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# USSR

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# USSR

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## Soviet Science

**I**N OUR ATOMIC AGE a country's economic progress is dependent upon its scientific progress. In the Soviet Union, a country where a socialist society has been built, science is given a primary place as an indispensable tool for building communism.

The Soviet state is generous with funds for research. In 1950 allocations to scientific bodies totaled 874 million new rubles. Ten years later they were almost four times that figure—3.2 billion—and in 1961 they came to 3.8 million rubles.

In the past decade the number of people engaged in research doubled and is now 354,000. This figure includes 11,000 investigators with a Doctor of Science degree and 93,000 with a Master of Science degree. All told, the country has 3,800 scientific establishments, 1,500 of which are research institutes.

The USSR Academy of Sciences with its very widespread network of coordinated scientific bodies is the country's research focus. Almost every Union Republic has its own Academy of Sciences which has developed from a branch of the national academy into an independent research center. There are also specialized academies for medical research, farm research, education, architecture and construction.

Branches of the national academy in various cities of the Russian

Photos by

Yuri Abramochkin

and

Yevgeni Tikhanov



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President of the USSR Academy of Sciences Mstislav Keldysh addresses the nation's top scientists.



Chemist Vladimir Engelgardt (left) and physicist Valentin Kargin at the conference.

Axel Berg (right), an authority in the field of radio engineering, with a colleague at the Kremlin meeting.



Nikolai Mudkhelishvili, President of the Georgian Academy of Sciences, and Rafael Dvali, its Vice President.



## Looks to the Future

Federation have developed into very large research centers in their own right. The Siberian Branch of the USSR Academy of Sciences, set up late in 1957, now has its own network of 40 research institutions.

Research is also carried on by a large number of specialized institutes under the various ministries and by college laboratories that also serve as a training ground for young investigators.

### New Forms for New Times

This well-ordered research setup works according to a plan. The general trend of investigation is dictated by the country's needs. With Soviet economic development so rapid, new demands are constantly being made on science, placing before researchers problems of increasing complexity and calling for improved forms of organizing research.

Recently new forms of industrial management were adopted to meet the needs of the times. Radical changes were also introduced in farm organization. For the same reason changes are to be made in the organization of research to bring science closer to the problems that grow out of communist construction.

To implement the decisions recently made by the Party and the

Government a State Committee of the USSR Council of Ministers for the Coordination of Scientific Research has been set up, changes are being made in the work of the USSR Academy of Sciences, and measures are being taken to improve the system of training research personnel.

Soviet science is entering a new stage of development with a record of achievement that has won it worldwide acclaim. The stupendous feat of a Soviet man's flight into space still remains unmatched. In the field of space research Soviet scientists can also take credit for the discovery of near-earth radiation belts, for establishing the fact that there is no magnetic field on the moon, and for photographing the dark side of our lunar satellite. Successful work has been done on the nature and properties of cosmic rays, on the physics of the sun, and in developing super-long-range communication.

Soviet science has also made a vast contribution to atomic research and the peaceful utilization of atomic energy. Work on controlled thermonuclear reaction is proceeding with considerable progress. Semiconductors are now in wide use in many fields. Researchers report impressive headway being made in the chemistry of synthetic materials and polymers. Biologists have opened new areas for medicine and agri-



Academician Trofim Lysenko (right) with Deputy Minister of Agriculture Konstantin Pysin.



USSR Council of Ministers Deputy Chairman, Alexei Kosygin, talks to the gathering.



President of the Ukrainian Academy Alexander Palladin with Konstantin Skryabin.

culture. Geologists, concentrating on studies of the country's natural resources, have discovered some of the world's richest deposits of iron ore—the Kursk Magnetic Anomaly—and in Yakutia, by “theoretical methods,” they have found industrial diamond deposits.

Soviet scientists keep a sharp eye on the country's practical needs. They help to produce new types of manufactured goods, to build better power plants, to devise improved instruments and automatic control systems.

The achievements of Soviet science grow out of the socialist system, a logical development of the rise in the people's cultural and technical standards and the unlimited opportunity for scientific and technical progress inherent in a socialist society. Only a socialist society is capable of the concentration of means and the large-scale training of personnel required for the integrated solution of the exceedingly complex technical problems of today. The variety of problems that arise as communist construction proceeds opens ever new horizons for creative researchers.

#### Scientists Meet

The scope of these problems was indicated at a forum of the country's outstanding scientists—the All-Union Conference of Scientific Workers—held in June of this year in the conference hall of the Grand Kremlin Palace.

Had the conference adopted a motto, it would have been “Forward!” This was Soviet science planning an assault on the future, reviewing its forces, soberly assessing deficiencies in its organizational structure and the changes that need to be made for the next great stride forward. The conference explored new areas of research and new practical problems that must be solved. Every branch of the country's economy has its own problems for science to solve.

In a report to the conference on “Soviet Science and the Construction of Communism” Mstislav Keldysh, President of the USSR Academy of Sciences, summed up the tasks the country has set for its scientists.

From its researchers the country expects fundamental contributions in solving the problems of controlled thermonuclear reactions, generation of super-high energy, and automation as related to mental processes.

To meet the new demands of industry, Soviet science will evolve new types of machines and instruments, work on new metals and materials with predetermined properties, find answers to problems of flow production and automatic control of production processes.

Investigators in chemistry will be producing polymers of fixed strength with heat-resistant properties and other specified chemical, electrical and magnetic qualities. Researchers in the chemistry of solids will continue to look for new materials, for extra-light and fireproof alloys. Space researchers will be investigating problems of spaceship construction and manned interplanetary stations.

With problems of this scope, it is obviously mandatory that research be planned so as to use the country's manpower and material resources to the best advantage. The facilities provided science by a socialist state must be employed economically and purposefully to achieve maximum results by concentrating on decisive areas.

That is why the Communist Party and the Soviet Government attach so much importance to the organization and coordination of research and to long-range planning.

At the conference scientists and Party and Government leaders were critical of certain organizational flaws in research. Among other things they cited instances of poor coordination, insufficient concentration of funds and personnel in the fields most promising and important for the country, and wasteful duplication of research efforts.

#### Planned Research

The State Committee for the Coordination of Scientific Research will be guiding the work on key scientific problems being done by research establishments. It will also coordinate the work of the USSR Academy of Sciences, the academies of the republics and the specialized academies.

Together with other state bodies the committee will tackle such problems as supplying materials for scientific research, organizing the country's scientific and technical information and coordinating scientific and technical exchanges. The committee will be based on Learned Councils which will coordinate the work in specific fields. It will set up these councils jointly with the USSR Academy of Sciences and the ministries concerned.

The function of the USSR Academy of Sciences has also been somewhat altered. Up to now it has directed the work of extremely large numbers of research institutes in its network. The structure was cumbersome and made for a scattering of effort. From now on the Academy will be the center of research for only major theoretical problems. Approximately half of all its branches are to be handed over to industry.

Its major function henceforth will be to select areas of investigation and follow through on long-range research problems. The USSR Academy of Sciences will be the leading methodological center in the fields of science in which the academies of the republics and the colleges will be engaged. It will also be responsible for the training of research personnel and for organizing the work of young researchers.

The basic problem in any such large scientific effort is the training of qualified investigators. The new government decision published in June of this year “On Measures to Improve Training of Scientific and Teaching Personnel” will do much to assure a continuous flow of new talent.

The decision establishes professional standards for scientific personnel and suggests methods for improving the quality of research done in university laboratories. It provides certain advantages for the scientist-lecturer engaged in research at colleges and for specialists who take graduate work in order to prepare themselves for research. The measure is expected to considerably augment the number of capable and highly qualified young researchers.

Soviet scientists are entering a new stage of creative effort. The country expects, as the message of greeting to the conference by the Central Committee of the Communist Party of the Soviet Union phrased it, that they will occupy in the shortest possible time the world's leading positions in all major fields.

# SOVIET DIARY

## AWARDS FOR SPACE RESEARCH

**YURI GAGARIN's** flight in the spaceship *Vostok* was much more than a personal victory; it was a victory for all Soviet people. The historic launching was made possible by the joint creative work of a large community of scientists, designers, engineers and benchworkers. Thanks to these people the *Vostok* was orbited and the world's first cosmonaut, after circling the planet, was returned safely to earth.

Honored by the Presidium of the USSR Supreme Soviet for outstanding contributions to space exploration were 7,027 people in various walks of life.

The Order of Lenin and a third Hammer and Sickle gold medal of Hero of Socialist Labor was awarded to Chairman Nikita S. Khrushchev for his signal services in the establishment and successful development of rocketry and in the successful realization of

the world's first space flight of a Soviet citizen.

Seven eminent scientists and designers won the title Hero of Socialist Labor for the second time and 95 leading designers and statesmen were given the title for the first time.

The Order of Lenin, the country's highest decoration, was awarded to 478 people, the Order of the Red Banner of Labor to more than 1,200, and the Order of the Badge of Honor to 1,800.

## BUMPER HARVEST

**T**HE growing weather has been good this summer with plenty of rain. And the word from all parts of the country is, "Fine harvest." Many of the collective and state farms in the Ukraine, the Kuban, the Don and the country's other breadbaskets are taking in as much as 20, 25 and 30 centners of grain per hectare (1,785, 2,230 and 2,675 pounds per acre) on an average. The vast expanses of the virgin lands of Siberia and Kazakhstan also report a good grain crop.

There are scores of thousands of farmers like combine operator Vladimir Onopchenko of the Tavrichesky Collective Farm in the Crimea who have overfulfilled their quotas. Onopchenko topped his by some two and a half times.

The rate at which crops are being harvested in this third year of the seven-year plan

promises a good start for the implementation of the farm development program worked out by the plenary meeting of the Central Committee of the Communist Party.

Farm people did a good foundation job for this year's harvest. The spring sowing was better organized and done with greater dispatch than in previous years. The sowing plan for many crops—particularly wheat, corn and cotton—has been overfulfilled. The acreage under sugar beets was much increased. This is the first time this crop is being grown for fodder over large areas—almost 3 million acres.

Besides growing larger grain crops, the country is stepping up production of fodder, especially corn. The main problem now is the development of livestock breeding and increasing the output of animal husbandry products,

particularly meat. And it is common knowledge that the greater the quantity of fodder, the better the development of livestock breeding. In this respect favorable conditions are developing this year.

As usual, the peasants are not the only ones taking part in the harvesting campaign. Industrial enterprises have supplied the countryside with a great many of the latest machines for harvesting grain, corn and other crops. Fast tractors are appearing in ever growing numbers on collective farm and state farm fields along with very efficient mounted harvesting implements.

The Soviet farmers are bringing in a good crop. This, of course, makes everyone happy for it brings nearer the time when there will be an abundance of foodstuffs for all Soviet citizens.

## TEACHING FOREIGN LANGUAGES

**S**OVIET people go in for foreign language study in a big way. Foreign tourists coming to the USSR are always surprised at the number of people in our country who know foreign languages. It's not at all unusual to hear English, French, German, Italian and Spanish spoken on a city street. You can also meet young people speaking fluently such less familiar languages as Hindi, Urdu and Pashto. Soviet people acquire their knowledge of the more common European languages in secondary schools and colleges. Asian language instruction is given at institutes for Oriental studies.

With the purpose of improving foreign language instruction and introducing it on a still wider scale, the USSR Council of Ministers had a special meeting on the question.

The Government indicated some drawbacks in this field. It pointed out, among other things, that graduates of secondary schools and colleges leave with a comparatively small vocabulary and an inadequate speaking knowledge of the language they studied, and are not

always able to translate a foreign language easily without a dictionary. Pointed criticism was also leveled at the training of foreign language teachers for secondary schools and colleges.

The Government considers it necessary to provide the necessary conditions for and concentrate the main attention on giving students a practical knowledge of the foreign language he studies so that it can become a useful and practical tool.

Foreign language speech habits will be inculcated and teaching will be done with smaller groups than at present. Moreover, with the parents' consent, children will begin foreign language study not in the fifth grade as at present, but earlier, even in the kindergarten.

Before 1965, the country will open 700 or more general secondary schools in which some of the instruction will be in a foreign language. In preparation for this, the Ministries of Public Education of the Union Republics and the Academy of Educational Sciences of

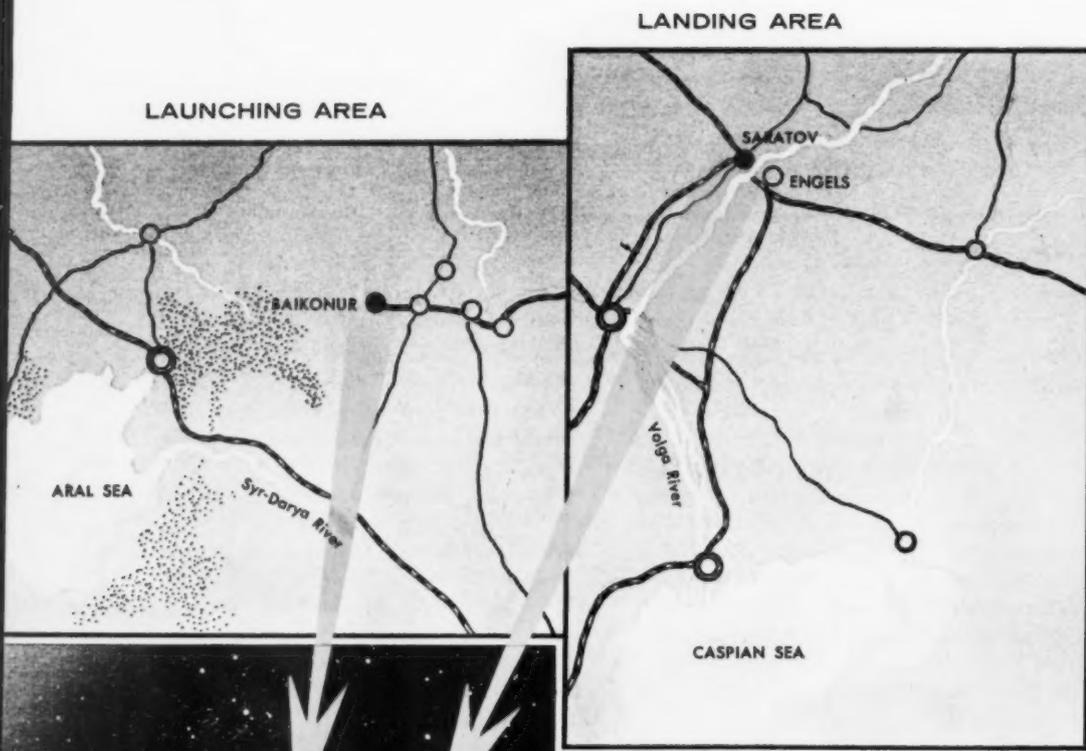
the Russian Federation have been advised to work out new foreign-language syllabuses for secondary schools.

Language study at the college level is also due for changes. The number of required study hours in foreign languages in most colleges and institutes is set at a minimum of 240. Facilities for optional language study are to be expanded. Special courses are to be offered and a wider program of extracurricular language activities introduced. Graduate students of the humanities will be required to have a good command of a foreign language.

The Council of Ministers also considered methods for training better language teachers. Suggested, among other things, was a special two-year advanced training course for qualification as a college instructor of foreign languages.

These next few years the country will be getting more foreign language instruction via radio and television, seeing more foreign language films, hearing more foreign recordings, and reading more books by foreign writers.

# PREPARING MAN FOR



**T**HE FIRST, and very modest, attempts to use rockets for space research date back to the forties. Sergei Vavilov, the late president of the USSR Academy of Sciences, was quick to foresee the potentialities of the new research tool and to foster the development of rockets suitable for a wide range of experiments.

Initially their purpose was to gather data on the density, pressure and temperature of the upper atmosphere and to continue investigation of cosmic rays. Before long, however, their use in probing outer space was considered and they were remodeled to carry animals in experimental studies to determine how flight conditions would affect the vital functioning of living creatures.

Among the unknowns were the safe limit of g-loads on take-off and descent, the response of the organism to relative weightlessness in flight, the effects of cosmic radiation and the possible meteorite hazard. While g-loads could be investigated in ground laboratories, the other factors could be studied only under actual flight conditions.

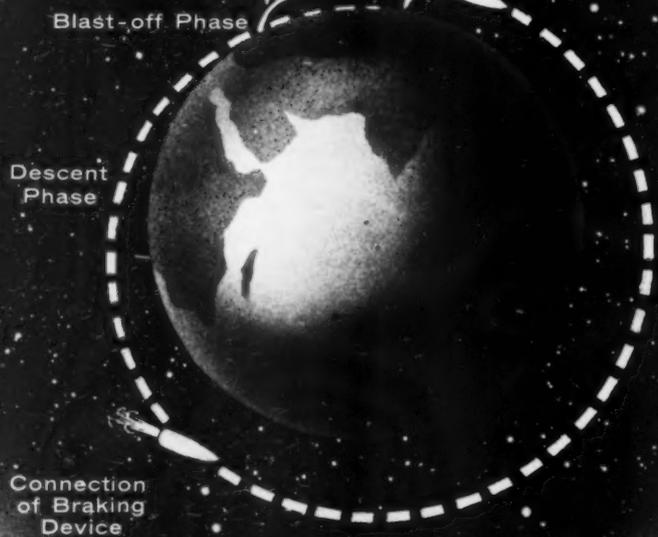
To ensure the animals' safety while they were in the space capsule meant solving a host of technical problems, such as pressure in the capsule, air conditioning and heat insulation during the descent through the denser atmosphere. In addition, reliable sensors had to be developed to pick up and record the heartbeat, body temperature and respiration rate.

It was a job to pack all the instruments into a rocket where every inch of space was at a premium, but packed they were. The first research rocket carrying an animal was fired in 1951 to a height of 101 kilometers (63 miles). The lift was unusually successful, providing data on every item of the research program.

Gradually research rockets climbed higher, to 200 and then 470 kilometers (124 and 292 miles). They added considerably to our knowledge of the ionosphere, the density of meteor showers and solar radiation in the short-wave region of the spectrum.

The payloads of Soviet rockets grew with their thrust, and the scope of research expanded proportionately. Progress was made in recovering animals in pressurized suits ejected at 90 and 40 kilometers (56 and 25 miles) and parachuted to earth. As more complex telemetry systems were devised, more data could be radioed back to earth.

But after a while vertical rocket flights no longer satisfied space explorers. These flights were too short and were, in effect, limited by the spot on earth from which they were launched. The need was for space laboratories



Cosmonaut Yuri Gagarin's history-making flight and its scientific implications were discussed at a recent general meeting of the USSR Academy of Sciences. In his introductory speech Academician Mstislav Keldysh, newly elected President of the Academy, outlined developments in physics, chemistry, electronics, mathematics and other fields of learning that paved the road to outer space.

Among the papers read at the meeting was one by Academician Anatoli Blagonravov on the problems involved in preparing for manned space flight. Below we give a digest of his report.

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# SPACE

By Anatoli Blagonravov

USSR Academy of Sciences

with a longer life span, and so studies were undertaken with artificial earth satellites. Improved and refined, intercontinental ballistic missiles reached orbital velocity, and the world's first man-made satellite was soon placed in orbit around the earth.

## Sputniks and Space Probes

October 4, 1957, began a new era in man's conquest of nature—the era of sputniks and space rockets. A month after the first sputnik, a second carried the dog Laika into orbit. In May 1958 a third sputnik, a veritable space laboratory, took off from the launching pad. It tipped the scales at a ton and a half.

On January 2, 1959, the Soviet Union launched its first space rocket toward the moon. It flew within 6,000 kilometers (3,728 miles) of our lunar neighbor to become a man-made planet in the solar system. That same year two more moon probes were fired. One landed a pennant with the USSR coat of arms and the other circumnavigated our natural satellite and took photos of its hidden side.

For Lunik III to be able to take pictures of the moon, the answers to a number of complex technical problems had to be found. The solutions speeded our progress toward manned flight. Among other things, the tumbling motion of the probe had to be stopped, its attitude in space had to be controlled, and the TV system transmitting pictures to the ground had to be set up to operate by radio—this quite aside from the accuracy with which the probe had to be placed and guided in the trajectory.

Simultaneously, research with high-altitude rockets added to our knowledge of the ionosphere. In all, 31 rockets have carried test animals into space since 1955. Between 1957 and 1960, 26 rockets were shot to altitudes from 100 to 470 kilometers (62 to 292 miles), with 16 of them carrying animals—dogs, rabbits, rats and mice. In 1960 alone some 160 meteorological rockets were fired. These rocket firings threw a great deal of light on the medical and physiological aspects of space travel and proved that manned flight was feasible and safe. Thus, a new stage in the preparation for future manned flight into outer space was started.

In May, August and December of 1960 three superheavy orbital spaceships were launched, heavy enough and large enough to hold everything needed for safe human flight. The goal of these probes was to check for possible improvements in control and guidance systems, life-supporting equipment and deorbiting and

landing systems. The first biological payload was successfully recovered when the dogs Belka and Strelka were safely landed in the nose cone of the second orbital spaceship after a trip around the globe.

Two more orbital spaceships, two tons heavier than the previous ones, were launched on February 4 and 12, 1961. The vehicle launched on February 12, 1961, served as a launching platform for the Venus probe, the fourth space probe fired by the Soviet Union.

## Radiation and Its Hazards

Since the January 2, 1959, flight every space probe has carried on research on radiation at great distances from the earth. Especially detailed studies were made of the external radiation belt discovered by Soviet scientists. It was found that the external radiation belt contains electrons with energies running into a million electron volts. When captured by the skin of a space vehicle, these electrons give rise to an intense and penetrating X-ray radiation. According to the Venus probe, the average energy of X-ray radiation at a distance of 30,000 to 40,000 kilometers (18,630-24,840 miles) is in the neighborhood of 130 kev. The energy varies little with the distance. This may indicate that the energy spectrum of electrons in this region is rather constant.

The instability of the external radiation belt was obvious from the outset. Its maximum center seemed to shift with magnetic storms caused by the sun's corpuscular radiation. On the other hand, the Venus probe revealed that for all the changes in the intensity of the radiation belt nearer the earth, the outside boundary remained practically unchanged both in terms of intensity and position in space when there was no disturbance in the magnetic field.

The experimental data gathered recently have been incorporated in a model of the ionized gas envelope of the earth reproducing the ionosphere when solar activity is greatest. The ionosphere below 1,000 kilometers (621 miles) has been found to contain principally ions of atomic oxygen. Somewhere between 1,000 and 2,000 kilometers (621 and 1,242 miles) above the earth, hydrogen ions predominate.

The outside layer of the ionosphere (the hydrogen corona) extends far into outer space. The concentration of ions within it is in the neighborhood of 1,000 per cubic centimeter (.061 cubic inch) and it changes little up to about 15,000 kilometers (9,315 miles). Between 15,000 and 20,000 kilometers (9,315

and 12,420 miles) the concentration gradually drops with altitude to less than 100 ions per cubic centimeter at about 20,000 kilometers.

Somewhere between 50,000 to 75,000 kilometers (31,050 to 46,575 miles) above the earth, well beyond the external radiation belt, the Soviet space probes found streams of electrons of  $10^8$  per square centimeter (.154 square inch) per second, with energies in excess of 200 electron volts. That gives us reason to assume that there may be a third radiation belt around the earth, containing charged particles of high intensity but of lower energy. It may also be assumed that the boundary of the third belt runs along the lines of force of the magnetic field. The belt seems to have its origin in the sun's corpuscular radiation which may find its way into the peripheral regions of the terrestrial magnetic field.

Before space probes were sent aloft, any estimate of corpuscular radiation could be based only on secondary phenomena which usually occur when solar corpuscles pierce the upper atmosphere and the earth's magnetic field (auroral displays, magnetic storms and ionospheric disturbances). Outside the earth's magnetic field some 100,000 kilometers (62,100 miles) from our planet, the currents induced by the positive ions contained in solar corpuscular radiation were first detected by the triple-electrode magnetic traps mounted on the Soviet space probes.

The magnetic traps on board the Venus probe were sun-oriented and one was installed to keep track of the ion component of solar corpuscular radiation. When the Venus probe was contacted by radio on February 17, 1961, it was traversing a rather heavy stream of corpuscles (with a density of about  $10^9$  per square centimeter per second). At the same time a magnetic storm was observed. Through this means quantitative relationships can be established between geomagnetic disturbances and the intensity of solar corpuscular radiation.

The second and third spaceships were employed also to determine quantitatively the radiation hazard resulting from cosmic radiation outside the terrestrial atmosphere. The absolute intensity of radiation was found to exceed what had been assumed for the purpose of the experiment, a very important conclusion for future manned flight. The spaceships located the area of least radiation and showed that near the equator the intensity was about one particle per square centimeter per second, while at higher geographical latitudes the figure was three times as large.

The spaceships also located more precisely

the position of the radiation belts relative to the earth, discovered an area of increased radiation above the South Atlantic, congruent with a magnetic anomaly area on the ground, and showed that the lower boundary of the internal radiation belt in the magnetic anomaly area dropped to about 250 or 300 kilometers (155 or 186 miles) above the earth. With this data a map was compiled showing the distribution of radiation at this altitude all over the globe.

The other studies carried out with the second and third spaceships included an investigation into the chemical composition of primary cosmic radiation, the charge spectrum of nuclei, and the variation of the nuclear component of cosmic rays with latitude. The experiment required a good deal of work and ingenuity. Among the instruments devised specifically for this purpose was a film processor that developed nuclear emulsion blocks aboard the space vehicle after a 10-hour exposure. The data thus obtained gave an idea of the proportion of heavy and light nuclei in cosmic radiation. It was established that there were relatively few nuclei streams with a charge in excess of 34 nuclei. The findings were extremely important for determining the biological effects of cosmic radiation.

No less revealing were studies of the short-wave emission of the sun, especially in the X-ray region. They threw considerable light on the bearing chromospheric flares on the sun may have on fluctuations in X-ray emission. Incidentally, they helped in developing a more efficient shield to ensure the safety of the living organism in space.

### Guidance Problems

Direct preparations for manned space flight involved a host of scientific and technical problems, one of which was to find a way to place a vehicle in orbit heavy enough to house the necessary life-supporting equipment for a cosmonaut. Soviet rocket men measured up to the task. As a matter of record, the aggregate thrust of the rocket system that lifted the spaceship *Vostok* was equivalent to 20 million horsepower.

Apart from orbital velocity, it was equally important to guide the launching vehicle with great precision. The guidance problem is closely related to that of maneuverability in orbit. The maneuver-controlling force may be supplied either by a rocket engine switched on when needed for a corrective action or by engines based on the electric propulsion principle (ion or plasma accelerators) and operating on a sustained basis.

The need for maneuvering arises when a space vehicle switches over from a low orbit to a high one, slows down and comes in for a landing in a prearranged area.

Maneuvering and some of the measurements call for attitude control, which may be defined as the attempt to constrain the attitude of the vehicle to a particular desired orientation. On board the spaceship *Vostok* the attitude control system oriented one of the ship's axes toward the sun.

Along with the "muscles" that control orientation goes some means of sensing attitude and providing signals to the input of the con-

trol system. The attitude control system on the *Vostok* employed both optical horizon scanners and gyroscopes whose signals were converted by an electronic unit into corrective action.

### Return to Earth

Next comes the problem of re-entry, which involves speed reduction, heat protection in the denser atmosphere and landing in a prearranged area.

An obvious approach would be the use of reverse-thrust rockets to slow down the vehicle in space before it enters the atmosphere—a reversal of the launching process. But this technique requires rockets many times heavier than the vehicle proper and payloads consisting largely of braking-rocket fuel. The alternative is to let the air itself provide the decelerating force, thus requiring less powerful retrorockets.

Before descending, the vehicle is properly oriented in space; then the retarding power plant is fired to reduce the speed sufficiently to deflect the path slightly downward toward the atmosphere. For the spaceship *Vostok* the descent was calculated to take about 30 minutes.

If the vehicle entered the denser atmosphere with a speed close to orbital velocity, its skin would have been heated to extremely high temperatures, and the temperature of the enveloping layer of incandescent air would have been several thousand degrees centigrade. Heat protection was provided by making the recoverable nose cone as streamlined as possible and by devising a heat shield of suitable materials.

Landing also was a hard nut to crack. But the unmanned orbital spaceships proved the reliability of the landing technique. In fact they all landed at low speed without any appreciable damage. But manned flight called for the ultimate in safety. This was the reason for the ejection seat in the cabin and the parachute system that the cosmonaut could use once he had reached the lower atmosphere.

Flying safety as a whole added much to the complexity of ship design. The whole flight was to be controlled automatically. Accordingly, the automatic flight and attitude controls, landing and life-supporting systems as well as automatic temperature and oxygen pressure controllers had to operate faultlessly. Manual controls were provided for additional safety.

### No Risk to the Cosmonaut

The survival and life-supporting system on board the space vehicle was a big problem in its own right. If g-loads on both take-off and descent were to be kept within the safety limits, the launching and flight had to be planned accordingly and acceleration forces limited to a transverse direction—that is, chest to back. This was achieved with a suitable seat.

The normal temperature in the cabin (15 to 22 degrees centigrade—59 to 71 degrees Fahrenheit) was maintained by a thermostat, while excess heat was drawn off by a cooling liquid passing through an air-liquid radiator.

The radiator had an automatically operated system of louvers. The air in the cabin was regenerated by highly active chemicals that absorbed carbon dioxide and water vapor and gave out oxygen in the required amounts. The air regeneration system was governed by a controller which actuated the final control elements whenever its sensors registered excess oxygen or the lack of it. A similar technique was employed to maintain relative humidity anywhere between 30 and 70 per cent.

The food and water were kept in suitable containers, and wastes were removed by a special system. In the event the life-supporting equipment went wrong or the cabin lost its pressure, the cosmonaut wore a pressure space suit which had its own oxygen supply and could protect the cosmonaut against extremely low pressure and temperature in case he had to leave the cabin in an emergency. A telemetry link provided a constant watch from the earth on the operation of the life-supporting and survival equipment.

### The Earth Listens In

A good deal of preparatory work had to be done to devise methods of transmitting physiological measurements to the earth. The necessary link was provided by biological telemetry, which was largely developed with the advent of space medicine. The launchings of animal-carrying space vehicles previous to the manned flight of April 12, 1961, provided vital background experience.

There are a number of stringent requirements that components for a biological telemetry system must meet, principally: small size and little weight, low power consumption, and high resistance to vibration and acceleration loads on take-off and descent. The pickups that transform the heartbeat, respiration rate and other physiological quantities into electric signals must be small, must have a long service life and must not make the cosmonaut's stay in space uncomfortable.

Physiological recordings on board the *Vostok* were taken through three electrocardiographic channels and one pneumographic channel. The records were immediately transmitted to the ground by a radio telemetry system assisted by a self-contained shipboard recording system which was switched on during the descent and by a self-contained recording system in the cosmonaut's bail-out package. The *Signal* radio system continuously transmitted messages on the heartbeat, the TV unit televised the cosmonaut for earth reception, while the radiotelephone gave him two-way contact with the ground.

The telemetered physiological records supplemented by the data given over the radiotelephone and TV links provide a wealth of information to which scientists will be turning frequently.

Then there was the training of the cosmonaut. He himself did much to carry through his unexampled assignment with honor. Thus the happy union of Yuri Gagarin's strength of will and courage combined with Soviet prowess in science and technology made the unprecedented flight of the spaceship *Vostok* around the earth a reality.

# ROAD TO OUTER SPACE

(Continued from the July issue)

**A**UTUMN drew nearer and with it the last few sunny days of Indian summer. It began to get cold sleeping in the tents. Exam time rolled around again. I passed with top marks in all my subjects, thanks to the patient efforts of Dmitri Martyanov and the other instructors.

Some of the trainees joined Soviet Aeroflot, the Soviet civil air service, attracted by the opportunities it offered to fly cross-country and overseas. Others joined special-purpose flying groups, like those for agriculture, public health and geological prospecting.

But I wanted to become a fighter-pilot. Why? Perhaps it was because I had never forgotten the fliers I had seen during the war in my own village. I was sent to the Orenburg Air Force School together with others who had decided to join the air force.

So I left Saratov and the Volga and my old dream of becoming a foundry engineer. It was a wrench parting with a teacher like Martyanov. As the train brought me closer to the air force school, I examined myself critically and objectively. Would I be able to reach the goals I had set for myself? I thought I would!

## Air Cadet

The steppeland city of Orenburg received us kindly. It looked just the way Martyanov, who had been at the Suvorov Military Academy there, had described it—a city of straight, even streets and small cottages, with gardens and orchards strewn with fallen autumn leaves. The school stood on the high bank of the Ural River.

The corridors were hung with pictures, framed in wreaths of oak leaves interwoven with the black-and-orange Guards ribbon of the famous flyers, the Heroes of the Soviet Union who had received their wings at the Orenburg airfield.

We looked at their faces, all different but all bearing the common stamp of courage, and remembered how each of these flyers had brought his country glory. In the group were men who had made the first long-distance flights, and those who, following the air trail blazed by Valeri Chkalov, had flown across the North Pole to America.

Our job was to learn to fly jet planes, which by this time were very much part of the Soviet aviation scene. We were pleased to find that Grigori Bakhchivandzhi, the first man to go up in a jet back in early 1942, had been trained at the school. This pioneer jet pilot was the son of a mechanic and had been a factory worker himself.

His photo hung on the wall with an account of the flight beneath it. When he landed he was welcomed by the staff of the aircraft factory that had built the plane with a huge sign "Greetings to Captain Bakhchivandzhi, the first pilot to fly into the unknown." The crowd shook his hand, embraced him, tossed him up in the air.

Konstantin Tsiolkovsky had envisioned such flights. He had forecast an era of jet aircraft, and the era had been opened by a bold Soviet airman at a time when the country was still fighting a war. It was our task, as future airmen, to carry on the work he had begun.

I remember one of our fellows saying regretfully, "Everything has already been done. The war's been won and a new period in aviation opened up." It occurred to me then that in the Soviet Union there always has been and always would be opportunities for great deeds. We didn't have to go far for examples. Every day *Pravda* brought something new,



By Yuri Gagarin

Pilot-Cosmonaut of the USSR, Hero of the Soviet Union

exciting and thought-compelling. It was about that time that I read a newspaper interview with Academician L.I. Sedov, "About Space Flight," and clipped it, just in case.

## Army Life

Since I had graduated from the technical school with honors and had an excellent recommendation from the aviation club, I did not have to take the entrance exams at Orenburg. I used the time to help the other fellows bone up on their physics and math. The requirements were pretty stiff, and more than half of the men either were turned down by the medicos or flunked the theory exams.

We were given the recruit's close haircut and issued uniforms—a khaki blouse, blue breeches, high boots and a trench coat. On our shoulders we wore the blue, wing-ornamented straps of the cadet. Like the others, I kept peeking at them, happy and proud that I was a member of the large family of the Soviet Army.

After recruit training we were introduced to military aviation. Our platoon leader at the time was Captain Boris Fyodorov, a strict and very exacting commander. He immediately set about shaking what he called the "civvy street dust" off of us. The discipline was stiff at first, especially for those who had come straight from the classroom. I found it much easier because I had spent most of my adolescence in dormitories and students' hostels where, although you didn't live by military regulations, you did have to conform to a definite daily schedule.

I had no trouble learning to be a soldier. I liked the tidiness of the platoon quarters, the order, the reports we had to make at attention, the shrill drawn-out call of the barrack-room orderly, "Everybody up!" I liked the setting-up exercises, the cold-water rubdowns, the straightening up of cots, the turnout for breakfast.

We put in a lot of time on field-training and at the rifle range. We would get back to the barracks, sometimes wet to the bone from rain and snow, so tired that our eyelids were glued together. But before we could turn in, we had to clean and grease our carbines and put all our gear in apple-pie order.

The time it took us to get all that done before we heard the sergeant major's grunt of approval! At first we didn't even have a spare minute to write home. But gradually we worked into the rhythm of army life. We learned not to waste a single minute. We acquired speed and confidence and grew physically and emotionally stronger.

## Oath of Allegiance

January 8, 1956, was a day I will remember all my life. There was a nippy frost outside. The trees creaked and the snow shone dazzling white in the sun. We were called to attention in the school's main hall. As his name was called, each cadet, grasping his rifle, stepped out of the ranks, faced his mates and the commander, and recited the oath of allegiance. It was with very deep emotion that I stepped forward and pledged, "I, a citizen of the Union of Soviet Socialist Republics . . ."

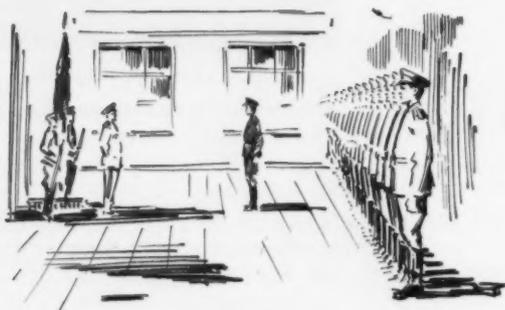
I wrote home. I wanted to tell my parents about the feelings that surged inside me as I recited the oath of allegiance. All of us at the

school were inspired and we enthusiastically got down to our studies.

Lieutenant Colonel Kodner of the Engineers gave us aircraft and flight theory. We liked his teaching from the very first. Captain Romanov, a man with a luxuriant shock of wavy hair much like that of the poet Pushkin, took us into the fascinating world of tactics. From him we learned aerial combat and the great importance of teamwork between the leader and cover-up. He made us understand that in modern aerial combat one pilot had to support the others with everything he had and that this collective action was the decisive factor. After each class there were lively arguments; each of us had his favorite ace.

All the instructors at the school were insistent that we use what we learned in a creative way. They taught us the established concepts and axioms but continually urged us to think critically and search for new and untried solutions to problems. We were rookies and hadn't even been up in a jet yet, but our officers and instructors talked of us as their future replacements, stressing the fact that it would be our responsibility to develop Soviet aviation. All this enhanced our self-respect, made us want to study harder and learn more quickly.

When spring drew near, the training flights began. Those cadets who had never been up before were delighted. But we "old-timers" who had been through the aviation club school were disappointed when we saw the old YAK-18's again.



Most of our flying was done in the summer, when we were in the field. Our Fifth Squadron had its tents pitched on the picturesque bank of the Ural River, and after a hard and sweltering day we went swimming in its deep, fast and icy water, not at all like the tame swimming in town, near the school. We put up a bath house and a diving board and spent what spare time we had on the river.

Our squadron was first to complete flight training, and since we had time to spare the commanding officers, approving of the Young Communist League Committee's initiative, permitted us to go to a collective farm in Sharlyk District, about 125 miles away, to help the farmers take in the potato crop.

### Valya

We received no mail at the collective farm, and by the close of our harvesting stint I was very lonesome for Valya. I had met her some time back and liked everything about her—the kind of person she was, her clear brown eyes, her braids, her freckled nose.

After secondary school Valya had taken an office job with the city telegraph office. We had met at a school dance, just after we had gotten a crew cut, and the girls called us "the baldies." Valya, who was wearing a light-blue dress, was shy. I asked her for a dance, and that was the beginning of our friendship.

Valya is a year younger than I. She was born in Orenburg, and before I appeared on the scene she had never been out of the city. Her father, Ivan, works as a cook at the Krasnaya Polyana Sanatorium, and her mother, Varvara, is a housewife.

The Goryachev family is rather large—three sons and four daughters—and since Valya is the youngest, she has always been the pet. I started calling at her house soon after we met. We had a good deal in common—we both liked books, skating and the theater. Every time I got leave I would race off to the Goryachevs' on Chicherin Street. I often took my buddies along.

I felt at home with Valya's family. Ivan was a fine cook and made especially good *belyashi*, a kind of meat pie favored by the Ural Cosacks. We always fell to with a hearty appetite. Our rations at school were not bad, but *belyashi* was never on the menu.

When our potato digging ended, the squadron went back to winter quarters at school. I had no chance to see Valya because we had to get down to intensive training for the parade to commemorate the Socialist Revolution. I'm a fairly good footslogger but I never made it up front. On the holiday, when the school paraded through the streets of Orenburg, Valya spotted me in the ranks and we smiled at each other.

### Furlough Home

I spent the holidays with her and then went home on furlough.

Nobody at Gzhatsk had ever seen me in uniform, with stripes besides—I was now the platoon sergeant. Gzhatsk was growing and more and more new houses were being built. Dad and Mom were quietly growing old. Sis and my elder brother were doing what they could to help them out. Our little Boris had grown into a young man of 20. I was glad that I would be able to help the old folks more when I became an officer.

I dropped in at my old school to say hello to my teachers and former classmates.

I was home, but I found myself missing Orenburg. The school had become my second home and then, of course, there was Valya. Mom sensed that, and when we two were alone one evening she asked what was bothering me. We had an old childhood rule not to keep secrets from our parents, and I told Mom about Valya.

"Are you planning to marry her?" she asked.

I hadn't decided yet. I was against hasty marriages. And besides, I couldn't support a family on a cadet's pay.

"If you love her," said Mom, "marry her—but for life, like Dad and me, for better or worse. And always share everything."

After that she began to look at me differently and offered me some useful advice.

"A good millstone," she liked to say, "will grind everything; a bad one will be ground to dust itself."

I didn't spend my entire furlough at home; I went back to Orenburg. I didn't have to tell my squadron buddies and the officers why I had come back earlier; they understood. So did Valya. Our friendship gradually ripened into love. On my birthday she gave me two photographs of herself. In one she was wearing a nurse's smock, and in the other her Sunday best. On the back of the second photo she wrote, in a handwriting very much like mine, "Remember, Yuri, that we forge our own happiness. Do not bow to fate. The art of waiting is a great art. Keep this feeling in your heart until that happiest of moments when we shall be together. March 9, 1957. Valya."

Valya was right. We did indeed forge our own happiness.

### Our Sputnik in the Sky

At last came the long awaited day of my first flight in a MIG. How beautiful it looked glistening in the sun, delta wings turned neatly back toward the fin! A harmony of proud bold lines!

"Jet working!" came the cry, and shuddering, as though in eager anticipation, the plane roared along the take-off strip. I took over and knew at once that this ship was different from those I had grown used to and that I would have to work hard to learn to fly it as well as I did the others.

First I took the back seat, then the front seat with the instructor behind, then the instructor sat back and watched me at the controls. It was only after he was certain I would do all right that he let me take a MIG up for a solo flight. It went off the same way as my first solo in the YAK-18. It was with the same thrill that I took off, described a broad circle in the cloudless sky and, pleased as Punch, returned to the airfield, convinced that higher speeds take harder flying. I did a lot of flying between then and graduation exams.

We were out on the airfield every day from morning to evening preparing for exams. It was at that time the great event took place that astonished the world—the first Soviet artificial earth satellite was launched. I remember Yuri Dergunov running up and yelling, "Sputnik! It's our sputnik in the sky!" Again what had been written about so much in the world press, what people had talked about so much, had come true.

When we got back from the airfield in the evening, we gathered around the radio for news flashes about the movement of the world's first "cosmonaut." Many of the cadets were already rattling off the main elements of the sputnik's flight—its velocity of 8,000 meters (26,400 feet) a second, a speed difficult to grasp; its apogee and perigee; the angle of its orbital tilt to the equatorial plane; the cities above which it had already passed and those it would be passing.

It was a pity, we thought, that it wouldn't be flying over Orenburg. Sputnik was the main topic of conversation, and its round-the-earth flight had the school on tenterhooks. Everybody—cadets, instructors, officers—kept asking, "What next?"

### Man for Space

My pal Valentin Zlobin assured us excitedly, "In 15 years from now, fellows, we'll be sending a man into space."

Kolya Repin said, "Well, that's as sure as eggs are eggs. But who? It won't be us. By that time we'll be too old. When you get older, your reactions slow down, your vision is dimmed and you don't think so fast."

We argued about who it would be. Some thought it would certainly be a scientist, an academician; others thought it would be an engineer. There were those who favored a doctor, a biologist, a deep-sea diver. I hoped it would be a test pilot. If it were an airman, he would have to know a great deal about science and engineering. A space vehicle, we thought—our ideas at the time were very hazy—would naturally be

much more intricate and trickier to handle than any of the known types of aircraft.

We tried to visualize the future spaceship. A rocket perhaps? A sphere, a disc, a rhombus? Everyone had his own idea, mostly borrowed from science fiction.

Thousands of young men and women wrote to the newspapers offering to fly in a man-carrying sputnik. It was Soviet patriotism speaking through these young people who were willing to risk their lives for the advancement of knowledge and in their country's behalf. I shared that heartfelt wish and realized, as they must have, that very few would be chosen. It would take encyclopedic knowledge and perfect health. I knew then why Mom used to say that health was priceless.

### Graduation and Marriage

The surge of enthusiasm that the sputnik brought everyone in the country carried us through the graduation exams. Every cadet worked to measure up to this historic development, to demonstrate to the Board of Examiners that he was a true son of his time preparing himself to make a contribution to his country's progress.

To a young airman graduation is one of the great events in his life. I still have the certificate that reads:

"Citation of Cadet Yuri Alexeyevich Gagarin for promotion to the rank of lieutenant. At school showed himself a disciplined and politically well-grounded cadet. Knows and abides by the Soviet Army Regulations and Manuals. Physically sound. Theoretical training excellent. Flight training successful. Likes flying and flies with confidence. Passed state examinations in piloting and combat techniques with top marks. Has good knowledge of aircraft. Completed school with first-category rating. Devoted to the Communist Party of the Soviet Union and his socialist homeland."

It was this precious slip of paper that really gave me my wings.

While we were waiting for the Defense Ministry in Moscow to certify our papers, we were in what airmen call "blue quarantine," looking forward impatiently to the day we would receive our appointment.



One of the photos Valya gave Yuri for his birthday before they were married.

But I was in seventh heaven, too, because I had proposed to Valya and she had accepted. Together with my school buddies and her girl friends, we went to the registrar's, signed the Book of Newlyweds and plighted our troth. We decided to have two wedding receptions—one in Orenburg, to coincide with the fortieth anniversary of the Great October Socialist Revolution, and the other in Gzhatsk when I got my leave. We were showered with kind advice, as are all couples when they start on their own.

At the Goryachevs' everything was in a whirl. Valya's sisters were busy with preparations to welcome the guests, and Ivan was planning a spectacular exhibition of good cooking. Everybody was pleased that we were finally getting married after two years of courtship.

Valya and I thought it two years well spent. We had learned to know each other well and to look at things the same way. We knew that we would work together to overcome the difficulties that were bound to crop up on the long and none-too-easy voyage through life. At the registrar's, in the presence of our friends, I reminded Valya of what Mom had said, "Marry her for life, for better or worse, and always share everything."

"Yes," Valya replied, "always together," and her words rang out like a vow.

### Dog in Space!

On November 3, just before our wedding, another sputnik, the second, was hurtled into space. It was bigger and heavier and carried the dog Laika in an airtight capsule.

As I read the accounts of the flight I thought: Now that a living creature has been shot into space, why can't a man be? And, for the first time, I consciously asked myself, Why couldn't I be that man?

It was asking too much. There were probably thousands of people around much better prepared than I. And besides, was it worth agitating myself about something that wasn't likely to happen soon, especially with my graduation, wedding, leave and appointment so much closer. They were my life today. But once the idea flashed into my mind, it burned a trace before it faded away.

On the eve of the holiday, the celebration of the 40th anniversary of the October Revolution, all the graduates—in natty officer's uniform but still with the shoulder straps of the cadet—lined up in the main hall. There was a solemn hush as General Makarov, the school's head, came in. In the crisp tones of a commander he read the order that certified us as air force pilots with the rank of lieutenant. As he handed us our gold-braid shoulder straps he congratulated us and shook each of us by the hand.

With my friends I went straight from school to the Goryachevs' roomy apartment. Valya came out to meet me in her white wedding dress. I took off my greatcoat and there I was in all my new splendor. Valya hadn't yet seen me in officer's uniform. I kissed her, the first time we had kissed each other in front of her parents. Now we were really and truly husband and wife. We were very happy and wanted to share a bit of our happiness with everyone else.

The wedding celebration went off beautifully. The bride, of course, was the prettiest girl there. And Ivan had lived up to his word—the table groaned with the good things he had set out. Our friends congratulated us with the traditional "gorko!" ("it's bitter"—shouted to newlyweds, suggesting that they sweeten things with a kiss). To make a long story short, it was like any other Russian wedding party.

We switched on the radio as the announcer was saying, "Two envoys of the Soviet Union, two stars of peace, are circling the earth. On the 40th anniversary of the October Revolution our scientists, designers, engineers, technicians and factory workers have given the Soviet people a grand present, they have made one of man's most ambitious dreams a reality."

### Why North?

So I had finally become an officer, a fighter pilot. I had a wife I loved and, for the first time in my life, a room of my own. Since I had finished school with a first-category rating, I had the choice of an appointment. If I wanted to, I could go South to the Ukraine with its fine and well-appointed air force garrisons. I also had an offer to stay on at the school as a flying instructor.

But I had already made up my mind to volunteer for the hardest assignment. My membership in the Young Communist League obliged me to do that. League members had always taken the lead in socialist construction and still did. They were pioneering in the virgin lands, turning millions of acres of unused land to the plow, building open-hearth and blast furnaces, stemming rivers with the dams of hydro-power stations, and cutting new roads through the Siberian taiga. What it amounted to was that as a Komsomol member I could not let myself drop anchor in a quiet harbor.

My friends—Valentin Zlobin, Yuri Dergunov and Kolya Repin—shared my feelings. We all volunteered for the North.

"Why the North?" Valya asked me. It was hard for her to understand my choice.

"Because that's where the going is hardest," I answered. But that wasn't an adequate answer. Perhaps it could do for a brother airman, but not for a young girl who had spent all her life in a modern city provided with everything by a loving family. For her it meant leaving school, parting from her family, saying farewell to her accustomed way of life. Valya had never been anywhere except Orenburg, and I could understand why she would be fearful of all the unknowns of the North.

When she learned that I was planning to go with my buddies, she bristled. "Are your pals more precious to you than I?" she wanted to know.

What could I say? I kissed her long and hard. We decided that I would start off alone, write her how things were, and when she finished her nurse's training, she would join me. She liked that arrangement, especially after she realized that there was a much greater need for nurses in the North than in Orenburg.

There was a little time before I had to leave for my new job, so Valya and I went off to Gzhatsk to visit my folks. The family liked my wife. When Dad complained that we'd had our wedding in Orenburg and not in Gzhatsk, I let Valya answer for me. "But we wanted a Komsomol wedding, Daddy dear," she said, "and we couldn't have had all of my girl friends and Yuri's buddies come here to Gzhatsk, could we?"

I don't know whether the argument convinced Dad, but the fact that we were to have a second wedding celebration in Gzhatsk did. The party was just as gay as the one in Orenburg.

Valya couldn't stay in Gzhatsk long since she was due back at school.

We traveled back to Moscow together. I showed her the sights and we said good-bye at the Kazan railroad station. She cried a little, and I didn't feel any too happy either. When the train pulled out, I kept looking at the blinking red taillights of the train until it vanished in the distance.



### Farewell to Moscow

The following day, with Valentin Zlobin and Yuri Dergunov, I also said good-bye to Moscow. We spent the time en route North playing chess and admiring the frost-spangled woods of Karelia. We cut across a land of needle-pointed firs. Then we left the Arctic Circle behind for a region whose scenery, seen through the train window, grew more austere by the hour. Outside it was cruelly cold and misty. Although the hands of the clock indicated it was midday, we were enveloped in the diaphanous blue mist of night.

We arrived in the wee hours of the morning, but a fire had been kept going for us at the garrison guest house. Some of our friends from Orenburg—Venya Kiselev, Kolya Repin, Alyosha Ilyin and Vanya Doronin—were already there. As soon as they hugged us, our tiredness vanished and we forgot we were sleepy. We talked on endlessly about everything, everybody chiming in at the same time. I was able, though, to gather the important fact that our chief was a flyer with a very good record and that he was very demanding but fair.

We were put up in a room with three cots. Valya Zlobin plunked himself down on the best one near the window; Salikjan Baibekov, a Tartar from Ufa, got the next best one; and I managed with what was left. By the time we got under our blankets it was getting on toward dawn.

After breakfast we reported to the commander, a lieutenant colonel. Our first impression coincided with what our buddies had told us the night before. The commander said he hoped we would be worthy of the unit's tradition. In past years the unit had been among the best. It had suffered no mishaps and had captured many trophies for achievement both in the air and on the ground.

He pointed to a portrait framed in black crepe. "That was Sergei Negulayev, a Soviet Danko. He rammed a fascist plane in a dog fight, giving up his own life to save his buddies." He didn't have to say any more.

We were a happy family, like a good ship's crew. When one of the men got a letter, he read it aloud to the rest, just as the men had done in the trenches during the last war.

Valya wrote short letters, but often. She didn't say much about her progress at school, but I could see that she was doing well and liked nursing. Between the lines I sensed her loneliness, her hope that we would soon be together. But she never complained. These same feelings were evident in the letters that my buddies got from their friends and loved ones.

### All Kinds of Weather

This was a new and interesting world we had come to. The experienced older pilots flew in all kinds of weather. The unit did interception duty, went up for long-distance flights, fought mock battles, did gunnery practice. Our flight commander Vasilyev, who was used to any weather, had the reputation for being one of the best interceptors in the squadron.

One time, when I was officer of the day and Vasilyev was in the air, the sea was blanketed by a thick fog. The cedar-clad hillocks around the airfield were hidden by a murky veil. The situation was critical. It seemed impossible to land. Nevertheless the flight commander and his pair reached the airfield and cut through the fog to make a perfect landing, to our great relief.

I rushed toward the commander. He acted as though nothing unusual had happened. Later on, talking about it, he made the comment, "You must be very exact with your navigation and have implicit faith in your instruments. And, naturally, you must keep not only your plane but your nerves under perfect control. In a fighter you're the whole crew—pilot, navigator and gunner all wrapped up in one."

This flight of Vasilyev's dramatically illustrated to us young pilots the need of keeping cool in a difficult situation. As for our flight commander, he had earned our unmeasured admiration.

We spent the tail end of winter on theory and on learning more about aircraft in general. Then we took the test for certification as

arctic flyers. To get through we had to know the many special kinks involved in this kind of flying and know them very well.

We started flying in late March, when the long arctic night was beginning to give way to the just as long arctic day. You could feel the breath of spring everywhere.

The flight commander went up with me. As I climbed into the cockpit, there was that before-flight thrill again; I hadn't been in the air for several months. We took off when night was ending and the ground was bathed in the bluish half-dark of daybreak.

As I gained altitude, I seemed to merge, as I always did in flight, with the plane. When the needle of the altimeter reached the designated mark, I looked down and saw the sun. It has just risen above the horizon, and both sky and earth had the golden glow of dawn. Below were the hillocks covered with rose-tinted snow, the ground dotted with blue droplets of lakes, and the bleak dark-blue sea dashing against the granite cliffs.

"How beautiful!" I exclaimed involuntarily.

Vasilyev's sober voice cut in, "Get your eye back on the board."

So real arctic flying began.

### Northern Blizzard

Soon after, I had a hair-raising experience. I was flying blind at the time. The weatherman had given us a good forecast for the whole day, with no expectation of bad weather. But as I was doing the last exercise, the sky darkened and the islands and gulfs below disappeared.

It meant a blizzard was coming up, not only in the sky but on the ground as well, the nastiest kind of arctic weather. I radioed back to the airfield. It wasn't too bad yet, they told me, but visibility was getting poorer every minute and the auxiliary landing strip was already snowed under.

"Well," I told myself, "it looks like a bout with a blizzard." I checked the instruments—the fuel was running low. I had to keep a clear head, to keep cool, I thought; that's the main thing. I reminded myself of Vasilyev's experience.

The flight supervisor called, "Return immediately." I could hear the anxiety in his voice.

I hurriedly figured the shortest route to the airfield, taking all factors into consideration—the strong headwind, altitude, time and fuel. As I cut through the blinding mass of snow, I listened to the flight supervisor and followed his orders exactly. I knew that the plane's life and my own depended on how accurately I carried out the quiet orders of this experienced airman. His calm was contagious.



After graduation Yuri volunteered for duty in the Far North. The life was rugged, but as a YCL'er he felt that he should take the hardest assignment.

This self-possessed officer had once told me, "A real flyer must have these four attributes—a warm heart, a cool head, a strong hand and a clear conscience."

The instruments showed me that I was near the airfield, but since I couldn't see the ground I had no way of figuring out how to land. Though my nerves were stretched taut, I had to make one more circle, get on the guiding beam and glide down. I finally spotted the gray ribbon of landing strip and came down. The flight supervisor shook my hand and said, "Success favors the bold."

### An Automatic Cosmic Laboratory

In mid-May the even tenor of our life with its classes in theory, flying, Komsomol meetings and routine duty as officer of the day was interrupted by a new piece of space news. Sputnik III had been launched as part of the IGY program. Only a while ago we had been discussing the articles published in *Pravda* before May Day on the research done with the first two sputniks, and now this third one, much heavier and carrying improved equipment, was in space.

Sputnik I had girdled the earth 1,400 times, and Sputnik II had done nearly a thousand revolutions better on its journey of nearly 100 million kilometers (62 million miles). We read and discussed once again the scientific information the first two sputniks had gathered through radio and optical observation on atmospheric density, the ionosphere, cosmic radiation and biological data of various kinds. We were thrilled to read that living organisms had borne up well in this flight research program whose ultimate aim was to put a man in space.

The government was apparently sparing no funds for anything that

had to do with the breakthrough into space. There were thousands, perhaps tens of thousands, of specialists and technicians in scores of fields working for a solution to the greatest task man has ever undertaken.

The news we got from the radio about the new sputnik was rather scanty. It took time for the Moscow papers and for mail, generally, to reach our remote outpost. We kept asking at the post office, as though that would hurry the postman, and finally received the issue of *Pravda* devoted almost entirely to Sputnik III. It gave us fresh information on the flight and the orbit and, most important, details on the design. To all intents and purposes Sputnik III was an automatic space laboratory. We marked up the whole paper with colored pencil and marginal notes.

A while later the regimental engineer lectured us on the cosmic breakthrough. Practically all the officers were present, many with their wives and children.

The teen-agers were fascinated when the lecturer said that people would soon be traveling to our neighboring planets. They were used to planes, these kids, they saw them every day, but a spaceship was something else again.

### The Northern Lights

Soon afterward Valya completed her schooling and was certified as a doctor's assistant and laboratory technician. She joined me in early August. But we had no place to live; the house in which I had been promised an apartment wasn't finished. The problem solved itself when a schoolteacher friend of ours who was going on vacation offered us her room for the time. We accepted her kindness with thanks.

Autumn passed quickly, and the long arctic winter night set in. Valya and I would often stop to admire the shimmering northern lights that filled up half the heaven. It was a majestic sight. I flew through these silvery bluish streaks that flashed between earth and sky. Thousands of feet up they were even more beautiful.

Evenings we read aloud. Generally I would be sprawled on the cot reading, with Valya listening and doing the household chores. We borrowed books about pilots from the library. We liked *The People Below* by Antoine de St. Exupéry, the French flyer and writer who died a hero's death only three weeks before his country was liberated. He wrote of war flyers and of those who flew the mail in peacetime. His books were full of the romance and poetry of flight and of love for people.

We liked the way he wrote: "All he had to do, the pilot, was to let go, and their lives would immediately crumble into a handful of useless dust. Fabian held two live, pulsing hearts in his hands—his comrade's and his own."

Unfortunately, we did not have too many evenings free for that kind of reading. Valya had her community activities, and I took classes in the evening at the Marxism-Leninism University where I studied the works of Marx, Engels and Lenin. I filled whole notebooks preparing for the seminars.

In Lenin's writings I found many of today's questions dealt with. I copied this quote that made me think of the sputniks, "The human mind has discovered much in nature that is marvelous; it will discover still more as it extends its power over nature."

### Moonshot

Sputnik III was still girdling the planet when the world had reason to marvel again. On January 2, 1959, the Soviet Union fired a multistage rocket at the moon, an event of epochal significance that carried man deeper into outer space.

Three weeks after the moonshot N. S. Khrushchev, in his report to the 21st Communist Party Congress, said to stormy applause, "The world's first earth satellite was the Soviet sputnik. The first artificial planet of the solar system was made in the Soviet Union."

When the 21st Congress mapped out the seven-year plan, it set the country great tasks in all fields of work and thought. We made a close study of the congress proceedings, well realizing that the seven-year plan was a new decisive milestone along the road of our country's progress.

Although winter was still very much here, the congress introduced a spring note. Everything awakened and stirred. The seeds of the new seemed to be sprouting all over.

In my personal life, too, the congress played an important role. It was then that I decided to apply for candidate membership in the Party—a perfectly natural step since everyone on whom I tried to pattern myself, everyone from whom I had learned how to live and work, was a Party member. When I told Captain Anatoli Pavlovich Roslyakov,

our Party Secretary, he said, "Fine, Yuri, the Party will make a real fighter out of you."

That very same day I filled out an application, spoiling any number of sheets before I could frame the few sentences that would express what I wanted to say. The Komsomol organization gave me the necessary recommendations and I was accepted as a candidate member. To earn the right to membership I had to work and study even more than I had previously.

### It's a Girl!

One big event followed another. In mid-April I took Valya to the maternity hospital in the nearby town. I hoped for a baby girl and kept phoning the hospital for developments. Finally I got this question, "Were you hoping for a boy?"

"No, a girl," I stuttered.

"Well, you have one. Congratulations."

A week later Valya left the hospital. I came with a jeep, and all the way home I held the baby, afraid that I might break the delicate and precious object if I as much as moved.

The road was as straight as an arrow and bathed in sunshine. White sea gulls circled overhead. A fresh April breeze blew in our faces. I was so happy I wanted to sing. I thought it would be wonderful if our daughter had such a radiant spring road to walk all her life. We named her Yelena.

The baby brought new and delightful household chores. Only young fathers can understand how I felt bathing my fine daughter, diapering her, holding her, whispering improvised lullabies in her ear. I rushed back home from the airfield every day to busy myself with the baby or help Valya with the household duties.

### Mock Air Battle

The flying we did kept getting more and more involved. We flew over the turbulent and stormy seas of spring; we flew in formation, an important element in aerial combat; we did blind flying and studied radio navigation. In the mock of dog-fighting we did over water my opponent was Boris Vdovin, a top-notch fighter, whom everyone thought invulnerable.

One day I was ordered to intercept Vdovin. To intercept and attack an enemy plane you have to overtake it and "sit on its tail." I gathered height and made for the target area. Vdovin didn't see me when I crept up to attack him from above and behind. But before I could come within range to record a bull's-eye on my film gun, Vdovin threw his MIG into a spin.

I raced after him and we went into a mad merry-go-round, but neither of us was able to get on the other's tail. We could have gone on like that until our tanks ran dry. But Vdovin gave me a signal to join him, and, very pleased with each other, we flew back to the airfield wing to wing.

"You're getting to be pretty good, young man," Vdovin told me with an approving chuckle when we had relaxed a bit down on the ground. "You're even flooring your teachers. Keep it up."

I kept up with my sports. The regular training helped me to fly better. In winter it was mostly skiing and skating; in summer, track and field and basketball. I like basketball for its emphasis on team work. To hurl the ball into the basket takes a sure eye and coordination. There are probably other games as good, but for an old basketball fan like me it's the world's best game.

In September 1959, three days before Khrushchev took off for Washington, two more historic firsts took place. The atomic icebreaker *Lenin* steamed up the Neva River, and a rocket with our Soviet coat of arms was launched to land on the moon. It was as though two red five-pointed stars had lighted up simultaneously—the first on the prow of the atomic icebreaker, the second on the far-off road between the planets.

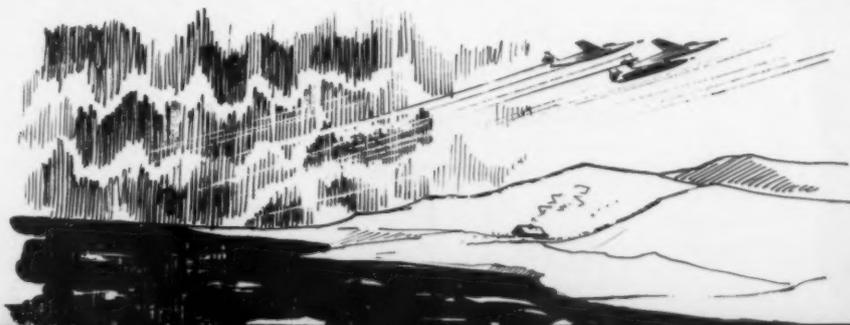
Through radio and press reports we followed N. S. Khrushchev on his American tour. We hung a map in our squadron recreation room and ticked off the cities on his itinerary—Washington, New York, Los Angeles, San Francisco, Des Moines, Pittsburgh, and back to Washington again. It was one round of greetings and speeches.

At the National Press Club in Washington newsman asked him, "When are you planning to launch a man to the moon?"

Khrushchev replied, "We shall send a man into space when we have the necessary technical conditions. So far we haven't got them."

This answer excited and calmed me down at the same time. It meant that serious preparations were under way for manned flight, but it also meant that I still had time to put in my bid as a prospective cosmonaut.

(To be continued next issue)



*This is the third in a series of articles on the Communist Party of the Soviet Union. The author, a prominent statesman and journalist, is Deputy Chairman of the Council of Ministers of the Russian Federative Republic and has participated in many Party congresses. At the Nineteenth Congress he was elected to the Party's Central Auditing Commission.*

**I**N A TALK on the *History of the Communist Party of the Soviet Union* I had recently with a visitor from abroad, a historian, he asked a question frequently put to me. "In your contemporary historical literature you relate major events, as a rule, to congresses of the Communist Party. Why is that?"

"Party congresses," I answered him, "and the resolutions they adopt are landmarks in Soviet history. Every new stage in our progress toward communism is always linked with a particular congress. The congresses play so important a role because of the great prestige the Party enjoys among the people and the fact that it is the ruling Party, the leading and guiding force of the Soviet people."

A congress is the highest organ of the Communist Party of the Soviet Union. Regular congresses are held at least once every four years. Special congresses may be called either by the Party's Central Committee on its own initiative or on the demand of at least one-third of the total membership of the Party represented at the previous congress. The decision to call the congress and the questions to be discussed must be published in the press at least a month and a half before it convenes.

The congress decides major questions facing the Party and the country. It hears and approves the reports of the Party's Central Committee and Central Auditing Commission, re-examines and revises the Party program and Rules, and elects the new Central Committee and Central Auditing Commission. It maps out the country's general line in domestic and foreign

## Communist Party Congresses

policy and outlines the program of its economic and cultural development.

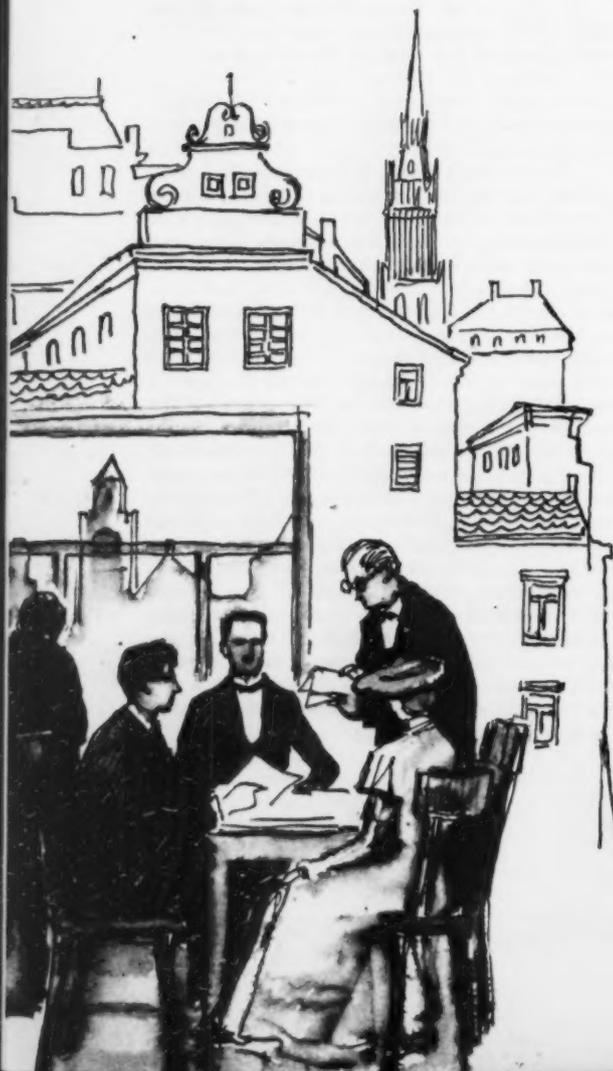
The basis of representation is fixed by the Central Committee. For the Twenty-second Congress, to be held in October, one voting delegate is to be elected for every 2,000 members, and one delegate with a voice but no vote for every 2,000 candidate members. The delegates are elected at regional Party conferences and congresses of the Union Republics.

### The First Party Congress

In Minsk there is an out-of-the-way building, now a museum, where the first congress of Russia's Social-Democrats met secretly in March 1898. The nine persons who constituted the congress represented the branches of the League of Struggle for the Emancipation of the Working Class in St. Petersburg, Moscow, Kiev and Yekaterinoslav. Lenin called these organizations the first significant beginnings of a revolutionary party. The history of our Party dates from this congress.

The congress adopted a resolution to form the Russian Social-Democratic Labor Party (RSDLP), elected a Central Committee of three, and issued a Manifesto proclaiming the aims of the Party. "The Russian proletariat," it declared, "will throw off the yoke of the autocracy so that it can more vigorously carry through the struggle against capitalism and the bourgeoisie to the ultimate victory of socialism."

Although the congress announced the founding of a party, actually it was not established then. The Social-Democratic organizations, scattered as they were all over the country, had no unified program, rules or party center and no ideological or organizational unity. Shortly after the congress



met the czarist police arrested two of the three Central Committee members, among other leading Social-Democrats, and that complicated the problem even more.

### A Time of Great Changes

The times demanded a well-organized party. By the beginning of the twentieth century the political situation had grown tense. The labor movement was developing and needed mature political leadership that could organize and lead the workers in the struggle for their emancipation. Only a party armed with Marxist theory could become such a leader.

In 1903 the Second Congress of the Russian Social-Democratic Labor Party met secretly, first in Brussels and then in London. The congress could not be held in Russia because of the persecution of revolutionaries by the czarist officialdom. It was attended by 43 delegates representing 26 organizations.

Before the congress could convene, the various local groups and committees had to be united in a single body and the aims and tasks of the new party had to be propagated. *Iskra* (*The Spark*), the all-Russian political newspaper founded on Lenin's initiative, played an outstanding part in this effort. The paper's first issue appeared in December 1900.

The principle result of the Second Congress of the RSDLP was the founding of a revolutionary Marxist party, the Bolshevik Party. The ideological and organizational principles on which it was founded had been worked out by Lenin and his comrades-in-arms, who were already beginning to be called Leninists, even then. The Party members in the main were professional revolutionaries tempered in class battles.

The congress adopted a program and the Party Rules and outlined the principal tactical questions facing the Party. The program consisted of

The Provisional Government did its best to prevent the revolutionary movement from developing to the point where it furthered the interests of the workers, both urban and rural, the interests of all the people.

The Bolshevik Party called on the people to demand that the composition of the government be changed and that its policy be altered in behalf of the people, thus pursuing its openly declared aim of peacefully transforming the bourgeois democratic revolution into a socialist revolution. But the counterrevolutionary bourgeoisie retaliated with bloody attacks against the workers and their revolutionary organizations and forced the Bolsheviks to change tactics.

In July 1917 the Sixth Congress of the Party, representing a membership of 240,000, met secretly in Petrograd. The bourgeois press had been viciously baiting the Bolsheviks, and Lenin had to hide in a hut in Razliv, not far from Petrograd. From there he guided the work of the congress, which proclaimed the policy of an armed uprising and the establishment of a true people's power. It addressed a manifesto to all workers, soldiers and peasants, calling on them to prepare for the decisive battles, for the struggle for a new life. The Revolution broke out in the early morning hours of October 25 (November 7 by the new calendar) in Petrograd (now Leningrad). The Provisional Government was overthrown, and the first Soviet Government was proclaimed with Lenin at its head.

### The Party Calls for Peace

Following the victory of the October Revolution our Party became the ruling party, and it was immediately faced with complex problems. On the solutions hinged the fate of the country and the people.

On the very first day of Soviet power, the Party energetically began to wage a struggle for peace, for an immediate end to the war. The Decree

## LANDMARKS in Our Progress

By Vasili Moskovsky

two parts—a minimum program and a maximum program. The minimum program defined the immediate tasks for the Party's guidance of the revolutionary struggle of the working class: to overthrow czarism and establish a democratic republic, introduce an eight-hour workday, and achieve full equality for all nations. The maximum program indicated the long-term objective of the Party: namely, the building of a socialist society.

The appearance of a revolutionary party of the working class was of great importance for the country's future. Besides carrying on strikes to improve working and living conditions, the working-class movement advanced political demands for democratic freedoms.

It was a time of great change. The working class, a powerful revolutionary force, had appeared on the scene. Revolution in Russia was maturing. It broke out in 1905 in an armed uprising of the workers against the czarist autocracy. The uprising was also marked by vigorous peasant action.

During the period of revolution and the years of reaction that followed, the Party worked tirelessly among the people. Arrest, exile and execution served only to make it stronger.

The Third, Fourth and Fifth Congresses of the Party mapped out the tactics and strategy for leading the working class in a decisive assault on czarism.

### The Autocracy Overthrown

At last the storm broke. In February 1917 the autocracy was overthrown by a people in rebellion. But the power remained in the hands of the Provisional Government, representing the interests of the propertied classes.

on Peace was among the earliest issued by the government. It invited all belligerent countries to conclude a general democratic peace, one without annexations and indemnities.

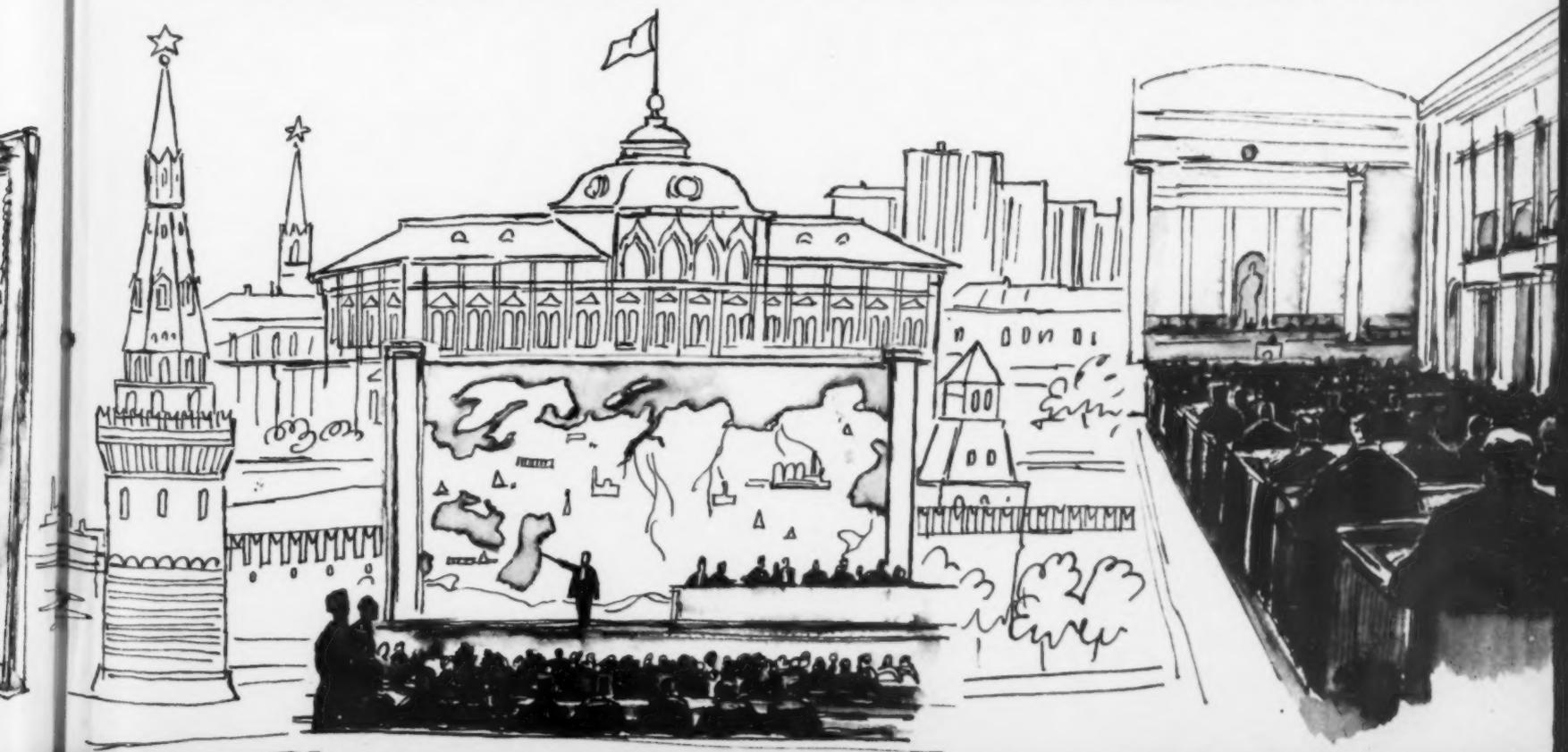
But Britain, France, the United States and the other Entente countries did not accept the proposal, and the Soviet Government was therefore compelled to negotiate alone for peace with Germany and her allies.

As negotiations proceeded, it became evident that the German imperialists intended to impose a humiliating peace. Considering the domestic and international situation, the country's devastation and the fact that the army, worn out by the war, would not survive an offensive, the Party decided, on Lenin's recommendation, to accept the onerous peace terms. It was the only way to save the young Soviet Republic. A breathing space was imperative to gather strength, to create new armed forces—the Red Army—that would be able to defend the gains of the Revolution.

Not everybody agreed. There was no unity in the Party on the issue of a peace treaty with Germany even after it was signed on March 3, 1918. The so-called "Left Communists," led by Trotsky and Bukharin, called openly for repudiation of the treaty.

To settle the question the Seventh Congress of the Party was convened the same month. It affirmed the correctness of Lenin's line and its support of the government in signing the treaty. Thus the respite needed to stabilize the country's economy and build up a new army was won. But the peace treaty was short-lived, soon broken by interventionist foreign powers.

The Party until then had been called the Russian Social-Democratic Labor Party. On Lenin's recommendation the Seventh Congress changed the name to the Russian Communist Party. Speaking on the motion for a change of



name, Lenin said, "In starting on socialist changes, we must clearly set before ourselves the goal toward which they are directed in the final analysis—namely, the creation of a communist society. . . ."

### Building Socialism

It was under the most difficult condition of foreign military intervention and civil war that the young Soviet Republic took its first steps along an unbeaten path of history. And it was the Communist Party that guided its steps.

With the October Socialist Revolution an accomplished fact and the old program largely effected, the Party had to work out a new one to suit the changed situation. The new program for the all-out socialist construction of the country was adopted by the Eighth Congress of the Party in 1919.

Life had demonstrated the vitality of the principles on which the Party's program was based, principles that had grown out of the country's historical development. The first program, adopted in 1903, declared that a revolution was inevitable in Russia, and the revolution took place. The program adopted in 1919 proclaimed the construction of a socialist society in Russia, and that society was built.

"We can declare with pride," Nikita S. Khrushchev said recently, "that the program worked out by Lenin has been put into practice by our Party. Socialism in the Soviet Union has triumphed completely and for all time. Today the Soviet people are successfully building communism."

The goal of all Communist Party activity has been to build the new society. That is manifest in all major decisions made by Party congresses since the October Revolution.

### Industrializing a Backward Russia

With the Civil War still under way, Lenin advanced the idea of electrifying the country within a 20-year period. In March 1920 the Party's Ninth Congress adopted a resolution "On the Immediate Tasks of Economic Development." The chief point in the Lenin plan was Russia's electrification as the most important condition for the rehabilitation of the national economy and its subsequent reconstruction on the basis of advanced techniques.

There were innumerable skeptics who called the plan for electrification fantastic. Not the delegates to the congress, however. They were men who could see into the future. Many of them had come to Moscow directly from the fighting fronts, but war was not their calling. They were Communists, and Communists are by nature profound lovers of peace. Their element is creative work and their goal is communism, the acme of human creative work and happiness.

When the thunder of the Civil War battles subsided and the long awaited peace came, industrial and agricultural reconstruction began in earnest and made unbelievably rapid headway. The Party's Tenth Congress and those that followed kept the country's eyes centered on the major problem—economic development. The general line of the Party, worked out by Lenin, was to transform backward peasant Russia in a short span of time into an advanced industrial country with a modern agriculture. The Party regarded the country's industrialization as a paramount condition for building socialism.

The plans for socialist construction worked out by the Party were fought with violence by those classes hostile to the people. Although they had been defeated on the battlefield, they did not lay down their weapons. The ideology of those classes could not but influence the unstable and vacillating elements in the Party. And this led to the appearance within the Party of opposition groups which resisted the Party's line on the building of socialism. What the arguments of the opposition amounted to in the final analysis was that socialism could not be built in the Soviet Union so long as it was the only socialist country in the world. This was the argument of people who had no faith in the power of the working class allied with the peasantry, people who were frightened by the difficulties they foresaw. Time and events proved their arguments invalid. Led by the Party, the Soviet people went on to build socialism.

When the Fourteenth Congress of the Party met in 1925, the country, ravaged by the First World War and foreign intervention, was nearing complete rehabilitation. The congress proclaimed in its resolutions the Leninist course of rapid development of large-scale heavy industry, one that could supply the new machines needed by industry, transport and agriculture.

The Fifteenth Congress of the Party, in 1927, held that the country's development could not successfully proceed with a large-scale socialist industry on the one hand and a multitude of small peasant holdings farmed with primitive hand implements on the other. The congress adopted a resolution calling for the launching of the all-out collectivization of agriculture and for large-scale socialist farm production based on new techniques. The resolution cautioned against forcing the peasants into collective farms. It declared that participation must be strictly voluntary.

It was the Fifteenth Congress that proposed the first five-year plan for national economic development. This plan, sponsored by the Communists and approved by all the people, marked an important stage in the country's progress toward an unparalleled flourishing of our country's economy and culture and a higher standard of living. The first five-year plan was completed ahead of schedule—in four years and three months. Subsequent Party congresses initiated the second five-year plan for the years 1933-37 and the third five-year plan for the years 1938-42. This last plan was interrupted by Nazi Germany's attack on the Soviet Union.

After Germany was defeated, the country resumed its peaceful labors. The fourth five-year plan was begun in 1946. The first postwar congress, the Nineteenth, mapped out the fifth five-year plan.

### The Twentieth Congress—Building Communism

The Twentieth Congress of the Party met in February 1956. The Central Committee's report, delivered by Nikita S. Khrushchev, presented a profound and comprehensive analysis of the international and domestic situation, a review of the Party's work after the Nineteenth Congress and a formulation of the major theses which were an important contribution to the theory and practice of building communism. The entire world followed the deliberations of the congress, which was natural. The country had entered a period when the building of a communist society was no longer a point in the Party program but had become an immediate and practical task of the Party and the people. Industry was developing apace, agriculture was advancing rapidly, science was making monumental strides, and living standards were rising—all this was a solid foundation for creating the abundance of material and cultural values required for building a communist society, under which the principle "from each according to his ability, to each according to his needs" would prevail.

Since in its movement toward communism the Soviet Union has to attain the world's highest productive level, one of the cardinal tasks the Twentieth Congress set the Party and the people was to catch up with and surpass in the briefest possible time the most developed capitalist countries in per capita output.

The congress underscored the fact that in our present epoch socialism was no longer confined to one country but had developed into a world system and thereby created new conditions for the solution of domestic and international problems. At the congress Nikita S. Khrushchev developed the Leninist principle of peaceful coexistence of countries with different social systems as it applies to the present epoch, when there are two world camps.

Marxism teaches that socialism will inevitably be victorious in all countries. Answering the question of how this will happen, the congress resolutions emphasized that the victory would not come as a result of the "export" of revolution. Revolution by "export" is alien to the Marxist concept of the historical process. Marxists hold that the victory of socialism will come as a natural and inevitable result of the development of and the struggle between internal contradictions, from which no capitalist country is free.

Of great importance are the theses formulated by the congress: that the forms through which different countries will pass toward socialism are varied, that the socialist revolution may develop peacefully, and that the possibility of the latter is becoming greater in our time.

The Twentieth Congress arrived at the important conclusion that under present world conditions war is not inevitable, that it can be averted and peace preserved by the concerted effort of all peace-loving people.

The congress discussed overcoming the personality cult, which is alien to Marxism-Leninism. It boldly and in a principled manner criticized the errors relating to Stalin's cult of personality and outlined measures to completely eliminate its consequences.

The Party was thoroughly aware of the fact that this open discussion would be grist for the mill of the Soviet Union's enemies, but it was moved by considerations of Marxist principle and the interests of communist construction. In coming out against the personality cult it was necessary, above all, to make certain that no such thing would happen in the future, that guidance of the Party would be based on the Leninist principle of collective leadership with the active participation of millions of working people.

### The Seven-Year Plan

Once the program of the Twentieth Congress had been carried through, the country entered a new period in its development, the period of communist construction. At this historic juncture the Party convened its Extraordinary Twenty-first Congress on January 27, 1959.

The major report, given by Nikita S. Khrushchev, bore the title "Target Figures for the Economic Development of the Soviet Union, 1959-1965." It was a draft for a seven-year plan that had been discussed throughout the country for months before the congress met. It was a great day for our big Soviet family, particularly for those of us who belonged to the older generation and remembered the difficulties and achievements of building socialism. The seven-year plan became a component part of the program for communist construction, and, as a result, the country has stepped up its pace toward the communist future.

The Soviet people have been meeting these seven-year plan target figures much ahead of schedule. The decisions of the last Party congress are being translated into spaceships, bumper crops, huge housing projects, new towns built on waste steppes.

And now, once again, the Soviet people are preparing for a Party Congress, the Twenty-second, to convene in Moscow in October. It will review the Party's work for the past two years, discuss urgent tasks facing the Party and the country, and consider major problems of theory and practice of communist construction.

Nikita S. Khrushchev will deliver the Central Committee's report and speak on the draft of the new Party program; Frol Kozlov will present the changes proposed in the Party Rules. The congress will also elect the Party's central bodies.

The agenda item relating to the Party program is of more than immediate significance. The present program was adopted more than forty years ago. In the period since, the country has made giant strides forward. The new program will sum up the progress made and scientifically define the ways of building a communist society.

Traditionally, the Soviet people greet their Party congresses with new creative projects, with higher production levels, with some added contribution to the national effort. Greetings to this Twenty-second Congress bid fair to outdo all tributes to previous Party congresses.

# EVENTS AND PEOPLE

## A 220-Ton Monolith

A 220-ton slab of granite for a sculptured memorial to Karl Marx arrived at its destination, Sverdlov Square, at the center of Moscow, after an extraordinary journey. It needed ten "demobilized" tanks, long since stripped of their guns and now used solely for peaceful purposes, to haul the enormous rock from the Kudashev quarry in Dniepropetrovsk Region to the nearest railroad station. The rail trip was made on a unique 16-axle carrier.

At the Riga Terminal in Moscow, the monolith was shifted to a 48-wheel motor train that sagged under the terrific load. Powerful Yaroslavl tow cars traveling at three to six miles an hour hauled it to Prospect Mira.

The trickiest part of the trip was from Sretenka to Dzerzhinsky Street, where the road goes downhill. Two additional tow cars had to be hooked on behind to act as brakes. The three-mile trip from the station to Sverdlov Square took a little more than an hour. The enormous chunk of stone was bedded on 62 re-enforced concrete piles driven 27 feet into the ground.



## Diamond Wedding Anniversary

THE USUALLY quiet community of the Stalin Collective Farm in Mirzachul District, Turkmenia, was festively transformed. National songs could be heard on the cotton plantation, in gardens and vineyards. The collective farmers were celebrating the 75th anniversary of Sangil-ata and Narbubi Bazarbayev, the farm's oldest married couple.

Sangil-ata is three years this side of the century mark. His wife is seven years younger—she's only 90. Many are the things these two people have seen and experienced in their lifetime. Formerly hired farm hands, they became equal members of society, highly respected at their collective farm.

"Everybody in our family," says Sangil-ata, is a member of the collective farm." Their four daughters, grandchildren and great-grandchildren live and work together. Sangil-ata and Narbubi are enjoying an honorable old age. Both of them receive pensions from the collective farm.

The guests wished the Bazarbayevs many more happy years and expressed the hope that they would be able to celebrate their 100th anniversary.



## Doctor Operates on Himself

What is probably one of the rarest operations in medical history was performed by Leonid Rogozov, the only doctor at remote Novolazarevskaya Station in the Antarctic. He was stricken with acute appendicitis at a time when it was snowing too heavily for a plane from the main Soviet polar base at Mirny to make a landing.

Immediate surgery was mandatory, and since there was no one else to do it, he decided to operate on himself. His friends, workers at the station, assisted him. Using a mirror to locate the site, Dr. Rogozov cut open his own abdominal cavity. The assistants handed him the instruments he needed and followed his instructions to the letter.

The operation took two hours. Several times Dr. Rogozov weakened and shut his eyes for periods of several seconds' duration. And each time, by sheer strength of will, he forced himself to resume operating. Finally the appendix was removed, the opening sutured, and the patient, exhausted beyond belief, let his head fall back on the pillow. Toward morning he fell asleep.

The latest word from Novolazarevskaya Station is that both patient and doctor are doing fine.



## Half-Century of Song

The Pyatnitsky Folk Chorus celebrates its fiftieth birthday this year. The founder, Mitrofan Pyatnitsky, wrote, "Russia's songs are wonderful and charming—their melodies heartfelt, their words expressive." To make his chorus truly Russian and truly a people's group, he invited singers from the villages to join, a tradition the group has followed ever since.

Since its opening concert in 1911 the chorus has given thousands of performances in large cities and small, in towns and villages. It sang for the soldiers at the front during the Second World War.

The Pyatnitsky repertoire includes both the old and well-beloved melodies and many of today's popular songs.

By Boris Grigoryev

Photos by Semyon Fridlyand

## EXPLORING THE LIVING CELL

**I**N THE MODEST six-story gray building on Maklin Avenue in Leningrad that houses the Institute of Cytology of the USSR Academy of Sciences, physiologists and biochemists, morphologists, geneticists and biophysicists, opticians and radio engineers are working together to probe the microscopic secrets of the living cell.

The institute was founded by Dmitri Nasonov, a gifted researcher, dedicated teacher and courageous fighter, who left his laboratory in the grim July days of 1941, when German boots were trampling Soviet soil, to join the army as a volunteer and fight at the front in the defense of Leningrad. Nasonov's portrait hangs on a wall above the desk of Afanasi Troshin, Corresponding Member of the Academy of Sciences, who became the institute's director when Nasonov died in 1957. It is the portrait of a scientist and a fighter, the image retained by all who knew him and embodied in the work of the institute he created.

Nasonov conceived the idea of "synthetic" cytology, the integrated exploration of the cell. The study of the living cell is so complex that when cytology began to develop as an independent research area it soon subdivided. Each of the separate divisions investigated a narrow aspect—structure or chemistry or morphology. But the cell is a self-contained entity, and researchers found that not only must all these biological subdivisions be linked but that other sciences—chemistry and physics—must be called on for their contributions.

In the institute's ten laboratories scientists in many disciplines are engaged in an integrated study of the cell. In one laboratory it is subjected to extremes of cold and heat, in another to ultraviolet rays. In the basement, behind thick concrete walls, it is exposed to powerful X-rays. It is stimulated with electric current, whirled in high-speed centrifuges, poisoned, dismembered. And at batteries of instruments are researchers examining self-recorded graphs, checking dial readings, studying oscillograph curves and peering into microscopes.

Alexei Yudin is one of the institute's younger researchers. He specializes in trans-

planting the nuclei of amoebae. This must be done to determine the relative importance of the nucleus and the cytoplasm in the life of the cell.

His microscope, with its formidable array of screws and knobs, is a far cry from the conventional laboratory instrument. Yudin places two amoebae under the microscope. He is going to "operate" on them—to transplant the nucleus of one amoeba to another.

To the naked eye an amoeba would appear as a tiny gray-white speck about a quarter the size of the period at the end of this sentence. Imagine transplanting something about one-hundredth the size of this speck—that is the nucleus.

Yudin does the transfer with a micro-manipulator attached to the microscope. At the operating end of the manipulator are a minute loop and a glass pin. He drives the amoeba into the loop and then with the pin carefully transfers the nucleus of one amoeba to the other. The operation requires the utmost delicacy. It took Yudin a year to perfect the technique. He had to make the glass instruments himself and learn how to aim the pin at the nucleus. All that preliminary work is happily in the past and now he is doing the actual research.

### Living Light Signals

At the turn of the century researchers noticed that a cell subjected to the light of a mercury lamp radiates a barely perceptible violet glow. This phosphorescence was so weak and varied so little from living to dead matter that scientists did not see the possibilities it offered for peering into the cell until 1956 when Leningrad optician Yefim Brumberg, a Doctor of Science in Engineering, suggested that the faint violet glow was actually part of a much stronger radiation in the invisible ultraviolet spectrum, readily detectable on a photographic plate.

He designed and built a special microscope to check his idea. By then biologists knew that many of the cell substances displayed phosphorescent properties under light. Brumberg's discovery made it possible to study these substances in the living cell.

With a group of biologists Brumberg conducted a series of experiments in the institute's laboratory of microscopic research and made an important discovery—that the brilliance of the phosphorescence is determined by the condition of the cell. It is the cell signaling, so to speak, how it feels.

Now comes the problem of reading these signals, a job that presents even more difficulty than deciphering the Mayan inscriptions, recently accomplished with the help of an electronic computer. It has been found that the phosphorescence of blood corpuscles differs in a healthy and an ailing body. The blood cells of an irradiated animal emit a specific phosphorescence.

Thus, "synthetic" cytology, in which biologists cooperate with physicists, is beginning to uncover another secret of the cell.

### Frozen Sleep

Can you imagine the thermometer —183°C. (—297°F.)? We have no normal parallel for cold that intense. It was long taken for granted that no living organism could stand temperature that low.

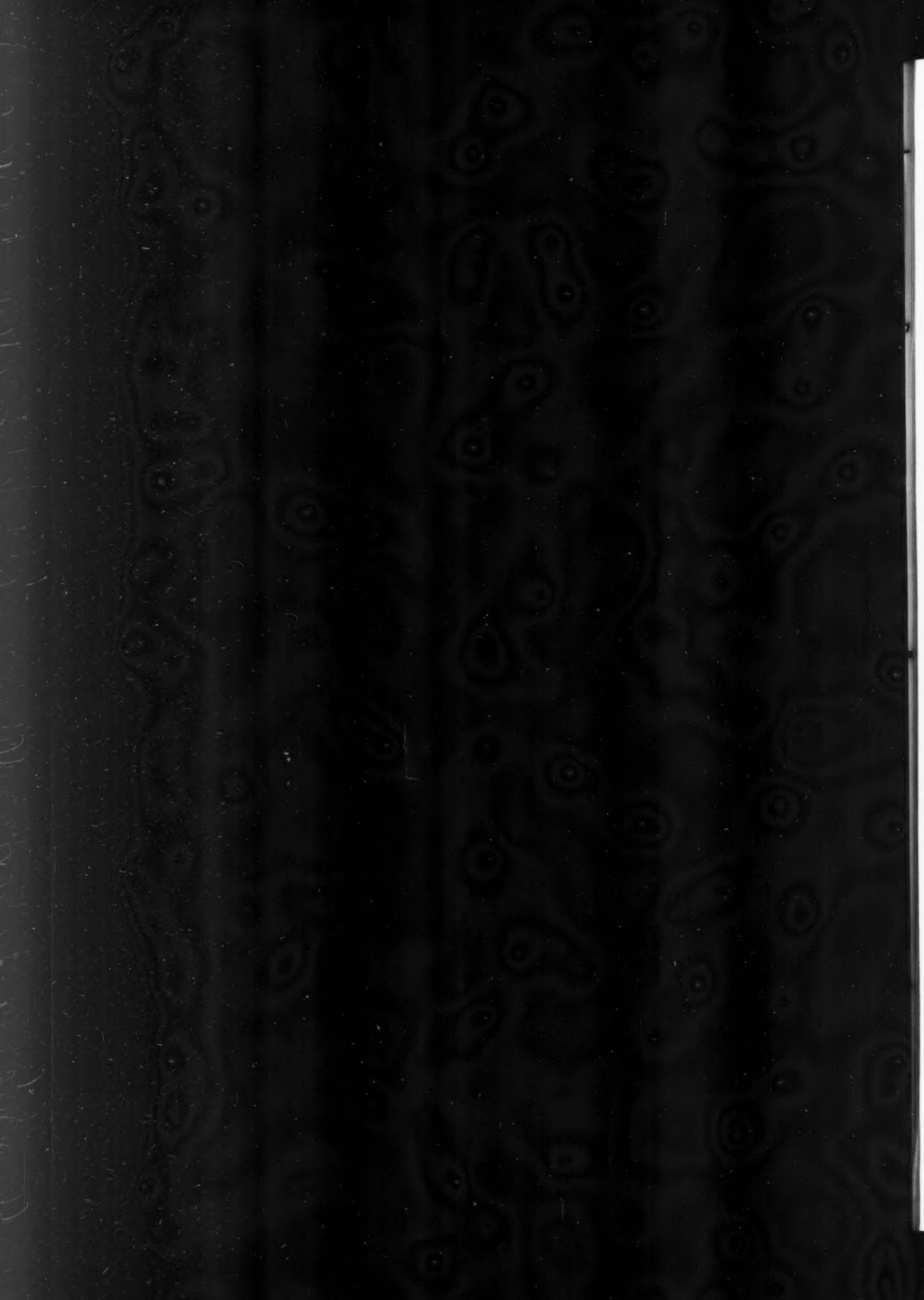
This is a misconception, declares Professor Lev Lozina-Lozinsky, Doctor of Science in Biology, who heads the institute's laboratory that studies how cells and more complex living organisms adjust to changed environments. Professor Lozina-Lozinsky has demonstrated that a European corn borer caterpillar adapts itself so that it can stay alive for many days in liquid oxygen at —297°F.

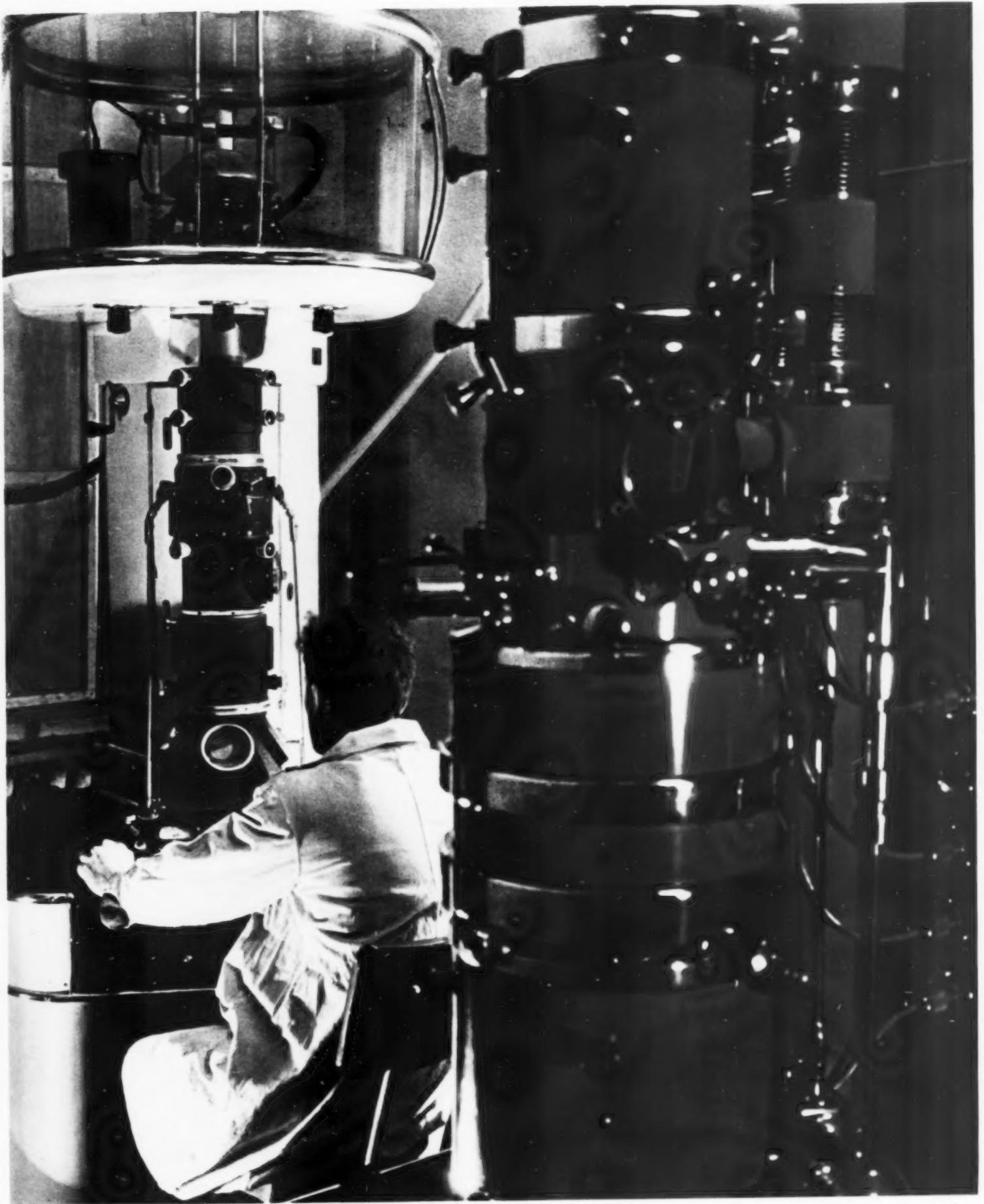
Place a flower in liquid oxygen, take it out, tap it with a hammer—it breaks with a silvery tinkle. Drop a live frog into liquid oxygen, take it out after a few minutes, drop it on the ground—it cracks like a piece of thick glass.

Experiments like these can be carried on indefinitely, and always with the same conclusion—that living tissue freezes at these low temperatures. The normally constituted cell is 70-80 per cent water, and this water turns into ice crystals that tear the cell and structures.

But let us return to the corn borer we spoke of earlier. We put the caterpillar in a test tube and place the tube in a Dewar flask containing







*This electron microscope, with its formidable array of controls, is a far cry from conventional laboratory instruments. It is a basic tool for cell research.*



*At the Institute of Cytology biochemists, geneticists, physicists, and radio engineers collaborate to probe the secrets of cell life.*

liquid oxygen. The light-blue liquid boils until the temperature of the test tube drops to  $-297^{\circ}\text{F}$ .

We take the caterpillar out of the liquid oxygen and we find it as cold and brittle as an icicle. We break it open and find white crystals of ice inside the chitin shell. It is lifeless. It pounds to dust in a mortar like sugar or salt.

But let the frozen caterpillar thaw and a miracle takes place—it gradually comes to life. So Professor Lozina-Lozinsky proved that the complete crystallization of water in the cell of a complex organism in conditions of deep cooling does not kill the cell if it has undergone preliminary adaptation. The caterpillar he used in his experiment had been trained to withstand cold.

Aside from its philosophical interest this study is important for theoretical biology, for medicine and for practical agriculture. Yuri Gagarin's flight gives Professor Lozina-Lozinsky's work special relevance. One might call his a space laboratory because the studies have so direct a bearing on the enormously exciting question man has long asked himself—is there life on other planets?

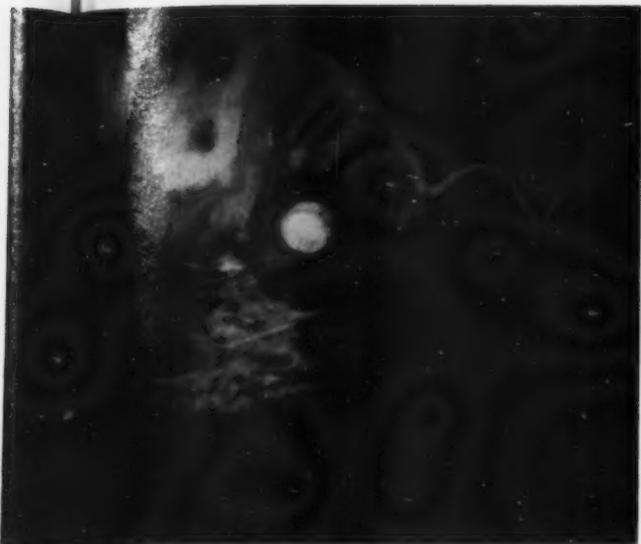
Our earth is fortunate because it receives neither too much nor too little heat from the sun but just enough to create and maintain life. Conditions on the more distant planets are much more severe. Jupiter's temperature is  $138^{\circ}\text{C}$ . below zero ( $-216^{\circ}\text{F}$ ). On Mars, the planet that science fiction writers have populated with intelligent beings, the daytime temperature does climb to  $25^{\circ}\text{C}$ . ( $77^{\circ}\text{F}$ .); at night, however, it drops to  $-40^{\circ}\text{C}$ . ( $-40^{\circ}\text{F}$ .) even in the warmest zones.

But the adaptability of the living cell is evidently greater than we had thought. It may be that even the coldest spots on Mars have strange inhabitants who live actively during the day and fall into a state of anabiosis in the bitter cold of the planet's night. Sooner or later a living cell from outer space will be studied through a researcher's microscope for the answer.

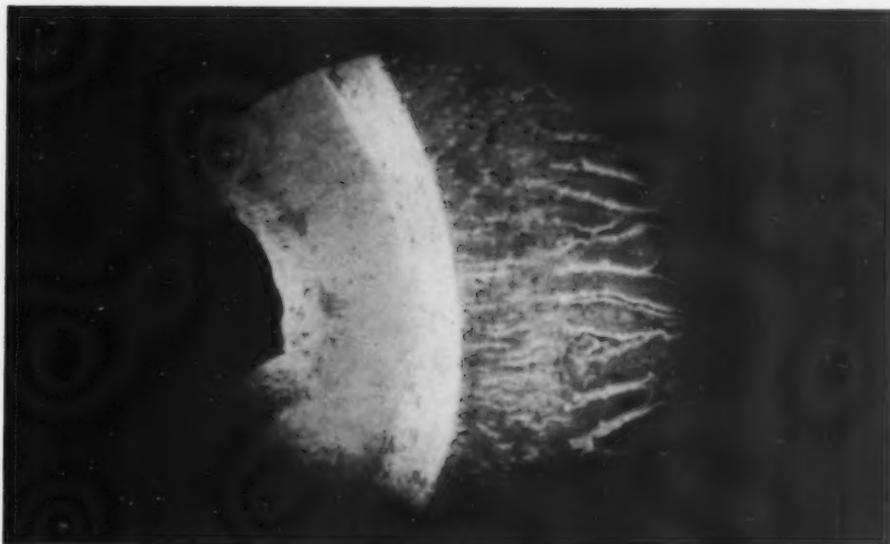
*—From the magazine Ogonyok*



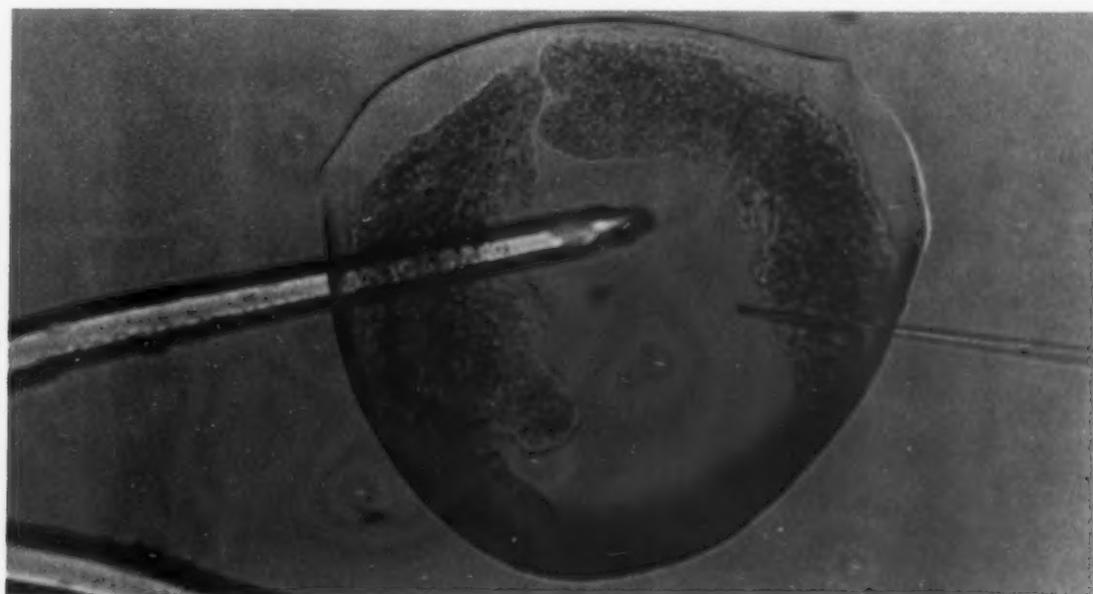
*Studying adaptation to cold at  $297^{\circ}\text{F}$ . below zero.*



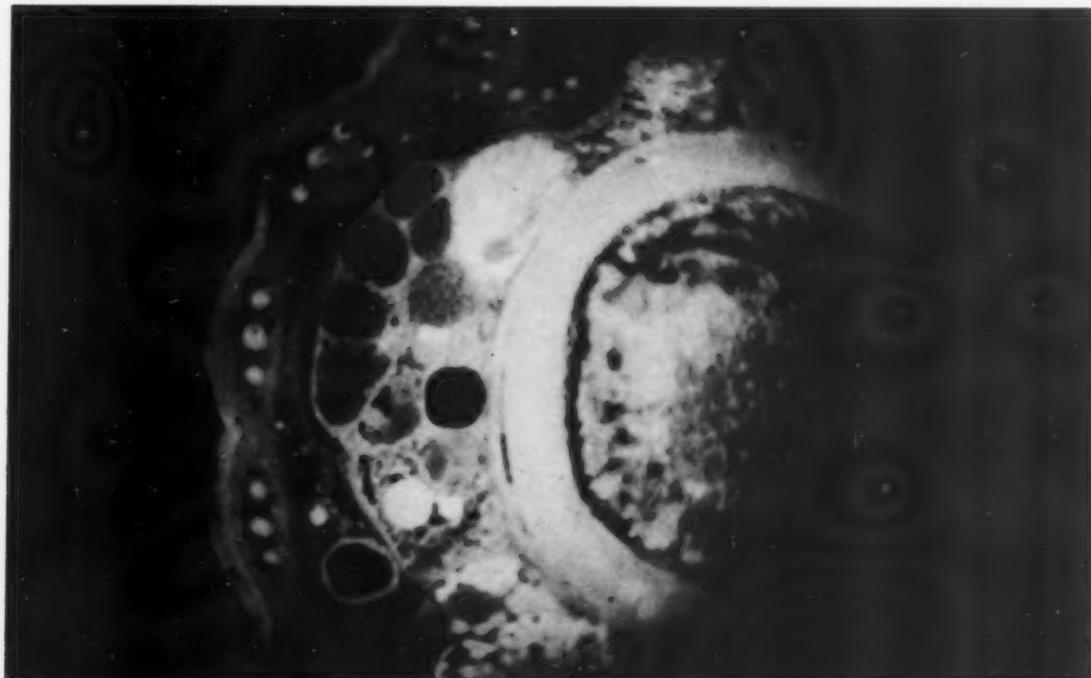
*Under light, different cells glow with different colors.*



*Institute scientists found that the brilliance of the glow indicates the health of the cell.*



*Transplanting the nucleus of an amoeba, a single-celled animal—a delicate operation perfected by Alexei Yudin.*



*Tissue studied microscopically by the method of color transformation developed at the Institute of Cytology.*

**T**HE WORLD'S FAIR will be held in Moscow in May-November 1967, the year of the fiftieth anniversary of the Great October Socialist Revolution.

The fair's outline is beginning to take shape in the designs submitted by Soviet architects working individually and in groups. Not long ago exhibition designs were entered in a contest display in the capital and evoked a miscellany of critical comments and suggestions from the public.

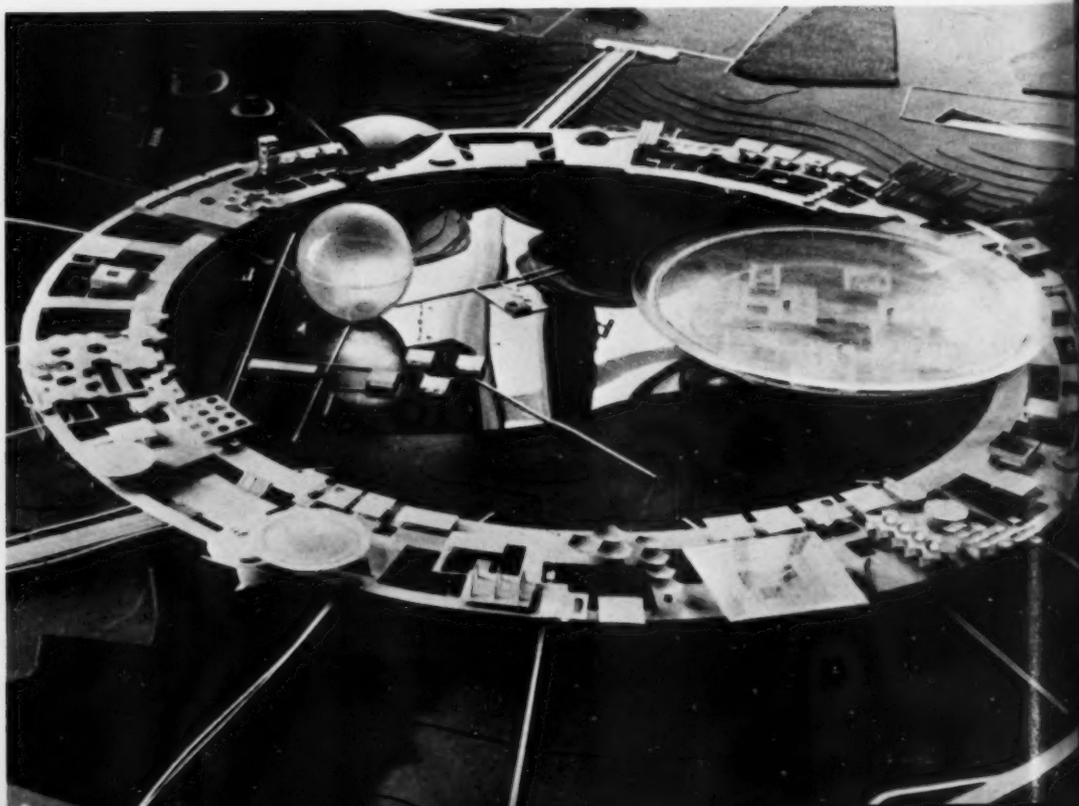
Many of the leading Soviet architects and builders are working on the over-all layout of the fair. Not only specialists but large numbers of lay people are interested in the preliminary planning. There were some 3,000 participants, professional and amateur, in a recent contest for the best design for an emblem for the exhibition.

The artists' concepts of the total projected panorama and its separate elements shown here give some idea of the plans of the layout and landscaping. The fair will cover 1,300 acres of pavilions, parks and pools bordered by shops, hotels and camp sites.

Each exhibiting country will have its own pavilion, and there will be pavilions for such international organizations as the UN, UNESCO, the Red Cross, societies for friendship and cultural relations with foreign countries, and sports federations. International pavilions will be devoted to science, technology and the arts, social problems and world peace. A symbolic structure in the center of the grounds will dramatize the fair's theme, "Progress and Peace."



## the MOSCOW W



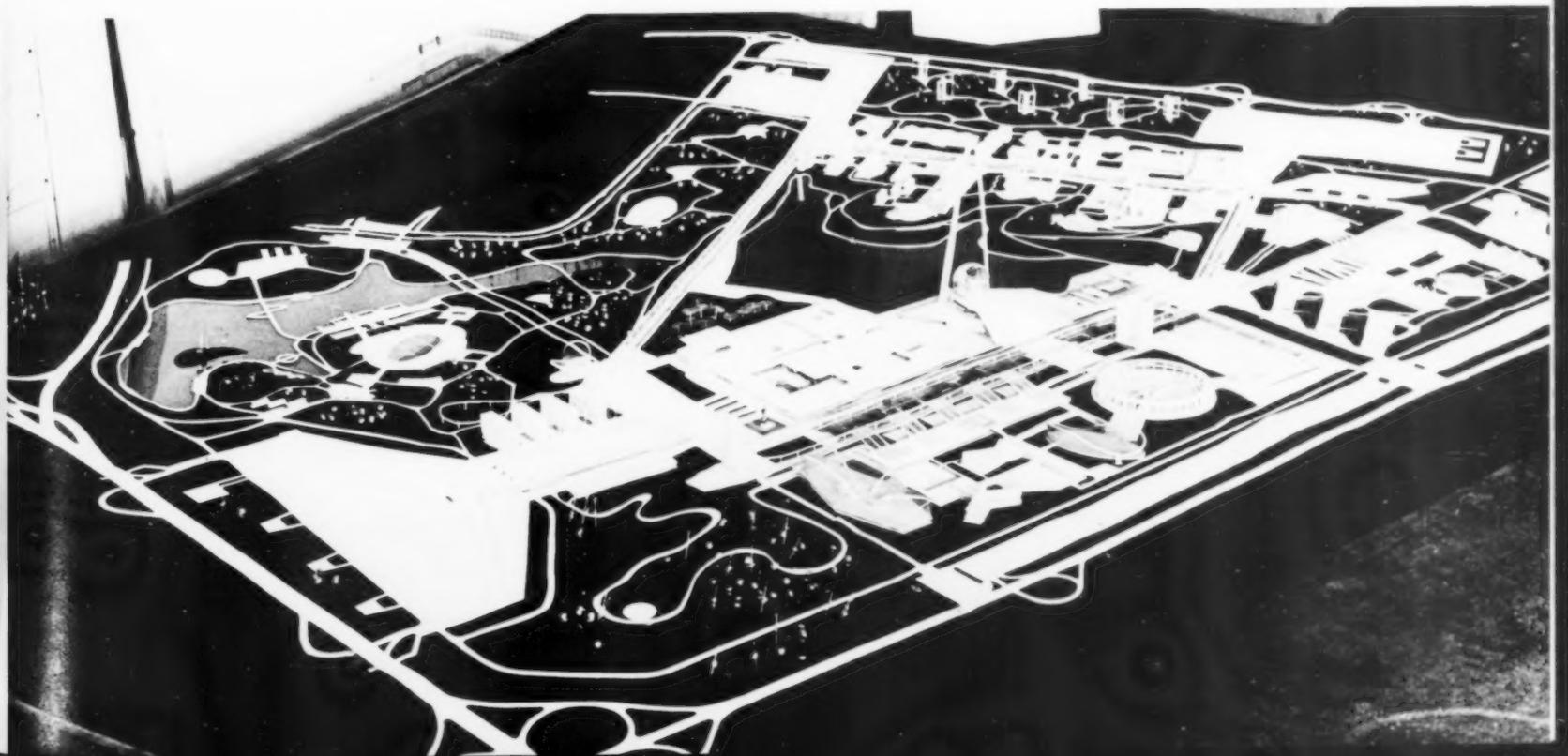


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WORLD'S FAIR takes shape



# SECRETARY of the DISTRICT PARTY COMMITTEE



By Mikola Nagnibeda  
Ukrainian Writer

ON THE SEVERAL occasions Grigori Tkachenko and I met, we talked of many things. But whatever the subject discussed, this Communist Party leader was always talking about people. Whether he was giving me figures for livestock growth in his region or telling me about a tree-planting project he had in mind to beautify a village street, the underlying theme was always people.

He is Secretary of the Belaya Tserkov District Committee of the Communist Party of the Ukraine, and we first met when he and a group of farmers from the district paid a visit a year ago last spring to the Union of Ukrainian Writers.

When I asked what was doing in his district, he spoke briefly about the fine new farm machinery and lengthily about their operators, peppering his talk with names and thumbnail character sketches of tractor drivers, harvester combine operators, collective farm mechanics and milkmaids.

Later on, when I came to know him better, he permitted me a look at entries in his rather unique diary. This was not nearly so much the usual compilation of events and personal reactions as it was a running conversation he was having with himself on his function as a Party leader.

One of the entries, as nearly as I can recollect, ran something like this: "How swiftly life moves. One has to keep wide awake, and the District Committee of the Party must be able to look ahead and foresee events in the district if it is not to dwindle from a guiding political body to a miserable sinecure—the worst possible thing that could happen."

And another entry. "When I read Academician Pogrebnyak's article, 'Forests—the National Wealth,' I was struck with how shortsighted we are. We squeeze all we can from nature and give her nothing in return. How much thought do we give to those who will be coming after us?"

"A few years ago I got the idea of planting a large park in the neighborhood of the District Committee building on the bank of the Ros River. A lot of people pitched in for the fun of it, contributing their time and work, so there was no expense involved. The trees are tall now and everybody comments on the beauty of the park on the river bank. But that was as far as we went.

"Why, I ask myself, didn't I think of suggesting that we do the same in every one of the villages? How much that would have added to the beauty of the district. But better late than never. We must plan a district program—to plant groves of trees not only in the villages but wherever cultivation is ruled out by gullies and ravines."

## They Were Planting Traditions

Late that fall I took a trip to Belaya Tserkov. I expected nippy weather and was pleased to find the days still warm. The leaves still flaunted their lovely golds and reds, and the deep blue sky—too blue for the time of year—made a cornflower-blue frame way off at the horizon for the waving green sea of winter crops.

You no longer heard the cranes, they had long since left the shores of the meandering Ros and Kamenka Rivers. But the roads through the steppes were as lively and as noisy as ever, with trucks pounding along—singly, in pairs and in whole columns—piled high with beets for the sugar refineries or with golden ears of corn.

At the edge of the road young people were planting fruit trees. The long strips of orchard on both sides of the road already stretched a long way off. Looking at these young men and women digging away, I was reminded of Grigori Tkachenko saying, "We want to adorn Belaya Tserkov District with blossoming fruit trees. We want to make this a tradition for our school children—that they plant saplings and, when they leave school, turn them over to be cared for by the younger children. That will help instill in them love for their native soil."

Since our last meeting I had learned something of Tkachenko's background. He had been a farm worker, then an agronomist and, during the war, an officer in the Soviet Army. From defeated Berlin he returned to his native Belaya Tserkov, was elected secretary of the District Party Committee and has been re-elected to the post at every election since.

In the fifteen years he has held the job, during the rough period of postwar reconstruction and the more recent period of fast-paced farm development, the people of Belaya Tserkov have had reason to be grateful for the experience, knowledge and organizational talents of the Party head in their district. He wears the star of the Hero of Socialist Labor awarded him by the Government.

## Such Wonderful People

When he showed me around, it was evident that everyone knew him and—something which no longer surprised me—that he knew everyone. And “everyone” constituted a great many people indeed. He had that faculty of a man who likes people, a long and lasting memory not only of names and faces but of conversations at meetings long past.

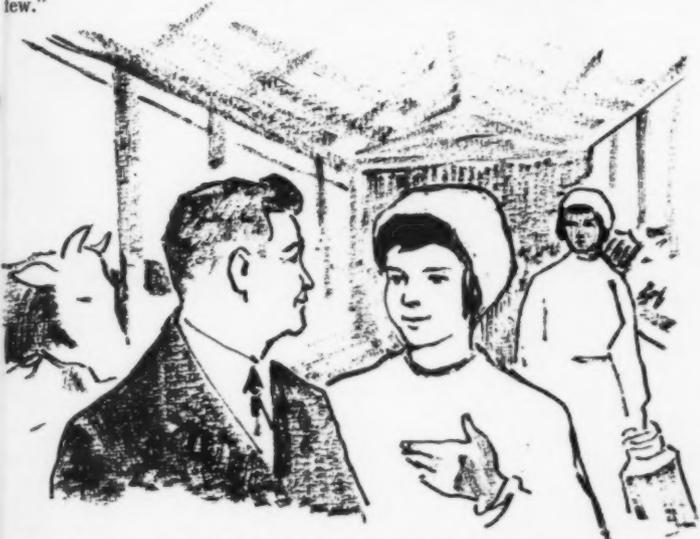


Once again, gracing everything he said, was his profound respect for people, for the work they did and the work they were capable of doing.

“Such wonderful people,” he said, after bringing me up to date on local affairs. “Poems and songs ought to be written about them.”

His enthusiasm made him seem almost a young man, seemed for the moment to darken the gray in his hair, smooth the lines etched on his face by a lifetime of labor for other people's benefit. There is so much pleasure, I said to myself, that this man derives from the happiness of others; he makes the joy of other people his own.

“Yes,” he repeated in a quieter, more thoughtful tone, “poems and songs should be written about them. They are modest, unassuming—these people of ours. But take a closer look at them, work with them for a while, and you come to understand their great strength and dignity. The books that really do them justice are few, unfortunately few.”



There was no rebuke in his words. They merely expressed regret. This is a man who is fond of books and does a great deal of reading. No matter how hard a working day he has had, Tkachenko finds an hour or two for a book. When he visits a village, he usually drops into the library. He is interested in the number of readers, what books they favor, what the librarian has been doing to get more books around. He looks in at the local bookshop to find out what the best sellers are.

### A Commercial “Transaction”

“Party work,” says Grigori, “means working with people. Stay close to the people and it's amazing what you can get done. We see it proved time and time again. Here are two of our collective farm villages that were plundered by the fascists. When the war ended Kozhaniki was left with one pig. Now both villages are prosperous. For that matter, so is the whole district.”

He told of some difficulty they had had with one of the collective farm chairmen who decided the farm wasn't getting rich fast enough and tried to speed up the process through some questionable commercial transactions. He was tempted by the markets of distant Leningrad. When he returned, Tkachenko asked him about his trip. The chairman

was elated at the bit of business he had done—sold a crop of tomatoes for several times the price they fetched locally.

“And do you think the people of Leningrad enjoyed paying those prices?” Tkachenko asked him.

The chairman confessed that he had been embarrassed when Leningrad buyers asked him where he came from.

There was some extremely frank talk with the chairmen of the collective farms in the district as well as with the secretaries of their respective Party organizations. A good look was had at this “advantageous trade” from the communist point of view. It was examined not with just the one farm in mind but in terms of the general interest. The discussion undoubtedly helped the collective farm heads to avoid any future temptation to enrich their farms at other people's expense.



Then there was the case of the collective farm chairman whose success went to his head—the farm's success, that is, which he began to attribute entirely to his own merits. He paid less and less attention to other people's counsel until the Party group at the farm and the District Committee stepped into the picture and called a general meeting of the collective farm members.

After the chairman had reluctantly given his report, a number of farmers spoke up. While they paid tribute to the chairman's ability, they were quite caustic about his failings. The chairman listened without a word, but from his face it was apparent that he was taking the criticism very much to heart.

Tkachenko ended the story on the happy note: “And now Chairman Yefim Kostyuchenko stands with both feet solidly on the ground. So much so that he was awarded the Order of Lenin for exceptional work.”

### Of Young People

We talked of the young people in the village, their upbringing, their future. The Party secretary said: “There is an infinite capacity and power in these young people. They can accomplish wonders if they enjoy their work.”

Young people's problems, he told me, are the responsibility not only of the Young Communist League but of the Party organization on the farm and the District Committee as well.

At all schools in the district the youngsters get practical farm training in field work, livestock breeding and mechanization.

“You've probably heard of our leading collective farm—the Kalinin farm at Bykovaya Grebyla,” Grigori Tkachenko said. “It was mostly young people who got that farm back on its feet. They turn up in whole classes to help out. And what workers, what Communists they are growing up to be. Polina Skripka, one of the schoolgirls who used to come regularly, is now an outstanding dairy worker. She was awarded the Order of Lenin. Young people work in every section of the farm. Last year when things weren't going too well, we really learned how much of a contribution they were making.”

It was some months after our talk that I met Grigori Tkachenko again, still very much his old, ebullient self, still full of talk about people and progress. He had just come back from a trip around his district. “Our farmers,” he said, “have new ideas and projects going by the score. I tell you, those people are astonishing, the way they keep forging ahead. Nothing can beat them.”

—Abridged from the newspaper Pravda

# FRANK TALK

THE SHORTEST WAY TO  
BETTER UNDERSTANDING

By Oleg Feofanov

Photos by Alexander Mokletsov

LAST FALL a group of American and Soviet people, leaders in their various fields of effort, met at Dartmouth College to discuss disarmament, peaceful coexistence, ways of improving Soviet-American relations and other problems upon which the world's future depends. Though the conference was unofficial, the discussion was serious and searching. The intent was not to gloss over differences but to examine them frankly and to probe for possible solutions. The participants were pleased with the forthright exchange of ideas and agreed to maintain contact. They met again in May of this year, this time on Soviet soil, in the Crimea.

The Crimea is beautiful country at any time of the year, but it is especially so in the spring. The air is fragrant with acacia and jasmine, white candlelike flowers transform each chestnut tree into a giant girandole, and a bright sun rides lazily across the blue sky. This is the most peaceful country one can possibly imagine. Perhaps the very thought of the contrast of cities bombed, people mutilated and air poisoned by fallout gave this conference its sense of urgency.

## The Discussion

A news statement issued by the participants summarized the discussion. It said in part: "The conference delegates devoted special attention to peace and international security and to methods for achieving and maintaining them. Discussed at length were ways of speeding up agreement on comprehensive disarmament with adequate inspection and control and on ending nuclear weapon tests. The conference expressed the hope that agreement on ending nuclear weapons tests would be reached in the very near future.

"The conference also examined in considerable detail the part played by world rule of law and the United Nations in maintaining and strengthening peace. Also considered were the role of public opinion and the individual citizen in his country's foreign policy; the cooperation of industrialized nations in aiding underdeveloped countries; the contribution which education can make to strengthening peace and improving Soviet-American relations; and the possibilities of promoting understanding by expanding economic, scientific and cultural relations."

Among the Soviet participants were Academician Alexander Korneichuk, noted playwright and chairman of the Supreme Soviet of the Ukrainian Republic; Academicians Ivan Artobolevsky, Yevgeni Fyodorov, and Mark Mitin; film director Sergei Gerasimov; Nikolai Goncharov, Doctor of Science (Pedagogy); Alexander Karev, Secretary-General of the All-Union Council of Evangelical Christian Baptists; Fyodor Kozhevnikov, Doctor of Science (Law); Modest Rubinstein, Doctor of Science (Economics); writer Boris Polevoi; Nina Popova, Chairman of the Board of the Union of Soviet Societies for Friendship and Cultural Relations with Foreign Countries and a deputy to the USSR Supreme Soviet.



This big TU-104 airliner that travels at an average speed of 500 miles an hour landed the party at the Simferopol airport in the Crimea. The conference was held in the lovely Black Sea resort town of Nizhnyaya Oreanda. Among the well-known Americans participating were Norman Cousins, editor of the *Saturday Review*; Dr. Philip Mosely, director of studies at the Council on Foreign Relations; former Senator William Benton, publisher of the *Encyclopedia Britannica*; Professor Robert R. Bowie, director of the Harvard Center for International Affairs; Professor Lloyd Reynolds, Yale University economist; Dean Erwin N. Griswold and Professor Louis B. Sohn of the Harvard Law School; Dr. Arthur Larson of Duke University's World Rule of Law Center; anthropologist Margaret Mead; singer Marian Anderson; Shepard Stone of the Ford Foundation.



Cochairmen of the American delegation were Norman Cousins (left) and Philip Mosely. Simferopol women presented flowers to the visitors.



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**A**t the airport, the American delegation was welcomed by representatives of civic organizations and a swarm of reporters and cameramen. Alexander Korneichuk, greeting the visitors on behalf of the Soviet people, said, "We come to this second meeting with our American colleagues with open hearts and good intentions. We sincerely wish to cement our friendship with the American people and to see good relations established between the governments of the USSR and the USA."



**D**r. Philip Mosely, in fluent Russian, thanked his hosts for the cordial reception. "We are accustomed," he said, "to telling our Russian friends straightforwardly at the conference table what we agree and disagree to. At this meeting, just as at Dartmouth, we want to discuss many problems, the settlement of which will lead to an organized world where it will be possible to get along without armaments and war. If we can bring the positions of our people closer by even a tenth, it will be a step forward. We hope to do that."



**S**ince the conference was unofficial and the participants looked forward to the freest possible exchange of opinions, they had agreed to bar newsmen and to hold the meetings behind closed doors. The same procedure had been followed at Dartmouth. This was taken before the opening session.



**M**rs. Cousins, surrounded by juvenile autograph hunters, on a visit to Artek, the famed children's camp in the Crimea. At a flag-raising ceremony in honor of the visitors, the campers and their guests stood at attention while the American flag was raised. Norman Cousins, conveying the best wishes of his young countrymen, told the children, "The people of my country, like yours, want peace and friendship. To stretch out the hand of friendship and to appeal for peace is not enough. Real peace is a work of art that cannot be created only with enthusiasm. It needs work, persevering effort. We have come here for that purpose, to discuss with our Soviet colleagues ways of building Soviet-American friendship and ways of saving the world." Alexander Korneichuk remarked later in the evening: "It was a moving sight looking at the American flag flying alongside the flag of my country. I hope to see the day when the flags of all the countries on earth will be flying alongside each other and not one of them ever lowered." After the ceremony the youngsters crowded round the visitors. One of the girls pinned a Pioneer badge on William Benton's lapel. "The Soviet Union is a wonderful country," Mr. Benton told a Soviet newspaperman present. "I'm really amazed by your warm hospitality."



On a sightseeing trip by bus to Sevastopol the Americans stopped at Baidar Gates, a halfway point, to take pictures of the beautiful Crimean landscape from a cliff overlooking the sea. There they met a group of sixth-grade youngsters from the nearby village of Orlinoye out for a mountain hike. Mr. Cousins is behind the camera. The children asked innumerable questions, and so did the grownups, who were very much interested in the attitudes and ways of thinking of the Soviet younger generation. When the hikers told the visitors that they carried on a correspondence with school children in many countries and would like to strike up a pen-friendship with boys and girls in the United States, Mr. Cousins promised to help.



The conference participants sailed to Yalta in the *Alushta*, a new Bulgarian-built steamer, along a coastline dotted with holiday resorts, hotels and sanatoriums. It was a pleasant interlude, with Soviet and American newspapermen and cameramen chatting together on deck. Some of the tourists watched the sea gulls wheeling crazily in the wake of the ship, but Mr. Cousins found rooks and bishops more entertaining.



Professor Robert R. Bowie of the Harvard Center for International Affairs spoke of the changes he found in the Soviet Union since an earlier visit in 1934. He talked of Gagarin and Shepard, of opera, recordings, the virtues of stereo, world trade and the need for ending the arms race. "We've been able to get along without a war for the past ten years," he said. "I hope we'll live without one for the next ten. Right now, of course, atomic bomb tests must be banned and a way found to carry out effective control over disarmament."



They made another brief stop at Sapun-Gora (Mt. Sapun), outside of Sevastopol, where Soviet soldiers put up a heroic defense against advancing German fascist forces in the last World War. A museum commemorates the defense. Then the buses resumed their journey to the site of one of the most stirring battles of the war. Looking at Sevastopol today, it is hard to believe that this city with its modern houses and wide boulevards was a pile of smashed brick and concrete and fire-twisted steel only a few short years ago. There is nothing to remind one of that unbelievable battle except the sculptured monuments to those who gave their lives to defend the world from Nazi barbarism. The visitors also saw the famous panorama of the city's defense in 1854-1855.



Professor Lloyd Reynolds, Yale economist, liked the Crimea but preferred the Caucasus because the mountains there are higher. This was his third trip to the Soviet Union. "I was here in March," he explained, "to prepare for a conference of economists of the United States, the USSR and India to be held in Geneva." Asked to comment on peaceful economic competition between the two countries, the professor noted that Americans up to a while ago had an incomplete picture of the Soviet economy. "The picture is changing now. Your economy is highly productive, no question about it. I hope that more and more Americans will inform themselves about it. I'm for broader personal contacts. When people get to know one another, there's much less chance of their quarreling."



**D**r. A. William Loos, director of the Church Peace Union, said, "I like the Russian people. They are most hospitable, outspoken and sociable. I studied the language ten years ago and was able to read, but I've forgotten it. I'm going to begin again when I get home so that I'll be able to talk Russian the next time I come." He underscored the need for a livelier exchange of information, and of students and teachers. "This is a vital step in the direction of lasting peace. Such steps, even little ones, must be made all the time. Some people say that this is useless and that problems have to have radical solutions. I don't agree with them. Big distances on this road to a durable peace are covered by small steps."



**A**t the conclusion of the conference, the participants met with the press in Moscow's Sovietskaya Hotel. Spokesmen were the cochairmen of the American group, Dr. Philip Mosely (standing in the photo) and Norman Cousins, and the leader of the Soviet group, Alexander Korneichuk. Mr. Cousins noted that he had been impressed with the frankness and sincerity of the discussion. Mr. Mosely thanked Korneichuk and the other Soviet participants for their work in making the conference a success. Replying to questions, both Americans emphasized the fact that they spoke as private individuals, but they declared that they would do everything they could to promote a practical solution of all urgent problems.



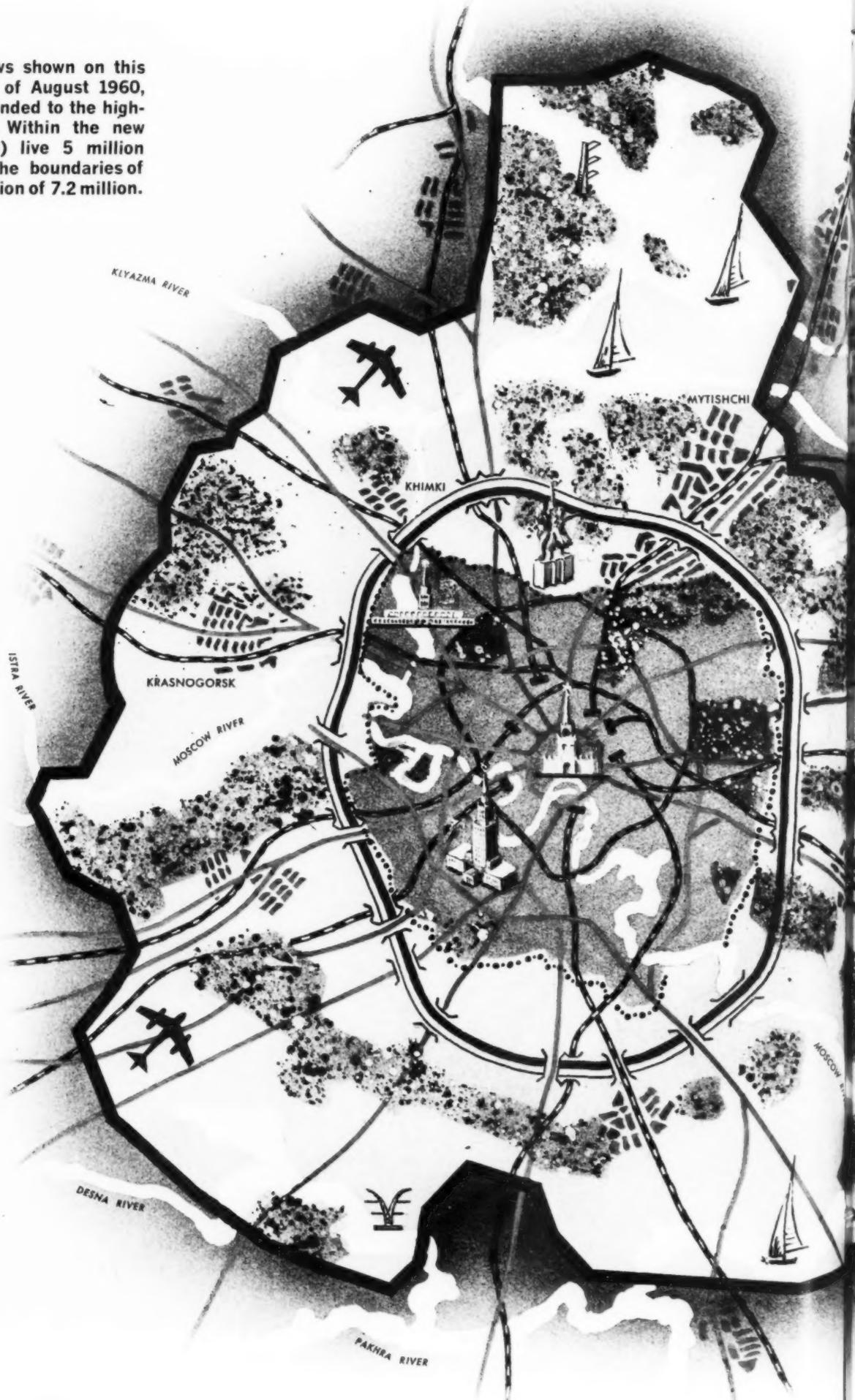
**M**arian Anderson, chatting with Alexander Korneichuk, said, "I've been in your country twice before, first to sing at your opera and then on a concert tour. And now I'm back again. I love your artists. I saw the Moiseyev dancers and thought they were wonderful. I also attended one of the concerts given by your pianist Svyatoslav Rikhter and went backstage to congratulate him. I believe that cultural exchange is very essential in building better understanding."



**T**humbs up in Russian is the same as okay in American. Dr. Philip Mosely and Soviet writer Boris Palevoi are both saying that they think the conference made a valuable contribution to better understanding between their respective countries. The theme of the final session was "The World We Want in 1970." There was a proposal to hold a third conference in the USA in the near future to explore problems of mutual concern.

There are really three Moscows shown on this map. The first is Moscow as of August 1960, before the city limits were extended to the highway that circles the capital. Within the new boundaries (the smaller ring) live 5 million people. The larger ring marks the boundaries of Greater Moscow with its population of 7.2 million.

- 
  
Boundaries of Moscow according to the 1935 General Plan of Reconstruction
- 
  
Moscow Circumferential Highway—new boundary of city construction
- 
  
Boundaries of Greater Moscow
- 
  
Railways
- 
  
Airports
- 
  
Parks and woods





# MOSCOW

TODAY AND TOMORROW



## A City for Man; Not Man for the City

**M**USCOVITES like to say, "If you want to know Moscow, live in it; the longer you live in it, the more you'll love it."

You need time to know Moscow. It does not overwhelm you on first acquaintance, as some cities do. Neither does it begin to oppress you after a lengthy stay, as some cities do.

Moscow, with its eight centuries of history, seems to be saying, "Look, think, feel, and as for the rest—later."

Soviet people often compare their capital to a great spreading oak. Confident in its strength and beauty, Moscow does not hustle and bustle; it moves calmly, with dignity, its head high.

There is an almost physical lack of constraint, a freedom from the usual conglomeration of buildings and streets one finds in an old city and the frozen conventionalities one finds in a capital.

Many of the city's foreign visitors leave with the parting comment that although there may be capitals elsewhere in the world more spectacular than Moscow, there is none whose people are so friendly and unaffected.

Very likely this is due to the social attitudes that govern life in this big Soviet city—collectivism and concern for the individual. "A city is made to serve man, not man to serve the city," is the guiding motto for Moscow's population.

The city grew up around the Kremlin, the medieval fortress of the Moscow princes. The main streets were once roads leading from the fortress to other cities. They were intersected by ring shaped roads that originated later at the sites of other strongholds. A network of narrow, crooked lanes and alleys grew up between these radial and annular streets.

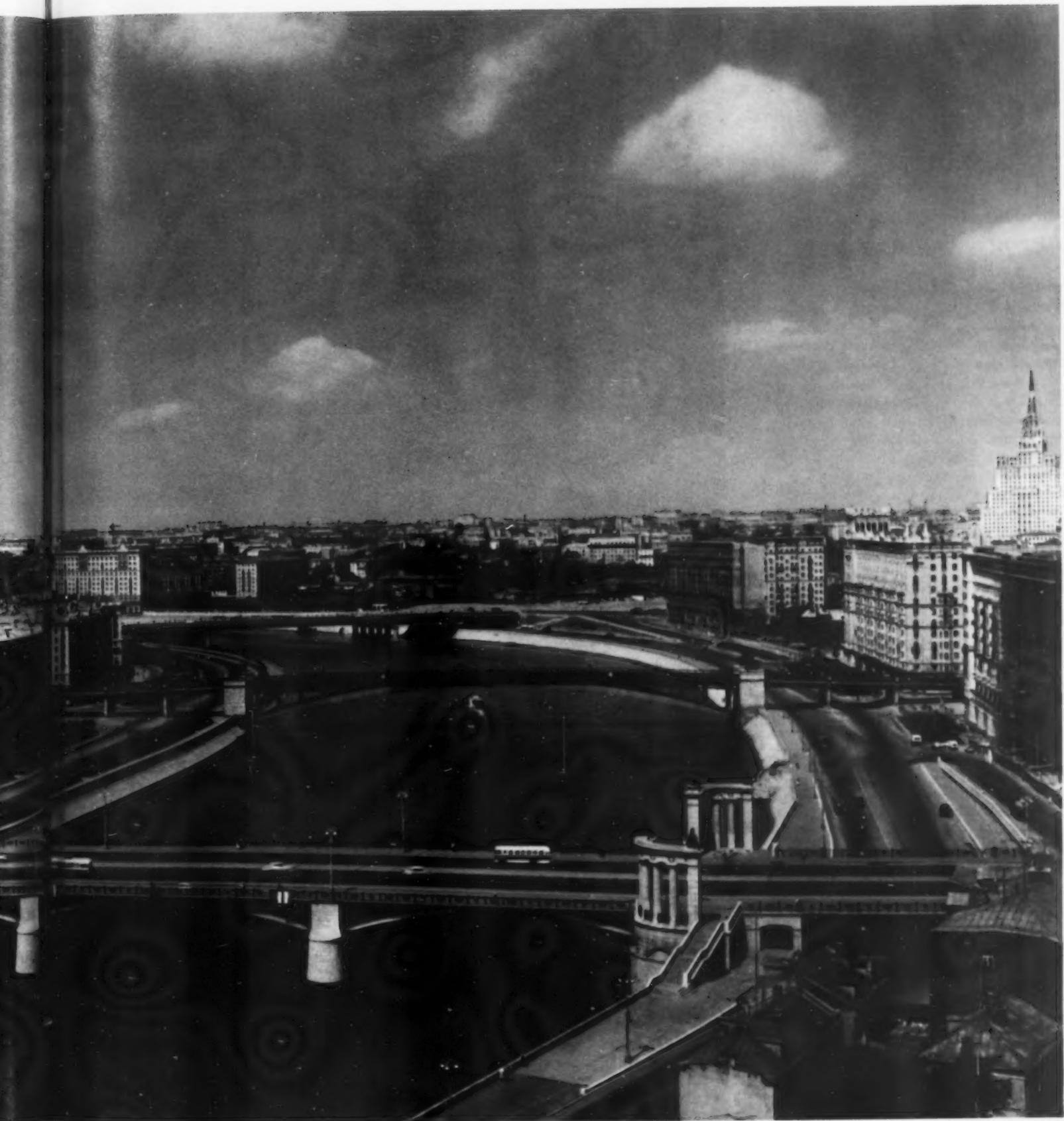
This general configuration is still preserved, but with decided changes. The main thoroughfares are now wide and spacious. The crowded, cobblestoned alleys have been opened to air and sunlight. And the many new districts have been built to a modern plan, with boulevards and park areas.

Moscow is a city of architectural contrasts. Here are buildings and ensembles whose classic style and solid brickwork stem from the seventeenth and eighteenth centuries standing beside reinforced concrete structures, lace-like bridges, handsome subway stations.

Ancient Moscow is one of the most modern industrial Soviet cities. It is a treasure house of art, a world center of science. Here the old and the new merge in a harmony that gives Moscow its altogether special air of ancient wisdom and open-hearted youthfulness.



*From whichever bird's-eye view you look at present-day Moscow you see new structures—new bridges, public buildings, housing projects—competing for attention with those decades, and centuries, older. In the foreground is the renovated Borodin Bridge; in the background the newly built Novo-Arbat.*





## Progressive City of a Progressive Society

**T**HOSE who have not visited Moscow in the past 10 to 15 years find themselves in a completely unfamiliar city—the changes have been so sweeping. From whichever bird's-eye view you look at present-day Moscow you see two dominant colors, white and green. The white represents blocks and entire districts of new 5-, 10-, and 12-story apartment houses, and the green—the trees and shrubbery of parks and gardens.

There is an occasional gray or red spot, the last vestiges of the old brick houses on narrow streets and the little yards that Anton Chekhov wrote about with such affection. They have had to give way to the new Moscow.

Mikhail Posokhin, the city's chief architect, says, "We do not have special districts for the rich and for the poor. The word 'outskirts' has been eliminated from our town-building vocabulary. Under Soviet conditions we reconstruct a city for modern and convenient living, for the pleasure and comfort of people."

Moscow has no desolate outskirts but it does have a very animated center—the Kremlin and the streets adjoining the four squares near it where most of the government offices, theaters, museums, art galleries, hotels and large stores are concentrated. Activity slows down when the offices and stores close, then starts up again as the theater crowds fill the squares and boulevards.

The avenues to the new districts radiate from the center. Here we find block after block of recently-built apartment houses, broad streets, moving-picture theaters, restaurants and cafés, and stores of all types. Not so long ago all this was a chaotic jumble of small wooden houses with tiny windows.

Since 1935, when the first plan for the reconstruction of Moscow was adopted, almost 205 million square feet of public housing have been built. This is the equivalent of two prerevolutionary Moscovs. And the territory of the city has been doubled. The plan for its reconstruction was suggested by Lenin during the Civil War days. He had a vision of socialist Moscow as one of the most beautiful and most modern cities in the world.



*Red Square—the heart of Moscow—with the ancient Kremlin and the Lenin-Stalin Mausoleum (left); the History Museum (center); and GUM, the city's biggest department store (right).*



*The City Hall in Sovietskaya Square houses the Moscow Soviet of Working People's Deputies. Its 857 elected members administer the municipality's housing, health, education, utilities, commerce and finance.*

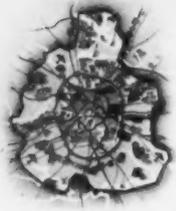


*The Grand Kremlin Palace, seat of the Soviet parliament. Sessions of the USSR Supreme Soviet are held in this former palace of the czars.*

*The Khimki river port. From here one can travel by steamer through a system of rivers and canals to reach the Baltic, White, Azov, Black and Caspian Seas.*



*The world-famous Bolshoi, one of the capital's thirty professional theaters. Bolshoi artists have made three triumphant American tours in recent years.*



## Everything for Muscovites

**T**HERE IS a vast difference between a city built for living and a collection of stone, steel and glass structures. The difference lies in modern housing, plenty of fresh air and greenery, convenient transportation, good schools and places for quiet recreation. Moscow city planners work to these specifications.

Mayor Nikolai Bobrovnikov says: "Our primary goal is to provide the best possible living conditions for Moscow's population." Moscow is a city with the most intensive housing construction and the lowest rental rates in the world—from three to five per cent of the family income. Moscow's budget for the seven years between 1959 and 1965 for building housing and utilities is 50 billion rubles.

In the past eight years more housing has been built in Moscow than during the previous eight centuries. Last year Muscovites moved into 100,000 new apartments. They also had available 55 new schools, 9 new polyclinics, 300 new stores and a new, mammoth-sized swimming pool, the Moskva.

Major construction is going on now in what used to be outlying areas. Whole districts have been built from scratch, each the size of a big town. The Southwest District, where construction began only six years ago, now has a population of several hundred thousand.

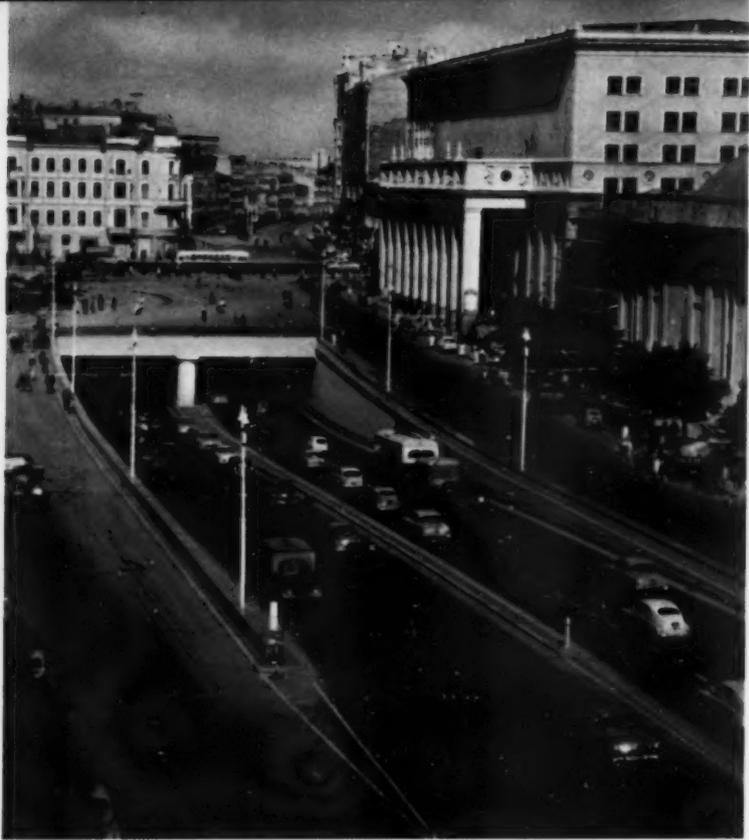
A characteristic of the housing developments built during the postwar years is the large central courtyard that lets in an abundance of light and air. Plenty of room, too, for flower beds and poplar, linden and apple trees; for playgrounds and wading pools; and for quiet spots where adults can play chess or read.

The street floors of these projects are occupied by shops. There is a kindergarten and nursery every few blocks of houses, and schools and moving-picture theaters nearby.

Moscow has nine large concert halls, 30 theaters, about 80 movie houses, 81 museums and 18 permanent exhibition halls.

Available to Muscovites and visitors to the capital are several large recreation parks; two huge stadiums accommodating 75,000 and 100,000 people respectively; smaller stadiums that seat 10,000 to 15,000 people; 15 aquatic sports stations, besides boating basins and swimming pools.

There are eight large beaches along the banks of the Moscow River and scores of boating areas. The winter sports fan has at his disposal 25 open-air skating rinks, two ski jumps and 20 ski centers. The Palace of Sports, a unique athletic facility, is the largest of its kind in Europe, accommodating 20,000 spectators.



*The building with the classic façade is the Tchaikovsky Concert Hall, one of the largest of the capital's music and dance auditoriums.*



*Moscow has the usual traffic problem of the busy metropolis. Below: The Palace of Sports at the Lenin Stadium seats nearly 20,000 spectators.*



*The campus of Moscow University on Lenin Hills. It has an enrollment of 24,100 students.*



*A concert in Sokolniki Park. This is where the American Exhibition was held two years ago.*



*GUM, the largest department store in the country, stocks 40,000 foreign and domestic items.*



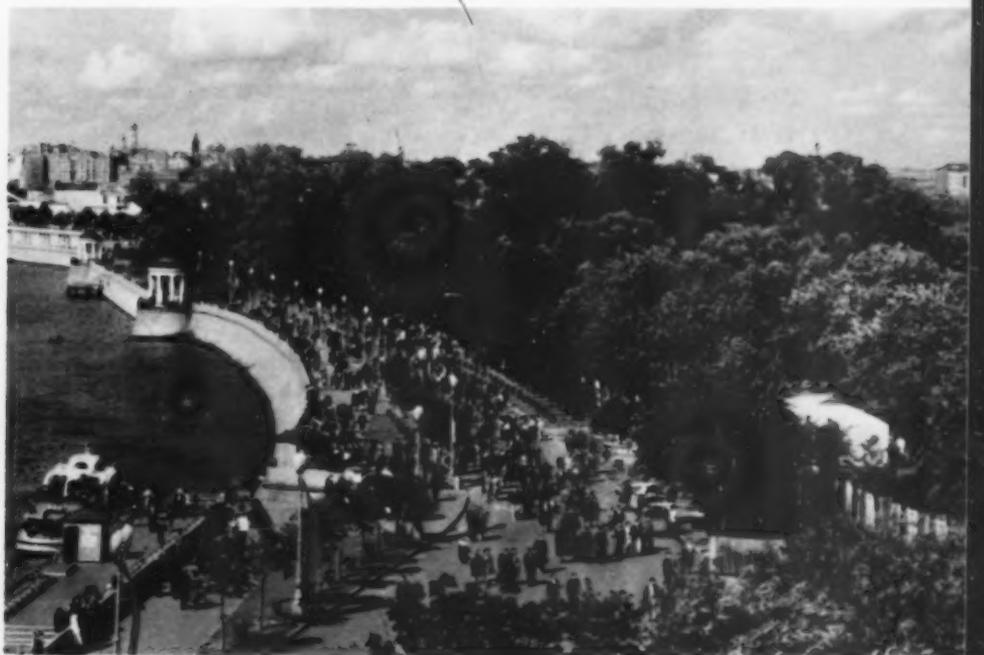
*Find the Muscovite who doesn't end a festive evening at one of the city's 350 open-air cafés.*



*Most housing projects have all sorts of recreational facilities at hand. Lower left: It's the rare balcony without flowers.*



*One of Moscow's younger citizens wanted to grab hold of the camera.*



*Gorky Central Park on the Moscow River. Last year Muscovites planted 133,000 trees, 933,000 bushes and 50 million flowers.*



*A view of the Southwest District, one of the newest of the capital's huge housing developments. Eventually, it will cover an area of 40,000 acres. This section, incidentally, is the site for Moscow's 1967 World's Fair.*



## The Future Moscow

**T**HE ARCHITECTS at Mosproyekt, the city planning agency, are sketching the capital's near and more distant future on their drafting boards. They see Greater Moscow completely rebuilt and pushing out far beyond its present limits, with an increase in area from 86,500 to almost 661,000 acres.

Their near future is 1965, their more distant one—1980. The near future is already taking shape in new housing projects, public buildings, roads, tunnels and bridges.

Housing occupies the central position in these plans. Muscovites will be getting about 130,000 new apartments every year. An expansion of the southwest residential district is projected to cover a total of 40,000 acres. Incidentally, this is the site of the 1967

World's Fair, for which the basic construction is already under way.

Sadovaya Circle, one of the busiest annular thoroughfares in the city, is scheduled for a face-lifting of sizable proportions. Transport and pedestrian tunnels and overhead walks are to be built at various levels.

Planned for the woods and park zone of Moscow is a recreation district covering an area of 450,000 acres with tourist accommodations, camps, resort hotels and marinas.

A circumferential highway now under construction will mark the limits of the city proper. It is to be an up-to-the-minute 68-mile thruway without crossroads or traffic lights. It will intersect 12 radial highways leading out of Moscow. The highway will be ready in 1962.



*Model of a new hotel to be built near the Kremlin for 5,890 guests. It will have a concert hall and two movie theaters.*



*Nikita Khrushchev and other members of the Presidium of the Central Committee of the Communist Party look at a model of a future Moscow already taking shape in new residential and factory districts.*



*Expanding Moscow's subway system. It now carries 2,700,000 passengers daily on its six lines. Several new lines are being built in different sections of the fast growing metropolis, bringing the total length to 217 miles.*



*Model of one of the buildings presently under construction at the new airport in Sheremetyevo.*



*Construction at Kryukovo, one of the "sputnik towns," self-contained residential districts going up in the city environs.*

built  
5,890  
concert  
aters.



# SOCIALISM AND

LAST SUMMER two large groups of New York University history students and their professors came to the Soviet Union to see for themselves "the great social experiment of your country," as they phrased it. They asked whether a discussion on problems of communism could be arranged. The answer, of course, was in the affirmative. I was one of those who participated in this verbal exchange.

They were genuinely interested in learning about the social structure of our country and the communist society we are building, as indeed are practically all our foreign visitors.

They wanted to know: What is the difference between the material and technical basis of communist society and the basis of the most developed capitalist countries? What happens to private property under communism? How will the communist principle of distribution "to each according to his needs" operate? Can a society exist without state rule?

What they were asking, in effect, was the difference between socialism and communism, a very pertinent question now that the Soviet people have already built socialism and have begun to build communism.

## Stages in the Development of Society

Man's history is made up of a number of consecutive socio-economic stages—primitive-communal, slave-owning, feudal, capitalist and communist—that follow each other in that progressively higher sequence.

The general law of development also operates within each of the stages. The capitalist stage, for example, has two phases—industrial capitalism followed by monopoly capitalism.

The communist stage also has two basic phases. The first, or lower phase, is socialism; the second or higher—communism. "The scientific difference between socialism and communism," said Lenin, "is only that the first word means the lower stage of a new society emerging from capitalism; the second word—its higher, succeeding stage." Socialism and communism are two phases of one and the same communist stage. They have many features in common, but there are also substantial differences. Under both socialism and communism the method of production is based on public ownership of the means of production. The process of production is characterized by the mutual assistance and cooperation of workers freed from exploitation. These relations become more developed and are perfected in the higher phase. Under both socialism and communism the aim of production is the maximum satisfaction of the growing material and cultural needs of society through the steady growth and improvement of production on the basis of the highest technique.

The guiding principle of socialism is: "From each according to his ability, to each according to his work." The guiding principle of communism, the more advanced phase, is: "From each according to his ability, to each according to his needs."

In both phases the economy develops according to the law of the planned (proportional) development of the national economy. With the transition to communism, the integrated planning of the economy, based on this economic law, is more comprehensive and more complete.

Under both socialism and communism everyone is required to work. Public ownership by its very nature excludes parasitism. It makes people take an equally responsible attitude toward labor when everyone is obliged to work. The attitude toward work as the primary requirement of life, when people, in Lenin's words, "will work voluntarily according to their abilities," is characteristic of communist society. In both phases the dominating ideology is the communist one, the scientific, Marxist-Leninist world outlook. It should be noted that during the first phase, which as the result of the Socialist Revolution arises directly from capitalism, society is not yet free from the survivals of capitalism. Soviet society, for example, still has to fight against manifestations of greed and narrow self-interest opposed to the public interest. We have cases of antisocial behavior, of parasitism, of abuse of public trust.

But in a socialist society these are abnormal phenomena, a legacy of the dog-eat-dog capitalist past. They are fought not only with legal weapons but with the more fundamental and more certain correctives of public pressure and education.

Under socialism are laid the economic, social and moral foundations of the new social system. These foundations are comprehensively de-

veloped during the higher phase, which in turn leads to the appearance of features inherent only in communism.

Communism is the end product of the progressive development of all previous history; it is the beginning of a new stage in social evolution. Communism preserves and multiplies all man's store of material and spiritual values. It brings an era of unprecedented creativity in technology, science, the arts; it permits the full flowering of the human personality.

Under communism, with its unified and comprehensive economic plan for the whole country, a tremendous all-round development of social production takes place. Planning under socialism and communism opens up horizons for economic development impossible for any previous social system.

Communism, having arisen on the basis of the achievements of socialism, ensures the most complete and most integrated development of every branch of the national economy. It permits production on a scale large enough to meet all the needs of society as a whole and of each individual. Thus, under communism, a sufficient amount of material wealth is created to realize the ultimate goal of this society: "From each according to his ability, to each according to his needs."

Everything hitherto achieved during all of man's previous development will pale by comparison with the unmeasurable progress of technology, science and the production of material and cultural values possible under a developed communism. This will be the most highly organized, the most healthy, harmonious, active and viable society, one without war, unemployment, hunger and all the other misfortunes that plague our world today.

A high standard of living, advances in medicine, mass participation in body-building sports will make for a much lower death rate and a higher birth rate. In the course of one generation the average span of life in our country has increased by approximately 20 years. In the near future mankind will wipe out cancer, heart disease, arthritis and other such disabling and killing ailments. Medical progress and living conditions far superior to those known now will increase longevity to 100-150 years or more.

During the past century the population of our planet increased by about a billion. Under communism the population will grow many times that, but there will be no "problem" of overpopulation. Each member of society will be able to find worthy application for his abilities and talents and will receive sufficient remuneration for his work to enable him to fully satisfy all his needs.

## "From Each According to His Ability, to Each According to His Needs"

It would be a mistake to limit this basic principle of communist society to consumption. It actually expresses the two inseparable and most important aspects of life in communist society—the highest stage in the development of production and consumption.

The principle of communism demands that every member of society work for society according to his abilities. This is a necessary condition for the production of enough material and cultural values to satisfy everyone's needs. The all-round development of the abilities of the working people in communist society will make it possible to achieve an abundance of consumer goods, without which distribution according to requirements is unattainable. Once society is able to operate by this principle, it will mean that full social equality has been achieved.

Here again there is a difference between the two phases of communism. Under socialism equality is achieved with reference to the ownership of the means of production; that is to say, society is not divided, as is the case under capitalism, into a minority owning the means of production and living by the work of others, and a majority deprived of the means of production and forced to sell its manpower to earn a living. Under socialism all members of society are equal and collective owners of the means of production. But there still remains certain inequalities in people's living standards, since a worker under socialism is paid according to the work he does and not according to his needs, as is true under communism.

Since people vary in ability and live differently—one is married, another single, one has a big family, another a small one—it is apparent

# D COMMUNISM

By Tsolak Stepanyan  
Doctor of Philosophy

that distribution according to work cannot result in equal living standards for all.

Karl Marx wrote that special abilities are gifts granted by nature to individuals. In a society where payment is in terms of work done, these gifts will necessarily make for inequalities. Only the transition from the socialist principle of distribution according to work to the communist principle of distribution according to needs will guarantee full equality, regardless of the privileges granted by nature.

## Work Will Become a Joy and Prime Necessity

There are those who think this principle of communism utopian. They declare that society can never reach a level of labor productivity high enough to provide an abundance of commodities and services, that the most society can aspire to is a more or less equal distribution of incomes. They also say, "Why should people want to work hard when all their requirements are met anyway? Only fools like work for its own sake."

Throughout man's history work has been necessary for subsistence. But under conditions where socialism has been achieved and communism is being built, work takes on new meaning. What we call the communist attitude toward work already begins to appear under socialism. Its unique characteristic is civic consciousness. A person does his best work not merely for himself and his family but for society as a whole.

These characteristic features will be even more universal under communism. Work will be the prime spiritual and physical necessity for people. They will not be able to live without creativity which will be a source of inspiration to them, the meaning of their life and activity. The mental and physical abilities of every man will develop to the utmost in the process of work.

The material and technical base and the production relations of communist society will make it possible to transform work from an arduous chore into enjoyment. It will become pleasant and creative, light and ennobling, attractive and a source of great satisfaction. Children will learn to look upon work as their primary duty to the society in which they live. This conscious and voluntary work discipline will be a part of man's character. And if certain individuals break the rules of communist society by refusing to contribute their labor for the general good, the force of public opinion will set them right.

The seed of this communist attitude toward work has been growing since the Socialist Revolution. Lenin pointed out that communism begins when selflessness is shown in coping with difficult work, when rank-and-file workers are anxious to boost labor productivity and to preserve every pod of wheat, coal, iron and other products not alone because it will profit those "near and dear" to them, but also "those far away"—society as a whole, tens and hundreds of millions of people. Expanding on this idea, he said that communism is work people do for society, work which is not paid for, work for which no quotas are set by the authorities or the state.

The shoots of communism in work can already be seen. Soviet people cannot conceive of a life without conscientious and valiant labor. This is the juncture at which work ceases to be merely a means of making a livelihood and begins to be a vital necessity. The first signs of a process that Lenin termed the transition "from the shoots of communism to complete communism" are already evident.

## Personal Property Under Communism

Public ownership of the means of production does not preclude ownership of personal property. People will have for their personal use everything that satisfies their tastes and requirements. Communism means the elimination of class inequality, the inequality between those with property and those without. It does not propose a leveling of the needs and wants of people; people's wants and needs differ. Quite the contrary, communism envisages the widest possible development of the individual tastes and requirements of all members of society.

One still hears the silly and altogether groundless canard that communists are against personal property and that they want to reduce all individual requirements to a common denominator. As long ago as

1848 Marx and Engels wrote in the *Communist Manifesto*, "We Communists have been reproached with the desire of abolishing the right of personally acquiring property as the fruit of a man's own labor, which property is alleged to be the groundwork of all personal freedom, activity and independence. . . . We by no means intend to abolish this personal appropriation of the products of labor, an appropriation that is made for the maintenance and reproduction of human life, and that leaves no surplus wherewith to command the labor of others. . . . Communism deprives no man of the power to appropriate the products of society; all it does is to deprive him of the power to subjugate the labor of others by means of such appropriation." Later, in 1875, in his *Critique of the Gotha Program*, Marx developed this idea and wrote that in a communist society "nothing can become man's property except personal consumer goods."

With the transition from socialism to communism will come a change in man's psychology. He will want to own individually only those things that are needed to make his life happy and his work creative. The selfishness and egoism that feeds on hoarded wealth will be entirely alien to people in a communist society.

## The Freedoms Under Communism

Communism, even in its first phase, does away with all class contradictions and the other manifestations of a society divided into classes. Communism, by Marx's definition, is a free association of working people. Even in its socialist phase, all its people have—in fact and not only in word—such inalienable and guaranteed rights and freedoms as the right to a job, to rest and leisure, to free education, to free medical service, to maintenance in old age and disability.

Even in its socialist phase the level of individual freedom is extremely high. Under communism these rights and freedoms are further buttressed by these two greatest of values—the freedom of creative labor and the complete satisfaction of the material and spiritual requirements of working people and their families.

A major indication of the gradual maturation of communism in our country is the manifold development of democracy. The further development of democracy will cause a great upsurge in the social activities of the members of society and will ensure the participation of all the members of society in a conscientious and well-ordered administration of the economic and cultural life of society. Consequently, under communism there will be no need for the state, *i.e.*, no need for a special apparatus whose function is the administration of society.

Complete and well developed democracy means the versatile, conscientious participation of the citizenry in social production and distribution to a point where the special administrative apparatus we call the state is superfluous. "The society," wrote Engels, "that organizes production anew on the basis of the free and equal association of producers will put the whole state machine where it will then belong: in the museum of antiquities, side by side with the spinning wheel and the bronze ax."

Only one function of the state will not wither away, the administration of the processes of social production and distribution. The forms of this administration will take shape as socialist society develops. In the first years after Soviet power was established, Lenin sketched the outlines of the future communist apparatus of economic administration. With communism he foresaw the disappearance of all the organs of the socialist state except the Supreme Council of National Economy, the prototype of the present regional economic councils, which he predicted would grow, develop and become stronger.

Organs of that type enlisting large sections of the population in managing the various sectors of the country's life will be called upon to perform the main functions of a developed communist society. The socialist apparatus of economic and cultural administration, emphasized Lenin, is the only one of all the state establishments destined to retain its place.

Thus, with the complete elimination of class distinctions and the withering away of the state will come a communist association in which the free development of each member is a *sine qua non* for the free development of all.

*(Right) Leningrad makes this new electron microscope with a magnifying power of 200,000x, or 1,200,000x if used with an optical attachment.*



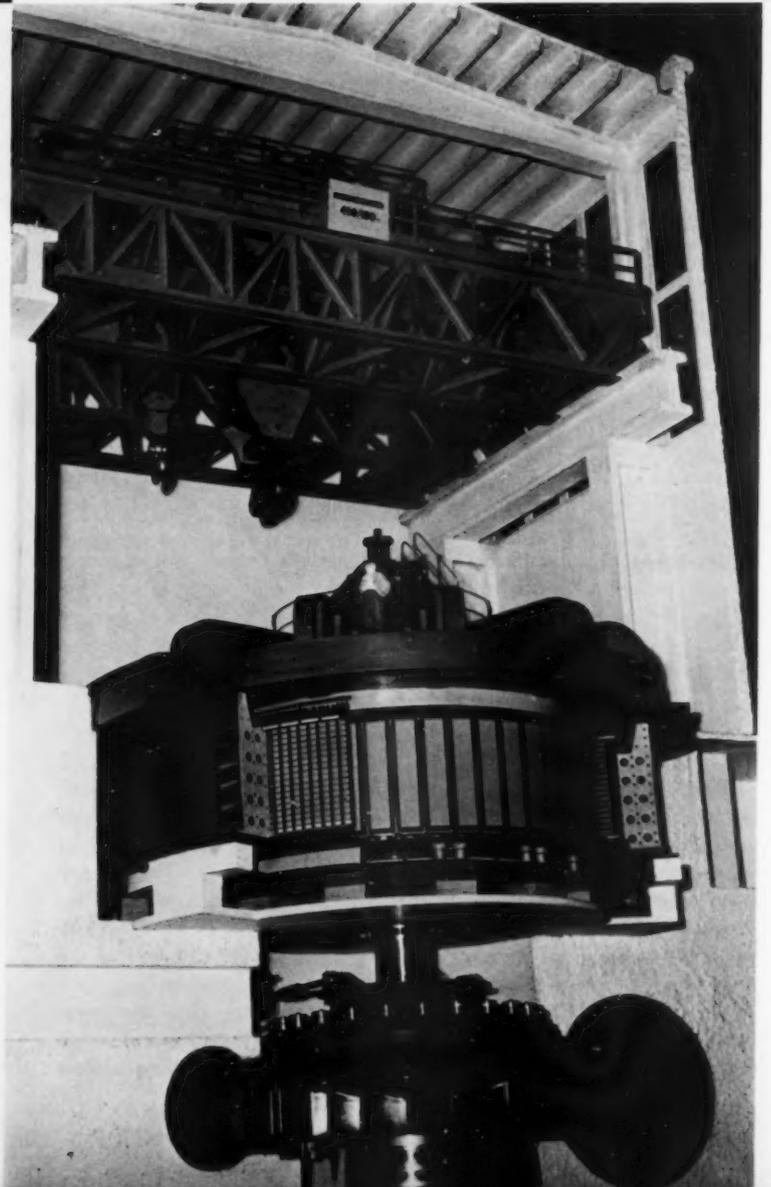
*This turret lathe machines very small parts and performs a number of operations automatically. The operator is a control command device.*

*(Right) Scale model of a 230,000-kilowatt turbine made in Leningrad. The city's designers are now working on a 500,000-kilowatt turbine.*



**Made in  
USSR**

**NEW PRODUCTS FROM LENINGRAD**



*This machine, equipped with a programming device, sets type for books and periodicals in some 70 languages, including those with Arabic characters.*



*Leningraders have dubbed this tape recorder the Singing Astra. It has two amplifiers to guarantee faithful tone quality and comes in a leather case.*



*Leningrad, the Soviet Union's second largest city and one of its big industrial centers, manufactures just about everything from giant turbines to finely crafted tape recorders. They are on display at the USSR Exhibition of Economic Achievements in the capital among many other items stamped "Made in USSR."*

**A**N EXHIBIT of curiously shaped pieces of bright aluminum attracts visitors by the hundreds. These are the end-products of research by Alexander Stepanov and are likely to revolutionize—the word is no exaggeration—the metallurgy industry.

Normally, before metal can be rolled it must go through several processes. The ore is first smelted into molten metal, then allowed to solidify into ingots. Then the ingots are heated again before they are sent to the rolling mill.

Professor Stepanov's process is based on the surface tension phenomenon. A drop of water maintains its spherical shape because of the surface tension in the liquid. The denser the liquid, the greater the tension.

A strip of foil is dipped into a bath of molten aluminum. Surface tension makes the molten metal adhere to the foil. So that the strip will not rupture under its own weight, it is immediately cooled in a stream of cold air. The metal hardens, retaining the shape it assumes at the moment it is drawn from the bath. By this ingenious use of surface tension effect, aluminum may be given any shape.

Experimental work with other nonferrous metals, and with steel, too, will be following in due course.

#### **Singing Astra**

Poetically-inclined Leningraders dubbed a tape recorder with extraordinary sound quality the "Singing Astra." It has two amplifiers, and

its 350-meter tape spools with speeds of 4.75 cm. and 9.5 cm. per second are good for two to four hours of continuous playback.

#### **Program-Controlled Machine Tools**

Last year Leningrad engineering plants designed 100 new types of program-controlled machine tools. The aim this year is to double that.

At the exhibition one can see a boring mill in operation designed to machine parts with a precision as high as 2-3 microns. Also on display are drilling, milling and planing machines and numerous lathes.

One of the most interesting is a turret lathe that machines tiny parts up to 25 mm. in diameter and 140 mm. in length. It has an automatic timer and performs a variety of operations—rough-, finish- and shape-turning; drilling; countersinking; reaming; facing; grooving and knurling. And it can do all of this without anyone having to lift a finger.

#### **TV Sets**

The Kozitsky Plant shows some of the different types of TV sets it manufactures, among them the Rainbow for color viewing and the black and white Signal, Salute, Friendship, Volga and Symphony. The 625-line standard coupled with the picture rate of 50 frames per second makes for an excellent image. An automatic horizontal hold gives a stable image even with interference. Provision is made for image stabilization regardless of fluctuation in voltage supply.

#### **Turbines**

Exhibited is a scale model of a 230,000-kilowatt turbine built by the city's Stalin Metal Plant. Turbines of this kind are already being installed at the Bratsk Hydroelectric Station in Siberia. Leningrad designers are presently working on a 500,000-kilowatt turbine.



## HOME SERVICE KITCHEN

**T**HE HOME SERVICE KITCHEN, now operating in many cities, is a very popular institution with the Soviet housewife. In ten minutes flat she can have a full-course meal on the table—say, jellied fish, hot borsch, and roast beef with all the trimmings.

The one recently opened on Second Stroitelei Street is typical—a spacious white-tiled store with a smiling woman in a white smock behind the counter. Several people are waiting to be served. From the conversation it is evident they are regular customers.

The menu varies with the time of year. In the spring and summer, for example, vegetable soups are listed; in fall and winter, meat and fish soups. Special dietetic dishes are available—chicken puree, steamed meat balls, vegetable cutlets, cottage cheese pudding.

A home service kitchen dinner is about ten per cent cheaper than one in a restaurant. A tasty three-course meal—soup, entree and desert—costs about 50-60 kopecks. These prices are representative: kharcho soup—28 kopecks, shchi soup with pork and sour cream—20 kopecks, milk noodle soup—17 kopecks;

meat stew with vegetables—25 kopecks, beef-steak—28 kopecks, minced schnitzel—22 kopecks, liver—22 kopecks, cottage cheese cakes with sour cream—18 kopecks, rice or semolina—12-15 kopecks; stewed fruit—6-7 kopecks, jelly—4 kopecks; milk—6-7 kopecks.

Some housewives prefer partially-prepared items that they can season and garnish to their own taste. The home service kitchen has a large selection of ready-to-cook fish, meats, poultry and vegetables. Meats generally available include shashlik, steak, different kinds of croquettes and cutlets, as well as chicken and duck. The menu also lists cold dishes—salads, jellied fish and meats, cold veal, etc. Potato chips come packed in cellophane bags. Pies, cakes and doughnuts are always stocked, as are fruit and vegetable juices and ice cream.

The home service kitchen caters for home parties. Customers often call up and ask the kitchen to prepare and send dinner for 20 people with a birthday cake for dessert.

The kitchen on Second Stroitelei Street is one of 60 opened in Moscow last year.





## WHAT DO SOVIET PEOPLE THINK ABOUT

# JAZZ?

By Leonid Utyosov

Our readers have frequently asked this question. Leonid Utyosov, the best-known band leader in our country, gives the answer in this abridged version of an article that appeared in the newspaper *Soviet Culture*.

**J**AZZ IS MUSIC with a particular kind of rhythm, harmony and timbre. And if it is sometimes distorted and perverted into what Maxim Gorky aptly described as "music for the fat-bellied," the blame must be laid at the doorstep of the "fat bellies."

Jazz music has been around a long time. The New Orleans style was not a discovery but simply a stage in its development. I am talking about improvisation, which some music historians consider the backbone of jazz.

Improvisation is far older than jazz; it is thousands of years old, older than musical literacy. Always and everywhere, before music was written down, and later, after musical notation had been invented and used, gifted amateurs got together and improvised, giving expression to their natural impulse to make music. I might say, in passing, that a mediocre musician cannot improvise, no matter how well he knows the laws of harmony.

Long before I was born—and that was a long time ago—musicians in Odessa improvised tunes at weddings, a fact that could give me grounds for asserting that so-called Dixieland existed in Odessa before New Orleans.

Of course, some wits will say: "There they go again—Russia's the birthplace of the elephant!" But I really have no intention of establishing Odessa's priority. All I want to say to those who might not know it is that improvisation was a fact long before American jazz.

By the way, as paradoxical as it may seem, highly trained musicians rarely go in for improvisation.

The art, unfortunately, is hardly practiced in our country, even though we have some gifted musicians who are very adept at improvising. The Negro people have gone a long way toward developing it. Their musical talent is simply staggering. I am convinced that once liberated, black Africa will be producing music of so consummate a quality that white composers will have to move over to make room on the Olympus of Music.

This applies to Dixieland jazz. What about so-called "commercial" jazz? That is the term customarily used for orchestras that play jazz in its "processed," refined form. These are the larger combinations, with well-organized groups of instruments and specially arranged scores.

I have no idea where, when and why the term "commercial" was first used in this connection, or what it is supposed to mean—"profitable," perhaps. It could have been that when the small bands of the New Orleans restaurants and cafés gave way to the larger orchestras of world variety stages, jazz became profitable and was tagged "commercial."

Now I haven't the least intention of running down "commercial" jazz. On the contrary, I am all for it. I am for all good music, and I cannot understand people who limit their liking to one kind of music.

What do they mean by saying "I love only symphonies," or "I like nothing but opera," or "I'll only take jazz"? As for myself, I love symphonies and operas and jazz—if they are good. And I hate symphonies, operas and jazz—if they are bad.

Some commercial jazz is wonderful. Highly gifted composers like George Gershwin, Jerome Kern and other have written and are writing "commercial" jazz, very popular not only in their own country but abroad as well.

It is true that jazz is often given ugly forms and degenerates into formalism and other such "isms." But doesn't that happen to other art forms as well? However, jazz is often unjustly condemned for that reason alone, without any attempt at analysis and understanding.

Art can only be good. There is no such thing as bad art. A paradox? Not at all. If it's bad, it's not art.

It is wrong to consider jazz a "secret vice." It isn't anything of the kind. And to give it that character is to make hypocrites of young people who like to listen to it. There is no denying the demand for jazz. But what kind?

And this is where I get to the heart of the matter. All the arts are good except those that bore you. This will be true just as long as people have hearts and brains.

What kind of jazz do we need, and have we got it? We have, and it has a style of its own—not beep, nor bop, nor hop. Soviet variety music is alive and kicking and keeps on searching and blazing its own trail, a trail marked with advances and setbacks.

What has Soviet jazz achieved? A great deal, I believe. Haven't many fine Soviet songs that have become very popular both at home and abroad been based on jazz? Hasn't our jazz given us a host of talented song writers?

I owe Soviet jazz a personal debt. It put me in touch with Isaac Dunayevsky and gave me the pleasure of working with that brilliant song writer.

Must we throw out the better samples of Western jazz with the bad ones? Of course not. Our bands have a good deal to learn from their foreign counterparts when it comes to performing jazz.

We ought to do more thinking about the wishes and tastes of our young people. I feel strongly that music can and must play an essential role in their aesthetic education.

# HEALTH RESORTS OF TRADE UNIONS



One of the cottages belonging to the Arkhitektor vacation resort on the Gulf of Finland, not far from Leningrad.



A sanatorium high in the mountains of North Ossetia where chronic respiratory diseases are treated.

**K**EEPING people physically fit is a highly developed industry in the Soviet Union. There are 350 resort areas, more than 3,000 sanatoriums and rest homes, and hundreds of health resort clinics, hotels and camps in every part of the country.

Until very recently these establishments were administered by the Ministries of Public Health of the Union Republics. Now they are run by the trade unions. This is part of the growing trend to transfer to public organizations the functions of state management so that the millions of members of these public organizations may themselves resolve the problems concerning their welfare. It is this tendency that testifies to the remarkable features of Soviet democracy.

The tens of millions of members of the Soviet trade unions are now the collective operators of the country's health resort setup. They are responsible for the maintenance of the spas and sanatoriums, for the choice of medical and service personnel, for financing, for the quality of accommodations, and a thousand and one other items.

The resorts, sanatoriums and rest homes situated throughout the country take advantage of the great variety in climate, locale and natural medicinal resources. Every health resort is designed to offer the patient or vacationer its own particular health-building facilities.

The southernmost of the Black Sea spas is Gulripshi, the Valley of Roses, not far from Sukhumi. This is lush country, almost smothered in white and pink camelias, narcissus, palms, magnolias. The new Lenin Sanatorium

was built there, its white buildings magnificently framed by the green hills. The sanatorium wards are comfortable and pleasant, and the therapy facilities are the best that modern medicine has to offer.

Along the Black Sea coast, for hundreds of miles, all the way from Sukhumi to Odessa, there are rest homes, sanatoriums and resort areas—at Gagra, Sochi, Anapa, Miskhor, Simeiz, Feodosia, Yalta and other places.

The Black Sea coast is only one of many health resort areas. There are fine resorts in Central Russia, in the Urals, Siberia, Central Asia, the Baltic region, the Transcaucasus and the Far East. Their bracing climates and pine and birch groves form ideal settings for resorts of every kind and description—seaside or country, mountain or lowland, medicinal mud or spring.

Some offer treatment for cardiac ailments, others for liver and kidney diseases, still others for stomach trouble. There are many sanatoriums of a general type for people who need a good rest under medical observation.

Murmashi Sanatorium, one of the country's northernmost spas, is situated in a birch and fir grove on the Tuloma River. Winters in this part of the Soviet Union are six months long. The sanatorium specializes in silt mud and pine needle baths.

There is almost no district in the country without its first-class spa famous throughout the republic, if not throughout the country, for its curative muds or waters. The quality of the mineral waters at the Far Eastern spa Darasun, for example, can just about match those of Kislovodsk in the Caucasus.

The trade unions are now busy expanding this big industry with which they have been entrusted. A Central Resort Board has been set up at the USSR Council of Trade Unions, and each Union Republic has its own health resort board. The Russian Federation, the largest of the republics, has a board in each of its regions and territories. The trade union council of the republic, region or territory directs the work of the board under its jurisdiction, supervises local health resort activities and distributes accommodations in sanatoriums and rest homes among the local trade union committees.

When a Soviet factory or office worker wants to spend his month's vacation at one of the sanatoriums or rest homes, he goes to the trade union committee at his place of employment. If his health is not up to par, the committee will have him examined by a special medical board to determine the type of treatment he needs. Then he is given an admission slip to present to the sanatorium or spa, and all he has to do is pack his clothes and go.

Upward of five million people each year are accommodated at health and vacation resorts run by trade unions. About a fifth of the vacationers get their accommodations free. The rest pay either 30 per cent of the cost or the full rate, depending upon their wages. Last year the trade unions allocated 237 million new rubles for health and recreational facilities for their members.

The trade unions also pay for the added vacation time a doctor may prescribe for a patient. Workers in the lower wage brackets

By Ivan Smirnov

Editor in Chief, Trade Union Publishers



The Far Eastern Talaya sanatorium was built around hot sulphur springs found on the site.

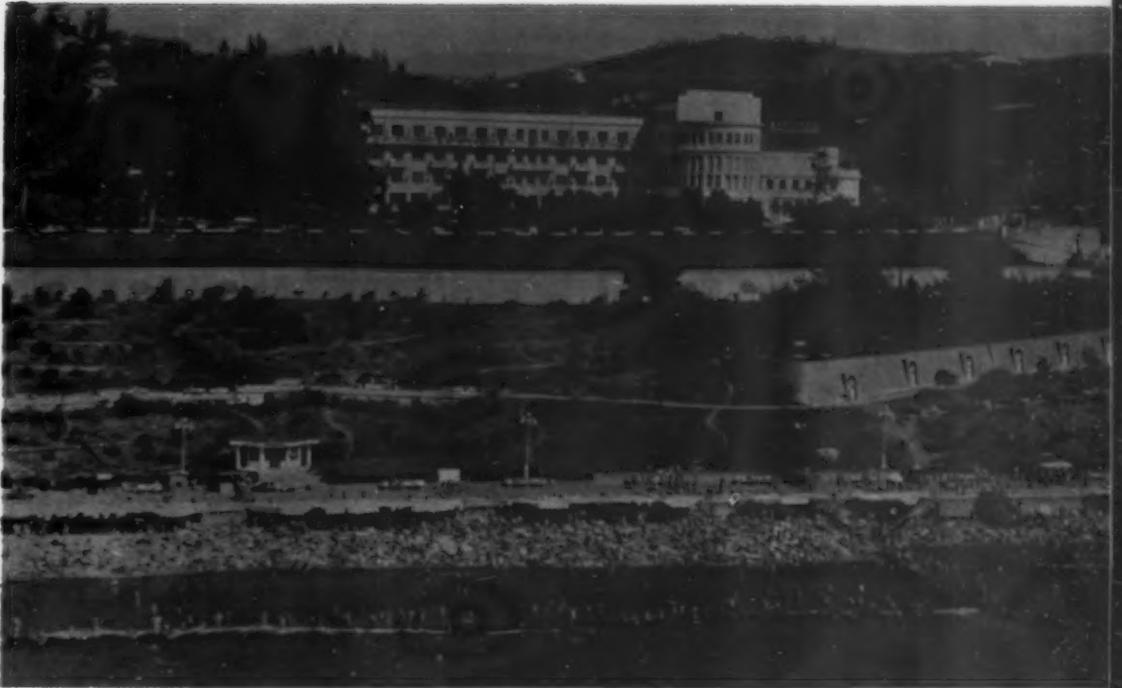
and those with large families in addition to getting their accommodations without cost also get free transportation.

The trade unions finance the building of rest homes and sanatoriums from the social insurance fund which the unions administer. This fund—which in 1960 topped 7 billion rubles, a sum equal to a tenth of the national budget—is made up solely of contributions from industrial, commercial and other enterprises. No deductions are made from the wages of employees.

The unions are presently engaged in developing new health resort areas. Recently a large new resort area was opened in Karelia, near Leningrad, where there are some 50 sanatoriums and rest homes already. During these past two years alone 30 million rubles were invested in developing health resorts in the southern Crimea.

The practice now is to build a spa around a mineral spring or medicinal mud deposit almost as soon as it is discovered. Ust-Kachka, a fine resort in the Urals, which was opened a short while ago, is bound to become as famous as Matsesta at Sochi for its curative properties. The hydrogen sulphide springs around which it is built were discovered by geologists only last June.

In the mountains of the Minor Caucasus the Isti-Su resort, is being developed around a large number of hot mineral springs with temperatures of up to 60° centigrade. This spa is of the same type as the world-famous Karlovy-Vary in Czechoslovakia. New sanatoriums and rest homes are being built on the shores of crystal-clear Kisegach Lake in the



All along the Black Sea coast, for hundreds of miles, there are beaches and resorts like this one.

Urals. Even distant Sakhalin will soon have a balneological sanatorium in Sinegorsk. New spas are also opening in the Volga region, in Central Asia and Siberia. By 1965 the country's sanatoriums will have 50,000 additional accommodations.

The trade unions are developing new types of health facilities, sanatoriums at the enterprises themselves. The one at the Kalibr Plant in Moscow is representative. Situated a little way from the factory buildings, in a shady garden, it has treatment rooms, a lounge, bedrooms and a dining room. Workers who need rest, treatment or special diet come to the sanatorium each evening after work and stay overnight for periods as long as the doctor prescribes.

There are now more than 800 of these factory sanatoriums, with a good many more in the building stage. Patients either pay nothing or 30 per cent of the cost, depending upon their wages.

There are also summer camps for adults which provide rest and recreation. Like the factory sanatoriums, they are run and maintained by various large industrial plants.

The trade unions also maintain the 5,500 Young Pioneer summer and winter vacation camps for children located in various parts of the country. Last year 80 million rubles were budgeted by the unions for children's vacation facilities.

The aim of this multimillion organization of Soviet workers that now operates the nation's health resorts is to make available to every one of its members facilities for rest, recuperation and recreation.



A TB sanatorium in the Crimea where sun, sea air, rest and expert medical attention restore health.



**W**E SPENT 12 long-to-be-remembered days climbing in the Ala-Tau Mountain country. There were 26 in our group, people of diverse nationalities—Ukrainians, Byelorussians, Georgians, Jews, Kazakhs, Russians—of diverse vocations and of diverse tastes and talents, making our trip that much more interesting and our talks around the campfire that much more lively. We took turns cooking our national dishes and made the hills ring with the folk songs of many nationalities.

Our gay company included teacher Vsevolod Kochnev from Tbilisi, an old hiker who astonished us with his agility and delighted us with his endless repertoire of songs; another songster, locomotive engineer Vasili Pechenkin from Cherepovets who would not be parted from his guitar and regaled us at dawn with lyrics of his own manufacture; and engineer Mikhail Zaidel from Chelyabinsk, our group leader, whose contribution was an elegant beard especially grown for the occasion.

Other vocations and regions were represented by Dr. Xenie Gulkevich from Minsk, fitter Pyotr Shirokov from Omsk and student Raisa Atanova from Novosibirsk.

#### A Mile-High Base Camp

Our group got together at Gorelnik, one of thousands of hiking centers maintained by the Soviet trade unions in all parts of the country. The Gorelnik base camp is situated 5,520 feet high in the Trans-Illii Ala-Tau range of the Tien Shan Mountains, about 12 miles from Alma-Ata, capital of Kazakhstan. An accommodation card for a 12-day stay at Gorelnik may be obtained at any factory trade union committee office. The charge is 40 rubles. Trade union members—practically everyone in our party—get a big discount. They pay only 7 rubles 20 kopecks for meals, use of equipment and the services of an experienced guide and instructor in mountain climbing.

Driving from Alma-Ata to the base camp, you feel as though you are

being transported to a different world. The Ala-Tau Mountains keep changing color. Seen through the thin veil of early-morning fog, they are gray, in the midday sun they are a glittering white, and in the fading twilight they shade from lilac to purple to a dark blue.

The auto road climbs the steep side of the Malaya Almaatinka River gorge, thick with poplar trees, sweetbrier and raspberry bushes, to the higher levels where the silver firs and junipers grow. The 165-foot Tien Shan spruces command the terrain. The Gorelnik waterfall drops with a roar from a height of 100 feet.

#### Practice-Climbing

The first three days at the base camp we spent practice-climbing, topped off with movies and dancing in the evening. On the fourth day, loaded down with food and climbing gear, we set out for the Talgar Pass.

From a height of 10,500 feet we could make out the tiny figures of slalom contestants zigzagging down the Talgar slope, and the mile-long ski lift below.

We came back to the base camp from that first expedition with a fine assortment of scratches and bruises, but the aches and pains were all forgotten when we got to talking of the wonderful views on either side of the Talgar Pass, of the streams racing down from the snow-capped peaks, of the trout we had caught in those streams and how delicious it tasted when cooked over a campfire.

After a rest at the camp we unpacked our lumberjack shirts, shorts and wide-brimmed hats, stuffed woolen sweaters, fur-lined gloves and spiked climbing shoes into our knapsacks and set off for the Tyuk-Su Glacier. We made the one-mile climb with safety ropes along one route and returned via the Titov Pass and the Gorelnik River gorge, the wind-up of twelve memorable vacation days.



*Rock-climbing, we found, takes a tightrope walker's agility, a hunter's courage and a saint's patience.*

*The first three days we spent practice-climbing and collected a fine assortment of aches in the process.*



*Then, loaded down with provisions and gear, we started our mile-high climb.*



*Ala-Tau's peaks shade from glittering white at noon to deep blue at twilight.*



*A stop to check the route and to get a breather. We needed more before we reached the top.*

## TWELVE DAYS IN THE ALA-TAU MOUNTAINS

Text and Photos by Alexander Gerinas

# Funny Toys

Artist Nelli Okropiridze of Tbilisi makes these very charming toys out of acorns, walnut shells and pine cones. It's easy, she says. Try it.



By Ilya Zbarsky

## MOSCOW PICTURED IN POSTAGE STAMPS

**T**HE SOVIET-CAPITAL—its history, architecture, world-famous museums and ancient cathedrals—has been pictured on hundreds of postage stamps. The first Moscow series, devoted to buildings and architectural ensembles, was issued in 1937.

The city's 800th anniversary in 1947 was commemorated with a series of 15 large-sized stamps. *Old Moscow*, a painting by Apolinari Vasnetsov, is reproduced on a one-ruble stamp. Another of the same denomination shows the sixteenth-century church of St. Basil in color. The 60-kopeck stamp depicts the Moskvoretsky Bridge.

Other stamps in this series show views of the city remodeled during the socialist era—the Krinsky Bridge, one of Moscow's finest, and the main thoroughfare, Gorky Street. The new Lenin Avenue that cuts through Moscow's Southwest District is on the 30-kopeck stamp.

A commemorative series was issued for the tenth anniversary of the Moscow Canal. The 50-kopeck stamp shows the Soviet capital as the port of five seas and pictures the Khimki pier on its outskirts.

The 40-kopeck stamp of the Capitals of the Union Republics series, issued in 1959, is a view of Red Square. On the right is the Lenin-Stalin Mausoleum against a background of the Kremlin wall, and in the

distance is the Spassky Tower with its colossal 20-foot-diameter clock.

The first Metro series appeared in 1935 in denominations of 5, 10, 15 and 20 kopecks and depicts construction and tunneling operations. Three years later another series in denominations of 10, 15, 20, 30, 40 and 50 kopecks was issued to commemorate the building of the second Metro line. The first stamp in this series shows Mayakovskaya Station.

A third Metro series, showing stations of the Ring line built in the postwar years to link all the radial tracks, was issued in 1952.

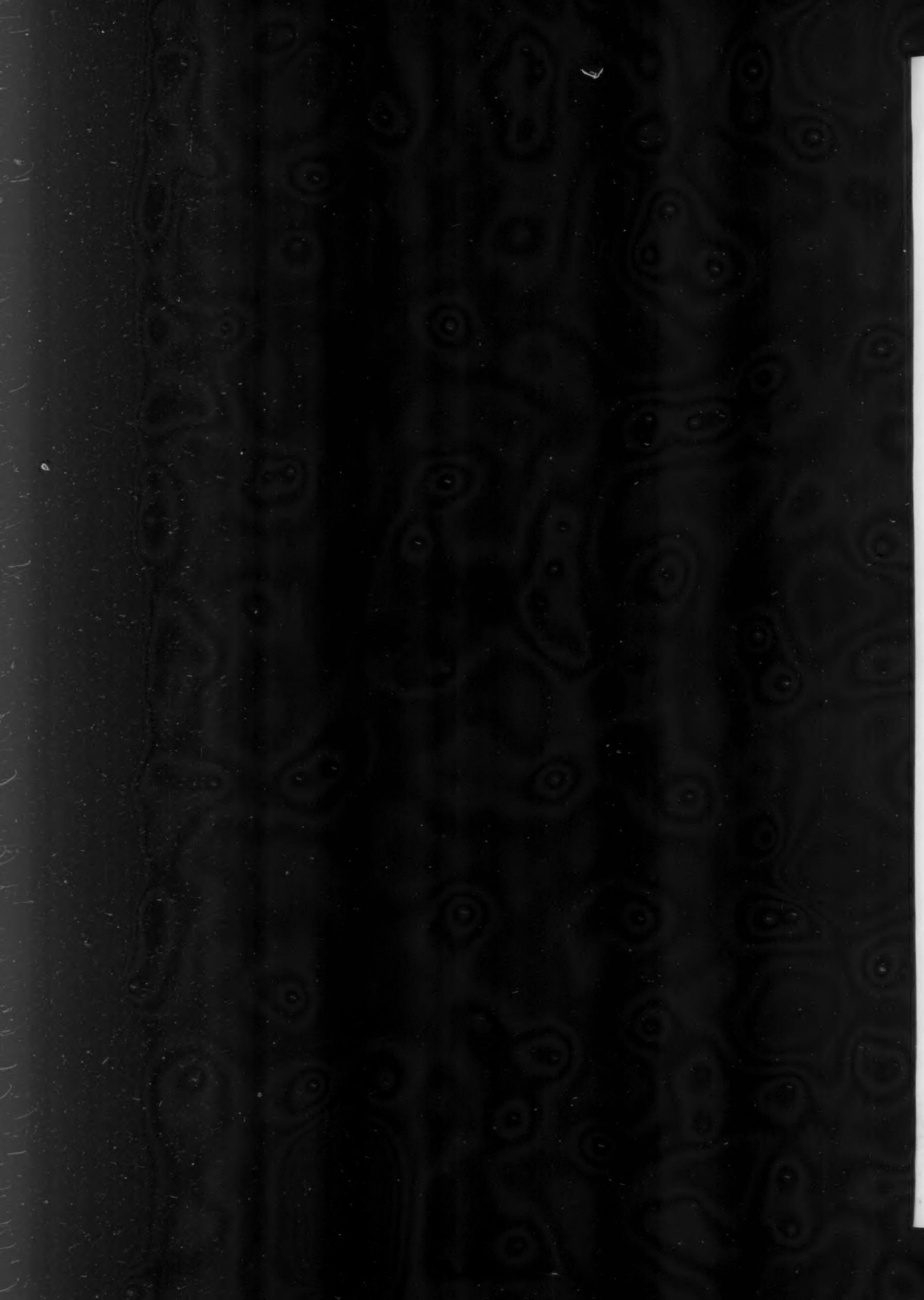
Periodically stamps are issued depicting the many aspects of the capital's cultural life. Two multicolored stamps, of 40-kopeck and one-ruble denominations, commemorated the 175th anniversary of the Bolshoi Theater in 1951.

A series of nine varicolored stamps, each of 40-kopeck denomination, issued two years earlier, depicts Moscow museums, including the Pushkin Fine Arts Museum, one of the world's largest collections of ancient, West European and Eastern art.

The statue of Tchaikovsky in front of the Conservatory in Moscow, the one of Maxim Gorky, and others the city has erected to honor famous men are shown in a Moscow Monuments series issued in 1959.



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ONE LOVELY FALL SUNDAY I was driving up and down the steep grades of the Izhevsk-Sarapul highway in the foothills of the Urals when I came upon two parked trucks and a large group of boys and girls busy digging holes on both sides of the road. I asked one of them, a red-cheeked lad, what they were doing and where they were from.

"We're decorating our planet," was his gay answer. "We want to see fruit trees lining the highway. We're from the village on the other side of the woods."

When I asked them who had gotten the idea, they laughed and replied that all of them had—as though to say what did that matter. The Village Soviet contributed the saplings and the collective farm lent them two of its trucks. The farm agronomist also pitched in.

Standing there watching them, I thought how lovely that stretch of road would look when the young apple and cherry trees bloomed white and pink in the spring. People like me passing by would probably wonder who had decorated this bit of our planet. There wouldn't be anyone here to tell them. And it really wouldn't matter. They'd know that people had done it for other people.

There was a man who loved dahlias—his name was Gennadi Putrusevich, a railroad engineer who had done a great deal of traveling laying rails for our locomotives. Subsequently he worked in the Ministry of Railways. What little free time he had he spent with his family and his dahlias. He and his wife grew some superb varieties of that lovely flower in the garden of their country home near Moscow. From a distance the dahlias looked like bits of the rainbow come down from the sky. "Dreams," "Queen of the Gardens," "Madrid," "Fantasy No. 2," were the names he gave them.

He loved to recite this verse of Alexander Blok's:

## MAN'S BEAUTY

*I dream of autumn's roses,  
Beautifully aglow,  
Through mists and flames and blizzards,  
Growing in the snow . . .*

Gennadi Petrusevich died the second postwar summer. He left behind him a book on the care of dahlias, and the flowers themselves spread all through the country, all the way to the Pacific coast. There is a building in Vladivostok—a children's home—with a lovely garden around it. Summer lingers in that garden. Late into the fall the dahlias glow against the yellowed leaves of the bushes and trees. The children know that somebody from the Moscow countryside sent them.

Lotta Petrusevich continues her husband's work. She wants to ship one of her new varieties to America. "That's the home of the dahlia," she explains. "They were brought to Russia long ago, completely unlike the ones we now grow. Wouldn't it be nice to send them back home after such a long absence, lovelier than ever?"

Man's beauty lies in what he does, and his deeds are beautiful if they are done for other men. The good man does not try to buy esteem or fine repute with his deeds. No, he goes where his heart and his conscience lead him; he cannot do otherwise.

The good man is not necessarily the poet who has given men the gift of his talent, or the eminent scientist who has blessed humanity with a great discovery, or the philanthropist who has donated his money for a worthy cause. He may be the ordinary man you see every day of the week, the man who lives next door and works beside you.

Blacksmith Shaakhmad Shamakhmudov of Tashkent and his wife Bakhri adopted 14 war orphans. What remarkable people they must be! They were not looking for applause, this modest blacksmith and his wife. But in our country such kindness does not go unacknowledged. Should you happen to visit Tashkent, look for the fine new street named Shamakhmudov.

Every day in the year our newspapers and radio report the wonderful things people do for others. Take the case of Olena Gliba, a collective farm woman who lives in the Transcarpathian village of Bilki. She and her husband had hoped to build a new home when he fell critically ill and died. She was left with a small daughter to support and no possibility of financing a house. But the village people, at the urging of the farm's building team leader Nikolai Kizlyak, decided to put up the house for Olena. Everybody lent a helping hand and it was finished in short order.

Of course, we can easily enough estimate the cost of that house in rubles and kopecks, but in what currency do you figure one man's feel-

By Konstantin Taradankin

ing of responsibility for another? Therein is the very essence of socialist morality.

I remember an article in *Izvestia* by Paltsev, an engineer at the Leninsky State Farm in the virgin land territory. He wrote about a gift the farm had received from a man by the name of Vasili Vershinin who lived in Moscow. The Muscovite had presented his personal library with many rare items that had taken him 40 years to collect to the people who were doing pioneer farming in Kazakhstan.

Who is Vasili Vershinin? He is a veteran of the Civil War, a worker now on pension, a reticent man who was not looking for praise. But the people on that distant farm insisted he visit them as their honored guest.

This kind of quiet altruism is by no means the rare thing in our country. One meets it everywhere. The mark of the Soviet man is his readiness to help his fellows, his willingness to make sacrifices for the general good. This is a quality that derives from the socialist way of life, it is intrinsic in the society in which he is reared.

There are thousands upon thousands of Soviet men and women in every branch of industry and agriculture, in every sphere of endeavor, who seek out the most difficult jobs, those that most need doing. The Soviet citizen knows that it is his industry, his farm, his country he is working for.

"Work and Live in the Communist Way"—this is the slogan of a movement that has spread like wildfire throughout the land. Membership in a Communist Labor Team is an honor not easily come by, it must be earned. Team members are obligated not only to work better than their fellows but to serve as models of personal conduct. They pledge to expand their store of knowledge, to broaden their cultural horizon. They pledge to help each other grow as workers and as human beings and to struggle against the remnants of the old way of life.

It is in this struggle that the character of the new man is formed, the kind of individual Anton Chekhov envisioned when he said that everything in man must be clean—his body, his clothes, his speech and his soul.

Here is Valentin Otochkin, a fitter, who works at a porcelain factory near Novborod. Otochkin is a man upon whom everyone looks with respect and admiration for the quantity and the quality of the work he turns out. His fellow workers say that he "puts brains into his machine."

Now why does a man like Otochkin work after hours to figure out methods that will get more out of the machines he handles? Because he takes pride in his work and knows that although his may be a small addition to the country's general progress, it is the aggregate of such creative efforts that keeps the living standard rising. Offer to reimburse Otochkin for the extra hours he spends studying his machine and you embarrass him. This is his contribution to the general welfare.

The merchant psychology, the urge to make a fast ruble, is alien to the socialist man. The end products of this psychology are greed and stinginess. You can grow flowers in your own garden to sell for a profit. But you can also grow a new species of rose and donate it to a school garden or a park as thousands of Soviet gardeners are doing.

The people in a certain Turkmenian village decided to open a local museum on their own. When the news reached Ashkhabad, the capital of the republic, a group of well-known painters sent the village several fine paintings that would have sold for a considerable sum. The artists refused payment.

You would think that our elderly people retired on pension after working a lifetime would be glad to enjoy a well-earned rest. But the heart of the matter is that the Soviet citizen does not want to live for himself alone. He feels the need to do things for others. He refuses to narrow his life down to the satisfaction of his own needs. That, he feels, is to deprive life of all its meaning, all its grace and beauty.

That is what pensioner Vladimir Sobolevsky writes to one of our newspapers. His letter could have been written by thousands of others like him. "At first I felt very lonesome without my comrades at the shop and bored without my work. Then I began to help out at the district library. Now I work there five days a week, without pay, of course—my pension is enough to live on. I'm needed there and, believe me, the fact that I am has taken years off my age."

At the Lenin Works in Saratov 120 veterans of labor are helping young workers perfect their skills. In Magnitogorsk a group of pensioners working at the Museum of Local Lore wrote a history of the Civil War in the Urals. Orenburg pensioners make regular visits to the state farms in their district to help with cultural activities. In the

Russian Federation there are some 4,000 Pensioners Councils. The contribution of these elderly citizens take all sorts of forms. No matter the age of our people, they want to be counted among those who are building the future.

I recently visited volunteer design groups at the auto plant and the shipyard in the city of Gorky. These groups are made up of workers and engineers who meet evenings and weekends—on their own time, that is—to work out mechanization problems that will increase their plants' production. Do they have to? Not at all. They do it because they want to. These are socially minded men, not self-seekers. There are groups like these at many factories in the Urals, Siberia and Central Russia.

"Volunteer work" and "public undertaking" are among the most commonly used expressions in the Soviet vocabulary today. The point is not that the state saves by work done gratis—that is inconsequential. It is the underlying psychology that is important, the fact that man's character under the influence of collectivism, of common interest, is changing.

The new way of life is fighting successfully against the old. True, we still have the dishonest and unscrupulous, the loafer and the money-grubber. But one must remember that the higher the morality of Soviet society as a whole, the more sharply will the dirt stand out against its clean white surface. The stronger its ethical consciousness, the less willing will the public be to put up with those who are corrupt. The more actively the people purge life of its ugliness, the more they will learn to recognize its beauty. The main thing is the general trend, the direction which society takes.

Police patrolling the streets—that is a common enough sight in any city in any country. But people's squads patrolling the streets—that is a new phenomenon, one of the more recent manifestations of Soviet democracy. The reason for these volunteer groups is not that our police are unable to cope with their job or that crime is rampant, but that the people are gradually taking over powers previously exercised by official agencies. In this case factory and office workers and students are taking over the functions of the police.

Foreman Ivan Chuvivovsky's team in the machine shop of the Kuznetsk Metallurgy Plant in Stalinsk patrols the streets of the town evenings after work and does as good a job of keeping law and order as the police. The squad can call on the police for help, if necessary, but it seldom has to. The function of squads like foreman Chuvivovsky's is not primarily to catch lawbreakers. They serve as moral rather than physical deterrents. Their weapons are example and persuasion.

How many examples we could cite of this collective consciousness—man making himself responsible for the well being and happiness of his neighbors and workmates. Here is Dr. Maria Petukhova, who lives in the remote Yakutian village of Konkudera, too small a place to be on any map. Village life seems to center around her. She organizes the village club activities, helps the teachers at the school, works with others to set up a radio relay station—and all this with a busy practice. There are many Petukhovas in the Soviet Union.

Everyone in the country was thrilled by the news of the first manned space flight. The pride the people felt in Soviet science and engineering, in the heroic flight of Yuri Gagarin, was a very personal pride, a collective pride. It was the realization of a common hope, the success of a common effort.

And Yuri Gagarin himself. He is not the hero who stands alone and lonely, isolated from the people. His personal heroism is the aggregate, so to speak, of the work and talent and strength of all the people who built the spaceship and did the vast amount of groundwork that made the flight possible.

In our country everything is done to help people develop their potentialities, to find an application for their talents. They do not remain narrow specialists. The collective farmer Terentii Maltsev lectures at the Academy of Agriculture on his original method of crop cultivation, the miner Nikolai Likhachev sings *Radamas* in an amateur production of *Aida*.

There are millions of Soviet people working in mines, factories, laboratories and on farms who spend their free time at creative activities—painting, music, dramatics—at the numerous clubs and people's theaters.

Thus, spiritual values of permanent worth are created to enrich the new man and the new world he is building—a world of reason and truth, of friendship and happiness.

# THE ROSSIYA COLLECTIVE FARM

By Andrei Gribkov

**T**HERE SEEMS to be no end to the fields of the Rossiya Collective Farm that stretch interminably across the North Caucasus steepeland. Only the distant forest belts that shield the wheat fields mark the boundaries.

This is a 55,000-acre farm, of which more than 44,000 acres are arable. The rest is pasture, truck gardens, orchards, vineyards, and livestock and poultry areas for pigs, sheep, poultry and thousands of head of cattle.

The farm owns fleets of tractors and self-propelled harvester combines that work without letup during sowing and harvesting periods. Chemical spraying to kill weeds and harmful insects is done by plane.

The village of Grigoripolisskaya, the collective farm's residential and administrative center, is situated on the right bank of the Kuban River. From a distance it looks like a shady garden dotted with cottages. The village has eight general schools, an agricultural school, a library, a wide-screen movie house, a House of Culture, a hospital and various stores.

In the administration building we meet Yakov Bichevoi, the farm chairman. He is discussing the farm's development plan with a group of agricultural scientists who have come from Moscow for the purpose. Among them are Nikolai Komarov, professor at the National Institute for Experimental Veterinary Medicine, and Isaak Dubinsky, assistant professor at the National Research Institute for the Electrification of Agriculture.

The scientists had studied Rossiya's potentials and were making suggestions along various lines. Together with the farm's own specialists they had compiled a soil map and worked out cultivation and fertilization procedures for each section.

Rossiia's tie-in with these and other scientific bodies such as the Krasnodar Farm Research Institute and the Institute for Sugar Beet and Plant Protection is of a permanent nature.

"These days," says Yakov Bichevoi, "it's impossible to run a big farm without the help of science. Both scientific research and practical experience are needed to operate profitably, to keep raising crop and livestock productivity and, with it, the living conditions of our members."





Plenty of engrossing work and diverting recreation for the young people on this 55,000-acre collective farm.



Besides their general secondary school subjects the farm children receive technical training.



Vasili Menshin, one of the older hands on the farm, teaches tractor driving and maintenance.

Bichevoi, we gathered from the comments of the farmers, was an excellent manager, knew farm problems, and was a very cultured person. His parents had been farmers too. He got his training at an institute for mechanization of agriculture from which he was graduated in 1937. Although he has been working at Rossiya only since 1959, he has been such a good manager that the farmers have elected him chairman twice.

### Income Tripled

The farm is situated in a region where the amount of rainfall is uncertain. But with scientific farming methods and extensive mechanization it grows fine crops year after year. In 1960 the over-all grain crop averaged 3,200 pounds per acre, while wheat averaged 3,230 pounds per acre, with a high of 3,750 pounds in some sections. This is four times as much as in 1950. In the past seven years the number of head of cattle tripled—it now exceeds 4,500—and the milk yield more than doubled.

The farm's profits grew accordingly. Its cash income has more than tripled in the past seven years, reaching a high of 3,996,000 new rubles in 1960.

Increased production is not the only factor responsible for the rise in income. Of great importance in this connection are the higher prices paid by the state for agricultural products and the drop in state prices of farm machinery and fuel. This year Rossiya will be saving 140,000 rubles from the price cut in machinery, spare parts and fuel alone.

But the most important single factor accounting for the rise is personal material incentive. As the commonly-owned wealth of the collective farm grows, the living standard of each of the farm members grows correspondingly. For instance, in 1953 when the farm's income

came to 1,280,000 new rubles, the collective farmers received 640,000 for their work. Since 1958, when the farm's income rose to more than 3 million rubles, the farmers' personal share has been 1.5 million rubles a year.

Rossiia operates by a plan and a budget first drafted by the farm's specialists and then discussed by its administrative board. But the final authority on these matters and all others is the general meeting of the farm membership. The plan takes into account the demand of state procurement agencies, cooperative purchasing organizations and the collective farm markets for specific products.

The general meeting usually suggests changes in the draft plan submitted by the administrative board. Additional allocations, for example, were made in the 1960-61 plan for financing the building of an irrigation system proposed by Yakov Furmanov, one of the farmers, and approved by the general membership.

### Big Seed Grower

Rossiia tends, of course, to concentrate on those crops it finds most profitable. The farm has become a big supplier of high-quality seed. In 1960 it produced and sold to the state about 7,000 tons. Of the farm's total cash income of 3,996,000 rubles for the year, 870,000 rubles came from seed production.

An idea of Rossiia's cost of production and sales prices may be gathered from these comparative figures. A centner (220.46 pounds) of wheat that costs the farm 1 ruble 4 kopecks to grow is sold to the state for 5 rubles 60 kopecks.

Within recent years, besides seed production, the farm has been expanding its orchard, vineyard and poultry operations at considerable profit. Its poultry division alone, set up in 1957 with 36,000 laying





A bright, new kindergarten building for the younger citizens of the farm.



The Kuznetsovs—he is one of the farm shepherds—do a good deal of mail-order buying.



Field work at Rossiya was mechanized a long time ago; the poultry section, about three years ago.

hens and an incubator for 250,000 eggs, now brings an annual return of more than 2 million rubles.

Production costs have been cut as a result of mechanization. A little more than a year ago, at the suggestion of livestock breeders, a special animal section was set up for the loose housing of 300 head of cattle. All the working processes at this new farm were mechanized—preparing and distributing fodder, cleaning up, milking, etc. The result was that the production costs were cut in half and the milk yield increased. This year another such section for 400 head of cattle was set up.

Rossiia manager Bichevoi says, "Every one of our members wants to see the farm producing more for sale to the state. Our members say: 'What's for the state is for ourselves'—for they realize that the increase in the public wealth of the country means a higher standard of living for every Soviet citizen."

With its growing income Rossiya has been able to do a great deal of building these past few years—new cattle barns, a feeding area for the pigs, units for processing milk and grapes, and another for the manufacture of cinder blocks.

The theater, wide-screen movie house, village hospital and eight kindergartens are also fairly new structures. The farm has its own sanatorium in Kislovodsk, one of the finest of the Caucasus resort areas. In 1960 Rossiya spent 551,000 new rubles for public health, a home for the aged, sanatorium treatment, pensions and other social services for its members.

### New Housing

Grigoripolisskaya reflects the farm's rising income level. Most of the houses are new or have been completely modernized. About a hundred new cottages have been built in each of the past five years. The farm

administration provides materials, transport and skilled help for those members who build new homes. The considerable number of TV antennas reflect the farm's growing prosperity.

We stopped to visit Ivan Kuznetsov, a shepherd, who lives in a new, four-room cottage surrounded by greenery. Behind the house are sheds for his own poultry and pigs. Ivan does not keep a cow because the cost of the milk he gets from the farm is very low.

We met his wife, Maria, who works as a milkmaid; their son Nikolai, a fourth-grader, their daughter Tanya, a first-grader; Alexei, their elder son; and his wife Zinaida. Alexei recently graduated from a school for the mechanization of agriculture and now works at the farm's machine repair shop.

Last year Ivan Kuznetsov and his wife earned a total of 2,700 rubles. They supplemented that income with the two pigs, 30 chickens and several geese they raised themselves.

We also met their neighbor Ilya Bukin. There are a larger number of working adults in his family—his three sons are tractor drivers and his daughter is a milkmaid. The family's total annual income is more than 4,000 new rubles, with added income from the sale of the surplus products they raise themselves.

Everything the collective farmers receive for their work is for their personal needs. They pay no income tax; machinery, tools, livestock, seed, fertilizer, etc., are paid for out of the farm's common fund; and, like all Soviet citizens, collective farmers do not have to pay for medical care or education.

The general feeling of everyone at Rossiya is that things are going well, with more good things on the way. According to the most conservative figuring, they say, the farm's cash income will increase by more than a million rubles by 1965, the end of the seven-year plan, to reach a total of at least 5 million rubles. This will come from expanding fruit orchards and vineyards by 1,500 acres, increasing the head of cattle by several thousand and raising productivity generally. As a result, the farm will be producing much more meat and milk than it does now.

"This year," explains Yakov Bichevoi, "we took a long step toward that goal. We raised an extra-large crop, which made everyone happy; for in our collective economy a good crop means good living for each of our members.





## GRIGORI CHUKHRAI'S CLEAR SKIES

**G**RIGORI CHUKHRAI, the brilliant young producer-director of *Ballad of a Soldier*, which won him a Lenin Prize at home and the plaudits of moviegoers in most countries, including the United States, has achieved a new triumph in his latest film.

In *Clear Skies* Chukhrai once again shows the extraordinary feeling for character and mood that he conveyed through his two young lovers in *Ballad of a Soldier*, this time in the framework of a more complex theme.

The action begins with the war but develops during the postwar years. The protagonist is a flier returned from a German prison camp whom rumor accuses of collaborating with the enemy.

One of the grim consequences of the Stalin cult of personality was unjust recrimination of those who had been taken captive by the Nazis. At its Twentieth Congress in February 1956 the Communist Party publicly and unequivocally condemned this injustice, and the country highly rewarded the courage and fortitude of many former war prisoners.

Chukhrai says: "In *Clear Skies* we wanted to show great love and fidelity, the integrity of human beings, the grim tests the Soviet people had to undergo in connection with the war. We wanted to show that happiness can be achieved in many ways and stress that happiness is not possible without truth and justice. We wanted to tell about the great role of the Twentieth Congress of the Communist Party, which restored the Leninist standards of Party life and socialist justice. Our hero did not break under the most terrible trials, and the same strength of character that sustained him in times of stress made it possible for him to perform such an exploit as flight into space."

This is Chukhrai's third picture. His earliest, *The Forty-First*, brought the young director to public notice. His fan mail is likely to take on monumental proportions with *Clear Skies*.

The casting, say Soviet critics of *Clear Skies*, is inspired. Young stage actress Nina Drobysheva makes her first film appearance as Sasha Lvova, the flier's wife. Yevgeni Urbansky, of *Ballad of a Soldier* fame, gives a matchless performance as the flier Alexei Astakhov.



1

*It's a clear sky and an unlimited ceiling once again for flier Alexei Astakhov, but only after he had made his way through a thick and ugly fog of suspicion. He fought bravely against the fascists, spent years in a German prison camp, and came home to meet charges of cowardice instead of the hero's welcome.*



2

*His wife Sasha follows the plane as it goes winging into the blue. They had lived through almost endless years of heartbreak and despair to clear his name, sustained only by her unfaltering love and unshakable belief that justice would finally triumph.*



3

*For her, it was love at first sight when they met. The handsome young flier had rung her apartment bell by accident one New Year's Eve. Sasha, then in her teens, had begged the unexpected visitor to see the New Year in with them, but her older sister Lusya, cold and unfriendly, scolded her and showed him the door.*



4

*When next they met, the war had come. Alexei did not recognize the little girl with pigtails who had wanted so much for him to stay that holiday evening two years ago. And Sasha felt like a scarecrow in her ungainly felt boots and worn coat. But she was able to gather enough courage to remind him of their meeting.*



5

*The flier, just back from the front, envisioned a brief and uncomplicated interlude. But in the five days they spent together while his bullet-riddled plane was being repaired at a front-line airdrome, Alexei found that he had fallen in love with Sasha.*



6

*She woke up by his side in the room that had once served as her nursery. They were alone in the apartment. The rest of her family had been evacuated to the East. Her father was at the front and in a few hours this man she loved would be at the front too.*



7

*At the factory where she worked Sasha heard a news announcement that fighter-pilot Alexei Astakhov had met an enemy squadron, rammed one of the planes and been killed. Her friends tried to comfort her, "Sasha dear, what's the use of crying, tears won't bring him back." But, lost in sorrow, she didn't hear them.*



10

*Then the rumor got around that Alexei Astakhov had voluntarily surrendered to the enemy. During the early postwar years there were occasional cases of soldiers returned from prison camps who were suspected of collaborating with the enemy.*



11

*The evidence that was presented seemed to support the accusation and Astakhov was no longer permitted to fly. When Alexei lost his plane, he felt as though he had lost the trust and faith of his people and his country, the faith that had carried him through the war. He was almost crushed by the monstrous injustice.*



14

*Time and truth, she told him, would root out the remnants of evil and corruption carried over from the past. It had to be so in this socialist land they lived in. But justice would not come of itself; it was something they would have to fight for.*



15

*And eventually the long winter of their trial did come to an end and the spring sun once again shone and melted away the scarred and ugly ice. New buds appeared, the promise of a happier season for these two young people who had fought so valiantly with only their love as shield and weapon.*



8

She had a child—Alexei's son. At the end of the war, when Petya, an old school friend, came to visit, the boy thought his dad had returned and rushed into his arms. Petya had always been in love with her, still was. She knew that she could build a good life with him, but she wanted no man except her beloved Alexei.



9

But Alexei was alive. He had been badly wounded and had been found by German soldiers. Patched up, he had managed to survive the horrors of a concentration camp and, freed by the victorious Soviet Army, he'd come back home. Sasha fell into his arms.



12

They lived with her sister Lusya, who had given up the man she loved to marry a hidebound, self-seeking official for the comforts he could provide her. Fearful of being pointed at as the brother-in-law of a questionable character, he browbeat Sasha, insisted that she break off completely with Alexei. She refused.



13

Wracked by misery, Alexei took to drink. Staggering blindly across a railroad track, he wandered into the path of an oncoming train and would have been killed had it not been for Sasha. Her devotion and tenderness kept him fighting for vindication.



16

Justice could not but triumph—and it did triumph. The good name of Guards Captain Alexei Astakhov was cleared and his unblemished war record and bravery were brought to public notice. For his courage during the war he was honored with the Gold Star of the Hero of the Soviet Union.



17

And now once again he takes a plane aloft and Sasha follows its course from the ground with eyes brimming over with love, a love that had endured the tragedy of a war and its bitter aftermath and was strong enough to sustain them the rest of their lives.



By Vladimir Orlov  
Head Librarian, Lenin Library, Moscow

Photos by Nikolai Granov

# BOOKS MAKE US FRIENDS

American Librarians Spend a Month  
in the Soviet Union



*From the busy exchange they observed in libraries all over the country the American guests could see that the Soviet people are very fond of books.*

SOVIET librarians recently played host to a group of librarians from the United States led by David H. Clift, Executive Director of the American Library Association. The Americans were welcomed as old friends on their arrival by Irina Bagrova of the Lenin Library in Moscow, Victor Barashenkov of the Saltykov-Shchedrin Library in Leningrad and Nikandr Gavrilov of the USSR Ministry of Culture who had been members of the Soviet delegation of librarians that had visited the U.S.A. Soon after their arrival, the American delegation was received by Yekaterina Furtseva, USSR Minister of Culture.

During their month's stay the Americans covered some 6,500 miles of Soviet territory, visiting some of the country's 400,000 libraries in Moscow, Leningrad, Kiev, Tashkent, Samarkand and Kalinin. All told, they saw

at firsthand 45 representative libraries, library schools and related institutions—from the Lenin Library in the capital, the largest book repository in the country, to a small village library.

The Americans asked many questions, as many, probably, as had been asked by the delegation of Soviet librarians on their visit to the United States. The exchange on both sides was most cordial and, everyone agreed, most profitable.

The Americans were as much interested in getting the feel of Soviet life generally as they were in talking shop. They met with a good many people of different occupations and made a number of visits which were not in the tour schedule worked out by the USSR Ministry of Culture.

In Leningrad, for example, a taxi driver

by mistake took one of the librarians, Mrs. Spain, to the Pushkin Library for adults instead of to the children's library with the same name. Mrs. Spain was extremely pleased by this. The people at the library were delighted by the unexpected visit, showed Mrs. Spain around, loaded her with mementoes and helped her find her colleagues at the children's library afterward.

Emerson Greenway of Philadelphia had a story to tell about another taxi driver who drove him to Lake Komsomolskoye near Tashkent in Uzbekistan and refused to take payment when he learned that his fare was a guest from the United States. Mr. Greenway was also very much taken with a group of youngsters he met on a boat trip who told him what Soviet school children were interested in.



At the Leningrad Institute for Library Training.



Delegation head David Clift at the Foreign Literature Library.

A chat with Lenin Library Director Ivan Kondakov.



The photographer is Library Association director R. C. Swank.

In the rare book division of the Lenin Library.



Uzbekistan was something of a revelation to the Americans, as it is to all visitors when they see the cultural flowering of these once backward nationalities. In Uzbekistan, where before the Revolution only two per cent of the population could read and write, they found the library reading rooms crowded. The group visited two universities and met with the faculty of a library school.

Although they were working on a tight schedule, the visitors made time to see Maya Plisetskaya dance in the Bolshoi Theater production of *Swan Lake*, visit Leo Tolstoy's birthplace in Yasnaya Polyana, and tour some of the eighth to twelfth century monuments in Uzbekistan.

Mr. Clift summed up the general feeling when he said that the delegation members were very pleased with the schedule worked

out by the Ministry of Culture and the opportunity given them to see every type of Soviet library at work. They were greatly impressed, said Mr. Clift, with the important function of the library in the Soviet Union and with the well organized program of library services.

The Americans spoke admiringly of Soviet library people, their spirit of cooperation and their enthusiasm, professional interest and competence. They thought highly of Soviet book exhibitions and readers' conferences, of the numerous aids for readers and the fact that the fundamentals of library science and bibliography have been introduced as required courses in many colleges.

The Americans liked the "legal deposit copy" requiring publishing houses to send a copy of every book they publish to the

largest libraries. They were also impressed by the generally excellent shape in which books are kept. Melville J. Ruggles of Washington commented on the fine condition of the 1936 *Pravda* file he saw at Samarkand University. The librarians noted the large numbers of people who buy books, and they thought book prices quite reasonable.

But they also made some critical comments. For example, they did not like the division into children's and adults libraries. They thought that some of the library routine took up too much time and that more of the mechanical devices used in other countries ought to be introduced.

Most gratifying was the enthusiastic feeling of all concerned that books make friends and that this first exchange of visits should be followed by many others.

# MARRIAGE PALACE

By Galina Vasilyeva



*While the bride preens before the mirror . . . the groom bids bachelorhood a nervous farewell.*

*(Left to right) They sign the marriage certificate, and drink their first toast as staid married folk. Then come congratulations and the inevitable advice. Smiles from the onlookers clustered outside . . . and the newlyweds take off for their honeymoon.*



**T**HE MARRIAGE PALACE in Moscow is an elegant mansion on one of the quieter streets of the capital. There's no mistaking its function—from the cars lined up at the curb, the beaming faces of the brides in white gowns and the bouquets of flowers everyone is holding. There are Palaces like it in many other Soviet cities. Leningrad opened the first one, and Kiev, Kharkov and Moscow followed. The managers of these Palaces do everything possible to make each wedding a festive affair.

Sunday is the most popular day for weddings, and the big reception room is generally full of people. The young couples hand in the application for the registration of their marriage. "Why do we have to wait a whole week? It's much too long!" a young couple complains. But the Registrar explains with the patient smile of a person who has to repeat himself very often, "Well, we want to give you time to prepare for the wedding, and . . ." he stresses this ". . . we want you to have time to think it over. It's an important step you young people are taking; it deserves a second thought." Application formalities disposed of, bride and groom are met at the top of the staircase by the representatives of the Palace and led to separate

rooms to make last-minute preparations for the ceremony. Friends and relatives mill about in the waiting room.

The couple finally reappears and, to the sound of the wedding march, the whole company follows them into a flower-bedecked hall. As the couple approaches the registration desk, the music stops and Alexander Pakhomov, Assistant Director of the Marriage Palace, greets them with these words: "My young friends, today you are entering on a lifelong union. From now on you will be walking together hand in hand. Let your marriage be happy and meaningful, and may the mutual respect, friendship and love that brought you here stay with you both the rest of your lives."

He asks each of them before they sign the marriage certificate, "Have you given careful thought to your decision to marry?"

They answer, "Yes," and seal the marriage with their signatures. Their wedding rings and the blue bound marriage certificate are offered to them on a silver tray. They give each other the traditional kiss and the company proceeds to the banquet hall where the newlyweds are toasted with champagne and wished a long and happy wedded life.



*Irina Morsuyeva, postgraduate of the Moscow Teachers Training Institute of Foreign Languages, was one of the first brides to get married in the new palace.*





By Alexander Vit

## OUR FAVORITE SUMMERS

**S**PORTS are a year-round avocation in the Soviet Union. The kind, of course, varies with the season: In winter it's skiing, ice skating and ice hockey; in summer it's ball playing of one kind or another.

Volleyball and soccer stand at the top of the summer popularity list. Soviet athletes—and they are legion—are grateful to William C. Morgan for what was a serene and placid game when he invented it for the members of the Holyoke, Massachusetts, YMCA at the end of the last century. It's not likely that Morgan would recognize the modern version.

Volleyball has opened the way to sports fame for many Soviet youngsters. Most of the 40 million young men and women who took part in the last USSR People's Games have

played volleyball at one time or other. The sport has some three million active participants, that is to say, people who participate in official competitions. Volleyball is played everywhere—in schoolyards, gyms and parks, at resorts and beaches, and on board steamers.

Soccer is more than a game; it's a passion. According to the USSR Soccer Federation we have 1,600,000 players, but this, I think, is a vast understatement. The Federation has omitted the millions of sandlot participants.

The interest in soccer is positively fantastic, so much so that the number of teams in Division A, the senior league, has doubled and the Division B, the junior league, teams have increased to 150. Practically all the larger cities are represented in both divisions.

This is how soccer players are made. Say you work in a factory—or farm or office, for that matter—and you take a fancy to soccer. Long before the warm spring days arrive, the captain of your shop team will invite you to join the squad for gym practice. You'll get calisthenics, weightlifting, acrobatics, cross-country running, basketball, volleyball, and the elements of soccer.

As soon as the factory soccer field grows a decent grass cover, your shop team will begin to work outdoors and participate in factory league and cup tournaments. If you make the grade you'll get on the factory team to play in the city or sports society championships. If you're very good, you'll probably take part in cup tournaments which are held regularly





## ERSPORTS

on a regional, republic and national scale.

If you travel with the team for away-from-home games, you'll get your full pay just as though you were in the shop. You have a chance to qualify for a third-, second- or first-category sports rating, depending on how good your team is. More than 32,000 factory teams took part in last year's USSR cup ties.

Qualifying standards are high—for soccer and all other sports. In order to make a Master of Sports in track, for instance, a high-jumper must clear two meters, and a long-distance runner must do 10,000 meters in 14 mins. 5 secs. The standard for a heavy-weight barbell performer in the press is 132.5 kg., while a speed skater has to sprint 500 meters in 42.5 secs.

Standards keep rising. Years ago slogans trying to shift emphasis from individual to mass-scale sports participation called, as I remember, not for one athlete to clear two meters, but for a million athletes to clear one meter. The "million and one meter" mark has already been reached and standards have risen another notch. Take Valeri Brumel who set a new world record with his 7'4" jump on July 16. Chances are that without the campaign for a "million and one meter" there wouldn't have been a Brumel to stun the sports world with that phenomenal jump.

Soviet coaches and physical education instructors have long drawn attention to the fact that all-round development paves the way for an athlete to achieve excellent results

in his particular sport. That explains why our athletes, especially the younger ones, are so versatile. Their practice work at several sports, seems to pay off.

There are a good many athletes who go in for both gymnastics and basketball. These are basic sports in the school physical education program. Basketball will have an important place at the USSR School Spartakiad this summer and will probably produce a crop of budding stars.

The game is a growing favorite. In some places it has crowded out volleyball. There are well over a million young people who play regularly in official tournaments. This goes a long way toward explaining why Soviet players have done so well in international



contests. They've been following close on the heels of the top-ranking Americans.

#### Table Tennis Makes a Comeback

Table tennis is making a remarkable comeback. Thirty years ago it was the national rage, with ping-pong tables installed even in the corridors of state buildings and staff workers smacking away at the celluloid balls late into the night.

Suddenly, and for no reason anybody can explain, interest waned. About ten years ago it got a new lease on life; tournaments began to be staged regularly and a national table tennis federation was organized. Last year the federation registered 620,000 players. This year the figure has already topped a million. Table tennis bids fair to rival volleyball, basketball and soccer in popularity before long. This year our players participated in the world matches and did quite well. The game has been included in the schedule of the annual School Spartakiad; the majority of our top-flight players are 14 to 20 years old.

Our young people demonstrate a growing liking for Rugby football, badminton and handball, especially the last. A try was made to work up interest in field hockey, but it didn't catch on.

A good many athletes go in for water polo and tennis, but not on any mass scale as yet. Although our racket wielders have won recognition abroad and have begun to play in the Wimbledon tournaments, there aren't more than 50,000 all told.

#### Old Russian Games

Not many foreigners are familiar with *gorodki*, the Russian form of skittles. It is played with cylindrical wooden blocks 20 cm. long and 3 cm. in diameter—five of

them to a team—laid out on a 2-meter concrete square in various patterns with such fanciful names as "Grandma in the Window," "Snake," etc. The blocks must be knocked out of the square with bats thrown from a distance. The team that knocks 10 figures out of the square with the least number of throws is the winner. The accuracy with which the really good players throw is something to see. There are *gorodki* tournaments all the way up to national championships.

Another old and very popular native game is *lapta*, a Russian version of baseball. We use a rubber ball, but the basic rules are somewhat the same as for the popular American game. *Lapta* used to be a rural sport fairly exclusively, but it has been finding its way to the cities and there are now official *lapta* tournaments.

Besides the games played nationally, there are local pastimes, some of them resembling one or another of the more familiar sports. The Georgians, for example, play a kind of soccer on horseback. Up north, beyond the Arctic Circle, the native population goes in for reindeer-sleigh racing. Wrestling with sashes is a never-failing drawing card in Uzbekistan, and in Buryat-Mongolia one of the highlights of regional festivities is the competition in shooting at earthenware pots with bows and arrows.

Prizes named for Cosmonaut Yuri Gagarin will be awarded at many of this year's sports contests. The famous cosmonaut, incidentally, is a fine example of today's Soviet sportsmen. He is a good skier; plays soccer, badminton and volleyball; and has a first-category rating in basketball. Skiing and soccer practice helped to give him the stamina he needed for his round-the-earth flight. Millions of Soviet young people—some of them future cosmonauts, very probably—are getting the same sports training as Yuri Gagarin.







MORNING IN MOSCOW

