yevgeni Tokmakov, rolling mill operator, that the control post of the roll-straightening machine be raised three or four feet to provide better visibility. Similarly, the size of the guard at the saw cutting the beams was enlarged at the suggestion of Fyodor Sklyarov, the saw operator.

Other suggestions, although valuable, need considerable work, like the proposal of Oleg Kostylev on better sound insulation for the operators' cabins. He is now working with engineers from the mill's designing office on the preparation of drawings.

We Have Our Problems

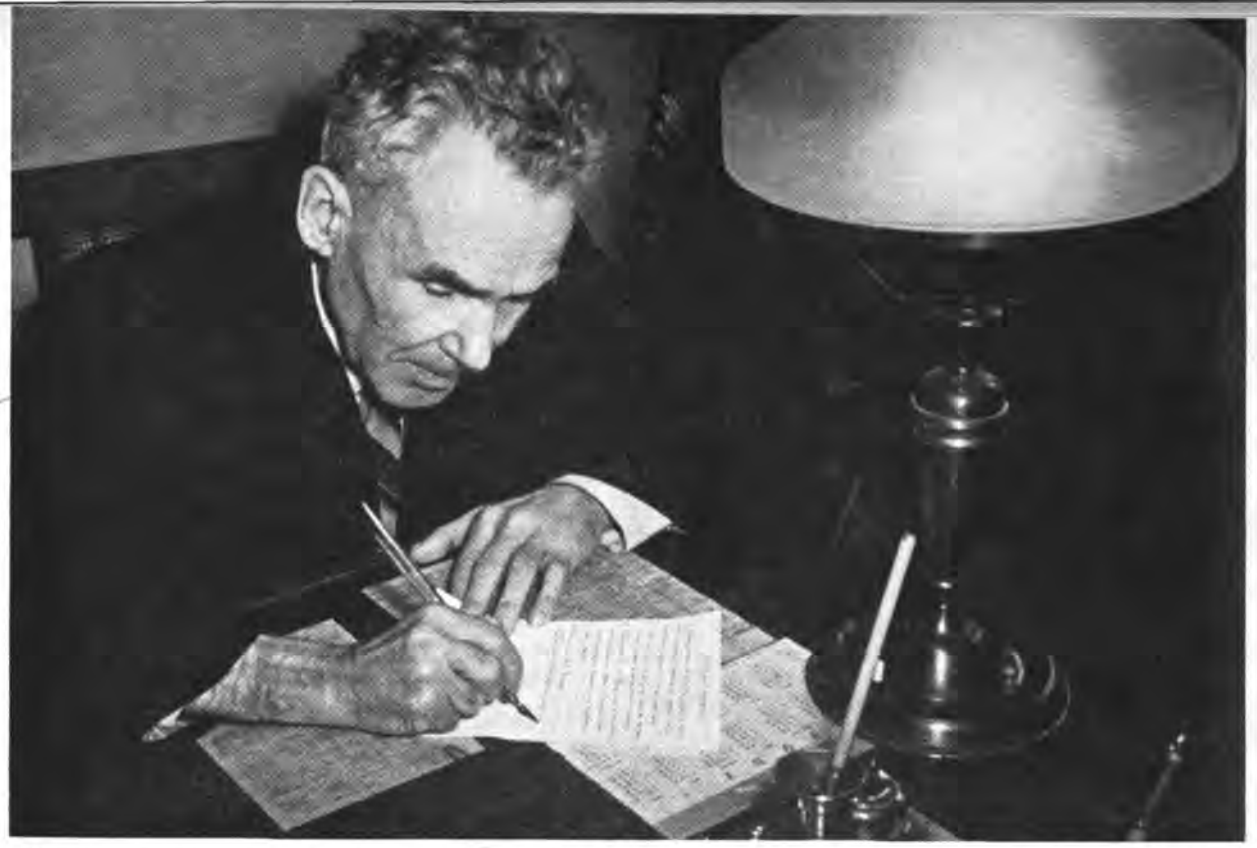
I don't want to give the impression that we voluntary inspectors always get immediate cooperation. We have our difficulties. And there are times when we have to ask our union shop committee to intervene in order to make the management aware of its responsibilities.

Every month the department superintendent reports to a meeting of the committee on progress on agreed labor protection and safety measures. And every so often the minutes of the meeting record the fact that some section heads are better at promising things than they are at getting them done.

Boris Mordukhovich, assistant superintendent, was once called on the carpet by our union committee. One of the safety inspectors had reported that the ventilation system in the resharpening room was inadequate, the dust content in the air was higher than permitted under standard health requirements. The management promised to take care of it within a specified time. But the time passed with nothing done. The union committee laid down the law to the management, and within a month a new 40,000-ruble ventilation system was functioning.

Had the management continued to hold off, the shop committee would have gone to the Central Committee of the Metallurgical Workers' Union to ask that those guilty of the neglect be fined. But these situations are rare. The overwhelming majority of our safety inspectors' proposals and recommendations, once approved by the trade union, are put into effect—and very speedily. ■

THE MEN WERE NOT THE LEAST BIT SORRY WHEN A NEW ELECTRONIC CONTROL IN THE RAIL AND BEAM ROLLING MILL MADE SAFETY INSPECTION UNNECESSARY.



TEXTILE WORKER SERGEI BEZENOV HAS BEEN WRITING ABOUT HIS TRADE FOR SOME 35 YEARS. BELOW ARE 14 OF HIS 15 BOOKS.

EI BEZENOV lives in the city of Ivanovo, one of the oldest sian textile centers. For some 35 years his avocation has been . He is the author of many articles and books on the machinery hnology of the textile industry. Bezenov celebrated his sixtieth y in 1956, and to commemorate the anniversary the Ivanovo al Publishing House presented him with the first press copy of enth volume.

Bezenov is not a professional writer. He is a hereditary textile and has spent 50 of his 62 years at the looms of mills in his town. From 1927 until his recent retirement, Bezenov worked at ix Dzerzhinsky Mills, a big spinning and weaving plant.

eat of a worker's writing fifteen books and having them published at all unusual. Many workers in Soviet industry and agriculture t down their experiences in book form, helping to increase pro- ty and to save novices from mistakes. There is no effort to hoard dge anywhere and this practice of sharing experiences and ions is widespread and includes engineers and scientists as well strial and agricultural workers.

nov began writing about the time he graduated from a textile al school which he had attended while holding his job as an nt foreman. First he contributed articles to the Ivanovo newspaper *ii Krai* and the metropolitan papers. The readers liked them im- ely, and wrote him letters—even argued with the author. But ally they asked for more of his experiences and methods of work. how his first book *Weaver's Notes* came about.

volume sold well and the author, thus reassured, sat at his desk vening to do some writing. To help young textile workers learn the British-made Platt weaving looms, which were very popular in rties, Bezenov wrote his book *Platt Weaving Loom*. Soon it be- study guide for factory trade schools.

r Bezenov became one of the regular authors of the Ivanovo al Publishing House and the Moscow Technical Publishing which issue books dealing with the textile industry. He re- offers to write on other industrial topics, but he was wary of contracts with publishers. He made a careful study of machin- d analyzed the experiences of front-rank workers in his industry. e passed he became a popularizer of the best production methods the factories of his town. Six of his books deal with this subject. ould be difficult to find a textile worker in Ivanovo not acquainted ezenov's books. "I regard this as the highest praise of my literary ies," the old weaver once said.

ay Sergei Bezenov has retired. His pension is sufficient to assure tranquil and pleasant life, but he continues to write and is full ns for new books. ■

FIFTEEN BOOKS BY A TEXTILE WORKER

Expanding Consume

By Georgi Yuryev

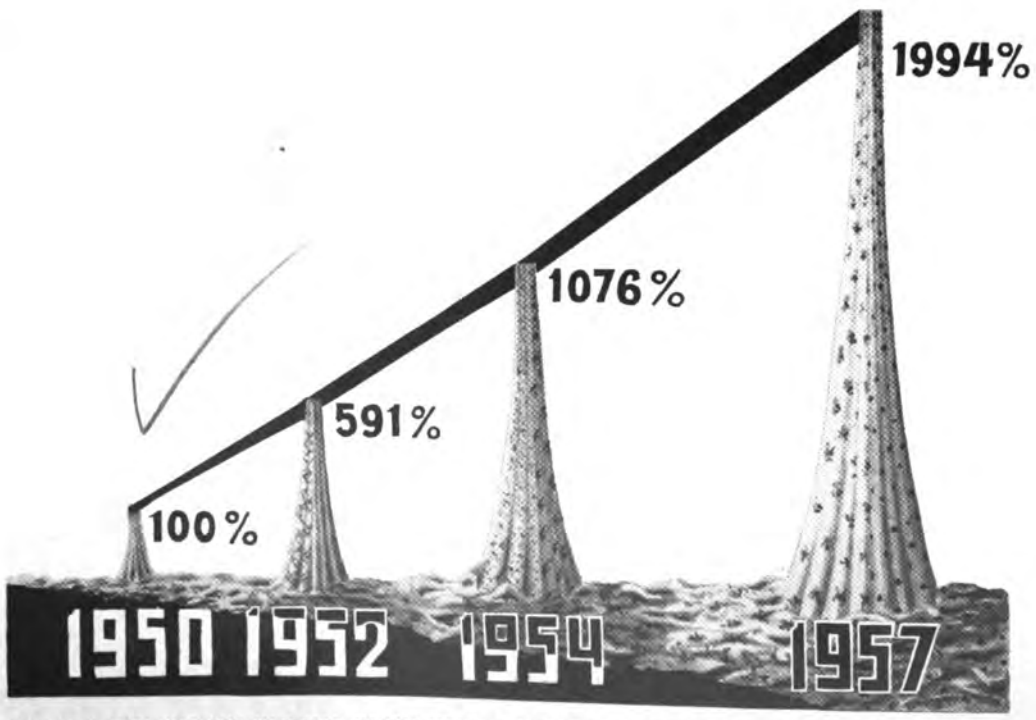


DIAGRAM SHOWING THE INCREASE IN THE VOLUME OF PRODUCTION AT KALININ SYNTHETIC FIBER MILLS.

WOVEN chemicals—rayon and other fabrics made of synthetic fibers—are the newest products of the old Russian textile city of Kalinin, with many of the old cotton and silk specialists working with the young chemists on the production of yarn made of wood pulp.

Around the big Synthetic Fiber Mills has grown up the Novopromyshlenny (New Industrial) District, with wide streets which have not yet been named and with new buildings in all stages of construction. The new district is destined to become one of the major Soviet and perhaps world centers for synthetic fabrics.

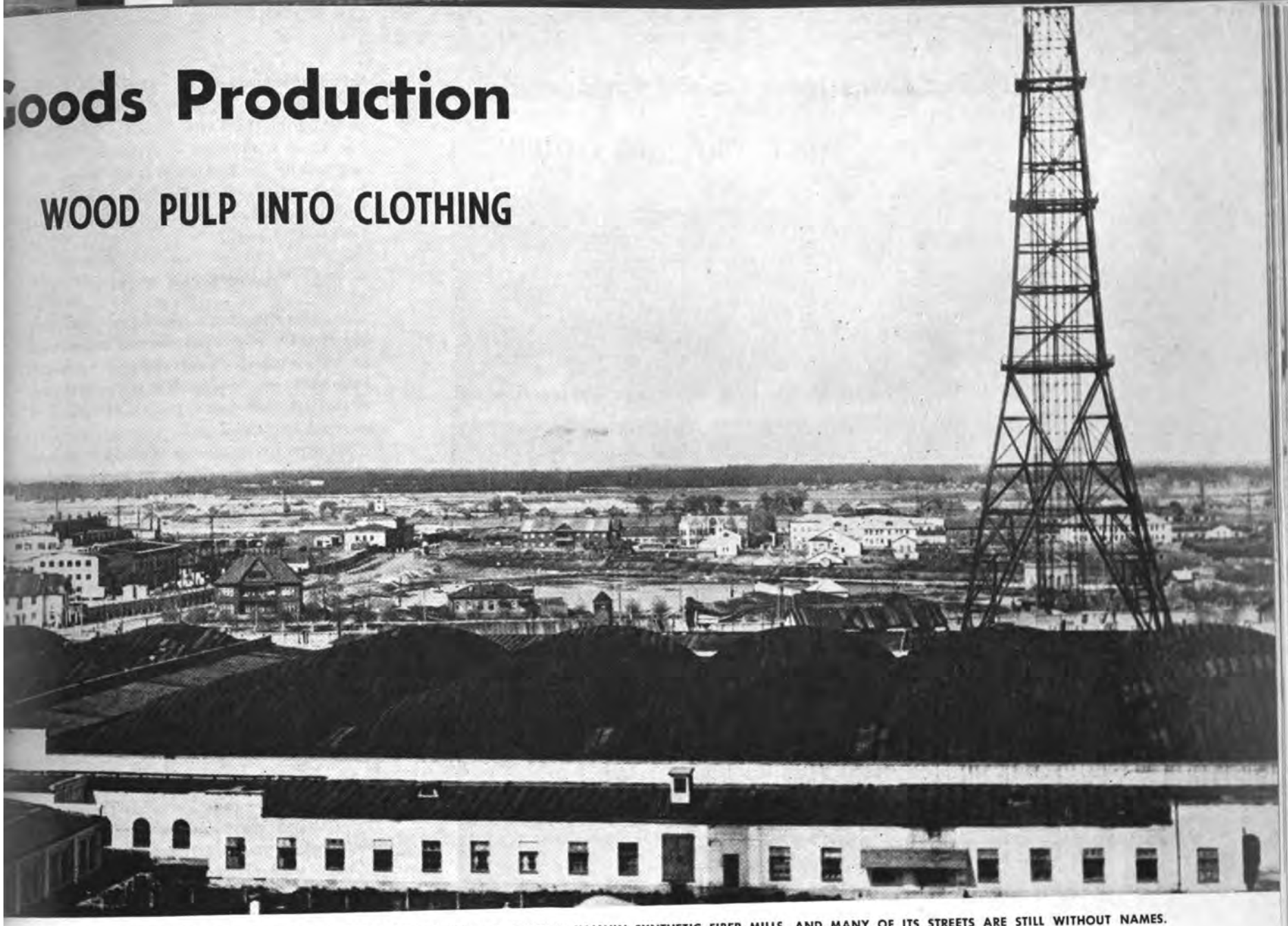
Kalinin adjoins the northern lumber regions and is conveniently close to both the big textile centers—Ivanovo, Orekhovo-Zuyevo and other central Russian cities—and to such highly industrialized cities as Moscow and Leningrad, with their great consumer markets. The new district is thus a centrally situated link in the chain from wood pulp—to rayon yarn—to woven fabric—to manufactured garment—to consumer.

Kalinin's rayon yarn, stronger and richer than natural silk yarn although produced at a fraction of the cost, goes to 270 textile mills. Rayon fabrics woven of Kalinin's yarn are famous throughout the country and sell out in the stores very quickly.

It was no small operation—building the

Goods Production

WOOD PULP INTO CLOTHING



AN ENTIRELY NEW DISTRICT OF THE CITY IS RAPIDLY GROWING UP AROUND KALININ SYNTHETIC FIBER MILLS, AND MANY OF ITS STREETS ARE STILL WITHOUT NAMES.

new giant Kalinin fiber mills. A rapid pace was set for construction and two years after the first stump had been pulled out to clear a site for the beginning section of the mill, the first lot of rayon fiber was turned out. Soon after, the plant to produce the carbon disulphide which is required to treat the yarn was commissioned, followed by completion of the cord mill. In 1954, the mill for the production of staple rayons was operating—a giant of a mill by itself.

Most Modern Equipment

The mill machinery and equipment, installed only five or six years ago, is constantly renewed or changed, as the chemical engineering industry works out more modern methods for the manufacture of synthetic fiber. More and more automatic and semi-automatic machines have been installed each year, with a resulting boost in production of almost twenty times over in the last seven years. Now in one day the Kalinin mills turn out enough yarn to weave more than 435,000 yards of fabric.

The mills are equipped for the most part with Soviet-made machinery. But they also have a good deal of imported equipment. Five Nelson combines for continuous silk spinning made by the British firm of Dobson and Barlow were imported recently. A number of

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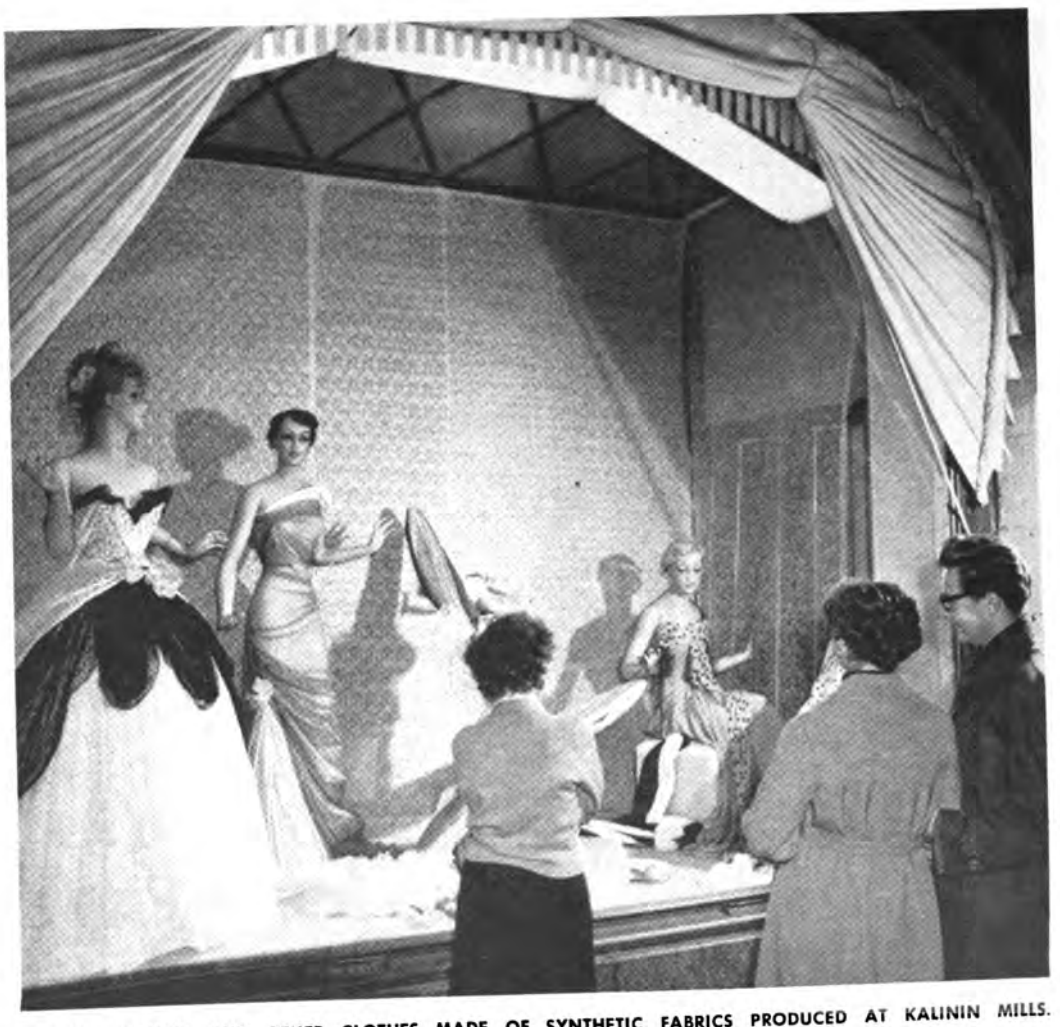


EVENING GOWNS AND OTHER CLOTHES MADE OF SYNTHETIC FABRICS PRODUCED AT KALININ MILLS.

Expanding the Consumer Goods Production

WOOD PULP INTO CLOTHING

Continued

HIGH SCHOOL GRADUATE ANNA KARKAN LEARNED HER TRADE AT THE MILLS' VOCATIONAL SCHOOL.

spinning looms and an electric furnace for the production of carbon disulphide were bought from the Swiss Company of Maurer. The latest acquisition is a twining machine supplied by the Belgian firm of Charpentier. In the past few years the Kalinin mills have bought more than two billion rubles' worth of foreign equipment.

Training Skilled Workers

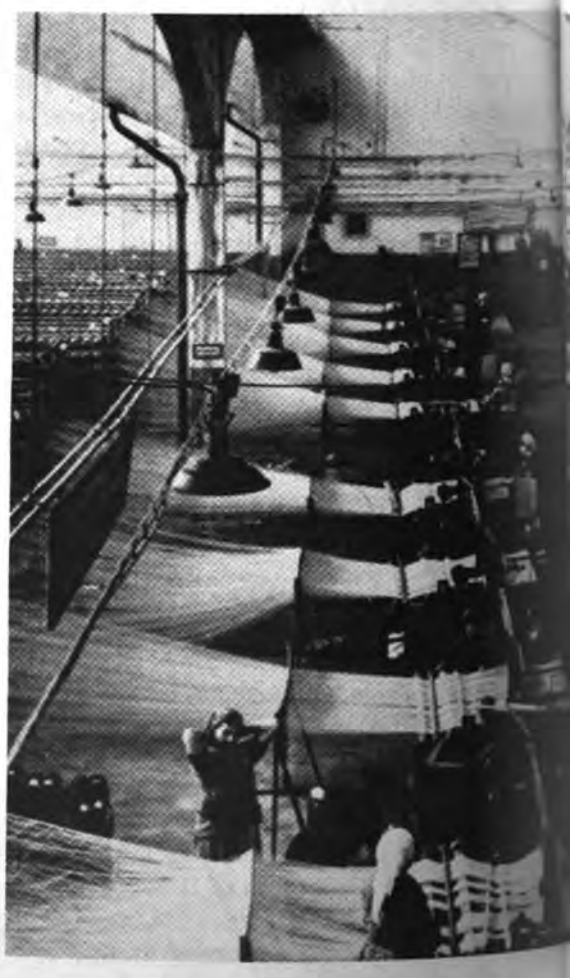
As new processes developed and new equipment was installed the mill had to train its own workers. Some 400 young people have been coming to work at the mills in each of the last three years, and all of them have received free training.

The plant has its own vocational school—one of 3,200 spread throughout the country. Most of the students who attend it are high school graduates. The course of study covers the technology of fiber production which involves a good theoretical background; machinery and equipment; safety engineering and labor protection. A good deal of time is devoted to practical training in the mill shops.

Older men who are past the age limit for entrance to vocational school and have had no experience in the trade take a six-month course of training which covers the principles of synthetic fiber technology and machine operation.

All training is given free and new workers are paid a wage while learning. The instructors—mill engineers and technicians—receive additional payment for teaching.

Every year about 1,300 of the workers take the courses offered by the mills to advance their skills and to qualify for better-paid jobs. This system of training permits large-scale changes in equipment and ma-



chinery to take advantage of the latest technological developments without costly readjustments in personnel or expensive stoppages in production.

Future Growth

Growing consumer needs for textiles, garments, and other manufactured goods have been responsible for the rapid growth of the synthetic fiber industry. This also accounts for the special emphasis upon speeding production so as to satisfy increased consumer demand for these commodities within the next five or six years.

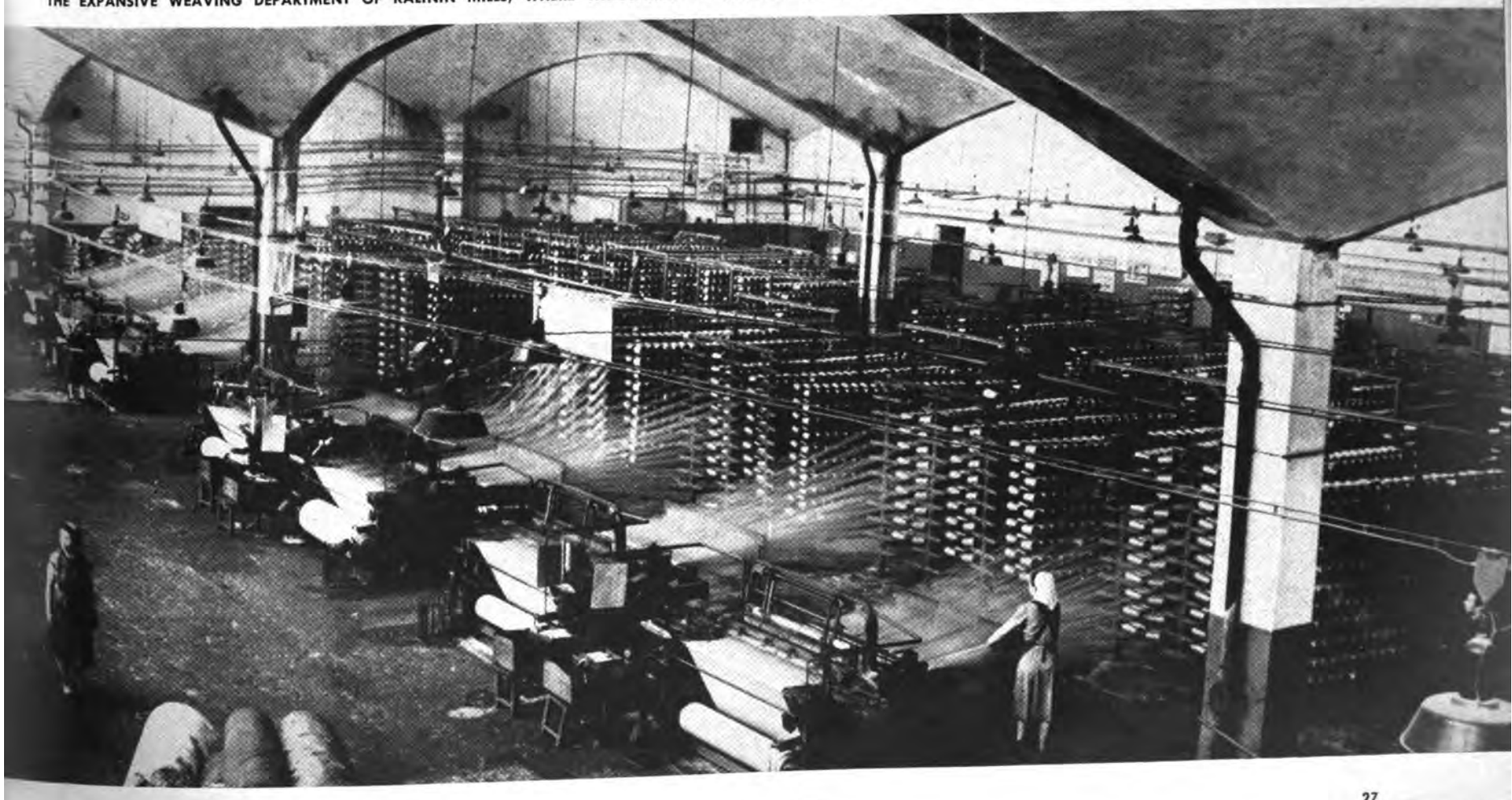
The production goals envisioned for the chemical industries as a whole—including synthetic fiber production—are very high. But if one is to judge by the present rate of progress, they are thoroughly realistic.

Chemical production in 1957 was five times greater than in the prewar year 1940, but a still larger increase is contemplated within the very near future. For example, as compared with 1957, production of mixed cotton-and-rayon textiles is expected to increase sixfold and fabrics for suits tenfold by 1965. Annual production of woolens by that time is expected to reach more than 550 million yards as compared with 300 million for 1957. Fabrics produced from synthetic fibers will total more than 490 million yards—to surpass 1957 yardage by 75 per cent.

To carry this very large increase in synthetic fiber production, plans are to build 120 new factories and mills and to rebuild and modernize 137 old plants during the period 1958-1965. Within a few short years there will be great enterprises like the Kalinin Synthetic Fiber Mills in many other parts of the country turning paper pulp into yarn. ■

SCIENTIST BORIS GELLER WORKS AT THE MILLS' BRANCH OF THE ARTIFICIAL FIBER RESEARCH INSTITUTE.

THE EXPANSIVE WEAVING DEPARTMENT OF KALININ MILLS, WHERE THOUSANDS OF SPINDLES OF THREAD ARE CONVERTED INTO BOLTS OF FINE ARTIFICIAL FABRICS.



A Wonderful Play about a Wonderful Fish

By Miroslav Murazov

AN audience of charmed youngsters laughed with the hero, hissed the villain and applauded every twist and turn of the plot as "The Will of the Pike," an adaptation of the old Russian fairy tale, was presented by young student actors of the Drama Studio of the Moscow City Young Pioneers Club.

The story is an old favorite, familiar to generations of Russian children. Yemelya is the happy-go-lucky hero to whom unusual things keep happening. He carries a bucket to the well. No sooner does he lower it, than it pops up out of the water holding a huge pike.

"Wonderful," says Yemelya, delighted with his unexpected catch. "There's nothing I'd rather have right now than a fine stewed fish. I'll just get you into the pan, my fine finny friend, and in a little while you'll be all nice and juicy and tender."

But this is a very special kind of fish. The pike suddenly opens his wide mouth and in perfectly good, if somewhat tearful Russian, begs Yemelya for his life. "Let me go," he pleads, "and you can ask me for anything your heart desires. You'll be the happiest boy on earth. All you need do is say: 'At my bidding and at the will of the pike. I wish for . . . .,' and anything you wish for I will bring you forthwith."

Yemelya is interested. He ponders a moment to decide whether this is really a good deal and then agrees to try it. He lets the bucket down again and the much relieved pike slips back into his watery home. Then Yemelya pronounces the magic words: "At my bidding and at the will of the pike, let the buckets come up by themselves." In a trice the buckets clatter up again.

This is only the beginning of Yemelya's adventures—the opening scene of the three-act play. For the children who acted the parts and worked at the countless details that make up a staged play, the production was no less a wonder and an adventure.

They resolved the many problems which arose with an inventiveness and ingenuity that would have done credit to much older and more professional theater folk.

The casting was done by studio teachers, people with a rich background of stage and educational experience. It was noticed that immediately after the announcement of auditions for roles, even the most mischievous students became angelic and the laziest began to work hard at their school studies. They all knew that only children with satisfactory grades were to be auditioned.

Acting successes were scored by Lyonya Nechayev and Seryozha Nikonenko, who played the roles of Yemelya and the Czar. A last minute replacement—these things happen in theaters large and small—Oleg Muratov, the youngest actor, who played the role of Vanya, the peasant boy, also scored a large and somewhat unexpected success.

And the audience? They clapped and yelled "Bravo" until their hands were sore and their throats raw. ■

Long before the first performance, the children were busily engaged in creating their costumes.

Everybody assists. Even the Czar must carry his throne, as Seryozha Nikonenko demonstrates here.

But the labors of preparation are well rewarded when the audience responds to the stage action.

LYONYA NECHAYEV IN THE LEAD ROLE AS THE EVER-LUCKY AND CHEERFUL YEMELYA.

was amazed and gasped: "Whence stranger come unto my court?"

SO THE CZAR DECIDED TO CALL IN THE WISE MEN FROM ALL OVER THE KINGDOM.

FASHIONS FOR CHILDREN

PARENTS are much the same everywhere when it comes to styles of a boy's suit or a girl's dress. They like to have their children garbed in attractive, bright-colored clothes.

The House of Fashions in Moscow and its counterpart in other major cities of the country hold seasonal exhibitions of children's fashions with the participation of the leading factories handling juvenile wearing apparel. The best of their samples are reproduced with patterns and photographs in fashion magazines and all sorts of publications read by women. Patterns can also be purchased almost anywhere.

Many designers and artists are continually at work on juvenile wardrobes, and their ideas are sent to thousands of factories. In designing and manufacturing garments for the younger generation there is a conscious effort to make most of them combine smart appearance with good wear and reasonable retail prices.

Illustrated here are some of the past summer's styles for children that were produced by Soviet industry and found generally popular acceptance among the youngsters and their parents. ■

Sketch for settings to ballet *Le Sacre du Printemps* (1913)

NIKOLAI ROERICH
an artist of uncommon talent

By Konstantin Yuon

MOSCOW EXHIBITION HALL WHERE PAINTINGS OF NIKOLAI ROERICH DREW BIG CROWDS LAST SEASON.

When Nikolai Roerich died in India in 1947 he bequeathed 500 of his paintings to the Soviet Union. They were shown in Moscow at an exhibition arranged by the Union of Artists and the Ministry of Culture. Other exhibitions are being scheduled for Leningrad and other cities.

This article on the painter was written by Konstantin Yuon, a noted Soviet artist who died in April of this year.

THE RUSSIAN PAINTER Nikolai Roerich began his long and fruitful career at the end of the 19th century. He was an artist of uncommon talent, distinguished for his deeply expressive painting and intensely personal style.

Roerich was, besides, a scholar, with a profound interest in history and archaeology.

Continued on page 35

Guests from Overseas (1906)

NIKOLAI ROERICH

Continued

Le Sacre du Printemps (1945)

Sketch for settings to drama *Peer Gynt* (1912)

Sketch for settings for opera *Tristan and Isolde* (1912)

***Idols* (1907)**

***Prince Igor Takes the Field* (1941)**

NIKOLAI ROERICH

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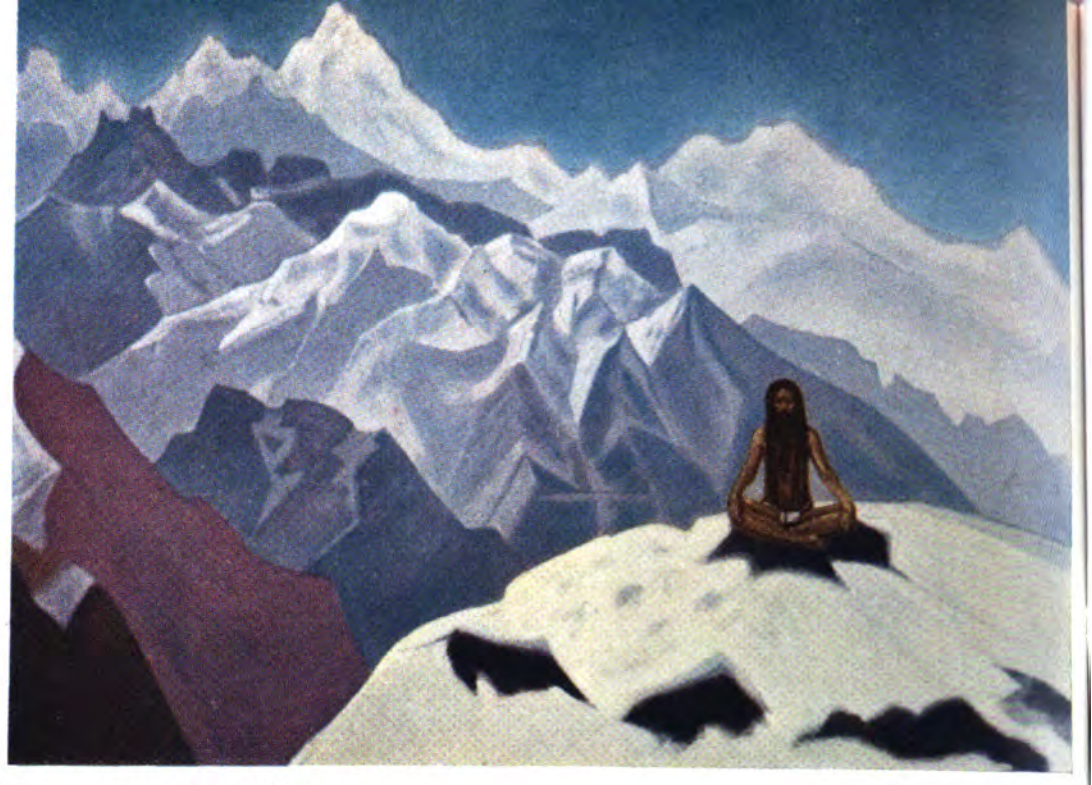


On the Heights **(1936)**

Guga Chohan **(1932)**

Stronghold **(1925)**

The Himalayas **(1941)**

es of Victory **(1940)**

interest in these fields of investigation study were not academic, nor were they ırated from his art. They gave him a per- ion of primeval nature and of ancient ples which contributed largely to the ıty and depth of his painting.

is interest in archaeology and the work lid in excavating old burial mounds in the gorod, Pskov and Tver regions, his study ncient manuscripts in the St. Petersburg lic Library and the encouragement of the ıry director and prominent art critic limir Stasov—these were the decisive fac- which determined the later course of rich's life and the direction his painting to take.

ntiquity, science and art were the three components of his paintings. His earlier pictures portrayed the life of the ancient Slavs.

The men that Roerich depicts—his hunters, fishermen, builders, warriors—are strong, hardened by their labors and struggles. They are an inseparable part of North Russian nature.

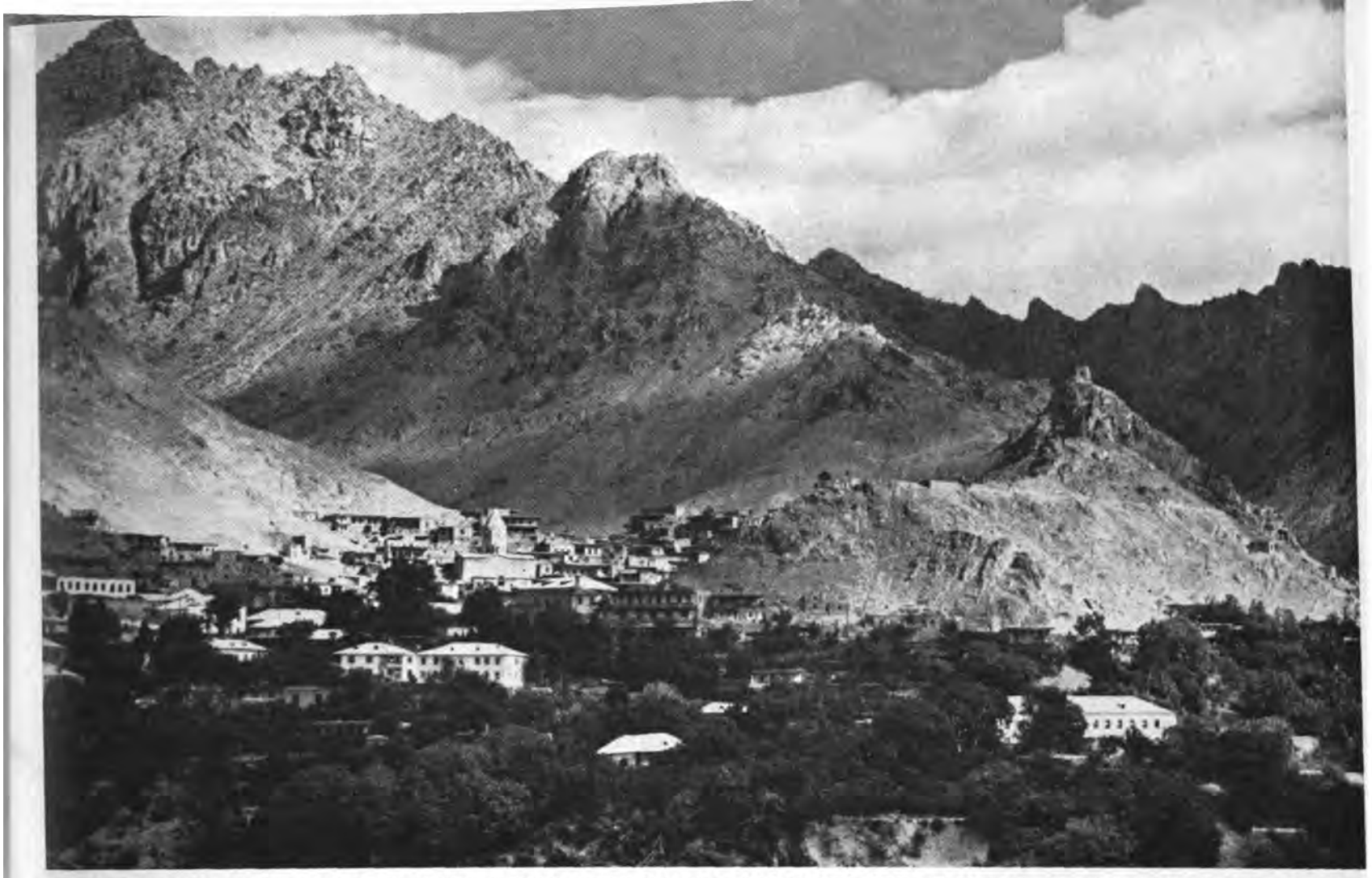
Roerich visited the ancient centers of Russian culture to study the rich diversity of the old architecture and decorative arts. Elements appear in his paintings and stage sets.

Roerich's art was highly appraised in many countries, particularly in Scandinavia, Britain and America. In 1921 he founded the Master Institute of United Arts, now attached to the Roerich Museum which he established in New York in 1923. More than 1,000 of his canvases can be seen on exhibition there.

He visited most of the untraveled corners of the world, led archaeological expeditions to Mongolia, China, Tibet and India. He spent more than twenty years in India and was friends with Rabindranath Tagore, Jawaharlal Nehru and other Indian leaders. The East colored his thinking and his painting.

His receptive mind was deeply touched by both the ancient and the legendary, by nature's forces and by mythology. He portrayed the formidable and awe-inspiring forces of nature which in bygone days gave rise to ecstatic religious sentiments and prejudices.

Roerich's paintings must be seen. Their essence cannot be phrased. They are paintings for the mind and for the heart. ■



THE VALLEY ORCHARDS ALL BUT OBSCURE THE HOUSES OF MEGRY, WHICH IS LOCATED SEVERAL MILES FROM THE RAILROAD AND SURROUNDED BY HIGH MOUNTAINS.

MEGRY: Village of Grapes and Honey

ALTHOUGH the village of Megry is almost buried in the mountains of Armenia, it is a lovely spot and as sweet-smelling as its name implies—for in Armenian *megr* means honey.

In order to reach Megry one leaves the train at a small flag stop at the mouth of a gorge several miles away. The steep mountains on both sides jut out like a buffalo's horns from dense forests.

At first one has a feeling of being cut off from the outside world, in a sort of narrow blind alley. Then, quite suddenly, one comes to the village with its power station and cannery, schools and libraries. This is Megry, with its clubhouse and movie and its houses ranging roof over roof within a sort of amphitheater encircled by the mountains.

Megry is a community of complete literacy with a large population of intellectuals educated in the colleges of Yerevan, Tbilisi and Moscow.

Enter the home of any inhabitant and you'll find a modern city apartment. Here is one of them. In the clean, nicely furnished living room there's a piano with the scores of a pupil of the local music school. A ginger-colored kitten plays with a ball of wool left by someone who was knitting on the couch near the window. The bookshelves seem alive, the volumes much handled with numerous markers in them. A newspaper lays folded in half with a pair of old spectacles on the table.

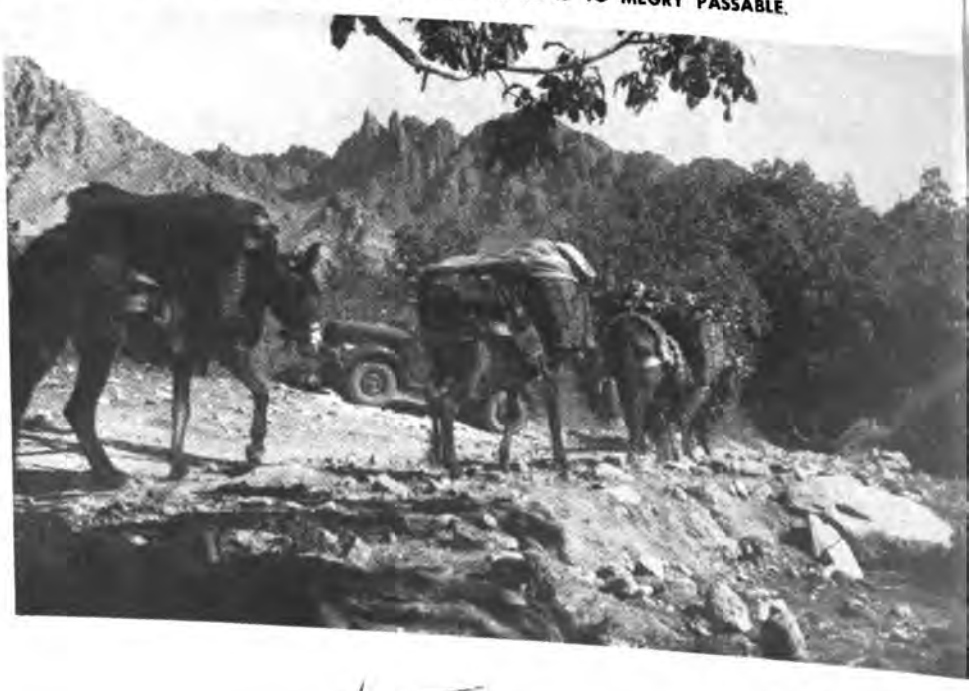
Live in Megry a few days and you'll learn that this leisure is earned by tireless work. From sunup, the head of the family is at work in the collective farm orchards. His wife is a breeder of silkworms.

Industrious hands have transformed everything here and brightened the grim mountains with color. In the spring, when the orchards blossom, the air is saturated with the bitterish scent of almond, the spicy fragrance of quince, fig, pomegranate and lemon. The freshening breeze rustles through the grapevines and one sees the bright green of the terraced fields of wheat, with herds of livestock grazing in the meadows.

The lush fruit and the sunbeam wines produced in Megry are well known far beyond the borders of Armenia and their wealth brings back modern farm machinery, new books, films and consumer goods to its busy collective farmers. *See more pictures on following pages.*

◀ GRETA MKRTYCHIAN IS THE BEST GRAPE-PICKER IN THE ARMENIAN VILLAGE OF MEGRY.

ONLY THE JEEP-TYPE VEHICLES AND MULES FIND THE ROAD TO MEGRY PASSABLE.



MEGRY: Village of Grapes and Honey

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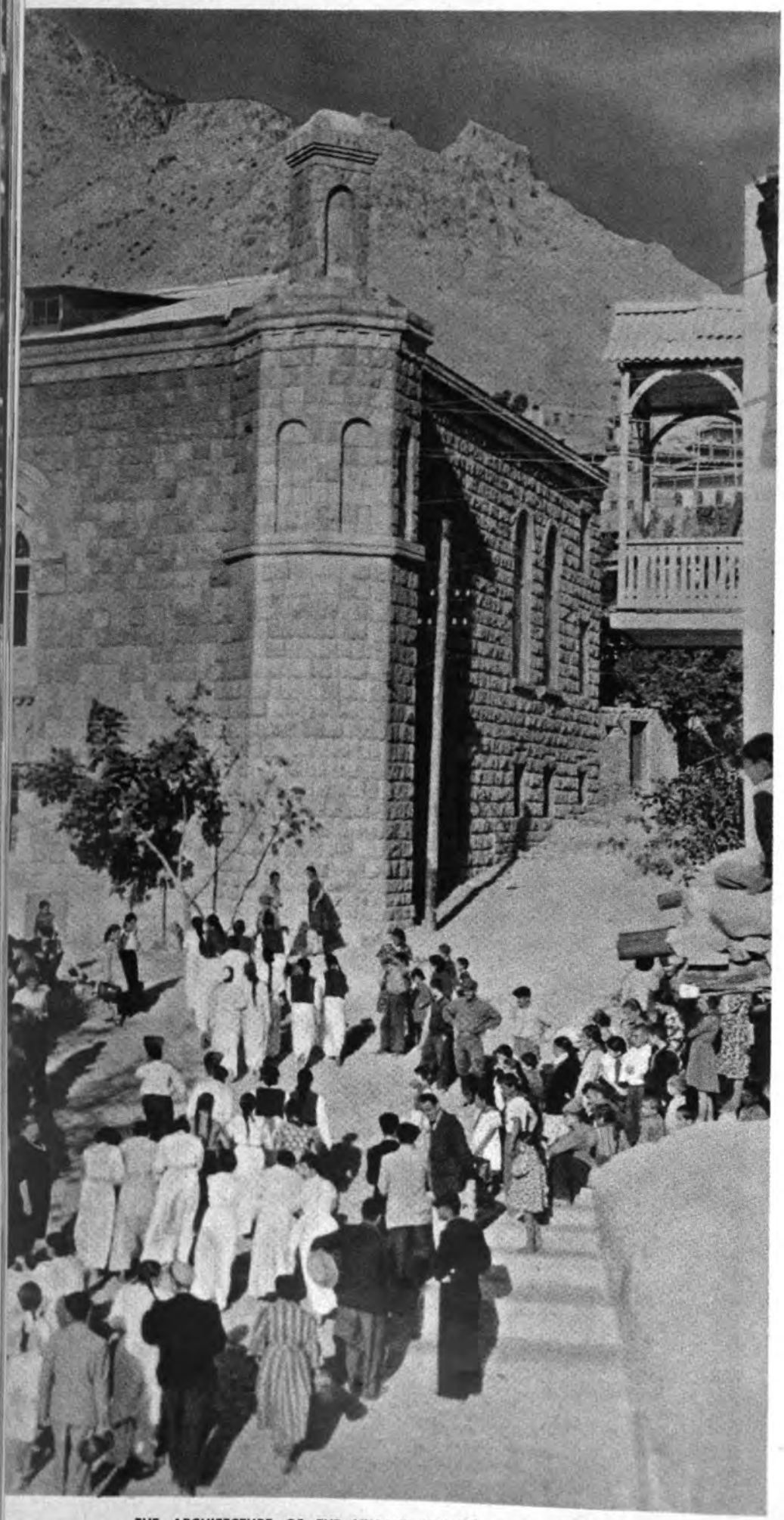
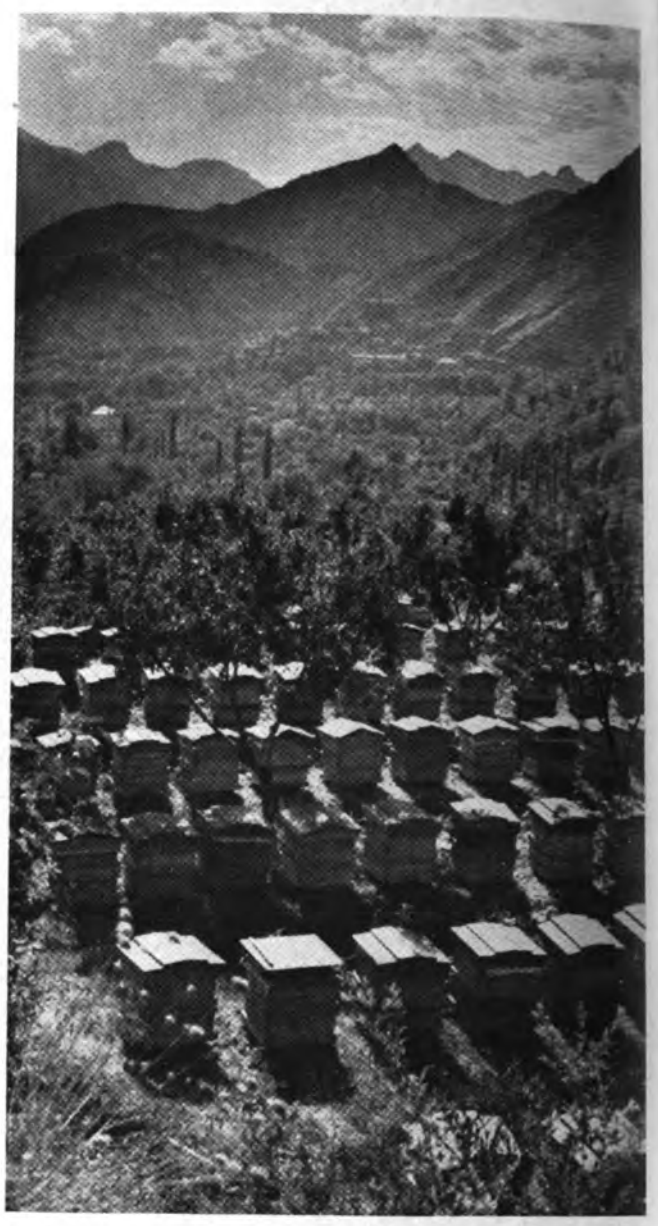
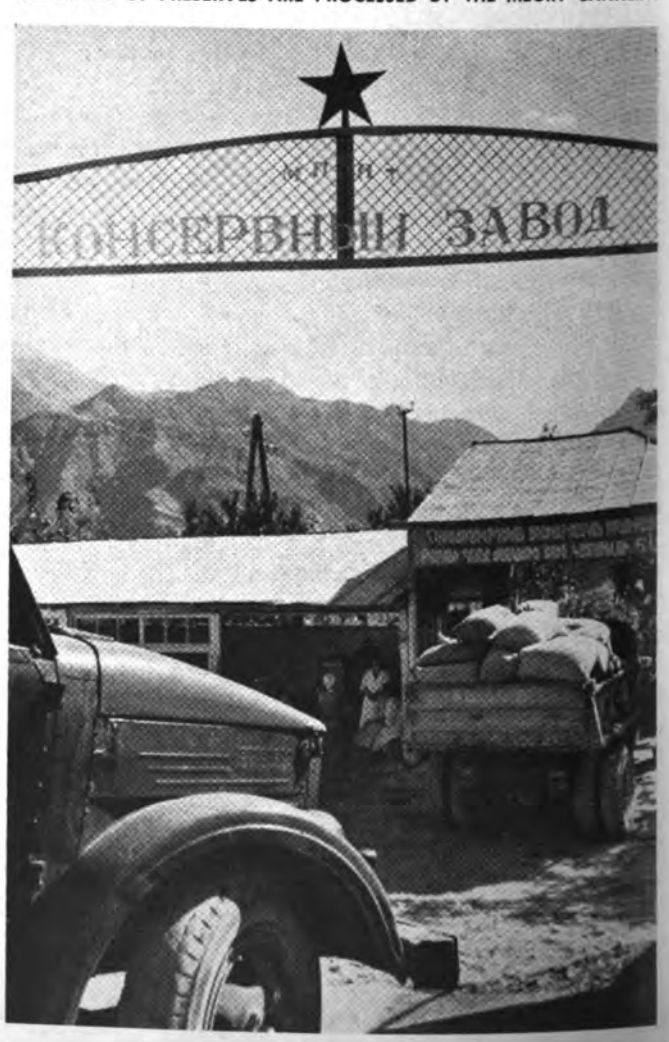


THE ARCHITECTURE OF THE VILLAGE CLUBHOUSE IS OF CLASSIC ARMENIAN STYLE.



MEGR, HONEY IN ARMENIAN, HAS GIVEN THE VILLAGE ITS NAME.

ALL KINDS OF PRESERVES ARE PROCESSED BY THE MEGRY CANNERY.



BE HIS JOB TO CARRY ON THE OLD TRADITIONS OF THE MOUNTAIN VILLAGE.

THE CANNERY'S LABORATORY ASSURES QUALITY AND TASTE CONTROL.

LAGERS ARE PROUD OF THEIR MUSICAL SCHOOL. MEGRY IS A COMMUNITY OF COMPLETE LITERACY WITH A LARGE PROPORTION OF COLLEGE-TRAINED PEOPLE.

OLD WOODEN BUILDINGS, LIKE THE ONE THE FAMILY OF YEGOR GNEUSHEV LIVED IN, ARE TORN DOWN TO MAKE ROOM FOR MODERN APARTMENT HOUSES AND WIDER STREETS.

"Our new apartment is up there," Gneushev's son shows his new friends. "Come on over tonight."

NEW APARTMENTS FOR GROWING FAMILIES

By Adolf Antonov

A HAPPY MOMENT—YEGOR GNEUSHEV'S APARTMENT APPLICATION HAS BEEN OKAYED.

WHILE AT WORK, YEGOR INVITES FRIENDS TO COME TO HIS HOUSEWARMING PARTY.

STATISTICS show that every day in the week an average of 5,500 Soviet families move into new apartments. This year a total of more than two million new apartments will have been turned over to the population. But a housing shortage isn't solved overnight, and an even larger building program has been scheduled for next year and the years after.

Among the many thousands of Muscovites who have had housewarmings this year is the family of Yegor Gneushev.

He came to the capital eight years ago from a village in Oryol Region to take a construction job on the Moscow subway system. Soon he met Klava Svetlova and they got married. The management gave the newlyweds a single room in a house shared by several families.

When Kolya came along, they made application for an apartment. But there were other families who had higher priority. The Gneushevs managed somehow with the one room until their daughter Irina came along. The room, needless to say, hadn't gotten any bigger.

In the meantime extensive housing construction was going on all over Moscow. Old wooden buildings, like the one that the Gneushevs lived in, were being torn down one after another and replaced by large apartment houses. There wasn't a street in the city without at least one construction project. Whole new residential sections were rapidly growing on the outskirts. And during the past year or two Moscow's building program has assumed a scale unprecedented in all the city's history.

When the Gneushevs filed their application for an apartment, they had every reason to believe it would be approved. They knew that within the next five years about 350,000 apartments would be made available for Muscovites in new houses. So they waited their turn.

Aside from their housing problem, they were doing well. Yegor had moved up a couple of categories in his trade. He was earning an average of 25,000 rubles a year, enough for the family to manage on easily. And Klava had left her job to stay home and take care of the children.

One of the new apartment houses was being built next door to the Gneushevs. They watched the building going up, looked on enviously at the large windowed rooms, the new kitchen and bathroom fixtures and speculated on the possibility of their being next in line for one of the bright new apartments.

Came the day when the joint housing committee of the subway con-

Continued on next page

EVEN THE HOUSEHOLD CHORES ARE FUN WHEN YOU'VE JUST MOVED TO A NEW HOME.

NEW APARTMENTS FOR GROWING FAMILIES

Continued

AFTER A MORNING SPENT MOVING, EVERYBODY IN THE FAMILY IS READY FOR A GOOD HOT MEAL.

THERE IS EVEN ENOUGH ROOM FOR HIDE-AND-SEEK GAME.

struction management and the trade union posted the list of families to whom the apartments had been assigned and there were the Gneushevs. It was a big day.

Moving into a new apartment always means mixup and confusion, but of a pleasant variety. All the tenants of the old house moved on the same day. The Gneushevs didn't need a moving van; their new apartment was only a few steps away. Friends helped to move the furniture.

The high point was the family's tour of their new apartment after the furniture had all been moved and the friends had wished them the best of luck and gone. The whole family—father, mother and the two

UNPACKING THE TOYS IS A REAL EVENT FOR THE CHILDREN AND THEIR FRIENDS.

KLAVA LIKED EVERYTHING IN HER NEW KITCHEN AND FELT QUITE AT HOME.

IRINA IS NOT SURE THAT HER TEST RUN HAS BEEN COMPLETELY SATISFACTORY.

children—paraded from room to room, opening and closing doors, turning taps on and off and trying out the kitchen fixtures.

The Gneushev apartment has 616 square feet of living space—154 square feet for each member of the family. The rent is 47 rubles 26 kopecks a month or 567 rubles 12 kopecks a year—2.16 per cent of Gneushev's salary. With utilities it costs him 1,536 rubles a year—6.14 per cent of his salary.

Rent scales are fixed by law in every Soviet city. The cost depends, of course, on the size of the apartment, but income and the size of the family are also factors taken into account. Rent and utilities never exceed 10 per cent of the income of the head of the household. ■

Hospitality in a Doze

THE FOREIGN SEAMEN'S CLUB IN ODESSA WELCOMES THE CREWS OF ALL VISITING SHIPS.

By Dmitri Petrov

Photos by Alexander Mokletsov

ODESSA is a port of call for ships from every country in the world—and for the sailors who work the ships. It's a hearty, robust city with an international flavor and a deep water tang. At the Foreign Seamen's Club in this friendly welcoming city, you can hear a dozen different languages.

The club is near the waterfront, on one of the main streets of Odessa, a large pleasant building with an air of ease and relaxation. It was founded by the Soviet Seamen's Trade Union 35 years ago and is maintained by that organization.

Most of the visitors who drop in for an evening of billiards, a movie or a concert are, of course, seagoing people, but there is a sizable sprinkling of landlubbers—people who have a hankering for things nautical and students who want to practice their foreign languages.

The motto of the club is: If you don't find your particular brand of diversion, we'll arrange to get it for you. And a quick tour of the club's facilities shows the motto in operation.

Here is student Antonina Sokurova at a piano surrounded by foreign seamen. She is accompanying an impromptu concert of request numbers—Indian folk songs, Finnish, Italian, French, English, Ukrainian and Russian. Everybody chimes in. Those who can't manage the words, sing the melody.

In the billiard and ping-pong room lively battles are being fought with cue and paddle by Bulgarian seamen from the *Khristo Smirnensky* and members of the crew of the *Indian Endeavor*.

José, a young sailor from the Cuban ship *Olympus*, and Zhenya, an Odessa garment worker, are among the couples on the dance floor in one of the spacious halls of the club. They dance the same language, and for talk they manage somehow on a mixture of Russian, Spanish and English. They have both studied English in school and find they have other things in common.

Zhenya is entering Odessa University this year. She is going to major in mathematics

Continued on page 46

guages

EETS TOURISTS ARRIVING ON A FRENCH LINER.

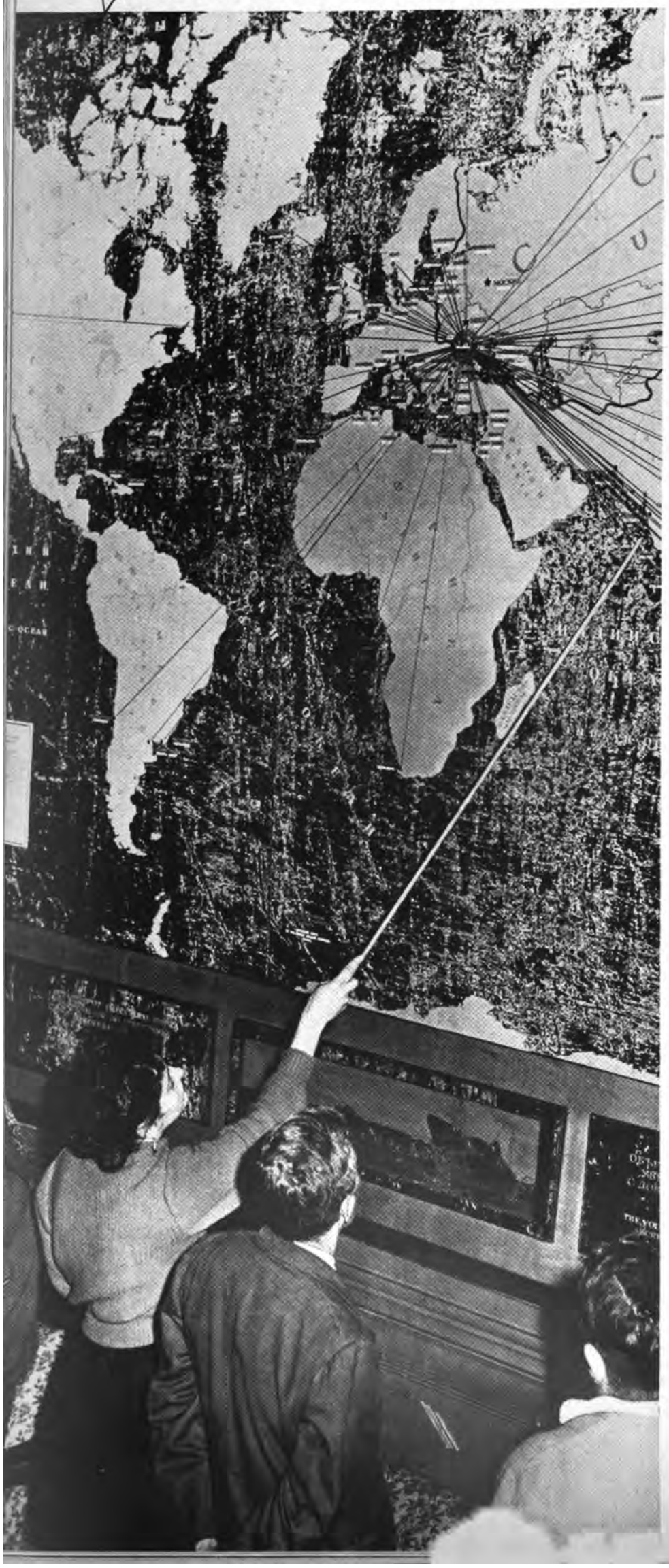
AFTER A LONG VOYAGE, THESE FOREIGN SEAMEN ARE EAGER TO SET FOOT ON DRY LAND AGAIN.

A GOOD MANY INTERESTING LANDMARKS IN ODESSA, AND THE FOREIGN SEAMEN'S CLUB IS ALWAYS READY TO ARRANGE SIGHTSEEING TOURS FOR ITS GUESTS.

Hospitality in a Dozen Languages

Continued

THIS MAP SHOWS THAT THE PORT OF ODESSA HAS EXTENSIVE TRADE CONTACTS.



Crewmen of the French ship *Galatea* and Instructor Alexander Yekhimovich of Odessa Merchant Marine School had lots of questions to ask each other.

and physics. José, it turns out, is very good in science but he hasn't the money to go to college. He is hoping to make enough in a couple of years to see him through. He says Zhenya is lucky because her university tuition will be free.

The older seamen group around the bar where over a glass of beer they exchange tall and short stories of ships they've worked and odd corners of the world they've seen.

The club organizes various kinds of activities. Foreign seamen are interested in what's going on, and lectures and discussions are arranged on topics ranging from the current Soviet theater to sputniks. There are visits to factories, schools, museums. Tickets are provided for soccer games, plays, opera, ballet. Tours are arranged to see Odessa's sights.

Sight-Seeing Tour

The people of Odessa are famous for their sociability—and for their curiosity. They readily start conversations with foreign visitors, and there is always someone in the crowd who knows the language of the guests. Even if the knowledge is not quite perfect, soon enough the interpretations go thick and fast.

This bus marked "International Seamen's Club" carries a group of French seamen. It stops at one of many interesting Odessa land-

marks and almost as soon as the sailors leave the bus, they are surrounded by passers-by.

The ship is the *Galatea* and the most vocal of the French seamen is Robert Jaque, a man with a luxuriant mustache, ship's electrician. Somebody in the crowd identifies himself as a shipyard worker and invites the sailors to visit the yacht club he belongs to.

They would like to, Robert Jaque answers for them, if their ship stays in port long enough and if they have time after a look around the city.

There is a good deal to see around Odessa. It is a city with a long and proud tradition. During the war many of its most beautiful old buildings were destroyed by the fascists—whole sections of Odessa had to be rebuilt from ruins. But the city, say the older people, is as beautiful as ever.

The French seamen look at the lovely greenery along the seashore—Primorsky Boulevard—and the 130-foot Potemkin Staircase that leads upward from the waterfront. They go through the splendid mansion that is now the Palace of Young Pioneers and the Odessa Opera Theater where Tchaikovsky once gave a performance of his opera *Queen of Spades*. They visit the famous music school which has trained such virtuosos as David Oistrakh, the violinist, and Emil Gilels, the pianist, both of whom recently played for American audiences.

Before the day's tour is over the French seamen are reminded by their guide that there is a big concert scheduled at the Seamen's Club that evening. He asks them whether they would like to see the circus tomorrow.

The answer is a loud "*Oui!*" and Robert Jaque says with a broad smile: "We're not used to such fancy treatment. We feel more like first-class tourists than like ordinary seamen."

Thank You's From Every Country

Comments of this kind are frequently heard at the club. The club secretary has a big file of thank-you letters from sailors of all nationalities.

Here is a comment from the captain and first mate of the Italian ship *Golfo di Augusta*: "We thoroughly enjoyed our excursion through the city. It was so different from our visits to ports in most other countries where we wander through the city at random. Often enough we leave without even knowing the name of the main street. We will remember Odessa because we have learned something of its history and have seen its historic buildings."

And another from a steward of the British ship *Stenpark*: "This is my first trip to your country and I confess I was biased when I came here. I expected to find the things I had read about in the papers back home—people who didn't like the British, people dressed in rags, and police following us around everywhere we went. What I saw in Odessa was something altogether different. The people in the streets smile, everybody looks happy and we were treated handsomely."

The Seamen's Club never says good-by when its foreign visitors leave. It's *Au revoir*—until we meet again. ■

The club has a large collection of letters and souvenirs sent by foreign seamen who have enjoyed its hospitality.

Seamen swap yarns and take it easy over a drink at the club's well-stocked bar.

THERE'S NO WAY OF KNOWING HOW MANY COUNTRIES WILL BE REPRESENTED AT THESE IMPROMPTU CONCERTS.

Adlai Stevenson in the Soviet Union

TWO PARTY LEADERS MEET: ADLAI STEVENSON TALKS WITH NIKITA KHRUSHCHEV.

ADLAI STEVENSON, leader of the Democratic Party of the USA, his two sons and several of his friends recently made an extensive tour of the Soviet Union.

During their four-week trip by automobile and train, steamer and plane, Mr. Stevenson and his party went to Moscow and Leningrad; Tashkent, Samarkand and Alma-Ata in Central Asia; Novosibirsk and Rubtsovsk in Siberia; Sverdlovsk in the Urals; Kazan and Gorky on the Volga River. The American guests stopped in Kiev, capital of the Ukraine; Odessa, Yalta and Sochi on the Black Sea; and Tbilisi, capital of Georgia.

The visitors went everywhere and saw everything they wished. They inspected power plants, construction sites and factories; plodded through the fields of state and collective farms; took sightseeing trips to places of historical interest. They saw museums, libraries and churches and visited schools, colleges, a children's camp, sports stadiums and theaters.

Mr. Stevenson was received by Nikita Khrushchev, Chairman of the USSR Council of Ministers and First Secretary of the Communist Party of the Soviet Union, with whom he had a long talk. He also met people prominent in the fields of Soviet culture, education and public health.

FOUNTAINS OF PETRODVORETS NEAR LENINGRAD.

THE GUESTS VISIT A COLLECTIVE FARM MARKET IN ALMA-ATA, CAPITAL OF THE KAZAKH REPUBLIC.

STEVENSON SEEMED TO ENJOY HIS VISIT TO A CHILDREN'S CAMP AS MUCH AS THE YOUNGSTERS.

NIKOLAI BOBROVNIKOV, MAYOR OF MOSCOW, GIVES ADLAI STEVENSON A SOUVENIR PICTURE ALBUM OF THE CAPITAL.

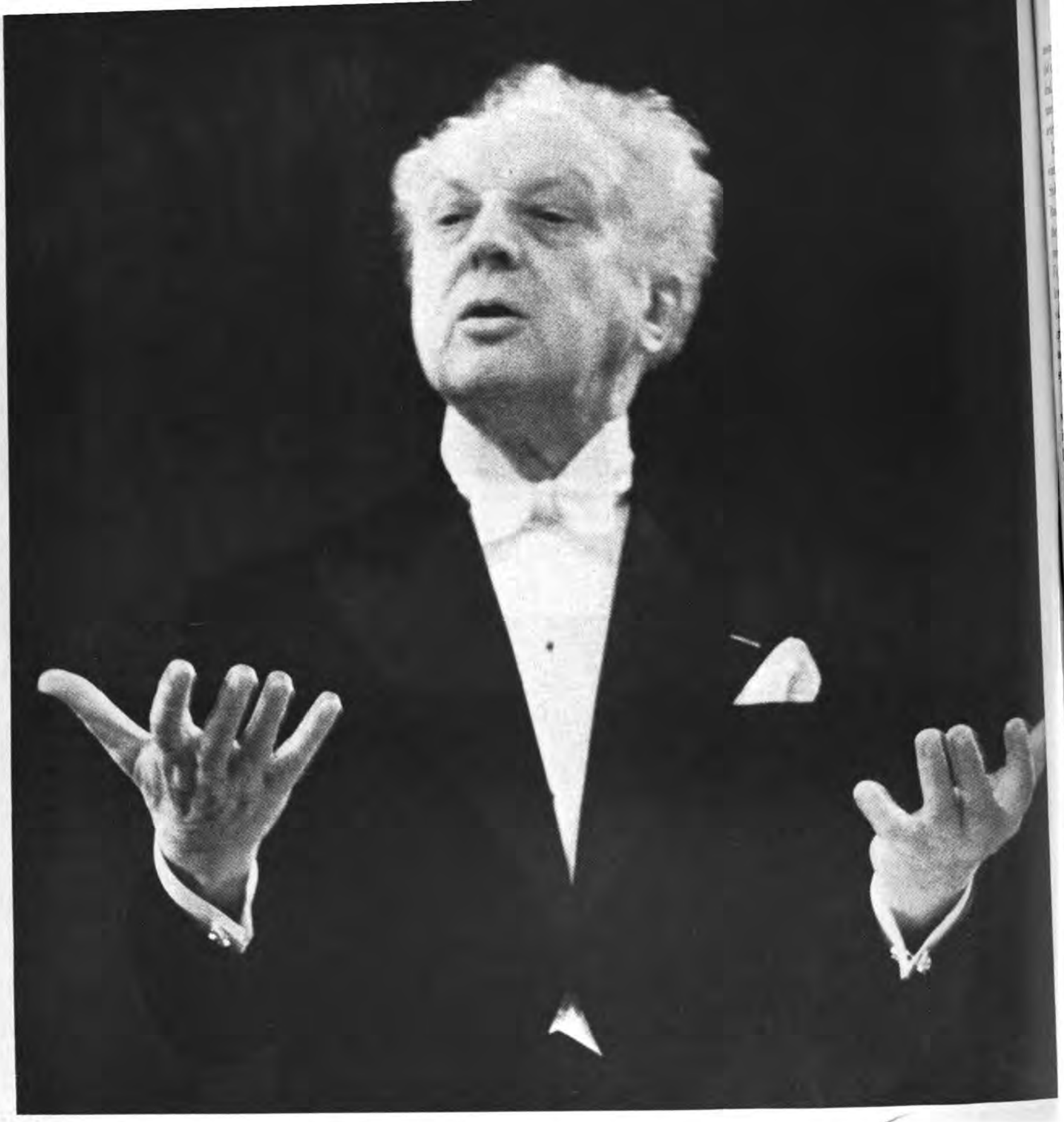
THE TRIP IS OVER AND IT'S TIME TO LEAVE.

AT MANY FACTORIES THE VISITORS AND THE WORKERS ASKED EACH OTHER LOTS OF QUESTIONS.

STEVENSON SAW SOME OF THE COUNTRY'S CHURCHES AND TALKED TO THE CLERGYMEN.

Before leaving the Soviet Union Mr. Stevenson made the following statement at the Moscow airport:

I leave the Soviet Union full of gratitude to the people of this great country who have been so hospitable. It's been a deeply rewarding experience and I leave with a better understanding of this country's objectives, its remarkable growth, its problems and its blessings. Few people have had an opportunity to hear and see so much so quickly, thanks to the many officials who have made our long journey so comfortable and enlightening. I'm especially thankful for the long intimate talk with Prime Minister Khrushchev, which served to measure the gulf which unhappily divides our countries and also the goals and the interests that unite us. We were firmly agreed that the latter must prevail. I've been deeply disturbed by the widespread misunderstanding and ignorance about the United States and what it stands for. I believe we must have a much wider and freer exchange of ideas and information as well as tourists, artists and athletes, for we must not only learn more from each other, but more about each other. Let's compete in those areas that construct rather than destroy, in expanding the span of human life for example. And why not follow the international geophysical year with an international health and research year to bring under control the scourges that affect mankind. More important, however, than competition between great responsible powers is cooperation, and that means give and take and common goals; the greatest is peace and freedom for all peoples. Let's cooperate to develop, not dominate, less fortunate peoples. Let's fight again shoulder to shoulder in the fields of health, education, economic development, international amity. Let's make future generations bless this century and not curse it. As Abraham Lincoln once said: "The way is open, plain, peaceful, generous, and just, and a way, which if followed, the world will forever applaud, and God must forever bless." My sons and my friends join in thanks, and *doh svidaniya*—good-by.



LEOPOLD STOKOWSKI

Appears before Soviet Audiences

By Victor Gorokhov

LEOPOLD STOKOWSKI was an event in the Soviet Union. This should come as no surprise to anyone who has heard Stokowski—a great conductor, very likely the greatest living today—nor to anyone who knows how heartily Soviet music lovers respond to fine musicianship.

What is more unexpected is that the Soviet Union was an event to Leopold Stokowski. The conductor last visited our country as a tourist back in the thirties. Now, to cite his own words, he was literally unable to recognize his surroundings. "Everything has changed. The streets have grown wider and handsomer, the houses taller and nobler."

In spite of an incessant round of rehearsals, concerts and recordings, the maestro squeezed every moment of free time to learn what was being done in Soviet art and music. Stokowski has long been devoted to Russian classical music and is a warm champion of Soviet music.

He talked to people and looked at the sights with an enthusiasm that was refreshingly youthful, belying his seventy-five years. "I walked about the Kremlin and the streets around it time and again," he said, "looking at the St. Basil Cathedral on Red Square, thinking how good it was that this cathedral had been restored to its original brightness of color, and that it had been done with such taste and sense of proportion. . . ."

He mentioned the St. Basil Cathedral at almost every interview he gave in Moscow, he was so pleased with the care taken to restore it. He asked for a room at the Hotel National with a view of Red Square, and in

moments snatched from his rigid schedule he did oil paintings of the Kremlin and the Cathedral. His sketches have the same fresh spontaneity and spirited youthfulness which characterize his conducting.

In Leningrad, the State Orchestra of Russian Folk Instruments gave a concert for Stokowski. The charm of the full-toned Russian songs was heightened by the fact that they were played entirely on wooden instruments, the traditional balalaika among them. For all his long experience as musician, Stokowski had never heard anything like it. He said he would very much like to conduct the group, and the conductor yielded the podium to listen to his orchestra playing a Shubert symphony with Stokowski conducting.

As memento, the guest conductor was presented with a concert balalaika, the same instrument that had once, long before the Revolution, been played by Andreyev, the great performer whose name the State Orchestra of Russian Folk Instrument bears. Andreyev's balalaika occupies an honored place among the maestro's souvenirs, the folk songs and symphonic works on sound tracks and records, books on Russian music and orchestral scores which he came away with.

In Moscow, Leningrad and Kiev, Stokowski met with composers daily, returning to his hotel with new orchestral scores to read. From Kiev alone he brought back with him a dozen new works of Ukrainian composers.

At a meeting held in his honor at the Central House of Art Workers, largest actors' and musicians' club in Moscow, Stokowski talked of the great impression the stimulating and many-sided musical activity in the Soviet Union had made upon him. He was unsparing in his praise of the musicians in the Soviet orchestras he had conducted. He called many of them "brilliant connoisseurs and true masters of their art."

When asked what he thought of the performances of the Boston and Philadelphia Symphonies in the Soviet Union and the possibility of exchange tours to the United States by Soviet orchestras, he spoke with deep feeling.

"The most remarkable thing here," he said, "is the people. I am speaking not only of audiences at my concerts who were so wonderfully responsive to music. I am speaking of all the people I have met or even just seen here. The Americans and Russians have so much in common. Both Americans and Russians are equally sensitive, equally sincere and have the same sense of humor. If all the Americans and all the Russians could meet, they would become fast friends at once. Such a great meeting cannot be arranged, of course, but let the representatives of the two great peoples meet. We send you a symphonic orchestra, and then you send us a symphonic orchestra. Our farmers come to visit you and your farmers shall come to visit us. Our teachers are enjoying your hospitality and your teachers shall enjoy our hospitality. . . . "

The graceful hands of the maestro stressed the rhythms of his speech forcefully as though he wished to augment these meetings, to multiply them to the point where they would encompass not tens and hundreds but tens of thousands and hundreds of thousands of the best people of both nations. ■

THOUSANDS OF MUSCOVITES ATTENDED THE CONCERTS GIVEN BY THE GREAT AMERICAN CONDUCTOR.

ALL CONCERTS WERE BRILLIANT, AND STOKOWSKI WAS CALLED UPON TO PLAY ENCORE AFTER ENCORE.

A TOAST TO GOOD MUSIC AND SKILLED CONDUCTING—LEOPOLD STOKOWSKI AND ARAM KHACHATURYAN.

The New Theater

By Inna **Borisova**

LIST OF PRESENTATIONS FOR THE MONTH GIVES THEATERGOERS A WIDE CHOICE.

SHOLPAN ZHANDARBEKOVA AND IDRIS NOGAIBAYEV STARRING IN NAZIM HIKMET'S *FARHAD AND SHIRIN*.

IN the Kazakh theater the bridge is a very short one between yesterday and today, between the storyteller's legend recounted around a nomad campfire and the full-bodied, subtle staging of the modern theater.

Two young men—both are brave and handsome, both are in love with the same girl. One belongs to the girl's tribe; he is the eligible suitor. The other is a member of a hostile tribe, but he is the one the girl loves. Both are killed, the tragic close of a tribal feud. This is the bare skeleton of the play *Yenlik and Kebek*, presented on the stage of the Drama Theater in Alma-Ata, the capital of Kazakhstan.

The play is younger by many centuries than the legend upon which it is based. It was written in 1917 by Mukhtar Auezov and marked the beginning of the development of a national dramatic art. Kazakhstan had no theater before the Revolution.

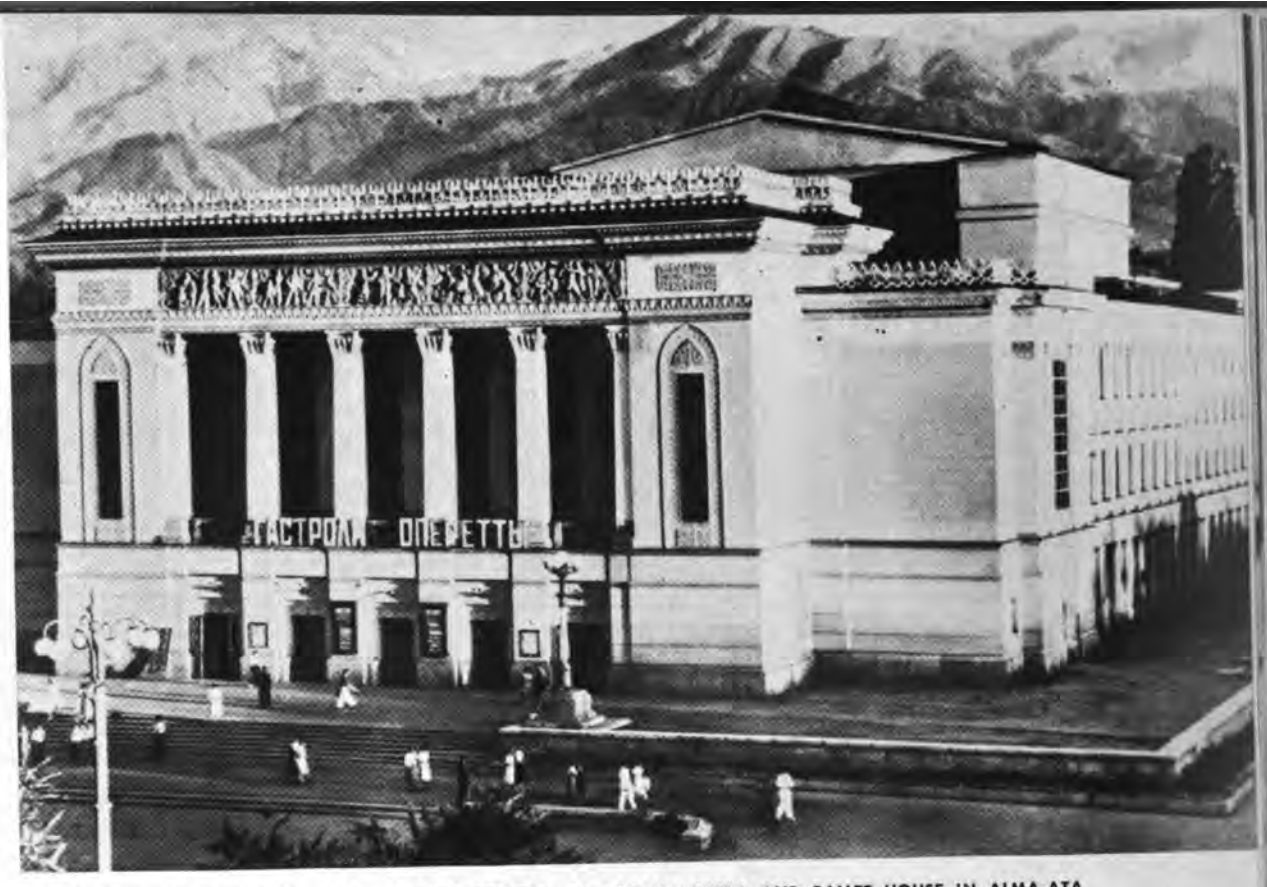
The first performances of the play were hardly orthodox theater premières. They were done in the villages and summer pastures to which the Kazakh herdsmen moved with the coming of spring.

It was some years later, in 1925, that the first Kazakh theater opened with a performance of the third act of *Yenlik and Kebek*. The infant theater was not equipped for more ambitious projects than one-act plays.

At first folklore plots predominated in the repertory. Gradually playwrights, actors and audience widened their area of interest. So that today's repertory is by no means exclusively composed of plays based on folklore. Shakhmet Khusainov's *On the Irtysh Shore* uses a contemporary locale and situation. Sabit

azakhstan

Scene from *Coevals*, a modern play by Mukhtar Baitanayev, an instructor in a teachers' college.



BOTH NATIVE AND VISITING THEATER GROUPS PERFORM AT KAZAKH OPERA AND BALLET HOUSE IN ALMA-ATA.

Mukanov's *Chokan Valikhanov* is written around the life of a noted nineteenth century Kazakh educator. The celebrated Kazakh poetess and singer, Maira, is the central character in Abdilda Tazhibayev's play of that name.

The world's classic plays are also well represented. Among them are Molière's *The Miser*, Shakespeare's *Othello*, and Ostrovsky's *The Truth Is Good, but Happiness—Better*. The present repertory of the young theater mirrors the whole short history of Kazakh dramatic art.

Two Generations of Actors

The merging of past and present, of the traditional and the new is discernible not only in the repertory. Actors of two generations meet on the stage. When the first Kazakh theater was getting started, this announcement appeared in the local newspapers: "Whoever may happen to see Kalibek Kuanyshpayev is asked to tell him that he is wanted at the theater in Kzyl-Orda." Kzyl-Orda was the capital of Kazakhstan at that time.

Kalibek was a well-known folk singer and storyteller who traveled about from fair to fair. His songs and stories were loved everywhere. So popular was he that long after he had become a professional actor, audiences would clamor for him to sing and recite after the curtain had gone down. He had to return with his dombra and give an impromptu recital before the audience would let him go.

It was altogether natural that performers such as Kalibek—and there were others like him—should have become the founders of the national theater. None of them had received dramatic training. They were self-taught actors and they brought with them into the new theater all the pungency of the old folk art.

The younger generation of actors took an altogether different road. The elements of their art that the older people had learned in years of wandering from festival to fair the young people acquired with infinitely less pain and hardship at theater schools.

Here are three actors who play the leading roles in *Yenlik and Kebek*. The first, Idris Nogaibayev, graduated from the Institute of Dramatic Arts in Moscow five years ago. The institute studio, especially staffed to train actors for the various nationalities, works with a group of Kazakh drama students one year, the next with Uzbek students, the next with Tajik students, and so on.

The second, Nurmukhan Zhanturin, studied acting at the Institute of Dramatic Arts in Tashkent, capital of the Uzbek Republic, which borders on Kazakhstan. The third, Sholpan Zhandarbekova, studied at the theater school of Alma-Ata. The school is now the drama division of the Kazakh State Conservatory.

At the theater schools the student actors acquire an understanding of the contributions of the Russian theater and the theaters of other nations. Working in the Kazakh theater, they add to their basic dramatic knowledge those valuable elements of their own national art that the older generation of actors can teach them.

Although the Kazakh theater is young in years, it is old in tradition and the young actors react most sensitively to that heritage of national tradition. As a consequence, there is a blending of the old and the modern style which adds a new dimension even to the old folk plays.

A Very Responsive Audience

The Kazakh audience is very susceptible and emotional. Their sympathy for the tragic character, their joy in the comic, their faith in the

Continued on next page

THE PLAY HOLDS THE INTEREST OF YOUNG AND OLD.

AUDIENCE REACTION ALWAYS PLEASES THE ACTORS

OLD-TIMERS OF KAZAKH STAGE, LIKE KALIBEK KUANYSHPAYEV, NEVER LACK AUDIENCE OF YOUNG THESPIANS.

Laughter rocks the house when Yuri Pomerantsev portrays Cosme in Calderon's *Fair Lady*.

The New Theater of Kazakhstan

Continued

momentary reality of the acting breaks down the fence between stage and audience.

And that sense of relatedness carries on even during intermissions, heightened by the national costumes which so many of the people in the audience wear. The audience is by no means all city bred. Farmers and herdsmen come to the theater because it reproduces for them in language and gesture and song the spirit and mood of their own people and of their youth.

Some of the traditional Kazakh theater is likely to appear static to the observer accustomed to the more rapidly paced movement. A typical example is the trial scene in *Yenlik and Kebek*. Unlike the earlier scenes in the play, it has hardly any action or movement. There are a series of rather lengthy dialogues, or "exchange of opinions."

In essence, this is a traditional contest in oratory, and the Kazakh spectator watches the scene with rapt attention. These contests in improvised poetry in which folk bards compete in public have been held in villages and summer pastures from time immemorial, and the audience finds in the theater a favorite spectacle.

But today's Kazakh many-faceted theater also attracts full audiences to Tchaikovsky's *Swan Lake*, Asafyev's *Fountain of Bakhchisarai*, Rossini's *Barber of Seville* and Rubinstein's *Demon* presented at the Opera and Ballet Theater. The Russian Drama Theater at Alma-Ata offers Dostoyevsky's *The Downtrodden and Oppressed*, Chekhov's *Platonov* and plays by modern Soviet authors. The Young Spectator Theater puts on such plays as *The Mutiny*, based on the Dmitri Furmanov novel of that name, with a combined cast of Kazakh and Russian actors.

What these productions have in common—opera and drama both—is a rare blend of poetry and folk feeling. The productions sing of great expanses of land and sky, of tender women and heroic men, of gay festivals and workaday industry. Showing as they do the life and spirit of a nation, the productions also strive to bring to the Kazakh stage the best that has been accumulated in the field of theatrical art throughout the world. ■

AFTER THE FINAL CURTAIN FALLS, THE HEAD OF THIS FAMILY STRESSES ONE OF THE POINTS IN THE PLAY.

PROF. ALEXANDER VISHNEVSKY WITH DR. HELEN TAUSSIG OF BALTIMORE, MD.

MEDICAL COOPERATION

By Margarita Bagreyeva

IT'S WONDERFUL! Those words from Dr. Helen B. Taussig of Baltimore, well-known American scientist and physician, came during the high point of her visit to Moscow's Vishnevsky Surgical Institute, part of the USSR Academy of Medical Sciences.

Dr. Taussig was accompanied on her visit by Dr. Jean Henley and Dr. Esther Marting. The American women scientists spent several days in Moscow and toured many of its medical and research establishments. The guests were especially interested in an operation to be performed on a six-year-old patient, Lyuda N., by Professor Alexander Vishnevsky, the son of the founder of the Moscow Surgical Institute.

The child suffered from a serious congenital heart disease known as tetralogy of Fallot. The disease is characterized by a stricture of the pulmonary artery and a ventricular septal defect, due to which the patient's blood bypasses the lungs. This, in turn, results in the blood not receiving enough oxygen and dooming the patient to a life of invalidism.

A few years ago Dr. Taussig first proposed a method of surgical treatment for tetralogy of Fallot. Physicians of the Vishnevsky Institute elaborated and improved on her method. As a result, this operation is now simpler, takes less time and causes practically no complications.

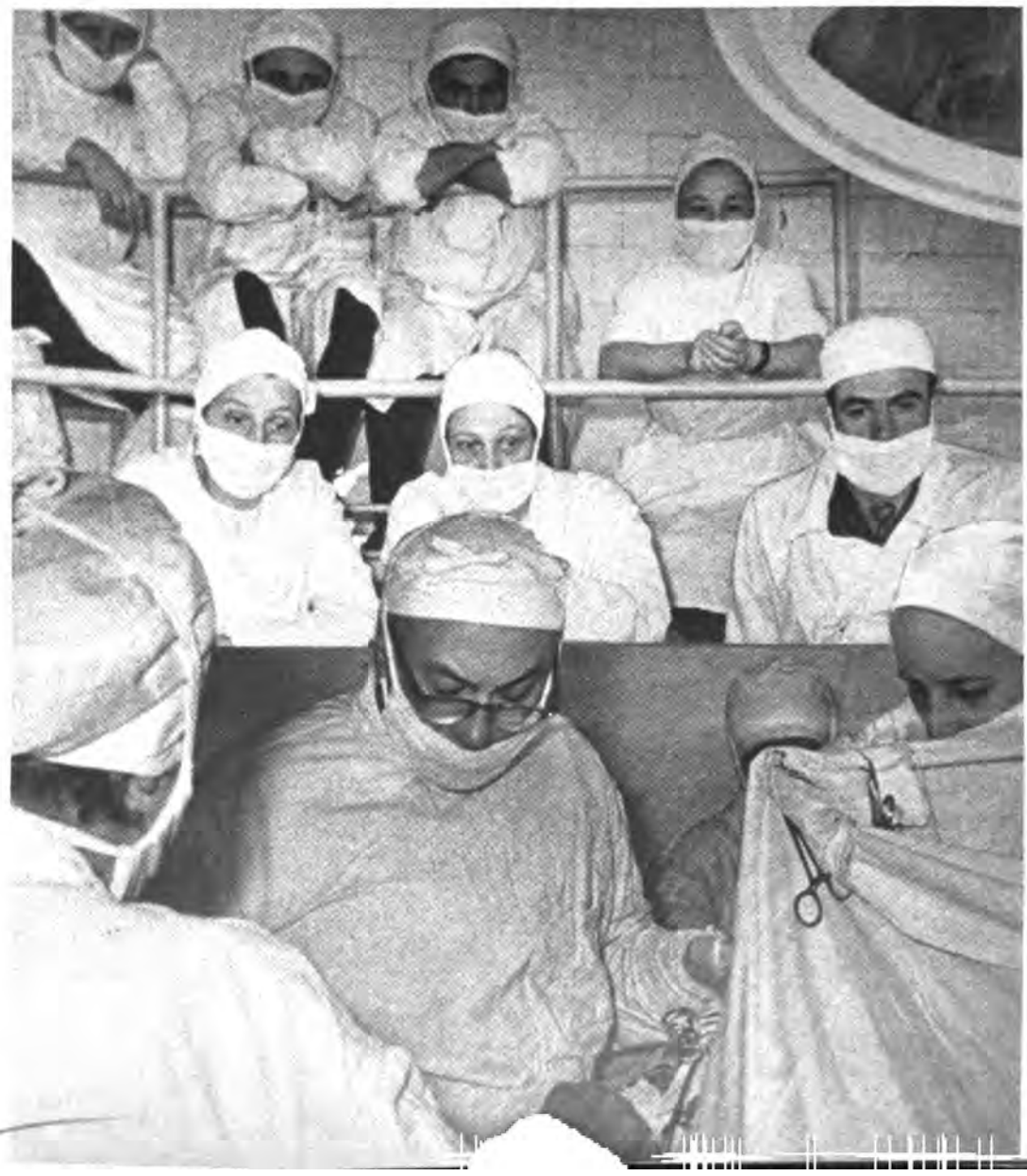
Accompanied by the American physicians, Professor Vishnevsky proceeded to the operating room. The patient was already anaesthetized. Picking up a scalpel, the professor made the first incision and the operation began.

Throughout the whole period, all eyes were on the composed, infinitely precise and confident movements of the surgeon's hands. It was then that Dr. Helen Taussig exclaimed: "It's wonderful!"

And we would like to add that the operating skill of the surgeon was not the only thing wonderful on that particular day. The fact that American and Soviet surgeons were cooperating in the joint battle of doctors of two great nations for the life of man also marked the occasion as one worthy of note.

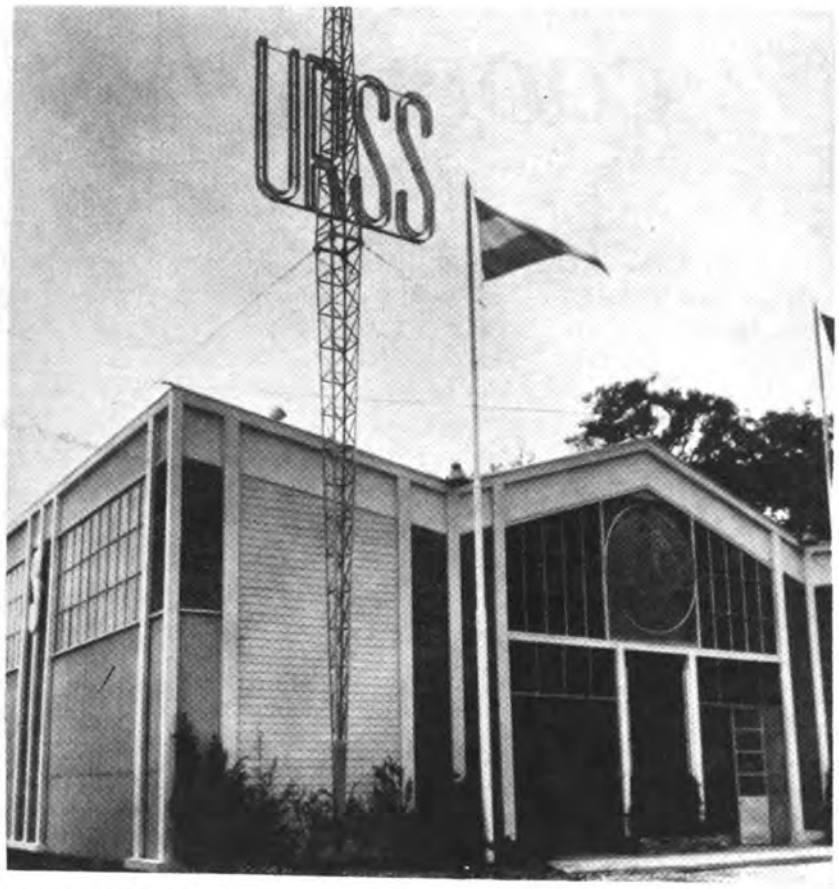
As a souvenir of their visit to the Institute, the American physicians were presented with books on various branches of surgery. In one of them, presented to Dr. Taussig, Professor Vishnevsky wrote: "To one of the founders of cardiac surgery, from the Surgical Institute of Moscow." ■

ALL EYES ARE FOCUSED ON PROFESSOR ALEXANDER VISHNEVSKY AS HE PERFORMS A DELICATE HEART OPERATION.



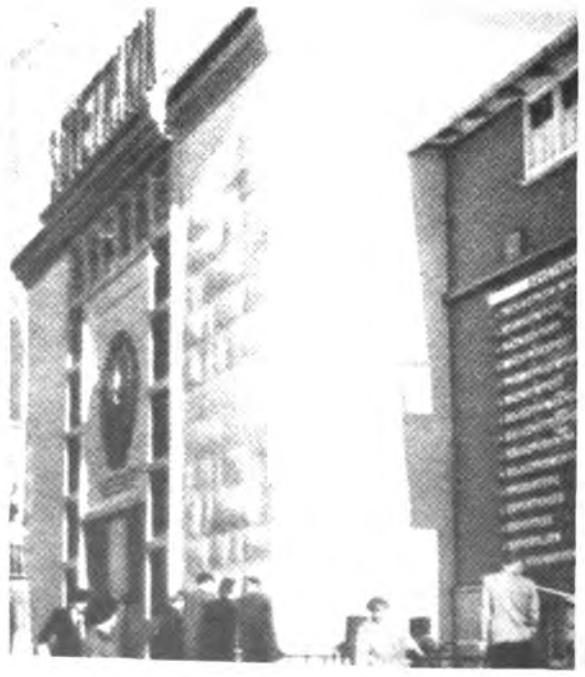
SOVIET DISPLAYS AT

HELSINKI 1951



BUENOS AIRES 1957

VIENNA 1955



REYKJAVIK 1955

AT INTERNATIONAL FAIRS

MILAN 1956

BOMBAY 1952

ZAGREB 1957

DAMASCUS 1957

SOVIET DISPLAYS AT INTERNATIONAL FAIRS *Continued*

THE WORLD'S Fair in Brussels has drawn newspaper headlines the world over. It has focused attention on the peaceful and constructive rather than the belligerent aspects of international competition—on machinery to build rather than destroy; on consumer goods rather than armaments; on the sputnik rather than the ICBM; on exchange of artists, musicians and dancers rather than bellicose declarations.

The two neighboring pavilions of the United States and the Soviet Union, each with its display of a nation's achievements, drew a major share of public attention. Here were grouped for comparison the accomplishments in industry, farming, science, education and culture of two different systems, each bidding for the attention of the world's people. Here was peaceful coexistence, and there could hardly be a more graphic illustration.

The Brussels Fair is only one of many international exhibitions in which the Soviet Union participated. It had large displays at prewar fairs held in Italy, Austria, Turkey, Germany, Bulgaria and at the Paris World Exposition in 1937 and the New York World's Fair in 1939.

The Soviet pavilions at the Paris and New York Fairs displayed in life-size models, charts and photographs the results of 20 years of work of a socialist state and diagrammed the future development which a planned economy made possible. That future was on exhibition in the displays at the Brussels Fair—in the models of the earth satellites and passenger airliners, the giant machines and precision instruments, the consumer goods of all varieties for domestic use and for export.

The Soviet Union now trades with some 70 countries. The volume of its foreign trade has grown more than six times over since 1938 (in comparable prices). Soviet displays at international fairs vividly reflect the country's growing export and import possibilities, and thus help promote the further development of mutually beneficial economic relations.

Since 1950 the Soviet Union has actively participated in the oldest and largest of the international expositions, the Leipzig Fair in the German Democratic Republic. This is an annual event with more than 1,200 exhibitors from 39 countries and an attendance well in excess of 660,000 visitors. Private and government purchasing delegations from countries all over the world negotiate a large volume of business during the run of the Fair.

The list of other international fairs in which the Soviet Union has participated in recent years includes those held in Lyons, Milan, Utrecht, Salonika, Zagreb, Poznan, Plovdiv, Copenhagen, Stockholm and Vienna. The largest Soviet displays during the postwar period were at fairs in China—in Peking, Shanghai, Canton and Hankow where more than 11,500 exhibits were shown.

In 1954 the Soviet Union participated in 11 international fairs and exhibitions. In 1955 this figure grew to 18, with the Netherlands, Argentina, Pakistan, Iceland, Sweden and India among the added countries in which Soviet goods were exhibited. During 1956 the Soviet Union took part in 12 international fairs at which a total of approximately 17 million visitors viewed the Soviet displays.

Among the most interesting of the exhibitions in which the Soviet Union participated in 1957 was that held in Oklahoma City at the Oklahoma Semicentennial. Soviet machinery, consumer goods and art work drew large and interested American audiences, for many of whom this was a first introduction to things Soviet.

An example from among this year's exhibitions where the Soviet Union has been broadly represented was the international fair held in Osaka. It was the first time in the entire history of Soviet-Japanese relations that Soviet goods were displayed in Japan.

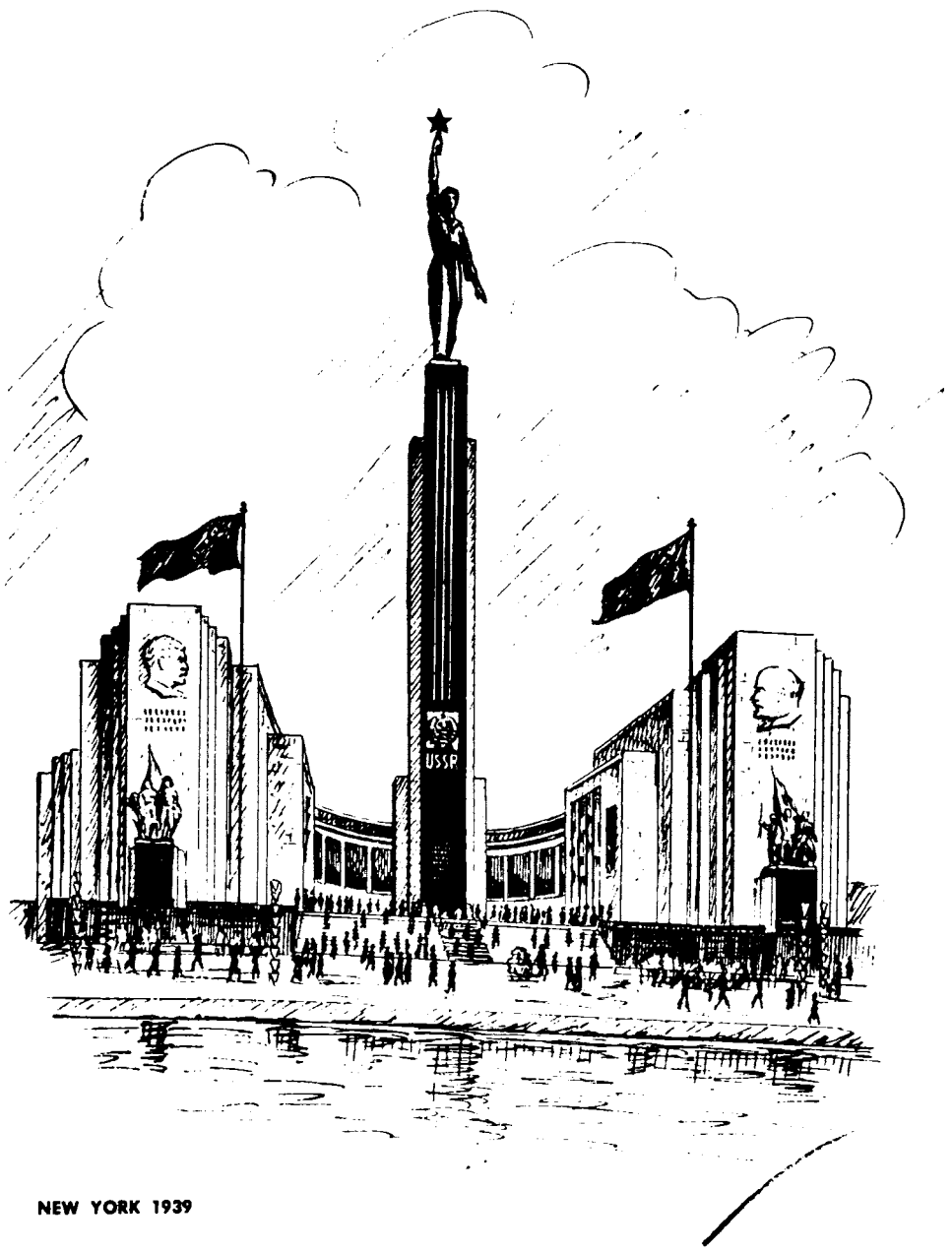
Soviet expositions at international fairs invariably attract large crowds of visitors, both the general public and representatives of industrial and commercial firms. Estimated figures on visitors to the Soviet Pavilion during the two-month New Delhi Fair approximated three million. At the two-week Cairo Fair the Soviet display was seen by more than 400,000 people.

As a rule, trade-industrial exhibits are organized by the USSR Chamber of Commerce working closely with foreign trade organizations. This makes it possible to mount displays which sample the whole of the country's export line. The interested visitor can see the entire range of Soviet manufactured goods displayed in one unit, rather than as individual display booths of single firms.

Along with the traditional Soviet items of export—furs, grain, ores, timber—new machine tools and instruments, all kinds of equipment and machinery of the latest design which have drawn enthusiastic comment from technical visitors, are now customary display items. Careful attention is, of course, paid to selection of display goods that will have as close a relation as possible to the economic, climatic and ethnic needs of the country in which the exhibition is held.

Exhibits are usually full-scale to give viewers a real notion of the equipment in operation. Machines on exhibit are manned and run by specialists prepared to give all necessary data and information.

The glass and metal pavilion at the Brussels Fair is one of a continuing series of Soviet displays. It stands witness to 40 years of labor by 200 million Soviet people. It stands witness, also, to the profound wish of these 200 million people for peaceful cooperation with all countries. ■



NEW YORK 1939

USA—USSR

SUMMER MEETS

By Victor Kuprianov

Sports fans of both the United States and the Soviet Union witnessed a series of interesting meets between the athletes of our two countries this past summer season. Since the USA-USSR cultural exchange agreement was signed last January these meets are becoming a tradition, with men and women in different sports exchanging friendly visits. Here we tell about some of these matches.

MATCH OF THE CENTURY

THAT'S what one Moscow newspaper termed the USA-USSR track and field meet in the Soviet capital and that's what it was to the thousands of fans and the host of sports writers who came from afar to cover the matches. When the American athletes arrived at the Moscow airport, George Eastment, team coach, expounded his views on regular USA-USSR meets:

"I think that it is the most wonderful thing I've heard of in our sport of track and field. I think it's something we've needed for a long time. I believe the athletes will enjoy it *(they did)*. The competition is going to be very close *(it was)*. And I'm certain it's going to bring our countries closer together."

Before the opening of the matches the Americans had about a week for training and sightseeing. Of course, our guests made a close inspection of Moscow's Lenin Stadium, a huge bowl seating 101,000 according to the management—if one overlooks the gate-crashers. Incidentally, all tickets for the meet were sold out long in advance.

While the fans were impatiently waiting, the athletes warmed up before the struggle. All the stadium's sports facilities were at their disposal. When the American runners tested the track, they pronounced it "fast." Records? Why not?

Public interest soon reached white heat. Out-of-towners dropped everything to come to Moscow for the matches. All Sunday morning Muscovites kept their heads craned skyward. The inclement sky discouraged some, but a nationwide radio and TV hookup kept all in touch with the Lenin Stadium. A bit past noon the weathermen announced they didn't expect any chance of rain for the rest of the day, and finally the opening ceremonies started.

There was a long thundering storm of applause as the American and Soviet teams carrying their flags marched past the overcrowded stands. Across the central stand was a huge sign reading in English and Russian: "Greetings to the Athletes of the United States!" And above it floated the Stars and Stripes and the Red Flag, side by side. When the national anthems of both countries sounded over the public address system, spectators and athletes alike stood at attention. . . .

In his reply to the speech of welcome for the guests, Dan Ferris of the U. S. Amateur Athletic Union thanked the Soviet athletes for their warm reception. He praised the Soviet-American sports exchange program being carried out and expressed his hope that "the better team win."

With that, the two teams were set for the 32 scheduled events. The men and women met in the Olympic program with the exception of the marathon and 50-kilometer walk. At the end of the first day, the score showed the Americans ahead by eight points. The coaches commented as follows:

Peyton Jordan for the USA: "We are very

Continued on page 60

DAN FERRIS, Honorary Secretary of the U. S. Amateur Athletic Union: The people of Moscow have received us with open arms. The exchange of teams between the Soviet Union and the United States this year in wrestling, weight-lifting, basketball, and now in track and field have been arranged and carried out on a most friendly basis. A few minor differences that have come up in our negotiations were settled amicably. We hope that the experience gained in our sports relations will help to set an example which will be followed in all lines of endeavor.

USA–USSR SUMMER MEETS

MATCH OF THE CENTURY

Continued

pleased with the results. We thought it was a great contest between both teams. The meet was beautifully run, well officiated and the contestants were of the highest caliber."

Gavriil Korobkov for the USSR: "It was a great fight for us and it turned out better than I expected. I thought we'd be 14 points behind, and we're only eight. I hope we'll do better next day."

And the Soviet team coach should know. The board of selectors has shifted its emphasis to youth. As a result the squad that faced the Americans had only 25 members of the Olympic team. One-third were youngsters with no experience in international competition. But they made out wonderfully well. One of the newcomers was Oleg Ryakhovsky, an engineering student from Tashkent in Central Asia, making his debut with a world record mark in the hop, step and jump.

The competition was razor-keen. There's no denying the fact that this meet was not only a thrill to the fans, but it also helped the athletes to improve their showings.

Rafer Johnson mentioned it and declared that if it had not been for the way Vasili Kuznetsov and Yuri Kutenko kept on his heels he would never have broken the world decathlon record. The speedy Californian shattered the old mark by the time he had completed the ninth event—the javelin throw—which is phenomenal. But Johnson is a phenomenal athlete.

The American girls shattered their national 4×100-meter relay record. Mrs. Earlene Brown boosted the national shotput record. The American men were but one-tenth of a second off from a new world record in the 4×100-meter relay. Ira Murchison and Ed Collymore clocked in a 10.2-mark in the 100-meter dash. And Murchison started slowly—he might have done even better.

In addition to setting some remarkably good times, the meet was also characterized by sportsmanship and friendship. After the 10,000-meter race, winner Yevgeni Zhukov presented his running shoes to his American opponent, Jerry Smartt. And javelin throwers Franklin Held and Al Cantello were given Soviet javelins that caught their fancy.

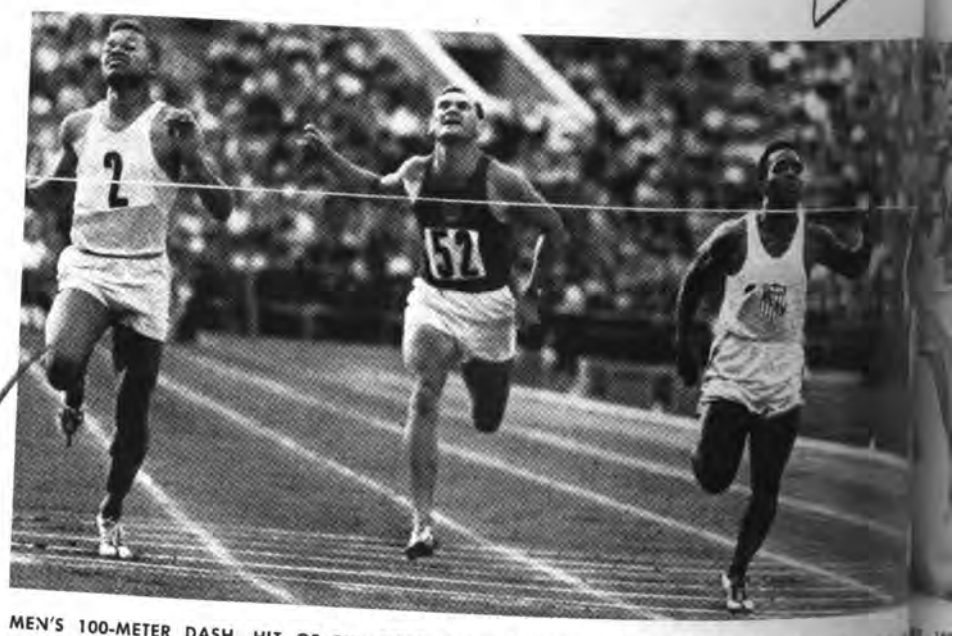
At the end of the meet the grand totals showed the Soviet victory, but with a margin of only two points: USSR—172; USA—170. And this final outcome was determined at the very last moment in the very last event. The coaches were not surprised. Dan Ferris said that the 17-point lead of the American men's team was as it should have been. And the American women's 19-point deficit in the total could also be predicted. Gavriil Korobkov promised keener competition next year when the USSR track and field squad pays its return visit to the United States. ■

CONNOLLY SHOWS HOW IT'S DONE—RESULT, 222' .56".

SPIRIN (NO. 69) CAME FIRST IN 20-KILOMET

POLE VAULT WINNER BULATOV—14' 9.17".

DRIVING FOR LEAD AT THE START OF WOMEN'S 100-METER



MEN'S 100-METER DASH, HIT OF THE FIRST DAY'S CONTEST. AMERICANS WON—10.2 SEC.; RUSSIANS

100-METER WINNER MURCHISON AND SOVIET FRIENDS.

O'BRIEN GETS STARTED ON ONE OF HIS FAMOUS

GLEN DAVIS, 400-meter hurdles world record holder *(center)*: Our reception in Moscow was very good. It was wonderful to see all the flowers we got as we came off the plane. My time for the 400-meter hurdles was much better than I showed in the Olympic Games at Melbourne, and I hope my 1960 record will be even better.

CHARLES DUMAS, high jumper *(right)*: My stay here was very enjoyable. I'd like to thank the people that took the time to extend their wonderful hospitality to the American team. I think the competition was great. I hope that the Russian athletes will come to the United States soon and that I may return here again.

EDWARD TEMPLE, U. S. women's coach: This has indeed been a tremendous stay. In my opinion the meet was carried out in the highest possible manner that an international track meet can be conducted. The people were extremely gracious. I think that both the Russian and American teams showed really great sportsmanship.

RAFER JOHNSON, decathlon world record holder: Since I was in the decathlon, I had the pleasure of competing with Vasili Kuznetsov and Yuri Kutenko again. I first met both of them at the last Olympic Games, and I hope to see them in the USA next year. I also think we might continue our competition at the 1960 Olympics in Rome. The Moscow sports fans were terrific. They impartially cheered the man who was winning, regardless of which team he was on, and this made for better competition.

NES, 100-METER DASH WINNER, WITH RUNNER-UP KREPKINA.

AKHOVSKY SETS WORLD RECORD IN HOP, STEP AND JUMP.

USA-USSR SUMMER MEETS

DURING A MEET IN MOSCOW THE UNIVERSITY OF WASHINGTON HUSKIES FINISHED A FULL LENGTH AHEAD OF THE TRUD EIGHT, WINNER OF THE 1958 HENLEY REGATTA.

THE story leading up to the Moscow visit of the University of Washington Huskies can be sketched in a few words. In the 1952 Olympic Games the Soviet Union made its debut in international scull racing. Our oarsmen got off to an auspicious start when their singles entry, Yuri Tyukalov, outrowed the world's best. Then in the 1956 Olympic Games Soviet athletes again copped the singles title as Vyacheslav Ivanov sped across the finish line to outwit the forecasters.

But however brilliant these victories might be, our eights were always outstripped by the American entries in the final reckoning. That's what happened, for example, at the 1957 Henley Regatta in Britain when Cornell's crew nosed out the Trud crew from Leningrad.

Well, this year the same Trud eight went to Henley backed by a bit more experience, some added muscle and more stamina. They churned the narrow Thames in a torrential downpour at a steady 37-38-stroke pace in the preliminary. The Huskies began briskly but had difficulty keeping up with the stiff pace and were eliminated. The Trud crew went on to win the Grand Challenge Cup.

The runners-up from the University of Washington got an invitation to visit Moscow, and then came the day of the race.

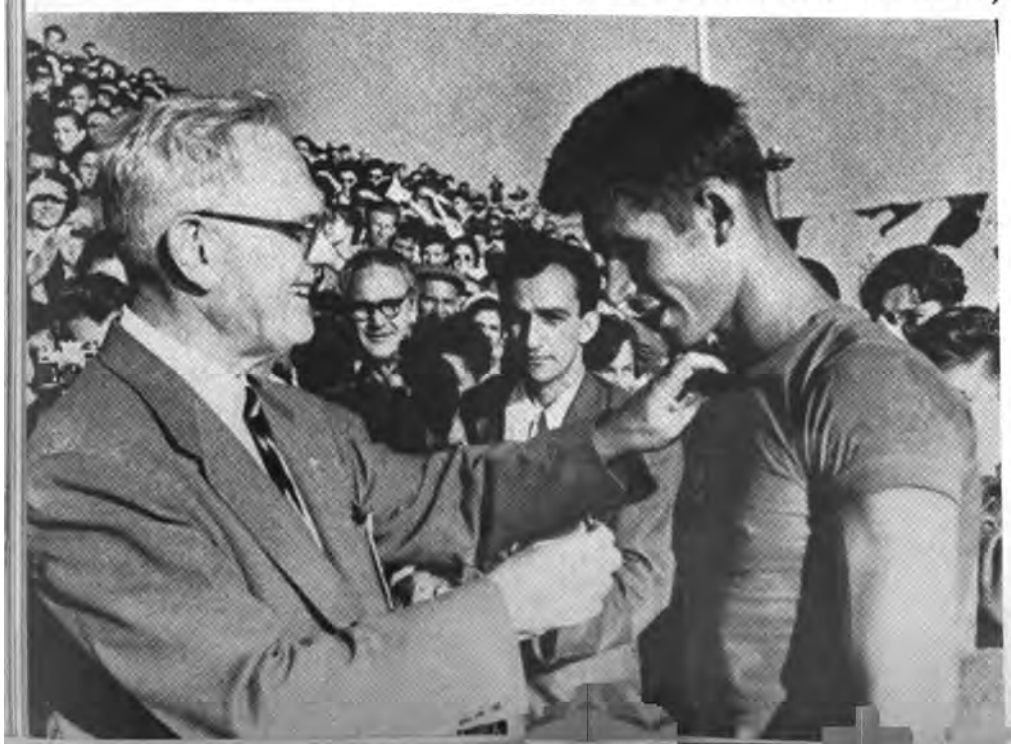
The Huskies got off to a flying start, with the Trud oarsmen looking a bit seasick as their shell danced over the wind-roughened water. No photo finish was required for the race—the Huskies were a full length ahead at the line. This made them feel better for their loss at Henley.

When the race ended everybody cheered, but nobody left the stands. The spectators wondered whether the traditional ducking of the coxswain would follow in the face of the cold, stormy weather. But the Huskies, in a "are we men or mice" spirit, carried on and Coxswain John Bisset was properly tossed off the dock. He was the first American to be given this ceremonial ducking in the Soviet Union. As he came up, he said the water was fine, but the shivering fans knew that whatever heat there was came from the spirited and close contest between the American and Soviet athletes. Afterward there were these comments:

The American coach: "We're used to choppy water and it gave us an advantage."

The Soviet captain replied: "They're better, that's all." ■

JOHN CARLIN, NARA VICE PRESIDENT, AWARDS A MEDAL TO VYACHESLAV IVANOV.



THE HUSKIES WERE PRESENTED WITH SOUVENIR BADGES BEFORE THE COMPETITION.

World Gymnastic Championship in Moscow

By Anton Pikov

THE huge Sports Palace in Moscow was recently the scene of the Fourteenth World Gymnastic Championship. As the athletes of the 22 participating countries moved in the arena from one apparatus to another, it all seemed so simple and efficient—like a smoothly operating machine. When a gymnast finished an exercise, the judges assessed the performance, the head umpire calculated the average score, and the result immediately flashed on the scoreboard. Human energy was converted into the precise language of arithmetic.

On the first day of the over-all gymnastic tournament, when it is still touch and go as to who the closest rivals are, it is chiefly the struggle of an athlete with himself. His efforts are directed toward chalking up the highest possible score. But as the numerous sport prophets at the Moscow meet had predicted, the contest for the men's team and individual honors soon shaped up to be a battle between the gymnasts of Japan and the Soviet Union.

This rivalry has a history. At the Olympic Games in Melbourne in 1956 and at the Third World Youth Games in Moscow a year ago the Japanese gymnasts proved themselves worthy challengers, capable of fighting hard for each tenth of a point. In Melbourne, for instance, they trailed behind the Soviet gymnasts in the compulsory program by only two-tenths of a point.

And now the leading gymnasts of the Soviet Union and Japan were facing each other for the third time. When the Japanese athletes, small of stature in the main, approached the pommeled horse, regarded by the experts as the most difficult apparatus, it looked so big. Yet the "wild" horse was tamed by the Japanese performers. It is true that Yuri Titov, a Soviet gymnast, had the highest score, 9.75 points, but three members of the Japanese team, Takemoto, Kono and Ono, earned 9.35 points each.

The horse for vaulting was still higher, and the Japanese athletes could barely be seen behind its leather-covered back. But they conquered this apparatus, too. The final score, however, showed that they had to be content with third and fourth places—after the Soviet entries.

At the end of the two-day compulsory program the men's teams lined up as follows: the Soviet Union, Japan and Czechoslovakia. In the women's division the Soviet Union was also first, followed by Czechoslovakia and Rumania. In the individual competition Soviet gymnasts Boris Shakhlin and Larisa Latynina were in the lead.

However, the main battle was still ahead. When the gymnasts started to compete on the free program, the Sports Palace was never empty. The judges were there by 8 A.M., and shortly afterward the most impatient of the fans began coming in. They sat in the stands going over the records of the previous day's results and tried to predict the outcome of the current day's events.

Close to 60 foreign reporters were busy taking pictures and broadcasting on the progress of the championships. The Czechoslovak journalists were greatly pleased with the successes of their gymnasts. One of them commented: "Almost all our boys and girls are still very young, and they'll show their real class in the 1960 Olympics. Eva Bosakova is a splendid example for them all. She teaches at the Prague Institute of Physical Culture and still manages to practice three times a day."

Meanwhile the gymnasts were performing miracles. Albert Azaryan,

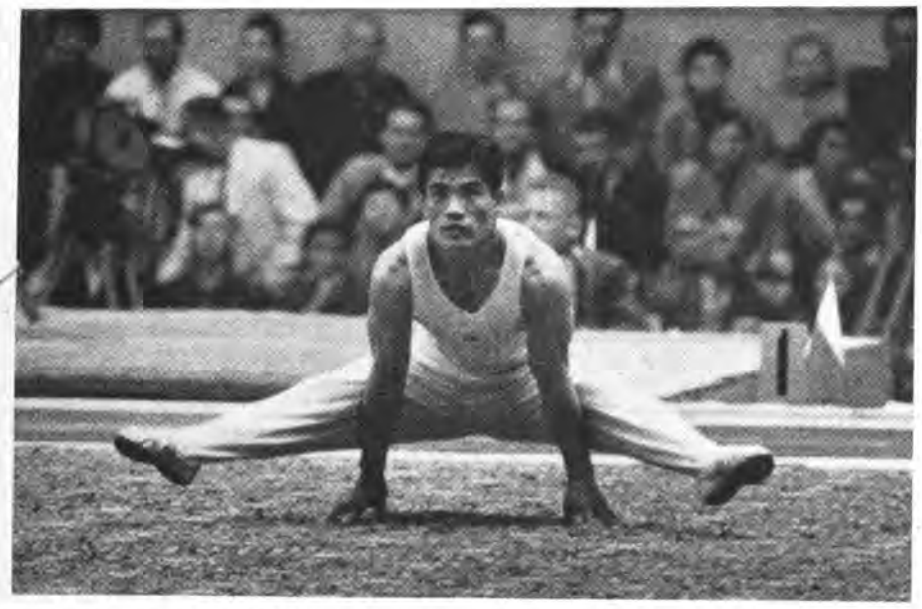
Continued on next page

BORIS SHAKHLIN, THE SOVIET UNION.

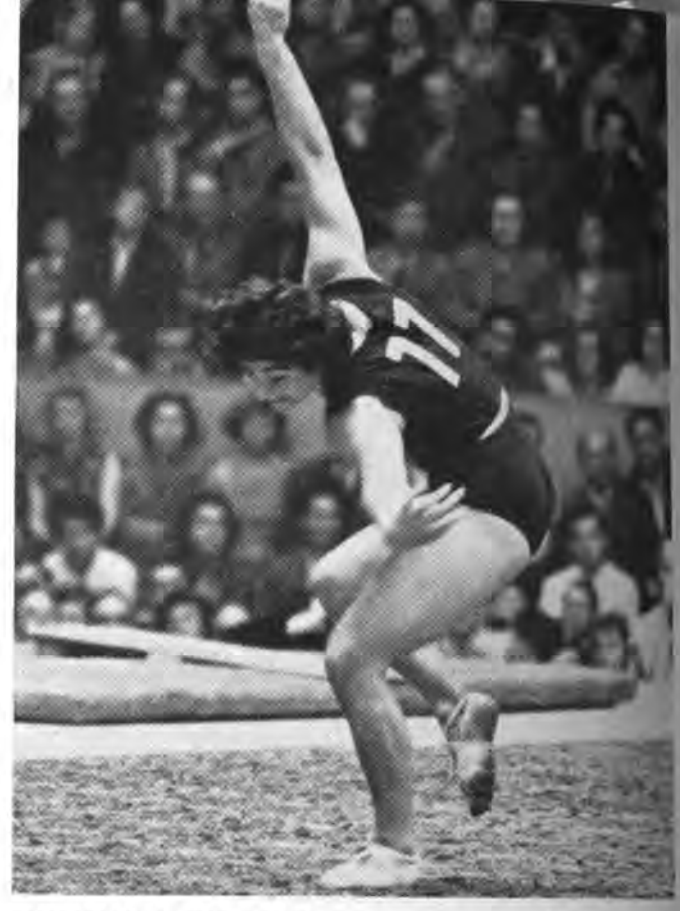
LARISA LATYNINA, THE SOVIET UNION.

World Gymnastic Championship in Moscow

Continued



TSUKOWAKI SHINSHAKI, JAPAN.



EVA BOSAKOVA, CZECHOSLOVAKIA.

a forge-hammer worker from Yerevan, registered an amazing result on the flying rings. He received 9.95 points for this exercise, a record score which remained unbeaten in the Fourteenth World Championship. "Only five-hundredths of his performance was earthly, the rest was heavenly," the spectators joked.

The final results among the men became known by the end of the third day of the competition. The gold medal of the over-all world champion was awarded to the Soviet gymnast Boris Shakhlin, who scored a total of 116.05 points. Takashi Ono of Japan was second with 115.6 points, and Yuri Titov of the Soviet Union was third with 115.45 points.

The final scores of the men's teams were: the Soviet Union, first—575.45 points; Japan, second—572.6 points; Czechoslovakia, third—549.3 points.

A word about the top man. Boris Shakhlin is a 26-year-old teacher from the Ukraine. He is an experienced gymnast, having competed in many events at home and abroad. He has won the European Cup, and at the Melbourne Olympics he won the side horse event. He is also the USSR national all-round title holder. In the Thirteenth World Championship in Rome in 1954 he finished fourth with a score of 114.05 points.

In the women's division the situation was clear from the very beginning of the competition. Larisa Latynina, a 23-year-old student from Kiev, the Ukraine's capital, was in the lead, with Eva Bosakova, the Czech girl, a close second. A third rival bidding for the highest honors was Sofia Muratova, the USSR national all-round champion, but an unfortunate jump-off after the exercise on the uneven bars spoiled her chances of taking the prize.

After the completion of all exercises under the compulsory and free programs, the gold medal of the over-all world champion was awarded to Larisa Latynina, who scored a total of 77.464 points. Second place was taken by Eva Bosakova—76.332 points, and the third by Tamara Manina (the Soviet Union)—76.197 points.

The prize-winning women's teams were: the Soviet Union, first—381.62 points; Czechoslovakia, second—371,855 points; Rumania, third—367.02 points.

Larisa Latynina's victory is a logical continuation of her previous success in the international arena. In 1956 she won the all-round title at the Olympic Games. She also holds the women's European Cup and is the USSR national champion for three gymnastic exercises out of four, and a prize-winner of the Third World Youth Games.

On the last day of the Moscow meet the spectators witnessed new heights of gymnastic mastery: the six top-best contestants in each exercise competed for individual world titles. In these finals eight gold medals out of eleven were won by Soviet gymnasts—three by Boris Shakhlin, two by Larisa Latynina and one each by Yuri Titov, Albert Azaryan and Tamara Manina.

Commenting on the results of the championship, Charles Thoeni, President, Secretary General and Treasurer of the International Gymnastic Federation, said:

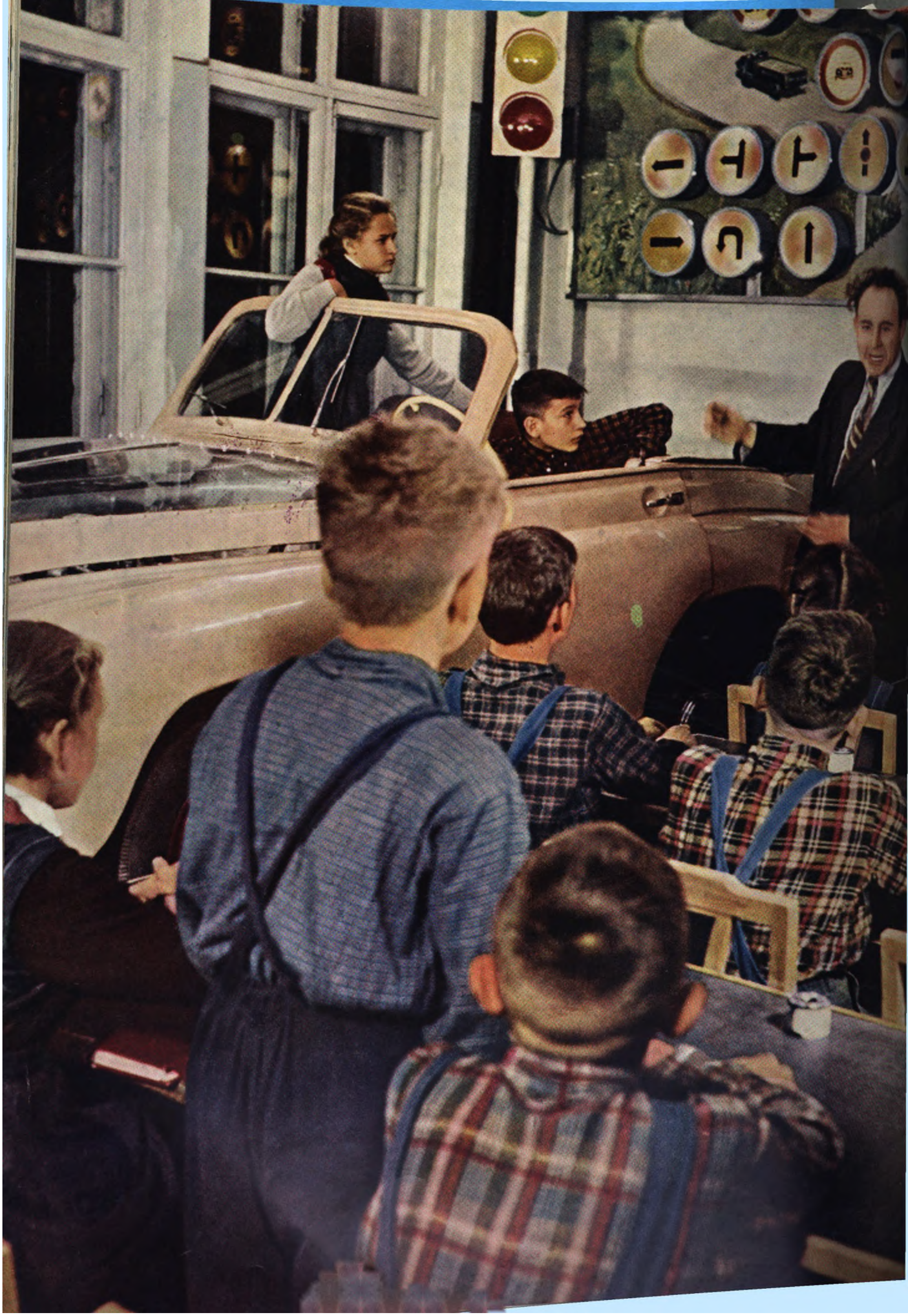
"One can say that the standards of all the countries that sent teams are improving and that gymnastics is gaining in popularity in the majority of countries. Our Federation makes it possible for both weak and strong teams to take part in the championships. We take into consideration the fact that some countries are just beginning to take up gymnastics."

The USA was represented among the 15 men's teams participating in the world championship in Moscow. Before this only individuals had taken part in big international competitions, but this time it was a full team which managed to take seventh place out of fifteen.

Although the Americans were not out for first place, they did want to make a good showing. And they did. They won lots of applause and friends. In general, American gymnastics showed a marked advance since the last Olympic Games, and fans were a bit disappointed that the United States did not enter a women's team as well. ■

JOHN BECKNER, THE UNITED STATES.

YURI TITOV, OF THE SOVIET NATIONAL TEAM, THE 1958 WORLD CHAMPION IN VAULTING



USSR

HISTORIC EVENTS OF 1917

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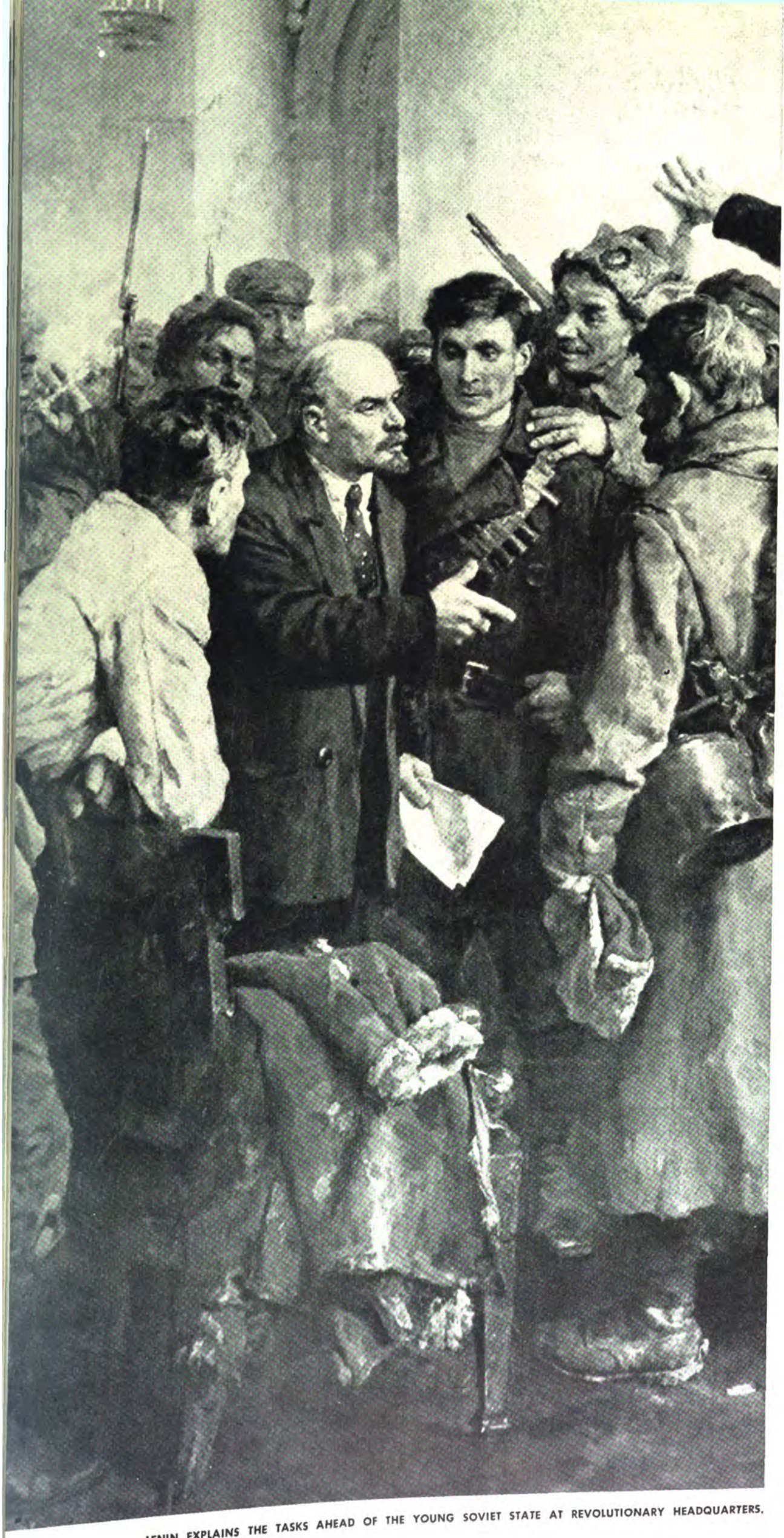

LENIN EXPLAINS THE TASKS AHEAD OF THE YOUNG SOVIET STATE AT REVOLUTIONARY HEADQUARTERS.

USSR

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STORMING THE WINTER PALACE CLIMAXED THE OCTOBER SOCIALIST REVOLUTION OF 1917 THAT PLACED ALL STATE POWER INTO THE HANDS OF THE WORKERS AND PEASANTS.

GREAT PEOPLE'S REVOLUTION

By Andrei Sverdlov, *Historian*

ON NOVEMBER 7 the two hundred million people of the Soviet Union and their friends throughout the world celebrate the 41st Anniversary of the Socialist Revolution of 1917. On that day—October 25 by the old calendar—the workers and peasants of Russia overthrew the old regime of exploitive wealth and feudal nobility, and took government power into their own hands. The October Socialist Revolution, marking a new era in social progress, was swept to victory by the entire course of the country's historical development.

Russia in the beginning of the twentieth century, then an autocratic monarchy, had become the symbol and reality of the self-destructive contradictions of imperialism. Oppression of national minorities, ignorance, superstition, poverty, rule by lash and gun—this was woven into the very fabric of the czarist regime.

The working people fought back with bare hands. There is nothing in human history to equal that grim and long-enduring fight—the doggedness of the strikes for a bare living, the scope and intensity of the revolutionary upheaval which swept all over the country from 1905 to 1907.

Armed uprisings of working people broke out in the large industrial cities. It was during the 1905 Revolution that the Soviets of Working People's Deputies, workingmen's councils, first arose in various parts of the country to lead the revolution.

Together with the movement of workers in the cities, there was unrest in the countryside and mutiny in the imperial army and navy. Although the 1905 Revolution was literally drowned in blood, the czar was compelled to make some few liberalizing concessions.

Soon enough, however, taking advantage of the lack of unity and organization of the forces fighting for freedom, the autocratic regime decimated the revolutionary forces and withdrew even these few concessions. But this first revolution was only prelude to the second. The oppression and poverty which engendered it remained.

Continued on next page

GERMAN AND RUSSIAN SOLDIERS FRATERNIZING AT THE FRONT IN 1917.

GREAT PEOPLE'S REVOLUTION

Continued

Czarism Crumbles

The First World War further widened the immense gap between the autocracy and the people. It aggravated all the deep-rooted crises, domestic and international. The senseless loss of hundreds of thousands of men at the fronts, the economic devastation, the hunger, the nation-wide chaos—this was the Russian autocracy in its death throes. Czarism was literally breaking apart.

Early in 1917 the great strikes and demonstrations which began in Petrograd—then the country's capital—swept through one city after another. By February 23 all of Petrograd's workers had risen, the strike was all-embracing. On orders of the czarist officialdom. soldiers and policemen with machine guns were posted in attics, basements and fire-station towers to shoot down any worker who ventured on the streets.

On February 27 troops of the Petrograd garrison mutinied, the soldiers joined the revolutionary workers. Police stations, the regional courthouse and the gendarmerie building were set ablaze. The gates of the jails for political prisoners were smashed open with rifle butts.

The night of February 27-28, a Soviet of Workers' Deputies was formed to take control of the capital. The example set by Petrograd was followed by working people in Moscow and cities all over Russia. The monarchy simply crumbled away and the subsequent abdication of Czar Nikolai II was no more than a belated recognition of the fact.

Although it had been the working people supported by most of the soldiers—they could more rightly have been called peasants in uniform —who had fought and overthrown the autocracy, the fruits of the victory were gathered by the aristocracy of industry and finance. Their representatives who dominated the State Duma, a consultative body under the czar, formed what they termed a Provisional Government to replace the czarist ministers who had been swept away by the February Revolution.

The Soviets of Workers' Deputies, which actually held the real power in Petrograd, at first gave their support to the Provisional Government. This is to be explained by the fact that the majority in the Soviets at the time were members of the Menshevik and the Socialist-Revolutionary Parties which followed a policy of compromise and reconciliation with the industrialists and big landowners.

Both these parties, very prolific in their promises, had every chance to win the favor of the masses. Even prior to the revolution they were able to conduct their activities openly and freely, often with the blessing of the authorities. As for the Bolshevik—Communist—Party, the czarist regime forced it underground. Now, after long years of fierce persecution, the Bolsheviks were again subjected to unbridled baiting. This helps explain why they initially were a minority in the Soviets.

The Bolsheviks differed sharply in their evaluation of the course of events from the pseudo-socialist Mensheviks and Socialist-Revolutionaries, and particularly from the Constitutional Democrats, a party of employers and landowners. They believed that the revolution was far from complete, so far as the vital interests of the workers and peasants, the majority of the population, were concerned. They held that the working people needed their own democratic government which would end the war, end poverty, exploitation and benighted ignorance.

Soberly assessing the situation in Russia in the light of the lessons learned from world history, the Bolsheviks concluded that only with a socialist form of government could the country overcome its century-old backwardness and rid itself forever of social, political and national oppression.

Could the Revolution Develop Peacefully?

As convinced as they were for the need of socialism in Russia, the Bolsheviks did not, nevertheless, call for the immediate overthrow of the Provisional Government. Through Vladimir Lenin, the Bolshevik Party on April 3, 1917, outlined a course by which the revolution could develop peacefully.

Events came in rapid sequence. The people saw soon enough that the government of employers, bankers and landowners that had come to power on the crest of a revolutionary surge, was deaf to the most basic of their demands for peace, bread and land.

The breaking point came on the heels of a statement by the foreign minister of the Provisional Government, Pavel Milyukov, that Russia, in spite of the people's demand for an immediate peace, would continue the war "to a victorious end."

A mighty burst of popular indignation and great demonstrations of protest throughout the country compelled the Provisional Government to reshuffle its ministers, replacing the most discredited of the advocates of war. To placate popular resentment, some of the leaders of the Soviets—Socialist-Revolutionaries and Mensheviks—were taken into the government. Alexander Kerensky was one of them.

But this slightly more leftist, so-called coalition, Provisional Government continued with much the same policy, one which did violence to the basic interests of the working people and the nation both. The situation grew even more critical after June 18, when the government ordered a large-scale offensive at the front. That venture, inadequately prepared, took a huge toll of lives.

High-sounding speeches of the Mensheviks and Socialist-Revolutionaries about shorter working hours—Russian workers had the longest working day in Europe—remained no more than empty phrasing. It was true that wages had increased, but prices went up, too—out of all proportion. From February to October 1917 wages rose an average 500 per cent, but consumer goods prices rose an average 1,109 per cent!

The enormous landed estates remained unbroken, and land was not distributed to the peasants. Instead troops were dispatched to prevent the starving rural population from seizing these great private parks themselves.

Though the people had made a revolution, Russia remained in the clutches of industrialists, bankers and landowners. They controlled the nation's economy, the state apparatus, the army command, the press. As for the Mensheviks and Socialist-Revolutionaries, they, too, were influential. They headed the Soviets, were supported by some army officers and by most of the liberal intellectuals, they controlled hundreds of newspapers.

The Bolsheviks, who worked at the grass-root level, had no facilities of that kind. The Party's treasury rarely held more than 3,000 rubles at a time. They had neither a large organization nor a big press. There

were Bolshevik papers in Petrograd and Moscow, but in many large cities the Party had no press at all through which to present its program.

The Bolsheviks had only the hatred of the government. Nevertheless, their influence with the people grew steadily, while the prestige of the Provisional Government, the Mensheviks and Socialist-Revolutionaries seemed to wane day by day.

How did this come about? The Bolsheviks spoke as one with the people, their program identical with the program of the workers and peasants.

The strength of the Bolshevik Party came from its unity around the idea of socialism. It was a party hardened by years of struggle and sacrifice. It was a party whose members had seen the inside of many czarist jails and had suffered years of Siberian exile.

The strength of the Bolshevik Party lay in its analysis of the motivating forces of social evolution, in its judgment of major historical shifts as the outcome of conflict between classes, one struggling to maintain a decadent status quo, the other struggling to move mankind along the difficult road of social and economic progress.

The Bolsheviks were strong in their leadership. Vladimir Lenin was a great thinker and a man who had the genius to translate his thinking into living action, his comrades were men and women dedicated to a future they were building, a future for the millions of workers and peasants.

Even that rabid enemy of Bolshevism, General Spiridovich, who headed the czarist gendarmerie, in his memoirs later published in Paris, wrote that in 1917 "the leading group of Bolsheviks had far more energy, courage and initiative than the government and all the parties and organizations backing it."

Reaction Gathers Its Forces

Half a million workers and soldiers filled the Petrograd streets in a great demonstration on June 18. They demanded an end to the war, land to the peasants and the dismissal of ten ministers-industrialists from the government. These were the demands of the Bolshevik Party, also.

But the industrial and financial powers that ruled the country were not to abdicate voluntarily. They were gathering their forces for an attack on the people. Rumors of a general lockout and the dispatch of revolutionary regiments of Petrograd's garrison to the front were circulated by agent-provocateurs in factories and army barracks to incite armed uprising. Documents later revealed that this uprising of Petrograd workers and soldiers was to be the pretext for smashing the Bolshevik Party and thus destroying the leadership of the revolutionary movement.

The Party was able to expose the plot and to prevent an armed struggle at a time when the possibilities for the peaceful development of the revolution were still far from exhausted. The workers and soldiers were persuaded not to take up arms, but they gathered spontaneously in a mass demonstration of protest against the policy of the Provisional Government on the evening of July 3.

The Bolsheviks believed the demonstrations inopportune, but once they began, the Party joined the people. On July 4 more than 400,000 workers, soldiers and sailors of Petrograd demonstrated for peace, bread and freedom. Most were unarmed and there was no attempt to attack either government buildings or officials.

Squads of officers and cadets opened rifle fire; in some parts of the city the demonstrating people were machine-gunned. The government the next day moved troops from the front into the capital. Martial law was proclaimed. The offices of the Bolshevik newspaper *Pravda* and the headquarters of the Party were demolished. Many of the party leaders, only a short while before released from czarist jails, were imprisoned again.

Lenin barely managed to escape with his life—he was hidden by workers while the police and army officers scoured the city in search of him. In an attempt to discredit Lenin and thus undermine the growing influence of the Bolsheviks, the Provisional Government, with the support of the Socialist-Revolutionary and Menshevik leaders of the Petrograd Soviet, resorted to the clumsy slander that Lenin was a spy for the Germans.

To give this lie the look of truth, it was buttressed by the perjured statement of a professional stool pigeon later exposed as a simultaneous agent for both the Russian and German intelligence. The government and the yellow press raised a hue and a cry for Lenin's execution.

The Bolsheviks demanded of the Executive Committee that it immediately cease to circulate and support the obvious slan... Lenin, then in hiding, proposed a meeting by appointment with the Committee's Inquiry Commission. He was prepared, he said, to answer any question they wished to ask.

The Executive Committee of the Soviets did not reply to his proposal for a meeting of inquiry nor did the members of the Inquiry Commission appear at the place appointed. Lenin waited for them in vain from noon to 6:30 in the evening on July 7.

The Mensheviks and Socialist-Revolutionaries insisted that Lenin submit to trial by a Provisional Government court but refused to guarantee his safety. To report for trial under such conditions would have been tantamount to suicide. The Bolshevik Central Committee forbade Lenin to appear and insisted that he leave Petrograd.

The People Defend the Revolution

In July came the turning point. The Constitutional-Democrats, who represented the big financial interests, were returned to the government. The Socialist-Revolutionaries and Mensheviks in the Petrograd Soviet supported the government completely and unconditionally. The counter-revolutionary forces were still in the saddle and riding high.

Capital punishment at the front was reenacted as of July 12. Conventions of landowners, bankers and industrialists openly called for a "strong government," with no attempt to conceal that the term meant a coup which was to do away with all the political freedom so recently won, to make short shrift of the Bolshevik Party, the trade unions and other workers' and soldiers' organizations, to disband the Soviets and to establish a bayonet-propped military dictatorship.

The czarist general Kornilov, a thoroughgoing monarchist, was to be the dictator. And as though to precipitate events, shortly afterward he was appointed Supreme Commander-in-Chief of the armed forces of the Provisional Government.

Analyzing the situation shortly after the July events, Lenin wrote that all hopes for a peaceful development of the revolution had vanished and there was no alternative but armed uprising. This conclusion

Continued on next page

MARCH OF 1917. THE PEOPLE POUR OUT IN SUPPORT OF A NEW LIFE.

GREAT PEOPLE'S REVOLUTION

Continued

formed the basis for the decisions adopted by the Sixth Congress of the Bolshevik Party held in Petrograd from July 26 to August 3.

As the Bolsheviks had forecast, the mass movement against the attempts of the Provisional Government to turn back the revolutionary clock gathered force and scope from day to day. The influence of the Mensheviks and Socialist-Revolutionaries declined catastrophically.

In answer to the July massacre of the Petrograd demonstrators, angry protest meetings were held by workers in many cities. The masses rallied ever closer around the Bolshevik Party.

The people were becoming more and more convinced that only the Bolshevik program and leadership could prevent a return to the autocracy toward which the big landowners and industrialists and their Provisional Government were forcing the nation. Exercising their right of recalling deputies, the workers replaced the Socialist-Revolutionaries and Mensheviks in the Soviets with Bolsheviks and their adherents.

The reactionary forces in the meantime were preparing their *coup de force* with the aim of establishing a military dictatorship. On August 25 General Kornilov moved his troops to Petrograd. Kornilov and his backers planned to disband the Soviets and to go a step beyond, to depose the Provisional Government. Even the feeble attempts of the Provisional Government to preserve the façade of political freedom was anathema to the forces which supported Kornilov and military dictatorship. The manifesto, prepared in advance, declared that Kornilov "assumed the mission of saving the nation."

The very first news of this menacing move stirred the country. Committees for the defense of the revolution sprang up in town and countryside. Workers' battalions were hurriedly formed in Petrograd. The garrison of the capital was alerted and regiment after regiment was rushed off against Kornilov. Detachments of Baltic sailors hurried to the defense of Petrograd. Workers in Moscow, the Ukraine, all over the country, demonstrated agains the Kornilov adventure.

No fighting took place. The revolt ended almost before it began. When Kornilov ordered his troops to Petrograd he did not reveal the reason for the march on the capital. The reason—counter-revolutionary conspiracy—was told his advance units by Petrograd workers, soldiers and sailors. The offensive came to a halt, Kornilov's divisions refused to fight a fratricidal war.

The venture a failure, General Krymov, commander of the advance troops, committed suicide. Kornilov and his fellow-conspirators were arrested.

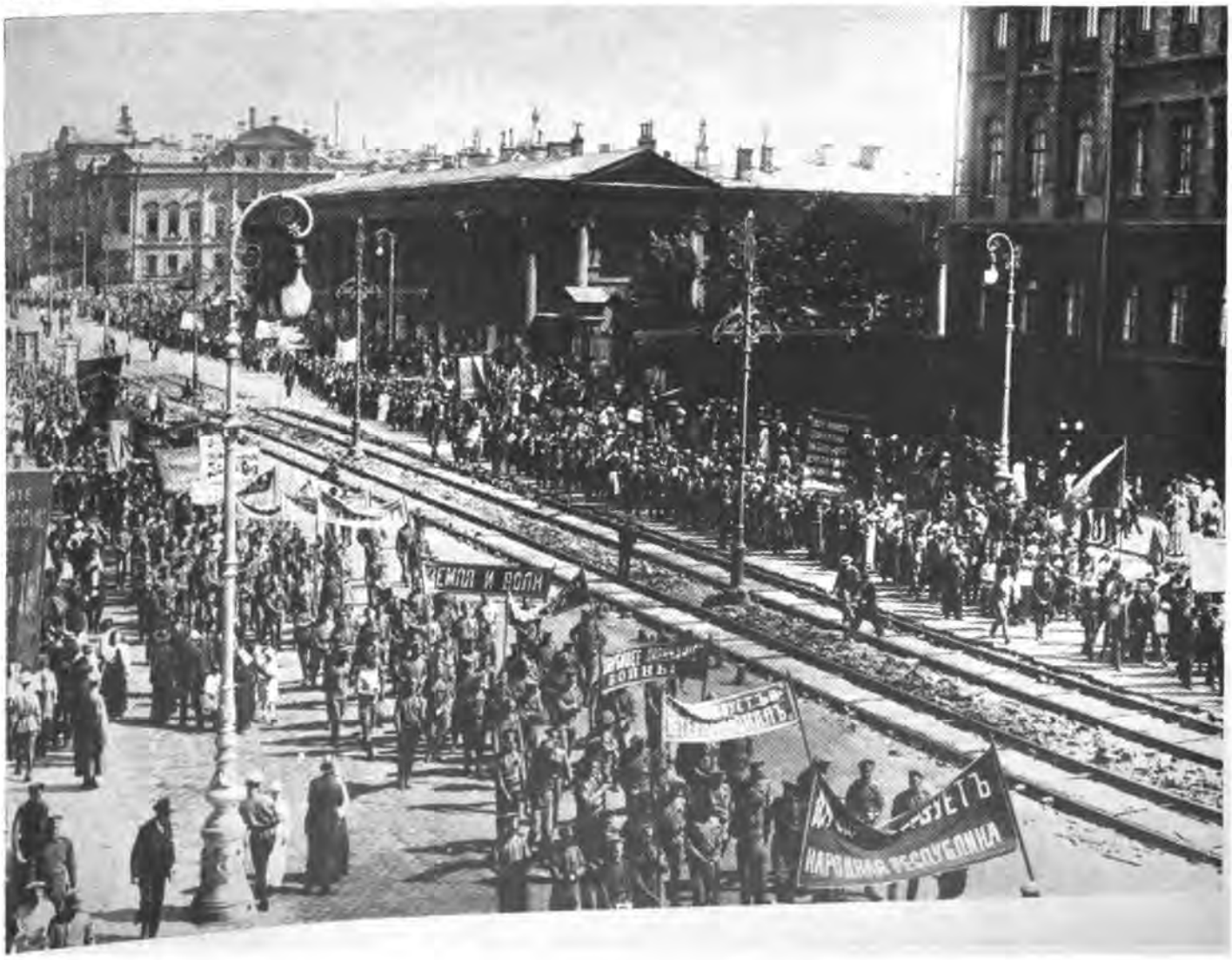
On August 31, the day the Kornilov revolt was put down, the Petrograd Soviet of Workers' and Soldiers' Deputies for the first time adopted a Bolshevik-sponsored resolution to transfer all power to the Soviets. It was passed by a vote of 278 to 115, so crushing a defeat for the Mensheviks and Socialist-Revolutionaries that the presidium of the Soviet which they controlled was forced to resign.

Following that, the Bolsheviks also came to power in the Soviets of Moscow, Ivanovo-Voznesensk, Krasnoyarsk, Tula, Odessa and in all the Soviets of the Urals, the Donets Basin and Siberia. Everywhere in the country the working people refused support to the Mensheviks and Socialist-Revolutionaries and delegated the Bolsheviks to represent them at the Soviets.

The patience of the people had been stretched to the breaking point. They had lost all faith in the empty promises of the Provisional Government. They moved to decisive action to take what they had fought a revolution for. In several factories in Moscow, Kharkov and the Urals they drove out employers who had cut production in order to skyrocket prices, and took over the management of the factories. With no hope left that the Provisional Government would break up the great estates, the landless peasants seized land and farm implements, in many places fighting pitched battles with the police.

At the front discontent with the Provisional Government mounted. The soldiers did not want to spend a fourth winter in the trenches fighting a war that had lost all sense and meaning. What were they being killed for, they asked. There were more and more instances of regiments driving out those of their commanding officers who were

ON JUNE 18, 1917, A HALF MILLION WORKERS AND SOLDIERS DEMONSTRATED IN PETROGRAD'S STREETS FOR LAND, BREAD AND PEACE.



JULY OF 1917. SHOTS RIDDLE WORKERS' PEACEFUL DEMONSTRATION.

faithful to the old regime and electing commanders from their own ranks who were revolutionaries.

From end to end of the country millions of people were rising.

Seeking desperately for a way to strangle the revolution, the Provisional Government took the road of treason, the more reactionary groups openly calling for foreign armed intervention. The big oil tycoon Lianozov, who subsidized the Constitutional-Democratic Party, in an interview given to an American journalist, talked of intervention as the only hope. "Sooner or later," he said, "the foreign powers will have to intervene in our affairs."

In August Riga was surrendered to the Germans—shortly after General Kornilov, on the eve of his abortive revolt, had stated publicly: "Perhaps we should sacrifice Riga to make the country conscious of its duty again."

After the failure of the Kornilov coup, the Provisional Government proposed to open the front and surrender Petrograd to the Germans. The big landowner Rodzianko, former chairman of the State Duma, wrote in this vein in the Moscow paper *Russian Dawn:* "I think we should leave Petrograd . . . Some people are fearful that the Soviets will perish in Petrograd. But I shall rejoice if these institutions are destroyed."

Kerensky, who then headed the Provisional Government, began secret preparations for the capital's evacuation. Only the resolute protest of the Petrograd workers and soldiers, who disclosed the treasonable preparations, prevented the surrender of the capital. Then Kerensky tried to pull the revolutionary soldiers out of the city. But in this attempt, too, the Provisional Government was checked.

At meetings of workers in the factories, of soldiers in the troops, of sailors on the warships, at meetings of city and regional Soviets everywhere in the country the slogan was forwarded: "All Power to the Soviets!"

With the Provisional Government calling for foreign bayonets to put down the revolution, a peaceful transfer of power to the Soviets, feasible in April, May and June, was now altogether impossible. The slogan "All Power to the Soviets"—this time to Bolshevik Soviets—was the call for an armed uprising that would place state power in the hands of the people.

On October 12, the Executive Committee of the Petrograd Soviet formed, on the motion of the Bolsheviks, a Military-Revolutionary Committee. It subsequently became the headquarters of the armed uprising.

The Uprising

The Second All-Russian Congress of the Soviets was to open its sessions on October 25. Since the Soviets then represented the majority of the working people who backed the Bolshevik program, the Provisional Government hurriedly mustered its forces to behead the Congress. It moved its most reliable frontline units to Petrograd, alerted the cadet schools and strengthened the police force. It had decided to arrest Lenin immediately and "all the active participants of the July events" and to prosecute the Military-Revolutionary Committee.

But the Provisional Government, although still able to [illegible] decisions, had lost the power to carry them out. The center governing the lift of the capital and the country had shifted to the spacious building of the Smolny Institute which the Bolshevik Party, the Military-Revolutionary Committee and the Petrograd Soviet had made their headquarters—the headquarters of the revolution, where armed workers' detachments were concentrated, where soldiers and sailors and envoys from towns and villages all over Russia came for advice and instructions.

On October 24 the Provisional Government tried to isolate the workers' districts from the city center. It ordered the communicating bridges over the Neva River to be raised. But, acting for the Military-Revolutionary Committee, detachments of Red guards and sailors cleared the cadet forces from the bridge approaches.

The Provisional Government ordered the cruiser *Aurora*, which was completing repairs in the Petrograd shipyards, to sea. But, obeying the orders of the Military-Revolutionary Committee instead, the crew eased the warship into the Neva and trained guns on the Winter Palace, the last refuge of the ministers.

Troops ordered from the front to the assistance of the government either refused to board army trains or stopped the trains on approaching Petrograd to join the revolutionary forces.

The illusory authority of the government of national treason, the government that had set itself against the most basic interests of the majority of the people, waned with every order, every decision, every proclamation.

Late in the evening of October 24 Lenin came to the Smolny to lead the uprising. On the night of October 24-25 the revolutionary workers, soldiers and sailors took over one government building after another, one railway station after another, the power station, the telegraph office, the telephone exchange—all done in disciplined calm without firing a single shot. By morning of October 25 the people had control of almost the whole of the capital. The only spot left to the Provisional Government was the Winter Palace.

And that morning on all the Petrograd billboards was posted the historic proclamation:

"From the Military-Revolutionary Committee under the Petrograd Soviet of Workers' and Soldiers' Deputies.

"To the citizens of Russia.

"The Provisional Government has been overthrown. The state power has passed into the hands of the organ of the Petrograd Soviet of

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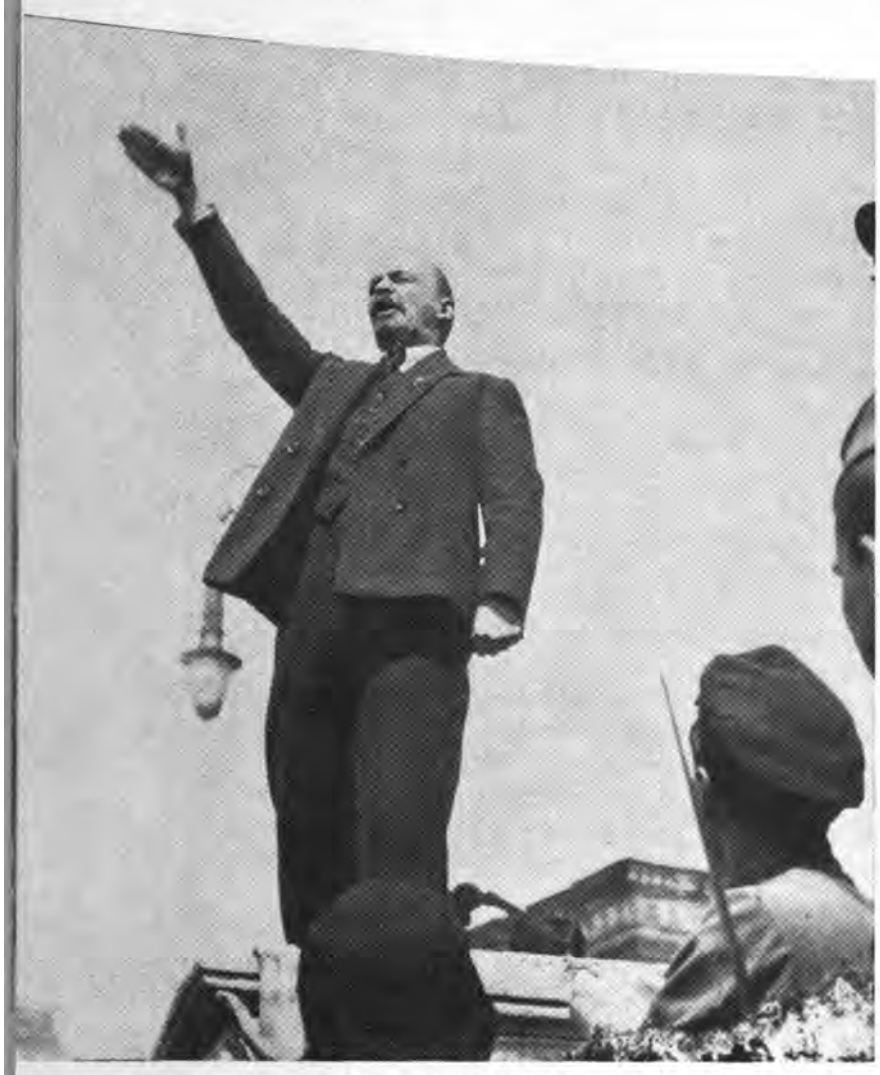
THE DAY AFTER THE OCTOBER REVOLUTION EVERYONE CALLED FOR PEACE.



MAY OF 1919. LENIN ADDRESSES WORKERS IN A MOSCOW SQUARE.

GREAT PEOPLE'S REVOLUTION

Continued

Workers' and Soldiers' Deputies—the Military-Revolutionary Committee—which heads the Petrograd proletariat and garrison.

"The cause for which the people have fought—the immediate proposal of a democratic peace, the abolition of landed-estate property, workers' control of industry and the formation of a Soviet government—is now guaranteed.

"Long live the revolution of the workers, soldiers and peasants."

This proclamation was signed by Lenin.

The Second All-Russian Congress of the Soviets convened late in the evening of that same day to determine the future of the country.

At this very time the revolutionary forces stormed the Winter Palace. On the night of October 25-26 it was taken and the members of the Provisional Government arrested. It is worth noting that shortly thereafter the ex-ministers were released on their word of honor together with all officers, cadets and soldiers who had been captured fighting against the revolutionary people.

The Second All-Russian Congress of the Soviets, representing 20 million of the organized working population, assumed state power. On October 26 the Congress issued the first two decrees of the people's power—the Decree on Peace and the Decree on Land.

The Decree on Peace was an appeal to all belligerent peoples and their governments for a just and democratic peace without annexations or indemnities.

The Decree on Land declared that landed estate ownership was abolished forthwith and forever without compensation, and was replaced by national ownership of all lands. Here was the century-old dream of the landless Russian peasant come true.

The Congress formed the first workers' and peasants' government in mankind's history—the Council of People's Commissars. It was headed by Vladimir Lenin.

Following the example of Petrograd, workers and peasants rose in the Ukraine, Siberia, the Urals, Transcaucasia, the Baltic regions, the Caucasus. Soviet power spread triumphantly to every part of Russia.

The World's First Socialist State

The October Revolution, supported as it was by the vast majority of Russia's people, was perhaps the most bloodless ever made. According to some sources, a total of five persons, according to others, a total of seven were killed during the uprising in Petrograd.

The Soviet Government lost no time in making the people's will the law of the land. In a matter of weeks it gave the workers and peasants what the Provisional Government had been unable to accomplish in its eight months of existence.

The world's first Socialist State abolished ranks and titles, granted women equal rights with men. It introduced the eight-hour day and placed workers in direct control of the factories. The policy of the Soviet Government concerning the country's national minorities was stated in clear and powerful language in *The Declaration of Rights of the Nations of Russia*: equality, sovereignty, self-determination.

But the story of the October Socialist Revolution does not end here. The young Soviet Republic was almost immediately plunged into a civil war imposed by supporters of the old regime which the revolution had swept into the gutters of history. This was a bloody struggle against well-financed and well-equipped counter-revolutionary armies bolstered by the interventionist armies of fourteen foreign states—a struggle that left the country devastated.

The Soviet people fought hard to defend what they had won in the Revolution. When the war was over, they worked with the same energy to reconstruct the ravaged land and then build socialism in their country.

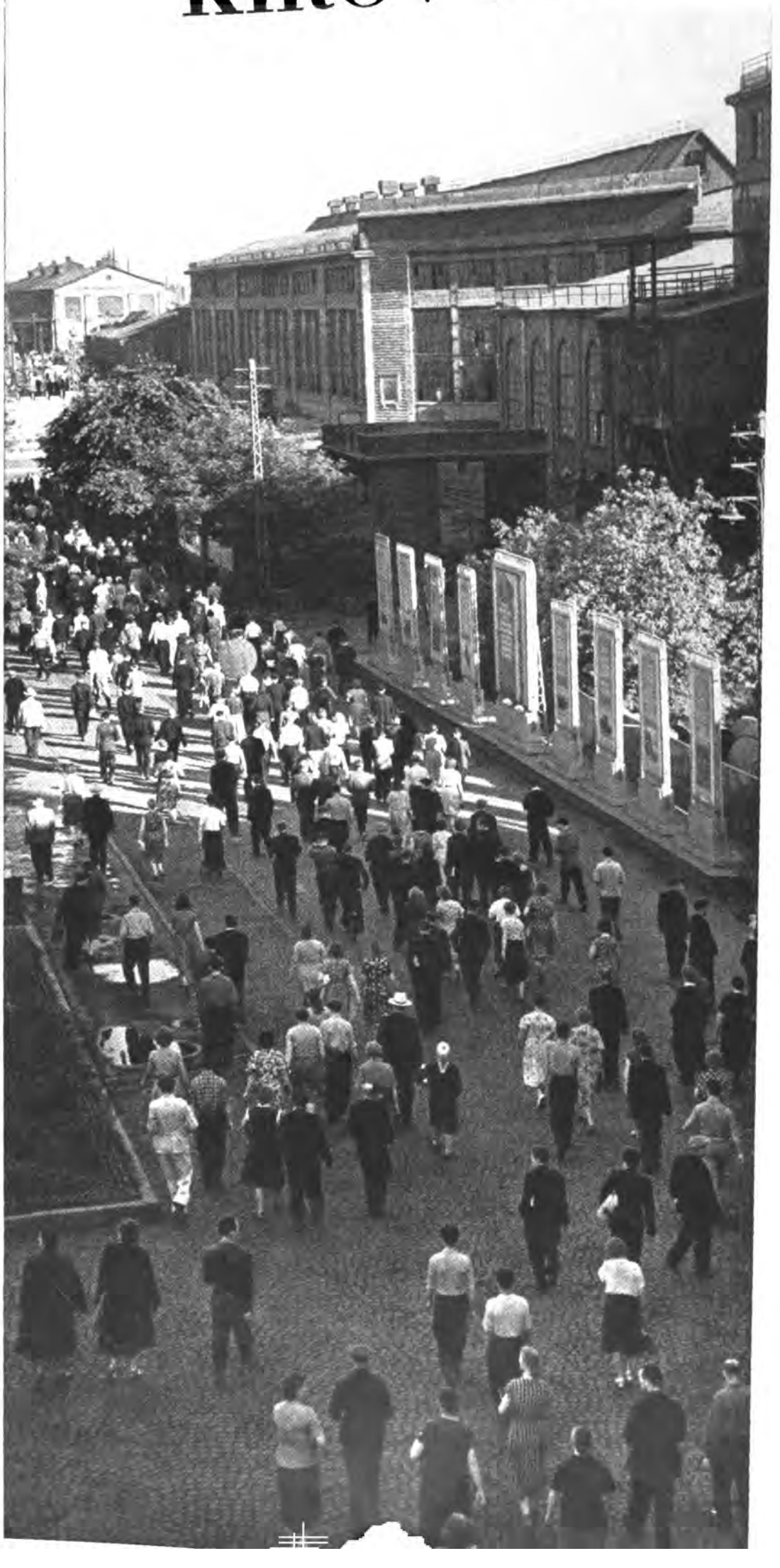
The forty-one years of the world's first Socialist State were fraught with sacrifice, but they were also filled with great successes in all fields of the economic, political and cultural life that have given the Soviet Union its present place as one of the leading nations. ■

COMMUNISTS of the KIROV PLANT

The Communist Party of the Soviet Union has nearly 8 million members, people in every walk of life. They all belong to the Party branches at their places of work. This is a picture of the Party branch at a big engineering plant.

By Alexander Kuznetsov

Photos by Dmitri Chernov



THE Communist Party branch at the Kirov Engineering Plant in Leningrad is one of the oldest in the country. It goes back to the nineties of the last century when workers met illegally in small groups to study the principles of scientific socialism. These study circles were later joined in the League of Struggle for the Emancipation of the Working Class founded by Lenin in 1895.

The Kirov Plant was then called the Putilov Works, after its founder. It was built 157 years ago and manufactured the first Russian rails, locomotives and railroad cars. The history of the plant is an important chapter in the biography of a century and a half of Russian industrial development and, by that token, in the development of the Russian labor movement.

The earliest strike at the Putilov Works took place in 1871. It was a strike for the most elementary rights of labor, the first of many, and was fought grimly and courageously, not only against the factory owners but against the whole of the massed power of czarist autocracy. Strike meant blacklist and

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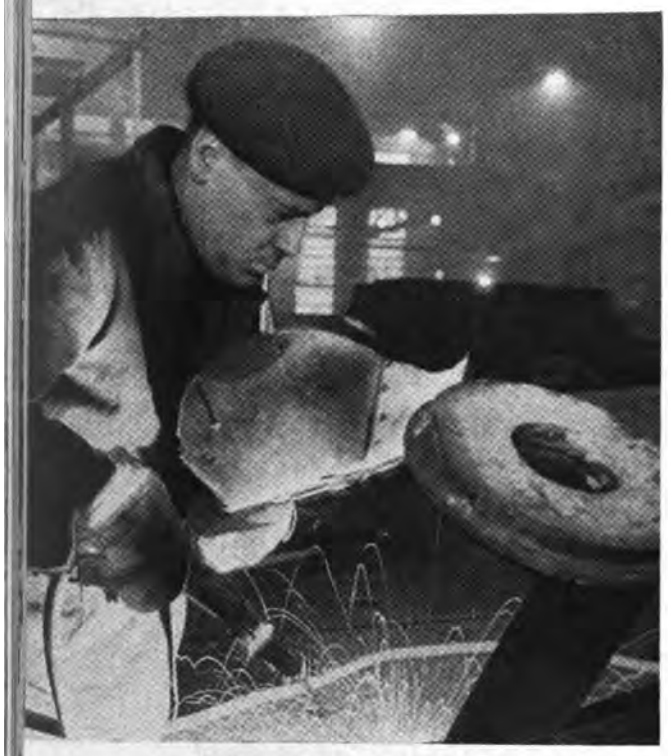
MORNING SHIFT WORKERS STREAM INTO THE PLANT.

COMMUNISTS of the KIROV PLANT *Continued*



MIKHAIL PEREVERZEV IS ONE OF PLANT'S WELDERS.

permanent unemployment, it meant police terror and jail and exile.

A strike for a bare living wage, in czarist Russia, was inevitably a strike for political freedom, and the Putilov Works was one of the first where the labor movement merged with the revolutionary socialist movement to give rise to the Russian Social-Democratic Labor Party which developed afterward into the Communist Party.

There are veterans of the labor struggles of the early part of the century among the plant's Communists, men for whom the Socialist Revolution of 1917 is a page from the story of their own lives. They have long been retired on pension but many, still active, contribute their valuable background of experience to the work of the Communist branch.

Most of the members are young people who know about the old labor struggles only from history books and from the stories the old-timers tell. They were born and brought up under socialism.

Who Joins the Communist Party

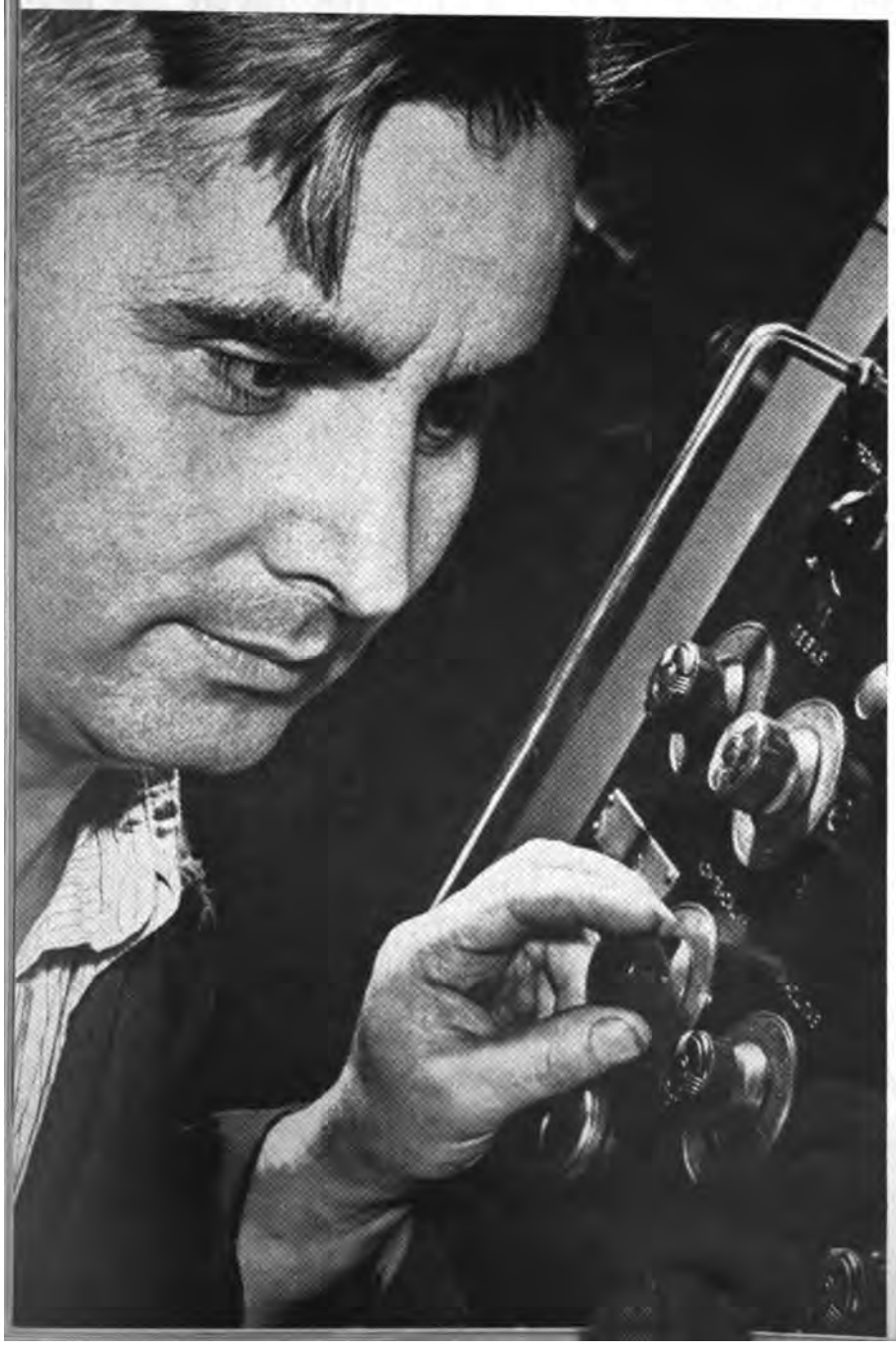
Here then are old people and young, men and women of a variety of occupations, of different backgrounds, of different educational levels, with interests in many cases widely dissimilar.

Who joins the Communist Party of the Soviet Union, a party which imposes a demanding discipline and heavy obligations upon its members and grants little more in the way of advantages than the influence and prestige earned by a person who voluntarily assumes unpaid public responsibilities?

Communists like the plant's older men led the labor battles of the turn of the century and were active participants of the Revolution. Many of them will carry the scars to the end of their lives. Communists picked up the heaviest burdens during the long years after the civil war, when the country was rebuilding out of devastation, just as now many young Communists from the Kirov Plant vol-

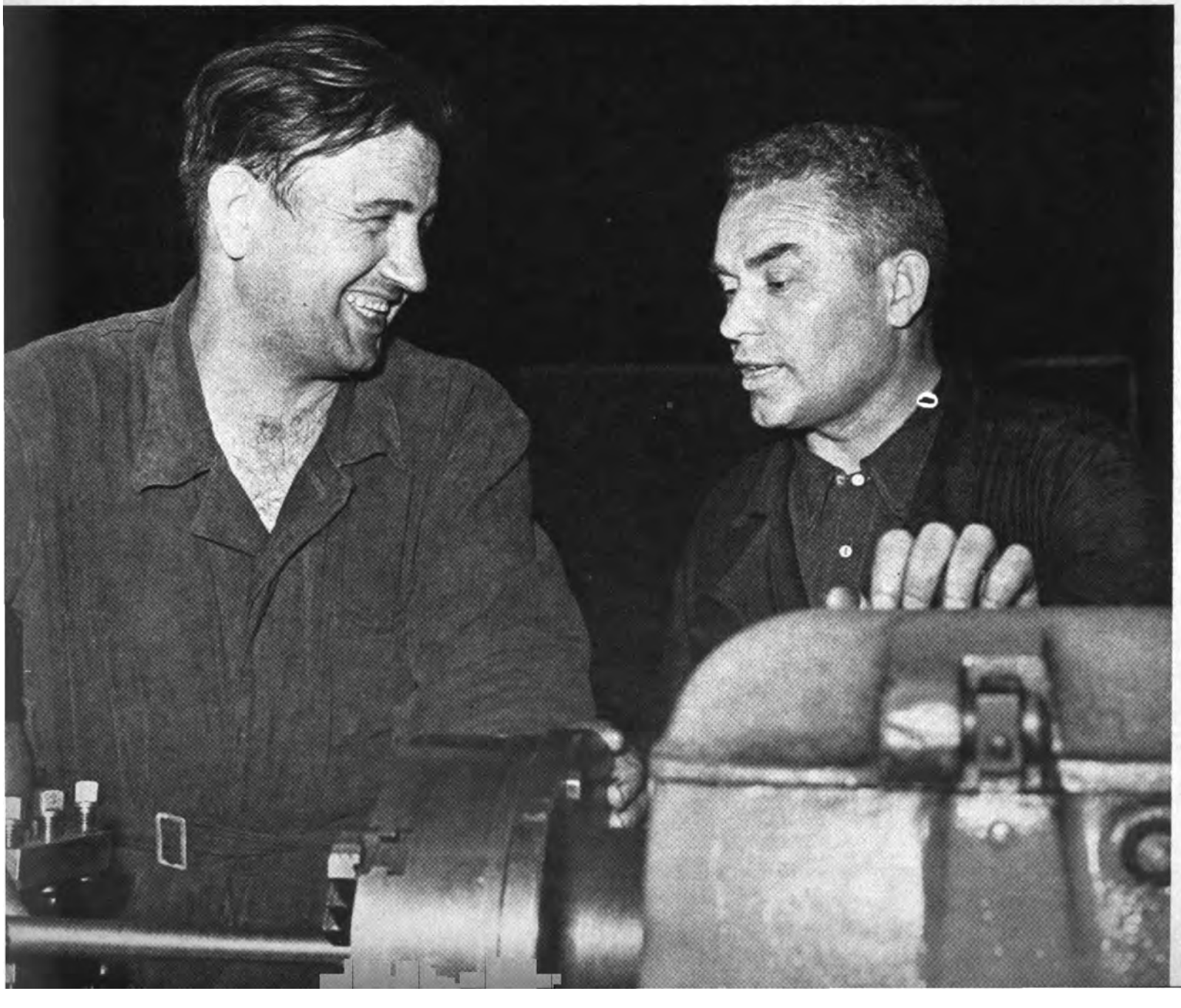
Continued on page 10

FITTER KONSTANTIN GOVORUSHIN HEADS THE PARTY UNIT IN HIS SHOP.

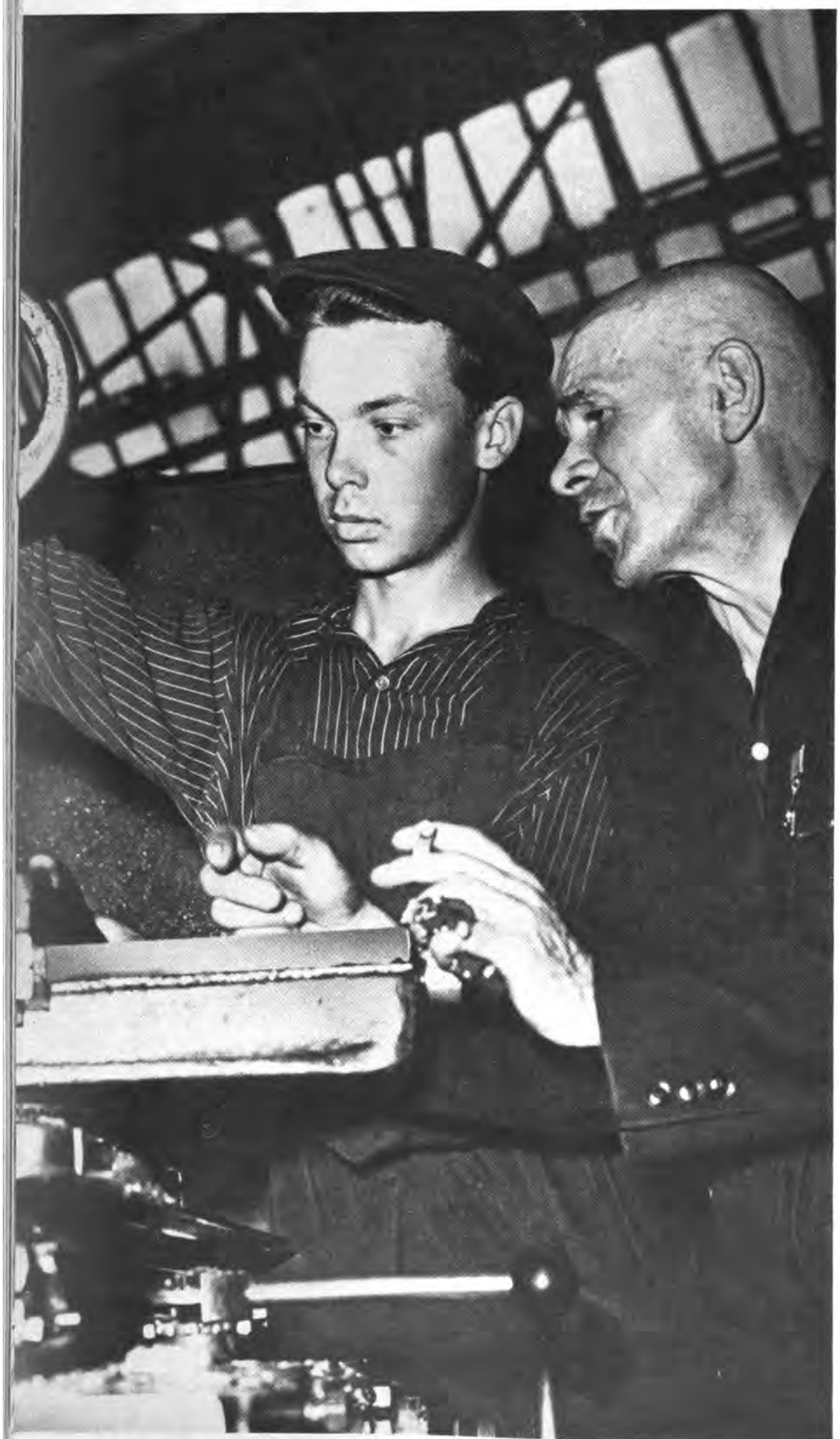


COMMUNIST MITROFAN ZHUKOVSKY IS ONE OF THE BEST STEEL SMELTERS AT THE PLANT.

G THE PARTY IS A GREAT EVENT FOR SOVIET CITIZENS. MIKHAIL SOFRONOV, A LATHE OPERATOR, APPEARS BEFORE THE PLANT COMMITTEE ON HIS CANDIDACY.



JNISTS SERGEI ZHAROV AND NIKOLAI BOBROV ARE EXCELLENT LATHE OPERATORS, AND BY THEIR ACTION, NOT BY WORD, SET THE EXAMPLE FOR NON-PARTY WORKERS.



MECHANIC VLADIMIR KARASEV (RIGHT) IS AN ALTERNATE MEMBER OF THE PARTY'S CENTRAL COMMITTEE.

unteer for the toughest pioneering jobs in the Urals and Siberia to open new areas for cultivation.

During the Second World War it was the Communists who took, and were expected to take, the most dangerous positions at the front —the rear guard in retreat and the most exposed positions in advance. In spite of that, in the months immediately following the Nazi invasion, when the country lived through the darkest days of the war, the number of men and women who applied for Party membership more than tripled

This figure goes far to answer the question. It is a tribute to the human spirit—this willingness to give your life, if need be, to defend what you believe in and what you live by.

The Communists in the Kirov Plant believe in socialism, not simply as a philosophical idea, but as a way of life. They are united by a single world outlook, convinced of the inevitability of an eventual socialist world and joined together to build in the Soviet Union the pattern for that world.

The Communists are workers, whether by hand or brain, who, by virtue of their Party membership, must be the best and most productive people in their shops so that not alone by word but by action they can merit leadership. They are people who accept the Party program and its decisions and work actively to carry them out.

The Party Branch

The Party branch at the giant Kirov Plant has 4,000 members and elects its executive committee, as do all Party branches, at general membership meetings. The present chairman of the Kirov Plant committee is 47-year-old Sergei Kalinin. He started working at the plant as an unskilled laborer when he was 20, then became a steelworker. Combining work and study, he succeeded in obtaining a post of an engineer.

Director of the plant Ivan Isayev, who also started work at the plant as a laborer, is a member of the executive, as are welder Alexander Kvashnin, rolling-mill operator Ivan Grechikhin, milling-machine operator Ivan Leonov, mechanic Vladimir Karasev and other shop representatives.

Of the 4,000 Communist Party members at the plant 44.4 per cent are manual workers. Another 41.6 per cent are engineers and technicians; most of these men and women started as manual workers. The remaining 14 per cent is made up of office workers.

This is about the usual distribution in Party branches in industrial enterprises throughout the country. The preponderant majority, in the case of the Kirov Plant four-fifths of the membership, is made up of people engaged directly in the production process.

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PARTY UNITS HEADED BY ELECTED COMMITTEES FUNCTION IN ALL SHOPS OF THE PLANT. THE MACHINE SHOP COMMITTEE HEARS A REPORT ON RATIONALIZATION PLAN.

MEMBERS OF THE PARTY'S REGIONAL COMMITTEE.

NON-PARTY FOREMAN SETS UP JOB ASSIGNMENTS.

SHOP WORKERS JOIN IN TALKS ON MAJOR ISSUES.

WORKERS, BOTH PARTY AND NON-PARTY, CHECK UP ON THE FULFILLMENT OF THE UNION CONTRACT. HUNDREDS PARTICIPATE IN THESE SURVEYS IN EACH DEPARTMENT.

COMMUNISTS of the KIROV PLANT

Continued

ENGINEER VASILI SNIGIREV PAYS PARTY DUES TO A SHOP UNIT'S SECRETARY.

What Is Expected of a Communist

The Communists in the plant enjoy no special privileges. Like any other worker, their wages must be earned and are gauged by what they produce.

If a non-Party worker "soldiers" on the job, he is responsible only to himself and to his wife, perhaps, who can conclude how well he worked by the size of his pay envelope. If he is a Party member, however, this will be only the beginning of his troubles.

He will be taken sharply to task by the other members of his Party branch, people who work on the benches alongside his. His shirking is no longer a purely personal thing, it reflects discredit on him as a Communist and therefore on every Communist in his group. He represents the leadership of the country and is therefore obligated to act as a leader. If not, he does not stay in the Party long.

As pace-and-quality setter, the Communist is expected to keep up with advances in his skill. He is expected to attend the technical classes given at the plant, to keep educating himself. More than that, he is expected, again by force of example, to persuade non-Party workers to attend classes with him. His effectiveness as a Communist is to be measured by the degree to which he develops his own potentialities as a worker and citizen, and the degree to which he helps his non-Party neighbor to develop.

It is no accident, therefore, that the Communists working in the Kirov Plant have been responsible for many of the very important changes in technology and for innovations which have increased production many times over and have lightened the work load at the same time.

The Communist Vladimir Karasev, for instance, who has been working as a lathe operator at the plant for 30-odd years, is the originator of many important techniques. One of them, the use of a highly efficient end milling cutter of an original design, meant an additional million rubles for the plant. Through similarly inventive ideas milling-machine operator Ivan Leonov and fitter Pavel Zaichenko, both Party members, have saved for the plant sums running to very large annual figures.

This is not to suggest that it is only the Communists who propose such time and labor-saving techniques at the Kirov Plant and in many thousands of other Soviet plants. However, Party members are expected to be the most knowledgeable workers. They are the ones to whom a non-Party worker can go for help in solving a tricky problem or in getting an idea worked out.

Day-to-Day Activities

Not too long ago several of the assembly men in the mechanical shop shared with Communists Nikolai Pichuzhnikov, a fitter, and Vasili Osipov, a milling-machine operator, their idea for eliminating the department of technical control. This department was opened after the war, when many inexperienced workers were hired. These new men had long ago become craftsmen and the department had not only outlived its usefulness but was an irritant, besides being a waste of money.

The matter had come up at shop meetings but for one reason or another, largely neglect, the department was still operating.

The two Communists thereupon brought the question up at a meeting of the Party group in the shop. The proposal to eliminate the department was endorsed and communicated to the plant administration. Now every worker in the shop places his own mark of approval on the processed part or the assembled section of a machine.

The Party branches do not substitute for the administration of a factory or for a governmental agency. They follow the methods characteristic of any public organization. Here is an example, illustrating the usual procedure:

During the postwar years, the Kirov Plant embarked on a program of large-scale housing construction for its many thousands of workers. Although in the one year, 1957, the plant

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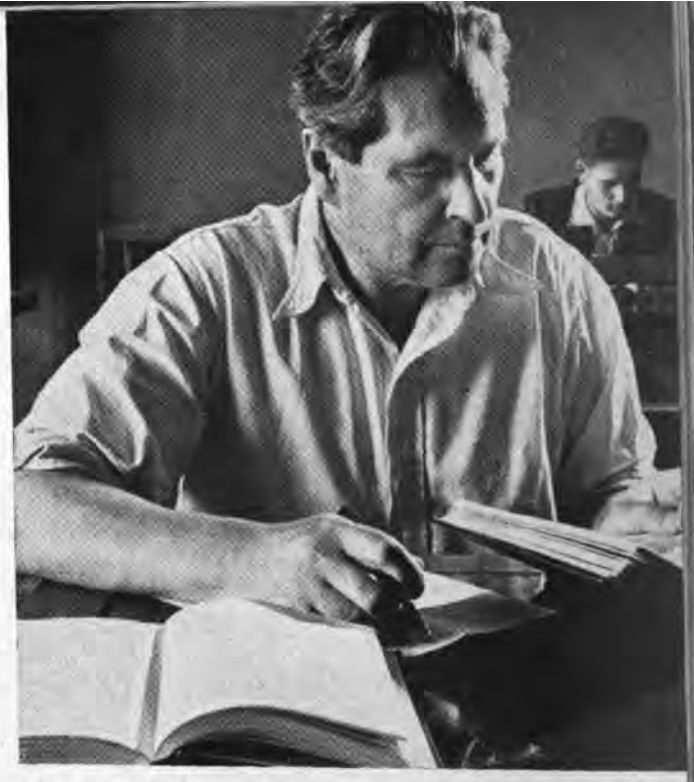

COMMUNISTS STUDY TO RAISE THEIR POLITICAL LEVEL.

THESE ENGINEERS STUDIED NIGHTS WHILE WORKING.

GROUP OF WAR VETERANS FROM ONE OF THE SHOPS.

NIKITA KHRUSHCHEV, FIRST SECRETARY OF THE PARTY'S CENTRAL COMMITTEE, CONGRATULATES VETERANS OF THE KIROV PLANT FOR SERVICE TO THE COUNTRY.

COMMUNISTS of the KIROV PLANT

Continued

spent more than 13 million rubles on building, general feeling was that the program was not moving along nearly fast enough.

The plant's Party committee came to the conclusion that construction could be speeded up if the plant built a shop to turn out silicate blocks for prefabricated houses. The committee addressed its decision to Plant Director Ivan Isayev.

As a Party member, Isayev was obligated to carry out the decision of his Party branch. Had he disagreed, he could have appealed to the higher Party body, but since he was fully in agreement with his fellow Party members at the plant on this matter, the shop was built.

Much of the Party branch's activity is with matters of this kind which immediately concern the welfare of the plant's workers. All the Communists in the plant are members of the trade union and by virtue of their activities on behalf of their fellow members are frequently elected to the leading trade union bodies in the plant.

General Party Policy

The interests of the Communists in the Kirov Plant are not, however, limited to the factory. At Party meetings they discuss the more general problems of Party policy, those which affect the entire country. Now, for example, nearly all attention of the plant branch is focussed on preparation for the 21st National Congress of the Communist Party to be convened in Moscow in January, 1959.

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MASS MEETINGS OF ALL WORKERS ARE CALLED PERIODICALLY BY THE KIROV PLANT'S PARTY COMMITTEE TO DISCUSS PROPOSALS AND SURVEY OPINIONS ON MUTUAL PROBLEMS.

COMMUNISTS of the KIROV PLANT

Continued

Each time, when the Party's Central Committee advances one or another question for the nationwide consideration, the Communists of the Kirov Plant express their views, and propse changes and amendment to the drafts of Party policy documents. Their voices carry weight in deciding issues involving the whole Party organization of Leningrad, one of the largest in the country.

In discussions with his shopmates, the Communist at the Kirov Plant speaks as his Party's representative. He must keep abreast of current national and international events. But more than that, he must have the necessary knowledge to relate the events to his socialist convictions. The program of the Party is no purely theoretical set of principles divorced from the realities of work in his shop, any more than it is divorced from the realties of the national and international scene.

Where his Party falls short, either in the shop or in larger areas, a Communist must be prepared to face criticism from the workers around him, to admit shortcomings and to take steps to eliminate them. He must be equipped with the background and the current information to explain the policies which his Party advances—whether they relate to the plant or to the larger areas of domestic and foreign affairs.

The Communist Party of the Soviet Union requires all this—and more—from a member, whether he is a metal worker or the highest of government officials. ■

COMMUNIST ALEXEI BAIKOV, A PLANT VETERAN NOW RETIRED ON PENSION, FREQUENTLY VISITS HIS OLD

PLANT PAPER *KIROVETS* APPEARS THREE TIMES WEEKLY.

Plant's relic. Mikhail Kalinin, the first Soviet President, worked on this lathe from 1896-1899.

LENIN AND PUTILOV WORKERS—PAINTING IN THE LENINGRAD MUSEUM OF REVOL

COMMUNIST PARTY CONGRESS

TO DISCUSS THE COUNTRY'S ECONOMIC FUTURE

THE COMMUNIST PARTY of the Soviet Union will hold its 21st Congress on January 27, 1959. Its agenda is to be: "Control Figures for the Development of the National Economy of the USSR in 1959-1965."

Behind this formal phrasing is the extraordinary record of a country that has lifted itself by its own economic bootstraps in forty-one years to a position where it challenges the United States for the world's business. Ahead is a plan, in the very real arithmetic of tons of steel poured, yards of cloth woven, bushels of wheat grown that moves, with massive seven-year steps, toward an economy of plenty.

This Congress proposes to set guide figures within the 1959-1965 period for achievement in industry and farming primarily. These are the two gears on which the nation's economic life turns.

But these figures will also be determining others no less consequential—how many engineers and teachers and physicians are to be trained; by how much working hours can be reduced and real wages increased and social services expanded; how many new apartment houses and theaters are to be built; how much scientific skill is to be allocated to send a rocket to the moon.

There is no small area of the country's life, which will not be intimately and vitally affected by these control figures which the Congress will be adopting in January. And there is no Soviet citizen whose life will not be touched.

It is for this reason that so long a period—almost twenty-one weeks—intervenes between the announcement of this Congress and its opening deliberations. Preceding the Congress thousands of meetings will be held at which recommendations will be made; there will be countless amendments submitted for changes in the draft proposal. There will be no person in the country who has not been provided with the opportunity to speak his mind on the plan as a whole or on any of its parts.

The discussions will be general, even though this is to be a Congress of the Communist Party. The decisions adopted will be representative of a public opinion much larger than that of the Party membership. If it is to lead wisely and effectively, the Party decisions must reflect that public feeling since it will be the job of the membership to see that goals adopted by the Congress are met. They will be required to set the example in their own fields of endeavor.

Delegates to the Congress will be elected by secret ballot at Party conferences on a regional level and Party congresses on a republican level. There will be one delegate with voting power from every 6,000 Party members, and one delegate without vote from every 6,000 candidate members. The regional conferences and republican congresses will also discuss the theses of the report that will be later delivered at the National Congress by Nikita Khrushchev, First Secretary of the Party's Central Committee.

The Party congresses have been important milestones in the country's development. The 20th Congress, held in 1956, laid out guide figures which were met and, in many basic areas, surpassed. During this period measures of vital significance for the national economy have been carried out. Among them are such major changes as the decentralization of industrial management and the reorganization of the state machine and tractor stations, or recently adopted decisions on the accelerated development of the chemical industry and on the new procedure for agricultural procurement.

The citizen anywhere in the Soviet Union sees the results of the Twentieth Congress' deliberations in the actualities of his daily life. In his foodstore he can buy now more meat or dairy products. If he lives in Irkutsk he now lights his home with electricity generated by the new power station on the Angara, the first major power station in eastern Siberia. When he travels he books passage on a jet plane which covers the distance from Moscow to Vladivostok in ten hours.

He knows the Congress provided the impetus for the extraordinary achievements of Soviet science in these last years—the launching of the earth satellites, the work on controlled thermonuclear reactions, the explorations and research done in the Antarctic and the major findings in many other fields of study which are Soviet contributions to the International Geophysical Year.

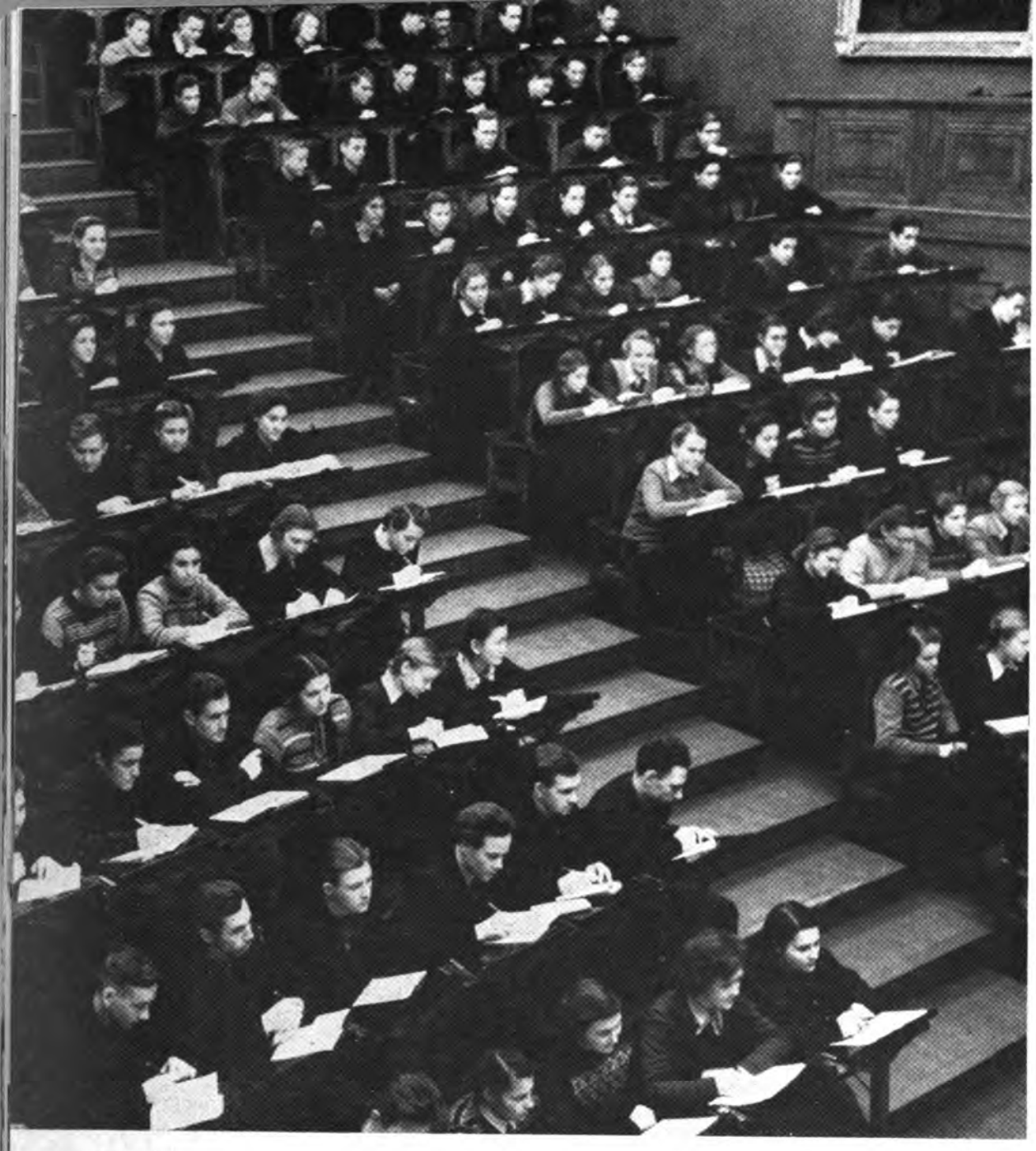
Economic achievements can be judged from the fact that the Soviet Union's annual rate of increase in industrial output is considerably faster than that of any of the Western countries—an average annual rate of growth during the last four decades is 10 per cent as compared with 3.2 per cent for the United States, 1.9 per cent for England and 3.2 per cent for France. This is a certain guarantee that the Soviet Union will exceed even the United States in total industrial production in the near future.

The 1959-1965 plan for economic development to be discussed by the 21st Party Congress proposes to set goals which will bring this near future even closer, to take a long step forward toward the levels of annual industrial output envisaged for the next 15 years: 250-300 million metric tons for iron ore; 75-85 million tons for pig iron; 100-120 million tons for steel; 650-750 million tons for coal; 350-400 million tons for oil; 800-900 billion kilowatt-hours for electricity; 90-110 million tons for cement; 9-10 million tons for sugar; 700-850 million yards for woolen fabrics and 600-700 million pairs for leather footwear.

No less impressive figures are to be set to boost grain and livestock, milk and meat production. The goals for housing construction are to be set so as to end the housing shortage completely within the next dozen years.

This will require a greater productivity of labor which is to be achieved by application in all branches of industry and agriculture of the latest findings of modern technology and an even larger emphasis than at present on research and scientific investigation. This will require, in its turn, even wider horizons in education than the present ones for the Soviet worker.

The Congress will be mapping, as have the Congresses which preceded it, not only the economic future of the country but its social and cultural future in the most comprehensive sense as well. ■



MOSCOW. HERE IS THE LARGEST SOVIET UNIVERSITY.

The last issue of *USSR* magazine carried a detailed article on public schools, the first of a series on the Soviet system of education. In this issue the country's colleges and universities are discussed.

These articles show the educational system as it exists at present. Next in the series will be an article covering the discussions now under way on how to better adapt the school to the changing needs of modern life.

COLLEGE EDUCATION *in the Soviet Union*

By Mikhail Kruglyansky

FRUNZE. THE KIRGHIZ MEDICAL INSTITUTE.

STALINABAD. STATE UNIVERSITY OF THE TAJIK REPUBLIC.

TBILISI. UNIVERSITY OF THE GEORGIAN REPUBLIC.

RIGA. A VIEW OF THE LATVIAN STATE UNIVERSITY.

TASHKENT. PEDAGOGICAL INSTITUTE OF THE UZBEK REPUBLIC.

MINSK. THE POLYTECHNICAL INSTITUTE.

CONSIDER the wide range of skills and specialties, the enormous aggregate of trained brains and hands that were required to place sputniks into their orbits or to build atomic power plants, and you have a measure of the progress made by the Soviet system of education during the past four decades. Here are some statistics to illustrate it:

The number of college-trained specialists has increased 20 times compared to a four-fold increase in factory and office workers. The country now has 24 times more scientists than before the Socialist Revolution of 1917, and about 30 times more engineers. The total number of specialists with college education or specialized secondary school training is now almost seven million compared with a pre-revolutionary figure of 200,000.

Free to Everyone

The Soviet educational system is based on the assumption that a society concerned with developing its creative potential must make higher education easily available to everyone with the capacity to use it productively. Following this fundamental principle, Soviet colleges and universities afford all citizens an equal opportunity for admission without regard to race, nationality, religion, sex or any other discriminating factor.

All education is free through the graduate and professional level. There are no entrance or tuition fees, nor are there library, laboratory or other fees of any kind.

Financial cares are no barrier to college study, since monthly stipends sufficient to cover normal living expenses are granted. More than 80 per cent of the country's students receive these stipends, the amount depending in part on need and in part on proficiency in academic work. Stipends are paid throughout the entire year, including vacation periods, and increase with each year of study.

The operation of all colleges and universities is financed from the national budget. This includes the cost of construction and building maintenance, purchases of equipment and literature, instructors' salaries and students' stipends. To cite the example of technical colleges, the average cost of training one student through the entire period of his course comes to more than 60,000 rubles.

Free training coupled with the stipends provides solid reinforcement of the constitutional right to education and assures a real opportunity for families from every section of the population to send their children to college. At the disposal of those who wish to take college courses while working, there are numerous evening and correspondence institutes spread throughout the country.

Pages of History

The history of higher education in Russia is traced back to the 17th century when the country's first advanced school was founded in 1634. At the time of the 1917 Revolution there were 105 colleges and universities with an annual enrollment of 127,000 students. Quite a few of the old Russian colleges and universities ranked among the world's best and attained universal renown for their scientific and educational achievements. Among

Continued on next page

YEREVAN. THE ENGINEERING INSTITUTE.

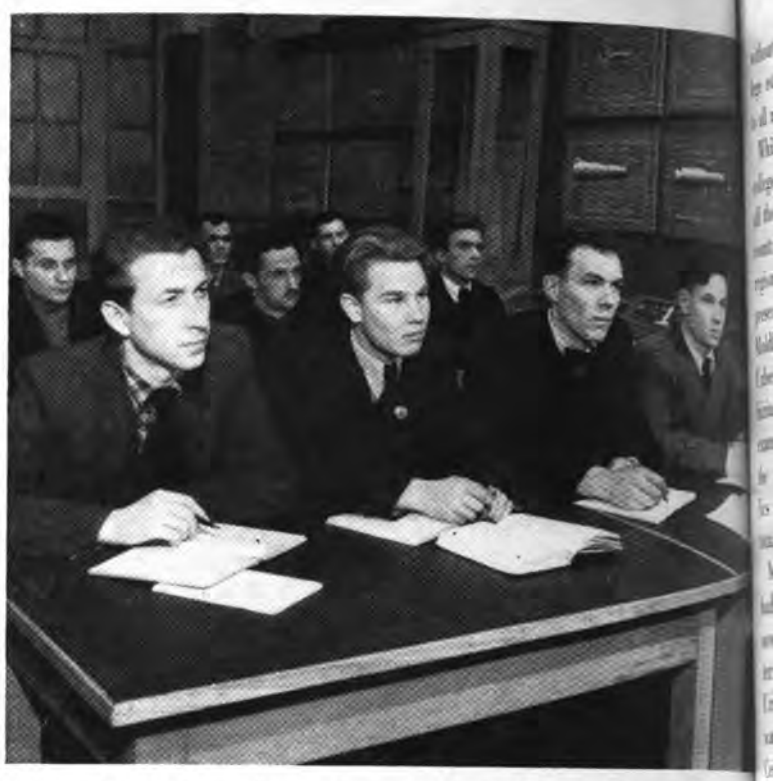
KIEV. THE UKRAINE'S STATE UNIVERSITY.

ALMA-ATA. STATE UNIVERSITY OF KAZAKHSTAN.

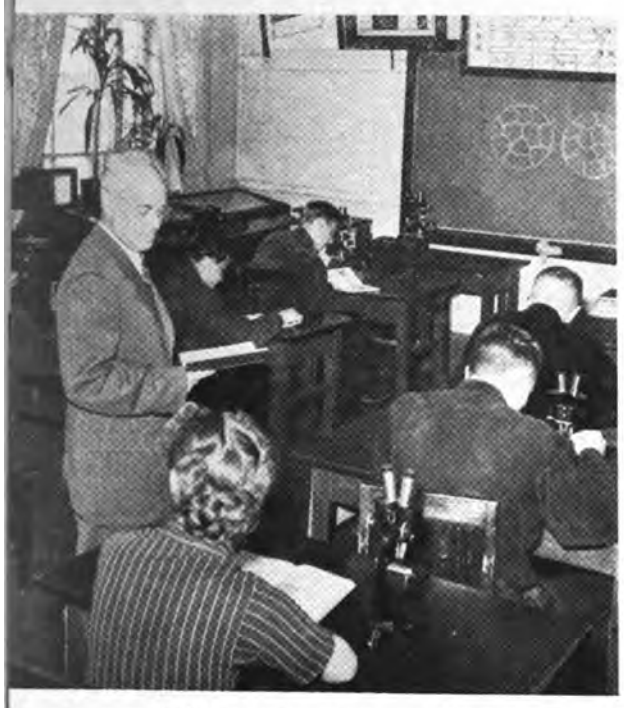
KAUNAS. INDUSTRIAL INSTITUTE OF THE LITHUANIAN REPUBLIC.

YAKUTSK. NEWLY BUILT STATE UNIVERSITY.

President Alexander Nesmeyanov of the USSR Academy of Sciences is a faculty member of the Moscow University.



Industrial workers such as these, of the Gorky auto plant, take courses in evening polytechnical institutes for their diplomas.



Laboratory lesson in metallography at the Barnaul Agricultural Machinery Institute.

COLLEGE EDUCATION *in the Soviet Union* *Continued*

their graduates were many people who won fame in various fields of endeavor.

With all this, higher education under the czarist regime was calculatedly discriminative. Access to the colleges and universities was mainly the privilege of the propertied, since it was much too expensive for the working people. The national minorities were practically barred from institutions of higher learning. Women received the right to enroll as late as the turn of the present century, especially after the 1905-07 Revolution, and only for an abridged list of courses.

Reconstructing the entire school system of the country, the Soviet Government not only proclaimed the right of every citizen to an education, but also guaranteed this right. In 1919 a special decree regulating admission to colleges and universities was adopted abolishing all the old discriminative rules.

The system of higher education has been greatly expanded. Now there are 767 colleges and universities in the country with an annual enrollment of 2,100,000 students. This is four times the aggregate number of students in Britain, France, West Germany and Italy, where the combined population is about 200 million—almost the same as in the Soviet Union.

Available to Every Nationality

The geography of higher education has been altered radically. Before the 1917 Revolution, colleges and universities were situated in 21 cities, mostly in Central Russia. Today they are located in 224 cities. Branches of correspondence institutes are operating in 300 cities and communities.

There is no region in the Soviet Union now

Future architects and builders, these students are in a drawing class at the Byelorussian Polytechnical Institute located in the capital city of Minsk.

Study Hall at Yakut University. Four decades ago the Yakuts did not have even an alphabet.

without an institution of higher learning. College education has become really accessible to all national groups inhabiting the country.

While formerly the Ukraine had only 27 colleges and universities, now it has 138. In all the vast expanses of the Asian part of the country there were only four, while now these regions have 200. In the territory of the present republics of Byelorussia, Lithuania, Moldavia, Azerbaijan, Armenia, Kazakhstan, Uzbekistan, Turkmenia, Tajikistan and Kirghizia there was not a single college—a fitting example of the czarist policy of depressing the national minorities. Today these republics have 152 colleges and universities with a total student body of more than 320,000.

Many cities, which prior to the Revolution had no institutions of higher learning, have now become large college and university centers. Among these is Tashkent, the capital of Uzbekistan. Its university, founded in 1920, was the first institution of higher learning in Central Asia. Besides the university, Tashkent now has 15 colleges. The development of higher education in Uzbekistan can be judged from the fact that the number of students per thousand of population in this republic now exceeds that of both the United States and Britain.

The story repeats itself for any one of the Soviet republics, and for the country as a whole. It is given added point when one recollects that czarist Russia's rate of illiteracy was 75 per cent, that in the Central Asian regions only 5 to 20 persons in each thousand were able to read and write, that 80 per cent of the country's children of school age were denied even an elementary education, and that 48 nationalities had no written language of their own.

Single Nationwide System

All Soviet colleges and universities comprise a single nationwide system administered by the USSR Ministry of Higher Education. Some institutes which train specialists for a specific field are closely connected with the corresponding branch of the economy or culture. But general teaching and scientific guidance for all remains under the jurisdiction of the Ministry of Higher Education.

The Soviet Union has several types of schools of higher education—universities, polytechnical institutes and colleges for specific fields of professional training. Some of the institutes are called academies, but the word is historical rather than descriptive. Such famed institutes as the Timiryazev Agricultural Academy in Moscow or the Kirov Forestry Academy in Leningrad have retained their old names but in structure and function they do not differ from the newer institutes.

Universities

Moscow University, which is formally known as the Lomonosov State University of Moscow, is the leading educational institution of the country. Founded in 1755, it now has a student body of 22,000 undergraduates plus 1,100 enrolled in its graduate courses. Among these students are representatives of 70 nationalities of the Soviet Union and other countries.

The Komitas State Conservatory in Yerevan has produced many leading Armenian composers and musicians. Every Soviet republic has institutes in various fields of culture.

The university is divided into departments of mathematics, physics, chemistry, mechanics, biology, geography, geology, history, philology, philosophy, economics, journalism and jurisprudence. In 1956 a department of Oriental languages was established. The university also has a number of research departments. The largest are the physics and astronomy research centers, the anthropology institute and museum, the zoology and geography museums, and the botanical garden.

Among the university's faculty of 2,800 members are some 500 Doctors of Science and 90 Academicians, including President of the USSR Academy of Sciences Alexander Nesmeyanov, Nikolai Semenov, Nobel Prize winner, and many other eminent authorities of international reputation.

In structure and function the Moscow University is typical, but it is by far the largest in the country. Other universities vary in their traditions, the size of their student bodies and the number of their departments. Nevertheless, the level of training is the same in all, and the graduates receive equal rights.

Before the 1917 Revolution the country had a total of 13 universities with a student body of 33,000. Today there are 39 universities with an enrollment of 250,000 students.

This expansion goes on continuously. During the postwar years universities were founded in the capitals of the Moldavian, Tajik and Kirghiz Union Republics. In 1956 two new universities were opened in the East—in Vladivostok and in Yakutsk. Previous to Soviet times the Yakuts had no written language of their own.

In 1957 universities were opened in the capitals of the Kabardino-Balkarian, Bashkir, Mordovian and Daghestan Autonomous Republics. By the fall of 1959 classes will begin at the new university now under construction in Novosibirsk. It will be the fortieth university in the Soviet Union.

Technical Institutes

Like the universities, the polytechnical institutes and the specialized colleges which train for a wide range of professions and specialties in engineering, agriculture, pedagogy, medicine, architecture, art, music and other fields of endeavor are directed by the Ministry of Higher Education.

In many cases the specialized institutes have sprung from university departments. A case in point is the Byelorussian State Uni-

Continued on next page

A scale model of a complete line operating in the institute's laboratory is helpful to students of railroad engineering in visualizing many problems.

MECHANICAL ENGINEERING STUDENTS PUT MUCH TIME ON DRAWING BOARDS.

FUTURE KAZAKH TEACHERS LEARN TO DEMONSTRATE SCIENCE PROJECTS.

COLLEGE EDUCATION *in the Soviet Union*

Continued

versity founded in 1921. Over the years some of its divisions grew to a point where they developed into independent institutes—a polytechnical institute, a medical institute, an institute of pedagogy, an institute of national economy and an institute of law.

The Soviet system of higher education is not frozen. It is fluid enough to change with current needs. The structure of both the polytechnical institutes and the specialized colleges has gradually been altered to conform more adequately to the constantly increasing demands of the country.

While some of the institutes have retained their traditional structure through the years, many witnessed the establishment of separate colleges that grew out of their departments, much the same as out of university departments. Thus, out of the electrotechnical department of the 130-year-old Moscow Higher Technical School, the country's oldest polytechnical college, developed the independent Power Institute. Soon it became the largest in the country.

Conversely, there are specialized colleges which have over a period of time developed into polytechnical institutes. An illustration is the Technological Institute for Building Materials founded in 1943 in the city of Chimkent, Kazakhstan. At first it prepared engineers for the one specialty—the technology of silicates. To meet the requirements of Kazakhstan's developing economy, two additional departments were added—mechanical and construction engineering.

The number and character of the institutes and colleges reflect the very great changes in the nation's development within the Soviet period. Prior to the 1917 Revolution there were only 16 technical institutes with an enrollment of about 20,000 students. Now there are 200 with a student body of 786,000 being trained in some 200 engineering specialties.

Professional Colleges

Future agronomists, zootechnicians, power farming engineers and veterinarians study at more than 100 agricultural colleges. The large-scale farming and farm mechanization program has required trained people in every farm area. They come, in larger numbers every year, from these institutes. Enrollment in 1955, for example, was double that in 1940.

Institutes for teacher training form one of the largest groups of professional schools. Universities also have departments for teacher training. There are pedagogical colleges in all the republics. The Russian Federative Republic alone has 111 such colleges which annually graduate 25 to 30 thousand secondary school teachers. There are special institutes for foreign language teachers.

With medical services being constantly expanded everywhere in the country and the great emphasis put on preventive medicine, new medical colleges are founded almost yearly. Ten new ones were opened in the past few years. There are 78 now with a student body of more than 150,000. Most colleges have two major divisions—one for training in a variety of specialties, the other for training pediatricians. Some also have divisions of dentistry and pharmacy.

There are 50 colleges for the fine and applied arts. Painters, sculptors and graphic artists receive their training in nine art institutes and three university departments. Several cities have architectural institutes and some construction engineering colleges have architectural departments. Students of applied arts in metal, wood, ceramic, plastics, glass and textiles study at specialized institutes in Moscow and Leningrad.

CHEMISTRY STUDENTS PUT CLASSROOM THEORY TO TEST IN THE LAB.

PHYSICS MAJORS WORK INDEPENDENTLY ON RESEARCH IN A LABORATORY.

THE STUDENTS OF ASTRONOMY DEVOTE LONG HOURS TO WORK IN THE LABORATORY AND OBSERVATORY.

Musicians, composers, musical critics and teachers are trained in 21 conservatories. There are 16 schools for the stage arts, ballet and motion pictures. Besides giving individual dramatic training, the theater institutes also train whole groups which form the core for new national theater companies, particularly in the non-Russian republics. Between 1935 and 1956 the Lunacharsky Theater Art Institute in Moscow and the Ostrovsky Theater Art Institute in Leningrad graduated 600 actors in 35 such companies.

The Cinematography Institute in Moscow trains script writers, cameramen, actors, directors and set designers. Leningrad has an Institute of Motion Picture Engineering. Writers are trained at the Gorky Institute founded in Moscow by the Union of Soviet Writers.

Departments and Academic Councils

Structurally any university, college or institute is composed of departments, each for a definite specialty or group of related specialties. The departments are headed by deans appointed from among the professors of a given department. The number of departments will vary with the size of the institution and particular fields of study.

The instructional and research unit is the chair, one for each subject or closely related group. Staff meetings of the chairs are held regularly once or twice monthly to discuss teaching and research progress, to consider new textbook manuscripts and other questions germane to the work of the given chair. At these meetings papers are read from time to time by invited experts in allied studies and reports are presented on new developments in science or technology.

All posts of professors, associate professors, instructors and assistants are filled by competitive contests held generally once every five years. Professors are required to hold the degree of Doctor of Science, associate professors and instructors the degree of Master of Science. Selection of candidates to fill teaching vacancies is made by the Academic Council of the institution concerned. Voting is by secret ballot.

Each Academic Council is composed of the institution's assistant directors in charge of studies and research, deans of the departments, the heads of the chairs, representatives of the professors and instructors, as well as representatives of student organizations. These student representatives are full members of the Council with voting rights.

The Academic Council has wide powers. It selects candidates for vacant teaching posts. It awards degrees. It plans and directs courses of study and projects for research. The larger universities, colleges and institutes also have departmental academic councils presided over by their deans.

Admission Rules

Soviet colleges and universities admit young people who have completed secondary school. All applicants must pass the entrance examinations. The subjects depend upon the type of institution, except for the Russian language and literature plus one foreign language. which are mandatory in all colleges and universities.

Examinations are competitive, but the admission rules apply more favorably for applicants who have worked for at least two years in industry, agriculture, offices or any other area of employment. Experience has shown that this work background forms a more solid foundation for studies at the college level. and now up to 80 per cent of all vacancies in student bodies are reserved for such applicants.

Methods of Teaching

Teaching in both colleges and universities is done largely through lecture and laboratory practice. Supplementing these are class work. research papers or projects, practical work and independent study.

Lectures develop fundamental principles and major approaches in the subject. They will usually be accompanied by demonstrations and visual aids. Class study is done principally in the humanities and is conducted in the form of question and answer and discussion. Laboratory work is heavily emphasized, as are other forms of independent work and study in libraries and at home.

Many of the courses in the technical institutes require a research project done independently under the instructor's general supervision. Institutes for the humanities require a course paper of a semi-research, semi-review character. *Continued on next page*

MEMBERS OF A STUDENT SCIENTIFIC SOCIETY CONSULT WITH ACADEMICIAN LEONID SEDOV.

NUCLEAR PHYSICS STUDENTS LEARN TO OPERATE THE DOSIMETER.

COLLEGE EDUCATION
in the Soviet Union

Continued

GEOLOGY STUDENTS OF TAJIK UNIVERSITY GET PRACTICAL EXPERIENCE IN THE FIELD

Approximately 40 to 50 per cent of instructional time is spent at lectures, the remainder on laboratory and practical work. Attendance is compulsory at all lectures, classes and laboratory assignments. The usual duration of a course is an academic year and is planned to allow for mastery of a specifically outlined body of knowledge before the student moves on to the next course in the sequence.

The academic year is divided into two semesters—one from September 1 to January 23, the other from February 7 to June 30. There are two long holidays—the winter vacation, from January 24 to February 6, and the summer vacation, from July 1 to August 31.

Examinations are oral and are given twice a year just preceding the vacations. The schedule will usually allow three or four free days between examinations. As a rule the examination will cover the work of an entire subject.

Students are marked on a four-point system: excellent, good, satisfactory, unsatisfactory. Reports of laboratory and practical work are marked accepted or not, as the case may be. A student who receives more than two unsatisfactory grades after either the winter or spring examination session is dropped from the academic rolls.

Flexibility of Curriculum

The flexibility which is characteristic of college structure is also true of the curriculum. From time to time one or another college—the Urals Polytechnical Institute at Sverdlovsk and the Tallinn Polytechnical Institute in Estonia are recent examples—change their teaching procedures. In case of these institutes it was felt advisable to reduce the number of lecture hours by 10 to 15 per cent, to increase the number of optional courses, and to eliminate secondary material from lectures that could readily be found in textbooks. All this was done to allow more time for independent work in laboratories and workshops and for independent reading of the literature in the field.

The course of study in Soviet colleges and universities runs from four to six years, depending on the specialty. In teacher-training and library institutes and some colleges, the course is four years; in technical institutes it runs from five to five and a half years; and in medical institutes, six years.

Some 300 specialties are now taught, with new ones added as the need is felt for trained people in areas opened up by advancing science and technology. Courses of study are revised periodically to keep them abreast of current findings.

Since most professors and instructors work closely with research centers, design bureaus and experimental agencies, they are able to keep their students informed of new developments in between curriculum revisions. Authoritative men in each of the fields are drawn on for guidance in revising courses of study.

Soviet colleges try to avoid narrow specialization. But at the same time in today's very complex society it is impossible to train encyclopedists. The Soviet school attempts to meet the problem by providing a broad theoretical background as foundation for specialized training.

As a result the basic curriculum for engineering, for example, will be standard regardless of particular specialization. The curriculum for a given specialty is planned to provide a background of training for work also in related specialties which have a common foundation.

This standardization of the basic curriculum, besides providing a broad scientific base, has the additional virtue of job flexibility. Engineers trained in one part of the country find no difficulty in using their skills in widely different parts of the country, where the engineering problems will be quite different.

Courses of Study

The courses of study in each of the colleges and universities divide themselves into these main groups: a general scientific group; socio-economic subjects and a foreign language; and a group of specialty courses. The technical institute curriculum will have, in addition, a general engineering group.

The curriculum for the technology of machine building, one of the engineering specialties much in demand, illustrates the attempt to train specialists with a broad scientific horizon. In his five years of study the future engineer will be equipped to do independent and creative work.

The 4,508 instructional hours are distributed as follows: for the general scientific group—32 per cent; for the general engineering—35 per cent; for the specialty courses—25 per cent; for the humanities—8 per cent. Approximately half the time is allocated for class studies, laboratory and practical work. In the five years the student is required to complete five projects in the general engineering and specialty courses. During the entire period of study he takes 41 examinations and presents 49 reports.

The general scientific group of courses will include higher mathematics, descriptive geometry, chemistry and physics. The general engineering group will cover theoretical mechanics, resistance of materials, theory of mechanisms and machines, course of machine parts, technology of machining metals, theory of metals and their thermal treatment, gen-

AGRONOMISTS ARE TRAINED ON FARM MACHINES.

AT A FIELD STATION OF MOSCOW UNIVERSITY.

JOURNALISTS OPERATE THE LINOTYPE.

MAKING MAPS FROM AERIAL PHOTOS IS A SCIENCE.

TEXTILE CLASS WATCHES A KNITTING PROCESS.

...t engineering, general electrotechnics, ...ical drafting, fundamentals of machine ...g and elements of construction.

... groups of courses are given in the ...o years and part of the third. Spe...ion begins in the latter half of the ...ear.

... group of specialty courses includes ...bjects as lifting and transporting ma... and mechanisms, fundamentals of in...angeability and technical measurements, ...lics and hydraulic machines, theory of ... cutting and metal-cutting machines, ...al equipment of machines, designing ...oduction of cutting tools, technology of ...e building, designing of devices, ...ization and automation, economics of ...y, industrial safety engineering and ...evention techniques.

Socio-Economic Subjects

... students in every college and university ...ourses in socio-economic subjects. For ...who major in such fields as philosophy, ...nics, history or law, the program is ... extended and detailed, since these sub... are closely related to their respective ...lties. In such institutes as technical, ...ltural or medical colleges, the students ...e only fundamental knowledge sufficient ...e them an understanding of the social ...conomic development of the world in ... we live.

... studies include an examination of the ...pal classical and contemporary schools ...ilosophy and political economy, as well ... analysis of various social and economic ...ns and forms of government. All this ...des a broad background to give a student ...cientific explanation of the theory and ...ice of socialism upon which his coun... life is based.

... students, irrespective of their specialty, ... one of the foreign languages. In such ... as history or philology, for example, ...tudy is quite naturally more thorough...g. Other students receive knowledge which ...les them to read freely foreign literature ...eir respective fields to keep abreast of foreign experience. College and university libraries subscribe to innumerable foreign publications, both technical and cultural, and have a vast amount of the world's classical literature.

Besides the required subjects, the students may take a number of optional courses. These widen their scientific outlook and deepen their knowledge of the chosen specialty. The optional subjects for students specializing in the technology of machine-building, to cite one example, include extensive study in mathematics related to their field or advanced work in the designing of automated machines and lines.

Practical Training

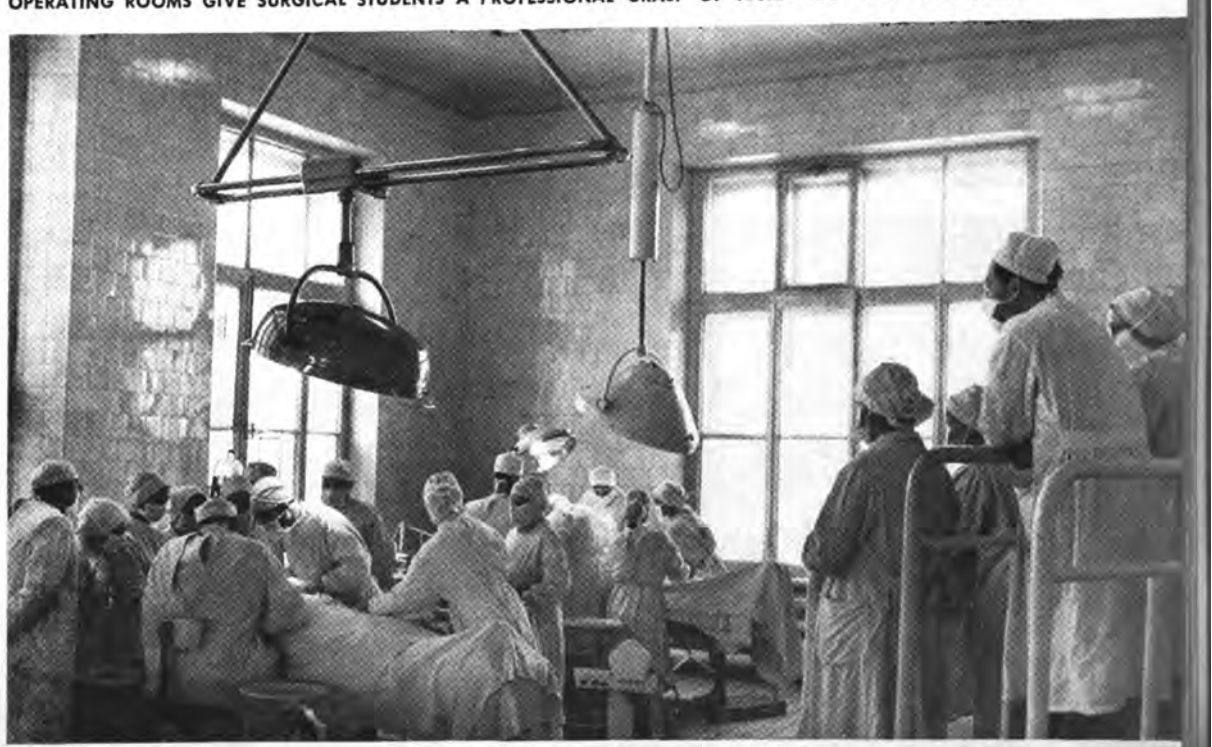
Practical training is an integral part of the course of study. It helps test the theory learned, confirms theoretical principles studied in class and gives the student a sense of work as it is practiced in our day-to-day living.

This on-the-job training is a continuation of the work the student does in college workshops and laboratories in the earlier period of his course. Future teachers do practice teaching in schools; medical students work in hospitals and clinics; future lawyers work in courts and other legal agencies; enginering students help build machines, mine for coal, drill for oil, do geological field work.

The most modern factories, farms, hospitals

Continued on next page

OPERATING ROOMS GIVE SURGICAL STUDENTS A PROFESSIONAL GRASP OF TECHNIQUES THEY WILL NEED.



AN INSTITUTE'S LIBRARY IS USUALLY FILLED.

COLLEGE EDUCATION *in the Soviet Union* *Continued*

SOMETIMES IT'S NECESSARY TO STUDY WHILE EATING.

and schools are used for practical training. The instructors are men and women chosen by the industry or institution who combine a thorough knowledge of their field of work with the talent required to communicate it to students. In factories, for example, practical work instruction is given by the best equipped of the engineering personnel. All these people receive additional compensation for teaching and are relieved of their customary duties if necessary.

The enterprise at which the student does his practical training is required to supply everything needed without charge. During training, students in addition to their regular stipends are paid a daily allowance of five rubles, their traveling expenses both ways, and are provided with free living quarters. Not infrequently technical institutes will arrange a student's practical training at the enterprise where he expects to be working after graduation.

The time apportioned to practical work is determined by the nature of the specialty. Students in areas such as building, transport, agriculture, forestry and economics spend 20 to 30 weeks. Students of history and philology, physics and mathematics, law, pedagogy and veterinary science spend from 6 to 20 weeks.

The Diploma Project

The diploma project or paper sums up the student's mastery of the material learned and his ability to work independently. Some 20 to 25 weeks are allocated for work on the project in the final year before graduation.

Topics of diploma works are most varied. An art student will submit a painting, a ballet student may dance in a school production of *Swan Lake*, a history student may present a research paper on some aspect of foreign policy, an engineering student may design an automated factory production line. Many of the technical projects are inspired by an actual need of industry and not infrequently the student's design will be used by a plant.

The project or paper must be defended be-

CRAMMING FOR MID-TERM EXAMINATIONS SEEMS EASIER IF IT CAN BE A JOINT PROJECT.

ONCE THROUGH THE EXAMINATIONS EVERYONE FEELS LOTS BETTER.

AGRONOMY STUDENTS' GRADUATION EXAMS SUM UP FIVE YEARS OF THEIR COLLEGE STUDIES.

PREPARING FOR HER ENGINEERING DIPLOMA THESIS.

fore a State Commission of Examiners at a public session. The audience will be teachers and fellow students. In technical fields it will often include plant engineers and workers. Some institutes require both diploma projects or papers and graduation examinations. Others, teacher-training institutes and medical institutes are examples, require only graduation examinations.

Studying While Working

Higher education through evening and correspondence colleges is assuming ever larger significance in the Soviet Union for secondary school graduates who wish to continue their studies while working. During the current school year as many as 950,000 are studying in the evening or by correspondence —70,000 more than during the previous year.

It is estimated that in the past five years the evening and correspondence colleges have trained more than 250,000 specialists. 170 per cent more than in the five years preceding. An even heavier emphasis upon these types of schools is likely to result from public discussions that have been going on for some time now.

Most of the regular technical institutes have evening divisions, many of which are situated directly at the factories. As illustration, the Moscow Automechanical Institute has an evening division at the big Moscow Auto Plant; the Leningrad Polytechnical Institute has one at the Leningrad Metal Plant; the Urals Polytechnical Institute has an evening division at the Heavy Machinery Plant in Sverdlovsk.

The All-Union Correspondence Polytechnical Institute, the largest in the country, has ten departments offering 62 different specialties to 33,000 students. The institute has 27 local instruction-consultation centers in the Urals, Siberia and the Far East. Last year alone the institute graduated 1,230 trained engineers.

There are more than 30 independent institutes and more than 600 local departments and centers which now devote their efforts to providing the working students with advanced professional training. The number of these evening and correspondence schools is being expanded rapidly.

Evening and Correspondence Courses

Every evening and correspondence college assures its students the same level of training as similar institutes of the regular type, but because of the nature of this instruction the courses take one year longer.

The curriculum of the evening and correspondence colleges also differs somewhat. For example, the volume of descriptive sections of specialty courses is abridged and on-the-job practical training is not required except for that before the diploma project. These omissions are believed possible because the overwhelming majority of evening and correspondence school students are enrolled in the field of study in which they work and thus have the needed production experience.

The curriculum for students of evening colleges calls for 16 hours of obligatory studies a week. Both in lectures and in class studies principal attention is given to general theoretical subjects. But specialty courses, though taking somewhat less time than in regular colleges, are by no means neglected.

In the correspondence courses the main emphasis is placed on independent work of the student. The local instruction-consultation center helps him with course material, arranges for laboratory work, goes over reports and advises on diploma projects. The center also offers lectures covering key problems.

For all those who combine work with study, most favorable conditions are established by law. Their work schedule at their places of employment is arranged so as to give the maximum convenience for their studies. They receive additional paid vacations for examination sessions. Another convenience is that many evening and correspondence colleges open branches in factories.

Upon defending their diploma projects and passing the graduation examinations, evening and correspondence school students are granted the same privileges and opportunities as students of the regular colleges. As a matter of fact, the combination of schooling with work is likely to develop the most highly qualified specialist. The management transfers him to more important posts as he progresses in studies from year to year, even before he has completed the full college course.

Continued on next page

WHERE COULD THERE BE A BETTER ARGUMENT THAN AMONG SERIOUS PHILOLOGY STUDENTS BEFORE EXAMS?

COLLEGE STARS SEEK TO UPSET GRANDMASTER VASILI SMYSLOV.

STUDENTS' CLUB OF MOSCOW UNIVERSITY STAGES THE CLASSICAL OPERA *EUGENE ONEGIN*.

COLLEGE EDUCATION *in the Soviet Union*

Continued

Textbooks

Soviet college and university textbooks in each field of knowledge present the material succinctly, uncluttered by superfluous details. Textbooks are compiled on the basis of broad scientific generalizations and take into consideration both native and foreign experience.

For the most part the texts contain material which has been proved well-founded and stable. However, there are books which include current problems which may be controversial, and discuss various methods for advancing the given field of science. This kind of presentation is aimed at developing creative thinking in the student.

Textbooks for all subjects are published in very large editions. During the postwar years alone many thousands of titles were issued in printings totaling more than 74 million copies. In addition to the textbook output of 40 publishing houses, many texts are published by large universities and institutes for distribution all over the country.

Libraries

All texts are available at college and university libraries in sufficient numbers to meet the needs of all students. They are loaned without charge for the term or the year. A student may, if he chooses, buy texts at the very low prices charged.

Besides the large libraries at institutes, there are some 400,000 public libraries with a total of 1½ billion books. Exclusive of school libraries there is one public library for every 1,400 of the population in the Soviet Union as compared with the one library for every 21,600 in the United States and the one per 82,000 in Britain.

Creative Initiative

A major aim of Soviet higher education is to foster creative initiative and experimental research. The student does his first independent work in the laboratory, in seminars and elective courses.

In recent years the tendency of colleges and universities in planning curriculum has been to reduce the number of lecture and class hours and substitute one type or another of independent study. While previously 36 hours weekly throughout the entire period of study were devoted to required courses, largely lectures, now only the lower classes adhere to that schedule. In the upper classes only 18-24 hours weekly are given to required courses, with proportionately more time allotted for optional courses and independent work and research.

Scientific research and creative activity is encouraged in every possible way. Frequently, for students who do promising research on themes related to the material studied, the number of required laboratory hours and home assignments will be reduced. On occasion such a student will be permitted an individually arranged schedule to give him more time for his own research.

Research projects must be defended before a committee of the faculty at public sessions at which students comprise the audience. These public defenses have the double function of acquainting fellow students and the interested public with the results of student research and of teaching the student to express himself with clarity before a very critical audience.

The best of the research studies are published in periodic collections of student scientific work. The Ministry of Higher Education holds countrywide contests annually for the best student papers in a number of fields of study with awards in cash and medals.

Student Scientific Societies

Research work in student scientific societies is strongly emphasized in all Soviet colleges and universities. Guided by a faculty member who is expert in the field, students at these scientific societies carry on independent research and discuss their original papers. Students do both individual research and group investigations.

These student scientific societies are functioning in 500 colleges and universities. Although they are voluntary and require considerable out-of-class work, they attract an exceedingly large group of interested students. The creative leadership of the guiding faculty member is, of course, a significant factor in developing interest in the research work with the resulting student activity.

Eighty per cent of the students specializing in machine parts at the Aviation Institute in Ufa are active in the work of their scientific society. This large proportion of active student researchers is not uncommon. Moscow's colleges have 70 such societies with a membership of 35,000. In Leningrad more than 15,000 students are members of scientific societies in their colleges. Some 90,000 of the country's medical students are members of the school scientific societies.

The activities of the societies are not limited to the organization of research by their student members. Excursions to large research centers, industrial plants, collective farms and hospitals are arranged. Many of the societies hold lectures and forums for secondary school students.

The societies issue their own bulletins and proceedings and arrange their own conferences to sum up the results of research done in the course of the year. Students from similar institutes in other cities are often invited to these sessions.

Student Life

Most students live in dormitories. The rent for a furnished room is a very modest 15 rubles monthly. This sum also covers such services as cleaning, linens and utilities. The deficit created by maintaining these dormitories is made up from the fund of the college or university.

All schools have cafeterias or dining halls where prices are much lower than elsewhere. Medical and dental service is provided without charge. The larger schools in such cities as Moscow, Leningrad, Sverdlovsk and Tbilisi have entire student communities, with many dorm buildings, sports and recreation facilities and stores of all kinds.

Student life and activity is no more confined to books and study in the Soviet Union

THIS STUDENT BAND CAN PLAY JAZZ BOTH HOT AND SWEET.

DOES ANYBODY CARE FOR A GAME OF WATER POLO?

MOTORBIKE RACES DRAW CROWDS.

than elsewhere in the world. Music, dancing and the theater have their thousands of adherents, organized into amateur groups. All sorts of sports are exceedingly popular. Student athletic groups are organized in the Burevestnik Sports Society which unites 1,700,000 student members. The All-Union Student Games, held annually, have become the traditional national review of student athletics, preceded by city and regional contests with thousands of participants.

International Exchanges

Soviet students are represented in the International Union of Students and participate in the work of the World Federation of Democratic Youth. The USSR Student Council receives foreign student delegations and, in general, attempts to develop the widest contacts with student groups abroad. In 1957 the Council prepared the student program for the Sixth World Youth Festival held in Moscow in which students from 90 countries took part.

Soviet colleges have been establishing exchange arrangements with colleges abroad on an increasingly regular basis. Soviet students are now studying in many foreign countries, and more than 16,000 foreign students from 24 countries are enrolled in Soviet colleges. The USSR-USA cultural agreement signed early this year, provides for such student exchanges for the first time between our countries.

College-Trained Specialists

Year by year the number of college-trained specialists in every field of endeavor, whether in technology or farming, the sciences or the arts, has been growing in the Soviet Union. During the five-year period from 1951 to 1955 more than 1,120,000 people were trained in a variety of fields, 72 per cent more than in the previous five-year period.

In 1958 about 290,000 specialists graduated from the country's colleges and universities. Of this number about 90,000 are engineers, 30,000 agricultural specialists, 100,000 teachers and more than 20,000 physicians.

The following comparative table shows the number of college and university graduates in 1928 and 1956 and their distribution in professional fields of work:

	1928	1956
	in thousands	
Total number of graduates	28.7	259.9
Industry and construction	8.9	61.0
Transport and communication . .		9.7
Agriculture	6.4	26.2
Economics and law	2.0	18.7
Education and art	5.2	124.1
Public health, physical culture and sports	6.2	20.2

The college-trained young man or woman in the Soviet Union has no job problem. Since the training of specialists in various fields is planned to conform with the country's actual needs, all graduates are assured of work in their own field.

Jobs

Some three months before graduation each student is interviewed by the school's job placement commission made up of faculty and student representatives. He is given a survey of employment possibilities, their locations and pay. Together with the commission he makes his choice.

Before reporting to his job he gets a month's vacation and an allowance amounting to his monthly stipend. If his job requires that he move to an area distant from his home, he is allowed a sum amounting to one-half of his future monthly salary for himself and one-fourth for each member of his family, plus traveling expenses, the cost of moving his belongings and a daily allowance of one-thirtieth of his monthly salary.

Once settled on the job, it is the rare worker who is satisfied to vegetate. The constant need for personnel with high qualifications and the accessibility of facilities to train for advancement act as a perpetual stimulus for self-improvement. ■

This is the second of a series of articles on Soviet education. Next issue: *School and Life.*

COLLEGE BASKETBALL MAINTAINS ITS HOLD.

WOODLAND HIKES HELP ONE FORGET EXAMS.

FOLK DANCE ENSEMBLE

Photos by Georgi Petrusov

By Mikhail Dolgopolov

THE BERYOZKA DANCE COMPANY IS COMPRISED OF 40 YOUNG DANCERS, THE OLDEST OF WHOM IS 28. THE VIVACITY OF THE GIRLS WINS THEIR AUDIENCES ON EVERY STAGE.

IN the winter of 1948 an amateur dance festival was held in the rural communities of the Russian Federation with thousands of dance, song and instrumental groups participating in their native villages. The performers were milkmaids and tractor drivers, school teachers and village store sales girls. The best of the groups were chosen to perform in the nation's capital . . .

When a group of girls moved gracefully onto the stage of the Moscow Hermitage Variety Theater with birch twigs in their hands and glided into the lovely patterns of their dance set to the music of the haunting folks song *In the Field a Birch Tree Stands*, the hall resounded with "Bravos."

The call for encores was so demanding that the contest judges had to suspend the rules to permit the happy and excited contestants to repeat the dance. The audience went out calling them the Beryozka—Birch Tree—dancers, and the very appropriate name stuck.

Nadezhda Nadezhdina, a ballet artist at the Bolshoi Theater, was given the task of creating a professional choreographic ensemble out of the group.

AS THE GIRLS FLOAT ACROSS THE STAGE IN THE *SPINNER'S REEL*, THEY ACCENT THEIR MOVEMENTS BY A SONG.

The Repertoire

Nadezhdina, an accomplished ballet mistress and teacher, studied the traditional patterns of the Moscow, Ivanovo, Gorky, Perm, Kalinin and Siberian women's dances and built original compositions based on them.

Her *Link Reel* is based on a very old north Russian dance. The fanciful patterns are woven out of a single moving chain of dancing figures. Hence its name. Costumes are long purple gowns, sleeves decorated with a wide gold band. As the girls weave the design, the gold bands link to form a long gracefully undulating chain.

In the *Spinner's Reel*, first one, then a second and third group of the dancers are spotlighted. In gowns of gold brocade they sit spinning at the doors of farm cottages, their movements accented by a song they accompany themselves with. As their arms move in the motions of a spinner, we almost see the many colored rainbow threads glistening through their fingers.

For the *Swan Reel* the girls wear long silk gowns, lake blue, with ample sleeves, as white

Continued on next page

Continued

VILLAGE HARVEST CARNIVAL FROM *AUTUMN FAIR.*

as swan's down. In one of the figures they hide their heads behind the moving waves of white and with raised hand form the image of a stately swan with neck and head gliding behind the billowing white sleeve. Each dancer wears a ring with a black stone on her finger which sparkles in the light like a swan's eye.

The *Beryozka Waltz* is a charming dance, somewhat stylized, through which Nadezhdina conveys the dreams and longings of the young Russian maiden. The girls dance with scarves that they fling about to build a lyrical mood.

The dances of today's collective farm villages have an important place in the Beryozka repertory. The *Prokhodka* is a miniature built round a village "lady-killer"—the farm accordion player. The girls lead him onto the stage. As he plays, the girls vie with each other in a variety of fancy steps to attract his notice and win his favor.

In her *Autumn Fair* Nadezhdina choreographs a harvest festival at a collective farm. The field work is over and the bumper harvest gathered, and here is the fair full of youth, gaiety, color and pretty things to buy.

The Dancers

The dance company numbers forty young women. There have been changes in personnel, naturally, in the ten years since the ensemble was built with the amateur dancers as nucleus. Many of the girls are now graduates of the Bolshoi Theater's School of Choreography, but there are still some who learned their dancing in amateur groups at factories, farms, schools and community centers.

Jella Agafonova is one of the girls who came to the Beryozka directly from a school amateur dance group. Endowed with a lovely voice and most graceful body, Jella is one of the company's leading dancers. In private

MERRY DANCE BUILT AROUND A FARM "LADY-KILLER."

life she is happily married and the mother of a two-year-old boy.

Lyuba Trynova is another of the company's stars who learned her dance ABC's at a Young Pioneer Club. She was only fourteen when the Nazis invaded the country, but she and a friend each added a few years to their ages to join one of the groups that performed for soldiers at the front. She has danced on stages where the accompaniment was supplied by shells bursting a short distance away.

Nina Ryabova comes from a collective farm family in Ryazan Region. She danced in her school's amateur group and sang in the school chorus. During the war, she worked in a tube-rolling mill. The war over, she studied at a theater school and then moved to the Beryozka ensemble.

The majority of the dancers in the company, however, got their training at the Bol-

Continued on page 35

Continued

Maslennitsa is an old Slavic holiday marking the end of winter. It is a time of universal merrymaking, singing, dancing and feasting. The participants, in carnival costumes, honor their ancestors and hail the birth of a new season. In the rapidly-moving *Maslennitsa Carnival* depicted here the Beryozka dancers bid a frolicsome farewell to winter.

shoi's School of Choreography. Tamara Lukyanova was graduated in 1949 and joined the ensemble that same year. A gifted dancer and singer, Tamara is even a more gifted teacher and choreographer. She was recently appointed assistant to the director, Nadezdina, and devotes almost all her time to staging and coaching. She dances herself in the *Maidens' Reel* only when one of the regular dancers is absent.

Double Career Girls

Galina Tarasenko is another Bolshoi graduate. She is 21, has been with the company for four years and is a most serious minded young woman who has concluded that since "a dancer's life is very short" she should prepare for a second career. She has passed the examination for entrance to Moscow University and is studying Russian literature through the university's correspondence division.

Regina Nikiforova is another double-career woman. She is a major in the history of art at Moscow University. Regina is the daughter of an army officer who was killed toward the end of the war. She was brought up by her mother, an industrial engineer. Regina is married to another graduate of the Bolshoi Choreography School, Boris Nikiforov, who dances with the Bolshoi Company.

Mira Koltsova is one of the company's youngest dancers. She came to Beryozka straight from choreographic school last year to almost immediately become one of the company's leading dancers. She divides her energies between dance and music. She dances a leading part in *Swan Reel, The Spring Reel* and *Dance with Kerchief* and sings the lovely lyrics of the *Beryozka Waltz.*

Rehearsals

The Beryozka is young—in spirit and in chronology. The oldest of the girls is only 28. The only girls who have left the company have been those with young children who wanted to give them their undivided attention.

Continued on page 37

BALLET MISTRESS NADEZHDA NADEZHDINA LEADS THE GROUP AND WORKS OUT EVERY DETAIL OF ITS DANCES.

THE YOUNG DANCERS RECEIVED THEIR DIPLOMAS.

NEW NUMBERS ARE CONSTANTLY BEING INTRODUCED.

MEMBERS OF THE BERYOZKA ENSEMBLE. L. to R.: YEVGENI KUZNETSOV, ACCORDIONIST; MIRA KOLTSOVA, JELLA AGAFONOVA AND LYUBOV TRYNOVA, DANCE SOLOISTS.

Continued

GOSSAMER KERCHIEFS FLOAT OVER THE RUSSIAN WALTZ *BERYOZKA*.

P OF LOVELY GIRLS WITH LEAFY BIRCH BRANCHES GLIDES ACROSS STAGE TO THE MUSIC OF *IN THE FIELD A BIRCH TREE STANDS* IN A TRULY MEMORABLE BIT OF DANCING.

n these former ensemble members keep e touch with the group, attend re- s and occasionally join in the dancing. ensemble members rehearse almost ıtly. Much of it is exercise practice at , the same practice done by every bal- ist. There is a good deal of singing al, since the Beryozka dances are fre- accompanied by songs. Sometimes ding soloist will sing, sometimes the group.

ensemble's music director is Alexei v. Instrumental musical accompani- provided by a quintet of accordionists Yevgeni Kuznetsov. The members of ntet also play between dances. All the es, striking in their beautiful color com- ns, are designed by Lyubov Silich.

Recognition and Fame

Said the newspaper *France-Soir* when the Beryozka company danced for Parisian audiences last year: "Run to the Sarah Bernhardt Theater where you will see a wonderful ensemble of young Soviet girls dancing with astonishing grace and feeling. If you like folk dancing, you will be charmed, if you do not, you will be won over completely."

The Beryozka Folk Dance Company elicits such rave notices on every tour. When the dancers make their first tour of the United States this fall it is no rash prophecy to forecast reviews as glowing from American critics.

In the short ten years since it was founded, the company has toured twenty countries. The dancers have been cheered by audiences in Sweden, Norway, Finland, Belgium, Austria, Holland, Switzerland, Greece, France, England, Poland, East Germany, Czechoslovakia, Rumania, Albania, China, Hungary, Egypt and Lebanon.

The London *Times* used such adjectives as "amazing" and "delightful" in describing the company. The Dutch *Utrecht Dagblad* wrote of the deeply moving quality of the *Birch Tree Dance.*

The ensemble looks forward to its first American tour, and American audiences, too, may look forward to as exciting a series of dance performances as the Moiseyev company gave last spring in their cross-country tour of the United States that drew sell-out audiences everywhere. ■

SOVIET-AMERICAN

Historical Record

By Mikhail Menshikov

Soviet Ambassador to the USA

IT may well be that November 16, 1933, will be written down by historians of the future as one of the more decisive dates of modern history. That date marks the formal establishment of diplomatic relations between the United States and the Soviet Union.

President Franklin D. Roosevelt in a letter addressed to Maxim Litvinov, then the USSR Foreign Minister, wrote: "I trust that the relations now established between our peoples may forever remain normal and friendly, and that our nations henceforth may cooperate for their mutual benefit and for the preservation of the peace of the world."

Normal and friendly relations between our countries had been broken off after the Socialist Revolution of 1917 in Russia. They had been a fact of international life since the time of America's declaration of independence from British rule.

Russia was an absolute monarchy when the colonists were rebelling against the British crown. The Russian Government nevertheless refused to support George III in putting down the American Revolution.

The czar's stand was, understandably, not motivated by republican feeling; it was dictated by interests which Russia had in common with the aspiring democracy. But regardless of motivation, the objective result was to help the colonists win independence and to lay the foundation for almost a century and a half of friendly relations.

The instructions given by Congress to Francis Dana, the first American envoy to Russia, stressed the desire for "good will and friendly relations" that would redound "to the mutual advantage of both nations." It was this spirit which characterized the long period up to 1917.

There were no controversies between our countries which were not peacefully resolved. More than once Russia and the United States acted jointly as intermediaries to help arbitrate international disputes. More than once our countries were allied against a common enemy.

Characteristic of the period, too, was the exchange of goods and commercial paper, of travel, of postal and wire services, of the hundred and one other reciprocal activities by which countries in our interdependent world are tied together.

All of this was abruptly cut in 1917 when the United States refused to grant diplomatic recognition to the newly-born Soviet Republic. This was the unfortunate prelude to a period in which the United States together with thirteen other powers sent interventionist armies to our country to help put down the socialist government which had been chosen by the peoples of Russia.

"We Are For Economic Agreement"

But even during these unhappy years the Soviet Union strove to resume friendly ties with the United States. In the one short period between August 1918 and December 1919, the Soviet Government made proposals to the United States on ten different occasions to establish normal diplomatic relations.

Ever since its first days the Soviet Union has always adhered to the livable proposition that regardless of differences in economic systems and forms of government, there are great areas of common necessity—peace and neighborly exchanges between the nations. Lenin, founder of the Soviet State, declared quite definitely: "We are very much for economic agreement with America, with all countries, but *especially* with America."

The Soviet Union believes that peaceful coexistence is a fundamental principle of international living and has always implemented it with concrete proposals for mutual benefit. There was no single year between 1917 and 1933 that the question of the normalization of Soviet-American relations was not raised by one or another Soviet Government leader or diplomat.

But it was sixteen years before representatives of the two countries met and normal relations were formally renewed. This was almost a decade after the Soviet Union had established diplomatic relations with Britain, France, Germany, Italy, Japan and other countries.

The artificial isolation of the two countries was certainly advantageous to neither. It accounts in considerable measure for the lack of information which Americans have of Soviet life and the other way round. It is only too axiomatic that ignorance is a breeding ground for suspicion and mistrust.

Consider the difference in international climate that would have resulted if the present reciprocal exchanges in cultural, scientific and technical fields had been going on between our countries for four decades instead of less than a year since the Soviet-American agreement on contacts was signed. Consider, too, what mutual benefits could have resulted if normal trade between our countries had been going on for this long period.

Soviet economy over these years has had to develop a costly self-sufficiency, to some extent at the expense of consumer goods production. The United States could have supplied many of the Soviet Union's needs to the large profit of American business and with an accompanying beneficial effect upon employment.

Some trading did go on during these years, but it was inevitably hampered by the absence of diplomatic relations. It is a reflection of the times that in 1932, for example, trade between the Soviet Union and Britain was five times greater, and so for most countries with which the Soviet Union had normal relations.

New and Better Times

But the times also forced improved relations, with the economic crisis no small influencing factor. Many Americans, representative of divergent political views and occupational interests, saw the need for better Soviet-American relations. They were moved by various considerations, some political, some economic, some cultural.

Many American trade unions in such large industries as auto, transport and textile declared themselves for the establishment of normal relations. So, too, did farmers from every state in the union at the National Conference on Farmer Aid.

A letter sent to President Roosevelt in 1933 by 800 faculty members in 268 colleges urged that diplomatic relations be established. It was followed by a similar message signed by a large group of economists and academic leaders emphasizing the fact that "world agreements cannot be successful without the Soviet Union."

These were more than isolated sentiments. They were typical of

DIPLOMATIC RELATIONS

of a Quarter-Century

general public feeling which included that of many American businessmen who were interested in expanding trade. The resolution adopted in the fall of 1933 by the New York conference of the Association of American Exporters urging quick normalization of relations expressed the mood of many industrial and commercial people.

Franklin D. Roosevelt, upon his first election to the presidency, expressed himself in favor of direct contact with Soviet officials which could facilitate reaching a formal agreement. "If I could talk personally with anyone representing Russia," he remarked in the summer of 1933, "I would settle the whole problem."

After a realistic appraisal of prevailing public opinion, Roosevelt took the initiative himself by sending a message to Soviet President Mikhail Kalinin on October 10, 1933. He thought it desirable, the message said, to try to end the abnormal relations which existed between two countries that for more than a century had enjoyed a traditional friendship. He expressed his regret that relations had been permitted to deteriorate and proposed that negotiations be opened.

President Kalinin replied for the Soviet Union. He wrote: "I have always thought it most regrettable that during these sixteen years a situation had existed in which our two great republics have been deprived of the advantages of normal relations. I am happy to note that you too have reached this conclusion. . . . May I express my feeling that the abnormal situation to which your letter makes reference has an unfavorable effect not alone on the interests of our two countries most immediately concerned, but on the world situation generally. It heightens international tensions, makes it more difficult to assure world peace, and gives encouragement to those whose aim is to disturb this peace."

Commenting at a press conference President Roosevelt made the point that these letters were the first official documents to pass directly between the two governments in sixteen years.

Amicable Soviet-American Relations

President Kalinin indicated in his message that the Soviet Government had named Maxim Litvinov, its Minister of Foreign Affairs, as representative for the Washington talks. Litvinov arrived in the United States on November 7, 1933.

An opening statement made by Litvinov to the press stressed the thoroughly unnatural alienation between the two republics that had obtained up to then. In spite of that, the Soviet Foreign Minister said, both peoples had been following each other's progress with great sympathy. He expressed the fervent hope of the Soviet people for happier American-Soviet relations.

The talks between President Roosevelt and Foreign Minister Litvinov began the same day and were successfully concluded on November 16. Both countries agreed to exchange diplomatic representatives. They pledged no interference in each other's internal affairs, to respect each other's sovereign rights and territorial inviolability.

The outcome of the talks was welcome news to people everywhere. In both the Soviet Union and the United States it was hailed as the formal resumption of a long-interrupted friendship. President Kalinin, in a radio address to America, said he was confident that the establishment of diplomatic relations opened a new era of cooperation between the two nations.

American press comment reflected the favorable reaction of wide sections of the public. Secretary of Labor Perkins thought the agreement would serve to stimulate American industrial recovery, as it did when a trade agreement, based on the most favored nation principle, was signed shortly thereafter.

Trade developed to the point where Soviet purchases of American goods more than tripled between 1933 and 1937. American purchases of Soviet goods by 1938 equaled that of Germany, Italy and Japan combined. Trade would unquestionably have taken on much larger proportions had it not been for such hampering factors as American unwillingness to grant credits.

But regardless of these deterrents, the resumption of normal relations was a most significant factor in developing trade. Mutually advantageous trade laid the basis for the economic cooperation between our countries during the Second World War.

Stimulated also was the interest of both nations in each other's life. Ties of understanding were strengthened by the organization of joint Soviet-American scientific conferences and by joint activities in cultural areas which for the first time in years brought creative people of both countries together.

Not all that could have been done was done. But there is no question that even these partial measures served as a vitally important foundation for the crucial military alliance of the Second World War, crucial to both countries and to the world at large. One hesitates to think what the outcome would have been had the United States and the Soviet Union not joined forces to defeat fascism. It is a thought to ponder on.

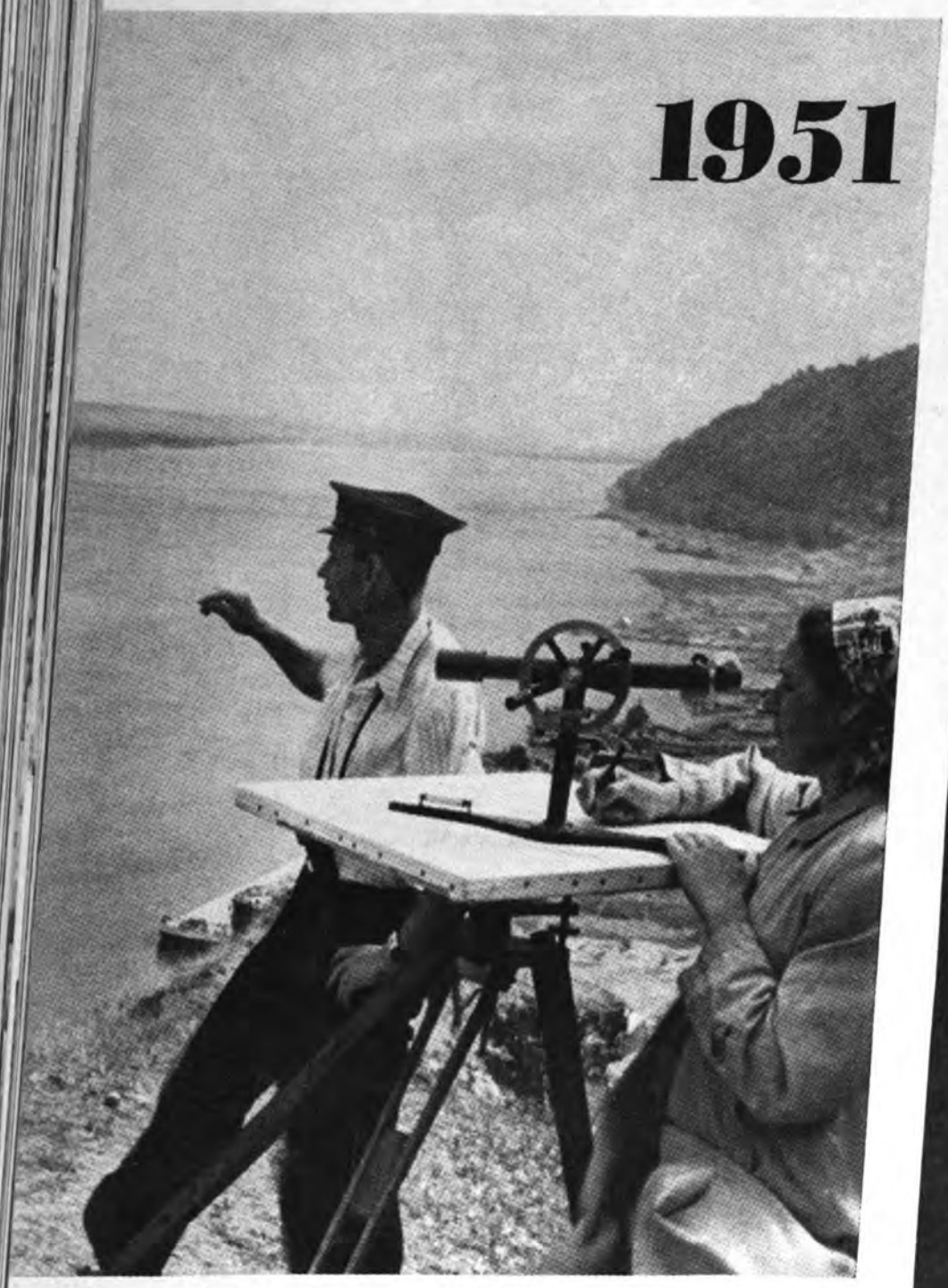
Conference Table vs. Conflict

As it was, the many difficult problems of the war and those which the end of the war inevitably brought were solved over conference tables. Quite understandably, not all of it was smooth and easy sailing by any manner of means. There are no ready solutions for problems which affect a world of peoples, a world in which the varied and frequently conflicting interests of many nations must somehow be resolved.

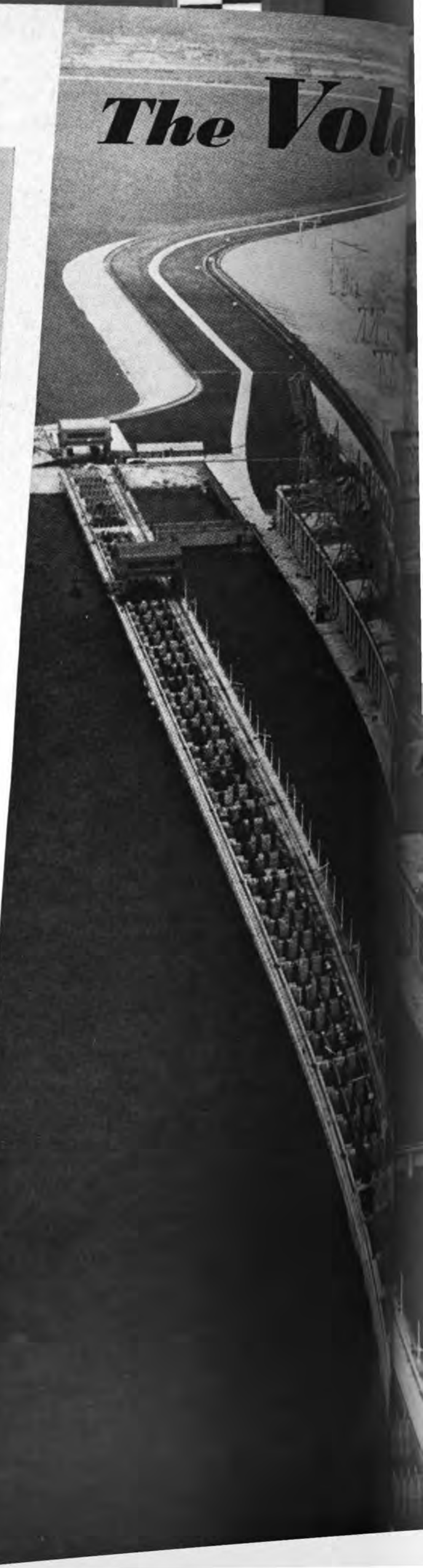
But whatever the difficulties and the insufficiencies of the conference table, it is the only alternative for war that human ingenuity has yet been able to devise. That, too, should give us thought.

President Roosevelt was not unaware of the alternative when he wrote of the Yalta Conference that it was a real guarantee that the great nations can work together in peace as well as in war. It is a great pity that this realistic conclusion was not developed in recent years. But fortunately, we still have every opportunity to prove the correctness of these words.

There is no choice for us but peaceful coexistence—that principle of good-neighbor relations which both our countries affixed their signatures to 25 years ago. ■



FIRST SURVEY AT THE CONSTRUCTION SITE OF THE VOLGA'S LENIN POWER PLANT.



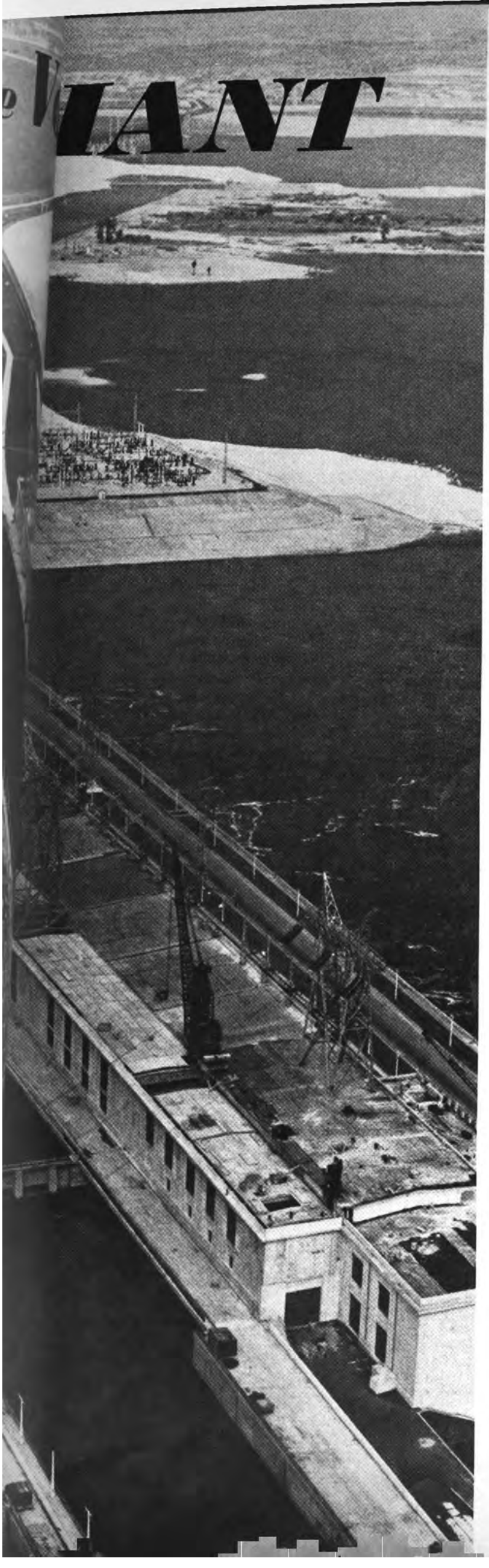
KILOWATT-HOURS in the TRILLIONS

By Andrei Ionov

IN SONG AND STORY that reach back to a dim antiquity the River Volga is the mother, beneficent and life-giving. For 2,300 miles it flows through plain and city, irrigating farmlands, supplying power to town and village and serving as a great waterway between points thousands of miles distant. In its basin, an area of 580,000 square miles, lives more than a quarter of the population of the Soviet Union.

But the river is not always benevolent. There are flash floods in the spring and summer shallowing when the hundred of shoals make river traffic hazardous. There are droughts in bad seasons and dry withering crops. And there is the waste of this immense body of water flowing day after day into the Caspian Sea which could be generating electric power for the busy industrial cities on its banks.

The Volga is being tamed. It is a work of many years' duration and



will last for years to come. It was begun by building a cascade of stepped dams, reservoirs and power stations in the upper reaches of the river. The first link, a relatively small one, was the Ivankovo dam and hydroelectric station built north of Moscow. Then moving downstream, the river was curbed by the dams of deeper reservoirs and its power harnessed by the Uglich, Rybinsk and Gorky stations.

On the left, where the Kama River flows into the Volga, the Perm station was built and the Votkinsk station begun. On the right, the Volga and Don were joined by a canal to feed water to the arid Don steppes and the Tsimlyanskaya station was erected.

The Newest Link in the Chain

The most recent link in the cascade to be completed is the Lenin Hydroelectric Station northwest of the city of Kuibyshev. With its capacity of 2,300,000 kilowatts, it is the world's largest hydroelectric projects yet built. Its dams of reinforced concrete cut across the Volga from bank to bank for almost three miles.

The station itself is a leviathan among hydroelectric structures, 2,300 feet long, 330 feet wide and 260 feet high. It houses some 34,000 instruments and pieces of apparatus. A staff of 15 people in all monitor this automated giant.

There are 20 turbines, with rotors as tall as a three-story building, more than 30 feet in diameter. The massive rotor vanes each weigh 20 tons. The efficiency is a high 93.5 per cent. The generators, transformers and circuit breakers are Soviet made, especially designed for the station.

The dams of this power project have raised the level of the Volga here by almost 100 feet. The artificial body of water created is 375

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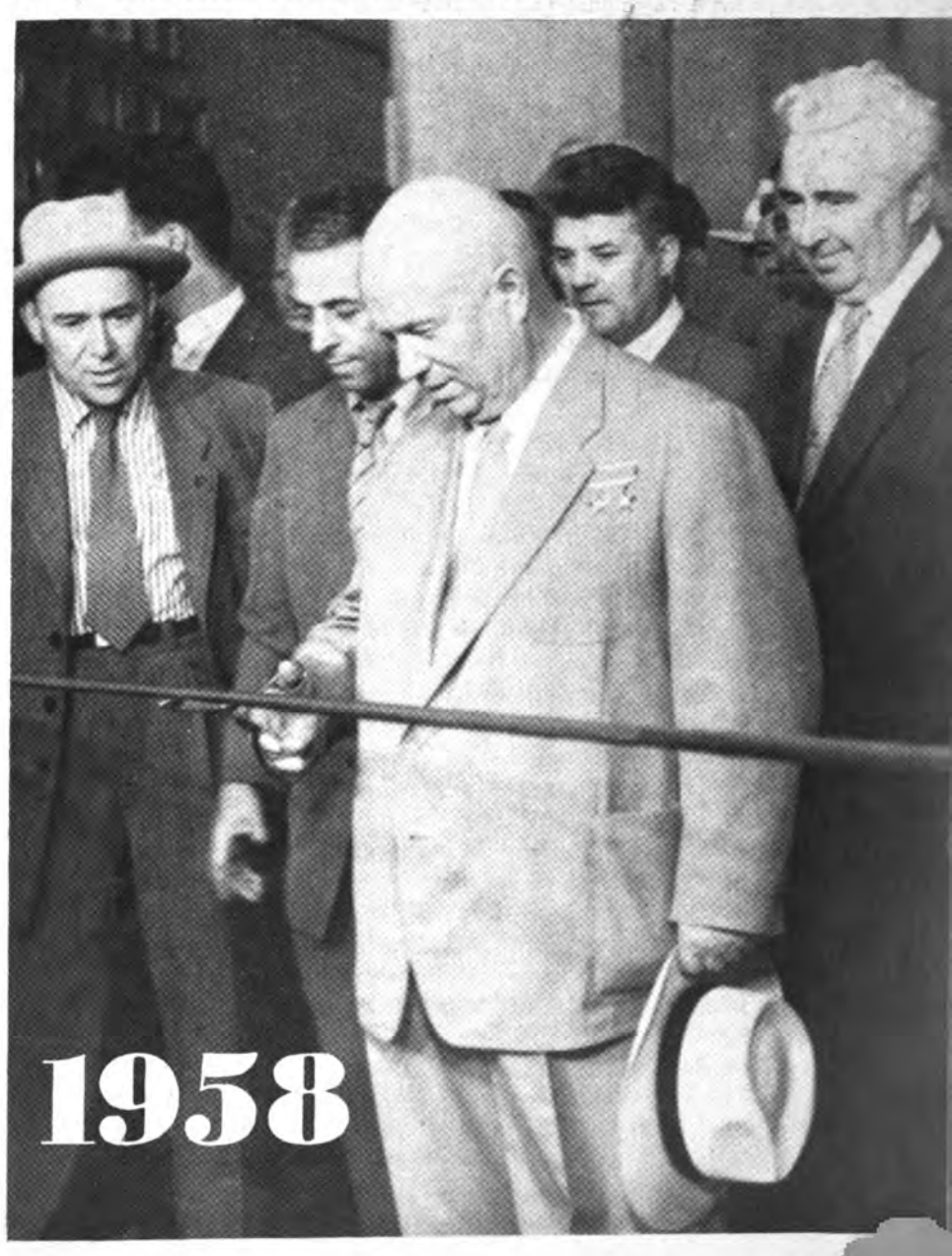


PREMIER NIKITA KHRUSHCHEV CUTS THE RIBBON AT THE PLANT-OPENING EVENT.

The Volga GIANT

Continued

miles long and 25 miles wide. It has been named the Zhiguli Sea.

This newest link in the Volga power chain, as gigantic as it is, is only one segment of the plan conceived in 1920 to electrify the country. In 1916 all of Russia's power stations generated a total of little more than 2.5 billion kilowatt-hours of electricity. The new Lenin Hydroelectric Station by itself will be generating an annual 10.8 billion kilowatt-hours. And this is only 5 per cent of the total the country as a whole produces today.

But even this additional 5 per cent added to the nation's power production will have far-reaching effects on the welfare of the man in the street. Engineers figure that it takes the physical labor of 20 people, roughly speaking, to produce the equivalent of a single kilowatt of electrical energy. With its capacity of 2,300,000 kilowatts the new hydroelectric station will be adding the energy of 46 million people to the country's power total. That translates into lower production costs, larger total of goods available and lower consumer prices. With more mechanical aids, human labor power can be shifted to more productive areas and working hours can be cut proportionately.

A Seven-Year Battle

It took seven years to build this new Volga station. This is considerably less time than was needed to construct the hydropower projects which until 1958 were considered the biggest in the world. The time and money saved in construction and the innovations in design and maintenance have made possible a reduction in the cost of each kilowatt-hour of electricity to 1.6 kopecks. This is six to eight times cheaper than at any previous power station.

There were a number of factors which made for the large differential in construction costs. There was first the wide experience accumulated by Soviet hydropower experts in building on the sandy and loamy soil of the Volga floodlands.

The big earthen dams and the reinforced concrete of the station and the water collector were merged into a single structure. The more usual procedure of building separate structures would have been impracticable and prohibitively expensive in the loamy soil of so voluminous a river as the Volga. The large pieces of equipment were assembled beforehand. This, too, saved time and costs.

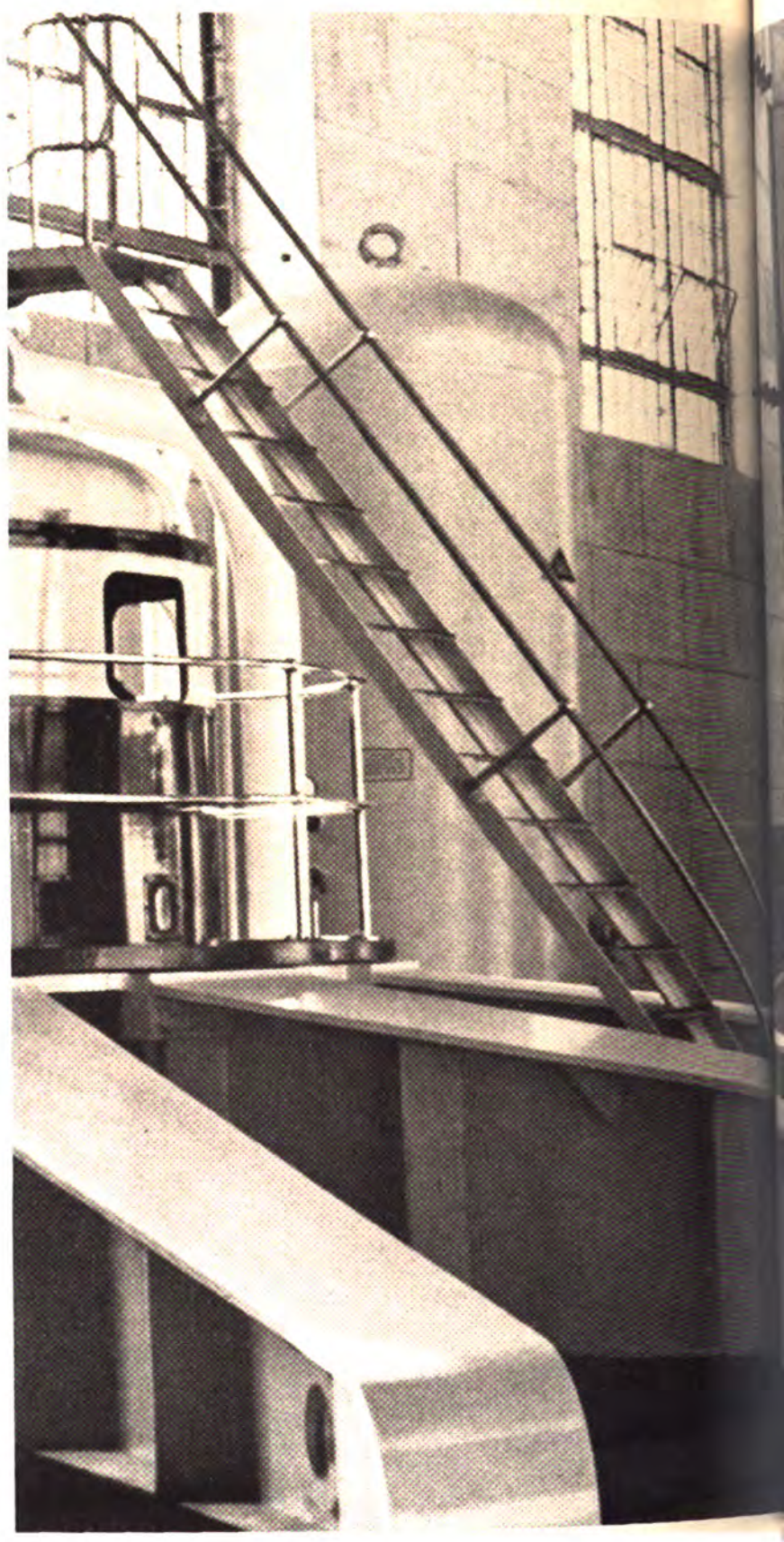
Specialized labor was trained right at the construction sites. Evening schools and technical colleges were set up in the immediate vicinity to train workers in a large number of the skills required. In the seven years it took to build the project, the schools on the site trained 54,500 skilled workers and graduated 500 engineers.

Construction machinery was shipped from plants all over the country. There were some 10,000 different pieces of machines and mechanisms used—cranes and excavators, big 25-ton dump trucks and power shovels that moved 1.300 cubic yards of earth an hour.

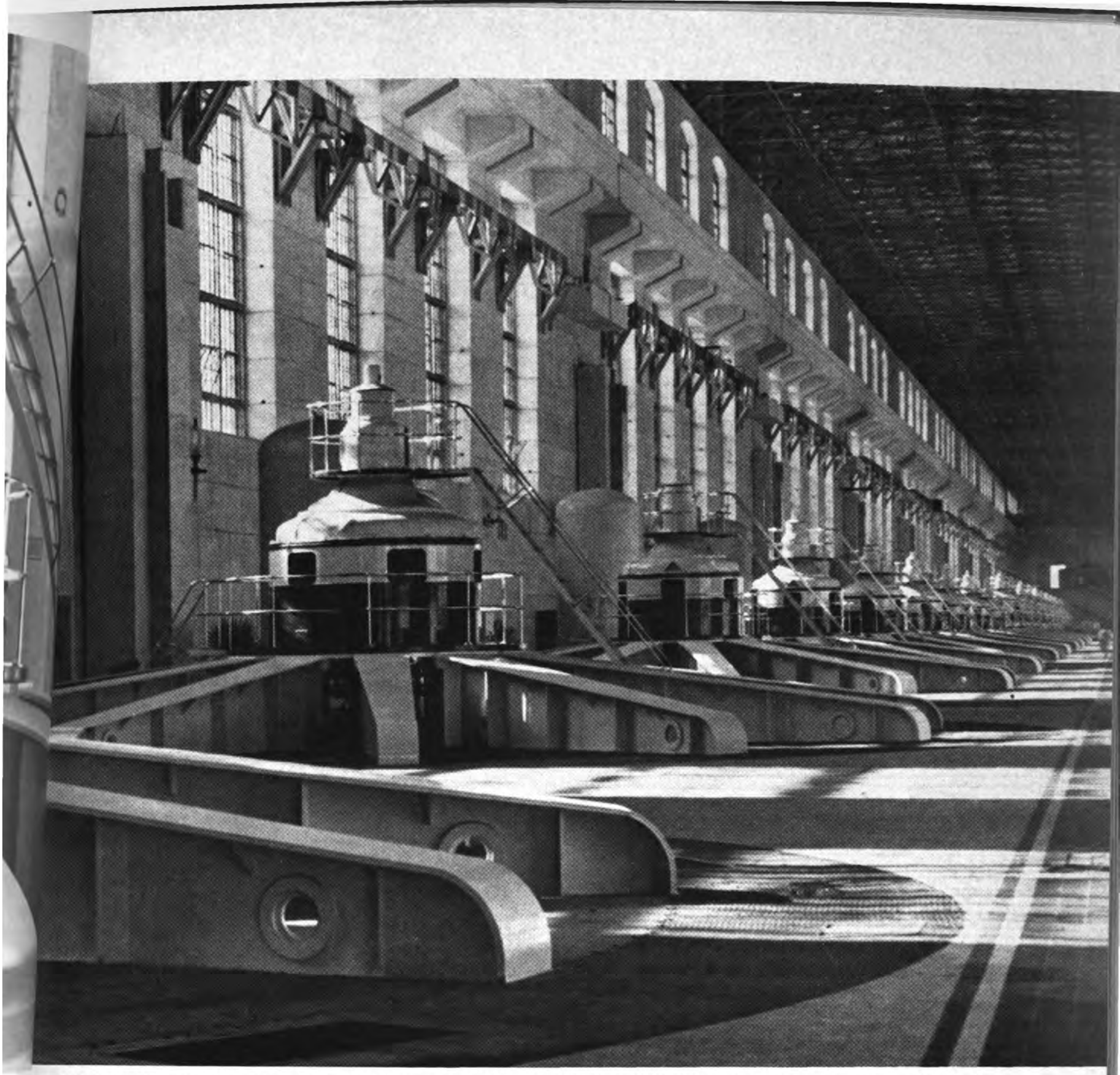
It was a seven-year battle against time, against the river, against weather. The steel framework was built in frosts so biting that the welders had to be replaced every half-hour. Drivers had to push their loaded trucks through snow drifts piled like great hills, with the wind howling through every chink in the cab. Men had to chop through river ice three to four feet thick in the winter and in the spring keep a footing in water that pushed against them with flood pressures.

They have stories to tell, these men and women who helped build the big station. Many of them have been written about in magazines and newspapers and have been honored with the highest award the Soviet Union gives its workers—Hero of Socialist Labor—people like Alexei Ulesov, electric welder; Vasili Lyamin, Mikhail Yevets and Vasili Klementiev, excavator operators; engineers Kirill Smirnov, Alexei Tregubov, Pavel Bedny and a host of other enthusiasts with a pioneering spirit.

The cheap power generated by the new Volga station is now being used to run trains, turn factory wheels, light homes, irrigate farms. It is wired to Moscow, to the Ural cities, to the Tatar and Bashkirian oil fields. It will be sent farther, to the industrial centers of the Ukraine and the North Caucasus as soon as the Stalingrad station, now being built, is included in the country-wide power system.



CENTRAL CONTROL ROOM OF THE LENIN HYDROELECTRIC STATION HOLDS ITS "BRAINS."



/ENTY TURBO-GENERATORS OPERATE IN THE POWERHOUSE TO PRODUCE 2,300,000 KILOWATTS. SOME 500,000 VOLTS FLOWS TO THE COUNTRY'S CITIES AND VILLAGES.

As the links in the Volga power chain are constructed, one sees the ntire economic character of central Russia changing, new communities rising and old towns growing into large industrial cities, industries xpanding at a fantastic pace. The city of Stavropol is one of many hat have appeared near the Lenin Station. In this new and rapidly growing industrial center huge plants are being built for production of synthetic rubber, artificial fibers, mercury-arc rectifiers, cement machinery, building materials, furniture. The same panorama of construction is to be seen in the regions around the Rybinsk, Gorky, Perm and the partly built Stalingrad hydroelectric stations.

A Master Plan for Power

The building of power sources in the Soviet Union is proceeding according to a master plan, one which has first priority because it is basic to the development of every aspect of the economy. The plan is aimed to tie in every village, town and city in a single ramified power system. The function—to generate power at the cheapest possible cost and to distribute it most economically and most rationally.

More immediately, the plan designs as eventual links in this single power chain a number of power centers in specific economic areas of the country. The Volga-Kama cascade, of which the new Lenin power station is a segment, is one of these power centers, but not the only one.

In the Ukraine two large hydroelectric stations on the Dnieper River are supplying power to local industries and consumers. Others are being built. The Irtysh River is being harnessed to provide electric power for Kazakhstan. On the Angara River in Siberia the Irkutsk station has been built and the Bratsk station, with a capacity of 3.6 million kilowatts, is under way. There are plans for even larger stations on Siberia's mightiest river, the Yenisei.

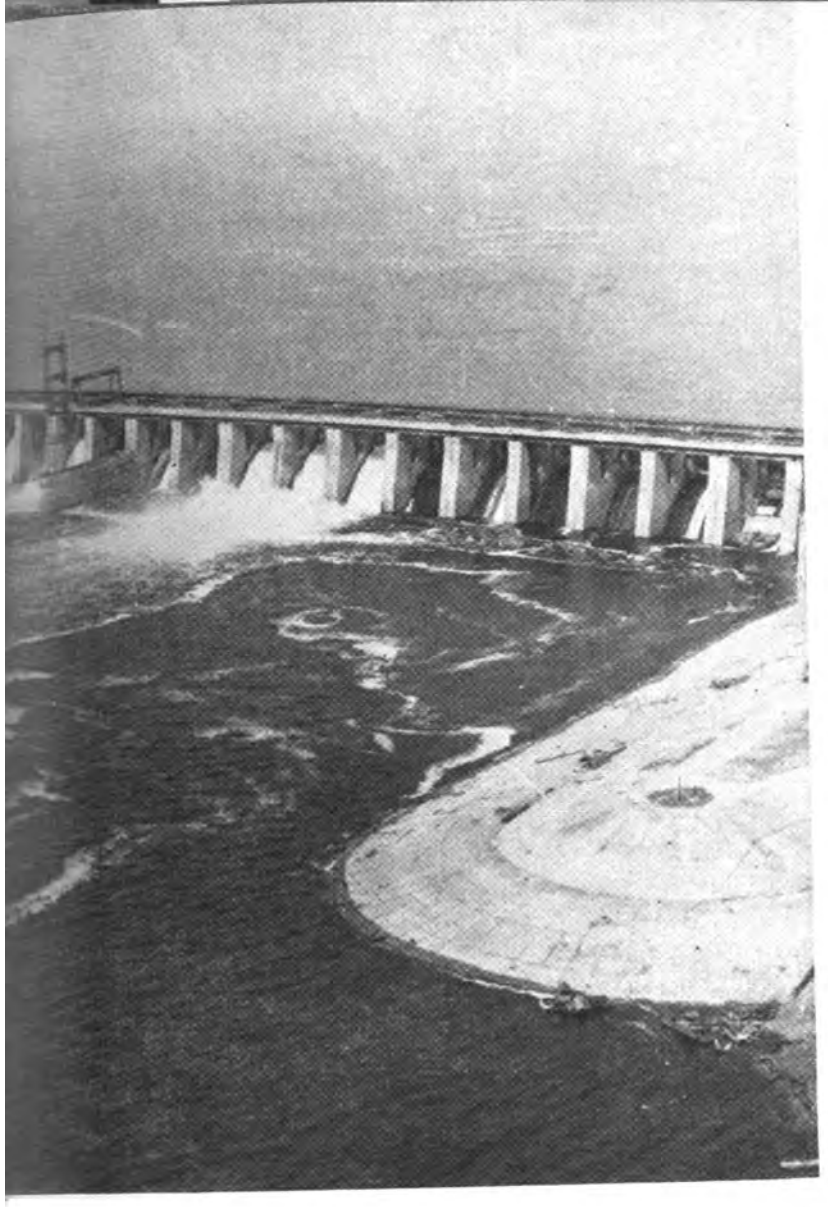
Water power, however, is not the only source from which the Soviet

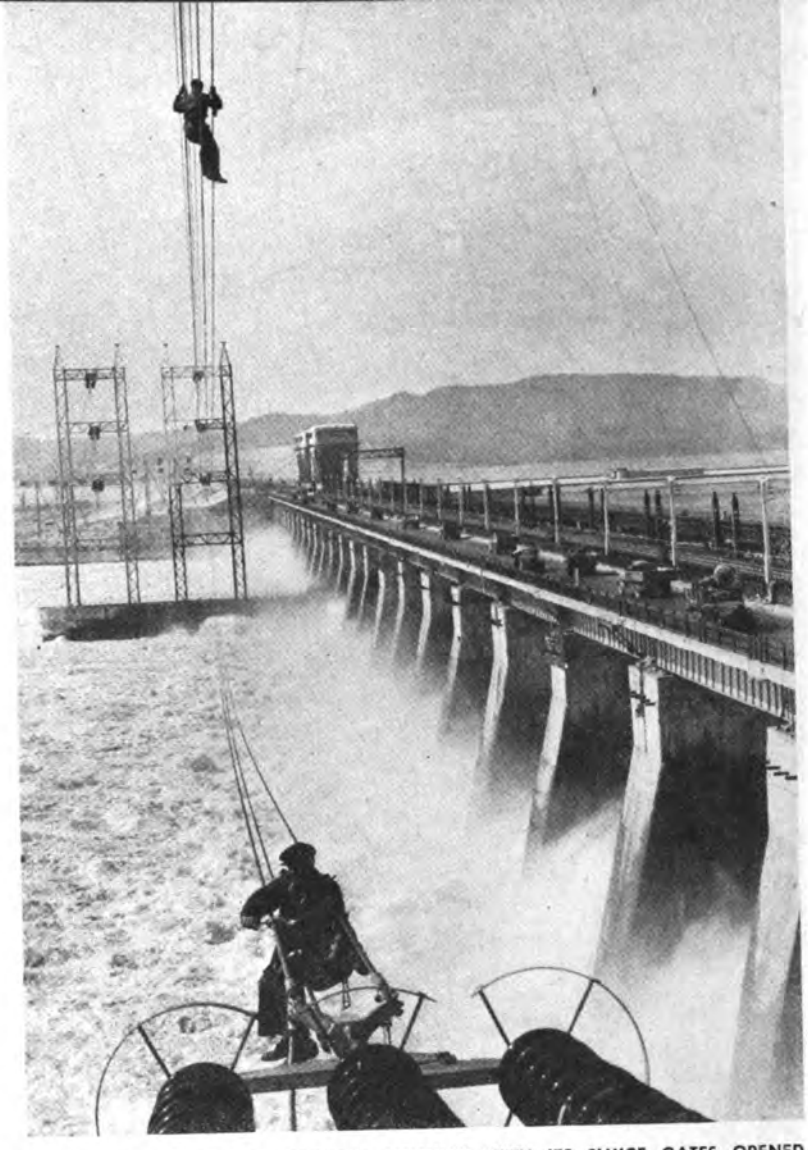
Continued on page 46

THE 3,218 FOOT LONG REINFORCED CONCRETE SPILLWAY OF THE DAM. A WORKER CHECKS UP ON THE WATER FLOW.

The Volga GIANT

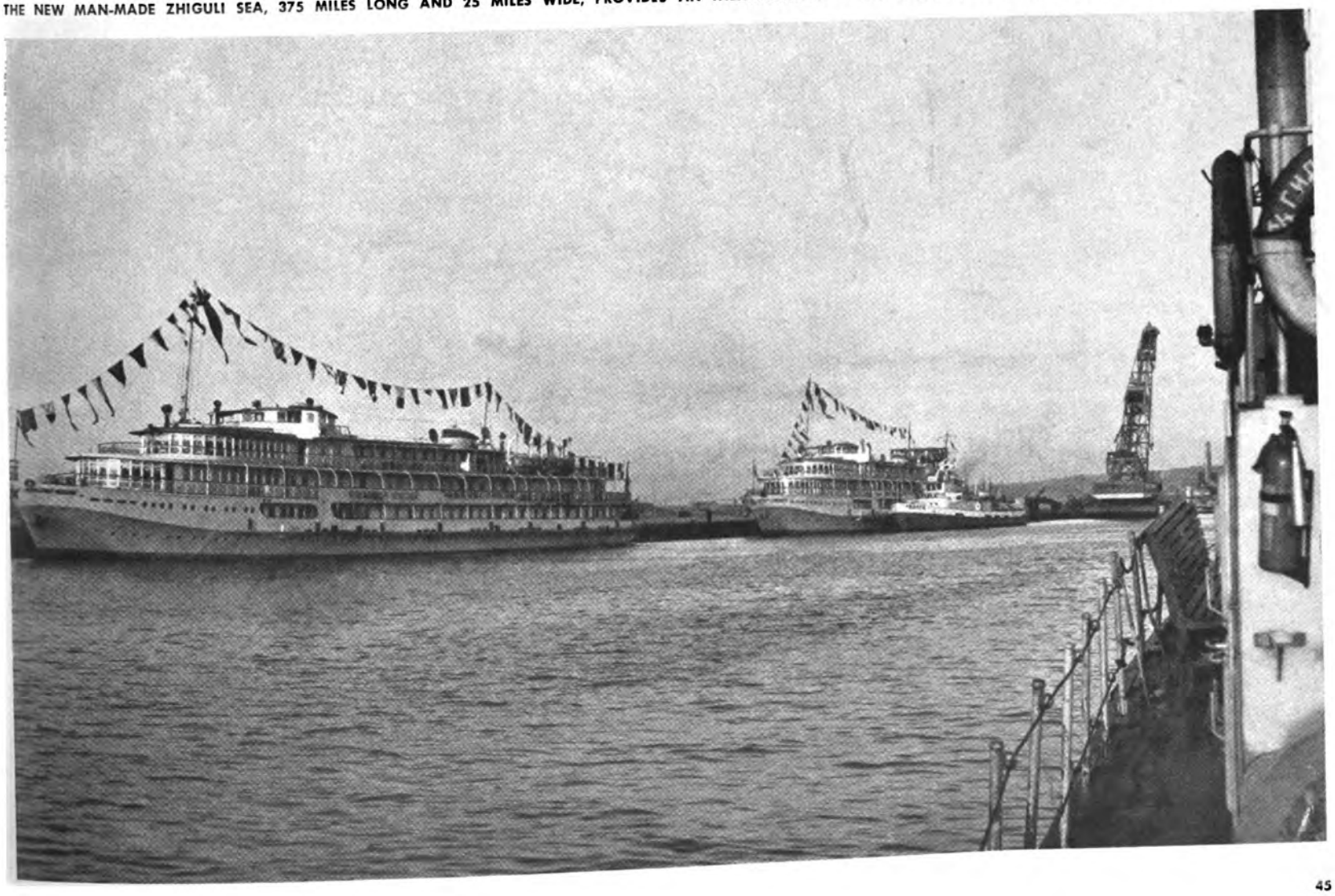
SUPER-HIGH VOLTAGE CERAMIC INSULATORS

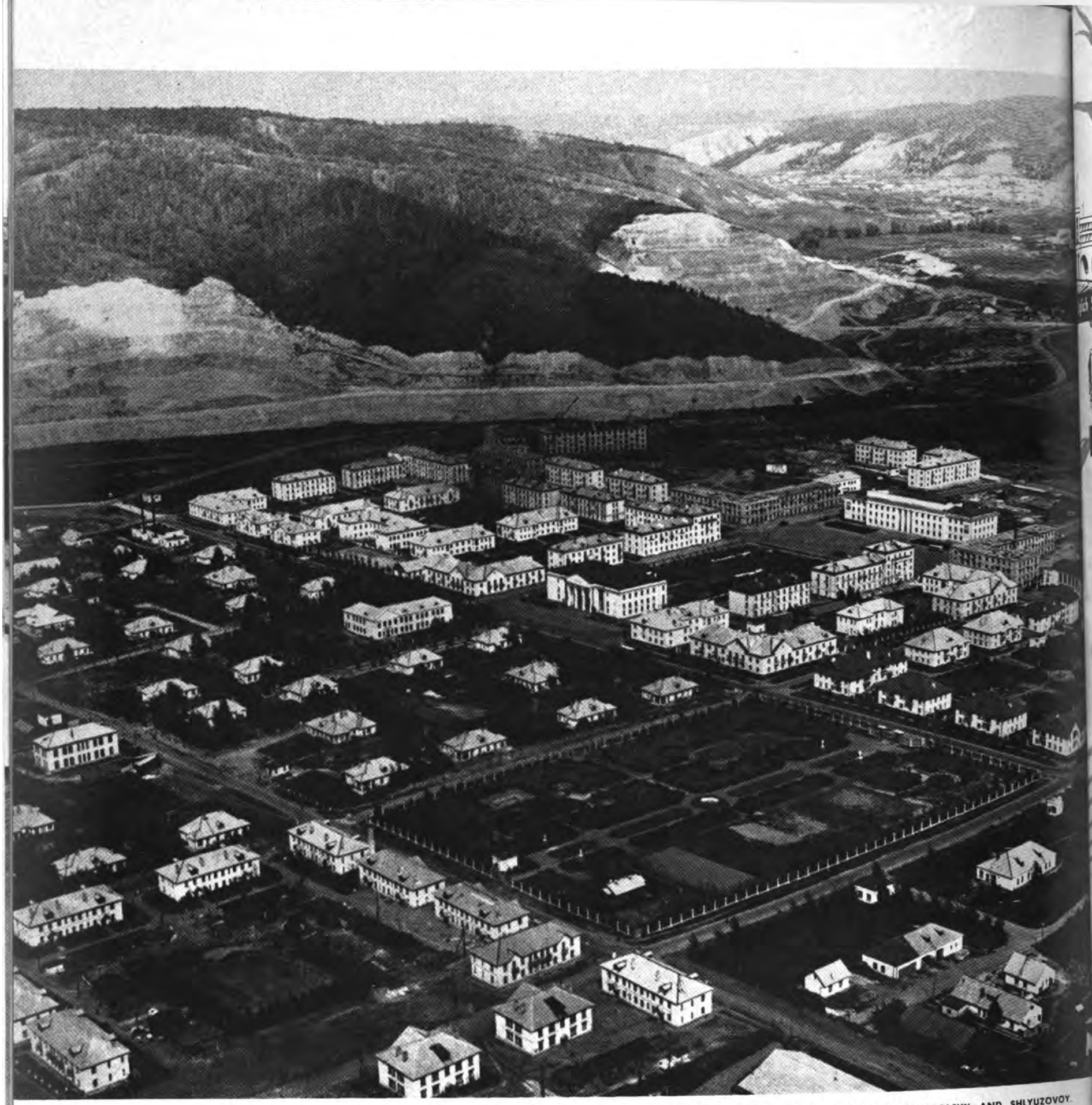




GENERAL VIEWS OF THE STATION'S SPILLWAY WITH ITS SLUICE GATES OPENED.

THE NEW MAN-MADE ZHIGULI SEA, 375 MILES LONG AND 25 MILES WIDE, PROVIDES AN INEXHAUSTABLE WATER RESERVOIR FOR THE LENIN HYDROELECTRIC STATION.





GENERAL VIEW OF ZHIGULYOVSK, ONE OF THE NEW TOWNS THAT HAVE ARISEN NEAR THE STATION. OTHER TOWNS ARE STAVROPOL, KOMSOMOLSKY AND SHLYUZOVOY.

The Volga GIANT

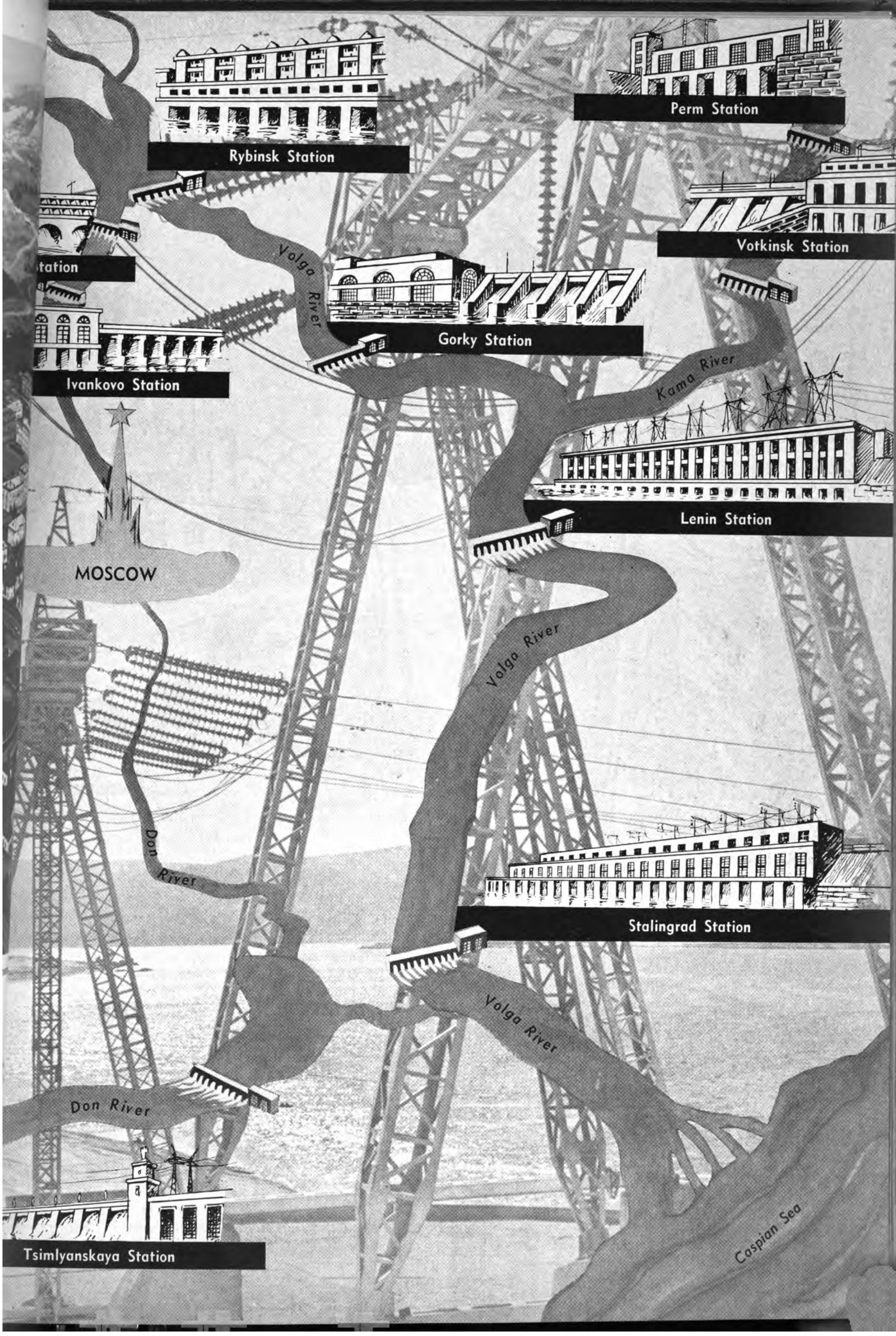
Continued from page 43

Union draws its electricity. As a matter of fact, 81 per cent of the electric power in the country today is generated by thermal power stations. And with the recent discovery of great new deposits of natural gas, oil and cheap coal, preference is being given to construction of these stations in many parts of the country in order to get large increases in power capacities within the shortest possible time.

Atomic power stations, too, will be developing as important factors in the power production of the country. The world's first atomic station has been operating successfully in the Soviet Union. Last September, a section of another atomic station, with a capacity of 100,000 kilowatts, was placed in operation. When completed the station's full capacity will be 600,000 kilowatts.

Consider these figures as index for the power production forecast by the master plan. In 1920 the Soviet Union was producing 500 million kilowatt-hours; by 1930 the figure had jumped to more than 8 billion; by 1940 to 48 billion; by 1950 to 91 billion, this in spite of the destructive war; and five years later, by 1955, had almost doubled, to 170 billion. By the end of this year, it will total more than 230 billion kilowatt-hours.

The forecast is not unreasonable—800 to 900 billion kilowatt-hours by 1972. And by the end of the century—15 trillion—a power potential almost too fantastic to visualize even in figures. ■


Rybinsk Station
Perm Station
Votkinsk Station
tation
Volga River
Gorky Station
Ivankovo Station
Kama River
Lenin Station
MOSCOW
Volga River
Don River
Stalingrad Station
Volga River
Don River
Caspian Sea
Tsimlyanskaya Station

The story of Kirill Orlovsky is also the story of Rassvet (Dawn), one of the largest and wealthiest of collective farms, with an annual income in the millions.

Orlovsky holds the two highest awards granted to Soviet citizens—Hero of the Soviet Union, for outstanding courage in the Second World War, and Hero of Socialist Labor, for his accomplishments in farming. He is a deputy to the USSR Supreme Soviet, the national legislature.

During World War II Orlovsky fought at the front, suffered the loss of his right hand and the fingers of his left. He was granted a disability pension sufficient to keep him in comfort and an apartment in a good Moscow residential district.

But he could not resign himself to idleness. He left Moscow and went back to his native Myshkovichi, a Byelorussian village. It had been occupied by the Nazi armies, laid waste when they retreated, a few broken buildings left as gutted mementos.

This is the story of what he and other farmers made of Rassvet, excerpted from The Narrative of Kirill Orlovsky *by Yakov Tsvetov, a biography of a man and a collective farm.*

BIOGRAPHY of a MAN and a FARM

By Yakov Tsvetov

THE FIGHTING had not yet moved far from the village when Kirill Orlovsky came back to Myshkovichi—the rumble of shells could still be heard in the near distance.

He crossed the meadows. The fences were down, broken and scattered. He passed the first cottages, their roofs torn, windows stuffed with rags. They had been houses for people to live in when he had last seen them years ago. Now they looked desolate.

"The Shemetovs live here!" piped a child's voice. He turned to see a little girl behind him—five, perhaps—dirty, her yellow hair uncombed, her brown legs powdered with dust up to the knees.

"This is where the Shemetovs live, here!" she cried again, out of breath from excitement. She pointed to a cottage. Outside it laundry hung from a line stretched between two maples that forked from a single trunk. A young woman with a tired face stood at the door. The child kept staring up at him hopefully, fearfully.

The woman smiled at Orlovsky, but it was a forced smile, her eyes stricken. "I've told you so many times," she said to the child, "that your father knows his house. He won't miss it when he comes."

Orlovsky looked at the scorched land around the house. The woman said bitterly, "They've trampled and burned everything in the village, the murderers!"

Last fall she had plowed up a small plot of land, sowed two measures of rye. In the spring she had planted three sacks of potatoes. It was all she had.

When the rye began to ripen and the potato plants to flower, there was a small surge of hope. Perhaps they would have enough to pull through to the spring if they mixed the flour with crushed acorns. But only the night before the big German trucks, retreating, had crushed the plants. Then fire spread and burned what the truck treads had left, burned outbuildings and crops, hers along with the rest.

Orlovsky walked by a naked, burnt-out stretch of land. Where he remembered the collective farm's outbuildings had stood, there were now only cluttered piles of half-burnt bricks. An old man with a huge white beard was shuffling his slow way through the clutter. It was Pavel Belyavsky. "Kirill," he cried, his face lighting up. He stretched his work-worn hands in greeting. "Have you come back on leave?"

"No! For good, Pavel," Orlovsky answered. "I've come to stay, to help start things again."

"Start with what? There's nothing to start with! Can't you see?" The old man spread his arms helplessly. "There's nothing left, not a horse, a cow, a plow, not even any seed. Nothing at all! Zero!" There was no complaint in his tone, he was simply stating facts.

We'll have to begin with zero then," Kirill said simply. *Continued on next page*

HOMES AND GARDENS OF THE BYELORUSSIAN VILLAGE OF MYSHKOVICHI. A POWER PLANT, LUMBER MILL, BARNS AND WORKSHOPS AROSE ON WAR RUINS.

BIOGRAPHY of a MAN and a FARM

Continued

Kirill had been elected chairman of the Rassvet Collective Farm—a thankless task, it was a farm only in name. The farm office was a wretched shanty which stood alone at the end of Zykov Lane. The hut was standing, but only because the Nazis had thought it too dilapidated to be worth the match to burn it.

It was five in the morning. He had called a meeting and the bookkeeper, Ivan Khomich, and the other members of the farm board were expected momentarily. There was plenty to talk about. The most pressing was the lack of seed. The government had allocated seed to the farm but there was no telling when it would come. Troops were still rolling along by truck and rail, harassing the retreating enemy. But the season wouldn't wait. If the fields were not sowed at once, there would be no crop.

The board decided to appeal for a loan of the meager store of food-seed each of the farmers had managed to preserve. Fyokla Teleshova brought a bucket of rye, Pavel Belyavsky half a sack of grain, old Kristina Danilovna brought a handful of rye seeds in a towel. "I hear you've been collecting seed," she said. "Here's what I have. I'd give more if I had it."

There was new heart in the collective farm. The fascists had been driven out. Life was resuming its hopeful course. People were busy and beginning to remember to smile again.

There was not a single horse or cow on the farm. Men and women went out in teams to cut the grass, to plow by hand, hours before dawn. There wasn't time to sleep, too much to do until seeding was done and finished.

Snatching an hour of sleep whenever they could, smiths and carpenters worked, each of them like two men, to repair smashed farm tools that were gathered on roadsides, streets, gullies, wherever the fascists had thrown them. They needed iron to mend plows and harrows, to make cartwheels, to use for a dozen different things.

UNDER KIRILL ORLOVSKY'S LEADERSHIP THE FARMERS TURNED RASSVET INTO A MILLION-RUBLE ENTERPRISE.

The village post office delivers 1,100 newspapers and scores of magazines every day in the week.

With the help of village boys and girls, the men dismantled whatever pieces they could use of shattered tanks, machine guns and broken trucks left behind by the enemy. The smith Arkhip said, "The Hitlerites left us plenty of both iron and grief."

Then one day, heralded by a cloud of dust, a herd of horses limped into the village. They were lame, emaciated, their sides crusted with blood, but they were horses. Heading the procession was the farm youngster Genka riding a gaunt horse with a lamed right front leg. Seven other boys, exhausted but their eyes shining with excitement, herded the animals. That summer of 1944 many horses had been left behind by retreating troops and had run wild in the woods. The collective farm boys had been out for a week catching them. They were back in triumph with seventeen.

There was seed now, and animals. It was time to begin sowing.

* * *

Harvest. Yesterday the collective farmers had been wondering where they would store the grain. Today the carpenters were knocking a barn together. A couple of boxes of nails had been found under an overturned German truck.

Ivan Khomich had somehow managed to get hold of a dozen spools of heavy thread to mend the torn sacks, and now the old women sat on their porches working away with thick needles.

These were restless days, eventful, things happening. Before they left, the Germans had taken Fyokla Teleshova's cow—the last cow in the village. But only the day before yesterday a black, hornless cow with a blaze on her forehead had turned up at the cottage on the edge of the marsh. The animal was hardly able to stand, but it wouldn't take long to fatten her up.

The farmers hurried to the farm office to bring the good tidings. It meant milk for the nursery. No matter how hard things were, the nursery had to have milk.

But yesterday an elderly couple had walked into the farm office. "Did a black cow stray to your village? She's ours."

Kirill Orlovsky looked at Ivan Khomich, sighed, shrugged his shoulders. "We'll have to find milk for the nursery children some other way," he said.

* * *

Those hard days, it was very odd listening to Kirill Orlovsky talk about the time when the farm granaries would be filled to the brim and overflowing with harvested wheat. People smiled when he talked about the farm getting 3,000 quarts of milk from every cow, about steamheated cowbarns and semi-automatic feeding systems.

This was at a time when a carpenter came to beg for a dozen nails and a stableman for a bushel of oats. Most of the time there were no nails, no oats, and not much of anything else.

Some of the farmers smiled, "Stop dreaming, Kirill, come down to earth." Others were irritated that he talked of big numbers in the future when the bare necessities were lacking in the present.

But Kirill insisted, showed them possibilities, estimates, kept talking of a million rubles a year for the farm. His talk was not wild. It was very much down to earth—in terms of the best crop rotations for the farm, the mechanized preparation of peat crumb for fertilizing the apple orchard beyond the river, in terms of electric power—these were all tangibles.

The farm was rebuilt. Orlovsky's prophecies, his "dreams" began to grow into very large realities. The farm would not have been rebuilt so quickly if the farmers had to depend entirely on their own resources. Government assistance was offered and gratefully accepted.

The government granted a large loan, in money, in seed, in mineral fertilizers, on easy credit terms. The state cattle farm Karavayevo lent its pedigreed milch cows. The state machine and tractor station provided machines and operators for sowing, cultivating and harvesting and took its payment in kind after the crops were in. *Continued on page 52*

SOON AFTER THE WAR A STATE CATTLE FARM SENT SEVERAL PEDIGREED COWS TO MYSHKOVICHI. NOW THE FARM HAS SOME 1,000 HEAD OF BEEF AND DAIRY ANIMALS.

FLAX ADDS FIVE MILLION RUBLES EVERY YEAR TO THE FARM'S INCOME FROM MILK, MEAT, CROPS AND FRUIT.

Advanced stockbreeding at Rassvet includes quartz lamp treatment for its suckling pigs.

The collective farm's livestock section is proud of its large herds of fine-fleeced sheep.

KIRILL ORLOVSKY TAKES PART IN HELPING EDIT MATERIAL FOR THE FARM PAPER.

THE PAPER COMES OUT WEEKLY AND IS PUBLISHED IN THE FARM'S OWN PRINTSHOP.

BIOGRAPHY of a MAN and a FARM

Continued

After a while one had to think to remember when it was that the farm had been a jumble of blackened bricks and burnt timbers.

* * *

Spring had come to Myshkovichi. Our motor car was making its slow way along the muddy road. Ahead of the car old Pavel Belyavsky was walking, trying to avoid the water-logged ruts.

"You'd better get in with us," Kirill Orlovsky said. He swung the car door wide open. We rode on. The road cut across autumn plowland that spread as far as the eye could see.

The old man said, "Do you know, Kirill, it still seems too good to be true. There was absolutely nothing, nothing at all, only yesterday it feels like nothing but ashes, ruins and hungry people. And now everybody is rich all around."

"Yesterday!" Orlovsky laughed. "This is 1958. We've been too busy to watch the time fly by, but it's flown. We didn't see the changes, we were too busy making them. It was when the visiting farm delegation looked over our farm that I began to realize how many changes there were."

The visiting farmers had walked about the farm, peered into every building, talked to people and looked at last year's accounts. "When did the collective farm gross its first million?" they wanted to know.

No one knew exactly. It was too long ago. Bookkeeper Ivan Khomich rummaged through the old accounts until he found the first six-cipher figure. It was in the neighborhood of 2 million rubles for 1950. A year later the income for grain, flax, potatoes, wool, cattle, milk, butter, eggs, honey, vegetables and fruit sold to the government and at market came to 3 million rubles. The next year it was 5 million; the next 10, then 16, and so on.

In 1957 the collective farm grossed 17½ million rubles, and for the year current its income is certain to rise by another million. The farm families that make up the membership of the collective will each receive from 20,000 to 30,000 rubles for the year, some even more.

"How long did it take you to work up to the million mark?" the guests asked.

"It took us about 10 years," Orlovsky answered.

As they walked about the farm, the guests saw new building sites with piles of brick, iron tubing, rolls of iron netting, great spools of wire. The collective farm was still making changes, adding improvements.

As our car moved ahead we caught a first glimpse of the village in the distance. A flowering apple orchard spread away from the cottages. The mile and a half round cattle enclosure was fenced and lined with maple and birch trees. We could see the high water tower, the silos, the roofs of cowsheds that seemed to stretch for acres and housed a thousand head of brown Kostromas, black mottled Kholmogory and reddish Estonian cows.

Farther on were the power plant, the workshops, the lumber mill, the flour mill, the barns and the storehouses. As we passed, we caught a view of the pig pens, the kennels, the spacious drying yards, the new brick slaughter house, the hothouses and the separator section of the creamery.

We were shown the spot where the first stables had been rebuilt after the war. They had later been pulled down to make way for two garages. The farm now owns 30 autos. This year the farm is going to buy 22 tractors, 15 grain and silo harvester combines, 2 excavators and other machines.

Our car rolled onto a broad street. Cottages with window frames ornamented in blues, oranges and vivid greens nestled among the trees. We were driving through the center of the village.

We passed by a building with tall columns amid the birch trees. This was the library and post office. Farther on was the village school and the House of Culture with its many big double windows.

Kirill Orlovsky was quiet as we drove along. He must have been looking at another picture in the background—charred ruins, burnt fields, an old man with a white beard shuffling through the ruins in bast shoes, and a five-year-old child, her legs powdered with the deep dust of an unkept road looking up at him fearfully, hopefully. ■

AN ILLUSTRATION TO CERVANTES' *DON QUIXOTE.*

SERGEI MIKHALKOV'S *THE FOX AND THE BEAVER.*

THE KUKRYNIKSY

Three Cartoonists in One

By Natalia Sokolova
Member of the USSR Academy of Fine Arts

WHEN the Kukryniksy, world famous trio of cartoonists, held their first art show in Moscow twenty-six years ago, they described themselves as a joint 85 years of age with a joint eight years of living in art school dorms and joint possessors of one diploma in the fine arts and two in the graphic arts.

The catalog description went on to say that the trio had spent the two years previous working jointly on posters, book illustrations, paintings and theater sets, and they heartily recommended the collective method of thinking, studying and working to all and sundry as more profitable and more effective artistically than individual thinking. studying and working.

Continued on page 55

WE'LL STRANGLE THE ENEMY WITH ALLIED EFFORTS.

TANYA. CAPTURED BY THE FASCISTS, THE NOOSE AROUND HER NECK, WITH HER LAST BREATH THE 18-YEAR-OLD ZOYA KOSMODEMYANSKAYA ROUSES THE PEOPLE TO FIGHT.

THE END. A PAINTING OF THE LAST DAYS OF THE HITLERITE GENERAL STAFF IN THE CELLARS OF THE REICHSCHANCELLERY AS THE FASCISTS' MAD HOPES WERE BLASTED.

THE KUKRYNIKSY

Three Cartoonists in One

Continued

The Kukryniksy trio—one hardly thinks of them any longer as three individual artists—are 26 years older today. The rather cryptic Kukryniksy—in Russian it sounds just as strange—is made up of the first syllables of each of their names: Mikhail Kuprianov, Porfiri Krylov and Nikalai Sokolov. Though now they live in three separate and spacious apartments, distinguished cartoonists, painters and book illustrators, they still work together and still divide their earnings into three equal parts. If one takes ill, the other two sweat out a cartoon for deadline and sign it with the common name.

A Most Unusual Way of Working

The well-known Soviet poet, Alexander Zharov, describes his first meeting with the three young men in 1925 when he was editor of the Moscow literary magazine *Komsomolia*:

Three rather poorly dressed young men stepped into my office and said: "We're artists. What we mean is that we're art school students. Can we do some drawing for your magazine?"

"We put out a purely literary magazine, without illustrations," I told them, "so we haven't anything to offer you. Besides, there are a few too many of you, don't you think?"

"Yes, but we work together . . . you know, like a single person."

"But you sign your three names to a single work?"

"No, one name—Kukryniksy."

"And what do you do?"

"We draw cartoons."

"All right, make me a cartoon of these three writers sitting here."

The boys sat down and got to work without a word. First one of them made a sketch. Then the second added some lines to the sketch and passed it on to the third who also added a line here and there. The sketch made the rounds of the three this way several times.

As they worked, the room filled with people looking on. It was the first time any of us had seen three artists drawing a single cartoon. When they were through, we gave them a hearty hand—the cartoon was splendid. We printed it in our magazine as a new feature, "Friendly Cartoons," that we introduced especially for these three very unique artists.

Biting Cartoons

The Kukrynisky cartoons are known in most countries of the world but the three are also acknowledged in the Soviet Union as consummate illustrators of Gorky, Saltykov-Shchedrin, Chekhov and Cervantes and as the gifted painters of *Fascists Fleeing from Novgorod*, *Tanya* and *The End*. Characteristic of the Kukryniksy is a wide range of media and artistic expression.

The Kukryniksy cartoons are clever and biting. Some of them have played a salient role in criticism of art and literature. They have made fun—caustic fun at times—of works and of the men who produced the works. Their cartoons are merciless in dealing with hacks, philistines and panderers to cheap tastes.

Before the war, when the fascists were gathering their forces for an onslaught on everything decent, the Kukryniksy gave up what they called their "artistic meanderings" and turned to vitriolic political cartooning of Franco, Mussolini, Hitler and the lesser fascists and would-be fascists.

During the war their anti-fascist cartooning was so sharp, so scathing and at the same time so funny that they did wonders in destroying the myth of Nazi "invincibility" and in lifting spirits even during the darkest and most ominous days of the war.

So eloquently did the cartoons make their point that Nazi officers frequently ordered their troops to stop and tear down posters deriding the "Führer" and his lieutenants. At the Nuremberg trials of war criminals, foreign cartoonists complimented the Kukryniksy upon their caustic portrayals of the fascist leaders.

Eloquent Paintings

The Kukryniksy paintings are as trenchant and penetrating. *The End*, a postwar painting, depicts Hitler and his generals as cowering ferret-faced figures caught in a bomb-proof shelter that has turned into a trap.

Tanya portrays the people heroically fighting the fascist occupation. Tanya is the name that Zoya Kosmodemyanskaya, the young partisan fighter, used. She was captured and hanged by the Nazis. The artists visited the village of Petrishchevo near Moscow where the fascists executed the girl, spoke to peasants who had witnessed the murder and made many sketches before they did the painting. It is one of the most moving paintings of the war—the young girl standing up bravely against the enemy minutes before her death.

The war over, the artists returned to more peaceful themes, to political cartooning and to book illustrating. At one of the postwar art shows the Kukryniksy exhibited a group of landscapes done individually and signed individually.

Although they work collectively on their cartoons, they find that landscape painting requires a more individual and more personal approach. Kuprianov favors city scenes and marine views. Krylov is fond of the rural views in the Moscow environs. Sokolov is drawn to the country bordering the Volga. Their landscapes, however, do have the common element of intimacy and lyricism.

Book Illustrators

Their collective book illustrations have the same lyric quality. Particularly fine examples are the illustrations they did for Chekhov's wonderful *Lady with the Dog*, the story of a young woman in love with a married man. As depicted by the Kukryniksy, the views of the Crimea suffused with sunshine and of the meeting of the lovers are so beautifully moving that they have been reprinted in many Soviet and foreign magazines.

Their illustrations for Gorky's books, notably for *Foma Gordeyev* and *Mother*, are most vigorous, appropriate to the heroic characters in the novels. In *Foma Gordeyev* they portray in sharply etched lines the young merchant fighting the ruthless financial sharks who try to break him. In *Mother* they draw the heroic workers of the period of the Russian Revolution of 1905.

From 1949 to 1952 the Kukryniksy worked on their illustrations for *Don Quixote*. This was their first try, and a highly successful one, at illustrating a non-Russian work. They had to vie with such masters as Daumier, Goya and with Doré, 19th century French artist whose illustrations of *Don Quixote* have been world famous for almost three-quarters of a century. They nevertheless drew a new and highly individual portrait of Cervantes' hero, a man wrapped in meditation, only his eyes betraying his frenzied dreams. The two-volume edition of *Don Quixote* published in 1953 has 74 Kukryniksy illustrations.

The Kukryniksy have a very large and devoted following, both among connoisseurs of art and with the public at large. They have received the honored award of People's Artists of the Russian Federative Republic, among other distinctions.

Since the end of the war the three artists have visited Germany, Finland, France and Italy. Not long ago they revisited Paris, not as tourists this time, but as guests of the Daumier Society, organized on the initiative of the Danish cartoonist Bidstrup. The three were honored with election as vice presidents of the Society, in recognition of their work as anti-fascist cartoonists during the war and their equally untiring work as cartoonists devoted to peace. ■

ANIMAL SPACE TRAVELERS RETURNED TO EARTH

A NEW record was registered by Soviet space-exploring scientists late this past summer when two dogs were shot 280 miles into the upper atmosphere in a geophysical rocket and returned safely to earth. Launched in the middle latitudes of the country's European part, this big one-stage rocket was another Soviet contribution to the IGY program.

In issue No. 9(24) of our magazine we described in detail Soviet explorations of the upper atmosphere by means of rockets. An account was given of a one-stage rocket launched earlier this year, which climbed to a record altitude of 294 miles, but it carried no experimental animals and a lighter payload of instruments.

The new rocket carried an unprecedented 3,726 pounds of geophysical and radiotelemetering instruments with their power sources. a hermetically sealed chamber with the experimental animals and various auxiliary systems.

A significant feature of the rocket was its successful stabilization throughout the flight, including the period when it was flying by inertia. The specially designed installations prevented the rocket from rotating around any of its axes.

This made it possible to direct some instruments right toward the sun, while others were placed on the rocket's shady side. An additional advantage was that the transmission aerials could be set in a definite position so as to investigate the density of ionization in the upper atmosphere.

The rocket flew in the preset direction at a slight angle to the vertical. On return to earth it landed in the precisely calculated spot, no small scientific achievement by itself in a project where an infinitesimal decimal point means hundreds of miles.

Scientific equipment of the rocket included a wide range of instruments to register various data in the upper atmosphere—its ionic composition, the concentration of free electrons and positive ions, electronic temperature, air pressure, hits by micrometeoric particles, ultraviolet section of the solar spectrum and the infrared radiation of the earth and the terrestrial atmosphere.

The chamber for the dogs had a specially designed motion picture camera for filming their behavior during the flight, and a group of instruments to register their biological functions.

The two pioneering space travelers Belyanka and Pyostraya—the English equivalents are Whitey and Spotty—were in fine condition after their 280-mile drop. They had done three months of rehearsal training and had become so accustomed to the hermetically sealed chamber, to the instruments fastened to them and to flight conditions, that they had learned to walk into the rocket by themselves.

This familiarity was important to guarantee that reactions induced by unaccustomed surroundings would not influence the behavior of the animals in flight, and the data obtained from the experiment would not be distorted by extraneous effects.

The reentry of the rocket from the upper atmosphere presented a serious technical problem since the instruments and especially the animals had to be returned to earth safely. To achieve better results in braking the speed, the rocket had a two-part structure.

In descent the nose, which held the animals and instruments, separated from the main body. At this time aerodynamic brakes came into play and considerably reduced the speed of the nose through the denser layers of the atmosphere. Then, at an altitude of some three miles above the earth, an auxiliary parachute opened. This one, a while later, pulled open a larger parachute that landed the nose safely.

During braking in the dense layers of the atmosphere, the animals experienced overload as during the start when the rocket's engines began to work. The overload was greatest at the moment when the parachute system opened. The experiment shows that the animals stood the overload quite satisfactorily.

Throughout the entire flight all the apparatus of the rocket worked without a hitch and brought back these hardy little travelers with data which world science will be using to break through the biological barrier to human flight into space. ■

Experimental dogs as filmed by the rocket's motion picture camera. Installed in the animals' compartment, it registered their behavior throughout the flight to a 280-mile altitude and back to earth.

SCULPTORS to carve SPUTNIK OBELISK

TO CHISEL in enduring stone that moment when the first Sputnik was launched is the project for a contest being sponsored by the Moscow City Council. The design is to be an obelisk and is to image "the realization of the most daring dream in history—man's beginning effort to reach to the stars."

Designs and models submitted by more than 1,000 contestants, sculptors and architects from every part of the Soviet Union, are now on public display. The entries are identified only by title of composition; the name of the sculptor or architect is not given.

Visitors to the exhibition are provided with paper and pencil and are asked for a candid reaction and judgment. Their comments will be used by the jury of leading figures in art and architecture to evaluate entries for awards. Some thousands of written comments by lay visitors have already been collected and many more thousands will be gathered before the exhibition ends its run.

The comments, as is to be expected, are as diverse as the individual viewers and range from objective reactions by people who are clearly much more than amateur critics to the most subjective kind of criticism. Some of the comments are rather strongly worded and some fall considerably short of logic, but in total they will be most valuable to the judges as clues to public taste.

The titles appended to the designs range from the symbolic *Mars, Dream Flight, Orbit,* and *Great Bear* to the more denotative *Intercontinental Rocket* and *Kaluga.* Kaluga is the town in which Konstantin Tsiolkovsky lived while he was developing his theory of rocket propulsion.

Some of the viewers tended to the categorical. Here is one: "Abstraction must be used to reflect the great ideas of mankind." Another expresses annoyance at "the abstract geometric figures and the winding spirals. They leave an unpleasant impression."

About an entry in which the principal detail was a nude, one comment reads: "The project is exquisite." Another, on the same entry, says with some heat: "I would like to say that a sculpture of a nude looks quite silly alongside a rocket going off into flight. Isn't it about time we stopped copying the ancient Greeks and Romans?"

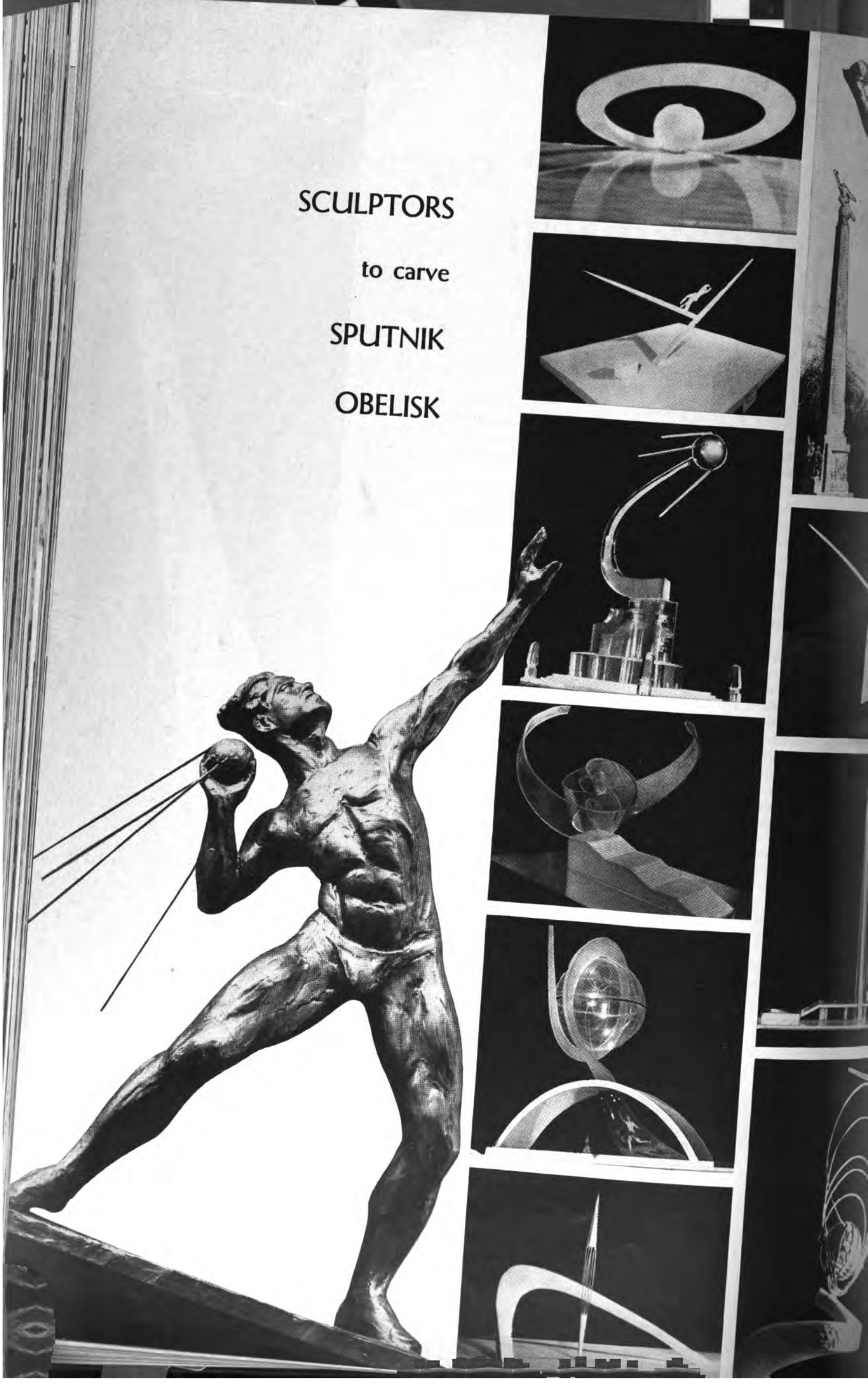
The judges, obviously, will have no cut and dried job. *More pictures on following pages*

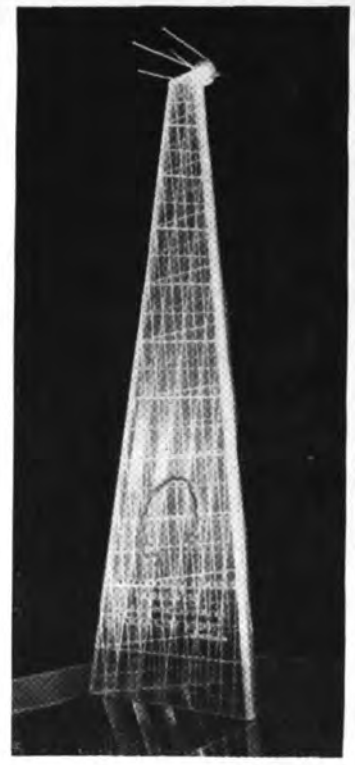
SCULPTORS

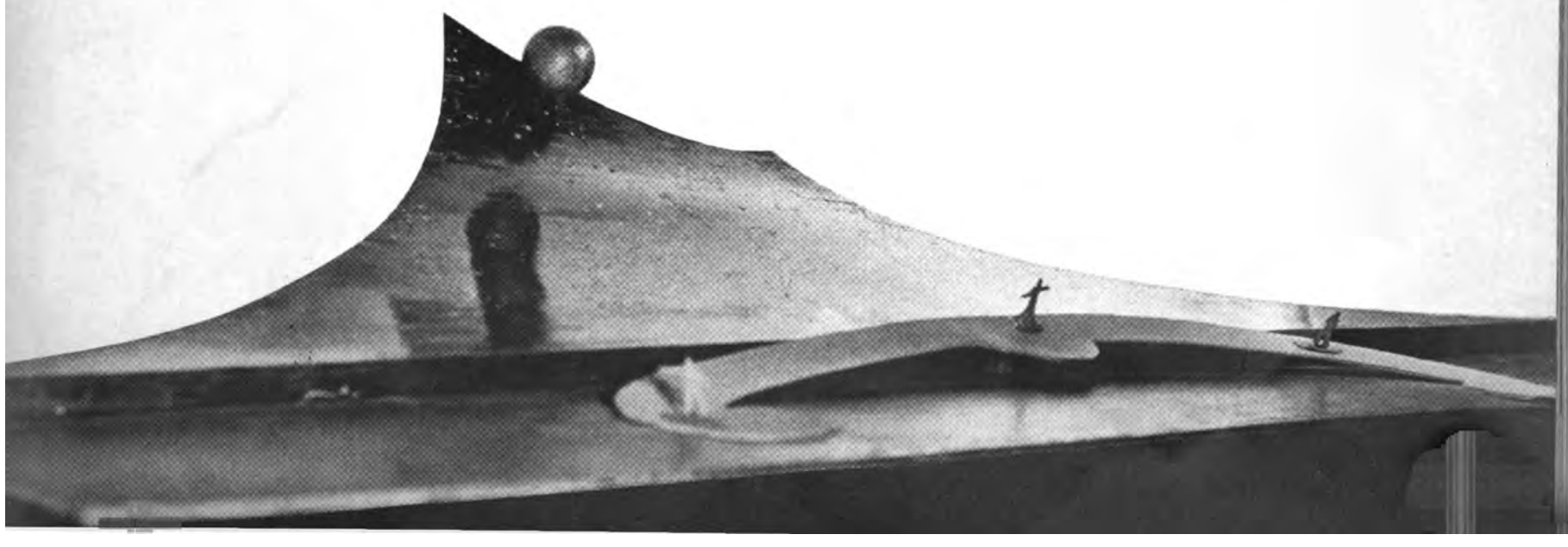
to carve

SPUTNIK

OBELISK







SEVENTH GRADERS PETYA SEMCHUK AND KOLYA POLAMAR USED TWO ENGINES IN THIS HELICOPTER.

H
ROBOTS A

By A

THE VILLAGE of Balamutovka resembles a hundred other Ukrainian villages. It is some scores of miles from the nearest railway and off the main-traveled roads. It has 208 houses all told, not counting school, post office and farm administration building. Its main and only street runs between two rows of whitewashed houses with cherry trees set out in back.

But in a village like this one doesn't ordinarily walk down the street to find himself face to face with a home made robot who walks and talks. And one doesn't expect a home made helicopter in Balamutovka, either, or a radio station built and manned by village school children.

A Robot

I was walking down this quiet lane on my first visit to Balamutovka when I saw an extraordinary metal figure on the move. From a distance he looked like the Tin Man in the *Wizard of Oz*. He came toward me, raising his arm in greeting and announced:

"I am a remote-controlled robot made by the pupils of the Balamutovka school. I can pick up objects, pour water and do many other things."

At that moment the robot-creators aforesaid jumped out from the bushes they had hidden themselves behind and with much yelling and laughter bombarded me with questions that

STUDENT-MADE PARTS DECORATE THE WALLS OF THE CLASSROOMS.

JACK-OF-ALL-TRADES STANISLAV YAROSH IS NEVER INACTIVE.

ADE

ELICOPTERS

okletsov

OPERATING THE ROBOT ARE STUDENT DESIGNERS VASYA PISARENKO, RAYA SIVOK AND SASHA KORDAS.

they answered themselves, and in the same breath—"How do you like it? It's terrific, isn't it?"

There were some twenty of them surrounding me, boys with bristling hair burnt straw-color by the sun and girls with braided pigtails, all with sunburnt noses and most with freckles. They were collective farm children, of a variety of ages.

When they quieted down they told me how they had built their robot. The inspiration and technical advice came from the school's physics teacher, Ivan Dekhtyar. The project was his imaginative way of teaching his subject.

All the children, commensurate with age and particular interest, had a hand in building the metal man. Some worked out the mathematics, calculated the size of the body, arms, legs and figured the dimensions of the material required. Others cut and fitted the aluminum. The older ones assembled the remote control system and the littlest ones had the job of cleaning up and polishing the units.

The robot I saw was a much improved model. The first one the children made couldn't speak, moved on rollers and raised his arms with difficulty. He was worked on and improved until he now responds to about fifteen different orders.

A Radio Station

Once the robot was done, Ivan Dekhtyar began talking about a radio station and it wasn't long before the twenty neophyte radio engineers were cutting and milling metal and making transformers and induction coils according to blueprint specifications published in the magazine *Radio*. It was a big day when the proud announcement was made over the loudspeaker, "Attention! Attention! This is the Balamutovka school radio station broadcasting."

Then proposals for new projects popped from everyone and everywhere. But before any one of them was adopted, the children decided they needed their own workshop with more space than the school had to spare. Savva Sivak, history teacher and son of the best bricklayer in the district, suggested that they build their own workshop of brick. The idea was unanimously adopted, the children got to work and the workshop went up. The only adult help came in the roofing.

A Helicopter

In their own workshop the children assembled a car from old parts and built the screen for an open-air movie. These were relatively easy projects and they wanted something they could really put their teeth into. They found it in the helicopter project.

Information and advice came from popular technical magazines and from the school science teachers. The children made all the 'copter parts themselves—a 19½-foot main propeller, a 3½-foot driving propeller, two engines and fuselage. The only part they did not make was the engine for rotating the main airscrew. This was converted from an old motorcycle engine which they tuned up to work perfectly in their helicopter.

The whole village gathered for the test flight and there was a loud hurrah when the 'copter rose some 50 to 70 feet and returned to earth in a very smooth landing. The only grief in an otherwise perfect day was that their teacher and guide Ivan Dekhtyar refused to permit any of the children to take the 'copter up on its test—not even the chief designers Kolya Timchenko, Tolya Kordas and Grisha Oleinik.

When they remind themselves of it, they still feel aggrieved. Mostly, however, they are too busy on some new project in hand to give it much thought. ■

RAYA FEDORUK SAYS HER FAVORITE HOBBY IS RADIO.

NOVEMBER SPELLS HOLIDAY BALL

NOVEMBER is especially meaningful to Soviet people because it marks the major national holidays on the 7th and 8th. This is a time not only of reflection on the country's accomplishments, but also for a round of parties held everywhere by the celebrants. Shown on these pages are scenes from one of the balls for students and young workers.

THE GIRLS BEGIN THEIR BALL PREPARATIONS BY STOPPING AT THE BEAUTY SHOP.

AMATEUR PERFORMERS OFFER A SERIES OF NUMBERS TO ENTERTAIN

THE DAILY CARES OF THE CLASSROOM OR SHOP HAVE BEEN FORGOTTEN AS THE GIRLS GATHER TO HEAR AN AMUSING STORY.

THIS GROUP FINDS THE GUITAR MERRY ACCOMPANIMENT.

A DETERMINED GIRL PIANIST CAN GENERALLY MANAGE TO KEEP 'EM ON KEY FOR A HIT TUNE'S BIG CHORUS.

DEVOTEES OF JAZZ PREFER THE SAXOPHONE AND TRUMPET.

THE MOST IMPORTANT FEATURE OF EVERY BALL IS FOUND WHEN THE BAND PLAYS FOR DANCING.

A POET AMONG THE GUESTS PRESENTS ONE OF HIS NEW EFFORTS.

RAFFLE TICKETS WIN SOUVENIRS AND HELP RAISE FUNDS FOR THE BALL'S COST.

THE TRINKETS WON ARE SOMETIMES USEFUL GIFTS AND SOMETIMES ONLY AMUSING.

NOVEMBER SPELLS HOLIDAY BALLS

Continued

HARD ROLL NECKLACES WON FOR DANCING GRACE.

THE BEST SINGER IS GIVEN A BOTTLE OF CHAMPAGNE.

THESE COUPLES TRAILED HOME TO MOSCOW UNIVERSITY BY OUR SLY PHOTOGRAPHER DID NOT LIKE HIS FLASH.

OF MOSCOW UNIVERSITY ARE JUSTLY PROUD OF THEIR MODERN CAMPUS SITUATED IN PICTURESQUE LENIN HILLS IN THE SOUTHWEST SIDE OF THE CAPITAL.

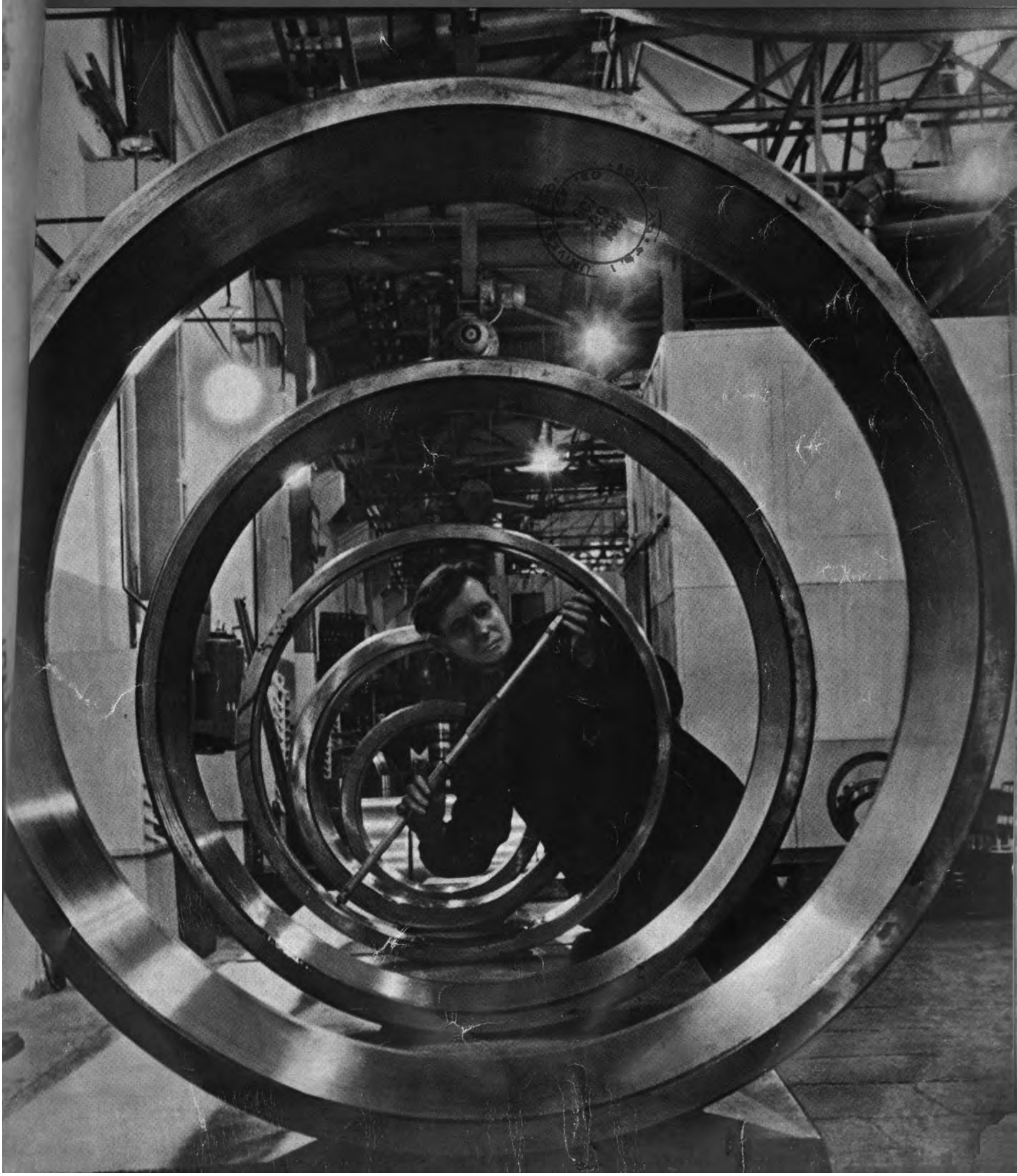
A MAIDENS' REEL BY BERYOZKA DANCERS. See story on page 30
Shelve in stacks

USSR

CONSTITUTION OF THE SOVIET UNION

—See Page 25

27)—20 Cents



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Front cover: Bearings of all sizes roll out in answer to industry's expanding needs.

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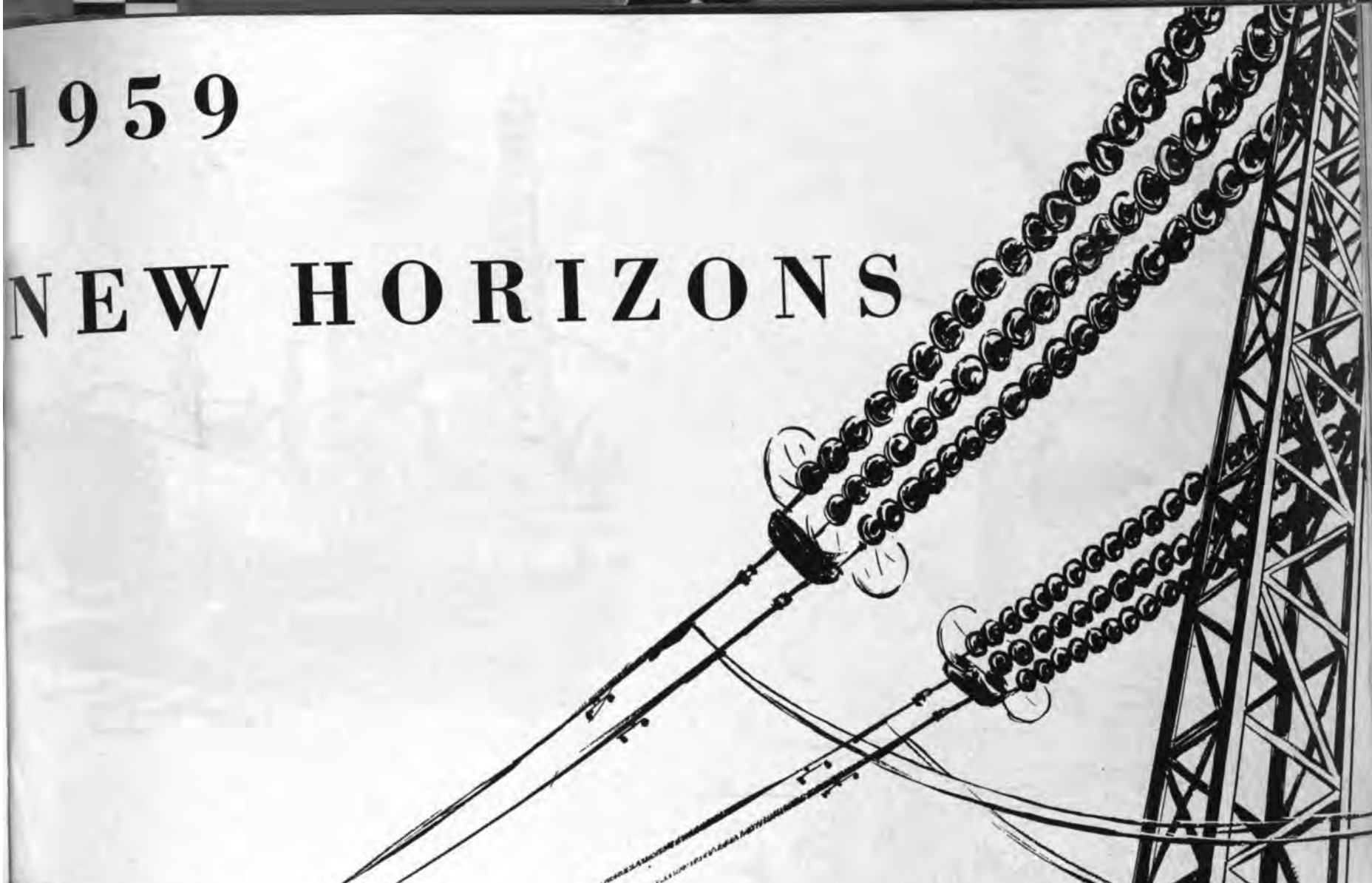
1959

NEW HORIZONS



AS DECEMBER days march across the calendar, the Soviet people are increasingly taken up in heart and mind with the advent of the New Year, with its traditional bustle and gaiety. But while we joyfully greet the arrival of promising 1959, we do not forget to give 1958 its just due.

The past year's achievements have been many. We have seen Sputnik III, a ton and a half earth satellite, thrust up toward the stars, whirling around the globe and symbolizing the speed with which modern science and technology are breaking the barriers of time and space—a symbol, too, of the advance of Soviet economy generally.

Sputnik's voice was heard round the world—confirming that the socialist system has called into being inexhaustible creative forces, that socialism has to its credit achievements in all spheres of modern life. Its voice reminded mankind of man's dominion over nature and the possibilities for peaceful coexistence all over the world.

Continued on next page

While Sputnik has been tracing its orbit in outer spa
life down on earth is bringing our country continuous pro
at industry in 1958. The first half-year showed a 10.5 per
over last year's comparable period and estimates point to
the increase in the second half-year has been about the

It was only a few years ago that Soviet turbine builde
gratulated for turning out turbines of 100,000-kiolwatt
past year they were working on turbines with capacities
300,000 to 600,000 kilowatts. This is just one instance
repeated for almost every branch of industry.

Construction in 1958, both industrial and housing, gave
the feeling of one enormous building site. The huge
electric Station on the Volga, near the city of Kuibyshev,
1958 and is now operating. The first unit of the new
plant started work last summer. Blast furnaces, mines,
chemical plants, machine-building factories—all newly
score last year.

Housing construction took a big jump forward with
allocations. Every third minute around the 1958 clock
apartment was made available for a Soviet family at
no higher than 3 to 5 per cent of the worker's monthly

Advancing side by side with socialist industry is socialist
Soviet farmers did very well with an excellent harvest in
weather year. Bumper crops from the millions of acres of
upturned in recent years have generously rewarded our
good work and repaid the great efforts that had been expended
them productive. All of this made for higher farm incomes
choice of foodstuffs for the consumer at lower prices.

In consumer goods production, output was markedly
last year, but in some areas it still is insufficient to meet
mounting demand. A concentration point for industry
year, it will receive even heavier emphasis in this year

The Soviet people are now preparing for the 21st
Communist Party which will be setting goals for the country
ment in the next seven years. The control figures to be
veritable giant step forward in industry and farming, and
in every aspect of the country's work, from sputniks
ships and shoes.

The Soviet Union was 41 years old in 1958, a very short
tory counts time in which to educate millions, to build

factories, hospitals and theaters for a nation, to rebuild an economy that had been severely damaged during two world wars. Today with 7 per cent of the world's population, the Soviet Union accounts for nearly 20 per cent of the world's industrial output.

Statistics of this kind, however, are meaningful only if they can be translated into human terms. This one is directly translated in every Soviet home into material values and into values, although not so tangible, none the less making for a rich life.

One of the most felicitous comments to be made on the past year's progress is the striking display of creativity in so many fields. It was not long after the Socialist Revolution of 1917 that Lenin commented with prophetic insight: "At the present time we cannot even imagine exactly what rich forces are latent in the working masses . . . and will develop under a socialist system of society. Our task is merely to clear the way for these forces."

Those latent forces have blossomed richly in every area of Soviet life. The many pioneering thinkers, inventors and innovators who emerged from the people in 1958 were honored by the country for their achievements. The very great contribution made by young people in building new life was especially marked by the celebration of the 40th anniversary of the Young Communist League.

The past year brought more contact with peoples everywhere in the world, many more thousands than ever before coming to visit the Soviet Union. Undoubtedly for many it was a first sight of things Soviet, a first meeting with the Soviet people.

Guests from abroad were met hospitably and warmly, were shown through cities and villages, factories and farms, schools and research laboratories that told their own eloquent story of these difficult but vastly creative four decades of socialism. Particularly welcome were those visitors who came from the United States, exchange artists and members of exchange delegations of students, businessmen, teachers, engineers—only a sampling, the Soviet people hope, of the heavy traffic that will be flowing in 1959 between the two countries—a flow of people, ideas and commodities.

1958 has, all in all, been a good year for the Soviet Union. The plans made for it were met, the work planned out for it was done, the foundation laid for greater progress next year and the years following. So that with whatever regret we usher out the familiar old year, we look forward to the new, yet untried one, with hope and expectation for continued peace and progress. ■

USSR Industrial Exhibition

WHAT'S NEW in Soviet industry? The answer to that question is on public display for seven months every year at the USSR Industrial Exhibition in Moscow. Here is a panorama of technological progress seen annually by at least ten million visitors from all parts of the Soviet Union and many foreign countries—the work done in machine building, mining, metallurgy, chemistry, power engineering, aviation, rocketry, radio-electronics, telemechanics, automation, atomic research, housing, consumer goods production and scores of other fields.

All the machines, instruments, models and samples are there to be observed, closely examined and studied. This year's display has some 60,000 exhibits of all kinds, 10,000 more than last year.

This is not merely a quantitative increase, it attests to the opening of new fields of research and to progress in the older fields. Half of last year's machines and models have been replaced with more advanced types. To cite the engineering industry as one example, 1,500 new types of most important machines were developed since last year's exhibition.

Correlated with progress in the basic industries comes greater headway in consumer

The 20 pavilions of the USSR Industrial Exhibition in Moscow draw big crowds of domestic and foreign visitors to the working models of new machinery and tools for industry and agriculture. Also most popular with the public are the displays of the newest appliances and conveniences for the consumer. The first of the 1959 models of the Chaika (Seagull) automobiles were introduced here among the more than 60,000 articles of Soviet manufacture—some 10,000 more than the year before.

SOVIET INDUSTRY on DISPLAY

By Andrei Ionov and Alexander Mokletsov

goods production. Displayed at this year's exhibition are many new natural and artificial fabrics, a multitude of new footwear, clothing, knitgoods and leathergoods. More than half of the 1,500 samples of cotton, woolen and silk fabrics are being shown for the first time. Some of the articles won highest prizes for quality at the Brussels Fair —silk fabrics made by the Red Rose Mill, new woolens for costs, suits and dresses, fur garments made in Kazan.

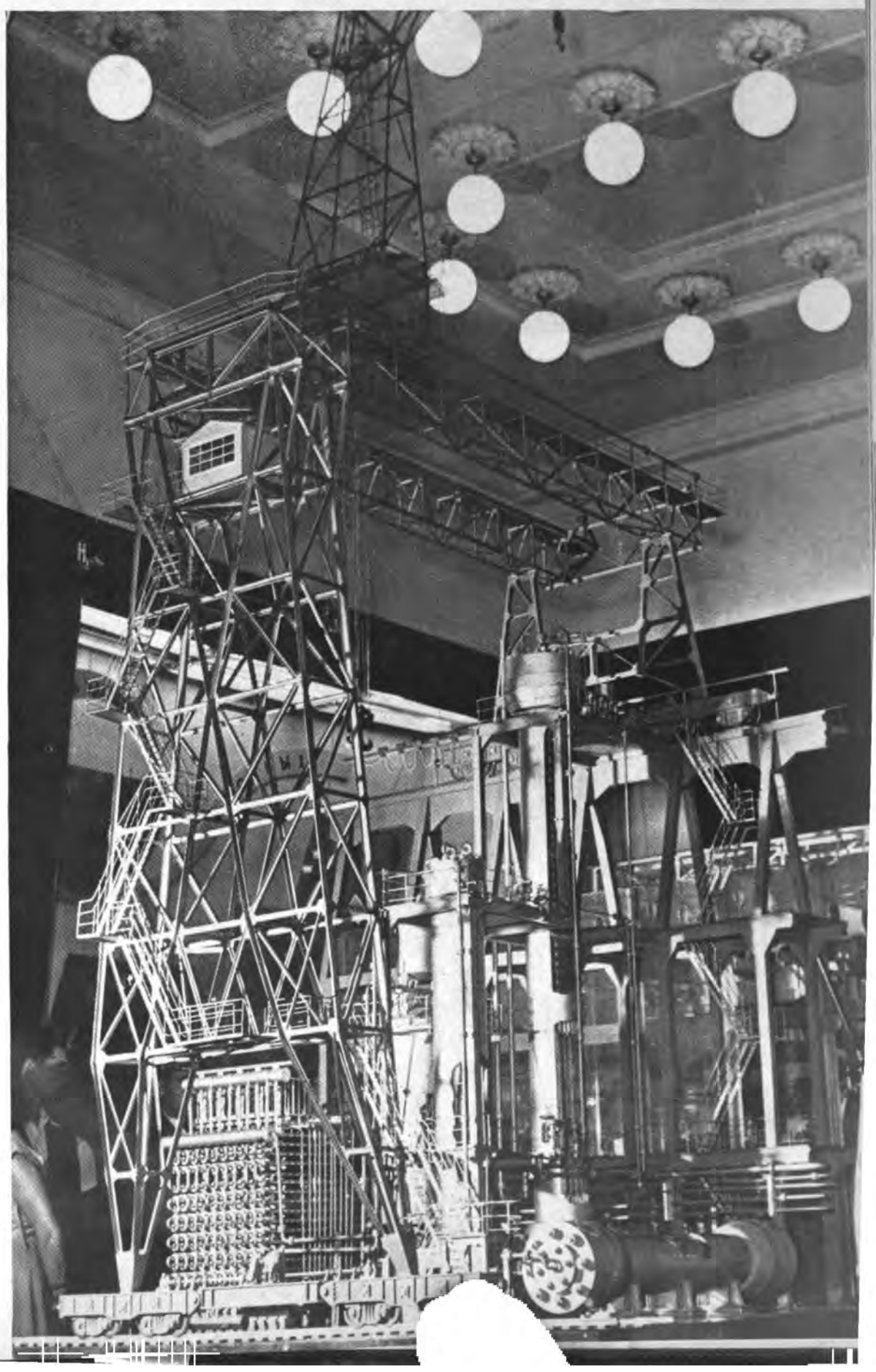
The exhibition has a comprehensive display of developments in atomic energy for peaceful uses. The exhibit of safeguards that have been devised against radiation is particularly graphic. The most dramatic device is a complex manipulator moved by remote control.

The operator working with radioactive substance looks through a hermetically sealed glass and uses a pair of mechanical hands on the other side of a thick wall to hold the miniature test tubes, to pour the exact quantity of liquid required and to screw on the cover. These remarkable hands, to display their dexterity, will also strike a match for the visitor and light his cigarette.

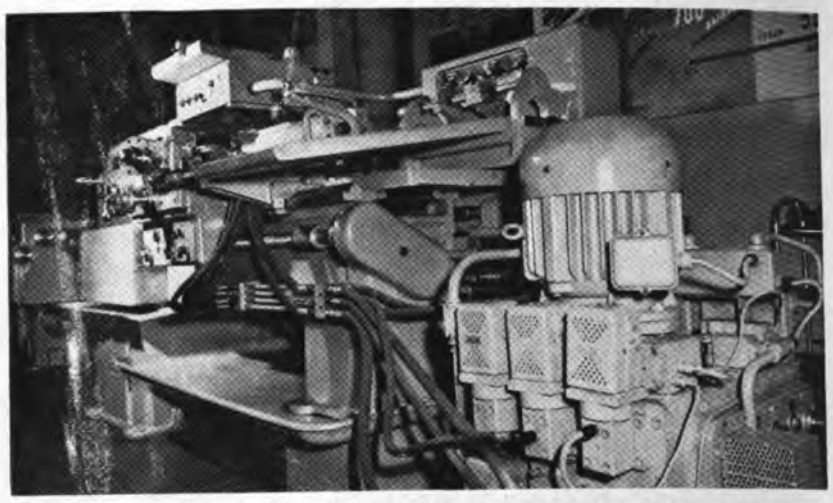
The number of chemical industry exhibits

Continued on page 10

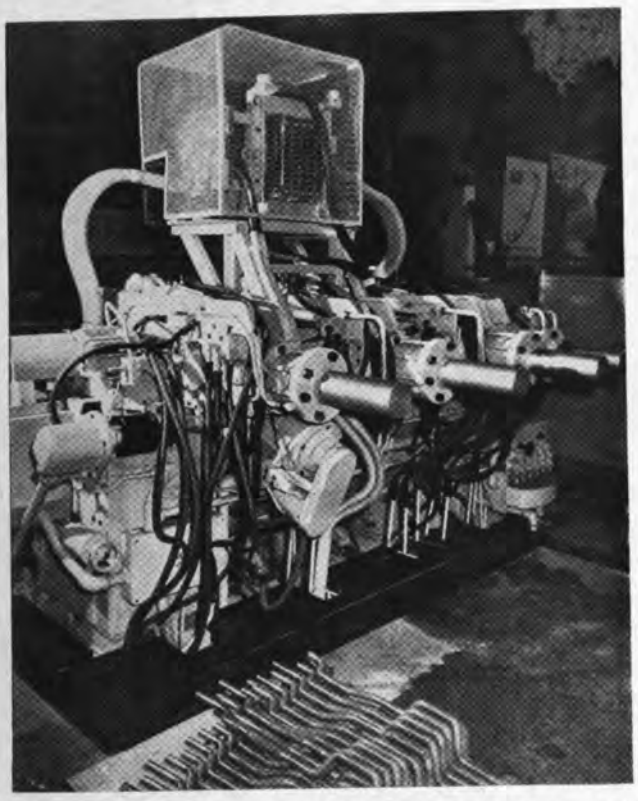
The number of the chemical industry exhibits has been doubled within a single year. Although full sized machines and equipment comprise many of the items, necessarily some are erected in small scale working models such as the one shown here for the production of ammonia. New synthetic fabrics, now well into production, aroused the interest of women folk, while new building materials caught the eye of home builders and construction engineers at the current exhibition.



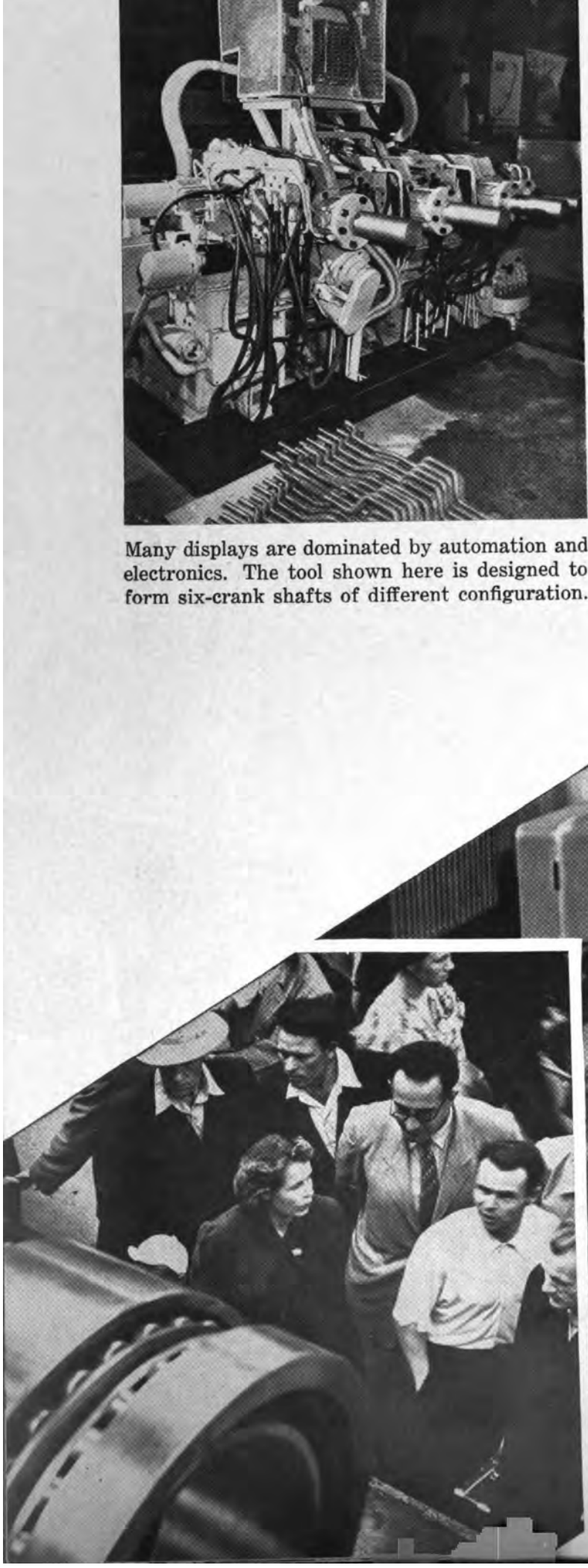
USSR Industrial Exhibition



Half of the machines shown last year were replaced by new models for the display of this year. This machine tool with program control can be easily put into automatic production lines.



Many displays are dominated by automation and electronics. The tool shown here is designed to form six-crank shafts of different configuration.



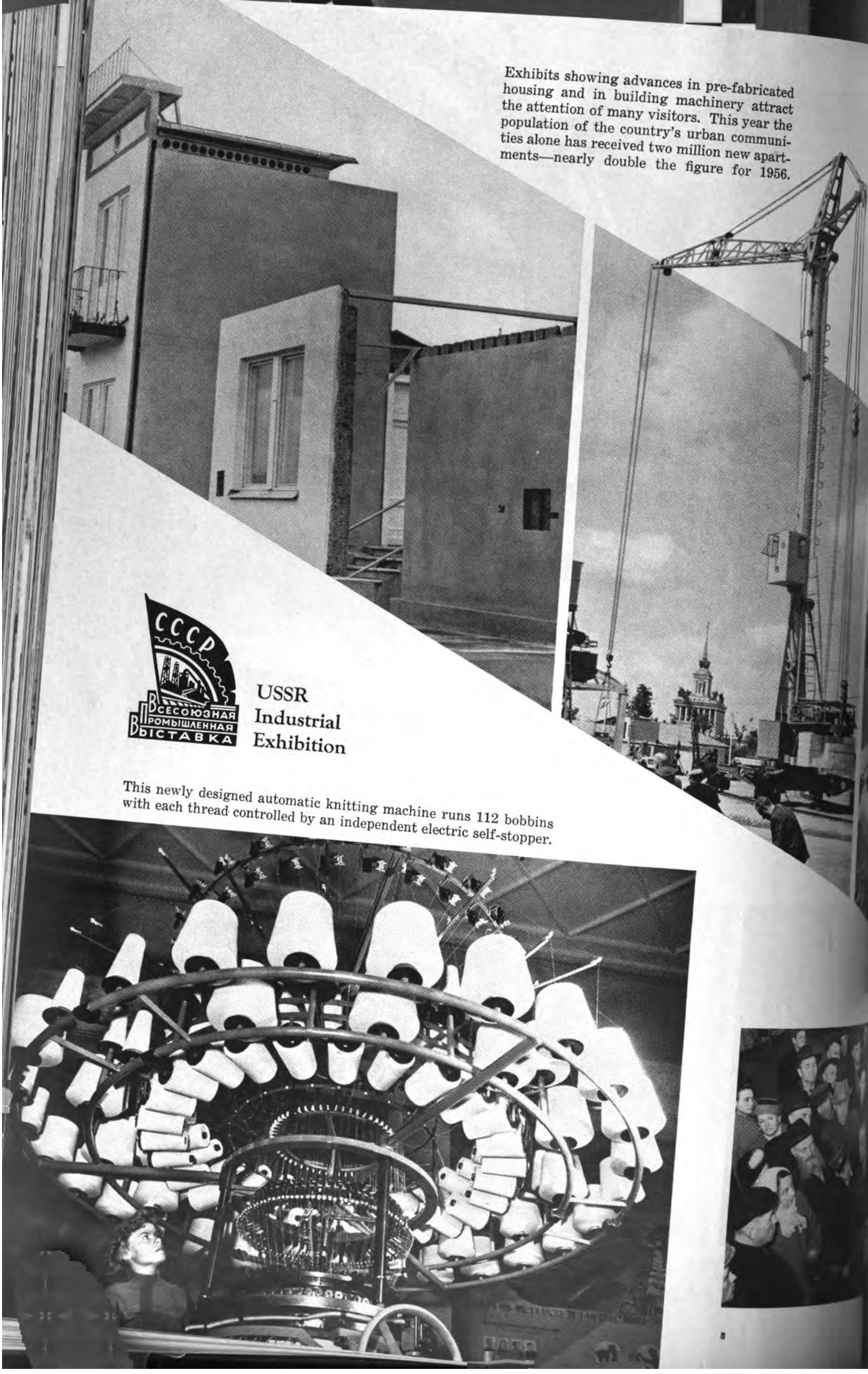
Few exhibits can outdraw these automatic lathes, recently put into production. They can center, cut and then polish and clean 13 different parts once set by an operator.

One of the standout attractions is the science pavilion and visitors never fail to stop and marvel at the hundreds of major exhibits such as this full scale model of Sputnik III and its many diagrams.

This operating model of a transistor solar battery may be the prototype of the power station of the future, harnessing the energy of the sun.

This pair of mechanical hands operated by remote control can bottle and then cap the "hot stuff" of atomic research or just as capably strike a match and light a visitor's cigarette.

Exhibits showing advances in pre-fabricated housing and in building machinery attract the attention of many visitors. This year the population of the country's urban communities alone has received two million new apartments—nearly double the figure for 1956.

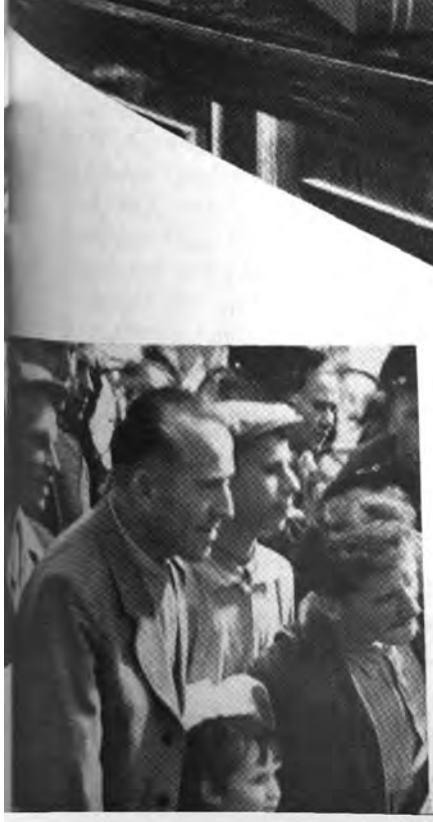


USSR
Industrial
Exhibition

This newly designed automatic knitting machine runs 112 bobbins with each thread controlled by an independent electric self-stopper.

riet cameras are produced in a
le variety of types to meet the
ds of both amateur and pro-
sional photographers. There
also a good choice of other
oto equipment and supplies.

Here are just a few of the latest models of TV and radio sets, phonographs and tape recorders. Their designs incorporate all new features developed in recent years. Among the attractions for housewives are new automatic sewing machines.



The newest in women's wear made from artificial and synthetic fibers.

USSR
Industrial
Exhibition

SOVIET INDUSTRY on DISPLAY

Continued from page 5

displayed this year is double that of last year. The diagrams tell the story of rapid expansion of artificial and synthetic fiber production in the Soviet Union. In the next few years there are to be 11 additional large plants built for the production of fabrics for clothing, 20 for silk fabrics and 28 for knitted fabrics.

Chemists working in the field of synthetics are very close students of these exhibits. Construction engineers visit the exhibition to observe the new types of building materials developed to facilitate and speed up housing construction. Furniture designers come to check on new products of the furniture industry, which is constantly growing to keep pace with the housing program.

The exhibition has come to be known as "a school of technical progress and advanced experience." The guides can barely manage to answer the flow of questions. Many visitors gather in the exhibition halls to listen to lectures by scientists, engineers, and eminent workers sharing their findings. The latest achievements in technology were the subject of discussion at 500 conferences held at the exhibition during the past year. ■

Big crowds pack the agricultural pavilion to view the huge new tractors and combines, while similar throngs inspect turbo-drills and earth-moving giants put on exhibit by the Soviet machine-building industry.

The versatility of the agile caterpillar tractor has made it the backbone of both construction and large scale farming.

HARVEST, 1958

By Yevgeni Chekmenyov

Deputy USSR Minister of Agriculture

THIS has been a good year for Soviet farmers, with bumper yields reported from almost every region. The crop is the biggest the country has ever harvested, the acreage the largest it has ever sown.

In the past five years our cultivated farm land has been enlarged by 95 million acres, most of it in the east, in the Volga steppes and in Siberian and Kazakhstan lands never before turned by a plow. This enormous stretch of arable land which now runs upward of 480 million acres returned a yield in many cases as high as a ton and a half of wheat and more per acre.

Before the virgin lands were cultivated, the trans-Ural, Siberia and Kazakhstan could be expected to give a maximum 11 million tons of marketable grain. This year's crop runs better than 36 million. Impressive, too, are reports from the Volga regions, where farmers have to cope with drought year in and year out. The Saratov region is a case in point. This region's collective and state farms, as a result of an additional 2.5 million acres of new land sown in these past five years and improved cultivation, were able to sell 2.9 million tons of grain this year as compared with 900,000 tons in 1953 and 1.8 million in 1956.

Although it is early at this writing to do more than estimate the total harvest, the partial figures presently available speak for themselves: by October 10, the collective and state farms had sold close to 27 million more tons of grain than they had sold by this time in 1953. Sugar beet producers reported equally good yields, with crops larger than last year's by five to six million tons. The same good tidings arrived from growers of cotton, sunflower seeds, tea, vegetables and fruit.

More Machines—Bigger Harvest

In a country the size of ours, it is very rare that growing weather will be favorable everywhere. This year, as a matter of fact, it was especially unfavorable. Spring came late, stayed cold and unsettled and delayed sowing. Summer in the Volga, the trans-Ural and other eastern regions was dry and too hot. Harvesting in Kazakhstan and Siberia was hindered by rains of torrent dimensions, in some places by snow storms. In spite of weather, the bigger crops were nevertheless gathered earlier than last year.

To account for this bumper harvest gathered in record time one would have to list all the many factors which have contributed to the country's growth since 1917. But one factor is most clearly and most directly responsible—the over-all mechanization of Soviet farming and the greater numbers of diesel tractors, pendant farm imple-

Continued on next page

ELEVATORS THROUGHOUT THE COUNTRY GROAN, FILLED TO THE BRIM WITH GRAIN.

HARVEST, 1958

ments and machines for technical crops and two-stage harvesting available to state and collective farms this year.

Most of the bigger machines were bought from the machine and tractor stations which were reorganized this spring. Before then the collective farms were serviced by the stations on a contract arrangement. This concentration of machinery by state-operated stations was economically necessary at the time and was a carefully calculated national policy dictated by the fact that the newly organized collective farms had neither the money to buy machines nor the skilled men to operate and service them. To wait until the farms could buy the machines and train the operators would have been to delay mechanization for years. The government therefore took the job over, allocated the funds necessary and set up a nationwide network of machine and tractor stations.

In the interim, the collective farms have grown and prospered and a host of operators and mechanics have been trained. The time was appropriate for a change and the stations were converted into repair and sales agencies and their machines sold to the collective farms.

With machinery of all types directly to hand this year, the collective farms were able to organize work more expeditiously and to save time lost by inclement weather. To cite the Saratov region again, as example, very hot weather set in just before the harvest, with every indication that scorching winds could be expected to blow in from the Central Asian deserts that would burn up the crops.

The collective and state farms, with every available man and machine at work, finished reaping in a matter of days. When the murderous winds did come, the grain lay already cut and all the combines had to do was to move along the rows for threshing. Had the Saratov farmers been delayed by lack of adequate numbers of machines, the crops would have burnt up.

An old Russian saying has it, "It's not the earth that grows grain, but good hands." Soviet farmers would amend it to read " . . . good hands running good farm machines."

Continuous Growth

Another factor that worked toward this year's harvest was more scientific cultivation. The agricultural research institutes have been doing most valuable research in land cultivation. They have assisted the collective farms in making up soil charts which determine the most productive methods of fertilization and cultivation in the light of the peculiar physical and chemical properties of the regional soils.

The big harvest is attributable also to the nature and breadth of training of farm specialists. There are more than 370,000 graduates of agricultural schools working on Soviet farms now, and many millions of farmers who each year add to their knowledge of farm practice with courses offered at all collective farms.

In our informal competition with American farmers, we are moving ahead rapidly in a number of directions. In the production of some crops we lead the United States—we produce two and a half times as much wheat, three times as much sugar beet, and two and a half times as much wool. In other areas, we are still behind but making large strides forward.

During the first six months of the year, Soviet stockbreeders increased their herds by some 16 million heads as compared with a 13-million-head increase for the same period last year. Milk yield in the period went up 6 per cent and meat production 16 per cent. With this year's bumper harvest, Soviet stockbreeders and dairymen have feed to spare. This forecasts a large increase in meat, milk and butter production. By October 10, some 155 million tons of silage had been stored as compared with 35 million tons for all of 1953.

This harvest year may be regarded as the target result of the ambitious farm plan for the country adopted in 1953. In accord with the plan certain measures were undertaken to stimulate production—wider mechanization, larger sums for farm buildings and machinery, reduction in farm taxes, rise in prices for staple farm crops.

The results are evident in the average annual growth of farm output these past four years—the figure reached was 7.1 per cent as compared with 1.6 per cent for the four years preceding the plan's adoption.

Bumper Crop and Consumer

A bumper crop is front page news in Soviet papers, featured in magazine articles and played up on radio and television. It is big news because of the interrelation of farm to factory, of producer to consumer that is characteristic of a socialist country where all productive forces are geared to meet the needs of the worker-consumer population. Were is not for industrial progress, agriculture would have remained at the miserably low productive level it had been for centuries before. Conversely, the present production peak of Soviet farming is responsible for a rising standard for the whole country. The more food grown, the more food at lower prices is available for the nation's table.

THIS GRAIN HARVESTER TEAM REAPED 247 ACRES PER DAY ON A SIBERIAN FARM.

ENDLESS STREAMS OF TRUCKS TAKE COTTON TO A GIN IN THE TAJIK REPUBLIC.

Retail prices during the past 10 years have dropped 2.3 times, with even larger cuts in prices of bread, meat, butter and other staples. At the same time the income of industrial and office workers has steadily risen. Only as a result of wage increases for lower-paid groups, higher pensions and other measures at the expense of the national budget, the general income of the population in 1957 increased by about 41 billion rubles over 1955 and by another 60 billion in 1958.

Along with higher income comes increased purchasing power and a greater demand for the better and more costly foodstuffs. This is generally reflected most immediately in amounts of foodstuffs sold. If we compare the year 1957 with 1932, we find that the sale of meat increased by nearly 3.5 times, butter by 9.5 times, milk and dairy products 11 times, sugar 5 times. In the first six months of this year sales of these foods mounted another 14 to 18 per cent.

This ever-growing demand guarantees the continuous development of the Soviet farm. Here is a market which is continually expanding through purchasing power which is continually growing. There is no problem here of surplus farm products.

Farmer's Income

The collective farms sell the bulk of their crops to government purchasing agencies and the remainder to the cooperatives or at the public markets. The prices paid by the government, which tend to fix cooperative and market prices also, are regulated by such factors as collective farm overhead, allowance for capital expansion and individual collective farmer's income.

In the past five years larger output and higher government crop purchase prices have raised collective farm income by 66 billion rubles. It amounted in 1957 to more than 97 billion rubles. The individual collective farmer's payment for his work trebled during this same period while his taxes were lowered. As for taxes, it is noteworthy that prior to the Revolution, taxes, assessments and levies accounted for about 20 per cent of the individual farmer's income; today all this comes to no more than 4 per cent of his income.

High collective farm income has made money available for capital construction—outbuildings, utilities, recreation centers and housing. In 1957 collective farms invested close to 24 billion rubles in construction, 13 billion more than in 1952. Farm people during the last year alone built 770,000 homes, mostly financed out of personal savings. Since the war literally tens of thousands of villages have been rebuilt and modernized.

Designed to further stimulate production a new system of government procurements and farm prices was adopted by the national legislature earlier this year. It has already proved its merit, if one is to judge by the reaction of farm people and the size of the year's harvest.

Farming is not only a profitable occupation in the Soviet Union, it is one which commands public respect. In the past few years more than 210,000 farmers have been honored with medals and awards for their work in one or another farm specialty. For outstanding achievement, 1,100 farmers have won the title Hero of Socialist Labor—the highest award in the Soviet Union.

Planning for 1959-1965

Soviet farmers did well this year. They will do even better next year and the years after. On January 27 the Twenty-first Congress of the Communist Party of the Soviet Union will open its deliberations in Moscow to consider target figures for the further expansion of the economy. The plan will cover the seven-year period between 1959 and 1965 and will set goals for agriculture as well as all other segments of Soviet production.

Where up to now the major farm emphasis has been toward expanding cultivated acreage and the animal husbandry program, the new plan will concentrate on better use of land and on increasing yield per land and per livestock unit.

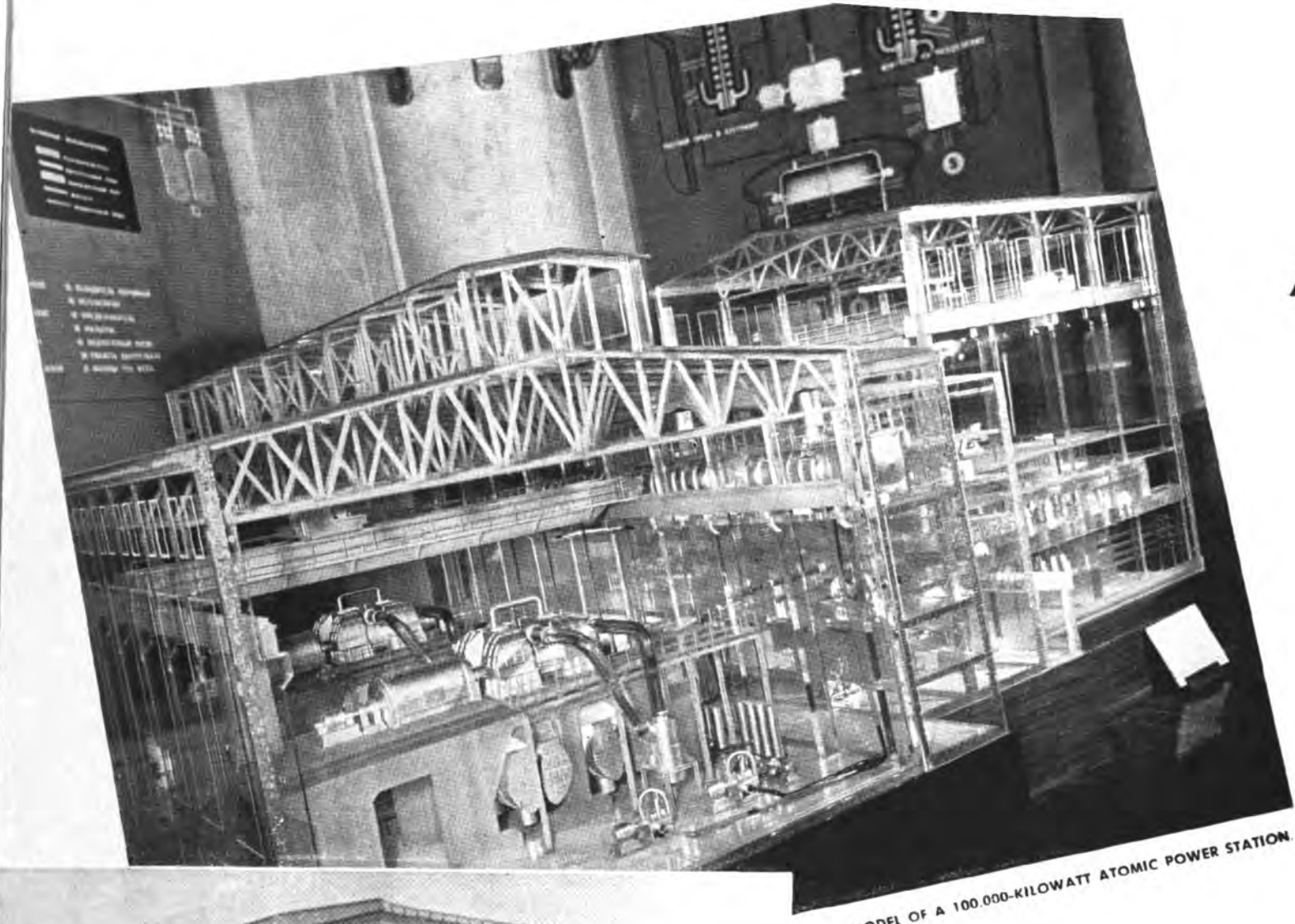
The new seven-year plan foresees more productivity through more effective mechanization, universal application of advanced agricultural practice, the general use of high-yield grades of seed and breeds of livestock, and larger production of mineral fertilizers.

New irrigation systems will carry more water to Central Asia and the Transcaucasus and drain the swamps of Byelorussia and the Baltic regions. In the droughty steppes forest belts will be planted to shelter the fields from the hot dry winds so that new orchards and vineyards, citrus groves and tea plantations can be grown.

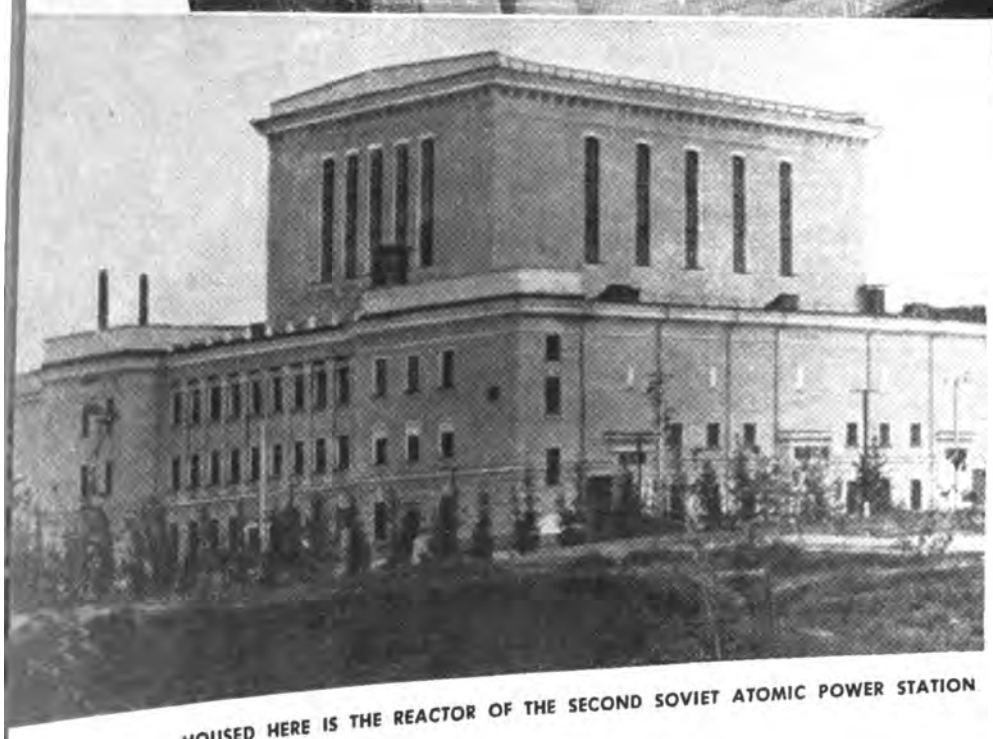
Soviet farmers have not been waiting for this ambitious and wide-ranging plan to be legislated, they have already begun to carry it out by sowing the winter crop and readying their fields for the next bumper harvest. It will come, they say, next fall. ■

FLUID MILK VOLUME HITS WORLD RECORD LEVELS AS SOVIET CONSUMPTION SOARS.

ATOM

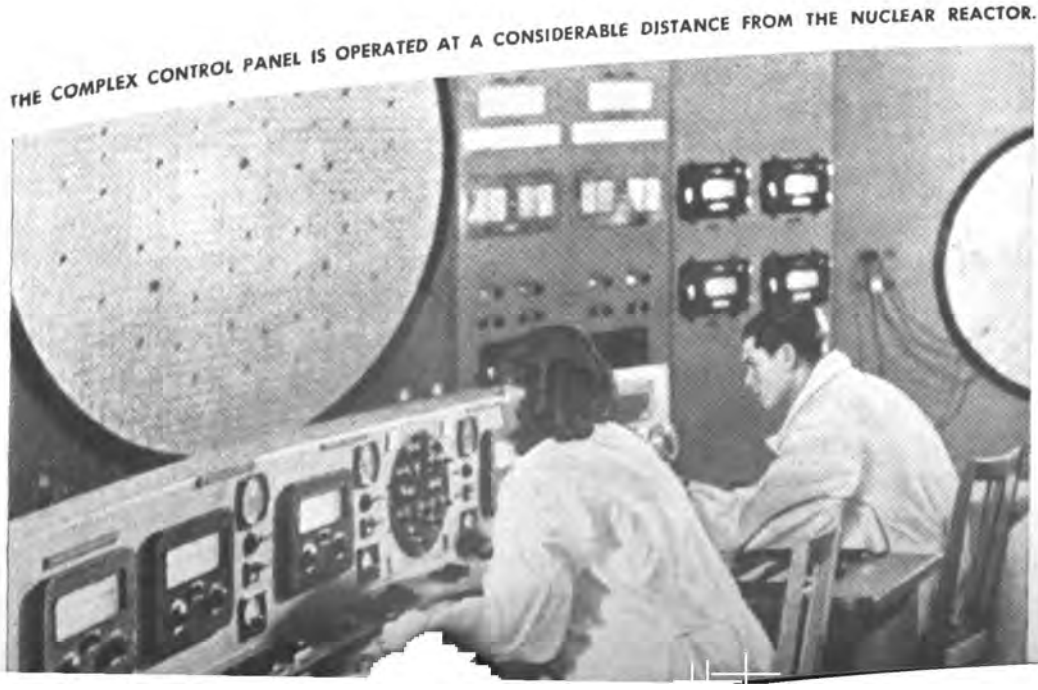


MODEL OF A 100,000-KILOWATT ATOMIC POWER STATION.



HOUSED HERE IS THE REACTOR OF THE SECOND SOVIET ATOMIC POWER STATION

THE COMPLEX CONTROL PANEL IS OPERATED AT A CONSIDERABLE DISTANCE FROM THE NUCLEAR REACTOR.



THE SOVIET UNION'S—and the world's—first atomic power station is now in its fifth year of operation. The importance of this experimental station is far larger than its actual capacity for generating electricity, a comparatively low 5,000 kilowatts. It represents four years of working proof that nuclear energy can be successfully harnessed for power production.

A new atomic station with a far greater peak capacity—600,000 kilowatts—is now being built. The initial section producing 100,000 kilowatts was placed in operation this year. Built into the reactor, the turbine and the panels of instruments is the invaluable experience gathered by physicists, engineers and builders with the experimental station.

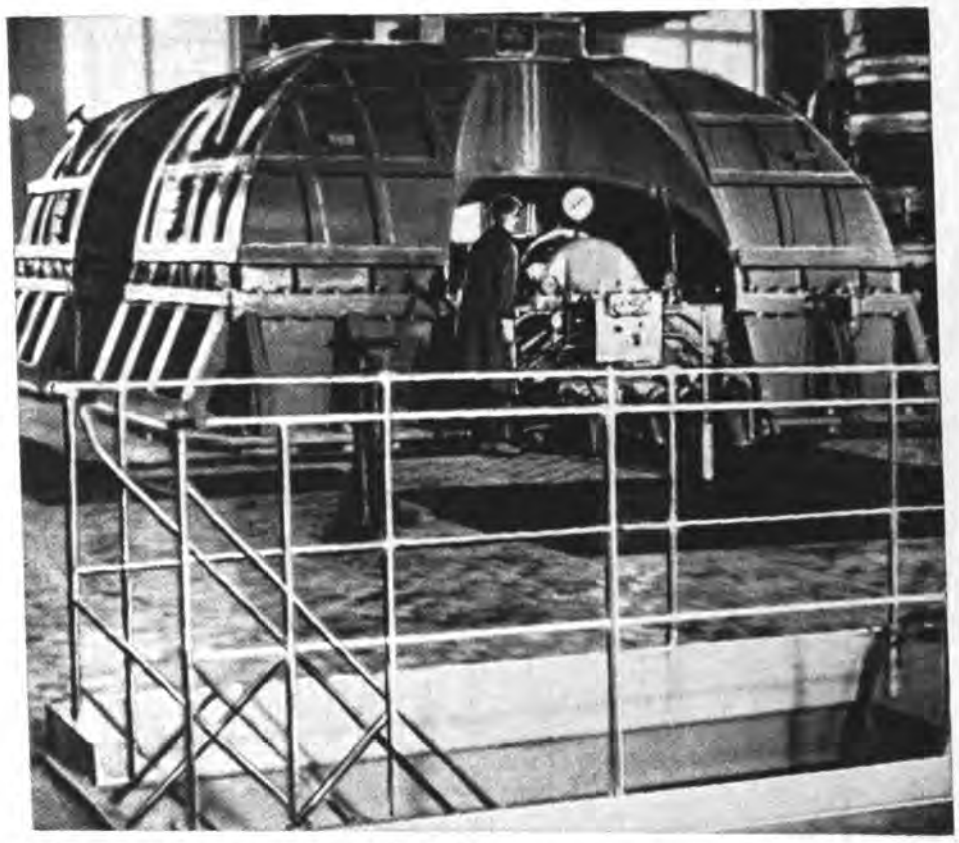
Here is a complex of equipment, of automatic devices and remote control mechanisms which direct the process by which nuclear energy is transformed into electrical energy.

The reactor, the heart of the power station, is housed in a building of special design. Control is from an instrument panel a considerable distance removed. In the central section of the reactor are the rods which carry the heat generating elements of natural uranium. The reactor operates on thermal neutrons with a graphite retarder, ordinary water acting as heat conductor.

Water in the reactor is heated to a temperature of 350°—425° or more. The hot radioactive water, adequately shielded to prevent radiation hazards, passes through the com-

ENERATED ELECTRIC POWER

By Iosif Olgin



THE STATION'S DOUBLE-FLOW TURBOGENERATOR WORKING ON STEAM SUPERHEATED TO 365°.

municators and equipment of the first closed circuit of the station's water system. In the steam generators, its heat is imparted to water in a second circuit which is already free from radioactivity. Here the water is heated and evaporated and the steam is superheated.

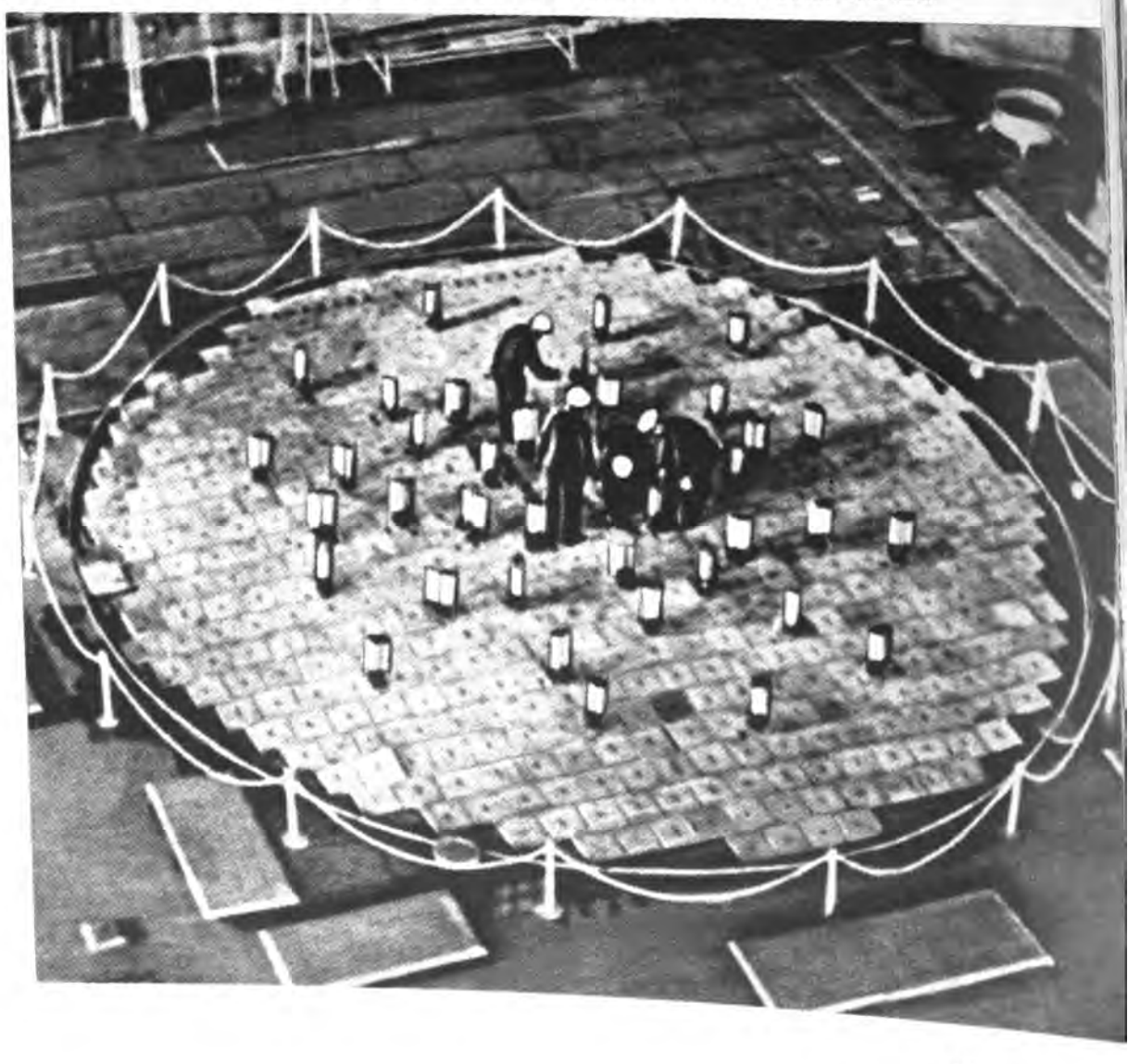
This steam superheated to 365° is carried from the steam generators to the station's turbine building. There it passes into the double-flow steam turbogenerators. There are three of these for the single reactor of the station's first section. The heat generated in the reactor pile is here transformed into electricity.

The new atomic power station is one of a number now being built. Like the original experimental station, most of them are equipped with reactors using ordinary water as heat conductors. Other types of reactors are being experimented with—one using heavy water and uranium in the form of a solution, another with molten sodium as heat conductor.

The first reactors working on fast neutrons were built in 1955. One experimental reactor of this type with a capacity of 5,000 kilowatts began to operate last summer. At present a 50,000-kilowatt fast neutron reactor is under construction on the Volga.

The new station and the others being built forecast nuclear generated power development on a large scale, particularly for those regions which do not have abundant local fuel resources. Along with hydropower and thermal power stations, the atomic power plants will fill out the country's power sources. ■

TOP VIEW OF THE REACTOR. IT USES WATER HEATED BY THERMAL NEUTRONS WITH A GRAPHITE RETARDER.



THE UNITED EFFORTS OF

ASSEMBLED at the Tenth International Astronomical Congress held in Moscow recently were scientists of many countries meeting to compare astronomical data they had gathered by telescope, radio instruments and artificial satellites in their explorations of the stellar universe. The papers presented at the many symposia covered a wide range of problems which astronomers the world over have been working to solve.

That celestial body, the sun, source of our planet's heat and light, was the pivotal subject of many of the papers read. Soviet astronomers reported the results of spectroscopic observations made at the Crimean Astrophysical and the Pulkovo observatories, their observations of the sun's corona from mountain stations constructed for that purpose, and those made with various types of radio installations during periods of normal

LEO GOLDBERG (USA), Vice President of the International Astronomic Union (in the photo at the right): American astronomers waited impatiently for the Moscow congress. Many of us studied Russian so that we could

JAN OORT (Holland), President of the International Astronomic Union: We leave the astronomers, Moscow and the Soviet Union with a feeling of sadness. The 10th International Astronomical Congress again

BORIS KUKARKIN (Soviet Union), Vice President of the International Astronomic Union: The Moscow congress of astronomers of the world helped to establish still closer ties among the scientists of the East and West.

HARLOW SHAPLEY (USA), Director Emeritus of Harvard University Observatory: The Moscow congress was very important because of the problems of radioastronomy and the evolution of the stars and the galaxies

WALTER O. ROBERTS (USA), Director of the High Altitude Observatory: The work of the Crimean Astrophysics Observatory and other Soviet observatories is very impressive. I am certain that not only my American col-

HE WORLD'S ASTRONOMERS

By Alexander Mikhailov

Chairman, Astronomical Council, USSR Academy of Sciences

(*Abridged from the magazine* Science and Life)

solar activity and at times of solar eclipse.

These observations confirmed the critical effect of the sun's activity on the circulation of the masses of air in the earth's atmosphere upon which depend our climate and weather and the governing relationship of solar activity to the earth's waters.

Important studies on solar emanations and the so-called "splashes"—the large increases in the intensity of the radio emanations which accompany outbreaks of solar activity—were presented by E. Mustel, a Soviet astronomer, and P. Herlofson, a Swedish scientist. Professor A. Severny of the Soviet Union described the observations made of the sun's magnetic field at the Crimean Astrophysical Observatory. Dr. Walter Orr Roberts, director of the High Altitude Observatory at Boulder, Colo., reported on the recently discovered flashes in the solar corona.

These papers, although significant theoretical contributions, also have decided practical value for improving weather forecasting and for predicting future climate and water level conditions.

Research by Sputnik

Professor Fred Whipple of the United States chaired the session of the Congress devoted to artificial satellites. These artificial moons have contributed invaluable data on the terrestrial atmosphere and the sun's activity. Preliminary studies made with the sputniks of cosmic rays, corpuscular emanations and meteoric particles were reported by a number of Soviet scientists, among them A. Chudakov, V. Krasovsky, T. Nazarova and A. Alpert. They evoked considerable discussion from the floor.

In his paper on the origin of the sun's corpuscular streams, V. Krasovsky proposed the theory that they were composed of electrons produced in the external atmosphere and the lower layers of the ionosphere by action of the magnetic fields connected with the corpuscular streams emanating from the sun. These electrons, he thought, like those emanating directly from the sun, may increase the ionization of the upper layers of the atmosphere.

The Exact Time

A symposium titled "Rotation of the Earth and Atomic Standards of Time" was devoted to a consideration of this question: How can astronomically exact time be determined? The answer is dependent on study of the earth's

Continued on next page

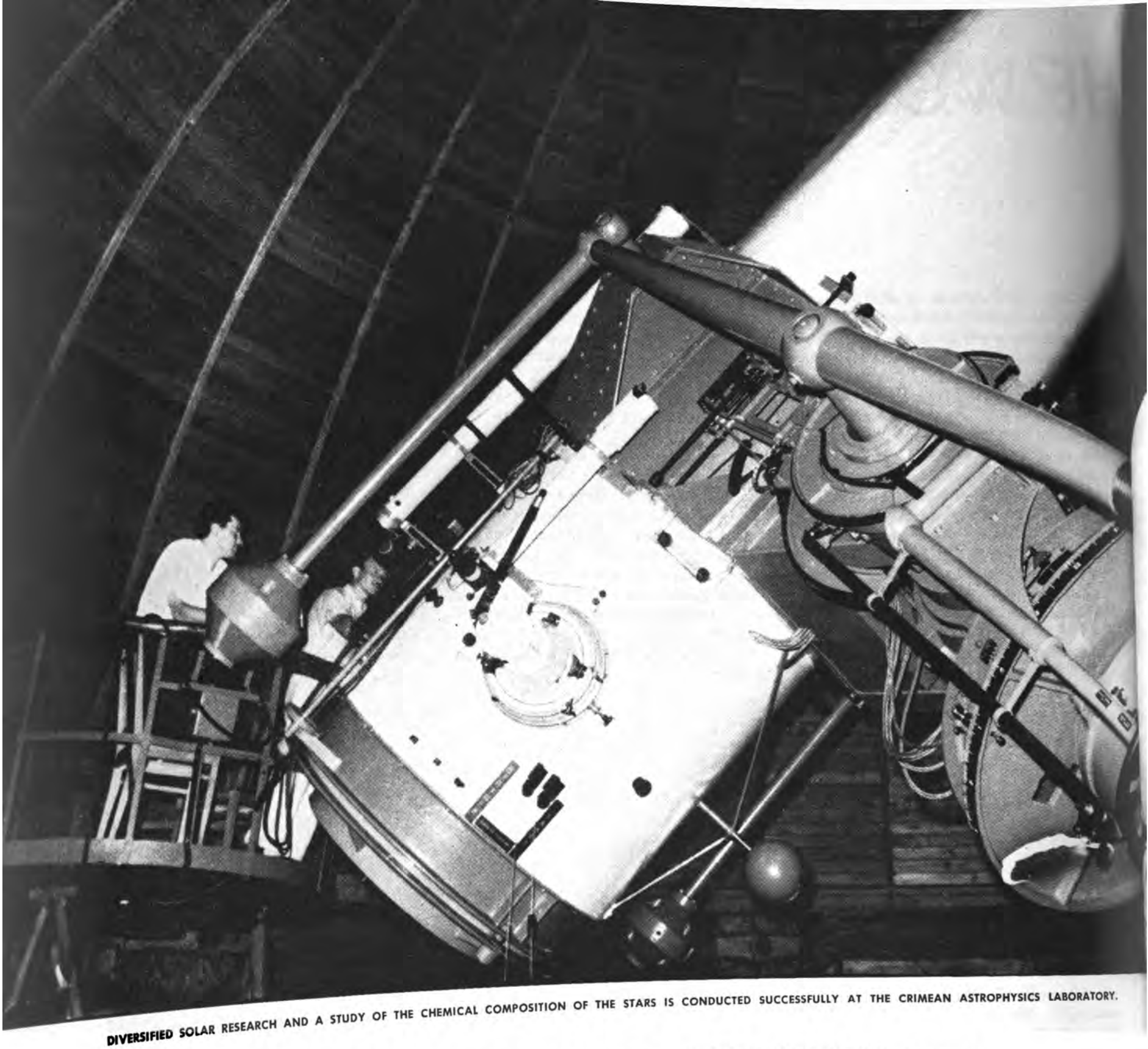
establish closer personal contacts with the Soviet astronomers. And the meeting surpassed our expectations. A foundation has been laid for continuing contacts between the American and Soviet astronomers.

showed us that the flower of mutual understanding is now blossoming in all parts of the world. We look forward to resuming the friendly ties made in Moscow at the 11th Congress to be held in the USA in three years.

This is extremely important, for there are innumerable problems and questions concerning the universe that can be solved only by the joint efforts of the astronomers of many countries.

that were discussed. But special interest was unquestionably aroused by the data received by the representatives of a new science whose foundation was laid by Soviet scientists on October 4, 1957. I would name it *Sputnikia*.

leagues but all the solar physicists will concur when I say that the meetings of the astronomers in Moscow will stimulate our further joint efforts for solving problems still facing us.



DIVERSIFIED SOLAR RESEARCH AND A STUDY OF THE CHEMICAL COMPOSITION OF THE STARS IS CONDUCTED SUCCESSFULLY AT THE CRIMEAN ASTROPHYSICS LABORATORY.

THE UNITED EFFORTS OF THE WORLD'S ASTRONOMERS *Continued*

rotation. Papers presented by Y. Fedorov of the Soviet Union and the English astronomer G. Jeffrie substantiated and further developed the theory of rotation of the earth with a liquid core, advanced originally by the Russian scientists F. Sludsky and N. Zhukovsky.

Starting with the assumption that the usual method of measuring time by the period of rotation of the globe was inaccurate, astronomers have been using another method—the orbital movements of certain bodies in the solar system, principally the moon. New instruments are now available for these studies—quartz and atomic clocks in which quartz crystals or the atoms which make up an ammonia molecule or electrons inside a cesium atom vibrate under the influence of an alternating current charge.

The new clock is so highly accurate that it reverses the previous order of things. Now it is no longer the clock that is checked by the rotation time of the earth but, on the contrary, the irregularities in the earth's rotation are revealed by help of the clock. At the symposium the latest researches with these instruments were reported and basic measurements of the units of time were defined more precisely.

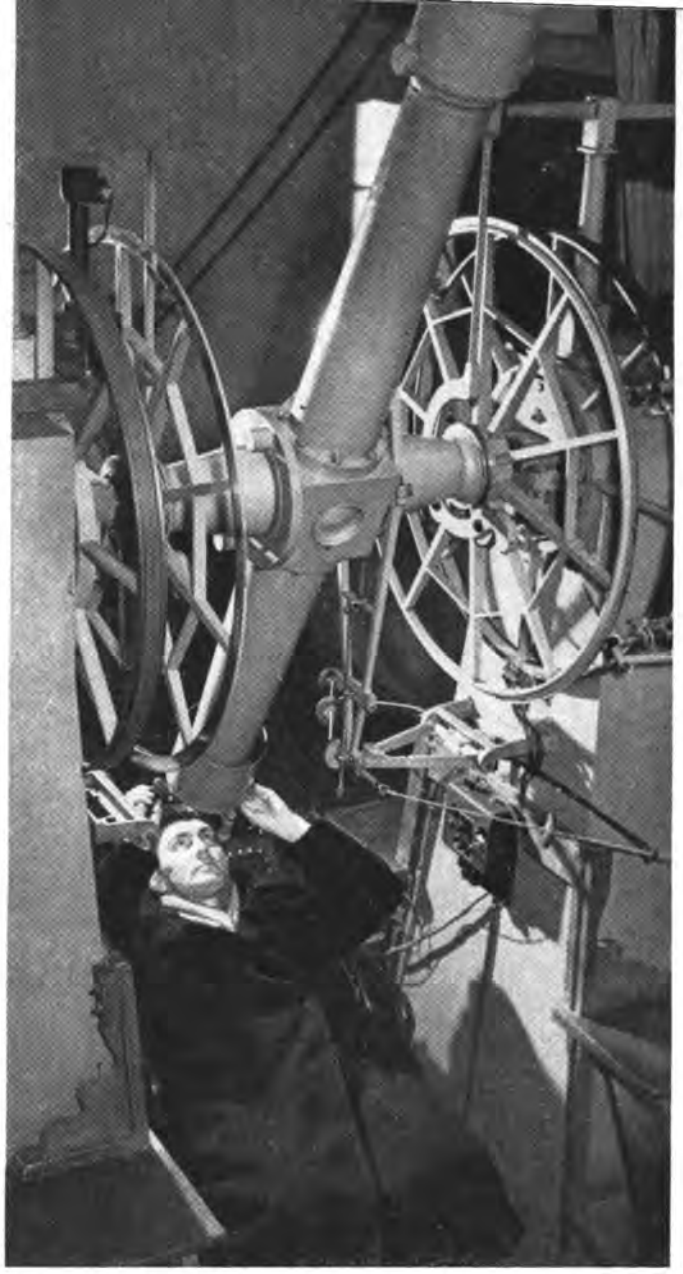
Invisible Satellite

Star "61" received considerable attention at the Congress. This binary star in the constellation of the Swan is actually two stars rotating around one another. As early as 1943 the American astronomer Strand noticed that these stars moved in a way that suggested they were being influenced by some invisible third body.

After the Second World War Strand and the Soviet astronomer A. Deich both confirmed the existence of this invisible satellite and calculated its mass to be equal to that of nine Jupiters.

The Soviet astronomer continued his studies of "61" to ascertain around which of the two stars the satellite rotated, research which demanded extraordinarily delicate measurements. Deich proved that the satellite planet belonged to another sun located an approximate ten light years from the earth. Thus research begun by an American was continued by a Soviet astronomer, a by no means rare instance of the cooperative nature of scientific research.

This international collaboration was particularly apparent in the papers read on the cepheids or pulsating stars, with astronomers from a number of countries reporting their findings.



Prof. V. Podobed of Moscow's Sternberg Astronomical Institute takes observations with a meridian circle for the IGY program.

Mrs. Whipple of the USA (right) with Masevich and Friedlyander of the Soviet group.

Astronomers of Holland, the United Arab Republic, India, the Soviet Union and the United States get together for informal discussions following a session.

H. Weaver, an American astronomer, suggested that current theories of the rotation of the galaxies be reviewed in the light of new studies of the movements of the cepheids. Y. Pavlovskaya and Y. Pskovsky described their work at the Sternberg Astronomical Institute in Moscow on the luminosity of the cepheids and Professor O. Melnikov's paper pointed out the need for using methods to determine the brightness of the cepheids that would not be affected by light coming to us from the stars.

Discussion at the Congress sessions more than once emphasized the pleasure of the scientists at the cooperative exchanges. If it were customary for scientific meetings to coin slogans, an appropriate one for this Congress of astronomers might well have been: Science must not be fenced in by national or political frontiers. ■

SCHOOL AND F

Nationwide Discussion o

of Soviet

Issues No. 8 (23) and No. 9 (24) of *USSR* magazine carried articles on the school curriculum as related to the requirements of industry and agriculture and on the vocational training offered to graduates. In issue No. 10 (25) a series of more detailed articles was started on various aspects of the country's system of education. Thus far the public schools and colleges were described. In this issue our series is continued with an article covering the discussions now under way in the country on how to better adapt the system of education to the changing needs of modern life.

In the next issue we intend to describe graduate courses and the facilities available to those students who wish to work toward their master's and doctor's degrees.

THE FUTURE OF SOVIET EDUCATION IS DISCUSSED BY TEACHERS ALL OVER THE COUNTRY.

THE ever growing advances in all spheres of Soviet economy and culture have been greatly promoted by the progress of education. The milestones of this continuous progress can be traced from the elimination of the age-old illiteracy in the early thirties through the present system of training specialists equipped to solve the most complicated problems of science and technology.

Continuous progress implies continuous re-evaluation, a never-ending search for educational goals that will develop the individual's capacities so that he can best serve himself and society. As science and technology change the character of our life, new requirements constantly arise which the educators must meet. There are always new tasks confronting the country's economy and culture which necessitate periodic reappraisals of what and how we teach in our schools and colleges.

Have our teenagers had actual contact with work situations so that they can more wisely choose the trade or profession they wish to train for? Are our schools and colleges closely enough related to today's living and the needs of the time? Is our present curriculum sufficient to give students the best grounding for this new age of scientific and technological exploration?

These are among the questions which are now being debated by Soviet educators, parents and government officials. Upon the answers to these crucial questions depend, to a large degree, the present and future of the Soviet Union—its economic well being, its progress in science and technology, and its cultural growth.

Out of the nationwide discussion, certain general directions have evolved. They have been particularized in Nikita Khrushchev's memorandum approved by the Presidium of the Communist Party's Central Committee. Reflecting the thinking of educators and lay people, their searchings and findings, the memorandum emphasizes an urgent need of strengthening the ties of the school with life as the main prerequisite for the further progress of the country's system of education.

Yesterday, Today and Tomorrow

Until the recent period, the memorandum points out, the Soviet Union had a certain shortage of young people with a complete ten-year school education required for admission to the colleges and universities. At the same time the country badly needed specialists with higher education.

The statistic shows that even as late as in 1950 only 290,000 boys and girls were enrolled in the tenth grade of the secondary schools, while the number of students admitted to the freshman classes of the colleges and universities was 349,000. Since the secondary schools were unable to supply the colleges and universities with the number of students the country needed, the gap had to be bridged by extra-school instruction.

With the expansion of secondary education during the recent years the situation has radically changed. In 1958 the number of young people who graduated from the secondary schools reached 1,600,000, while the colleges and universities admitted 440,000.

Speaking of today's educational policy,

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lucation

THESE OLDER PUPILS ARE AS MUCH INTERESTED IN THE PROPOSED CHANGES IN SCHOOLING AS THEIR PARENTS.

Nikita Khrushchev points out in his memorandum: "We are striving to have our entire youth, millions of boys and girls, go through the ten-year school. Naturally enough, they cannot all be absorbed by the specialized secondary schools and colleges."

Under the present conditions the colleges can admit to their freshman classes approximately 450,000 students a year. Of this number a little more than one-half will be admitted to evening and correspondence courses for after work study. At the same time the number of boys and girls to graduate from the secondary schools is expected to reach an annual total of 2,000,000 or even more.

The vast majority of these young people will take jobs in industry or agriculture right after graduation. But most of the present secondary schools provide them only with a good general education in preparation for college entrance and do not prepare them for life.

New Approach to Secondary Education

Voicing the general opinion, Nikita Khrushchev observes in his memorandum that preparation for physical labor and vocational training, with all their character-building values, are no less important elements in the education of a young citizen. The general feeling is that it is necessary to break down the false and damaging separation between mental and physical work, between cultural and production occupations.

The task of the Soviet school must be to instill in the child a respect for labor, to educate young people who are not only grounded in the fundamentals of sciences and the humanities but also equipped to work at jobs producing values needed by society.

This approach will not be reducing the scope of the secondary education. A most comprehensive program for perfecting the school curriculum now being discussed in the country envisages safeguarding the opportunities afforded every citizen to acquire a full general education provided by the present ten-year schools. At the same time this program sets a new goal aimed to perfect vocational training in the secondary schools so that young industrial workers and collective farmers entering independent life after graduation would have a combined general and specialized education.

More specifically the proposed change will mean, to quote from the memorandum, that "all students without exception should be required to do some socially-useful work in a factory, a collective farm or some comparable area after completing the seventh or eighth year of secondary school. In town and country alike all school graduates should go to work, and there should be no exemptions. In the

Continued on next page

SCHOOL AND LIFE

Continued

first place, this will be democratic since the same conditions will hold for all citizens—neither the parents' position nor their special appeals should release anyone from doing productive labor. In the second place, it will serve as excellent schooling for all our young people in the spirit of the heroic traditions of the working class and the collective-farm peasantry."

The seven- or eight-year school could then be thought of as a first stage of secondary education. The second stage would be a two- or three-year course in evening or correspondence school to be pursued while the student works at a job. There could be new legislation to lengthen the course of such study and to release these students from their jobs for two or three days a week without reduction in pay.

For those gifted children who early show special ability in any particular field—mathematics, physics, biology, music, art—there would be appropriate secondary schools which would prepare them for the corresponding colleges and professional schools.

DOMESTIC SCIENCE CLASSES PREPARE SCHOOLGIRLS FOR THEIR FUTURE DUTIES AS MOTHER

New Approach to College Education

The new approach must, of course, carry over also to college education. As the memorandum suggests, the college curriculum is to be linked much more closely than heretofore to job activity.

A considerable number of Soviet students already have some years to their credit as industrial workers and collective farmers. As the secondary schools move toward a closer relationship with production, an increasingly larger number of students entering college will have acquired the experience and the maturity that comes from working at a job. As a consequence, they will be able to make a wiser choice for their future specialties.

In reorientating the program of the higher education to adapt it to the new needs, the memorandum suggests that the colleges and universities, particularly the technical institutes, should emphasize the development of evening and correspondence courses.

"It seems advisable," the memorandum continues, "that most schools of higher education offer the first two or three years of instruction so that young people combine their studies with a job. This would make it possible to select from among the great number of young people who want to go on with their education, those who have demonstrated that this desire was not a passing fancy, that they really had a thirst for learning and the patience and industry to pursue it. Only then, beginning with the third year, could the privileges be granted—the students could be released from their work for three days a week. During the last two years of study it may be found advisable to free students altogether from work, except for the time required to do practical work as part of the college curriculum."

Combined work-study is no new development in Soviet education. There are engineers, agronomists, and scientists working at almost every plant, farm or research center of any size who have done their studying from secondary or vocational school all the way through college and graduate school while holding down a full-time job. Many of them have moved ahead from unskilled jobs to the most responsible posts in their fields. People of this potential caliber are eagerly sought after and are in every possible way encouraged to acquire a higher education.

Exchange of Opinions

Considering one or another phase of secondary and higher education, the memorandum evaluates various ways to solve the problems that face the country's schools and calls for a detailed discussion of the experience already gained by educators in strengthening the ties between study and work. There is no doubt that the widest exchange of opinions on different proposals and possible alternatives will result in the further progress of the whole system of education.

With this in mind, nearly everyone in the country talks about the future of the schools, and Nikita Khrushchev's memorandum is being debated at meetings of parents and teachers, at shop and farm meetings, and at professional conferences of all kinds.

There is no essential disagreement on the major point that a gap does exist between the school and practical work which must be bridged. There is concern, however, that the practical work aspect may be [illegible] at the expense of theoretical [illegible]

In an article in the newspaper [illegible] of many which the press has [illegible] V. Krotov, the director of the [illegible] Machinery Works in Sverdlovsk [illegible] that "students of the day technical [illegible] should not, as a rule, hold a job [illegible] during the first three years, when [illegible] cal subjects are studied."

What are the prospects for the [illegible] humanities in our age of scientific [illegible] nological progress with its results [illegible] vocational training? The fact that [illegible] training must be an integral part [illegible] education, asserts I. Kairov, the [illegible] of the Academy of the Pedagogical [illegible] "should by no means lead to [illegible] role and importance of the [illegible] fact, their importance becomes [illegible] since without a rounded cultural [illegible] the polytechnical studies can only [illegible] cially learned."

Characteristic of the letters [illegible] that have been sent to newspapers [illegible] in *Izvestia* written by A. Abzalov [illegible] of an Uzbek collective farm. [illegible] to 35 young people leave his village [illegible] lege. That, he says, is fine. But he [illegible] tinues: "Although we parents are [illegible] our son easily solves an intricate [illegible] trigonometry, we are not nearly [illegible] when he cannot figure the number [illegible] plants growing on an acre and estimate [illegible] the crop will be." It is farmer [illegible] ing that "it is a very sound [illegible]

THE CURRICULUM OF SOME HIGH SCHOOLS INCLUDES VOCATIONAL TRAINING AT FACTORIES TO PROVIDE GRADUATING STUDENTS WITH VARIOUS INDUSTRIAL SKILLS.

AMBITIOUS STUDENTS SUPPLEMENT THEIR CLASSROOM KNOWLEDGE IN AFTER-SCHOOL CLUBS.

RURAL SCHOOLS HAVE CLASSES IN FARM METHODS.

schooling should be closely linked with work training, and at a certain age it should be directly combined with work."

Engineer I. Kuzminykh of the Punane RET Factory in Tallinn, writes in the same vein in his letter to the newspaper *Sovietskaya Estonia*. "In the past three years our factory took on more than a hundred young people who graduated from secondary schools. Our engineers had no easy job giving these young people a sense of the dignity of physical labor and to teach them their trades." Engineer Kuzminykh is all for vocational training.

There are, however, people who do not go along with engineer Kuzminykh and farmer Abzalov. They are apprehensive that the emphasis on labor is likely to have an adverse effect on studies.

V. Boykov, a teacher from Leningrad writes in to answer this objection. He cites his own experience in a school where this work-study program was introduced some years ago. "It makes," he says, "for considerably greater progress in study and character building." His views are shared by teachers from many other parts of the country where this program has been experimented with over a period of years.

Experimenting with Work-Study Programs

There has been a good deal of experimentation with polytechnical and vocational education in the Soviet schools in recent years aimed to bring school and job closer together. Nikita Khrushchev's memorandum is in a sense a summary of conclusions resulting from these experiments with school workshops and farm plots, courses in mechanics and electrotechnics, excursions to neighboring factories and farms—all employed to familiarize children with the ways in which things are grown and manufactured.

Continued on next page

Worker Ivan Kilombot will soon get his engineering diploma from a correspondence institute.

SCHOOL AND LIFE

Continued

In the same sense the memorandum summarizes the results of a number of years of direct experimentation in combining general education of upper-grade students with work in neighboring factories. Six schools in the Ukrainian Republic have been carrying through this kind of experiment since 1954. These schools added to their regular 30 hours of instruction weekly an additional six hours a week of production theory and practice to provide vocational training.

The experiment proved successful. As a result of the vocational training, students acquired a better grasp of science fundamentals and a broader understanding of polytechnical concepts. Many of them became highly qualified workers when they entered industry. The Ukrainian Republic has now introduced industrial training in the upper grades of 3,500 schools.

Other Soviet Republics have also been introducing vocational training at levels which conform to regional conditions. The Russian Federative Republic, for example, used an experimental curriculum in 50 of its schools last year, this year it is being used in 200. These are eleven-year schools in which upper-grade students spend three days a week in class studying general educational subjects, the other three days they work in an industry they have chosen. Upon graduating these students get certificates attesting to their level of skill in a particular trade besides their regular diplomas.

In the Lithuanian Republic, upper-grade students have since 1956 spent two or three weeks each year working on local collective or state farms. In other republics there are school teams made up of eighth, ninth and tenth grade students who do year-round work in assigned sections of collective farms. The work helps the young farmers learn to apply in practice the knowledge gained in school.

Work-study farms were set up early this year in some of the country's stock-breeding regions. Collective farms provide these school farms with animals and sheds, the pupils are taught to feed and care for the animals in addition to their regular class studies.

Schools in some towns have set up their own work-study shops. In these shops students fill orders they get from neighboring factories for metal articles and tools, build furniture for local sale or sew clothing for children at nurseries and kindergartens.

Work-study experimentation is also being done beginning with the lower grades. This fall the Ukrainian Republic introduced an eight-year experimental work-study program in 28 schools. Besides work training the curriculum covers the fundamentals of physics, chemistry, biology, mathematics, geography, history and law, the study of the Ukrainian and Russian languages and literature, a foreign language and literature, aesthetics and physical education.

Graduates of these eight-year schools will have done work in the technology of materials, electrotechnics and the fundamentals of agriculture, and will have learned to use tools and farm implements. Starting with the fifth grade, girls will be given domestic science as a regular subject. Each of these schools has workshops and farm plots.

Each year about two million students gradute from high school and most of them go directly to work. They have every opportunity to earn their degrees at evening schools.

Careful Examination

The experiments of the recent years have brought forth different versions of combining study with work. A multitude of other proposals sprout from the debates that have swept the country. The suggested ways of the further development of the secondary and higher education reflect specific national, economic and cultural features of each Soviet Republic and take into account the particular needs of various regions.

All suggestions must be carefully examined before any large-scale changes are instituted, says Nikita Khrushchev's memorandum. The more suggestions that are forwarded the sounder will be the guarantee for correct answers to the questions at stake.

It is only after these nationwide discussions, concludes the memorandum, that a session of the USSR Supreme Soviet—the country's legislature—is to be convened to draft and approve the general approach to be taken. The final legislation with all definitive details will then be worked out by the Supreme Soviets of each of the Union Republics. ■

Next issue: ***Obtaining a Graduate Degree***

The FUNDAMENTAL LAW of the LAND of SOCIALISM

By Mikhail Tarasov

Vice-President of the Presidium of the USSR Supreme Soviet

DECEMBER 5 is celebrated as Constitution Day in our country, commemorating the adoption of the basic code of law by which the people of the Soviet Union govern themselves. On that day in 1936 the present Constitution was ratified at the Extraordinary Eighth Congress of Soviets.

But the fundamental principles which the Constitution defines had been the law of the land since those early morning hours of October 26 (November 8 by the new calendar), 1917, when the Second All-Russian Congress of Soviets made this historic declaration: "Backed by the will of the overwhelming majority of the workers, soldiers and peasants, backed by the victorious uprising of the workers and garrison in Petrograd, this Congress takes power into its own hands."

Once in power after the October Socialist Revolution the people, through their elected representatives in the Soviets, thoroughly recast the country's social structure, its economy, governmental organization, and its domestic and foreign policy. These transformations were enacted into legislation known as the "October Decrees" that carried constitutional significance because of their prime import for the whole of the nation's life.

The "October Decrees" declared the new state a "republic of Soviets of workers', soldiers', and peasants' deputies" and gave full and complete equality to the minority nationalities that had for so long been oppressed and discriminated against under czarist rule.

Among the key documents of the revolutionary period was the "Declaration of Rights of the Toiling and Exploited People" adopted by the Third All-Russian Congress of Soviets in January 1918. The new socialist state was determined, it said, to stamp out every vestige of that social, national and political persecution to which the old regime had condemned the working people. It called for a democratic peace on the basis of self-determination of all nations, and denounced all forms of colonialism.

The First Constitution

The "October Decrees," which wrote into law the changes made by the people's government during the first months of its existence, served as the foundation for the first Soviet Constitution, drafted by the Russian Soviet Federative Socialist Republic, the largest of the republics that were formed as a result of the Revolution. Adopted by the Fifth All-Russian Congress of Soviets on July 10, 1918, it served as the model for the constitutions of the other republics.

The Constitution of the Russian Federation proceeded from the premise that power was now in the hands of the working people, exercised through their elected legislative bodies, the Soviets of Working People's Deputies. It reaffirmed the laws adopted immediately after the Revolution which had abolished the private ownership of land; had declared the forests, mineral resources and waters national property; and had given the workers control of industrial establishments, railways and banks as preliminary to the nationalization of the means of production.

In a statement to the nation in the earliest days of the Revolution Vladimir Ilyich Lenin, the founder of the Soviet state, had defined the new power in these terms: "Comrade Working People! Remember that *you yourselves* are now governing the state. No one will help you if you do not unite and take *all the work* of governing the state *into your own hands.*"

With this as principle, the Constitution invested all the working people with democratic rights without exception or reservation. It provided guarantees that these rights would be implemented. It confirmed the representative character of all legal bodies and their subordination to the will of the people. It provided the means by which millions of citizens would be drawn into the management of the country's political and economic life.

Drawn up and ratified at a time when the Civil War was at its height and when the nation was fighting off the attacks of the interventionist armies of fourteen foreign countries, the Constitution deprived of electoral rights those who had enjoyed a privileged position under the old regime and now were in active opposition to the new social order the Revolution had brought—former owners of landed estates, factories and plants, all those who employed hired labor and lived on unearned income, former employees and agents of the czarist police and gendarmery.

These restrictions in civil rights did not stem from the nature of Soviet power. They were defensive measures and affected only those relatively small groups in the population that had in effect relinquished their civil rights by attempts to destroy the socialist republic the people had established.

The Union of Soviet Socialist Republics Is Formed

In exercise of the right of nations to self-determination the peoples of the former Russian Empire established a number of sovereign Soviet Socialist Republics.

The Russian Federative Republic was founded on October 25, 1917. It united a large group of the country's nationalities. The Ukrainian Republic was established on December 25, 1917; the Byelorussian Republic on January 1, 1919; the Azerbaijan Republic on April 28, 1920; the Armenian Republic on November 29, 1920; and the Georgian Republic on February 25, 1921. The last three republics formed a federation.

Continued on next page

The USSR Supreme Soviet, composed of two equal chambers, is the country's highest legislative body. All deputies are elected to four-year terms.

Weaver Serafima Kotova is a deputy to the Supreme Soviet of the Russian Federative Republic, one of the 15 Republics comprising the Soviet Union.

The FUNDAMENTAL LAW of the LAND of SOCIALISM

Continued

From the outset the republics worked together, bound by a common goal and by formal treaties. They joined against the interventionist armies and acted together in international affairs; they worked unitedly to rebuild the economy almost totally destroyed by the war. Toward the end of 1922 they voluntarily combined into a single state, the Union of Soviet Socialist Republics.

The first Constitution of the USSR, ratified in 1924, guaranteed the sovereign rights of the republics which had united. It confirmed the right of each republic to secede from the Union, declared that no changes could be made in the territorial integrity of a republic without its own consent and outlawed discrimination against national minorities.

The New Constitution Drafted

With the Civil War ended and the foreign invaders driven off the Soviet land, reconstruction could take precedence. Within an unbelievably short span of years the nation pulled itself out of age-old economic and cultural backwardness. Large industrial centers were built, farming was mechanized, an educational system was evolved which produced trained people for every kind of endeavor, unemployment was ended and a steady rise in the standard of living began to be evident.

This was the beginning of a new period in the history of the Soviet Union—the period of socialism.

New times require new approaches modeled to fit the goals that lie ahead. And in this spirit the national legislature adopted a resolution to draw up a new constitution.

The draft of this new constitution was presented to the citizenry for consideration five months before it was to be acted upon by the national legislature. It was discussed by millions of people at factory, farm and office meetings, at public gatherings and in letters to the press. Some two and a half million changes, amendments and additions were proposed.

The Constitution, as finally adopted by the Extraordinary Congress of Soviets on December 5, 1936, was a product of the thinking not of the Congress delegates alone but of all the people of the country.

Rights of the Citizen

The political foundation of the USSR, the 1936 Constitution declares, is the Soviets of Working People's Deputies. It is through the Soviets that all sections of the population take a real part in governing the country.

Every organ of power, from the highest to the lowest, is formed through elections. The 1936 Constitution gives the right to vote to all citizens who reach the age of eighteen, regardless of race or nationality, sex, religion, education, domicile, social origin, property status or past activity.

Direct elections replace elections by several stages that had obtained previously, and voting by show of hands is replaced by secret ballot. The universal, direct and secret balloting is combined with a democratic order in the nomination of candidates for office. The right to nominate candidates is secured to all public organizations. They include the Communist Party, the trade unions, cooperatives, youth organizations and cultural associations.

The Constitution further stipulates that an elected official who does not justify the trust placed in him may be recalled and his office filled at a by-election.

Ensured by the Constitution to Soviet citizens are those freedoms which are inherent in a democratic society, among them freedom of speech, of the press, of assembly. But the Constitution does more than list these rights. It guarantees them by placing at the disposal of the working people and their organizations printing presses and stocks of paper, public buildings for meetings, the streets for parades and demonstrations, radio and television for communication and such other tangible and material requisites without which these rights cannot be exercised.

The Constitution ensures to all citizens freedom of conscience—freedom to worship according to their religious beliefs and the freedom, if they so choose, to express their anti-religious beliefs.

The Communist Party

The Constitution asserts that the Communist Party "is the vanguard of the working people in their struggle to build a communist society and is the leading core of all organizations of working people, both public and state."

Continued on page 39

Women have equal rights with men in every field of endeavor. Frequently they hold responsible posts of leadership in enterprises and government.

CONSTITUTION

(FUNDAMENTAL LAW)

OF THE UNION OF SOVIET SOCIALIST REPUBLICS

As Added to and Amended up to the Ninth Session of the USSR Supreme Soviet, Fourth Convocation

RUSSIAN SOVIET FEDERATIVE SOCIALIST REPUBLIC

UKRAINIAN SOVIET SOCIALIST REPUBLIC

BYELORUSSIAN SOVIET SOCIALIST REPUBLIC

Chapter I

THE SOCIAL STRUCTURE

ARTICLE 1

The Union of Soviet Socialist Republics is a socialist state of workers and peasants.

ARTICLE 2

The political foundation of the USSR is the Soviets of Working People's Deputies, which grew and became strong as a result of the overthrow of the power of the landlords and capitalists and the conquest of the dictatorship of the proletariat.

ARTICLE 3

All power in the USSR belongs to the working people of town and country as represented by the Soviets of Working People's Deputies.

ARTICLE 4

The economic foundation of the USSR is the socialist system of economy and the socialist ownership of the instruments and means of production, firmly established as a result of the liquidation of the capitalist system of economy, the abolition of private ownership of the instruments and means of production, and the elimination of the exploitation of man by man.

ARTICLE 5

Socialist property in the USSR exists either in the form of state property (belonging to the whole people) or in the form of cooperative and collective-farm property (property of collective farms, property of cooperative societies).

ARTICLE 6

The land, its mineral wealth, waters, forests, mills, factories, mines, rail, water and air transport, banks, communications, large state-organized agricultural enterprises (state farms, machine and tractor stations and the like), as well as municipal enterprises and the bulk of the dwelling houses in the cities and industrial localities, are state property, that is, belong to the whole people.

ARTICLE 7

The common enterprises of collective farms and cooperative organizations, with their livestock and implements, the products of the collective farms and cooperative organizations, as well as their common buildings, constitute the common, socialist property of the collective farms and cooperative organizations.

Every household in a collective farm, in addition to its basic income from the common collective-farm enterprise, has for its personal use a small plot of household land and, as its personal property, a subsidiary husbandry on the plot, a dwelling house, livestock, poultry and minor agricultural implements—in accordance with the rules of the agricultural artel.

ARTICLE 8

The land occupied by collective farms is secured to them for their use free of charge and for an unlimited time, that is, in perpetuity.

ARTICLE 9

Alongside the socialist system of economy, which is the predominant form of economy in the USSR, the law permits the small private economy of individual peasants and handicraftsmen based on their own labor and precluding the exploitation of the labor of others.

ARTICLE 10

The personal property right of citizens in their incomes and savings from work, in their dwelling houses and subsidiary husbandries, in articles of domestic economy and use and articles of personal use and convenience, as well as the right of citizens to inherit personal property, is protected by law.

ARTICLE 11

The economic life of the USSR is determined and directed by the state national-economic plan, with the aim of increasing the public wealth, of steadily raising the material and cultural standards of the working people, of consolidating the independence of the USSR and strengthening its defensive capacity.

ARTICLE 12

Work in the USSR is a duty and a matter of honor for every able-bodied citizen, in accordance with the principle: "He who does not work, neither shall he eat."

The principle applied in the USSR is that of socialism: "From each according to his ability, to each according to his work."

Chapter II

THE STATE STRUCTURE

ARTICLE 13

The Union of Soviet Socialist Republics is a federal state, formed on the basis of a voluntary union of equal Soviet Socialist Republics, namely:

The Russian Soviet Federative Socialist Republic
The Ukrainian Soviet Socialist Republic
The Byelorussian Soviet Socialist Republic
The Uzbek Soviet Socialist Republic
The Kazakh Soviet Socialist Republic
The Georgian Soviet Socialist Republic
The Azerbaijan Soviet Socialist Republic
The Lithuanian Soviet Socialist Republic
The Moldavian Soviet Socialist Republic
The Latvian Soviet Socialist Republic
The Kirghiz Soviet Socialist Republic
The Tajik Soviet Socialist Republic
The Armenian Soviet Socialist Republic
The Turkmen Soviet Socialist Republic
The Estonian Soviet Socialist Republic

ARTICLE 14

The jurisdiction of the Union of Soviet Socialist Republics, as represented by its higher organs of state power and organs of state administration, embraces:

a) Representation of the USSR in international relations; conclusion, ratification and denunciation of treaties of the USSR with other states; establishment of general procedure governing the relations of Union Republics with foreign states;

b) Questions of war and peace;

c) Admission of new republics into the USSR;

d) Control over the observance of the Constitution of the USSR, and ensuring conformity of the Constitutions of the Union Republics with the Constitution of the USSR;

e) Confirmation of alterations of boundaries between Union Republics;

f) Confirmation of the formation of new Autonomous Republics and Autonomous Regions within Union Republics;

g) Organization of the defense of the USSR, direction of all the Armed Forces of the USSR, determination of directing principles governing the organization of the military formations of the Union Republics;

h) Foreign trade on the basis of state monopoly;

i) Safeguarding the security of the state;

j) Determination of the national-economic plans of the USSR;

k) Approval of the consolidated state budget of the USSR and of the report on its fulfillment; determination of the taxes and revenues which go to the Union, the Republican and the local budgets;

l) Administration of the banks, industrial and agricultural institutions and enterprises and trading enterprises of all-Union jurisdiction; general guidance of industry and construction under Union-Republican jurisdiction;

m) Administration of transport and communications of all-Union importance;

n) Direction of the monetary and credit system;

o) Organization of state insurance;

p) Contracting and granting of loans;

q) Determination of the basic principles of land tenure and of the use of mineral wealth, forests and waters;

r) Determination of the basic principles in the spheres of education and public health;

s) Organization of a uniform system of national-economic statistics;

t) Determination of the principles of labor legislation;

u) Determination of the principles of legislation concerning the judicial system and judicial procedure and of the principles of criminal and civil codes;

v) Legislation concerning Union citizenship; legislation concerning rights of foreigners;

w) Determination of the principles of legislation concerning marriage and the family;

x) Issuing of all-Union acts of amnesty.

ARTICLE 15

The sovereignty of the Union Republics is limited only in the spheres defined in Article 14 of the Constitution of the USSR. Outside of these spheres each Union Republic exercises state authority independently. The USSR protects the sovereign rights of the Union Republics.

ARTICLE 16

Each Union Republic has its own Constitution, which takes account of the specific features of the Republic and is drawn up in full conformity with the Constitution of the USSR.

ARTICLE 17

The right freely to secede from the USSR is reserved to every Union Republic.

ARTICLE 18

The territory of a Union Republic may not be altered without its consent.

ARTICLE 18-a

Each Union Republic has the right to enter into direct relations with foreign states and to conclude agreements and exchange diplomatic and consular representatives with them.

ARTICLE 18-b

Each Union Republic has its own Republican military formations.

ARTICLE 19

The laws of the USSR have the same force within the territory of every Union Republic.

ARTICLE 20

In the event of divergence between a law of a Union Republic and a law of the Union, the Union law prevails.

ARTICLE 21

Uniform Union citizenship is established for citizens of the USSR. Every citizen of a Union Republic is a citizen of the USSR.

ARTICLE 22

The Russian Soviet Federative Socialist Republic includes the Bashkirian, Buryat-Mongolian, Daghestan, Kabardinian-Balkar, Karelian, Komi, Mari, Mordovian, North Ossetian, Tatar, Udmurt, Checheno-Ingush, Chuvash and Yakut Autonomous Soviet Socialist Republics; and the Adygei, Gorny Altai, Jewish, Kalmyk, Karachayevo-Cherkess, Tuva and Khakass Autonomous Regions.

ARTICLE 23

Repealed.

ARTICLE 24

The Azerbaijan Soviet Socialist Republic includes the Nakhichevan Autonomous Soviet Socialist Republic and the Nagorny Karabakh Autonomous Region.

ARTICLE 25

The Georgian Soviet Socialist Republic includes the Abkhazian and Ajarian

UZBEK SOVIET
SOCIALIST REPUBLIC

KAZAKH SOVIET
SOCIALIST REPUBLIC

GEORGIAN SOVIET
SOCIALIST REPUBLIC

Autonomous Soviet Socialist Republics and the South Ossetian Autonomous Region.

ARTICLE 26

The Uzbek Soviet Socialist Republic includes the Kara-Kalpak Autonomous Soviet Socialist Republic.

ARTICLE 27

The Tajik Soviet Socialist Republic includes the Gorny Badakhshan Autonomous Region.

ARTICLE 28

The solution of problems pertaining to the administrative-territorial structure of the regions and territories of the Union Republics comes within the jurisdiction of the Union Republics.

ARTICLE 29

Repealed.

CHAPTER III

THE HIGHER ORGANS OF STATE POWER IN THE UNION OF SOVIET SOCIALIST REPUBLICS

ARTICLE 30

The highest organ of state power in the USSR is the Supreme Soviet of the USSR.

ARTICLE 31

The Supreme Soviet of the USSR exercises all rights vested in the Union of Soviet Socialist Republics in accordance with Article 14 of the Constitution, insofar as they do not, by virtue of the Constitution, come within the jurisdiction of organs of the USSR that are accountable to the Supreme Soviet of the USSR, that is, the Presidium of the Supreme Soviet of the USSR, the Council of Ministers of the USSR, and the Ministries of the USSR.

ARTICLE 32

The legislative power of the USSR is exercised exclusively by the Supreme Soviet of the USSR.

ARTICLE 33

The Supreme Soviet of the USSR consists of two Chambers: the Soviet of the Union and the Soviet of Nationalities.

ARTICLE 34

The Soviet of the Union is elected by the citizens of the USSR voting by election districts on the basis of one deputy for every 300,000 of the population.

ARTICLE 35

The Soviet of Nationalities is elected by the citizens of the USSR voting by Union Republics, Autonomous Republics, Autonomous Regions, and National Areas on the basis of 25 deputies from each Union Republic, 11 deputies from each Autonomous Republic, 5 deputies from each Autonomous Region and one deputy from each National Area.

ARTICLE 36

The Supreme Soviet of the USSR is elected for a term of four years.

ARTICLE 37

The two Chambers of the Supreme Soviet of the USSR, the Soviet of the Union and the Soviet of Nationalities, have equal rights.

ARTICLE 38

The Soviet of the Union and the Soviet of Nationalities have equal powers to initiate legislation.

ARTICLE 39

A law is considered adopted if passed by both Chambers of the Supreme Soviet of the USSR by a simple majority vote in each.

ARTICLE 40

Laws passed by the Supreme Soviet of the USSR are published in the languages of the Union Republics over the signatures of the President and Secretary of the Presidium of the Supreme Soviet of the USSR.

ARTICLE 41

Sessions of the Soviet of the Union and of the Soviet of Nationalities begin and terminate simultaneously.

ARTICLE 42

The Soviet of the Union elects a Chairman of the Soviet of the Union and four Vice-Chairmen.

ARTICLE 43

The Soviet of Nationalities elects a Chairman of the Soviet of Nationalities and four Vice-Chairmen.

ARTICLE 44

The Chairmen of the Soviet of the Union and the Soviet of Nationalities preside at the meetings of the respective Chambers and have charge of the conduct of their business and proceedings.

ARTICLE 45

Joint meetings of the two Chambers of the Supreme Soviet of the USSR are presided over alternately by the Chairman of the Soviet of the Union and the Chairman of the Soviet of Nationalities.

ARTICLE 46

Sessions of the Supreme Soviet of the USSR are convened by the Presidium of the Supreme Soviet of the USSR twice a year.

Extraordinary sessions are convened by the Presidium of the Supreme Soviet of the USSR at its discretion or on the demand of one of the Union Republics.

ARTICLE 47

In the event of disagreement between the Soviet of the Union and the Soviet of Nationalities, the question is referred for settlement to a conciliation commission formed by the Chambers on a parity basis. If the conciliation commission fails to arrive at an agreement or if its decision fails to satisfy one of the Chambers, the question is considered for a second time by the Chambers. Failing agreement between the two Chambers, the Presidium of the Supreme Soviet of the USSR dissolves the Supreme Soviet of the USSR and orders new elections.

ARTICLE 48

The Supreme Soviet of the USSR at a joint meeting of the two Chambers elects the Presidium of the Supreme Soviet of the USSR, consisting of a President of the Presidium of the Supreme Soviet of the USSR, sixteen Vice-Presidents, a Secretary of the Presidium and fifteen members of the Presidium of the Supreme Soviet of the USSR.

The Presidium of the Supreme Soviet of the USSR is accountable to the Supreme Soviet of the USSR for all its activities.

ARTICLE 49

The Presidium of the Supreme Soviet of the USSR:

a) Convenes the sessions of the Supreme Soviet of the USSR;

b) Issues decrees;

c) Gives interpretations of the laws of the USSR in operation;

d) Dissolves the Supreme Soviet of the USSR in conformity with Article 47 of the Constitution of the USSR and orders new elections;

e) Conducts nationwide polls (referendums) on its own initiative or on the demand of one of the Union Republics;

f) Annuls decisions and orders of the Council of Ministers of the USSR and of the Councils of Ministers of the Union Republics if they do not conform to law;

g) In the intervals between sessions of the Supreme Soviet of the USSR, releases and appoints Ministers of the USSR on the recommendation of the Chairman of the Council of Ministers of the USSR, subject to subsequent confirmation by the Supreme Soviet of the USSR;

h) Institutes decorations (Orders and Medals) and titles of honor of the USSR;

i) Awards Orders and Medals and confers titles of honor of the USSR;

j) Exercises the right of pardon;

k) Institutes military titles, diplomatic ranks and other special titles;

l) Appoints and removes the high command of the Armed Forces of the USSR;

m) In the intervals between sessions of the Supreme Soviet of the USSR, proclaims a state of war in the event of military attack on the USSR, or when necessary to fulfill international treaty obligations concerning mutual defense against aggression;

n) Orders general or partial mobilization;

o) Ratifies and denounces international treaties of the USSR;

p) Appoints and recalls plenipotentiary representatives of the USSR to foreign states;

q) Receives the letters of credence and recall of diplomatic representatives accredited to it by foreign states;

r) Proclaims martial law in separate localities or throughout the USSR in the interests of the defense of the USSR or of the maintenance of public order and the security of the state.

ARTICLE 50

The Soviet of the Union and the Soviet of Nationalities elect Credentials Commissions to verify the credentials of the members of the respective Chambers.

On the report of the Credentials Commissions, the Chambers decide whether to recognize the credentials of deputies or to annul their election.

ARTICLE 51

The Supreme Soviet of the USSR, when it deems necessary, appoints commissions of investigation and audit on any matter.

It is the duty of all institutions and officials to comply with the demands of such commissions and to submit to them all necessary materials and documents.

ARTICLE 52

A member of the Supreme Soviet of the USSR may not be prosecuted or arrested without the consent of the Supreme Soviet of the USSR, or, when the Supreme Soviet of the USSR is not in session, without the consent of the Presidium of the Supreme Soviet of the USSR.

ARTICLE 53

On the expiration of the term of office of the Supreme Soviet of the USSR, or on its dissolution prior to the expiration of its term of office, the Presidium of the Supreme Soviet of the USSR retains its powers until the newly-elected Supreme Soviet of the USSR shall have formed a new Presidium of the Supreme Soviet of the USSR.

ARTICLE 54

On the expiration of the term of office of the Supreme Soviet of the USSR, or in the event of its dissolution prior to the expiration of its term of office, the Presidium of the Supreme Soviet of the USSR orders new elections to be held within a period not exceeding two months from the date of expiration of the term of office or dissolution of the Supreme Soviet of the USSR.

ARTICLE 55

The newly-elected Supreme Soviet of the USSR is convened by the outgoing Presidium of the Supreme Soviet of the USSR not later than three months after the elections.

ARTICLE 56

The Supreme Soviet of the USSR, at a joint meeting of the two Chambers, appoints the Government of the USSR, namely, the Council of Ministers of the USSR.

Chapter IV

THE HIGHER ORGANS OF STATE POWER IN THE UNION REPUBLICS

ARTICLE 57

The highest organ of state power in a

AZERBAIJAN SOVIET SOCIALIST REPUBLIC

LITHUANIAN SOVIET SOCIALIST REPUBLIC

MOLDAVIAN SOVIET SOCIALIST REPUBLIC

Union Republic is the Supreme Soviet of the Union Republic.

ARTICLE 58

The Supreme Soviet of a Union Republic is elected by the citizens of the Republic for a term of four years.

The basis of representation is established by the Constitution of the Union Republic.

ARTICLE 59

The Supreme Soviet of a Union Republic is the sole legislative organ of the Republic.

ARTICLE 60

The Supreme Soviet of a Union Republic:

a) Adopts the Constitution of the Republic and amends it in conformity with Article 16 of the Constitution of the USSR;

b) Confirms the Constitutions of the Autonomous Republics forming part of it and defines the boundaries of their territories;

c) Approves the national-economic plan and the budget of the Republic and forms economic administration areas;

d) Exercises the right of amnesty and pardon of citizens sentenced by the judicial organs of the Union Republic;

e) Decides questions of representation of the Union Republic in its international relations;

f) Determines the manner of organizing the Republic's military formations.

ARTICLE 61

The Supreme Soviet of a Union Republic elects the Presidium of the Supreme Soviet of the Union Republic, consisting of a President of the Presidium of the Supreme Soviet of the Union Republic, Vice-Presidents, a Secretary of the Presidium and members of the Presidium of the Supreme Soviet of the Union Republic.

The powers of the Presidium of the Supreme Soviet of a Union Republic are defined by the Constitution of the Union Republic.

ARTICLE 62

The Supreme Soviet of a Union Republic elects a Chairman and Vice-Chairmen to conduct its meetings.

ARTICLE 63

The Supreme Soviet of a Union Republic appoints the Government of the Union Republic, namely, the Council of Ministers of the Union Republic.

Chapter V

THE ORGANS OF STATE ADMINISTRATION OF THE UNION OF SOVIET SOCIALIST REPUBLICS

ARTICLE 64

The highest executive and administrative organ of the state power of the Union of Soviet Socialist Republics is the Council of Ministers of the USSR.

ARTICLE 65

The Council of Ministers of the USSR is responsible and accountable to the Supreme Soviet of the USSR, or, in the intervals between sessions of the Supreme Soviet, to the Presidium of the Supreme Soviet of the USSR.

ARTICLE 66

The Council of Ministers of the USSR issues decisions and orders on the basis and in pursuance of the laws in operation, and verifies their execution.

ARTICLE 67

Decisions and orders of the Council of Ministers of the USSR are binding throughout the territory of the USSR.

ARTICLE 68

The Council of Ministers of the USSR:

a) Coordinates and directs the work of the all-Union and Union-Republican Ministries of the USSR and of other institutions under its jurisdiction, exercises guidance of the Economic Councils of the economic administration areas through the Councils of Ministers of the Union Republics;

b) Adopts measures to carry out the national-economic plan and the state budget, and to strengthen the credit and monetary system;

c) Adopts measures for the maintenance of public order, for the protection of the interests of the state, and for the safeguarding of the rights of citizens;

d) Exercises general guidance in the sphere of relations with foreign states;

e) Fixes the annual contingent of citizens to be called up for military service and directs the general organization of the Armed Forces of the country;

f) Sets up, whenever necessary, special committees and central administrations under the Council of Ministers of the USSR for economic and cultural affairs and defense.

ARTICLE 69

The Council of Ministers of the USSR has the right, in respect of those

branches of administration and economy which come within the jurisdiction of the USSR, to suspend decisions and orders of the Councils of Ministers of the Union Republics and of the Economic Councils of the economic administration areas and to annul orders and instructions of Ministers of the USSR.

ARTICLE 70

The Council of Ministers of the USSR is appointed by the Supreme Soviet of the USSR and consists of:

The Chairman of the Council of Ministers of the USSR;

The First Vice-Chairmen of the Council of Ministers of the USSR;

The Vice-Chairmen of the Council of Ministers of the USSR;

The Ministers of the USSR;

The Chairman of the State Committee of the Council of Ministers of the USSR on Planning;

The Chairman of the Commission of the Council of Ministers of the USSR on Soviet Control;

The Chairman of the State Committee of the Council of Ministers of the USSR on Labor and Wages;

The Chairman of the State Committee of the Council of Ministers of the USSR on Science and Technology;

The Chairman of the State Committee of the Council of Ministers of the USSR on Aircraft Technology;

The Chairman of the State Committee of the Council of Ministers of the USSR on Defense Technology;

The Chairman of the State Committee of the Council of Ministers of the USSR on Radioelectronics;

The Chairman of the State Committee of the Council of Ministers of the USSR on Shipbuilding;

The Chairman of the State Committee of the Council of Ministers of the USSR on Construction;

The Chairman of the State Committee of the Council of Ministers of the USSR on Foreign Economic Relations;

The Chairman of the Committee on the Security of the State under the Council of Ministers of the USSR;

The Chairman of the Administrative Board of the State Bank of the USSR;

The Chief of the Central Statistical Board under the Council of Ministers of the USSR.

The Council of Ministers of the USSR includes the Chairmen of the Councils of Ministers of the Union Republics by virtue of their office.

ARTICLE 71

The Government of the USSR or a Minister of the USSR to whom a question of a member of the Supreme Soviet of the USSR is addressed must give a verbal or written reply in the respective Chamber within a period not exceeding three days.

ARTICLE 72

The Ministers of the USSR direct the branches of state administration which come within the jurisdiction of the USSR.

ARTICLE 73

The Ministers of the USSR, within the limits of the jurisdiction of their respective Ministries, issue orders and instructions on the basis and in pursuance of the laws in operation, and also of decisions and orders of the Council of Ministers of the USSR, and verify their execution.

ARTICLE 74

The Ministries of the USSR are either all-Union or Union-Republican Ministries.

ARTICLE 75

Each all-Union Ministry directs the branch of state administration entrusted to it throughout the territory of the USSR either directly or through bodies appointed by it.

ARTICLE 76

The Union-Republican Ministries, as a rule, direct the branches of state administration entrusted to them through corresponding Ministries of the Union Republics; they administer directly only a definite and limited number of enterprises according to a list confirmed by the Presidium of the Supreme Soviet of the USSR.

ARTICLE 77

The following Ministries are all-Union Ministries:

The Ministry of Foreign Trade;

The Ministry of Merchant Marine;

The Ministry of Railways;

The Ministry of the Medium Machine-Building Industry;

The Ministry of Transport Construction;

The Ministry of the Chemical Industry;

The Ministry of Electric Power Stations.

ARTICLE 78

The following Ministries are Union-Republican Ministries:

The Ministry of Internal Affairs;

The Ministry of Higher Education;

The Ministry of Geological Survey and Conservation of Mineral Resources;

The Ministry of Public Health;

The Ministry of Foreign Affairs;

The Ministry of Culture;

The Ministry of Defense;

The Ministry of Communications;

The Ministry of Agriculture;

The Ministry of Trade;

The Ministry of Finance;

The Ministry of Grain Stocks.

Chapter VI

THE ORGANS OF STATE ADMINISTRATION OF THE UNION REPUBLICS

ARTICLE 79

The highest executive and administrative organ of the state power of a Union Republic is the Council of Ministers of the Union Republic.

ARTICLE 80

The Council of Ministers of a Union Republic is responsible and accountable to the Supreme Soviet of the Union Republic, or, in the intervals between sessions of the Supreme Soviet of the Union Republic, to the Presidium of the Supreme Soviet of the Union Republic.

ARTICLE 81

The Council of Ministers of a Union Republic issues decisions and orders on the basis and in pursuance of the laws in operation of the USSR and of the Union Republic, and of the decisions and orders of the Council of Ministers of the USSR, and verifies their execution.

ARTICLE 82

The Council of Ministers of a Union Republic has the right to suspend decisions and orders of the Councils of Ministers of its Autonomous Republics, and to annul decisions and orders of the Executive Committees of the Soviets of Working People's Deputies of its Territories, Regions and Autonomous Regions, as well as decisions and orders of the Economic Councils of the economic administration areas.

ARTICLE 83

The Council of Ministers of a Union Republic is appointed by the Supreme Soviet of the Union Republic and consists of:

The Chairman of the Council of Ministers of the Union Republic;

The First Vice-Chairmen of the Council of Ministers;

The Vice-Chairmen of the Council of Ministers;

The Ministers;

LATVIAN SOVIET
SOCIALIST REPUBLIC

KIRGHIZ SOVIET
SOCIALIST REPUBLIC

TAJIK SOVIET
SOCIALIST REPUBLIC

The Chairman of the State Commission on Planning;

The Chairman of the State Committee of the Council of Ministers of the Union Republic on Construction and Architecture;

The Chairman of the Committee on the Security of the State under the Council of Ministers of the Union Republic.

ARTICLE 84

The Ministers of a Union Republic direct the branches of state administration which come within the jurisdiction of the Union Republic.

ARTICLE 85

The Ministers of a Union Republic, within the limits of the jurisdiction of their respective Ministries, issue orders and instructions on the basis and in pursuance of the laws of the USSR and of the Union Republic, of the decisions and orders of the Council of Ministers of the USSR and the Council of Ministers of the Union Republic, and of the orders and instructions of the Union-Republican Ministries of the USSR.

ARTICLE 86

The Ministries of a Union Republic are either Union-Republican or Republican Ministries.

ARTICLE 87

Each Union-Republican Ministry directs the branch of state administration entrusted to it, and is subordinate both to the Council of Ministers of the Union Republic and to the corresponding Union-Republican Ministry of the USSR.

ARTICLE 88

Each Republican Ministry directs the branch of state administration entrusted to it and is directly subordinate to the Council of Ministers of the Union Republic.

ARTICLE 88-a

The Economic Councils of the economic administration areas direct the branches of economic activity entrusted to them, and are directly subordinate to the Council of Ministers of the Union Republic.

The Economic Councils of the economic administration areas issue within their jurisdiction decisions and orders on the basis and in pursuance of the laws of the USSR and the Union Republic and decisions and orders of the Council of Ministers of the USSR and the Council of Ministers of the Union Republic.

Chapter VII

THE HIGHER ORGANS OF STATE POWER IN THE AUTONOMOUS SOVIET SOCIALIST REPUBLICS

ARTICLE 89

The highest organ of state power in an Autonomous Republic is the Supreme Soviet of the Autonomous Republic.

ARTICLE 90

The Supreme Soviet of an Autonomous Republic is elected by the citizens of the Republic for a term of four years on a basis of representation established by the Constitution of the Autonomous Republic.

ARTICLE 91

The Supreme Soviet of an Autonomous Republic is the sole legislative organ of the Autonomous Republic.

ARTICLE 92

Each Autonomous Republic has its own Constitution, which takes account of the specific features of the Autonomous Republic and is drawn up in full conformity with the Constitution of the Union Republic.

ARTICLE 93

The Supreme Soviet of an Autonomous Republic elects the Presidium of the Supreme Soviet of the Autonomous Republic and appoints the Council of Ministers of the Autonomous Republic, in accordance with its Constitution.

Chapter VIII

THE LOCAL ORGANS OF STATE POWER

ARTICLE 94

The organs of state power in Territories, Regions, Autonomous Regions, Areas, Districts, cities and rural localities (stanitsas, villages, hamlets, kishlaks, auls) are the Soviets of Working People's Deputies.

ARTICLE 95

The Soviets of Working People's Deputies of Territories, Regions, Autonomous Regions, Areas, Districts, cities and rural localities (stanitsas, villages, hamlets, kishlaks, auls) are elected by the working people of the respective Territories, Regions, Autonomous Regions, Areas, Districts, cities, and rural localities for a term of two years.

ARTICLE 96

The basis of representation for Soviets of Working People's Deputies is determined by the Constitutions of the Union Republics.

ARTICLE 97

The Soviets of Working People's Deputies direct the work of the organs of administration subordinate to them, ensure the maintenance of public order, the observance of the laws and the protection of the rights of citizens, direct local economic and cultural affairs and draw up the local budgets.

ARTICLE 98

The Soviets of Working People's Deputies adopt decisions and issue orders within the limits of the powers vested in them by the laws of the USSR and of the Union Republic.

ARTICLE 99

The executive and administrative organ of the Soviet of Working People's Deputies of a Territory, Region, Autonomous Region, Area, District, city or rural locality is the Executive Committee elected by it, consisting of a Chairman, Vice-Chairmen, a Secretary and members.

ARTICLE 100

The executive and administrative organ of the Soviet of Working People's Deputies in a small locality, in accordance with the Constitution of the Union Republic, is the Chairman, the Vice-Chairman and the Secretary elected by the Soviet of Working People's Deputies.

ARTICLE 101

The executive organs of the Soviets of Working People's Deputies are directly accountable both to the Soviets of Working People's Deputies which elected them and to the executive organ of the superior Soviet of Working People's Deputies.

Chapter IX

THE COURTS AND THE PROCURATOR'S OFFICE

ARTICLE 102

In the USSR justice is administered by the Supreme Court of the USSR, the Supreme Courts of the Union Republics, the Courts of the Territories, Regions, Autonomous Republics, Autonomous Regions and Areas, the Special Courts of the USSR established by decision of the Supreme Soviet of the USSR, and the People's Courts.

ARTICLE 103

In all Courts cases are tried with the participation of people's assessors, except in cases specially provided for by law.

ARTICLE 104

The Supreme Court of the USSR is the highest judicial organ. The Supreme Court of the USSR is charged with the supervision of the judicial activities of all the judicial organs of the USSR and of the Union Republics within the limits established by law.

ARTICLE 105

The Supreme Court of the USSR is elected by the Supreme Soviet of the USSR for a term of five years.

The Supreme Court of the USSR includes the Chairmen of the Supreme Courts of the Union Republics by virtue of their office.

ARTICLE 106

The Supreme Courts of the Union Republics are elected by the Supreme Soviets of the Union Republics for a term of five years.

ARTICLE 107

The Supreme Courts of the Autonomous Republics are elected by the Supreme Soviets of the Autonomous Republics for a term of five years.

ARTICLE 108

The Courts of Territories, Regions, Autonomous Regions and Areas are elected by the Soviets of Working People's Deputies of the respective Territories, Regions, Autonomous Regions or Areas for a term of five years.

ARTICLE 109

People's Courts are elected by the citizens of the districts on the basis of universal, direct and equal suffrage by secret ballot for a term of three years.

ARTICLE 110

Judicial proceedings are conducted in the language of the Union Republic, Autonomous Republic or Autonomous Region, persons not knowing this language being guaranteed the opportunity of fully acquainting themselves with the material of the case through an interpreter and likewise the right to use their own language in court.

ARTICLE 111

In all Courts of the USSR cases are heard in public, unless otherwise provided for by law, and the accused is guaranteed the right to defense.

ARTICLE 112

Judges are independent and subject only to the law.

ARTICLE 113

Supreme supervisory power to ensure the strict observance of the law by all Ministries and institutions subordinated to them, as well as by officials and citizens of the USSR generally, is vested in the Procurator-General of the USSR.

ARTICLE 114

The Procurator-General of the USSR is appointed by the Supreme Soviet of the USSR for a term of seven years.

ARTICLE 115

Procurators of Republics, Territories, Regions, Autonomous Republics and Autonomous Regions are appointed by the Procurator-General of the USSR for a term of five years.

ARTICLE 116

Area, district and city procurators are appointed by the Procurators of the Union Republics, subject to the approval of the Procurator-General of the USSR, for a term of five years.

ARTICLE 117

The organs of the Procurator's Office perform their functions independently of any local organs whatsoever, being subordinate solely to the Procurator-General of the USSR.

Chapter X

FUNDAMENTAL RIGHTS AND DUTIES OF CITIZENS

ARTICLE 118

Citizens of the USSR have the right to work, that is, the right to guaranteed employment and payment for their work in accordance with its quantity and quality.

ARMENIAN SOVIET
SOCIALIST REPUBLIC

TURKMEN SOVIET
SOCIALIST REPUBLIC

ESTONIAN SOVIET
SOCIALIST REPUBLIC

The right to work is ensured by the socialist organization of the national economy, the steady growth of the productive forces of Soviet society, the elimination of the possibility of economic crises, and the abolition of unemployment.

ARTICLE 119

Citizens of the USSR have the right to rest and leisure.

The right to rest and leisure is ensured by the establishment of an eight-hour day for industrial, office, and professional workers, the reduction of the working day to seven or six hours for arduous trades and to four hours in shops where conditions of work are particularly arduous; by the institution of annual vacations with full pay for industrial, office, and professional workers, and by the provision of a wide network of sanatoria, holiday homes, and clubs for the accommodation of the working people.

ARTICLE 120

Citizens of the USSR have the right to maintenance in old age and also in case of sickness or disability.

This right is ensured by the extensive development of social insurance of industrial, office, and professional workers at state expense, free medical service for the working people, and the provision of a wide network of health resorts for the use of the working people.

ARTICLE 121

Citizens of the USSR have the right to education.

This right is ensured by universal compulsory seven-year education; by extensive development of secondary education; by free education in all schools, higher as well as secondary; by a system of state grants for students of schools of higher education who excel in their studies; by instruction in schools being conducted in the native language; and by the organization in the factories, state farms, machine and tractor stations, and collective farms of free vocational, technical and agronomic training for the working people.

ARTICLE 122

Women in the USSR are accorded equal rights with men in all spheres of economic, government, cultural, political and other public activity.

The possibility of exercising these rights is ensured by women being accorded an equal right with men to work, payment for work, rest and leisure, social insurance and education, and by state protection of the interests of mother and child, state aid to mothers of large families and unmarried mothers, maternity leave with full pay, and the provision of a wide network of maternity homes, nurseries and kindergartens.

ARTICLE 123

Equality of rights of citizens of the USSR, irrespective of their nationality or race, in all spheres of economic, government, cultural, political and other public activity, is an indefeasible law.

Any direct or indirect restriction of the rights of, or, conversely, the establishment of any direct or indirect privileges for, citizens on account of their race or nationality, as well as any advocacy of racial or national exclusiveness or hatred and contempt, are punishable by law.

ARTICLE 124

In order to ensure to citizens freedom of conscience, the church in the USSR is separated from the state, and the school from the church. Freedom of religious worship and freedom of anti-religious propaganda is recognized for all citizens.

ARTICLE 125

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.

ARTICLE 126

In conformity with the interests of the working people, and in order to develop the organizational initiative and political activity of the masses of the people, citizens of the USSR are guaranteed the right to unite in public organizations: trade unions, cooperative societies, youth organizations, sport and defense organizations, cultural, technical and scientific societies; and the most active and politically-conscious citizens in the ranks of the working class, working peasants and working intelligentsia voluntarily unite in the Communist Party of the Soviet Union, which is the

vanguard of the working people in their struggle to build a communist society and is the leading core of all organizations of the working people, both public and state.

ARTICLE 127

Citizens of the USSR are guaranteed inviolability of the person.

No person may be placed under arrest except by decision of a court or with the sanction of a procurator.

ARTICLE 128

The inviolability of the homes of citizens and privacy of correspondence are protected by law.

ARTICLE 129

The USSR affords the right of asylum to foreign citizens persecuted for defending the interests of the working people, or for scientific activities, or for struggling for national liberation.

ARTICLE 130

It is the duty of every citizen of the USSR to abide by the Constitution of the Union of Soviet Socialist Republics, to observe the laws, to maintain labor discipline, honestly to perform public duties, and to respect the rules of socialist intercourse.

ARTICLE 131

It is the duty of every citizen of the USSR to safeguard and fortify public, socialist property as the sacred and inviolable foundation of the Soviet system, as the source of the wealth and might of the country, as the source of the prosperity and culture of all the working people.

Persons committing offenses against public, socialist property are enemies of the people.

ARTICLE 132

Universal military service is the law.

Military service in the Armed Forces of the USSR is an honorable duty of the citizens of the USSR.

ARTICLE 133

To defend the country is the sacred duty of every citizen of the USSR. Treason to the Motherland—violation of the oath of allegiance, desertion to the enemy, impairing the military power of the state, espionage—is punishable with all the severity of the law as the most heinous of crimes.

Chapter XI

THE ELECTORAL SYSTEM

ARTICLE 134

Members of all Soviets of Working People's Deputies—of the Supreme Soviet of the USSR, the Supreme Soviets of the Union Republics, the Soviets of Working People's Deputies of the Territories and Regions, the Supreme Soviets of the Autonomous Republics, the Soviets of Working People's Deputies of the Autonomous Regions, and the Area, District, city and rural (stanitsa, village, hamlet, kishlak, aul) Soviets of Working People's Deputies—are chosen by the electors on the basis of universal, equal and direct suffrage by secret ballot.

ARTICLE 135

Elections of deputies are universal: all citizens of the USSR who have reached the age of eighteen, irrespective of race or nationality, sex, religion, education, domicile, social origin, property status or past activities, have the right to vote in the election of deputies, with the exception of insane persons and persons who have been convicted by a court of law and whose sentences include deprivation of electoral rights.

Every citizen of the USSR who has reached the age of twenty-three is eligible for election to the Supreme Soviet of the USSR, irrespective of race or nationality, sex, religion, education, domicile, social origin, property status or past activities.

ARTICLE 136

Elections of deputies are equal: each citizen has one vote; all citizens participate in elections on an equal footing.

ARTICLE 137

Women have the right to elect and be elected on equal terms with men.

ARTICLE 138

Citizens serving in the Armed Forces of the USSR have the right to elect and be elected on equal terms with all other citizens.

ARTICLE 139

Elections of deputies are direct: all Soviets of Working People's Deputies, from rural and city Soviets of Working People's Deputies to the Supreme Soviet of the USSR, are elected by the citizens by direct vote.

ARTICLE 140

Voting at elections of deputies is secret.

ARTICLE 141

Candidates are nominated by election districts.

The right to nominate candidates is secured to public organizations and societies of the working people: Communist Party organizations, trade unions, cooperatives, youth organizations and cultural societies.

ARTICLE 142

It is the duty of every deputy to report to his electors on his work and on the work of his Soviet of Working People's Deputies, and he may be recalled at any time upon decision of a majority of the electors in the manner established by law.

Chapter XII

ARMS, FLAG, CAPITAL

ARTICLE 143

The arms of the Union of Soviet Socialist Republics are a sickle and hammer against a globe depicted in the rays of the sun and surrounded by ears of grain, with the inscription "Workers of All Countries, Unite!" in the languages of the Union Republics. At the top of the arms is a five-pointed star.

ARTICLE 144

The state flag of the Union of Soviet Socialist Republics is of red cloth with the sickle and hammer depicted in gold in the upper corner near the staff and above them a five-pointed red star bordered in gold. The ratio of the width to the length is 1:2.

ARTICLE 145

The Capital of the Union of Soviet Socialist Republics is the City of Moscow.

Chapter XIII

PROCEDURE FOR AMENDING THE CONSTITUTION

ARTICLE 146

The Constitution of the USSR may be amended only by decision of the Supreme Soviet of the USSR adopted by a majority of not less than two-thirds of the votes in each of its Chambers.

ARCTIC OCEAN
BARENTS SEA
KARA SEA
LAPTEV SEA
NEW SIBERIAN ISLANDS
FRANZ JOSEF LAND
NOVAYA ZEMLYA
KAMCHATKA
SEA OF OKHOTSK
KURILE ISLANDS
SAKHALIN
JAPAN
KOREA
MANCHURIA
MONGOLIA
CHINA
ALASKA
BERING STRAIT
Yakutsk REPUBLIC
RUSSIAN SOVIET FEDERATIVE SOCIALIST REPUBLIC
KAZAKH S.S.R.
KIRGHIZ S.S.R.
UZBEK S.S.R.
TURKMEN S.S.R.
KOLA PENINSULA
TAIMYR PENINSULA
TAMAL PENINSULA
WHITE SEA
BALTIC SEA
BLACK SEA
CASPIAN SEA
LAKE BALKHASH
LAKE ARAL
Lena
Yenisei
Ob
Irtysh
Angara
Amur
Ussuri
Volga
Syr Darya
Amu Darya
Moscow
Leningrad
Murmansk
Archangelsk
Tallinn
Minsk
Kiev
Tomsk
Omsk
Chita
Irkutsk
Ulan Ude
Alma Ata
Tashkent
Frunze
Stalinabad
Ashkhabad
Stalingrad
Astrakhan
Sverdlovsk
Chelyabinsk
Magnitogorsk
Kuibyshev
Saratov
Penza
Gorky
Kazan
Kirov
Molotov
Novosibirsk
Krasnoyarsk
Irkutsk
Khabarovsk
Vladivostok
Komsomolsk
Petropavlovsk
Yakutsk
Verkhoyansk
Ust Kamchatsk
Tiksi
Dudinka
Igarka
Yeniseisk
Kansk
Bratsk
Ust Ilimsk
Taishet
Kuibyshev
Kuznetsk
Stalinsk
Barnaul
Biysk
Semipalatinsk
Karaganda
Akmolinsk
Aktyubinsk
Kustanai
Kokchetav
Pavlodar
Petropavlovsk
Kurgan
Chkalov
Orenburg
Ufa
Perm
Kirov
Yaroslavl
Kostroma
Ivanovo
Vladimir
Gorky
Yoshkar Ola
Ryazan
Tambov
Penza
Saratov
Kuibyshev
Ulyanovsk
Kalinin
Smolensk
Kaluga
Tula
Orel
Kursk
Voronezh
Belgorod
Stalingrad
Rostov
Taganrog
Stavropol
Maikop
Krasnodar
Kerch
Simferopol
Yalta
Sevastopol
Odessa
Kishinev
Lvov
Stanislav
Ternopol
Rovno
Zhitomir
Vinnitsa
Kirovograd
Dnepropetrovsk
Stalino
Voroshilovgrad
Kharkov
Sumy
Chernigov
Gomel
Mogilev
Vitebsk
Smolensk
Bryansk
Orel
Kursk
Belgorod
Voronezh
Lipetsk
Tambov
Penza
Saratov
Kuibyshev
Ulyanovsk
Gorky
Kirov
Molotov
Sverdlovsk
Chelyabinsk
Kurgan
Tyumen
Omsk
Novosibirsk
Tomsk
Krasnoyarsk
Irkutsk
Chita
Khabarovsk
Komsomolsk
Vladivostok

The FUNDAMENTAL LAW of the LAND of SOCIALISM

Continued from page 26

Help wanted ads underscore the wide choice of jobs. Every citizen is guaranteed a job with equal pay for equal effort, and paid vacations.

This role of the Communist Party in the nation's life has deep historical roots and stems from the entire course of social development of our country since the turn of the century.

In old Russia, there were a large number of political parties. With the exception of the Communist Party all were so badly compromised that they lost whatever influence they had managed to win. One after another they wasted away and passed from the scene. Only the Communist Party emerged with honor from the grim tests of revolution, civil war and reconstruction, carrying the general esteem of the public because of the integrity and clarity of its program reflecting the interests of the country and its people.

All of the Soviet Union's achievements, whether in the field of industry or agriculture, science or technology, education or living standards, were scored under the guidance of the Communist Party. These achievements boosted the once undeveloped country to its present eminence among the world's powers. For the years ahead the policy of the Communist Party is directed at the achievement of yet higher goals in the national economy and the well-being of the population.

The victory of socialism in our country has resulted in a moral and political unity of the people. Soviet society has no antagonistic classes. It is composed of two friendly classes, the workers and the peasants, and the intellectuals sprung from them. All sections of the population are united by common interests, aims and aspirations. All peoples of the multi-national Soviet Union are bound by fraternal friendship and cooperation in every field of life.

Under these circumstances there is no ground for the existence of rival parties. The Communist Party embodies the interests of every section of Soviet society and represents a voluntary and potent alliance of the most socially aware citizens among the workers, peasants and intellectuals. Its strength lies in its unlimited support by the widest masses of the people.

The Communist Party uses its mandate of leadership to develop the initiative and creative energies of all the people in the building of a new life. During elections, as in all its activities, the Communist Party does not act alone. It acts in concert with all other public organizations, reflecting general needs and working for the common good.

The Citizen's Rights Implemented

No less important than political rights are the material rights the Constitution ensures to every citizen. The most significant of these is the right to a gainful job. There is no unemployment in our country nor is there possibility of economic crisis. They have been eliminated by socialist planning and national ownership of land, factories and natural resources.

Available to every citizen is a choice of work that will use his ability and skills, his knowledge and experience. He is guaranteed equal pay for equal work, with wages commensurate with the quality and quantity of his production.

The Constitution further guarantees citizens the right to rest and leisure by setting limits to the working time—a four-, six-, seven- or eight-hour day, depending upon the type of work; by annual vacations with full pay and by providing health and vacation resorts, and all kinds of recreation facilities.

The Constitution guarantees the Soviet people the right to maintenance in old age and in case of illness or disability.

Old-age pensions from the national fund are paid industrial, clerical and professional workers when they reach the retirement age of 60 for men and 55 for women. Maintenance in case of illness is provided for by the national system of free medical and hospital care and by social insurance benefits which pay up to 90 per cent of wages during the period of illness or disability. The social insurance fund is made up entirely of payments by factories, offices and other places of employment, and the worker is not required to contribute any portion of his earnings.

Continued on next page

THE COUNTRY HAS A WIDE NETWORK OF HEALTH AND VACATION RESORTS OFFERING THEIR ACCOMMODATIONS EITHER FREE OR AT SHARPLY REDUCED RATES FOR ALL WORKERS.

A multitude of newspapers and magazines in many languages afford the public a forum for voicing the opinions of individuals and of groups.

The FUNDAMENTAL LAW of the LAND of SOCIALISM

Continued

The right of assembly and discussion is fully exercised at all levels and these mass opinions have weight in influencing legislative action.

All citizens are ensured the right to an education. This means the opportunity to obtain secondary and college education, and vocational training without the need to pay any fees. Not only is education through the university level free everywhere in the Soviet Union, but college students are given monthly stipends for their maintenance.

Women in our country by constitutional proviso are accorded equal rights with men in all spheres of activity. They exercise that equality in choice of work, payment for work, education, social insurance and in all other areas. The Constitution provides for paid maternity leave, government assistance to mothers of large families and to unmarried mothers and in other ways takes care of the special needs of mothers and children.

Socialist and Personal Property

All those rights and freedoms guaranteed to the Soviet citizen by the Constitution rest on the strong foundation of a socialist economy shaped and directed by an over-all national plan.

The basis of the economy of our country is socialist ownership of the means and instruments of production. All industry, transport and banks, the land and its wealth, state-operated agricultural enterprises and the bulk of urban housing is national property—owned by the whole of the people. Since the consolidation of the collective farm system in the early thirties, the principle of public property has been dominant in agriculture.

These are the two forms of socialist property defined by the Constitution—one nationally owned and the other owned by collective farms and cooperative societies. This socialist ownership of the country's property accounts for the growth of the Soviet economy, as well as the steady rise in the material well-being and cultural standards of the people.

Life's experience has demonstrated to the Soviet people that what benefits the country as a whole benefits each of its citizens individually. From the viewpoint of both civic duty and self interest, it therefore behooves every citizen to safeguard the socialist property—it is his property he is protecting.

But there is, in addition to socialist property, personal property. The Constitution declares that "the personal property right of citizens in their incomes and savings from work, in their dwelling houses and subsidiary husbandries, in articles of domestic economy and use and articles of personal use and convenience, as well as the right of citizens to inherit personal property, is protected by law."

Thus, in a totality of ways, the Constitution and laws of the Soviet Union guard the interests of the individual citizen. This concern with the individual is reflected in such other guarantees as inviolability of person, inviolability of the citizen's home, privacy of correspondence, the right to legal defense.

But more fundamentally, that concern with the individual is manifest in the concrete assurances provided by the Constitution that each citizen, regardless of race, nationality, sex, property status or social origin, will have the same opportunity to develop his abilities and to use them gainfully on his own behalf and for the public good.

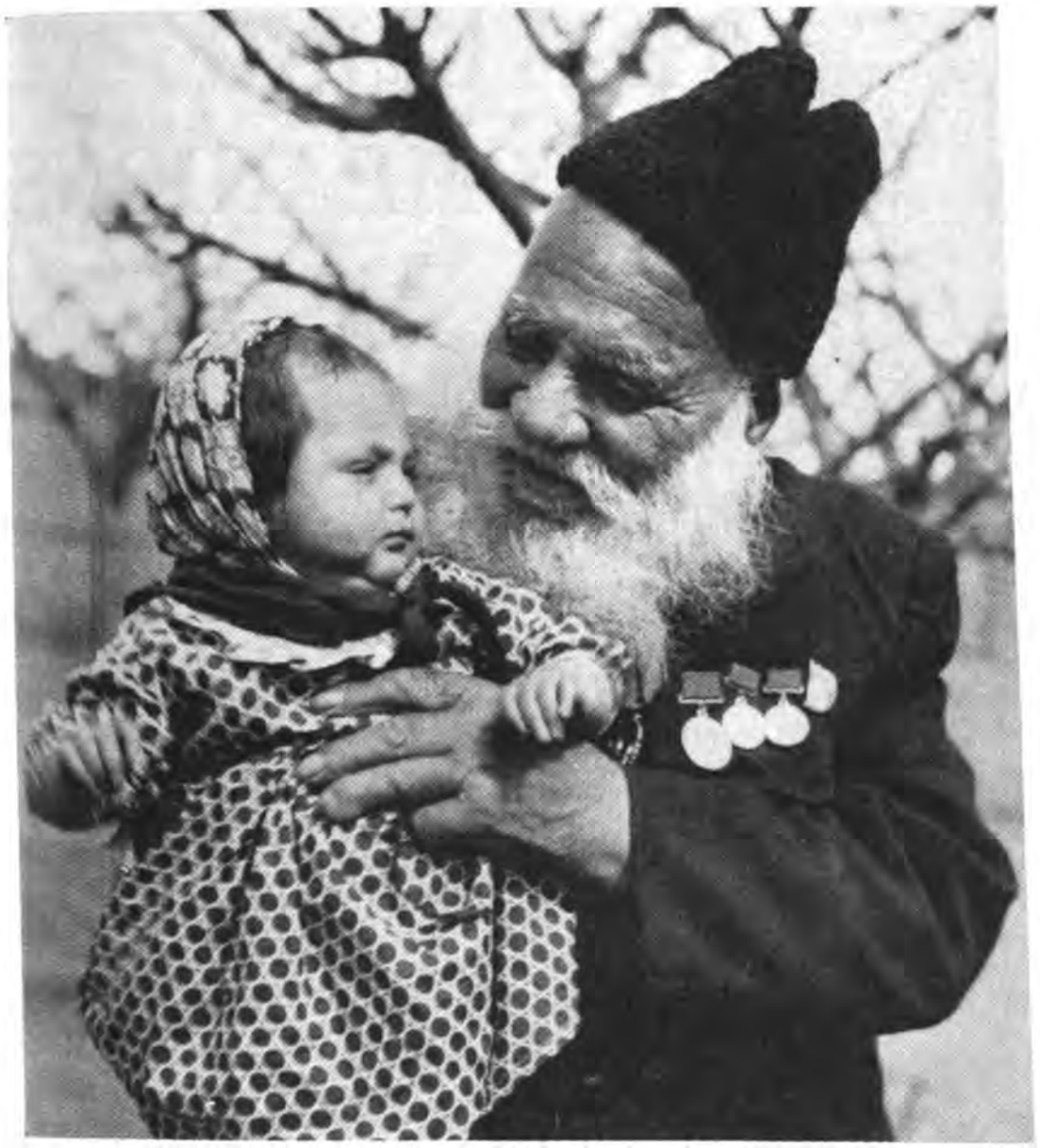
Amendments and Additions

As the life of the country keeps progressing, so does the Constitution grow and develop as a democratic instrument. In the past few years a number of amendments and additions were made, designed to enlarge the role of the Union Republics. These new constitutional provisions give larger legislative power to the republics and correspondingly limit the legislative powers of the national government.

The law on the decentralization of industrial management passed in 1957 at the May session of the USSR Supreme Soviet considerably enlarged the powers of the republics in the administration of their economies. By virtue of this law, now reflected in the Constitution, the major part of the country's industrial establishments are administered by the republics and not by the national government, as previously.

Characteristic, too, of the interrelation between the country's economic and political development is the fact that as the economy has grown and larger material potentials have opened up, those rights stipulated by the Constitution have been further instrumented. In the postwar period, for example, free education has been extended by the Constitution through the university and professional school.

As the country grows, so will its Constitution reflect that growth. It is no static and unchanging document. It mirrors the will, the needs and the progress of the country and the people. ■



THE OLDEST AND THE YOUNGEST IN THE 159-MEMBER FAMILY OF AZERBAIJAN FARMER MAHMUD EIVAZOV.

HE IS 150 YEARS OLD

Now retired, mainly through insistence of relatives, Eivazov manages to work his own orchard.

MAHMUD EIVAZOV, who recently celebrated his 150th birthday, is an honored and respected man in his native village of Pirassura, high in the Talysh Mountains of Azerbaijan. He is also well known far beyond it, although there are more than 4,000 Soviet citizens today who have passed the 100-year mark.

The Azerbaijan Methuselah won his renown by his unusual activity and untiring industry. It was only recently that he agreed, rather reluctantly, to retire on a pension upon the insistent demands of his kinsmen. Up until that time Eivazov worked as a collective farm team leader, raising corn, vegetables and fruit. Now, even after his retirement, he continues to tend his own orchard.

"I can't do without work. My hands itch to do something and I am still strong enough," the gray-bearded patriarch declares.

Eivazov's work on the collective farm was so appreciated that the Executive Committee of the USSR Agricultural Exhibition in Moscow decorated him with three gold medals, while the Soviet Government bestowed the Order of the Red Banner of Labor upon the old peasant from Pirassura.

In 1956 the USSR Ministry of Communications issued a postage stamp with a portrait of Eivazov. When this yellow-green stamp, in a 40-kopek denomination, arrived in Azerbaijan, the old man's countrymen found an error. Instead of "Mahmud," his name was spelled "Muhammed."

To rectify its mistake, the Ministry issued another stamp with Eivazov's name spelled correctly. This time the stamp was bright green. Philatelists are continually searching for these two rare stamps and it seems that the second version of it is more rare than the first.

Mahmud Eivazov has 23 children, the eldest of whom is 122 years old. Counting children, grandchildren, great grandchildren and their offspring, there were 159 in the family the last count.

Not long ago Mahmud Eivazov paid a visit to Moscow at the invitation of the Executive Committee of the USSR Agricultural Exhibition and instantly took a liking to the large and noisy city.

The patriarch's keen eye and sensitive heart, tuned to man's needs through his long and busy life, quickly caught the throbbing stream of city life in a characteristic note when he named Moscow "the city of kind and industrious people." And he added that "such people ought to live long."

Mahmud Eivazov is quite correct. Within the past 40 years man's life span in the Soviet Union has more than doubled. ■

Arrows show the difference in "Eivazov" stamps. The one at the left misspells his first name.

TRAVELING COMPANION

Yuri Rytkheu is the first writer of fiction to come Chukchi, an Eskimo people who had no written langua the 1917 Revolution. He was born in Chukotka in 19 of a hunter. In his native settlement he graduated seven-year school, then went to study to a teacher's Anadyr, a regional center in the Far North, and from the University of Leningrad.

His first stories were published in 1950. He wrote changed life of his people, their eager awakening to their grasp of the opportunities open to them as free citizens of the Soviet Union. His characters are the p grew up among in the hunters' cooperative—the ol Memyl, his young daughter Tegryne, the universit Gheyuteghin who figures in this autobiographical sk

Beside fiction Rytkheu has translated into his native l the poems of Pushkin, the novel *Chukotka* by the writer Syomushkin, and a number of Russian textbo by Chukchi school children.

By Yuri Rytkheu

I WOKE up at daybreak and pulling the curtain a little aside looked out of the window. The train was crossing a bridge. It must have been the sudden change in the sound of the wheels that had awakened me.

The river beyond flowed peacefully. I thought it was the Viatka, but I couldn't tell for certain and there was nobody awake to ask. Gheyuteghin was lying with only a sheet over him, sound asleep. His blanket lay crumpled at his feet, part of it trailing over the side and swinging in time with the carriage as it rocked. Our fellow-passengers in the lower berths were also asleep.

It was quite dark in the train since the light barely came through the heavy curtains. Between the girders of the bridge I could see an expanse of water reflecting the morning sky. I lay propped on my elbows and eagerly took in the pink and gold of the clouds mirrored in the tranquil surface of the water. Then the river flashed out of view, but the girders kept filing by. That bridge seemed twice as long across as the river itself—probably, I ventured to guess, it was built so because the river widened so much during the spring floods.

We went by the last of the girders. A small birch copse floated past the window, then some vegetable patches, a sprinkling of cottages and a level crossing. The barrier was down; drawn up in front of it were three trucks, a Pobeda car and a couple of cyclists. The trucks were loaded with sacks of grain—of the new crop, I imagined—and strips of red bunting with slogans painted on them ran along the sides. The level crossing receded and then came more vegetable gardens and more cottages—but the train was going much slower now.

We pulled up at a station. I could not catch its name since our car was one of the last. All I could see was a one-story brick building with "Luggage" written across its front. I decided I would look out for the name of the station when the train got moving again and our car pulled by the station building.

Meanwhile, I turned on my side and shutting my eyes mused on a story I had begun to write a week before we left. Then I dozed off and when I opened my eyes again it was ten o'clock—I had slept through the whole morning.

The curtains had been drawn back, and the bright sunshine was streaming in. Gheyuteghin's bed had been neatly made up and he was now talking to our two fellow-passengers in the berths below.

Our traveling companions spoke Russian haltingly. We h that the day before when they boarded the train. Gheyute the others who had come to see us off had arrived at the st an hour before the train was due to start. We had flung ou on our berths and gone back to the platform to talk with ou Gradually the car filled up. A couple came up to the cond man was about fifty and the woman perhaps forty and very The man showed their tickets and asked if this car was the

We had noticed the passenger's accent, the cut of his suit lady's gray traveling cloak, the bright patchwork of labels on gage carried by their porter.

"They must be foreigners," said Gheyuteghin.

Our own platform party waiting to see us off were friends o teghin, students at Moscow University. He had made their acqu during the winter holidays when they all had gone skiing on the K Isthmus. On the morning of our arrival from Leningrad Ghe had phoned his Moscow friends and so we met at the station.

We stood chatting on the platform till the last moment and c a shouted conversation from the train. As it gathered speed, w our hats. And it was not until we went into our compartment saw the couple with the label-plastered luggage. Then it turned we were going to be traveling companions as far as Khabarovs

* * *

Gheyuteghin was right—they were foreign tourists, a profe philology from Liége, and his wife, an artist. She made mistakes Russian while he spoke it a little better, but too carefully and clearly perceptible foreign accent. He, too, made a good many m but he took obvious relish in correcting his wife.

For some reason, they were very much astonished to lear Gheyuteghin and I were Chukchi students going home to Chuko the summer. By the way they spoke to us, you would think w Martians starting on our way back to Mars.

They were very tactful, though, and tried not to be over-inqui and not to hurt our feelings.

The professor had kindly, intelligent eyes and a pleasant smil

and his wife were easy and natural with us, and on the whole we liked them. But almost every glance and every question they asked betrayed astonishment coupled with disbelief. At first it had amused us; later it began to get on our nerves, and we went off to the dining car. When we returned they were asleep.

A new day came. Below the conversation was going on again. And again, of course, the same thing as yesterday—about the natives of the Far North, their very quaint customs, their very extraordinary characteristics and the very charming primitiveness of their art. I pretended to be asleep.

"Our interest," the professor was saying, "must seem too naive to you, and even—er, how should I say? . . . too persistent. Please don't be offended, though. For us this encounter with you is—er . . . I might say, a very lucky occasion. We both took real delight in reading that novel, about Chukotka . . . Oh, how was it called?"

"Alitet Goes to the Hills," suggested Gheyuteghin.

"Yes, that's it. Alitet. Merci. And in general we are so . . . it is all so interesting to us! My wife even has a whole collection . . . You know, those figurines—reindeer, walruses, polar bears . . . And then she had those others . . . you know them, on that long kind of sledge . . ."

"Narti?"

"Yes, yes, on those narti. It is all like a fairy tale. And all beyond the Arctic circle! Br-rr-rr! And now this meeting, so unexpected. We meet real, live Chukchis."

The professor began to chuckle. His wife laughed. I could not see Gheyuteghin's face. He was sitting on the berth below mine.

"Oh, no offense," he said. "On the contrary, I am very glad you are interested. We have quite a lot of things worth your interest. And I must confess," he parried in the same tone the professor had used, "that I've never before in my life met real, live Belgians."

"Oh!" exclaimed the professor's wife. "I did not know that Chukchis could be so . . er . . . sarcastous."

"Sarcastic, Claudine, sarcastic," corrected her husband.

"Yes, so sarcastic and so live . . ."

"Lively, you mean," the professor prompted her again.

"Yes, yes, so lively."

"I'm afraid you give us too much credit, Madame. We have neither the liveliness of Southerners nor their wit. Your earlier opinion of us was more accurate. Instead of blood we have ice cold water in our veins and, of course, we live exclusively on ice-cream."

"Don't mock us, Monsieur Gheyuteghin. Surely you can't deny that different nations have different national characteristics?"

"Not at all, Monsieur Leerlinck. What we do deny though, is that such distinctions are determined by geography. And what is more, we do not consider these characteristics immutable. Under certain conditions even nations believed to be nearly extinct may acquire new strength and new vitality."

"It seems you intend to talk politics instead of ethnography."

"And you prefer misinterpreting ethnography rather than talking politics, don't you?"

I decided it was time for me to break in, and, pretending I was just waking up, I said, "Good morning, everybody."

The Belgians wished me "good morning" while Gheyuteghin, who was always correct, responded with a "good day."

Under some pretense or other, the Belgians went out into the corridor —evidently to spare me the discomfort of dressing under my blanket. I jumped down from my berth and, getting into my clothes, asked Gheyuteghin: "Well, how is Monsieur Gheyuteghin feeling this morning?"

"Not too good. About the same, in fact, as a wax doll on display at an anthropology museum."

"Well then, if a museum doll could feel anything, I suppose it would be proud of the visitors' attention and of the chance to teach them something. And besides, it seems to me that a doll wouldn't get into arguments with the visitors."

"Was I rude?" asked Gheyuteghin anxiously. "I don't want to hurt them, you know. They're decent enough old people."

"Come, come! You can hardly call Claudine old."

"And neither is Maurice."

"So he's Maurice, is he?"

"Yes. They aren't bad traveling companions. If only they didn't think us such curiosities! You know, I've got the feeling that all the while we were talking they wanted to touch us to see if we are real. They seem to think we're a kind of exotic Polar creature, or something like that. Whatever they talk about, they can't forget for a moment that we are Chukchis, and that we've somehow swindled them by wearing lounge suits rather than deerskins."

"Oh well, let them have their fun. Be more tolerant. After all, you've got to remember where they come from."

"I remember it perfectly well," sighed Gheyuteghin. "And I see we'll have to devote the ten days of our journey to this professor and his wife, and give them some idea of what socialism means."

"Listen," I said, weakening. "What if we ask the porter to change our compartment. I heard that two passengers in the next-door compartment are getting off at Sverdlovsk."

Gheyuteghin thought for a minute.

"No, we can't do that. It wouldn't be polite."

"I don't mean sneaking off. We'll tell them we don't want to be in their way."

"That won't do. They're bound to put somebody else in here. No, we don't want to forget that we are the hosts and they are the guests here. That puts us under obligation. On the train we're just plain passengers, on an equal footing, but in our country . . . See what I mean? Guests are guests, and these guests of ours are nice people."

"All right. I withdraw the motion," I said and throwing a towel across my shoulder went off to wash.

★ ★ ★

Day followed day. Perm, Sverdlovsk, Omsk, Novosibirsk. Plains gave place to mountains, mountains to lowlands and boggy brushwood. We were crossing the West-Siberian plain.

Our traveling companions took a lively interest in everything: in the natural divide between Europe and Asia, the change from one time belt to another, an elderly collective farm woman in the next compartment, a Heroine of Socialist Labor, the problem of reversing the courses of Siberian rivers. We told them everything we knew, introduced them to the Heroine of Socialist Labor, showed them on a map how the waters of the Irtysh could be made to run southward to the deserts of Kazakhstan.

Professor Leerlinck and his wife were very attentive, unprejudiced listeners. The country's dimensions were a constant wonder to them. "One time belt is plenty for Belgium," the professor chuckled. They were still more impressed by the immense scope of construction going on everywhere, and by the plans for remaking nature.

It was a pleasure for us to acquaint them with our country, the more so because the professor kept a diary which he meant to publish on his return to Belgium.

The one thing that kept embarrassing us was that we, too, had become permanent objects for study. With never-failing interest Professor Leerlinck plied us with questions about Chukotka. He would hear us out and then say something like this: "Of course, modern houses instead of yarangas and electric light instead of . . er . . wick lamps are unquestionably progress. But with all that isn't the North losing its character, its romance and poetry?"

At such moments, watching the professor, I wondered how his eyes could still keep their intelligent look. As for Gheyuteghin, what he would say would be, "Thank you very much. We can get on nicely without poetry." Then after a pause he would add, "Without that kind of poetry, at any rate."

The Leerlincks felt sorry, too, about our fisheries being mechanized, and even at the disappearance of the shamans from the Chukchi settlements. Not that they were enemies of progress. No, they were convinced that they were people with advanced ideas. Yet they kept admiring every remaining vestige of backwardness, which for them—so far removed—held a certain poetic charm. And us, who were only too glad to be rid of all this loathsome backwardness, they looked on as queer young people altogether unable to see "how shockingly prosaic was the effect of civilization on life."

"But you must understand, professor," said Gheyuteghin as calmly as he could, "the life that our people have finished with was actually not life at all, but a slow death. And not so very slow, either, if you want to be precise about it. That's why we hate this primitiveness. And as for romance and poetry, we see that in altogether different things. We see it in our fight against nature's cruelties, and against primitiveness itself. We see it in the way our people are being reborn, in the electricity that lights up our houses . . ."

"Electric power and poetry are different things, Monsieur Gheyu-

Continued on next page

TRAVELING COMPANIONS

Continued

teghin. Completely different things," the professor interrupted my friend.

"But from our point of view these different things, as you call them, are tied far closer together than what you call poetry and the Chukhis' old life, a curse on it."

Now, that was the very subject the professor had been trying so hard to avoid. But Gheyuteghin, forgetting his resolution not to get worked up, went on: "The whole trouble, as I see it, is that there are people who believe themselves friends of all nations, but what they admire in a nation like ours is not its strong points but its past weaknesses, or even characteristics that have been falsely attributed to it."

The professor smiled and raised his hands in mock surrender, and the whole argument ended in a laugh. By way of consolation, I told our companions that Gheyuteghin and I, when we graduate and go back home, will still have to drive the "poetic" dog-sleigh more often than the "prosaic" motor car.

★ ★ ★

The train was nearing Krasnoyarsk. I stood in the corridor looking out of a window, when Gheyuteghin came up to me and said: "Tell me, why do those Belgians speak French to one another?"

"Because they're from the southern part of Belgium."

"What does that have to do with it?"

"Everybody speaks French in the south of Belgium. And there is no such language as Belgian."

"Are you sure?"

"Ask them yourself if you don't believe me. There are two languages in Belgium. In the south they speak French, and in the north Flemish."

"Flemish?"

"Yes, it's a language like Dutch."

"No, they spoke French."

"Then it means they're from southern Belgium. Liége is in the south, if I remember right."

Gheyuteghin chuckled. "I understood nearly all they said. The fact is, they were speaking about us. I even felt embarrassed, you know."

"It's for them to feel embarrassed, not you. After all, we don't speak Chukchi when they're present."

"Oh no, I don't mean that. I felt embarrassed because they complimented us."

"Really? What was it they were saying? Are they surprised to find that Chukchis are like other people?"

"No, not that. They weren't making that much concession. They merely said what fine fellows we were. The professor even said he would gladly trade many of his own students back in Liége for us."

"Is that so?"

"Yes, something like that, if I'm not mistaken. Their way of pronouncing isn't a bit like our French teacher's. By the way, what have you been telling them about our Northern Faculty?"

"Nothing, only that I'm a student there. What of it?"

"Well, you see, he still supposes . . . or better, he believes that the requirements at the Northern are different than for the rest of the University. He said, 'There must be a special curriculum for it,' meaning much easier, of course."

"Aha! And what did you say to that?"

"Didn't I tell you they were talking between themselves? I wasn't going to let them know I understood."

"Oh yes, I forgot that. It's a wonder how you managed to control yourself. It wasn't very fair to you, was it?"

The fact is, Gheyuteghin did not belong to the Northern Faculty at all; he was a student at the regular faculty of mathematics. What it amounted to was that our friends assumed the Chukchis were unable to cope with the courses of the "real" faculties, and therefore Chukchis and other northern people had a special faculty set up for them, much easier and simpler.

Talking to them that day, we didn't bring up that subject. But the next day I asked the professor about the University in Liége and took the opportunity to tell him a few things about the one in Leningrad. I told him that our faculty included not only natives of the Far North, but students from other parts of the country as well—everyone interested in northern philology. I also said incidentally that sometimes the reverse was true—many Northerners joined other faculties, if they happened to have chosen a different field. "For instance, Gheyuteghin here is studying at the faculty of mathematics."

"Oh!" The professor looked at Gheyuteghin with new respect. "You have—er—risen very much in my opinion. I myself was always very weak in mathematics. It is—er—how would you say?—it's my heel of Achilles—have I put it properly? You hear, Claudine, Monsieur Gheyuteghin, it seems, is a mathematician. Well, then, young man, let us see your class reports."

It was partly a joke, of course, but at the same time it was obvious that the professor wanted to make sure that I was telling the truth. Gheyuteghin took out his student's book and Professor Leerlinck began to turn the pages and read the marks to his wife: "Excellent! Excellent! Good! Another Excellent!"

That same evening we happened to be talking about Khabarovsk. I recalled that the Khabarovsk museum had several pieces of work by Ghemaughe, a Chukchi from my native settlement who was a famous ivory-carver. The professor's wife started putting down his name—she wanted to see his work—but the name was hard to transliterate into French and she got mixed up. Gheyuteghin, who was sitting beside her, volunteered to help her out of the difficulty by spelling it out for her letter by letter. He gave her each of the letters in French. Madame Leerlinck finished writing and asked quietly: "So you know French, then?"

"Oh, no," he said, "only a little."

"No need to be so modest," said the professor. "I saw it in your student's book: 'French—excellent.'"

Madame Leerlinck blushed and bit her lip in an effort to restrain her laughter. But she laughed, anyhow, and so did we, the best way out of an awkward situation. The professor was the last to join in, at first he couldn't see the joke. But when he finally did he kept laughing and repeating. "Oh, dear me! And we've been saying things right before your faces, as if we were all alone!"

★ ★ ★

The Baikal won our companions completely with its fairy-tale beauty. And we ourselves, although it wasn't our first trip along the lake shore, could not tear ourselves away from the windows. Mountain spurs cut through by tunnels in countless places, blue water playing in the summer breeze, sailing boats riding the waves, summits towering far in the distance—it was very beautiful to see. The lake came right up to the railway embankment. At one of the stations a young army officer from the next compartment asked the porter for a pail and ran down the embankment to fill it with Baikal water. Everybody in the carriage had a taste of it and every now and then someone would break into the famous old song "The sacred Baikal rolls its glorious waves . . ."

Professor Leerlinck joined the rest of us in drinking the water. He got off the train to buy smoked omul from a Buryat fisherman. He wrote down the words of the song in his notebook. When the singers came to the word *bargusin*—it means a kind of wind—he asked who that fellow Bargusin had been, taking it for the name of a person because so many Russian names end with *in*. All the while Madame Leerlinck gazed out of the window and sighed: "Dear, if only I could bring my paints and easel here for a summer!"

The distance to Khabarovsk was dwindling, and our ten-day companionship was nearing its end. The professor asked us to sit for his wife; they wanted to have at least a pencil drawing of each of us as a souvenir. We hadn't any reason to refuse, but the prospect of joining her collection of curios along with carvings of walruses and reindeer was not enticing either.

So Gheyuteghin said: "Very well, but on condition that we have your photos as souvenirs."

He got his FED camera out of his suitcase and snapped their pictures in the garden of a station by the queer name of "Yerofei Pavlovich."

Then we sat for Madame Leerlinck. For a long forty minutes both of us in turn had to stay stiff as dummies. While I sat, Gheyuteghin gave a running presentation of Madame Leerlinck showing our pictures to her friends in Liége. He accompanied the show with the tales she would tell—about the reindeer she had ridden and the polar bears she had hunted.

"But all our friends," she laughed back, "know perfectly well we aren't going out beyond the Arctic Circle! The most northernly point of our tour is supposed to be Leningrad."

"That doesn't matter. Couldn't you have changed your plans—persuaded, say, by two young Chukchis whose acquaintance you made in the train. And then," he added quite seriously, "one of the Chukchis made you a present of a pet seal."

"But in that case we'd be asked to show the seal. And where shall we ever get one?"

"Oh, just say it got homesick on the way to Belgium and fell ill and died. So you had to make a sealskin jacket of it. And that you can easily buy at Khabarovsk to show it off before your guests. Only don't forget to remove the factory label."

Gheyuteghin by now was completely at home with our companions. He went on cracking jokes, just as if he were back with his fellow-students in the Leningrad dorm. He amused us all very much, but whenever I began to laugh, Madame Leerlinck would declare that my laughter would ruin the portrait . . . But the portraits did come out, after all, and we thought they were quite good.

* * *

On our last day, just before we reached Khabarovsk, the professor and Gheyuteghin slipped into another argument—this time about the practice of group marriage. The professor insisted that the custom, which had not disappeared until the very time socialism had come to Chukotka, could have been abolished only formally, "on paper," so to speak.

"Changes are never brought about so rapidly. Especially in a sphere like this. It takes many generations . . . Children . . . How do you say it . . . 'Children never fall far from their apple tree' (he had mixed up the Russian proverb, 'The apple does not fall far from the tree'). It would need a completely new idea of love, and that couldn't come in so short a time. I refuse to believe it—you may put a legal ban on group marriage, but you can't teach people to have feelings."

Gheyuteghin patiently assured the professor that Chukchis were capable of "feelings" and that their conception of love was the same as everybody else's. He tried to make the professor understand that group marriage had died out as a natural result of wholly changed social conditons and that marriage forms are very well recognized to be closely tied up with the whole life of the community. In other words, he had to acquaint the professor with some rather elementary truths. But the professor kept repeating: "No, no, such things do not change all of a sudden. Not half so fast."

"But who knows better, Monsieur Professor, you, who have been no farther north than Leningrad, or we, who grew up in Chukotka and know that the custom has disappeared just as countless other characters of the tribal system have disappeared? You say that the change has come about 'too quickly'? But that's just it! It was our good fortune that it happened so quickly. Yes, professor, that's the very point, that from the darkness of primeval savagery we passed straight into socialism, skipping all the intermediate, less advanced social systems, including the one under which you still live."

I have no idea how the argument would have ended if Madame Leerlinck had not decided to take part in it. She admitted she knew nothing of such matters as social evolution but love being mentioned, she was ready to act as judge. "Only women," she declared, "know what love is."

She said that the custom of group marriage was incompatible with true love. To this we unanimously agreed. She declared further that the custom in Chukotka had come to be because the feelings of Northerners are in general less warm than those of people born in the South.

"Don't be cross with me," she said with a sweet smile, "don't be offended, please. When you're living so far away with all that cold and barren ice all around you, you cannot feel the warmth of love. It needs another kind of heart to understand love." And because Chukotka was still as far north as ever, said Madame Leerlinck: "Maurice is right, you can't do away with such a custom." This conclusion came as a surprise even to the professor.

"No, Claudine," he said, "I will have to decline that kind of support. The North has nothing to do with it. Group marriage was the custom even in the tropics at one time. I was talking of an entirely different thing."

And here Gheyuteghin, for some reason looking very pleased, put in: "Since you've robbed us of the right to judge in matters of love, I wish to bring in the evidence of two young ladies. One of them saw my

friend off in Leningrad, and the other is going to meet me at Anadyr. I assure you, Madame, they would never share your views in regard to the feelings of Northerners."

I believe that was the last argument we had—already we glimpsed the dark waters of the Amur, and some of the passengers were moving toward the exit past the door of our compartment. The time had come to say good-by. Our companions paid us loads of compliments which were quite sincere. We answered in the same spirit. Before locking my suitcase I took out a Chukchi book and presented it to the professor and his wife as a souvenir. It was my own translation of a book of poems by Pushkin. They were very pleased with the gift.

"I imagine," said the professor, "this will be the first book in the Chukchi language to come to Belgium."

"And with the author's inscription, too," exclaimed his wife.

"No," I corrected her, "only the translator's."

Gheyuteghin and I picked up our suitcases and once again shook hands with our fellow travelers. We went out into the passage, promising to send them a porter.

We did that and walked down the station platform.

"There you are," said Gheyuteghin, "and you wanted to get away to another compartment. Remember?"

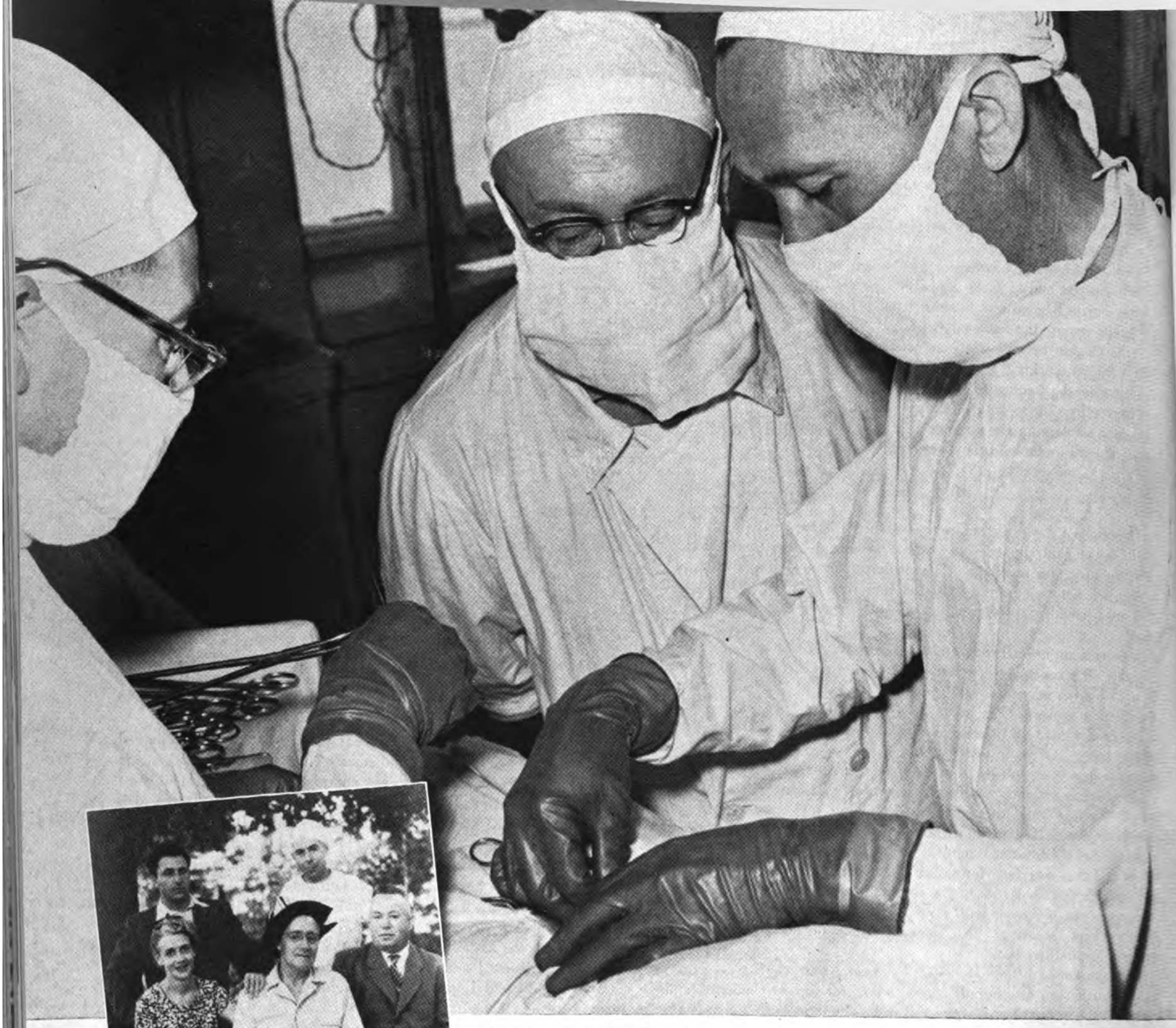
"But are you so sure they understood all you've been trying to explain to them these ten days?"

"I think so. A good deal of it, at any rate."

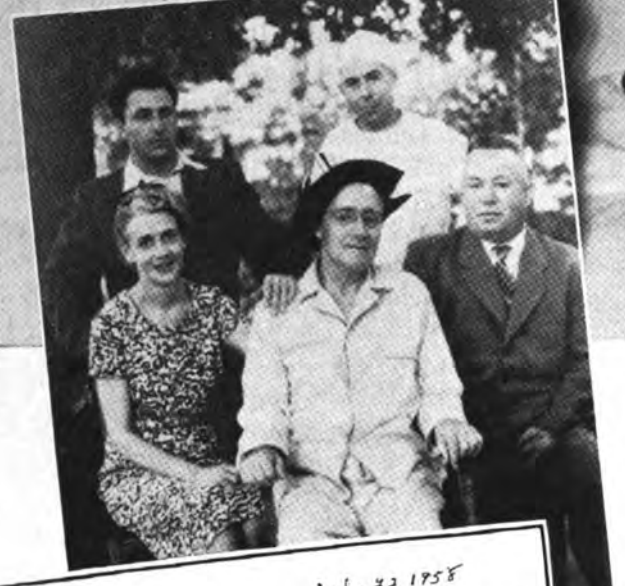
At that moment I caught sight of our friends again. They were getting into a taxi, headed for the Hotel Amur. We waved to them. They planned to spend three days sightseeing in Khabarovsk, then fly back to Moscow, and from there on to their home in Liége.

As for us, we went straight to the booking office, to have the tickets we had bought in Leningrad for Vladivostok punched. After the journey by rail we still had ahead of us a voyage of some days across the Okhotsk and Bering Seas. Gheyuteghin was going to Anadyr. I was headed there, too, and the first chance that came up, I would be going still farther north, to my native settlement, to the home of my father and the homes of the old hunter Memyl, the carver Ghemaughe, the mechanic Kelevghi; to the homes of Inryn, Keniri, Ghemalkot and all the rest.

In my thoughts I was already with them; I could see myself walking down the street of our settlement, our teacher Valentina Alexeyevna sitting near the open window and my little dark-eyed sister beside her studying her lessons. Through the next window I would see my old friend and teacher Eines writing something on the blackboard. And there, by the very shore, where the waves wash pebbles on to the beach, would be three young seal hunters—Unpener, Rintuvghi, and someone else rigging out a motorboat for a hunting trip. ■



DR. KASYM NIGMATULLIN (CENTER), SUPERVISES SURGEONS OPERATING ON PROF. BROWN IN HOSPITAL AT FRUNZE.



July 22, 1958

I can never thank you enough for everything you have done for me at the Republic Clinical Hospital for Emergency Surgery. The prompt and very skillful surgery and care of Dr. Nigmatullin and the constant care and attention of Dr. Abdurakhmanov and the many other Doctors, Nurses, and Technicians have restored me from near death to long life.

Mrs. Brown and I thank all of you from the bottom of our hearts and we shall cherish your friendship forever. May God bring us ever closer together in Peace and Happiness throughout the world.

IT happened in Frunze, capital of the Kirghiz Republic, last summer. Professor of sociology Francis J. Brown, director of the American Council on Education, was touring the Soviet Union with a delegation of American scientists when he suddenly became ill and lost consciousness.

An ambulance was summoned at once, and he was taken to the Republican Clinical Hospital for Emergency Surgery. Dr. Abdulakhai Abdurakhmanov, the physician on duty, examined him and diagnosed the condition as critical.

Specialists were called in for confirmation, as is usual in these cases. The three consultants—Professor Kasym Nigmatullin, head of the surgical division, Professor Friedman and Docent Shubladze, together with Dr. Moon, a member of the American delegation, confirmed the diagnosis and agreed on immediate surgery.

The difficult operation was successful and was followed by the prescribed postoperative treatment with blood transfusions, antibiotics and other things. When Mrs. Brown arrived in Frunze from the United States on the tenth day after the operation, Professor Brown was able to sit up in bed. And a little less than two weeks after that he was able to leave for home. In the Visitors' Book at the hospital he wrote:

"I can never thank you enough for everything you have done for me at the Republican Clinical Hospital for Emergency Surgery. The prompt and very skillful surgery and care of Dr. Nigmatullin and the constant care and at-

[RGHIZ DOCTORS

By Mark Uralov

GRADUATED MEDICAL STUDENTS ARE CONGRATULATED BY DR. NIGMATULLIN.

UNDERWENT VERY DIFFICULT SURGERY.

tention of Dr. Abdurakhmanov and the many other doctors, nurses, and technicians have restored me from near death to long life.

"Mrs. Brown and I thank all of you from the bottom of our hearts and we shall cherish your friendship forever. May God bring us ever closer together in Peace and Happiness throughout the world."

Shortly afterward, Llewellyn E. Thompson, the American Ambassador to the Soviet Union, wrote to Dr. Nigmatullin:

"Professor Francis Brown, member of a delegation of American professors, is flying home from Moscow this evening. It is hard to believe that only three weeks have passed since the serious operation you performed on Professor Brown in your clinic. I want to take advantage of the stay in Moscow of your colleague, Dr. Abdurakhmanov, to convey to you through him our gratitude for saving the life of our countryman. We anxiously followed the course of Professor Brown's illness, and it is not easy to find words to express how touched we were by all the attention and care shown by you, Dr. Abdurakhmanov and the entire personnel of your clinic."

So happily concluded the American sociologist's very personal experience with present-day Frunze medical practice.

Kirghiz—Professor of Medicine

The operation on Professor Brown was performed by Professor Nigmatullin. Thirty

Continued on next page

DR. NIGMATULLIN, ONE OF KIRGHIZIA'S TOP PHYSICIANS, CHECKS THE DIAGNOSIS OF A DIFFICULT CASE.

PARKED AND READY THE AMBULANCE AWAITS CALLS.

KIRGHIZ DOCTORS

Continued

years ago he was one of the first young men in Soviet Asia to go through medical school and become a surgeon. The number of Kirghiz doctors then could be counted on the fingers of very few hands.

Now, at 55, Nigmatullin has seen scores of his own pupils through medical school—the Kirghiz Medical College. By far the greater number are Kirghiz, but there are graduates who are Russian, Ukrainian, Jewish. "No nationality has a monopoly on talent," says Professor Nigmatullin.

His own talent as surgeon has won Nigmatullin his Republic's award of Honored Physician and the position as head of surgery in the Republican Hospital.

After surgery Professor Brown was under the care of Dr. Abdulakhai Abdurakhmanov, the son of a Kirghizian peasant. He is 37 years old, served as a medical orderly in the Second World War and then went through medical school.

This was the profession he had chosen for himself when he was a boy at school. It would have been a fantastic, altogether visionary choice for a peasant's son before the 1917 Socialist Revolution.

One Doctor for Every 870 People

Kirghizia is a small Central Asian Republic of the Soviet Union with a population of two million. Under the old regime it was a backward, illiterate region.

An index to a country's general progress, both social and cultural, most people will concede, is the quantity and quality of medical service available to the population. The case of Professor Brown illustrates better than pages of comparative statistics what has been happening in Soviet Kirghizia.

Older people in Frunze still remember what medical practice was like before the 1917 Revolution. Frunze was a small town then, called Pishpek, and had three doctors who fought each other bitterly for the patronage of the town's very few affluent citizens. There are hundreds of experienced physicians in Frunze now. It has its own research institutes of epidemiology, microbiology and hygiene and its own medical schools.

The hospital at which Professor Brown was treated is one of many in Kirghizia. There is one doctor for every 870 people now, as compared with one for every 100,000 before the Revolution. As part of the widespread program of preventive medicine, periodic check-ups of the population are made by rural and urban clinics. The widespread chronic diseases and the periodic epidemics that were so much a part of pre-revolutionary Kirghizian life have been eliminated.

3,871 Medical Establishments

Some four decades ago there were scarcely a hundred hospital beds for all of Kirghizia and only sixteen doctors. The czarist government allocated a mere 0.3 rubles per capita annually for public health. Last year the allocations of the Kirghiz Republic on public health averaged 133.7 rubles per capita.

Kirghizia now has 3,871 hospitals, polyclinics, maternity centers, child consultation centers and other medical establishments. The Republic's own medical schools have already trained 1,700 specialists, chiefly of Kirghiz and other local nationalities.

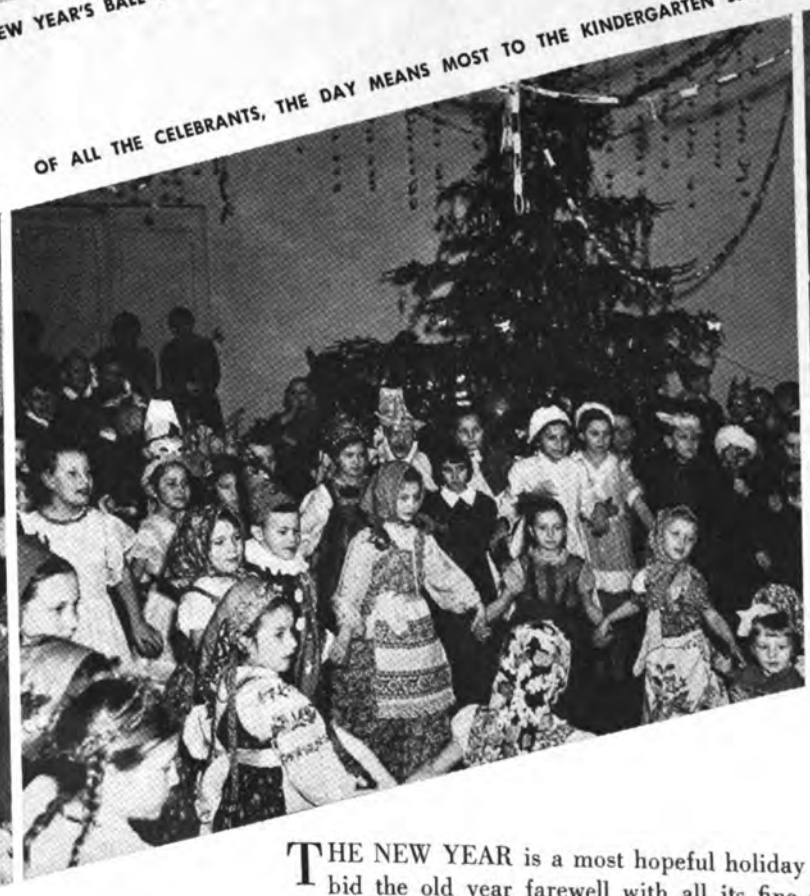
When Professor Brown left Frunze hospital, the next patient to occupy his bed was five-year-old Alymkul Sadynbekov, the son of a garment worker. He was brought to the emergency division with a jagged wound in his abdomen, the result of an accident. He also was treated by Dr. Abdurakhmanov with the same favorable conclusion.

This is medical practice in Kirghizia today. Its standards are high and available to everyone at no cost. Its achievement lies in this simple figure—in the period since 1940 alone, the republic's mortality rate has dropped by 65 per cent. ■

HAPPY 1959 NEW YEAR!

THE CENTER OF INTEREST AT THE TRADITIONAL SOVIET NEW YEAR'S BALL OR PARTY IS FOCUSSED ON THE FIGURES OF GRANDFATHER FROST AND THE PRETTY SNOW MAIDEN.

THERE'S MUSIC, SONG AND AN AMBULATING PUPPETEER.



OF ALL THE CELEBRANTS, THE DAY MEANS MOST TO THE KINDERGARTEN SET.

EVERYONE GETS SPECIAL GIFTS.

THE NEW YEAR is a most hopeful holiday all over the world. When we bid the old year farewell with all its fine features, we dismiss the bad. Then we peer ahead for a hint of what the coming year holds for man's peace and happiness. That is the theme of New Year's parties in our country with all of their gaiety and fun-making you'll find in our photo story.

Continued on next page

HAPPY NEW YEAR!

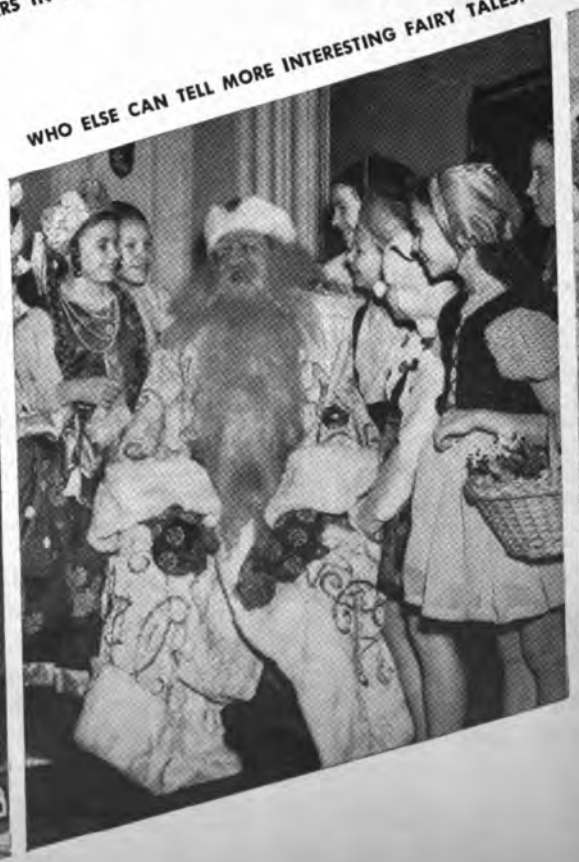
A FAMILY'S HOLIDAY BEGINS WITH PICKING OUT A TREE.

WITH A TREE SELECTED, DECORATIONS ARE BOUGHT AND THEN FOLLOWS THE FUN OF PUTTING THEM ON.

EACH CLASS PRESENTS SPECIAL NUMBERS FOR THE DAY AND TRIES TO EXCEL THE OTHERS IN ITS PERFORMANCE.

A DANCING BUNNY AND PUSS-IN-BOOTS GREET ARRIVING GUESTS.

TIRELESS TOTS ARE KEPT BUSY WITH AN ENDLESS SERIES OF GAY COMPETITIONS.



WHO ELSE CAN TELL MORE INTERESTING FAIRY TALES!

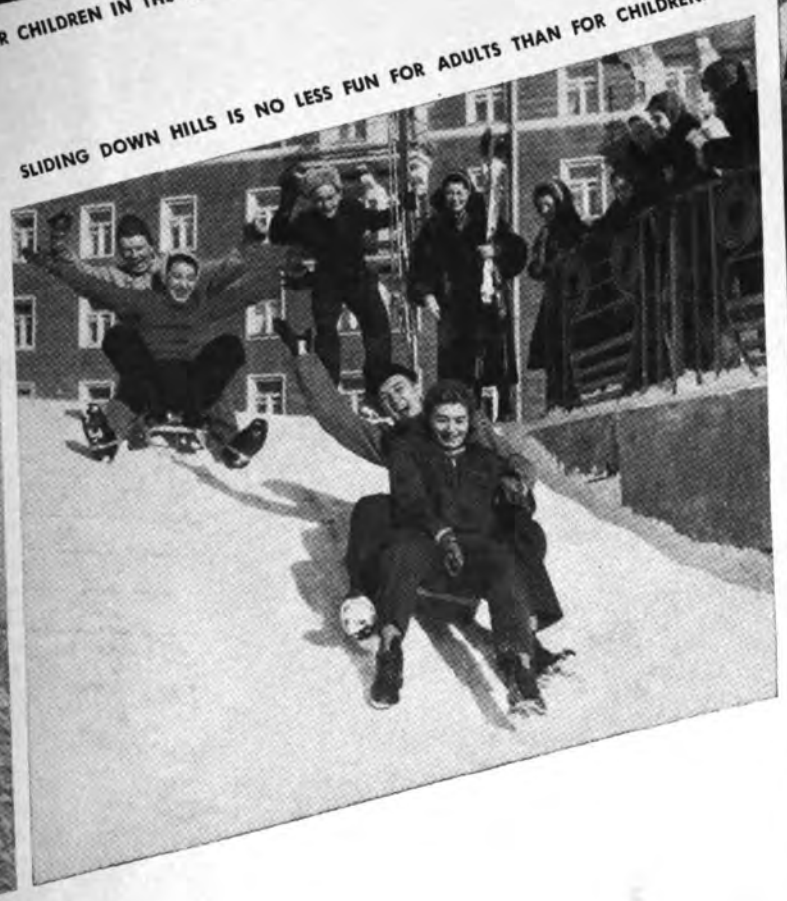
PRIME SPORT ON ANY WINTER DAY.

NAMENTS ARE SOMETIMES HOME MADE.

TRADE IS BRISK AT GIFT SHOPS AND STORES.

HOLIDAY BALL FOR CHILDREN IN THE KREMLIN.

MERRY-GO-ROUND IN A MOSCOW PARK



SLIDING DOWN HILLS IS NO LESS FUN FOR ADULTS THAN FOR CHILDREN.

COLLEGE STUDENTS FIND THE HOLIDAY CELEBRATION CLIMAXED BY A GRAND BALL.

Valeria
and
Veronika
Parkordia

Two Young Troupers

By Adolf Antonov

ALTHOUGH Valeria and Veronika Zelenskaya, two young variety theater singers, started on their promising stage careers in a rather unorthodox fashion, the rest of it since has been typical enough—made up of study and work and then more study and work. Ask them, however, whether they've ever been sorry about the choice they made and they'll give you an emphatic, "Of course not. We love it."

The two girls were walking down one of Moscow's old streets. It started to rain and they took shelter in the nearest doorway. It happened to be that of the State Institute of Theatrical Art. They looked in at the bustle inside. It was the day that examinations were being given to entering students by an omnipotent board of examiners.

What mad impulse took hold of them to try their luck without an iota of preparation they don't know to this day, but they came through the very trying examination with flying colors. They explain it by the fact that they hadn't time to be nervous.

Then followed four years of hard study and almost constant reading. Acting, they found, meant more than classes in dramatics, it meant studying the classical dance, the history of art, literature and painting besides the background courses in the natural and the social sciences.

Their first stage appearance was prefaced by more hard study and practice under the guidance of instructors. But it was all repaid more than amply when the audience broke into wild applause and called them back for encores again and again. That, they say, was worth all the years of hard work.

Although young—Valeria is 21 and Veronika 20—the sisters have done a good deal of trouping already. They have played in most parts of the country. Vaudeville is immensely popular in the Soviet Union.

They do a popular song turn and accompany themselves on the accordion. At first the sisters worked with the jazz orchestra directed by Leonid Utyosov, probably the best in the country, but they felt themselves cramped in a framework of jazz alone.

So they worked out their own act which they presented at the World Youth Festival held in Moscow. It was so warmly received there that they kept the format for a tour of Germany, the Transcarpathian Ukraine and Kazakhstan. Their tours are arranged by the Guest Performers Association.

Their one ambition? To be famous. And they're well on the way to achieving it. ■

THE GIRLS REHEARSE A NEW NUMBER AT HOME.

A VARIETY ARTIST MUST ALSO LEARN TO ACT.

VERONIKA AT A LESSON IN THE CLASSICAL DANCE.

VALERIA SAYS SHE PREFERS THE SAMBA.

AFTER A TALK IN THE OFFICE, PREMIER NIKITA KHRUSHCHEV CONDUCTED HIS AMERICAN GUEST, CYRUS EATON, ON A TOUR OF THE SPACIOUS GROUNDS OF TH

THE EATONS GREETED WORKERS OF THE BIG KIROV ELECTRICAL PLANT.

A GOOD JOKE WOUND UP THE VISIT TO THE HOUSE OF RAILWAY TECHNOLOGY.

AMERICAN INDUSTRIAL
VISITS THE SOVIET UNI

A BOY WHO INTERESTED THE COUPLE STOPPED TO SHOW MRS. EATON THE BOOKS HE STUDIES.

THE OHIOAN CHATS WITH A FARMER'S WIFE AT HOME.

CYRUS EATON'S impressions on his recent visit to the Soviet Union can be summed up in the comment he made more than once during his tour—the United States and the Soviet Union, he declared, have a great deal to learn from each other.

The Cleveland industrialist was invited to visit the Soviet Union by the USSR Ministries of Agriculture and of Railways. During his stay he talked with officials, scientists, factory workers and farmers and made the rounds of several plants, a collective farm and scientific institutions. He spent some time at the Central House of Railway Technology in Moscow and was much interested in the advances Soviet transport engineering was making in railway automation.

Commenting to newspapermen on the two cities he found time to visit—Moscow and Leningrad—Mr. Eaton thought Moscow one of the major world capitals today, not alone as government center but as center for world trade. He had been impressed, he said, with the architectural beauty of Leningrad and its museum collections.

After a talk with Nikita Khrushchev, Mr. Eaton said that he had been much struck with the Soviet premier's frank and unequivocal wish and hope for friendly and cooperative relations between the two countries. Premier Khrushchev reflected, he felt, the very sincere wishes of Soviet people generally for East-West friendship.

Mr. Eaton thought there were many of his fellow countrymen eager to know more about what was going on in Soviet education, science and industry. This required much more frequent visiting, many more meetings between Americans and Russians. He wished to do whatever possible to further that exchange of visits. He proposed, on his return, to work toward the end that more American business and trade union leaders influential in the lives of their communities visit the Soviet Union.

Mr. Eaton was received by Alexander Nesmeyanov, President of the USSR Academy of Sciences; Vladimir Matskevich, Minister of Agriculture; and Nina Popova, Chairman of the Society for Cultural Relations with Foreign Countries. He talked with Foreign Minister Gromyko, Deputy Minister of Foreign Trade Borisov and President Korovushkin of the USSR State Bank. The recurrent theme was cooperation of the two countries in joint scientific undertakings, in wider cultural exchange, in the revival of large-scale American-Soviet trade.

On his departure Mr. Eaton was presented by Minister Matskevich with the gift of a Russian *troika* drawn by a thoroughbred team of three horses. Mr. Eaton said that he wished to reciprocate with a gift of five pedigreed calves and a steer to be shipped as soon as he returned home.

In a statement before he left, Mr. Eaton again adverted to the need for friendlier relations between the United States and the Soviet Union, for more exchange of information and visiting delegations. His aim, he declared, would be to find ways and means of bringing the two countries closer together by bringing their peoples together. ■

AS A TRUNK LINE EXECUTIVE, EATON LIKED THE MODELS OF RAILWAY EQUIPMENT.

THE *HERALD TRIBUNE'S* DAN DOWLING AND HIS GUESTS SKETCH THE WELL-KNOWN COIFFURE OF VAN CLIBURN.

IVAN SEMIONOV AND VITALI GORIAYEV, staff cartoonists of *Krokodil*, the leading Soviet satirical and humorist magazine, spent twenty-four days in the United States last spring at the invitation of Dan Dowling of *The New York Herald Tribune*, President of the American Association of Editorial Cartoonists. Dowling's invitation expressed his organization's desire to "be in close contact with cartoonists all over the world."

The Soviet pair visited New York, Washington, Indianapolis and Boston. The artists met many people, saw some of the American way of life, and were able to sketch and draw at will.

In New York their visit was highlighted by a stop at the Wall Street Stock Exchange, where they caught the action on the floor and the operation of the Big Board. They also met members of the National Cartoonists' Association.

While in the metropolis the Soviet cartoonists lived as New Yorkers, keeping the hours and schedule of the art and theatrical colony there.

Dropping down to Washington, they had the relatively rare experience for foreign visitors of being invited to President Eisenhower's press conference, plus a friendly dinner with Herbert L. Block (Herblock) of *The Washington Post and Times Herald*. They also toured the National and Mellon art galleries and sketched major historical monuments around the capital.

Semionov and Goriayev stopped at Indianapolis for the convention of the American Association of Editorial Cartoonists which wound up its session by electing them to honorary membership.

The Soviet visitors were somewhat puzzled by the failure of their American colleagues to exchange creative ideas during the convention. Instead, it was purely business and entertainment.

Another attraction was attending the famous Indianapolis 500-mile automobile race. The visitors saw American fans and captured the excitement and color of the spectacle on many pages in their sketch books.

The next stop was Boston, where they visited Harvard University and then toured the many historic spots of the city under the experienced guidance of Lawrence Winship, editor-in-chief of the Boston *Globe*. Later they discussed cartoon art with Al Capp and exchanged opinions on his comic strips.

Throughout the tour Semionov and Goriayev put the impressions down in the form of cartoons and sketches for reproduction upon their return to Moscow. Some of them are published on these pages.

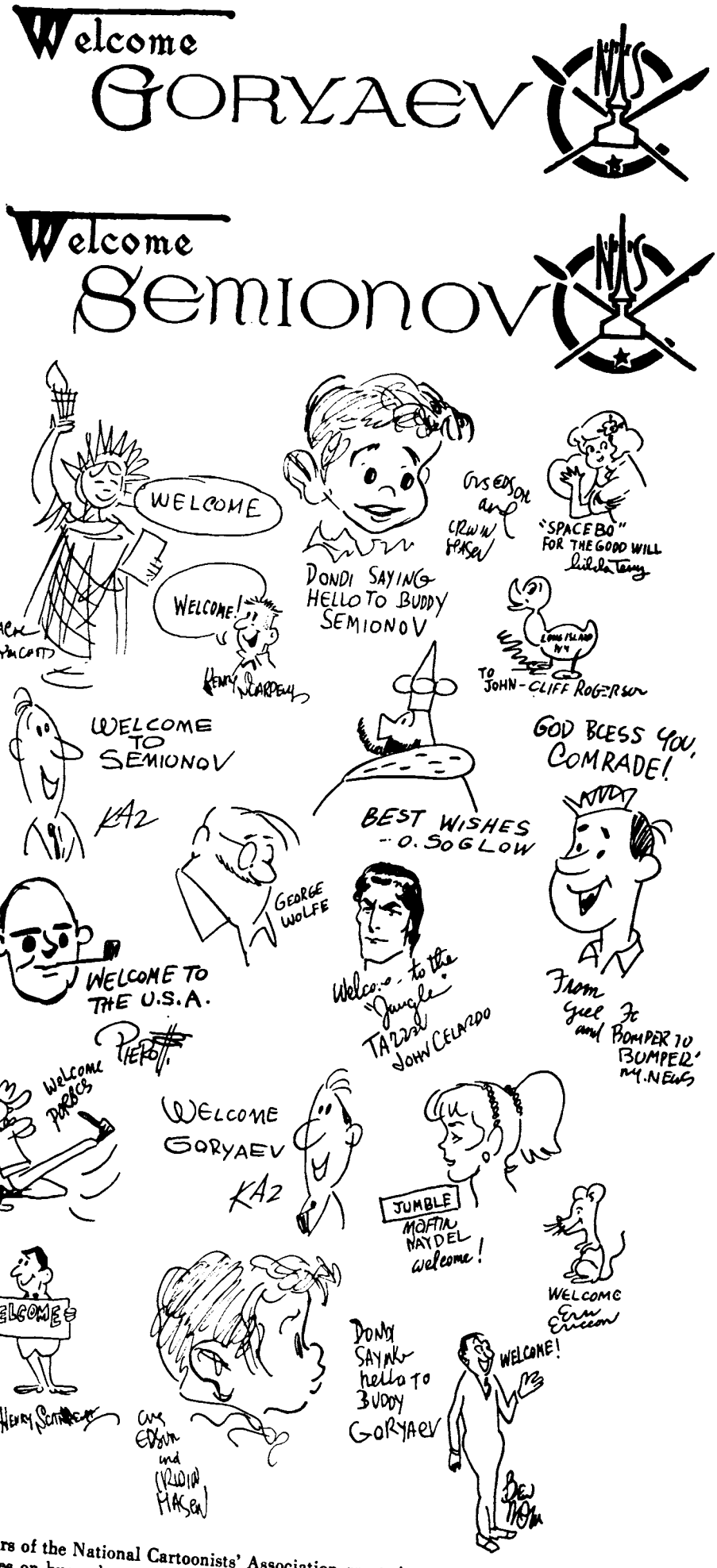
iet Cartoonists Tour America

narrow streets and traffic snarls
So did parking until we were told
kets are less than garage fees.

Fearful we'd miss something, we started sketching America from our plane. But we were wrong. We saw everything we could and went so many places we got dizzy!

American cocktails are potent but much too cold for us. Though the drinks got us hotter inside, we dreamed of a pair of warm gloves.

The customs inspector thought the dolls were Russian dancers until we reassured him they were gifts for American cartoonists.



Members of the National Cartoonists' Association greeted us with welcoming messages on huge sheets of paper bearing the features of most of the well-known characters of American comic strips done for us by our artist-hosts.

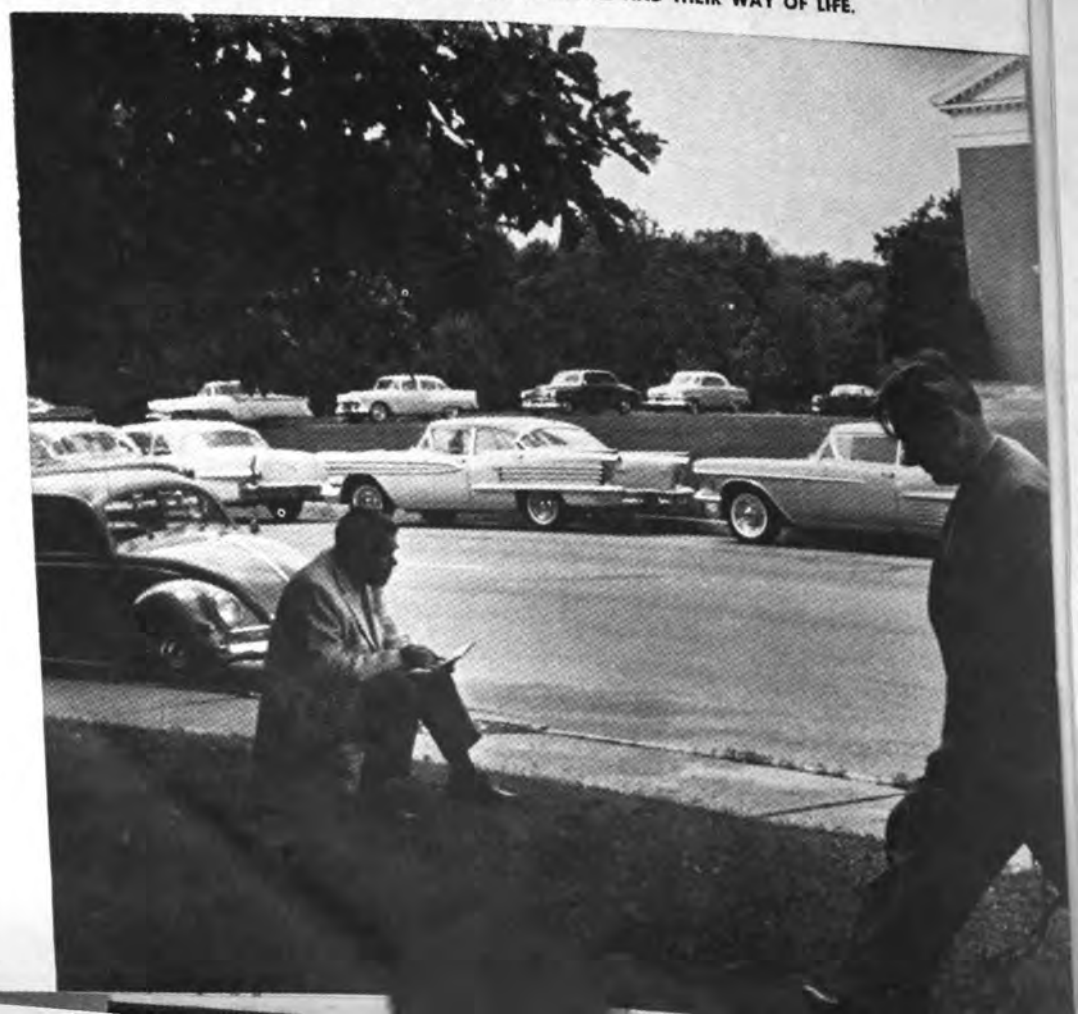
Our busy schedule was an unenvi... breakfasts, luncheons, cocktail ... and visits. We found it enjoyable ... little time for rest or sleep. We ... other with the thought we'd made ...

We thought Americans must spend half their lives in drug stores sipping coffee, munching hot dogs or hamburgers and arranging that night's heavy date.

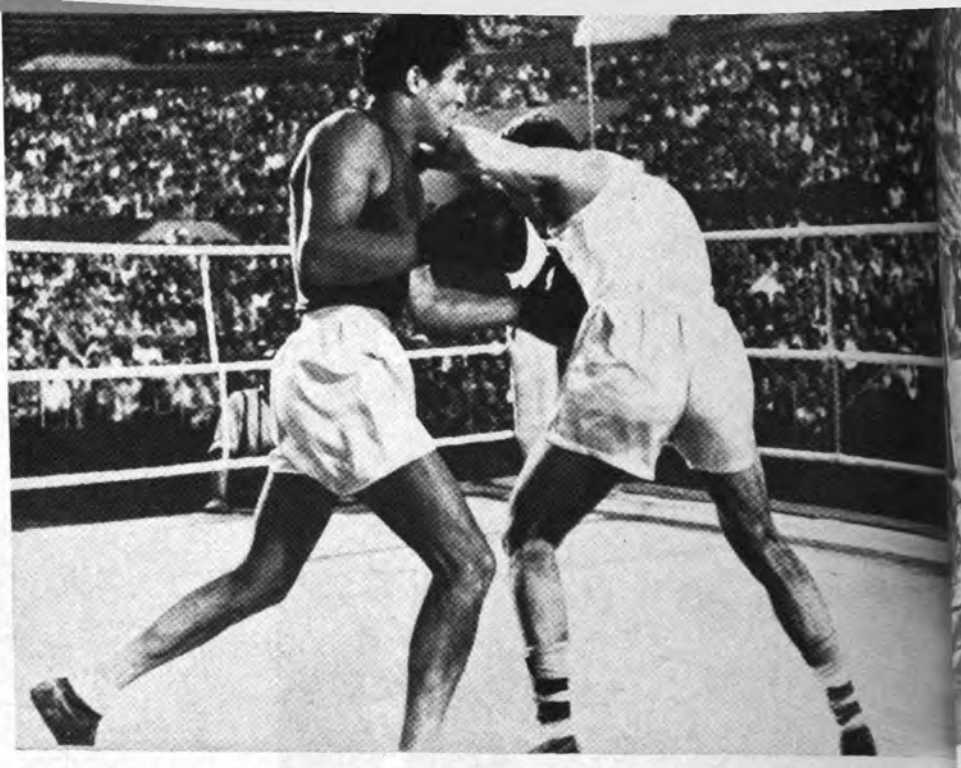
VISITING THE INDIANAPOLIS 500-MILE RACE, WE FOUND MANY SUBJECTS FOR SKETCHES.

Asked to President Eisenhower's press conference, we listened quietly. When it ended we were amazed as the correspondents raced from the room like a lot of steeplechase riders in their rush to phone in the story. Fortunately we escaped the crush.

WE DEVOTED ALL OUR TIME TO DRAWING THE AMERICAN PEOPLE AND THEIR WAY OF LIFE.



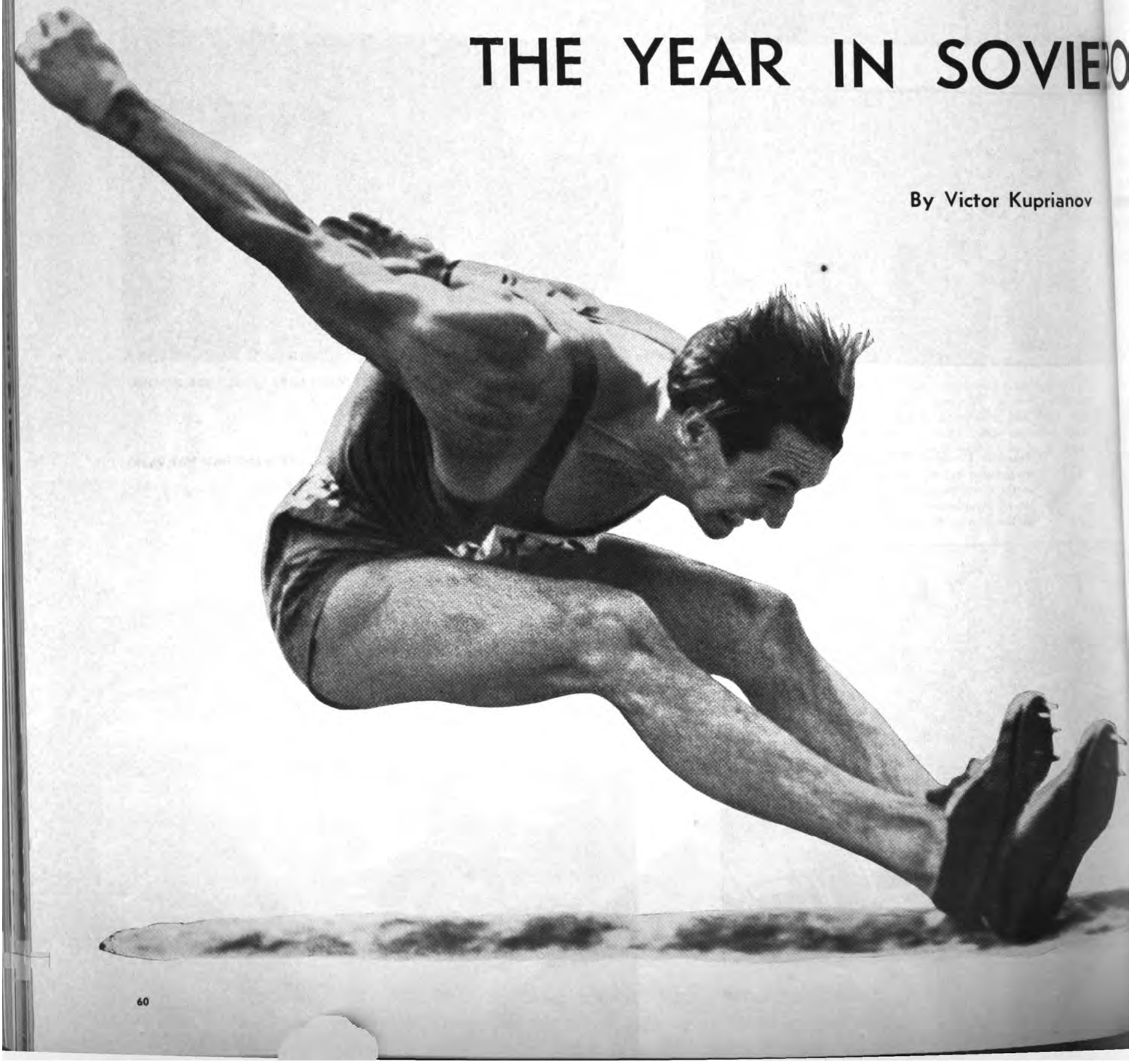
THE ANNUAL TRUD CROSS-COUNTRY RACE RATES HIGH IN POPULARITY.



CHAMPION VLADIMIR ENGIBARYAN (USSR) BEATS GEORGE STONE (BRITAIN) IN A BAKU CONTEST.

THE YEAR IN SOVIE

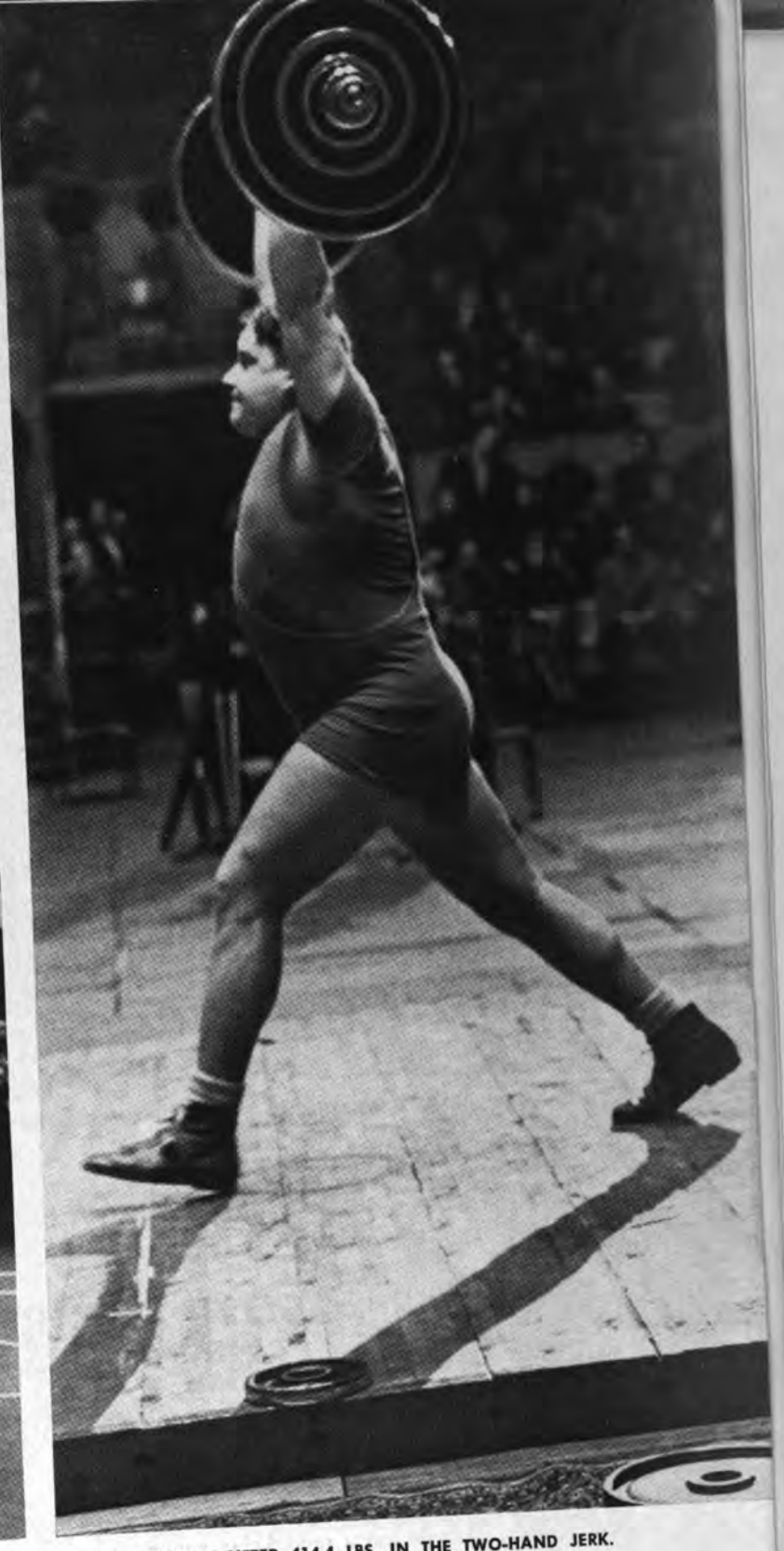
By Victor Kuprianov



EXCITEMENT DURING THE USSR MOTORCYCLE CHAMPIONSHIP—HOW TO AVOID SLOWING DOWN ON TURNS.

SPORTS

SERGEI ANDREYEV IS THE 1958 USSR TENNIS CHAMPION.



ALEXEI MEDVEDEV LIFTED 414.4 LBS. IN THE TWO-HAND JERK.

DECEMBER being generally a month for inventories, let's have a look-back at the year's athletics and athletes.

The sports season got off to a good start for Soviet athletes last winter. World honors in speed skating went to two Muscovites, Oleg Goncharenko and Inga Artamonova. Oleg is one athlete who can honestly say: "I owe it all to my mother." She was a Ukrainian figure skater of high caliber, and it was she who got him started.

The men's title is awarded for the best over-all showing in four events: 500-, 1,500-, 5,000- and 10,000-meter races. Goncharenko scored first only in the 1,500-meter race, but good showings in the other races gave him the highest point rating.

The runner-up was Vladimir Shilikovsky, also USSR, who documents the proposition that a fine athlete doesn't have to look like one, he just has to be one. Shilikovsky has only one arm, but he's one of the speediest skaters in the country.

Inga Artamonova, who took honors in the women's division, is in a class by herself. She is tall, muscular, has speed and style—what coaches call a natural born skater. Predictions are she'll be wearing most of the available medals in the very near future.

In skiing, Soviet women won world honors. Alevtina Kolchina won the 10-kilometer run, and the women's team (Yeroshina, Kozyreva and Kolchina) carried the day in the relay. But the men didn't place. After the good Olympic showing the men had made, this started a lot of deep thinking and chin rubbing.

Ice Hockey

In ice hockey the world crown went to Canada. The USSR upset came in the final game of the tournament. There was some consolation, but only for the future, in being called Europe's best. Although the veterans who won the crown in past years for the USSR are all gone, the 11 new men on the squad are coming along magnificently, and there's a good deal of hopeful talk about the next World Championship.

The Soviet team was captained by defense-man Nikolai Tregubov,

Continued on next page

FOR THOSE WHO LIKE THEIR THRILLS HIGH-FLUNG, THERE'S ALWAYS PARACHUTING.

the team had won in the 1956 Olympics. But what fans overlooked was the fact that the Olympic games are strictly amateur, while the World Cup Tournament asks no questions about amateur or professional standing.

The USSR was tripped up in the quarter finals by Sweden, and fans were jolted into a look at the calendar, which said it was two years ago that the Soviet team had won the Olympics and none of the players had gotten any younger since. Result: a campaign under way to bring in the youngsters. More on this subject next season.

World cups in free-style wrestling in June and Greco-Roman wrestling in July helped brighten the scene a little.

Wimbledon and the Henley Regatta

Tennis and rowing were two sports that made for a good deal of post-mortem talk. Tennis is a new game in the Soviet Union and is played on hard courts. Anna Dmitrieva and Andrei Potanin, who were the USSR hopefuls in the Wimbledon Juniors, had literally never played tennis on a soft court. So that for them to reach the finals in lawn tennis was a considerable and very heartwarming achievement. Soviet tennis players are being developed at a fast clip, and there is talk here of possible Davis Cup participation.

Our rowers learned a lot from the Henley Regatta, among them, say some people, things they should have known before. However . . . the Trud eight from Leningrad outrowed a field that included the University of Washington eight to win the much coveted prize. The Washington Huskies retaliated by coming to Moscow and beating the Trud crew. Incidentally, the Washington coxswain is the first American racing shell man extant to get a ducking in the Moscow River.

The Soviet singles sculler Vyacheslav Ivanov, who came out of athletic obscurity to win the Olympic gold medal in 1956, has been unable to beat his Henley opponents since then. That has been true, unfortunately, for Yuri Tyukalov also, who won the single sculls in the 1952 Olympics. But Tyukalov hasn't given up the ghost by a long shot. He's still going strong and adding to his collection of cups and medals by pairing up with Alexander Berkutov, a Moscow engineer and singles hopeful.

Later in the season gymnastics took top billing. At the Olympic

THE YEAR IN SOVIET SPORTS

Continued

who won best player award. Tregubov is one of the older generation of players. He's 30 but a remarkably young 30 as soon as he hits the ice. The fans aren't worried about him; what they're worried about is that there is no other defense-man around of his proportions who can be relied on to trigger off a scoring attack at the slightest opportunity.

One of the high spots of the season was the visit of the American team to Moscow which inaugurated a home-to-home series of games. The United States team won Muscovites with their hockey and their sportsmanship both.

Basketball and Soccer

With spring, the very much looked forward to American-Soviet sports exchange got under way. Soviet wrestlers and weightlifters went to the United States and came back talking about how nice Americans were. Moscow basketball players and court fans said the same thing when the American team played here, in spite of the home team's four-in-a-row defeat which ended all prospects for a Soviet world crown in the immediate future. Some consolation here too, however, with the victory of the USSR women's team, with everyone wondering why their showing in previous major international tourneys had been so erractic.

Another ball game that all but monopolized sport headlines was soccer. Soccer to the Soviet fan is very much like baseball or football to American spectators, and the Spartak—Dynamo games generate the same heat, excitement and, of course, partisanship as the World Series does.

The Soviet Union made its debut in World Championship soccer this year. There was much premature optimism on account of the gold medal

FANS PACK THE GRANDSTANDS FOR THE STEEPLECHASE EVENTS WITH CRACK RIDERS.

Games it was a very close bout with Japan for top honors. With champion Victor Chukarin on the retired list, it looked like Japan might have that thin edge that means victory. Competition couldn't have been keener but the final tally put Boris Shakhlin and Larisa Latynina at the top. USSR made the best showing with a large haul of 40 medals.

USA-USSR Track and Field Meet

Generally acclaimed as the event of the year was the USA-USSR track and field meet. Sports writers and commentators here called it "the match of the century" and "a meeting of titans." It was all of that, with 60,000 fans defying the elements to cheer the contestants. And the athletes supplied plenty to cheer about.

Oleg Ryakhovsky surprised everybody with a new world high in the hop, step and jump. Mrs. Earlene Brown, of discus and shotput fame, also topped a national record as did her team-mates in the 4 × 100-meter relay. The U.S. men's relay quartet came a tenth of a second under the world mark for the 400-meter distance.

Then Yuri Stepanov outjumped Charles Dumas, and the following month Stepanov was officially credited with the world record in the high jump, thereby putting an end, we hope, to the story whispered around about mystery shoes. Finally, Rafer Johnson made athletic history by regaining the world title for the decathlon. Vasili Kuznetsov had surpassed Johnson's previous high in May.

Rafer Johnson said afterward that he was grateful to Vasili Kuznetsov and Yuri Kutenko for the stiff competition, it spurred him on.

Fencing—Swimming—Skindiving

For other sports—Soviet fencers won first place at the World Championships in Philadelphia and took seven medals at the World Canoeing tourney. Two world records set by Soviet swimmers, the 100-meter breast stroke for Minashkin and the 400-meter medley for Strijanov, were officially recognized.

Swimming has been emerging as one of the big-time sports here as a result of the showing of Soviet watermen at European meets. Although not of world record caliber as yet, it's on the way.

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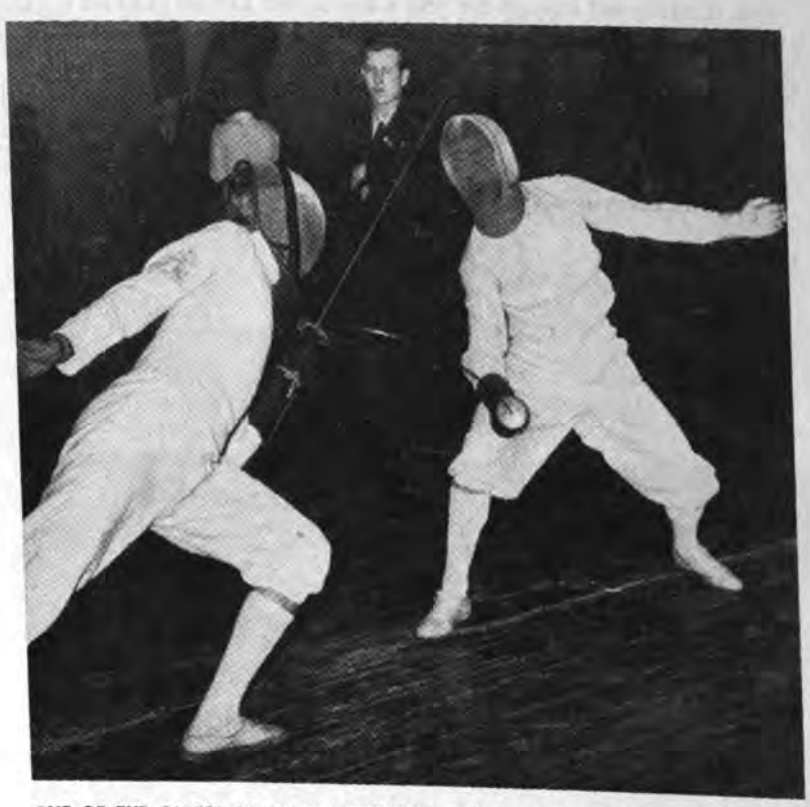
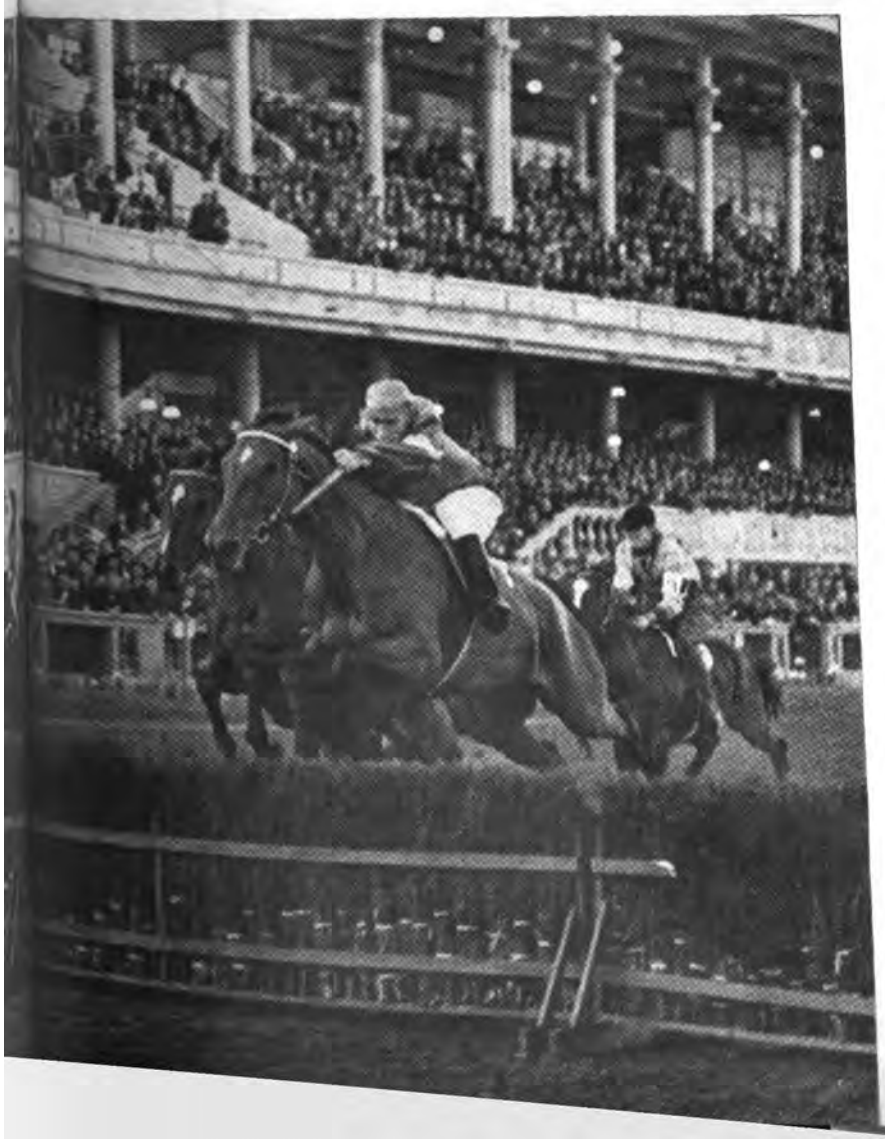
YOUNG GYMNASTS GOING THROUGH EXERCISES IN MOSCOW'S DYNAMO STADIUM.



ONE OF THE OLDEST OF SPORTS, FENCING, BUILDS GRACE OF MOTION AND SPEED.



SOVIET MARKSMAN YASINSKY CONGRATULATES NELSON N. LINCOLN OF THE U.S.

THE YEAR IN SOVIET SPORTS

Continued

At the World Shooting Championships there were enough medals to go round for almost everyone. While opinion was pretty general that our men's team would carry the day on over-all points, everyone was pleased at the not altogether expected show that the women and juniors made in walking off with top honors.

This, incidentally, isn't a solitary phenomenon. A run up and down the whole year's results shows that the women made the better record. That was so for the USA-USSR track and field meet, too. The over-all figures were: USA-170, USSR-172. For the men: USA-126, USSR-109. For the women: USA-44, USSR-63.

From the Black Sea comes news of a new sport for Soviet athletes—skindiving. Comment there is that the beaches look empty nowadays, everybody's under water. You've got to come early if you want a spot on the bottom.

One of the signposts—perhaps—for the future was the turn toward young contestants. The pretty obvious conclusion is that the coaches were thinking not only of the year's meets, but had an eye cast toward the Rome Olympics in 1960, about which there has been considerable talk going on for some considerable time.

This too is important sports news. As gratifying as gold medals and world records are, more important is the fact that general participation in competitive sports, now at the 19 million mark in the Soviet Union, grows with every new sport added to the present sizable list. ■

OLEG RYAKHOVSKY SET A WORLD RECORD IN THE HOP, STEP

WITH MILLIONS OF FANS AND 16,000 TEAMS, SOCCER IS THE NATION'S TOP SPORT.

THE NEW RACER *ZVEZDA-6* DID 113.5 MPH WITH ALEXEI ABRO

A TENSE MOMENT AT THE USSR-USA BASKETBALL MATCH IN

USSR ILLUSTRATED MONTHLY

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