SOVIET LIFE

SPECIAL ISSUE:
Education in the USSR

THE DEVELOPMENT
OF THE PERSONALITY:
Expert Views

January 1968 • 35 cents

EDUCATION IN THE USSR

ОБРАЗОВАНИЕ В СССР

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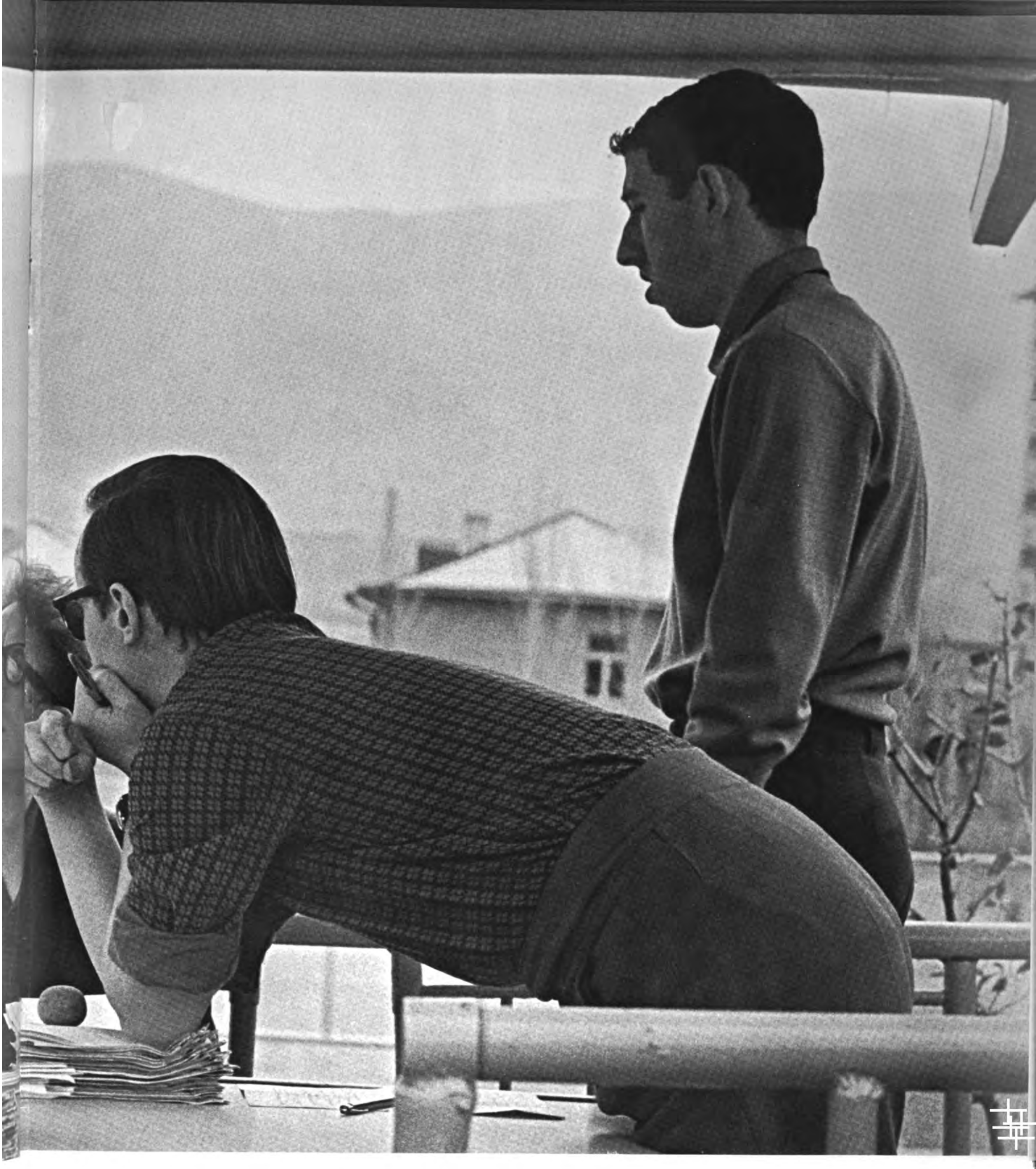
ОБРАЗОВАНИЕ В СССР

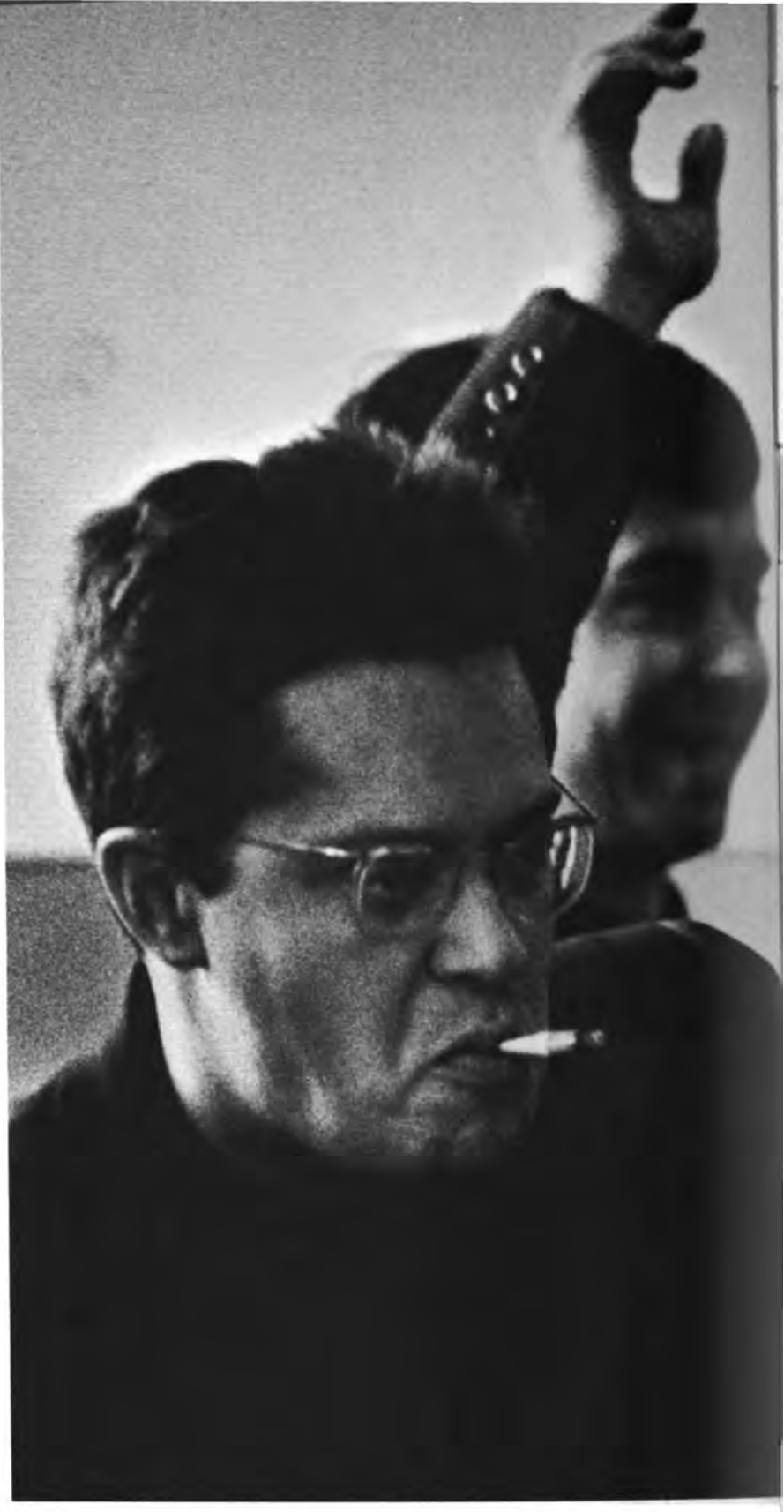
A panel of Olympiad judges. (Left to right): Mark Dubson, Moscow University student, and Mark Bashmakov, fellow at Leningrad University, who both teach at boarding schools for gifted math-physics students; Valeri Gusev and Yuri Ionin, students at Leningrad University working under Academician Dmitri Fadeyev.

SEARCHING FOR

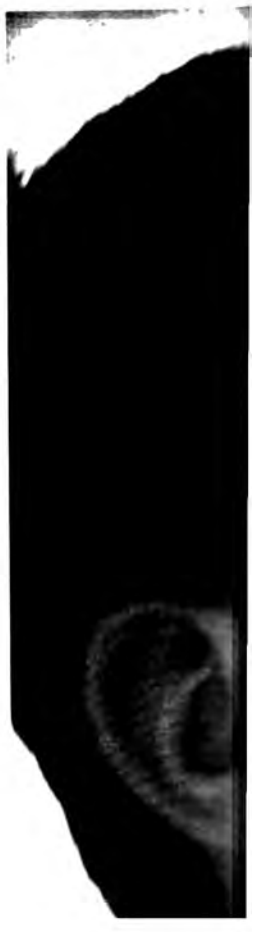


A NEW EINSTEIN

PHOTOGRAPHS BY FRIEDRICH GRINBERG



Judges Nikolai Borisov (with cigarette in photo to the right) and Andrei Yegorov, who are both members of research teams led by academicians, vote for the best mathematician among the country's tenth-grade students. The winner is Alexander Livschitz (in the photo to the left) of Leningrad School No. 139.

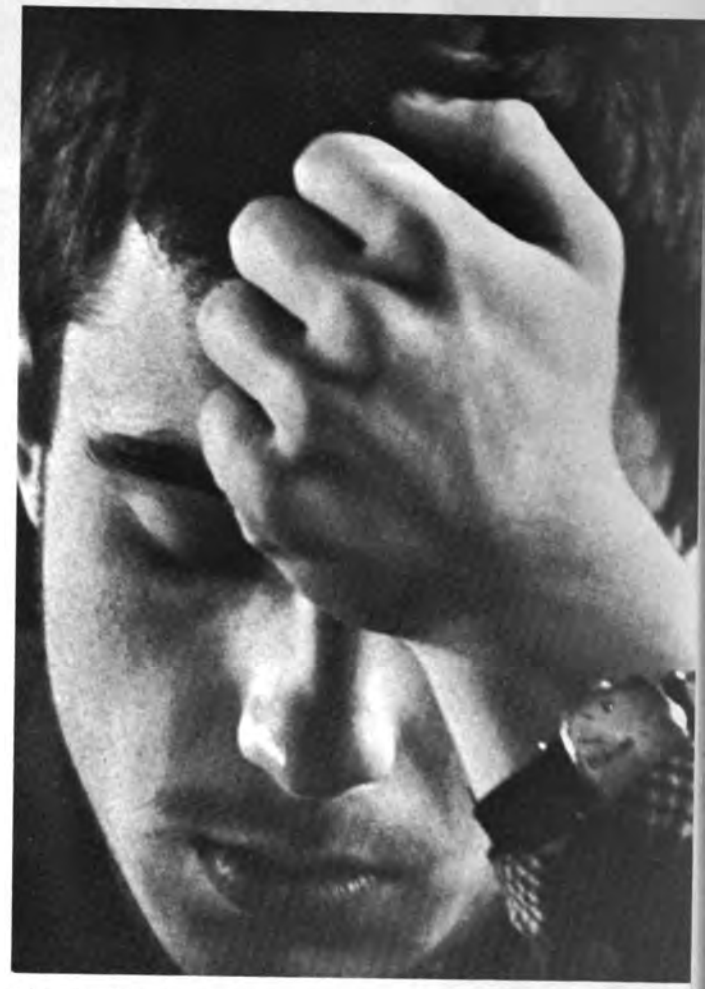


FORMULAE-INCOHERENT FOR THE UNINITIATED, . . .

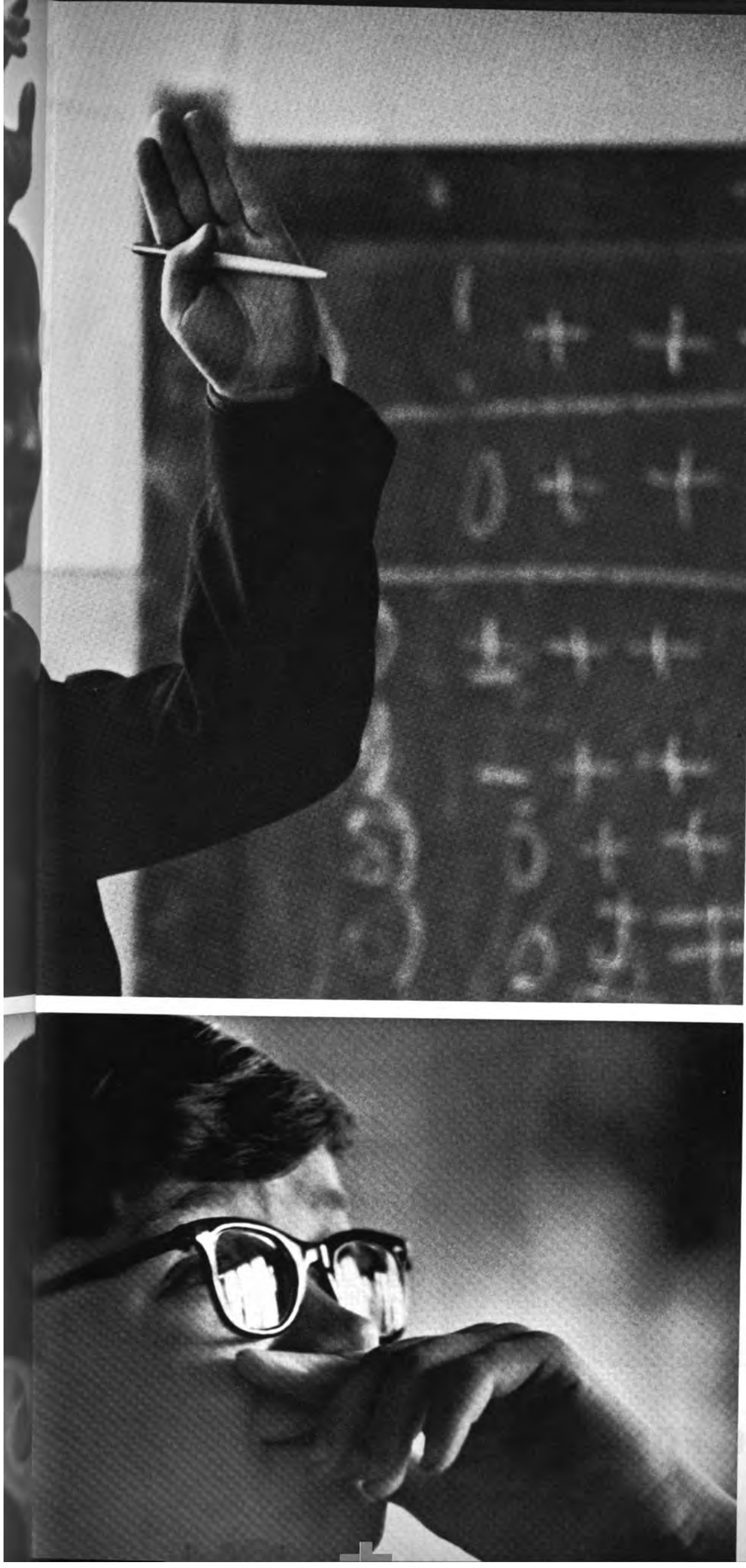
By Nina Kryukova

OUR TEENAGE mathematicians are trained at special day and boarding schools whose core subjects are mathematics and physics; also at various after-school clubs with such related and unrelated names as "XYZ," "Alpha," "Crimson Sails," "Little Academy of Sciences" and "Pathfinder." How do we spot potential mathematics talent? Through Mathematics Olympiads, at which entrants are asked to crack brainteasers. Run-off contests are held regularly every school year: school-wide, district-wide, city-wide and country-wide.

The first such Olympiad was held in 1934. It was suggested by Leningrad University Professor Boris Delone, a Corresponding Member

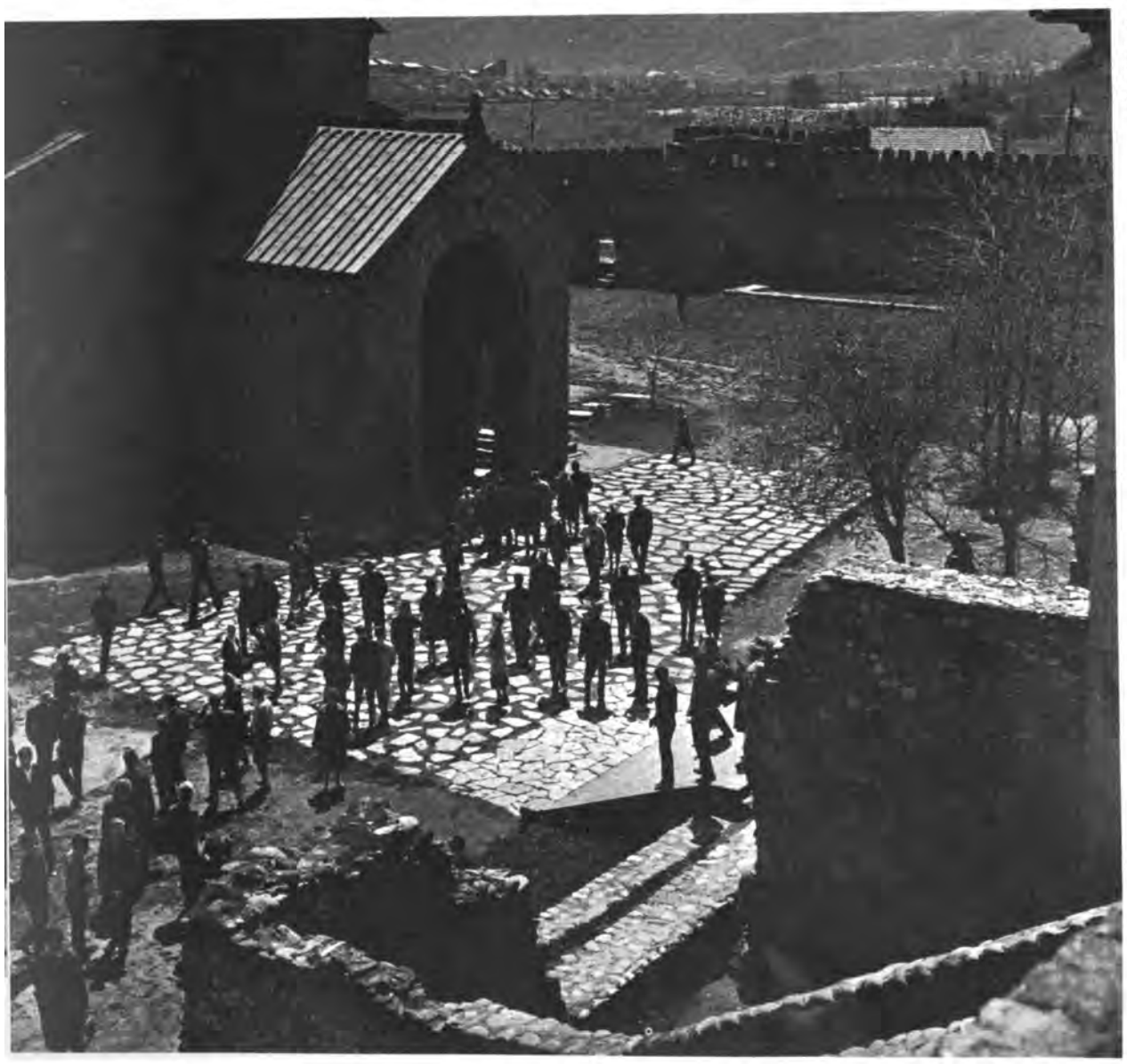


This hard-thinking Olympiad contestant comes from the boarding school for gifted math and physics students in Novosibirsk, Siberia. He was the country's ninth-grade prize-winner.



Ninth-grade student Nikolai Tishaninov came to the final run-offs, which were held in Tbilisi, the capital of the Georgian Republic, from distant Tsagan-Aman, a Kalmyk settlement.

Chief Executive of the Georgian Republic Georgi Dzotsenidze gives an award to the youngest challenger, Volodya Khinich, 11, of Simferopol.



After a solid five hours of problem-solving the young mathematicians relax with a sight-seeing tour. One of the sights is Mtskheta, ancient capital of Georgia, on the outskirts of Tbilisi.

of the USSR Academy of Sciences and a mathematician by profession. His hobby is sports, which is probably why the Olympiad is run like a sports contest, certainly with as much spirit and excitement. Senior graders will sometimes offer original solutions that will set the world of learning agape. Mathematicians even wonder whether they should not sneak into one such contest a problem of Fermat's famous theorem, which the best minds in the field have been trying to crack for several centuries now.

Delone, now past 70, has seen his brainchild grow. The first Olympiads drew a few hundred contestants, today they draw millions. Many of the great men in mathematics first won fame at these contests, among them Moscow University Professors Vladimir Arnold, Vladimir Boltyansky and Igor Shafarevich (who is also a Corresponding Member of the USSR Academy of Sciences) and Voronezh University Professor Boris Mityagin—all Lenin Prize winners.

The winners and runners-up are usually admitted to college and university departments of mathematics. When they graduate, and sometimes earlier, they sit on jury panels or devise Olympiad contest problems. The top organizing committee and jury panels are headed by such world famous academicians as Andrei Kolmogorov, Pyotr Kapitsa, Lev Landau, Pavel Alexandrov and Isaac Kikoin.

Last year's Mathematics Olympiad closed, after several months of countrywide competition, in an August six-day USSR contest in the Georgian capital, Tbilisi.

FULL OF MEANING FOR THE MATHEMATICIANS

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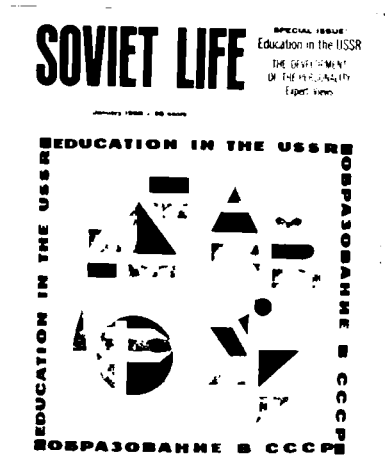

FRONT COVER: Emblem of the Exhibition "Education—USSR" which, is now being shown in the United States.

See story on page 30.

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NOVOSTI PRESS AGENCY

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A Petrograd school of literacy in 1920. Imagine the situation in Russia at that time: famine, all industry in a state of ruin, unemployment, sabotage, shortage of engineers, teachers and professionals. It was Lenin who proclaimed then: "Study, study and study." And the millions of working people, illiterate before, started to learn to read and write. Alphabets had to be created for many small peoples and nationalities that had never had their own written language, and they needed their own textbooks and teachers. But we overcame the difficulties and became a country with almost 100 per cent literacy.

There are 74 million people studying in the Soviet Union, including 48 million in the 7 to 17 age group, as Minister of Education Mikhail Prokofyev points out in the article on the opposite page. Nevertheless, we still have educational problems today and will have them tomorrow. They are problems of growth, and some of them are discussed in this issue.

SCHOOLING 21st CENTURY LEADERS

BY MIKHAIL PROKOFYEV

USSR MINISTER OF EDUCATION

THE SOVIET EDUCATIONAL system is built on three major levels —the primary-secondary general school, the specialized secondary school and the higher school.Supplemented by other types of education, from vocational schools to graduate study, our system currently takes care of 74 million students and, for the most part, meets the country's instructional needs. We had to make sacrifices to build such a mass educational system. But the sacrifices were necessary and were made deliberately.

Each rung of the Soviet educational ladder has its problems; I suppose that is true for all other countries. In this article I shall deal only with the primary-secondary general school. It has 2,500,000 teachers for 48 million students ranging in age from 7 to 17. Eight years of schooling (not a complete secondary education) is compulsory. However, in recent years, a growing proportion of our young people have been completing the full 10-year period of secondary education. One of the targets of our present five-year plan is to make the 10-year school universal by 1970.

Better schooling is a perennial problem. In our time of rapid scientific and technical development and radical change the problem is particularly acute. Still, I am not inclined to think, as some do, that the world is going through an educational crisis. A crisis, as I understand it, is a painful process and that is not an element in the current scene. A truer description would be that we are at the foot of a new summit which we must scale to see the world in larger perspective.

What are we out to achieve? First, we want to make secondary education universal. There is no question in our minds that the step is necessary and timely; today's younger generation must receive a complete secondary schooling. There is a question, however, about the type of school. We are thinking of several types—a 10-year general education school, a general education school with some vocational training, a specialized secondary school, a vocational school.

Universal secondary education will require sizeable additional appropriations to build and equip more schools and to train more teachers. Aren't we being prodigal with public money, some people ask, is universal secondary schooling really advisable? After all, they observe, there are still a great many jobs that need only low skills. Why spend the money to no purpose?

We do not agree. A study of modern industry with its automation, radioelectronics, cybernetics and biophysics shows us that much more is now required of the worker in the way of knowledge, experience and educational background. Our present school juniors will be in the 21st century by the time they reach their prime. We can already foresee, realistically, what the future industrial worker will have to know. It is evident that if the nation is to progress we must make it our business to raise educational standards.

There are also those who say that our goal is impractical, that people have different abilities, that not everybody can profit from a secondary education. It would be ridiculous to deny objective biological laws. It is true, of course, that abilities and possibilities differ. But aren't biological possibilities influenced by the environment with its high information potential? Any scientist concerned with child development will confirm that. There was a time when this was debatable even for the ability to learn the ABC, but not any longer. Today the regulation secondary education is within reach of any child, I mean a healthy child, obviously.

The second thing we want to do is give our students a background that reflects more closely our wealth of scientific information and our present day understanding of the laws that govern nature and society. Our educators are in process of revising courses of study, sifting out material that has no primary scientific importance. We want to give our young people a comprehensive and scientific understanding of the world of social phenomena and material processes. The school curriculum should incorporate such high priority items as the theory of the origin of life, the mechanism of the functioning of living things (heredity and genetics), evolution, the laws governing the microworld (the molecule, atom and nucleus) and the macroworld (the universe). It should give them an ability to handle abstractions, to detect and describe regularities (mathematics, including infinitesimally small values). This is what the school should be teaching—the fundamentals of philosophical knowledge and the laws governing the development of human society.

Giving children a better scientific background has its practical problems. We not only need good syllabuses and textbooks but the right kind of teachers. Like other people, teachers get used to what they have been taught themselves and are not always receptive to new ideas. The teacher is crucial, the reason for the sweeping program of refresher training for classroom teachers we propose to initiate.

Formal methods of instruction, the rote learning of an excessive amount of material, often of secondary importance, must give way to research methods. The first seeks to develop the memory, the second the intellect as a whole. Most methodologists think it valuable to activize the study process with more practical work and such technical aids as movies, television, programmed education, etc. This helps to individualize instruction. The key goal is to stimulate intellectual curiosity, to teach the future citizen to learn by himself.

There is always the danger of extremes. Some methodologists argue that since science is moving ahead so fast, why stuff the child's head with short-term facts, the permanencies should be sufficient. That is going too far. It should be evident that to understand the permanencies one has to analyze the supporting facts and phenomena. There is no avoiding facts. Vissarion Belinsky, that great Russian critic, whose writings contain many valuable educational concepts, insisted as far back as a century ago that children be taught to think against a background of facts. The problem is to choose the right facts.

The enthusiastic type often thinks a new method the answer to all problems. That television stretches the walls of the classroom nobody argues. So, methodologists with a passion for television conceive the ideal to be a very experienced teacher equipped with a lecture that incorporates every last vestige of modern pedagogy, speaking from a TV station to students sitting in front of television sets in a whole group of classrooms. The teacher in this case becomes a consultant, an examiner, an organizer and his role as a live speaker becomes secondary. There is no substitute for the living teacher responsive to the reactions of his live and impressionable audience. Technical aids are supplements, they assist the teacher and enrich the study process, which is why we do our best to provide them.

The Soviet school developed as a general education and polytechnical school. That was its pattern at the start and still is, the school prepares the younger generation for life, for work. But the link between school and life must not be oversimplified. The school must inculcate the desire to work. The very process of learning with its system of regular lessons is work but in addition we give special work classes that teach the basic hand skills. Every young man should be able to do the simpler operations in radio-engineering and electronics, should know how to work wood, metal and plastics. This kind of instruction has an educational rather than a vocational aim.

Considerable research has been done on the values of different aspects of polytechnical training. The material taught must be changed as changes occur in actual practice, especially in technology. The core of this training is sufficient understanding of the laws governing the development of the material world to make the student familiar with the principles of their application in modern production. The chain could be, for instance, nuclear theory, nuclear transformations, a nuclear power plant. Or, say, the regularities of gene regulation of biosynthetical processes and the methods of intensifying the biosynthesis of antibiotics in the microbiological industry. Many such examples could be given. In our view polytechnization is an intrinsic part of education.

All Soviet general education schools follow a uniform curriculum that includes mathematics, physics, history, literature, chemistry, biology, geography, a foreign language and other subjects. A student must assimilate a state regulated quantity of knowledge to earn his secondary school graduate certificate. The curriculum is worked out by teams of scientists, methodologists and teachers. From time to time proposals are made that we substitute for the uniform school different types of schools—for the humanities, for physics and mathematics, for chemistry and biology—where more time would be given to a particular discipline at the expense of the others. The ministry thinks this inadvisable. We feel that youngsters must be given a broad understanding of the world. Those interested in a particular subject may take optional courses.

We want to enlarge the role of the school as character builder. Our teachers try to give the child a scientific world outlook and a communist ethics, they try to inculcate the desire to work, to develop feelings of proletarian internationalism and socialist patriotism. The ideal of school and teacher is a young person with rich inner resources and a highly developed sense of civic responsibility, a young person who is morally sound and physically perfect. Extracurricular activities are geared to these aims. Every encouragement is given to student organizations. In fact, education within the community and through the community is a cornerstone of our system of character building. It is in the school community that the teenager acquires his first sense of social living and learns to evaluate his own conduct and that of his classmates in the light of principle. It is at school that he often makes lifelong friends.

These in brief are some of our educational problems. School graduates have many roads to choose. Some, after a shorter or longer period of training at vocational school, take jobs in factories and offices. Others become experts in some field after a course of instruction at a technical school or school of higher education.

On a closing note—problems of better education transcend national boundaries, they are worldwide. Exchange of ideas on the problems of one country serves to widen and deepen another country's insight into its own related problems. I hope this will be served by the "Education in the USSR" exhibition currently touring the United States.

FROM ABC TO PHILOSOPHY

A REEXAMINATION OF the secondary school curricula, made in recent years, centered on the following questions: how much weight should be given to the main principles of classical science which helped to shape the traditional curriculum, and to contemporary scientific views? How should the pace of contemporary scientific and technological progress and the growing volume of scientific information be reflected in the curriculum? What conclusions follow from the direction research is taking to give us a deeper cognition of the laws governing the structure of matter and the mechanisms of physical, chemical, biological and other processes? How is the teaching to be done if these processes cannot be demonstrated either visually or aurally? What needs to be done to make secondary school subject matter intelligible to an increasingly larger student body? How do we raise the level of secondary education?

These and many other such questions were considered by the special commission which the USSR Academy of Sciences and the Academy of Pedagogical Sciences set up at the end of 1964. After exhaustive study, the commission drafted a new uniform curriculum and syllabuses for all the secondary school subjects.

These drafts were approved, and in the 1966-67 academic year the schools began to use the new syllabuses in biology, literature, history and work training. The other subjects will begin using the new syllabuses no later than the 1970-71 academic year.

The new uniform curriculum is mandatory for all schools but it allows for variations in those where instruction is in a language other than Russian. It differs from the old curriculum by reducing the number of weekly hours for required courses and increasing the number of hours for electives.

The most important change is that the period of elementary schooling has been cut from four to three years. In the past, when most children received no more than an elementary education, the longer course of study was justified. Now that eight years of schooling is compulsory and ten years of schooling will be before long, less time need be given to studies on the elementary rung of the school ladder.

The year saved is added to the next higher rung. It gave the sciences about 500 more class hours. Russian now gets 21 hours a week instead of 16 and mathematics 40 instead of 35. This works out, despite the overall reduc-

SCHOOL CURRICULUM

In the schools of the 14 union republics and the autonomous republics and regions of the Russian Federation, where both the native and Russian languages, literature, history and geography of the given republic are taught, it is permitted to increase the number of hours (45-minute periods) in each class by two or three weekly beyond the standard number.

Subjects	Number of Hours Per Week /45 Min Periods /									
	Elementary School				Eight-Year School /Compulsory Education/				10-Year Complete Secondary School	
	I	II	III	IV	V	VI	VII	VIII	IX	X
Russian language	12	10	10	6	6	3	3	2	—	—
Literature	—	—	—	2	2	2	2	3	4	3
Mathematics	6	6	6	6	6	6	6	6	5	5
History	—	—	—	2	2	2	2	3	4	3
Social science	—	—	—	—	—	—	—	—	—	2
Natural science	—	2	2	2	—	—	—	—	—	—
Geography	—	—	—	—	2	3	2	2	2	—
Biology	—	—	—	—	2	2	2	2	2	2
Physics	—	—	—	—		2	2	3	4	5
Astronomy	—	—	—	—	—	—	—	—	—	1
Drawing	—	—	—	—	—	·1·	·1·	·1·	—	—
Foreign language	—	—	—	—	4	3	3	2	2	2
Chemistry	—	—	—	—	—	—	2	2	3	3
Fine arts	1	1	1	1	1	1	—	—	—	—
Singing and Music	1	1	1	1	1	1	1	—	—	—
Physical training	2	2	2	2	2	2	2	2	2	2
Manual training	2	2	2	2	2	2	2	2	2	2
Total obligatory courses	24	24	24	24	30	30	30	30	30	30
Elective courses	—	—	—	—	—	—	2	4	6	6
Grand total	24	24	24	24	30	30	32	34	36	36

tion in the total number of weekly hours for the entire period of secondary school study.

The new curriculum gives the humanities 40 per cent of all study time instead of 37. In schools where the language of instruction is not Russian and where more time is allocated for the native and Russian languages and literatures, the percentage rises to 47.

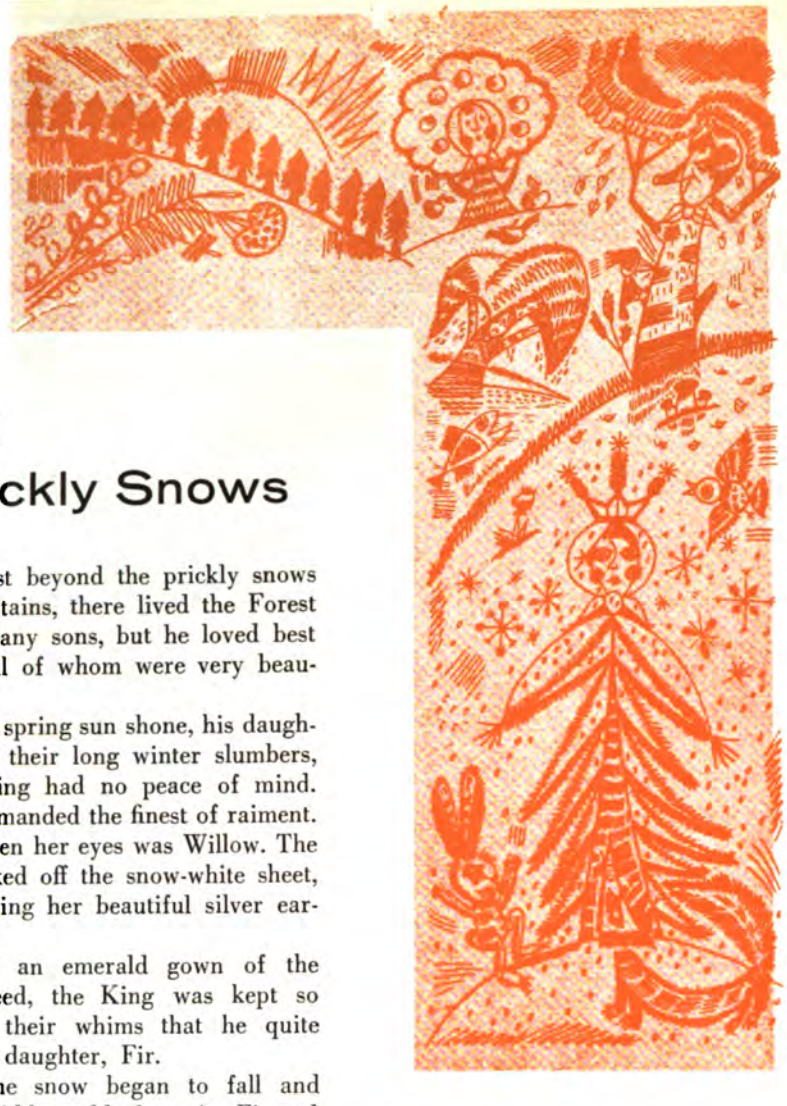
History, social science, the economic geography of the USSR and the economic geography of foreign countries are given the same number of hours. Mathematics and natural sciences get somewhat more time, 36.6 per cent instead of 30.

The new science syllabuses cover the fundamental principles of both classical and contemporary science. Wherever necessary the limits of the classical principles are indicated. All the material is taught in the light of contemporary scientific views.

The essential change in the syllabuses is to bring the course up to the contemporary level of science. Thus, in mathematics, for example, the effort is made to bridge the gap between arithmetic and algebra and to use the functional approach to subject matter more consistently. In the natural sciences and technology more attention is paid to such critical principles and methods as coordinates, derivatives, integrals and the theory of probability. Emphasis in the physics syllabus is on the atomic structure of matter and the molecular, kinetic and electronic theories.

The chemistry syllabus provides for fuller study of the periodic system of elements and chemical connections. The organic chemistry course is based on the classical theory of the chemical structure of substances, and makes wider application of the concepts of the spatial structure of molecules and the electronic nature of chemical connections. The molecular principles of genetics and selection and the modern findings on the cell's structure and functions are introduced in general biology. Evolution, ecology, histology and physiology are studied more extensively in botany and zoology.

Essential changes have been made in the ratio of theoretical to descriptive material by stages of study. A higher level of teaching is achieved by a greater emphasis on explanation and a corresponding reduction in rote. The memorizing of formulas, rules, and figures, except those needed for daily use, is largely replaced by teaching the use of reference material.



Beyond The Prickly Snows

In a thick forest beyond the prickly snows and icy mountains, there lived the Forest King. He had many sons, but he loved best his daughters, all of whom were very beautiful.

As soon as the spring sun shone, his daughters awoke from their long winter slumbers, and then the King had no peace of mind. His daughters demanded the finest of raiment.

The first to open her eyes was Willow. The moment she kicked off the snow-white sheet, she was demanding her beautiful silver earrings.

Birch wanted an emerald gown of the finest silk. Indeed, the King was kept so busy satisfying their whims that he quite forgot his third daughter, Fir.

Only when the snow began to fall and blizzards raged did he suddenly notice Fir and wonder how to make amends. But Fir stood sparkling in the frost, as though covered with diamonds, and seemed to say:

"It's all right, Father. I don't need anything. I'm fine just as I am."

When the New Year arrived, people came to the Forest King to invite his daughters to celebrate the holiday. But Willow was asleep by a brook, and Birch drooped her branches in deep slumber on the forest fringe. Only Fir, green, fresh and sparkling, came out to greet the people.

She visited every house, and everybody was happy to have her. Some sang songs to her, others danced round her and recited verses and everybody covered her with decorations and presents. She was, of course, entirely satisfied, for there is nothing more precious in the world than making people happy!

The Unhappy Bear Cub

A true story

by Anna Kuznetsova

Everybody's favorite at the zoo was a bear with a white spot on his tummy.

People threw him rolls and candies. Off came the paper and into his mouth went the sweets. Then his little eyes turned to the crowd again, and he slapped his paws together as if he were clapping.

Not far off two fluffy cubs were wrestling. But another cub wasn't playing. He sat huddled up in a corner, looking dreadfully miserable.

A girl went into the enclosure. The sad little cub ambled up to her and buried his little head in her lap.

She took a bar of chocolate out of her pocket, but the cub pushed it away and squatted down again in his old place.

The girl was the bear's keeper. "The poor little cub is pining for the man who found him in the forest, when he was tiny, and brought him up," she said. "He had to go off to a new job so he gave the cub to the zoo."

A few days later I went to the zoo again. What a change! This time the cub was dancing on his hind legs.

Beside him walked a tall man. The little bear kept tugging at the leash.

"Stop hurrying, silly!" said the man. "Take it easy!" Now the cub had what he wanted!

The Little Hedgehog

Little Hedgehog was sitting on a molehill in the wood. He was staring so hard into the distance that he didn't hear the little girl until it was too late.

Before he had time to roll himself into a ball, she had picked him up.

"Can I take you home?" she asked.

"Yes, please!" sighed Hedgehog. (Hedgehogs do sigh. At least they give little grunts which sound like sighs.)

So the little girl took him to her home.

"What would you like to eat?" she said. "I've never kept a hedgehog, so I don't know."

"I don't really know, either," said Hedgehog. "Mummy would know, but you see I was lost."

"Then I'll give you the nicest thing in the house," said the little girl and brought him some jam.

He took one sniff and walked away in disgust. "Better give me the nastiest stuff you know," he suggested.

"That's milk," said the little girl. "Mummy always makes me drink it."

She put down a saucer of milk. Hedgehog stuck his little muzzle into it and soon there wasn't a drop left.

Then he scuttled under the bed.

Next morning the little girl asked him, "Why do you scurry about all night instead of going to sleep?"

"I'm trying to remember the way home, from where you found me. To my mummy, daddy and little brothers," said Hedgehog.

The little girl picked him up in her hanky and took him back to the molehill in the wood. Then she ran home before the tears came.

Little Hedgehog went home, too. He found his way back at once.

TWO CENTURIES OF TEACHERS

THE HOUSE OF RAMENSKYS

BY SIMON SOLOVEYCHIK
PHOTOGRAPHS BY GEORGI PETRUSOV

In 1904 Alexei Ramensky was appointed official trustee of the village school. Nikolai, Alexei's brother, "inherited" the school from his father, Pakhom.

Arkadi started teaching in 1910, taught for 42 years and was pensioned in 1952.

An early picture of Antonin, Arkadi's son, teacher and the family historian.

The full title of this unusual book is quite long:

"Everyman's Secretary or a New and Complete Guide for Writing Letters, Communicating News, Advice, Denouncements, Commands, Requests, Recommendations, Offers of Service, Complaints, Reprimands, Apologies, Condolences, Gratitude, Scorn, Affection, Sermons and Commercial Transactions."

Everything from Affection to Scorn seems to be covered. But this folio is preserved in the Kalinin Museum not because it was the exemplary letter-writing guide of its day, but because inscribed on its pages are part of the family chronicle of the Ramenskys, a two-hundred-year-old dynasty of teachers.

First Inscription

"In the summer of 1763 Anno Domini a schoolmaster who called himself Alexei Ramensky was summoned from the city of Moscow to the village Mologino, and may this be remembered now and in time to come, established a school and devoted fifty years of his life to this good work.

"We beg thee to accept this book as a token from those remembering thy work.

"In the gladness of thy heart teach many villagers of ours and may God be with you.

"From pupils and admirers of the vil-

lage Mologino and the borough. Summer of 1813 Anno Domini, the tenth of January."

Second Inscription

"This record is made on the thirtieth of July 1817. With the consent of my superiors I, son of Alexei Ramensky, transferred to the school of the village Mologino, Staritsk Uyezd, in the capacity of my father, schoolmaster Alexei Ramensky, capacity he left on Trinity Sunday.

"Alexei Ramensky affixed his signature hereunto. 1817."

Third Inscription

"On the demise of my father, schoolmaster Alexei Ramensky of the village Mologino I, his son Pakhom, was assigned to the same post in which I served as teacher in the village Mologino from the summer of 1834 to May 17, 1869. Which post I relinquished on account of failing health."

Fourth Inscription

"I served as schoolmaster of the Mologino School from September 10, 1869 to July 26, 1916, and retired after forty-seven years in the field of public education.

"Nikolai Ramensky, July 8, 1916. Village Mologino, Rzhevsk Uyezd, Tver Guberniya."

Fifth Inscription

"I, Arkadi Ramensky, son of a teacher at Mologino, Rzhevsk Uyezd, Tver Guberniya, began working in 1910. I was principal of the school in the village Berezki, then of the school in the city Bologoye, teacher of the Mologino Secondary School, and then of the Zarechinsk School of the Vyshnevolotsk District of Kalinin Region. I retired in 1952, after forty-two years of teaching.

January 1, 1961."

* * *

Two hundred years. The ink faded, handwriting changed, the language varied, the administrative areas were renamed.

Only two names ran through the two centuries: the Ramenskys and Mologino.

For two hundred years the Ramenskys have been teaching children in Mologino.

Which is more surprising: the fact that for two hundred years son followed father in his choice of vocation or the fact that only five persons were needed to run this two-hundred-year relay.

The Ramenskys have been written up several times in the newspapers and there is even a book about them.

Family legend says that two brothers Ramensky came to Moscow from the Ukraine in the mid-18th century. They put up at the house of the curator of Moscow University. Alexander Radishchev,* a relative of the curator, lived there also. The story goes on to say that young Alexander Radishchev and one of the brothers Ramensky, Alexei, were friends. In 1762 Radishchev was enrolled in the Corps of Pages and went to St. Petersburg. One of the brothers went back to the Ukraine, the other, Alexei, went to Mologino.

For a century the Ramenskys treasured Radishchev's present, his famous book *A Journey From St. Petersburg to Moscow.* Was it really a gift from the author? No way of telling. But we do know that Radishchev printed 650 copies on his home press (he burned most of them) and that wealthy people paid 25 rubles merely to borrow a copy. Later the price went up even more. There are grounds for believing that Radishchev gave Ramensky a copy since he regarded him as a disciple. Alexei Ramensky and his descendants kept that dangerous gift until 1906 when it was found by gendarmes searching the house and confiscated.

Mologino at the time was a rich village and had a certain degree of independence. Old-timers still remember a tale that circulated when they were children. Late in the 18th century the landlord Yuryev won Mologino and more than thirty neighboring villages in a card game and freed the serfs though legally he was not permitted to. In other villages the "devil peppered the earth with gentry" but in Mologino there was no one to boss the peasants. English traders came each fall and paid well for what they bought. Trade required literacy and Mologino's peasants set great store by their school. A rich bachelor, Yuryev had an unusual church built in Mologino. The builders were brought from Vladimir and the icon painters were Italian.

Alongside this church was a school where a son of Alexei Ramensky, also named Alexei, taught. Ramensky Jr., was a man of parts and at the request of Nikolai Karamzin** he visited the nearby villages and copied their historical records from monastery chronicles. As a token of appreciation, Karamzin presented him with a copy of his work.

Three years ago another remarkable find was made: a copy of *Ivanhoe* with the inscription "To Alexei Ramensky," evidently made by Alexander Pushkin. The poet also sketched a gibbet with five bodies, an allusion to the revolutionaries of December 1825, and wrote and crossed out some lines of verse. One excerpt was from the tenth (burnt) chapter of his *Eugene Onegin.* Another stanza was from a poem written in 1826 and believed to be the beginning of an unused part of his *Mermaid*:

How Happy I am when I want to flee
The court's and capital's annoying chores,
To cling again to spreading oaks
On yonder ever silent shores.

Legend has it that it was Alexei Ramensky who told Pushkin the story on which *The Mermaid* is based and even showed him the spot in the river where the forlorn girl drowned herself.

The next Ramensky, Pakhom, was a deacon. He taught for 35 years. Pakhom was a colorful personality, a deacon who paid calls on landlords in the vicinity to wangle old issues of literary magazines. He copied Beranger's songs and compiled a hand-written collection of his poetry. Pakhom wrote and made up ABC books and kept a chronicle of the village. Nights, by the light of a burning splinter, he would copy poems by Pushkin, Lermontov, Nekrasov and Koltsov and distribute the hand-written copies to Mologino peasants. The deacon was also fond of singing, dancing and hunting. Three times he was almost defrocked for this "unseemly" behavior, but each time he won forgiveness by pleading his large family—18 children, no less.

It is probably from Pakhom that all subsequent Ramenskys inherited such wide serene eyes that look out at the world with almost a child's frankness. Or perhaps it is because from generation to generation the Ramenskys knew no other mirror than children's eyes.

One of the Ramenskys asked his father:

"Dad, why didn't you send me to a lay school?"

"Because you'd have ruined me, dear. I'd have had to get you worsted pants, and smart shoes, and an overcoat and a cap too. Now, at your seminary all they ask for is plain high boots and any old coat. The whole damage is five rubles."

Alexei Ramensky, the son of the cheery and clever deacon, finished the seminary at the head of the class in spite of his "plain high boots and any old coat" and won a state scholarship to the ecclesiastical college. There again he graduated with honors. That meant he could enter the ecclesiastical academy whose graduates also qualified as teachers.

Alexei did brilliantly at the academy but instead of taking orders he began to teach at the Simbirsk secondary school. He served under Ilya Ulyanov (father of Vladimir Lenin) who was inspector of public schools in Simbirsk. Subsequently, Alexei was appointed director of the public schools of the Perm Guberniya with the rank of Active State Councillor. On the photograph, in all his regalia, he looks a very important personage, but his child's eyes and affection for peasant schools stamp him an unmistakable Ramensky.

Alexei spent nearly every summer in Mologino. In 1904 he became a trustee of the Mologino school and contributed books, teaching aids and a magic lantern for popular lectures in the neighboring villages.

The October 1917 Revolution and the Civil War were followed by economic dislocation and famine. However, schools continued to function—that was, in fact, a period when they were intensely active and experimental.

Alexei, on pension, was in Mologino at the

* Later a noted Russian author, sentenced to death in 1790 (commuted to exile in Siberia) for his anti-autocratic book *A Journey From St. Petersburg to Moscow.*

** Nikolai Karamzin (1766-1826), a well-known author and historian, reformer of the Russian language.

Lyudmila Ramenskaya, a granddaughter of Arkadi, is first-grade teacher in the Mologino school.

time. The local teachers sent a delegation to Lenin to ask for more food. Alexei Ramensky was asked to go along since he knew Lenin. He wore not his resplendent uniform but an old sweater and felt boots with rubbers tied on with string. Yegor Pastukhov, a venerable Simbirsk teacher who wrote about Alexei in his reminiscences (he saved the "Letter Guide" and other family papers) gives Alexei's account of the visit.

"Well, I saw Bolshevik No. 1. Once we caught fish together and now he is at the head of the former Russian Empire! He received me in a very friendly way and we recalled Simbirsk. He is a modest man with a big head: a chip off the old block. He could not give us bread, of course, but he gave us a book on bread. 'You must take grain at your own village and help us out too.' I was also surprised by his concern with education for the peasants at a time when the Germans and White Guards were near St. Petersburg and Moscow. But he was right, education was the pivot on which the whole situation revolved."

This "book on bread" by Lenin was titled *Struggle for Bread* and published in 1918. Lenin inscribed it:

"To Comrade Ramensky, Representative of the Tver Guberniya," and added, "Please tell the teachers of the Tver Guberniya that the rich farmers are hoarding grain and that Soviet power proposes to turn this grain over to the working people.

Feb. 22, 1919 V. Ulyanov (Lenin)."

Alexandra Petukhova, who taught in Tver, left behind a thick batch of memoirs entitled *School Is My Life.* She notes that Tver's teachers began to receive bread regularly soon after this call on Lenin.

The Ramenskys are all orchard growers and their traditional hobby is bee-keeping. Another son of Pakhom, Nikolai, kept a large bee-garden in Mologino, and his son Arkadi was also an inveterate bee-keeper. Recently, Nikolai's grandson Yuri, who teaches mathematics at the school in Lukovnikovo, some ten miles from Mologino, went in for bee-keeping too

The Ramenskys these days are a widely ramified clan. As I called on members of the family scattered all over Kalinin Region (the former Tver Guberniya), I was treated to honey every time. A grandad, a grandson or a nephew would ask eagerly whose honey was the best?

I want the reader to visualize teachers from this single family walking down the same village street for two hundred years, past the church, past the birch trees and along the tranquil river Itomlya to the school. The first Ramensky teacher wore no beard, then he wore a goatee, then a huge beard, very neatly trimmed though, then a waving grey beard, then he was a beardless young man. He would walk into a class where fifty or seventy or sometimes a hundred pupils were waiting for him.

He would shut the door, ask questions, explain, scold the lazy and disobedient (and make them kneel in the corner in the old days), check through sums on the blackboard and incline his beard to a pupil's notebook. Now he would grumble, now smile or crack a joke. Sometimes he would bring a cage with a red-breasted bull-finch and in spring he would

Yuri (up front), Nikolai's grandson, a teacher, of course, but not in Mologino.

Marina is the youngest of the Ramenskys. She entered the first grade this fall.

The nearby Lukovnikovo village school, where Yuri teaches. His field is math.

free the bird and stand watching its flight for a long time against the blue sky and fleecy clouds. I want the reader to visualize that infinite alternation of Octobers, Decembers and Aprils, that infinite stream of youngsters in bast shoes, high boots and felt boots and shoes, and that rhythmic buzz of the class ("In a garden without bees everything is as dead as in an empty classroom," says Arkadi). Swarm after swarm of pupils fly away, but the teacher keeps making his home-class-blackboard rounds.

Where is that choir to sing the glory of the Eternal Teacher? Does each of us revere the teacher, anticipate his every wish? Does a person who dares to offend him always meet with public censure?

Alexei Ramensky was an outstanding man. His brother Nikolai was no less distinctive. He succeeded his father in Mologino. By then a new school had been built with four teachers. But Mologino oldtimers remember Ramensky best of all, they recall his integrity, devotion and self-sacrifice.

After the October Revolution numerous Ramenskys taught in different villages of the Kalinin Region. Arkadi was offered a post in a city.

"Thank you, but I prefer to live near water and woods," he said. "Teaching is interesting everywhere."

Arkadi's sisters—Nina, Antonina, Lyudmila and Olga—feel the same way. So do their children and in-laws. Nearly all of them are rural teachers.

I called on practically all the Ramenskys known. Antonin, Arkadi's son, the family historian, took a round dozen of the Ramenskys extant and calculated that they have already spent more than three hundred of their aggregate years teaching.

For the Ramenskys the "field of public education" is not just a cliché. Teaching for them is indeed a field which they till like a farmer does, with his whole family.

One of the Ramenskys keeps an ABC book published in 1963, the year Mologino marked the bicentenary of the Ramenskys as teachers. ("The first such festival since the end of the war," they told me in Mologino). The ABC book is inscribed:

"The ancestors of our family were taught by the Ramenskys. One of them, Kuzma Vasilyev, led Mologino's partisans in the War of 1812 against Napoleon's invaders. Our grandfather Alexander Mansvetov was a pupil of Pakhom Ramensky, and our father Vasili Mansvetov and his seven brothers and sisters were pupils of Nikolai Ramensky. Under Soviet power 21 members of our immediate family and relatives finished the Mologino school and all of them are college graduates who are now working as scientists, engineers, teachers or in the armed services."

Thus, the partisan Kuzma Vasilyev and Radishchev, the Ukraine and Tver, the War of 1812 and the war against the nazi invaders are linked by family lines. And all of this constitutes that vast living organism which is called the people. The teacher is one of its most vital nerve centers.

Courtesy of Komsomolskaya Pravda

Antonina, Nikolai's daughter, is very fond of her lilacs. She is retired now after 40 years at the village school

EDUCATIONAL REVOLUTION

By Professor Fyodor Korolyov

WHEN RUSSIA ENTERED the twentieth century, 76 per cent of its people between the ages of nine and 50 were illiterate. The rate for women was higher, 88 per cent. The nationalities in its border regions were almost completely illiterate. Only one-half of one per cent of the Tajiks could read and write; three-fifths of one per cent of the Kirghiz; seven-tenths of one per cent of the Turkmen and 1.6 per cent of the Uzbeks. Of Russia's entire population of 126 million only 1.4 million had more than an elementary education. In the cities, out of every thousand only 61 had more than a primary schooling, in the villages only three.

For centuries Russia had contributed to the world's science, literature and arts. And yet in education, as in the technical level of its economy, it lagged badly behind the industrial countries of the time. In expenditures on education czarist Russia ranked with the lowest among the big countries. In 1914 it spent 1 ruble 30 kopecks on education per inhabitant, compared with 3 rubles 50 kopecks for Belgium, Germany and Britain, and 9 rubles 24 kopecks for the United States. In 1908 Russia had 46 children in school per 1,000 of the population, the United States had 200.

Education was the monopoly of the aristocracy, bourgeoisie and clergy. An insurmountable wall separated the primary schools for the children of the common people from the secondary schools and colleges for the children of the propertied classes. For children of the working people to attend classical or technical high schools, to say nothing of schools of higher education, was the rare exception.

The Soviet system wrote new principles of education into the law in the very first year after the Revolution. The right to free general and polytechnical education to the age of 17 was recognized for all children and for both sexes. A unified school system, with instruction in the native language, was established. Its emphasis was on the application of theoretical knowledge and on work training and its goal was to educate for the new society. A system of specialized secondary and higher education for those over 17 was created. Schools of higher education were open to all those who wanted to study, first and foremost, to children of working people.

Not only the Russian people but all the peoples living on the territory of the former Russian Empire were granted the right and encouraged to develop their own national cultures. The first step was to open schools where the teaching was done in the native language. The Russian schools had past experience to guide them but those opened for the non-Russian peoples had to start from scratch. Forty nationalities had no written language. A Committee for New Alphabets was set up to create them.

To train teachers for the non-Russian schools special institutions were opened, among them the Central Asian Institute, the University of the Working People of the Soviet East, and the University of National Minorities of the West. Nationalities departments were set up at the existing universities and teacher training colleges.

Lenin had underscored the imperative need for the youth to be educated if they were to become the active and conscious builders of the new society. But his definition of education involved more than giving the child a background in the humanities, the sciences and the arts. The school, he said, must give the child a new standard of morality, teach him collectivism, self-discipline, the values of work.

The early years after the Revolution were unbearably difficult. The economy, wrecked by the First World War and the Civil War, had to be rebuilt. That took priority and the ambitious program of universal secondary education and a ramified network of schools of higher education had to wait; neither the funds nor the personnel were available. More immediately realizable goals were universal adult literacy and compulsory elementary education.

In December 1919 an attack on illiteracy was begun. The job was done, for the most part, in the ten years following. Shortly before the Revolution czarist officials had estimated it would take from a century to a century and a half to make elementary education universal; the Soviets did it in 15 to 20 years.

Structurally the educational system was more or less complete by the thirties. There were three levels of general education schools: an elementary school (four grades), an incomplete secondary school (seven grades), and a secondary school (10 grades). By 1937 elementary education was universal and compulsory and in many cities a seven-year education was universal. Preparations were being made for universal ten-year schooling.

In the 1940-1941 school year, on the eve of the war, there were 190,000 general schools of all types with an enrollment of 35 million (as against 9,660,000 before the Revolution). The school system was growing at an especially rapid rate in the once backward republics and regions.

New courses of study and new teaching methods were developed. Antiquated study materials and the traditional teaching that had created such a gap between theory and life were discarded. Study material had to meet the test of practice, had to measure up to contemporary scientific, technological and cultural progress. Student activity and independence were encouraged.

The far-reaching social and economic changes being made called for great numbers of trained personnel in every sphere of economic and cultural endeavor. The colleges and universities that had been inherited from the old regime could not meet the new demands either qualitatively or quantitatively. The system of higher education was reorganized but only after an acute political and ideological fight between those who supported the new system and conservative educators and professors.

Admission to schools of higher learning was made easier. Young men and women of working class and peasant extraction were not required to take entrance examinations during the first few years after the Revolution. This lowered standards, of course, but there was no alternative. The country needed researchers, engineers, planning experts, doctors and schoolteachers in a hurry. Despite its financial difficulties the state abolished all tuition fees immediately after the Revolution and gave many students living allowances. Special high schools with a crash program that covered the course of study in three or four years were set up in 1919 to prepare factory workers and peasants for college entrance. By 1930 the country had 190 schools of higher education with a student body of 200,000.

The growth of higher education accelerated in the thirties, when the country was being industrialized and agriculture collectivized. Industries that were completely new to Russia —tractor, auto, machine-tool construction, chemical, aviation—were created. This, together with the rapid growth of power engineering and the iron and steel industry, led to the establishment of more and more technical, agricultural and other schools.

The universities, particularly those in the non-Russian republics, enlarged their programs. Medical and law schools, a polytechnic institute and a teacher training college were opened at the University of Byelorussia, for example. Previous to 1934 the universities offered only the natural sciences; the humanities were taught at specialized colleges. In the fall of 1934 departments of history were reopened at Moscow and Leningrad Universities; four years later 13 universities had history departments.

By the 1933-1934 academic year the country had 714 colleges and universities; by 1940-1941 the total had risen to 817, with 812,000 students enrolled, 227,000 of them correspondence students who were combining work and study. More than 50 per cent of the students were women. Czarist Russia had only 105 schools of higher education, with a student body of 127,000.

The nazi attack and the occupation of a large part of the country brought economic and cultural progress to a temporary halt. Every material and intellectual resource had to be diverted to the war effort. The enemy destroyed tens of thousands of schools. The number of young people attending seven-year schools and especially ten-year schools dropped sharply. Total school attendance fell from 35,530,000 in 1940-1941 to 26,880,000 in 1945-1946.

The war also retarded the development of higher education, a significant portion of the student body and the teaching staff joined the armed forces and many colleges were evacuated to the East. About 250 colleges were on occupied territory and many of them were wrecked and burned down. But even under these conditions many colleges and universities stayed open. By the end of the war, however, there was a decline in the number of schools and students.

The first postwar years were spent rebuilding the school system and training teachers and scientific personnel.

In 1950 the transition to compulsory seven-year education began throughout the country. The next step was the shift to compulsory eight-year schooling and that was completed by the end of 1961. In the 1966-1967 school year the enrollment in all types of schools reached the figure of 72,568,000 which meant that every third Soviet citizen was engaged in some form of study. Of this number 48,170,000 were attending schools of general education and 4,123,000 schools of higher education.

In 1966 there were 80,300,000 people in the Soviet Union with a secondary (complete and incomplete) or higher education. That same year 19,800,000 people were getting a higher education, an incomplete higher education, or a specialized secondary education. The comparable figure for 1913 was 290,000.

There was a particularly sharp rise in the educational level of the rural population. In 1939 there were 82 industrial workers, 519 office workers, and 18 farmers with an incomplete secondary education, complete secondary education, or higher education per 1,000 of these gainfully employed. By 1966 the comparable figures were 476 industrial workers, 925 office workers and 305 farmers.

Social, scientific and technological progress makes greater cultural and educational demands on the youth, the reason the 23rd Congress of the Communist Party made the transition to universal ten-year secondary schooling a primary objective of the current five-year plan (1966-1970). The transition began in the 1966-1967 school year. About 80 per cent of those who completed the eight-year school that year went on to ten-year or to specialized secondary schools.

Now special emphasis is being placed on the development of higher technical schools and on training for agriculture, education and the health services. During the current five-year plan period seven million men and women will be graduated from universities, colleges and specialized secondary schools, an increase of 65 per cent over the previous five-year plan period.

The Soviet school system has certain distinguishing characteristics. Its services from kindergarten through college are available to every citizen without discrimination. Socialist democracy does not end there, however. It permeates every facet of secondary school and college life—student organizations, relations between students and teachers, the whole educational process.

A second important characteristic of our educational system is that it is designed to bridge the gap between mental and physical labor. At secondary schools and schools of higher education classroom study is combined with work training.

A third characteristic is that Soviet education is completely secular. Children study the realities of the world they live in, this is what shapes their world outlook.

FOREIGN TEACHING PRACTICE STUDIED

By Zoya Malkova
Head of Department of Foreign Teaching Theory and Practice, USSR Academy of Educational Sciences

AMERICAN SCHOOLS draft new courses of study in science and mathematics. . . . Nuffield Foundation recommends curricular reorganization of English secondary school. . . . School reform in Sweden. . . . New type of secondary school in France. From many countries come reports of school innovation and reform.

The scientific and technological revolution brings with it much the same educational problems for all industrially developed countries: the optimum years of schooling required, the most efficient structural pattern for the school system, the values of differentiated education, the principles behind syllabus drafting, the criteria for selecting study material, the use of audio-visual and other aids, etc. These problems are handled differently in different countries.

Perhaps the most fundamental contribution in the early Soviet period to the study of educational theory and practice abroad was made by Lenin's wife, Nadezhda Krupskaya, a distinguished educator in her own right. Before drafting the principles of education for the world's first socialist state she visited schools in Switzerland, Germany and France. She wrote voluminously on teaching practices in various countries including the United States. It was on her initiative that a Council for the Study of Foreign Teaching Practice was organized, to bring together Soviet educators working in the field. Some of these people made important contributions. Examples are the papers "The Elementary School in the USA" by Ivan Solovyov and "The American School" by Mikhail Bernstein.

Despite the acute shortage of paper and print shops at the time, the works of Maria Montessori, John Dewey, William Kilpatrick, Edward Thorndike and other foreign educators were translated and published.

Now we have specialists in comparative education at our universities and teacher training colleges. Their work is coordinated and directed by our department. A large map of the world in our office is studded with flags, each of them represents a country with whose educators we have contact. Our staff members have visited many of these countries. We do joint research and exchange literature and information with foreign colleagues. Our staff people hold doctoral degrees, have an intimate knowledge of the country they work with, speak its language and are conversant with its educational and economic philosophy.

From time to time our staff members pool their efforts on a joint paper, for example "Labour and Polytechnical Education in the Socialist Countries" or "Problems of Secondary Education in the Developed Countries." This last project, just completed, surveyed the changes made necessary in the school systems of countries like France, the USA, Britain, Japan and Sweden by the scientific and technological revolution. The authors of the survey conclude that the tendency in the countries mentioned is to increase the number of years of compulsory schooling, enlarge the network of schools, raise secondary school enrollment and modernize both content and methods of teaching.

We have a well-stocked comparative education library named after the distinguished Russian educator Konstantin Ushinsky. From the United States alone, this library receives 80 different educational journals, besides books and other materials.

Thanks to this wealth of literature in the field we are able to provide Soviet educators with up-to-the-minute, systematized information on developments abroad. More than half our staff is engaged in this work, preparing news bulletins and abstracts of the more interesting books and articles.

The information goes to every teacher training college, refresher course, education office and school in the country. Thus a Siberian schoolteacher will get the full translated text of President Johnson's message on teenage problems or a summary of the issue of the *Phi Delta Kappa* that deals with "Big Business and Education." As a result, the classroom teacher knows what is happening in the world of education generally and is thus able to enrich his own teaching and evolve new methods.

The works of foreign educators are translated and published in large editions. Recently published and very popular books by Americans include Jerome S. Bruner's *The Process of Education*, Fritz Machlup's *The Production and Distribution of Knowledge in the United States*, and secondary-school texts in physics and chemistry.

Every year large teams of classroom teachers and educators from our academy and teacher training colleges travel to other countries to study their educational theory and practice. We are also host to many foreign colleagues who work at one or another of the academy institutions, familiarize themselves with the Soviet school system, and pass on their helpful impressions. Thus, the lectures given at the academy by Professor Robert Beck of the University of Minnesota on educational research in the USA, by Professor Gerald Read of Kent State University on international education, and by Professor William Medlin of the University of Michigan on comparative education attracted general interest.

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PICTURE BOOK ART

By May Miturich, Artist

Alexander Pushkin, The Tale of the Czar Saltan.
Artist—Vladimir Konashevich, 1966.

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THE SUCCESS OF a children's book often depends on the artist who partners the author of the text. An admirable instance is Vladimir Lebedev, who has been illustrating books for Soviet children since the early twenties.

Shortly after the Revolution, the well-known poet and editor Samuel Marshak asked Lebedev, who had already made a name for himself as an easel painter, to become art director of the children's section of the State Publishing House in Leningrad. Lebedev enlisted a group of talented youngsters, overhauled the old notions of illustrations and make-up and turned out a new type of book for children, radically different from anything published before the Revolution. The commercial approach was scrapped for good artistic design.

Lebedev, himself a Leningrader born and bred, is a close associate of four other Leningrad artists who have been illustrating juveniles for many years—Vladimir Konashevich, Aminodav Kanevsky, Yevgeni Charushin and Yuri Vasnetsov. Each of them has a distinctly individual idiom and style.

Konashevich's elegant compositions seem to line up into a multi-colored film of fairy tales all glimmering with kind twinkling humor. Aminodav Kanevsky prefers the satirical and grotesque. His illustrations, especially for Alexei Tolstoy's *The Little Golden Key* are clever and very amusing. Yevgeni Charushin has a passion for Russian scenery; he himself wrote stories which he illustrated. The folktale series of that most underivative folkloric artist Yuri Vasnetsov are so expressive they need no accompanying text.

Literature for children ranges wide for its themes. We have a well established tradition of lyrical writing on nature and wild life fed by Vitali Bianka, Boris Zhitkov and Mikhail Prishvin. Their books have very special values for our urban day and age when millions of city children never see the cow that gives them milk. The poetic fabric of this type of writing, woven as it is of keenly perceptive observations, demands of the illustrator the same understanding of nature and faithfulness of detail.

The artist will often travel with the writer to work out a future book. Thus, the product of a trip that writer Vitali Bianka and artist Valentin Kurdov made to the Yamal Peninsula was a book called *The End of the Earth*, in which illustrations and text make a beautifully fused entity. Publishers of children's books realize the value of such close collaboration between writer and illustrator. I myself work with writer Gennadi Snegiryov. The result of several lengthy trips we made was a number of books based on our common impressions. Only recently I asked the Managing Director of Children's Literature Publishing House to subsidize a long trip, this one to Sakhalin, Kamchatka and the Shantar Islands. He made the grant without any specific commitment from me, conscious of the fact that the costly trip might produce no more than one slender volume.

The curiosity-gratifying quality of both text and picture is the central criterion of a Soviet children's book. But we want the knowledge the book provides set in an artistic frame and tinged with the writer's and artist's own lyrically reinterpreted emotions. Now and again we have to argue the issue with dry-as-dust educators who insist on that pedantic authenticity that makes so poor a bedfellow for lyricism.

Most of our children's book illustrators do nothing else. But besides problems of applied art as such, we often experiment. So that the pictures in books for children tend to reflect developments in Soviet art generally. Besides their main purpose, dramatizing the story visually, illustrations develop the child's taste and make him aware to some degree of trends in Soviet art.

Our children's books are addressed to a mass audience. They are very cheap and within every child's reach. Time when the artist executed the design on the printshop stone and himself supervised the printing of the entire small edition are long gone. Today printings of a million and a half copies are not rare, and editions of 200,000 or 300,000 are usual. Many artists work closely with the printers, and try to incorporate in their designs the artistic values of a particular printing process.

Each new generation of artists works out its own styles and methods. New names come to the fore. But for the most part illustration of children's books still follows the traditions set by Vladimir Lebedev and his associates, their work still provides the guiding compass.

1 *A Russian folk tale,* Pussy's Home.
Artist—Yuri Vasnetsov, 1965.

2 *Anna Baryshnikova,* Ivan the Fool, *a fairy tale.*
Artists—Veniamin Losin, Yevgeni Monin, Vladimir Pertsov, 1961.

3 *A Russian folk tale,* The White-Breasted Magpie.
Artist—Yuri Vasnetsov, 1965.

4 *Anna Baryshnikova,* The Brother Hunters, *a fairy tale.*
Artists—Veniamin Losin, Yevgeni Monin, Vladimir Pertsov, 1961.

5 *Gianni Rodari,* Gelsomino in the Land of Liars.
Artist—Lev Tokmakov, 1960.

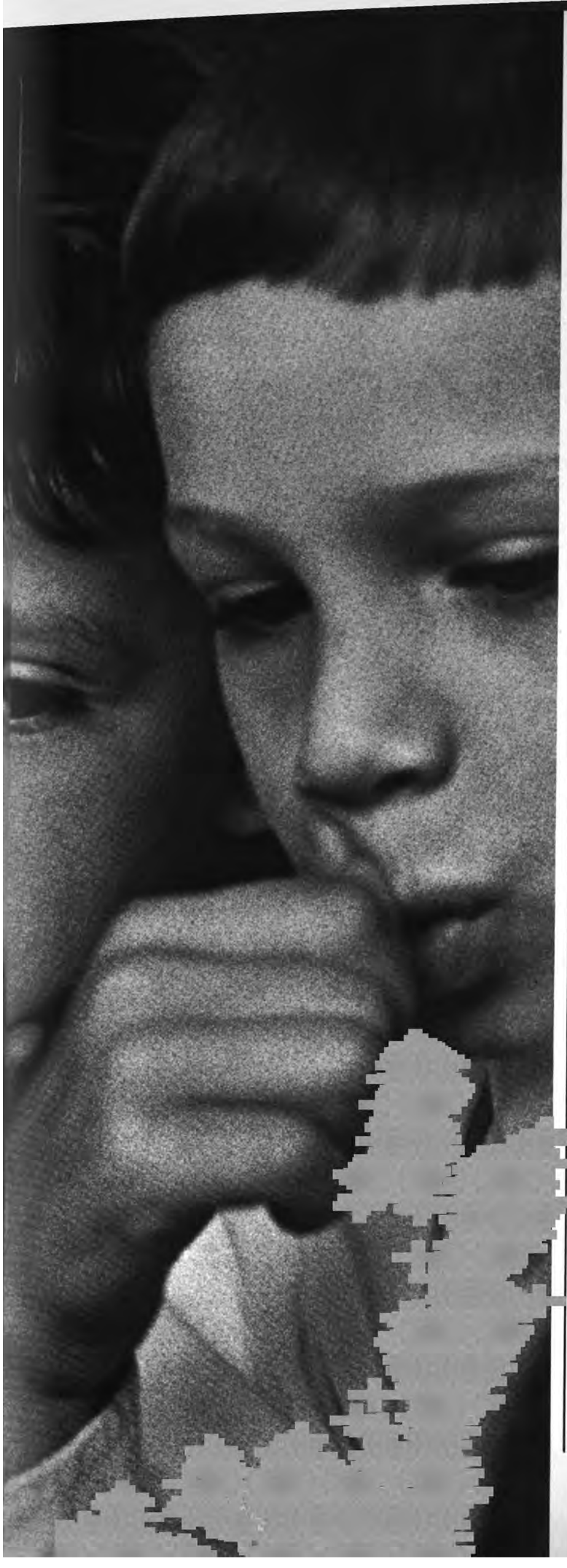
6 *Alexander Pushkin,* Tale of the Dead Princess and the Seven Braves.
Artist—Vladimir Konashevich, 1966.

7 *Kornei Chukovsky,* Adventures of Bibigon.
Artist—Mai Miturich, 1966.

8 *Yevgeni Charushin,* Tyupa, Tomka and the Magpie.
Drawings by the author, 1966.

9 *Alexei Tolstoy,* The Little Golden Key, or Adventures of Buratino.
Artist—Aminodav Kanevsky, 1950.

10 *Vladimir Lebedev,* Hunting.
Drawings by the author, 1925.



THE BOOKS CHILDREN READ

BY MARINA KHACHATUROVA

TELL ME what you read and I'll tell you who you are," says the old Latin tag. Books, like friends, influence a person because they, too, are his friends. Books keep a man company all his life. He becomes acquainted with them early, as a child, often before he has learned to read. But while the adult himself can separate the husk from the grain, the child cannot, and his mental growth will depend, to a very considerable degree, on the books chosen for him.

Books Teach

Books not only entertain, they teach. The big question Soviet children's literature is asking today is not what to teach children. The "what" is clear. The big question is "how." Experience says you teach best by interesting, amusing the child, with books in which the moral develops naturally from the story.

A writer can be forgiven for a second-rate book, but not for a harmful book. We still come across books of small artistic merit, and by the same token, of small educational value. Such books are ineffectual if well intended but they never pander to the basic instincts, they do not teach evil and violence.

We have our classic children's writers: Boris Zhitkov, Arkadi Gaidar, Mikhail Prishvin, Samuel Marshak, Kornei Chukovsky, Lev Kassil, Agnia Barto. Their gay, wise, warmhearted books reared many a generation of children and influenced the development of all our children's literature.

Our authors write about anything and everything, for the child's range of interests is endless. Nikolai Verzilin's books are about plants, Lev Uspensky's about words, Yakov Perelman's about mathematics, physics, and astronomy. Children love them, read and reread them, not aware that these books treat of complicated matters which, handled with less skill and sensitivity, would be deadly dull. The problems of children's literature are the problems of child psychology. Children are clever, quick to understand, intellectually curious, but they have neither life experience nor a background of information.

Leo Tolstoy, Alexander Blok, Alexei Tolstoy and Vladimir Mayakovsky wrote for children. The work of Nikolai Nekrasov and Anton Chekhov, and the poetry of Sergei Yesenin, Fyodor Tyutchev and Afanasi Fet are included in primary school textbooks. Our children's books are illustrated by such leading artists as Vladimir Favorsky, Vladimir Konashevich, Yuri Vasnetsov and Tatyana Mavrina. Some

of them are real works of art. Editions are printed in the millions of copies. The average price of a book for children is 23 kopeks, cheap enough to be within everyone's reach.

207 Million Copies a Year

Detskaya Literatura (Children's Literature Publishing House) in Moscow puts out two-thirds of the country's juvenile literature. It publishes more than 600 titles annually, in a total printing of 125 million copies. Its varied list includes fairy tales, epics, mythology, history, adventure, popular science and science fiction by Soviet and foreign writers. The age range covered is wide, from 3 to 17.

Preschool and primary school children think in concrete terms. They do not generally respond to comparisons, allegory, metaphor. They easily remember content but do not grasp the relation between things nearly as well. They need books with clear plots and lots of action. At ten or eleven they begin to think logically and their circle of interests is larger. Adolescence brings psychological changes and an intense interest in the whole inner world of feelings. These changing values and perceptions guide the choice of material published for the various age groups.

A child's response to something read will often be quite different from an adult's. The famous Russian writer of fables Ivan Krylov has one called "The Dragonfly and the Ant" which every school child knows. It is that edifying story about the Dragonfly that sang and danced the summer away while the Ant labored to store up food for the winter. When the cold weather came the Dragonfly asked the Ant for shelter. The Ant replied: "You sang all the time, didn't you? A fine state of affairs. Now go ahead and dance!" One five-year-old girl retold the fable this way: "The Dragonfly was a merry thing, she sang and danced all the time. But the Ant was an angry thing, he would not let her into his home."

The moral being: that a point which is plain to an adult may not be to a child.

Detskaya Literatura publishes not only books written especially for children. Its list includes Mikhail Lermontov, Anton Chekhov Molière, Heine, Byron, Schiller, Washington Irving, Jack London. Our children love Mark Twain's *Tom Sawyer, Huckleberry Finn* and *The Prince and the Pauper.* Six-volume subscription editions of the works of James Fenimore Cooper and Mayne Reid sold out immediately. They were printed in editions of 300,000. Leo Tolstoy's *Stories for Children,* Jonathan Swift's *Gulliver's Travels,* Daniel Defoe's *Robinson Crusoe* (adapted editions), Harriet Beecher Stowe's *Uncle Tom's Cabin,* the tales of Hans Christian Andersen, Charles Perrault, the Grimm brothers, the books of Jules Verne, Dickens, Cervantes, Walter Scott and many others are published in large editions year after year.

Here are some typical figures for the country as a whole. The works of Hans Christian Andersen have appeared in 270 editions and 27 million copies; the Grimm brothers—in 240 editions and 25 million copies; Jules Verne—in 338 editions and 18 million copies; Defoe in 157 editions and 5 million copies: Mark Twain in 306 editions and 16 million copies.

In 1965 there were 2,600 titles published for the young reader. The total printing was 207 million copies, almost a fifth of all the books printed that year. A large fraction was for children of school age—more than three-fourths of all the titles and over half the total printing. Books are translated from 72 foreign languages and the many languages spoken in the USSR, and are published in 64 languages.

Judging from observations, children in the sixth to ninth year in school do a great deal of extracurricular reading. Those in the tenth or final year usually do not have time to read much besides their homework assignments. Most of the children of the middle and older age groups read an average of two hours a day, thirty to forty pages.

Book Heroes

Children love their book heroes. All youngsters are enchanted with Buratino, the hero of Alexei Tolstoy's story *The Golden Key.* Buratino is a wooden boy with a very long nose. He was born in Italy, where his name is Pinocchio. The stores sell Buratinos of all sizes and his picture is on pencil boxes and candy wrappers. Translated works most popular with children are *Winnie the Pooh* by A.A. Milne, *The Youngster and Carlson Who Lives on the Roof* by Astrid Lingren, Rudyard Kipling's *Mowgli,* and Gianni Rodari's *Adventures of Cipollino.*

Children in the middle age group like the romantic and heroic books about the struggle of peoples for their freedom and independence, and about dauntless explorers and travellers. One of their favorite characters is the Gadfly in Ethel Lilian Voynich's book of the same name. The 12- and 13-year-olds like Jack London.

By far the most popular literary hero is Pavel Korchagin in the novel *How the Steel Was Tempered.* This book, much of it autobiographical, was written in 1932 by Nikolai Ostrovsky. It is the story of a young man who defended the revolution during the Civil War and helped build the young Soviet Republic. The hero of the book, like the author, was badly wounded and became paralyzed and blind. But although physically helpless, his brain and heart continued to work, and to serve others, he became a writer. *How the Steel Was Tempered* is still a favorite with young people. Why? Because it testifies to the unbelievable strength of body and spirit a man can muster when he is driven by the need to serve others.

Boris Polevoi's *Story About a Real Man* has much the same theme. A wartime pilot loses both his feet but finds the strength to battle himself and the air force until he sits behind the control stick of a plane again. Incidentally, the prototype for this hero is still with us; he is Hero of the Soviet Union Alexei Maresyev, Chairman of the Committee of War Veterans.

Alexander Fadeyev's *Young Guard* is very popular. The Young Guard was the name of an underground youth organization formed during the war in the German-occupied city of Krasnodon in the Donbas. The organization was betrayed by a traitor, and almost all its members, with the exception of a handful who were saved by a miracle, were tortured to death by the Hitlerites.

It is interesting that all three books are documentaries, based on fact. The characters are drawn from real people, with all their human weaknesses and their almost super-human strengths.

The last page of each book published carries this note: "Please send your comments on this book to . . ." The publishing house receives dozens of comments every day. Younger readers will say simply, "I liked the book." Adolescents will write in about the subject matter, their reaction to the characters and the situation. Letters from parents are usually more explicit about what they don't like than what they do.

One department at Detskaya Literatura studies the interests of readers. It is a sort of creative laboratory which provides the educational and scientific data for editorial staff decisions.

Why Do Children Read *Gulliver?*

A book will usually carry a note: "For children of the middle school age," etc. But many children pay no attention to the caution. They read the classics eagerly, for example. A real work of art has something to give both the 14-year-old adolescent and the gray-headed man. Children understand Shakespeare even though critics have been arguing the nature of Hamlet for four hundred years. Of course, the social satire in a work like *Gulliver* will escape youngsters, as will the parody on chivalric romances in *Don Quixote.* But they are fascinated by Jonathan Swift's unbridled imagination and the amazing adventures of the goodhearted and funny knight, the Chevalier de la Triste Figure.

By the time the children finish secondary school, at 17, they have usually read almost all the classics. And, of course, when they reread Dostoyevsky, Tolstoy, Dickens and Balzac at a more mature age, they find things they did not see earlier. But their earlier acquaintance leaves its impress just the same. Not without reason did Maxim Gorky write that Ponson du Terrail's Rocambolle had taught him to be staunch, and that Dumas' heroes had inspired him with the desire to devote his life to a great cause.

The works of Jules Verne, the elder Dumas, Arthur Conan Doyle, Jerome K. Jerome, and Walter Scott, once read only by adults, have long become favorite reading for children. They not only transport the children to a world populated by courageous and honorable people but they satisfy their thirst for knowledge. From these books they learn more about other countries and peoples, their histories and customs than they often do from their school books. Had he chosen to, Alexandre Dumas could have written a world history which every child, from the first to the last grade, would have clamored to read. Learned historians would probably have found it subjective and inaccurate, but for its child readers history would not be the dry-as-dust study it usually is.

Why do children like some books and not others? The answer is that they are spontaneous realists, they are perfectly happy to accept the reality of fabrication, even a fairy tale. They read *Gulliver* with great interest, but they do not find Kafka interesting in spite of his fantasy plots. Children do not take to the abstract and philosophical. They want real dramatic elements, real action, real movement, real people. For instance, adolescents as a rule like Dostoyevsky's *Crime and Punishment,* but they are bored by his *Poor Folk.* Children read Nikolai Gogol's *The Overcoat* and *Dead Souls* because they have to—it is on the school reading list—but they really like his heroic *Taras Bulba* and his fantastic *Evenings on a Farm Near Dikanka.* Later, when they grow up, they will have more of a basis for appreciation. That will be true of many of the Russian and Soviet classics they study in school.

Some people develop a dislike for a fine writer because they did not understand him as children and do not bother to reread him as grownups. They should have the good fortune to meet Professor Sergei Bondi, about whom this story is told. Professor Bondi, an authority on Pushkin, was examining students at Moscow University when he discovered that one of the girls had not read *Eugene Onegin,* even though this novel of Pushkin's was required reading in secondary school. Instead of being annoyed and giving the girl an unsatisfactory mark, the professor exclaimed, "My dear, you can't imagine what happiness you will get from reading *Eugene Onegin* for the first time when you are twenty years old. Read it as soon as possible!"

We should like to tell every child we know the same thing: "Read every good book as soon as possible!"

ARE WE UNASTONISHED?

Exchange of Opinions on Youth and Ethics

BY YEVGENI BOGAT AND YURI TIMOFEYEV

Writers, teachers, lawyers, sociologists and philosophers took the floor at this exchange on "Youth, Ethics, the Twentieth Century" at the Central Pen Club in Moscow.

THE ARGUMENT shifted around, very hectic. The many distresses and perplexities of the growing generation were cited. Their possible sources were discussed. A new expression, "temptations of the century," popped up here and there.

It takes no more than thirty minutes to fathom the mysteries of Easter Island with Thor Heyerdahl on the TV screen and a few hours in the movies to know Tolstoy's epic *War and Peace*, inquiries to which our grand- and great-grandfathers devoted whole nights of meditation. "This leads some of the young people to a unique type of spiritual parasitism, a kind of spiritual dystrophy, you might call it," said one of the participants.

"Astonishment—that is the spiritual compensation life demands for the values it offers us," said another. "And we have to pay."

Is this statement valid? Perhaps. But here is the paradox: Alice felt she was in Wonderland, because every turn of the world she found herself in held the possibility for astonishment. Today, in a mid-twentieth century packed full of astonishing phenomena, the Alices no longer wax surprised. The reason? Not, of course, because they do not have to pay with sleepless nights for the pleasure of attending a hockey game by courtesy of the TV. Sleepless nights are the lot of discoverers and creators, and astonishment is what the first witnesses of these discoveries feel, not those who use their findings as objects, things. We do not expect anybody to gasp with astonishment at a wagon wheel, even though the first one must have seemed miraculous.

Astonishment, it appears, is not that simple an emotion.

When a Moscow tenth-grader, after a visit to Leningrad, was asked what had impressed her most, she replied with a half question half answer:

"The TU-104, huh?"

Neither Leonardo da Vinci's *Madonna Litta* nor Pushkin's house nor the Arch of the General Staff where Red Guardsmen shed their blood storming the Winter Palace had impressed her. No.

"But," said another speaker, "you may be sure that by now, when this tenth-grader is finishing college, the TU-104 will not arouse even a particle of her yesterday's astonishment."

"What *will* impress her today?" another asked. "A telephone in a car? Or a pill that changes her mood?"

Is that all this business of astonishment amounts to?

Suppose we take a slightly different look at the problem?

A plane is simply a mechanism with which one can, with a speed unusual for yesterday but usual for today, fly somewhere. Where to? That, alas, was of secondary importance to the schoolgirl. We say "alas" because the question of "where to?" would take us to another level, to higher categories.

"Where to" can be Leningrad, or Suzdal, or Bratsk, none of which can be replaced by the other two. Leningrad is the cradle of the great revolution, the city of Pushkin and Dostoyevsky and the Hermitage Museum. Suzdal is ancient Russian art, the innermost recesses of the Russian soul. And Bratsk is the site of today's grand engineering achievements.

Do not things sometimes outvalue people in the eyes of the young? A plane, a car equipped with telephone, and tranquilizers are such things for the schoolgirl we are talking about. But the great miracle of the century is man himself.

The human being is the only value that is not transient. People without the capacity to look at man with wonder are robbed, they have no values they can live by.

There we have the danger of the "temptations of the century," perhaps.

"I see nothing wrong," said a criminologist, "in a 15-year old girl learning about Natasha Rostova from a movie or TV screen rather than from a book read by candlelight. For me the important thing is whether she will find at school and home something corresponding to the spiritual growth of the heroine on the screen. It seems to me that this is critical for the development of her personality. A girl may start out with a profound belief in the triumph of Good, sense its deep-lying roots, perceive Good as something unceasingly developing and constantly present in life. The danger, "the speaker went on to say," is not that the girl will stop being astonished by the world, but that she will lose faith in the power of Good and Justice. The worst thing for the child is to have books and films tell her one thing, and living realities and relations tell her another. Children can grow up to be good people, with kindness and a feeling for others, even with TV and transistor sets. But that will happen only if the home atmosphere is kind and feeling. The most skillful barriers against 'temptations of the century' will be of no avail if, say, children hear backbiting judgments about fellow workers from their parents' guests.

"What happens," the criminologist continued, "when the girl comes home from the movies, and feels very strongly that something is wrong with life, that Evil wins out more often than Good? Here is what will happen. I am not making this up, but mentally thumbing through the pages of criminal cases that pass through my hands. One fine day, a month or perhaps a year later, she will find herself in the company of idlers. They will be squandering money she got dishonestly—money her hard-working father earned. To her he will no doubt look unimpressive compared to the young men in dazzling shirts and the last word in jackets. One evening, talking condescendingly of 'honest fools,' they will take her to a fancy restaurant, wine and dine her to the accompaniment of music, bring her home in a taxi, the only kind of transportation they use. In short, they will give this girl a glimpse of 'high life,' of things which will seem to her far more real and essential than any spiritual values.

"These loafers will seem to be sitting on top of the world. And she may go along with them—to court, and then to prison. It is then, when I talk to her in jail, that I find out her trouble began at that moment when she doubted the power of Good and started to believe in the power of Evil."

Was this lawyer right? We think so. And yet we should like to add a few things.

The crucial moment, says the lawyer, is the point when the girl loses faith in the power of Good, the point at which wine, evening gowns, cars, money, things and things only, are values. Her values, continues the lawyer, are mean stacked against those which her honest father could have given her. But did he give them to her?

Here is an interesting excerpt from a school composition which gives an indirect answer to this question:

"Heroism is not only what you do in battle, at a fire, or when you fly a test plane. In my opinion, it is heroism to stand up for what one believes, to go against those who hold opposite opinions. My uncle is a village schoolteacher. Many people think he is eccentric just because he stands up for his views against all odds. But my uncle knows he is right."

So do we cultivate a respect for the values the boy respects in his uncle?

A man lives for low or high purposes, depending upon what he thinks is important. Temptations, we all know, are a hazard only to those whose lives are purposeless. They are no threat to those who feel themselves part and parcel of socialist society.

Our society has the great advantage of social and ethical purpose. The Manifesto of the Communist Party concludes with these great words: Human personality will come to full flower in a society where "the free development of each is the condition for the free development of all." Karl Marx and Friedrich Engels wrote that the richness of the personality depends wholly upon the richness of its actual relations. Relations, not things!

Our purpose requires us to exert every effort to develop human personality, the unique value. We must be honest to the point of eccentricity, truthful at whatever the cost, faithful to principle, and we must look at mankind with wonder and with love.

Courtesy of Literaturnaya Gazeta

TEACHING TO TEACH

The Hertzen Pedagogical Institute (Alexander Hertzen was an eminent nineteenth-century writer and public figure) stands in the center of Leningrad, not far from Nevsky Prospect. Next year its 13,000 students will celebrate the half century of its founding. Considered one of the best teacher training colleges in the country—55 members of its faculty are doctors of science and 380 masters of science—it has 12 departments: Russian language and literature, physics, mathematics, geography, natural science, history, foreign languages, chemistry, the arts, physical training, defectology and pedagogy. The first six departments also train teachers for schools that use English, French, Spanish or German for instruction. The institute trains specialists in 39 fields.

THIRTEEN CLUBS

"Specialization must never be at the expense of general education."
Anatoli Lunacharsky

What would your attitude be if you were a home-room teacher and your pupils complained to you about another teacher's obvious injustice?"

"Was teacher so-and-so right to get so disgusted with a pupil's slovenly notebook that he tore it up in class?"

Prospective teachers ask dozens of such questions. They look for the answers not only in classrooms and lecture halls, but also in their club where teachers of many years' standing talk informally of their own experience. This is also where plays staged by the Youth Theater and films on and for children are discussed. The Pedagogy Club is one of thirteen clubs at the college.

The first writer to read his work at the club was Maxim Gorky; the first opera star to sing there was the famous basso Fyodor Chaliapin. The club has branched out enormously since its founding forty years ago—into a Young Lecturer's School, a Round the World Club, a Community Film Society and a Sports Club with 17 sections. Students Lyudmila Belousova and Oleg Protopopov are world figure-skating champions, and student Irina Spasskaya is the country's checker champion.

The Arts Club is, perhaps, the best attended. It has four choirs, three ballet groups, a folk instrument ensemble and a song and dance company, the Arctic Lights, made up of students from the northern nationalities. All these groups perform somewhere in the city at least once a week.

The Discussion Club is just as popular. For four hours on end feeling ran high during a discussion with director Nikolai Akimov of *Don Juan*, staged by the Comedy Theater. Another discussion was devoted to Steinbeck's *Winter of Our Discontent*. The editors of the Moscow weekly, *Literaturnaya Rossiya*, came to the club to poll student opinion. A forum, "Living Abreast of the Age," attracted students from other colleges.

Composer Dmitri Shostakovich wrote in the club's Visitors Book: "I am indebted to you for your warm hospitality," and poet Lev Oshanin made this entry: "I like your club because you appreciate and love poetry."

This is from one of many letters the club receives:

"We always recall the club when we help Young Pioneers plan their jamborees or book discussions. It is very helpful to be able to give one's own personal impressions of meetings with writers like Tvardovsky, Fedin or Simonov. The club was a second college for us."

The tribute was from Lyudmila Malyarenko, now teaching at Komsomolsk-on-the Amur (Far East).

The college has a Community Work Department which trains lecturers, guides and children's sports coaches.

By Galina Silina

prof

THE RECTOR INTERVIEWED

> **"Education is only a preparation for self education, and if the education was good, the self-education will go on through life."**
>
> ***Konstantin Ushinsky***

"Who draws up the course of study?" I ask Professor Alexander Boborykin, Rector of the Hertzen Institute.

"We do, but it has to be approved by the Ministry of Higher Education."

"What teaching methods do you use?"

"Lectures, seminars, laboratory work and practical training. However, some students, mainly those who are preparing to do research and have demonstrated their ability, follow individual study plans. For these students lectures are optional, some of them use the time to take classes at other faculties or at Leningrad University. But all students, these included, must take the required academic courses."

"What about the specific methods of teaching, say the time alloted to lectures as opposed to laboratory or self-study? Is that worked out centrally?"

"No. Each department makes its own arrangements. The general syllabus merely organizes the process of teaching and specifies the minimum requirements in each subject. The teachers themselves decide which material is to be given emphasis, what should be covered in lectures and what left for independent studies and other such specifics. The method of lecturing also depends on the professor's individual approach."

"What do you do to make your students not simply specialists but also educators?"

"The entire system of studies is geare
in general psychology or principles of ed
develop teachers. We give our theoretical c
tion. We attach a great deal of importance t
second year students work as counselors at Young
their third year they do guided practice teaching a
the fourth year they practice teaching for 12 to 18 wee

"What special problems are your faculty researchers workin

"The volume of knowledge accumulated is growing at an exp
rate, while the amount of time a man has to educate himself sta
much the same. Hence, the need for new and more efficient teaching methods and the selection of the best study material. This is what our teachers are working on. Many of our students are also doing research; each department has a student research society."

"What distinguishes your college from others like it?"

"To begin with, we have a Defectology Department which trains teachers for schools for blind, deaf and mentally retarded children. Also, since Leningrad is closer to the northern parts of the country than any other large center, we have students from 20 of the northern minorities: the Nenets, Eskimo, Chukchi, etc. The government gives them scholarships, clothes, free dormitory accommodations and pays their fare from home to college. They study in every one of our departments."

"Do you think your students are adequately prepared for their future occupations?"

"Let *them* answer this one," Professor Boborykin smiled.

"The teacher does not learn his profession at the college once and for all: he has to keep learning it daily. What our institute does is simply train him to use books, to experiment, to see new trends, to take the most important directions in his studies.

"We must be doing a good job if reputation means anything. We have many more students applying for admission than we have room for."

erican physicist William Shockley was one of the dis-guished guests at this year's Moscow University frolic.

Physics department students write the skits and make the costumes for this annual affair.

of his science, soccer game does.

ked up a very respectable isually irreverent lyrics.

THE SECRET OF

In July 1828, Nikolai Lobachevsky, the eminent Russian mathematician, read his paper on "The Goals of Education" to a solemn convocation of Kazan University. Recently Academician Pavel Alexandrov, professor of mathematics at Moscow University, talked to the students and faculty on the same subject. Here we present his talk.

LOBACHEVSKY ONCE WROTE that "to live means to feel, to revel in life, always to feel the new to remind us that we are alive." He also wrote, "It is usual enough to hear complaints about passions, but, as De Mably rightly said: 'the stronger the passions, the more beneficial they are to society; it is only their misdirection that can be destructive.'"

Lobachevsky was saying: "Do not ignore the treasures around you, the treasures in all the opportunities offered you by social living, by science, art and nature. Walk without blinkers! Look around you and absorb all you can. And that means, revel in life, live with passion; direct your passion into social channels, not into your own secluded dead end."

Science, art, all of human creativity is a social phenomenon. Man, alone on a distant planet and with all the "creative opportunities" available to him could never be a creative personality. His creative potential must be spent socially in the collective.

What is the collective and what kind of collectives are there? Let me begin with a smaller unit, say the group the student finds himself in from the very outset, or the seminar in his senior year.

There is something common and yet different about these two small collectives. What they have in common is their feeling of affiliation to the great body of students.

The title of student has always had the respect of the progressive part of society. This title has been associated with the concept of life lived most fully, with truth and progress in the finest sense of the word, with sensibility and enthusiasm.

To bring up a human being properly you must begin by respecting him. If he does not feel that respect, the worst that can possibly happen to a young person will happen: he will gradually lose respect for himself, lose that "feeling of honor and self-respect" which Lobachevsky mentioned so often and which is the essential point of his paper.

When a man loses respect for himself, he adopts the attitude of "to hell with everything." On the other hand, the feeling of self-respect makes for real discipline, a responsible attitude to life. They say that discipline is to keep students from cutting lectures. Excuse me, but I say respect the students and make your lectures interesting and they'll be there!

In the senior years the group centers its work in the scientific seminar, where research interests supplement purely learning interests. For the good student, the research interest soon takes first place. He feels completely new emotions, those aroused by creativity, the strongest impulse of the human spirit. And a new collective with new forms of responsibility evolves.

I treasure the memory of one such collective formed by the young mathematicians of Moscow University of my own time, the famous "Luzitania," comprised of students of Nikolai Luzin, founder of the Moscow school of mathematics. We had no easy time of it then, those were the early years of Soviet power. Our fare was skimpy.

In 1923 Pavel Uryson and I were among the first young Soviet scientists to go abroad. We went to Hattingen, one of the world's mathe-

"GAUDEAMUS IGITUR" FROLIC

Photographs by Alexander Makarov

THE MOSCOW UNIVERSITY clock said four P. M. Students, faculty and distinguished guests waited for the ceremony to begin.

Heralded by a fanfare, a chariot drew up with Mikhail Lomonosov and Tartarin of Tarascon, the master of ceremonies. Tartarin asked Plato, Isaac Newton and his wife, Ivan the Fool and Baba-Yaga the Witch, two characters from Pushkin's tales, and other guests of honor to seat themselves at the presidium table.

The behavior of the guests of honor was odd, to put it charitably. They made up a lot of slanderous nonsense about the person whose name-day they had come to celebrate.

This was how Moscow University marked the birthday of the Father of Physics, Archimedes. Students of the physics department made the costumes and wrote the script for this annual frolic. As in previous years, they thought up original birthday presents for Archimedes, and invited famous physicists to the celebration. Among those present was the American physicist, William Shockley, founder of the science of semiconductors.

Nobody, of course, knows Archimedes' date of birth, but any date will serve as an excuse for a little irreverence and a lot of fooling around by these hopeful Archimedes.

ETERNAL YOUTH

matics centers, as you know, and practically the biggest in those days. We were well received and felt immediately that we were in an altogether new milieu, in the family of international science.

That international family had its beginnings, most likely, in the times of Descartes and Spinoza, when all the eminent scientists corresponded, no matter where they happened to live. Letters then travelled by horse-drawn mail coach and took much longer to reach their destination. But despite all the walls separating their countries, even then scientists felt they were a great progressive force, they felt their unity.

Lobachevsky said with pride: "We are living in times when the phantom of ancient scholasticism hardly stalks the universities. On entering this institution, youth hears no empty meaningless words, no hollow sounds. Here he is taught what is real, not what was invented by this or that idle mind."

When you join a collective you take on a responsibility to it. This is where the collective differs from the ordinary company gathered for recreation. In our time the feeling of affiliation with an international collective of scientists places a particularly heavy responsibility upon us.

Science has reached the point where it can build a heaven on earth. The means the world has produced by virtue of modern science are already sufficient to keep humanity fed. Unfortunately, the greater part of these means is used for altogether contrary purposes—to create a hell on earth which would beggar the wildest imagination, if we stop to imagine what would happen in a thermonuclear war.

Every scientist and every young person who is thinking of science as his calling must bear this in mind: science cannot be divorced from politics. Whether there will be a science, whether man will soar radiantly or stumble into an abyss depends on politics, on where politics takes him. I have every hope that mankind will not stumble into suicide. But every one of us and, first and foremost, every one of us past the age of 20, must feel that the direction the world takes is his responsibility.

Yesterday I came across a paragraph by Max Born, one of the great physicists of our day, an old Hattingen professor whom I knew well and met many times: "The future of science depends on whether this urge and aspiration toward creative work can be brought into harmony with the conditions of social life and ethics." I can only add that not only the fate of science, but the fate of mankind hinges on that.

But to pass from these general problems to our daily association with students. I was speaking of the collective as the basis of student life. But the dialectics of life is such that the feeling of collectivism has its antithesis, a frequent and a false substitute, the herd feeling. To follow the herd is humiliating to a thinking human being. It is wholesale standardization, the opposite pole of genuine collectivism.

The genuine collective is a union of freely and independently thinking and feeling personalities. Each being unique, they enrich one another. To our mind the communist society is just such a collective.

We must not equate adulthood and overinflated "seriousness." Adulthood, to my mind, is responsibility to society and oneself, independence (my own choice of what I like and what I do not like), and an order (as the mathematicians say) in which the values of life are distributed to every man.

But to be "serious" does not mean that one may not allow oneself any nonsense, any childish capers, anything that distinguishes the age of 17 from 50. Recall the same Lobachevsky. Everybody knows his student prank. He straddled a cow and steering with its horns as he would with the wheel of a car, made the rounds of Kazan's central city park. Can you imagine the state our curriculum department would be in if one of our students did this?

To cite Lobachevsky again: "But you, whose existence was turned by an unjust accident into a heavy taxation upon others; you whose minds have dulled and whose feelings have become numb; you are not revelling in life! For you nature is dead, the beauty of poetry is alien, architecture is deprived of all its charm and splendor and the history of the ages is devoid of interest. I console myself with the hope that such works of vegetative Nature will not issue from our University."

Unfortunately, we still have our works of "vegetative Nature." Let us put our heads together and see what we can do to rid our university of them once and for all.

Among the emotions there is one that is most particularly human, the esthetic emotion, the feeling for beauty. Beauty is to be found everywhere. In every rectilinear geometric figure, say a ball made of polished granite or the surface of snow after a wind or snowstorm, when the frost suddenly strikes and the snow settles in smooth waves, what we mathematicians call the analytical surface. Yes, beauty is all around us, and it is to beauty that the abstract, the pure appeals, including so-called abstractionist art, at least its serious efforts.

I do not believe that art is limited to the esthetic emotion. It is bound up with other emotions born of the great ideas that move mankind. Take Beethoven's *Third Symphony*, for instance, which he himself called the *Heroic*; take the great works of Bach, Tchaikovsky, some of the symphonies of Shostakovich—no one, surely, would deny that these works, that fuse the esthetic emotion with all of man's deepest aspirations and experiences, are the most significant and everlasting works of art.

The preeminent task of upbringing is to help the growing personality draw the line between "what I like" and "what I do not like," between what is "boring" and what is "interesting." Good or bad taste depends on where this line passes. Here is what Lobachevsky said: "Mental education alone does not crown the job of upbringing. Man who enriches his mind with knowledge must also learn how to revel in life." That leitmotif is ever present in his words—to revel in life, to feel its beauty, to feel the whole breadth of the world around us.

Cultivation of taste should begin at the earliest age. My teacher Nikolai Luzin used to say: "Every bad book read is poison swallowed." That is also true of bad films and bad music.

In Rossini's opera, *The Barber of Seville*, there is a famous aria about slander, about how slander gradually and imperceptibly penetrates, diffuses, seeps into everything. Banality operates in the same way. You cannot get at it. It is not a punishable criminal act. But it is as much a distortion of man's esthetic nature as slander is a distortion of his ethical nature.

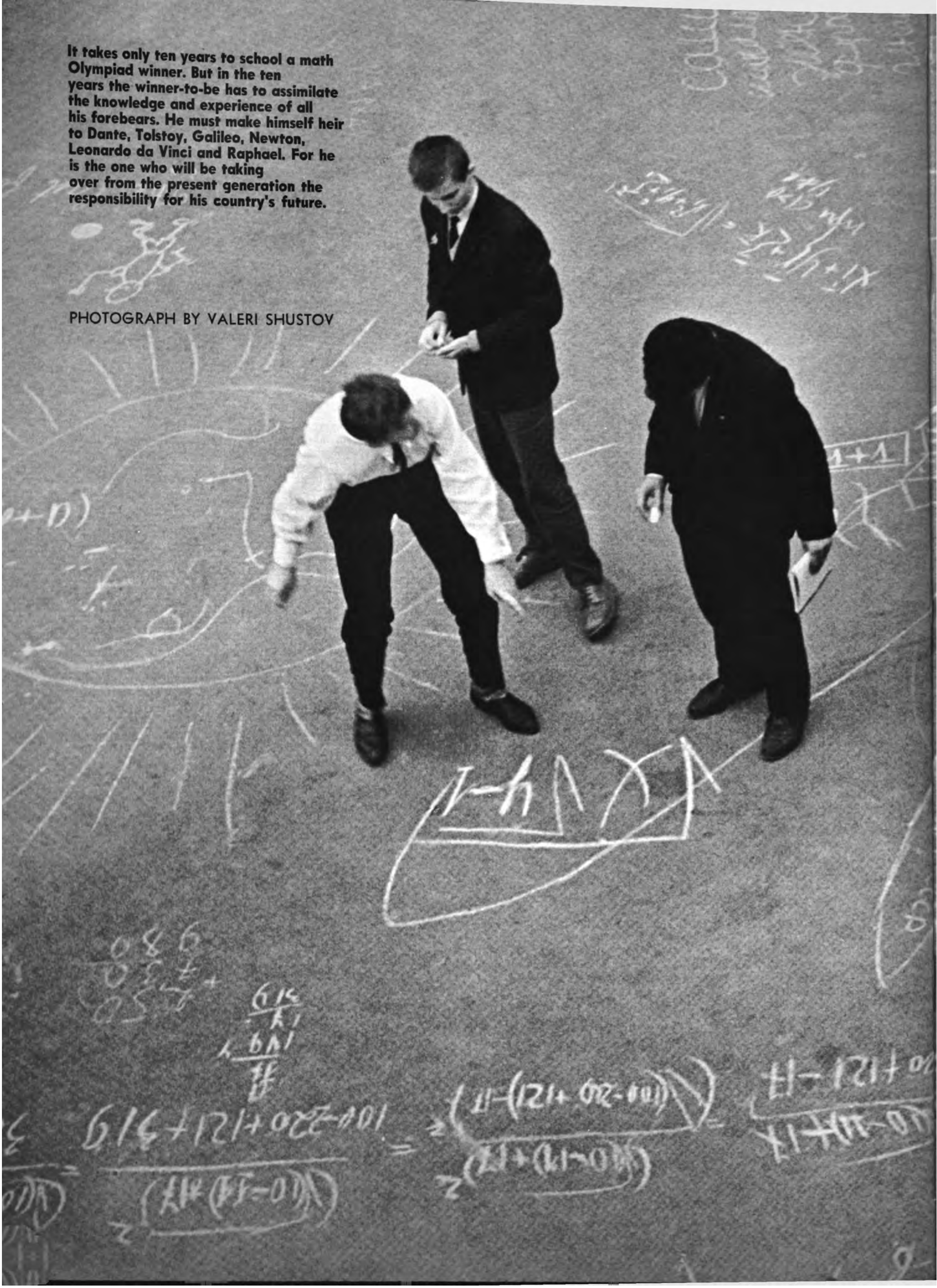
"Man knows what pleasures are," said Lobachevsky. "He seeks them out fastidiously and he refines them. But he also knows what it would be better not to know—he knows that he must die . . . Death is like an abyss that swallows everything, an abyss which cannot be filled; it is like an evil which can be included in no agreement, for it can be compared to nothing at all. But why should death be an evil? We live a single real moment; it is as if the past never existed and the future will be the same. When death arrives, it does not matter how long we have lived. Let us, then, prize life while it retains its dignity. Let historic example, genuine concepts of honor and patriotism, aroused in our youth, provide us in good time with the noble passions and the power to triumph over the horror of death."

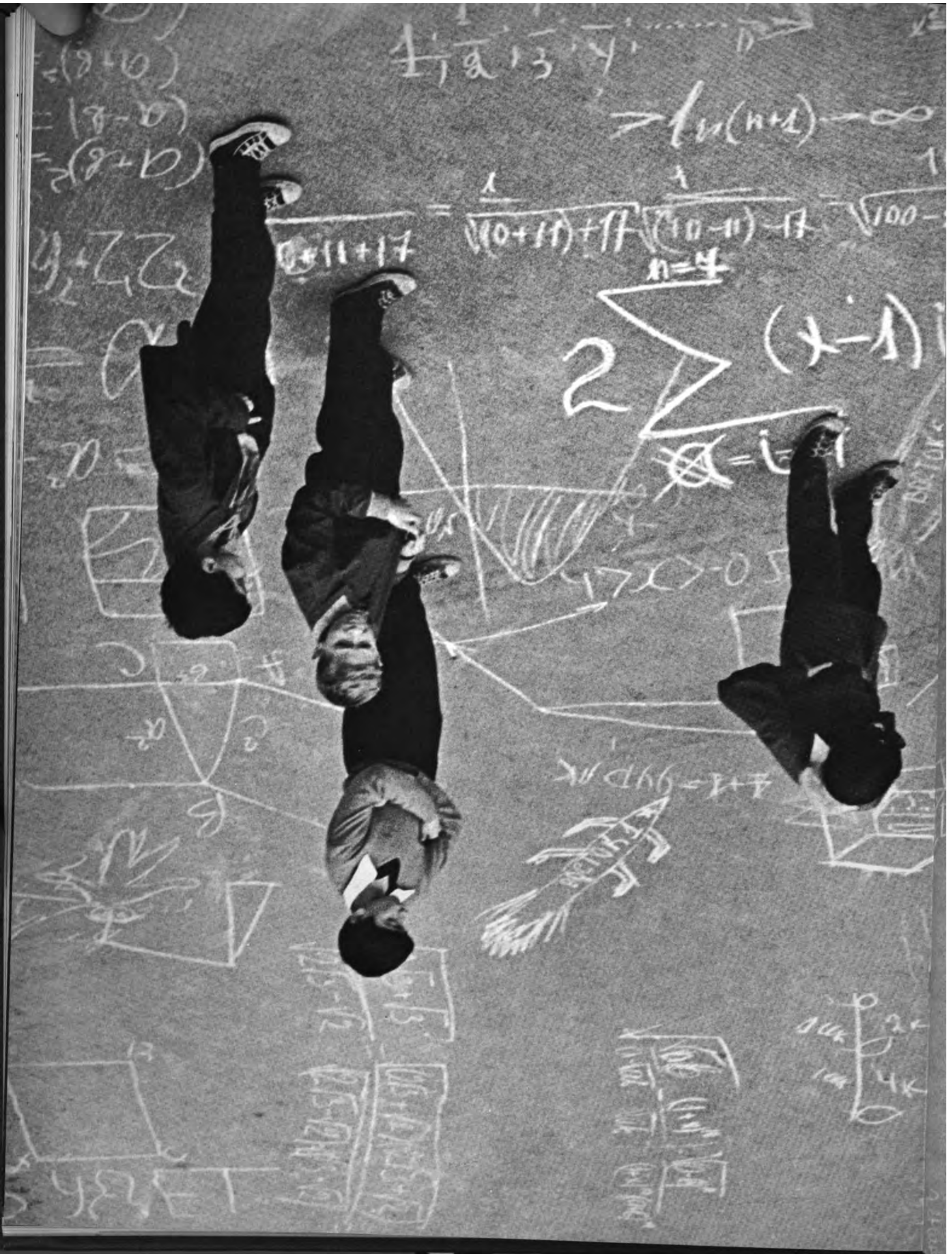
As I read these words by Lobachevsky, there came to my mind the strongest lines ever written by Gogol. Remember what he wrote in

(Continued on page 38)

It takes only ten years to school a math Olympiad winner. But in the ten years the winner-to-be has to assimilate the knowledge and experience of all his forebears. He must make himself heir to Dante, Tolstoy, Galileo, Newton, Leonardo da Vinci and Raphael. For he is the one who will be taking over from the present generation the responsibility for his country's future.

PHOTOGRAPH BY VALERI SHUSTOV





Ambassador Anatoli Dobrynin talks with Very Rev. Michael P. Walsh, S. J., President of Boston College, at the opening ceremony of the exhibit.

EXHIBITION: "EDUCATION-USSR"

An exhibition on the Soviet educational system is now touring the United States. It was shown in Boston from October 16 to November 15 and in Buffalo from November 27 to December 24. It will be in Columbus from January 2 through January 31.

Following is an article written by John Golenski, a student at Boston College, where the exhibit was shown.

PRIDE AND EXUBERANCE emerge as the theme of the first major exhibit of the Soviet educational system. It presents the various levels of Soviet education in exhibits of textbooks, handicrafts and educational tools.

The teaching methods of both systems, Soviet and American, are remarkably the same. Perhaps this is because teachers are remarkably the same, interested primarily in the development and intellectual advancement of the children under their tutelage.

There is an outstanding difference, however, which the exhibit demonstrates—the massive development which Soviet education has gone through since the Revolution of 1917. In the short span of 50 years, the USSR has been able to offer all its children the equivalent of primary school and by 1970 projects to educate all children to the secondary level.

The exhibit brings the spectator into the classrooms of the USSR and shows him how the child is encouraged from the beginning to develop his particular skills and talents.

Ambassador Anatoli Dobrynin remarked at the opening of "Education-USSR" that perhaps the educators of New England could "find something that might be of use here." The first impression an American has of Soviet education is the diligence and precision which has developed this excellent system from the minutest foundations in 1917. This, as well as the free tuition of all educational institutions, is worthy of imitation.

The exhibit also shows many of the emphases of Soviet education which are relatively unknown. The international orientation of many studies and the strong program of humanities are aspects which the Westerner does not hear about.

It is the scientist, however, who sets the tone of Soviet education. Experimentation founded in a solid desire to effect better methods is demonstrated in the exhibit.

Many features of "Education-USSR" aid the spectator to gain a first-hand knowledge and experience of the Soviet system. Thirty-two educators, journalists, artists and technicians are accompanying the exhibit to answer questions and give tours and explanations. There are daily films and lectures as well as audio-visual devices to add variety to the showing.

Besides the structuring according to educational levels, the exhibit presents numerous examples of the artistic craftsmanship and originality of the students of the USSR. Kindergarten drawings, high school handiwork and university-level architectural models make up the appealing arts section. Technology never takes second place, and the results of intensive training and interest are shown in the science section.

Throughout the exhibit there are statisics giving the impressive record of Soviet education. Teachers, students and the general public from the Boston area have been amazed and impressed by this beautiful demonstration of the Soviet system. Professor Ivan Ivanov, at the exhibit's opening, stated that the purpose of the showing is "to create an atmosphere conducive to better mutual understanding."

"Education-USSR" has opened up the world of Soviet education to American teachers and public, a world which is not so very different from that of any nation where importance is placed on the training, development and education of the young.

Guests Impressions

I am greatly impressed with the progress and accomplishments the Russian people have made in education in the last 50 years. Your rate of growth seems to be on the increase. Especially outstanding is the fact that education is free to all, in all grades. I am happy that I attended your very fine exhibit.

Andrew Sofreen

What a lot of work this represents! It certainly reflects credit on the Russian people. The world needs more of this type of exchange.

Mr. & Mrs. Ralph Dorom

I find this an interesting and well done exhibit. More of this kind of exchange is needed. I was especially impressed with the material on the nursery and kindergarten years.

Michelle Vield

Everything was interesting, and I liked machines that the children made and also that a first grader can write so well.

Sharol Alpert

Very interesting exhibit. Most interesting to talk with a teacher representing your country.

Virginia O'Neil

I think this exhibition is really wonderful. And I am sure that you could go through it many many times and not see it all. The toys are wonderful, and I am sure that many of your children are more talented. I could not really express how much I like it....

Jean Erickson

Facts and Figures on Education

Tuition is free from primary school through college. Three out of every four students receive state scholarship grants.

8.5 million children are cared for in nurseries and kindergartens.

Soviet general educational schools have a total attendance of 48 million. Forty-nine per cent of the study time is given to the humanities, 36.5 per cent to the natural sciences and mathematics, 7 per cent to work habits training and 7.5 per cent to physical training.

There are 3,179 music and art schools for children.

2.5 million teachers are on school faculties.

Children of all nationalities may be taught in their own tongue. At educational establishments instruction is given in 69 different Soviet languages.

On college and university faculties are some 220,000 professors and instructors, including 200 members and corresponding members of the USSR Academy of Sciences.

Extracurricular facilities include upwards of 3,500 Young Pioneer palaces and houses, 711 technical, hobby and young naturalist centers, some 3,180 music and art schools, etc.

In the 1966-67 academic year the USSR had 767 institutions of higher learning, with a student body of 4,122,500. Ever since the establishment of Soviet power, the higher schools have trained more than 6,800,000 specialists, and the specialized secondary education establishments some 10,900,000. Currently these institutions have a total student body of 8,100,000 of which 41.3 per cent are majoring in the humanities (this includes 24.2 per cent taking teacher training), 39.4 per cent are training to be engineers, 10.8 per cent to be agricultural experts, and 8.5 per cent to be medical specialists.

The higher schools have a total teaching staff of more than 220,000 professors and instructors.

63,000 men and women are doing graduate work in preparation for scientific careers.

30 million college texts are printed annually.

Women constitute nearly half the college student body. Women likewise constitute nearly half the country's employed specialists with a higher education.

Close to half a million students are active in student architectural and engineering design offices and student scientific societies.

Students live in inexpensive dormitories, receive medical assistance if required and are given free or special-discount accommodations at health and holiday homes. In addition clubs, theaters, sports grounds, health camps and many other facilities are provided.

Learning the three R's.

Social Debut

Creativity starts in the cradle. The idea is not to make international art contest winners out of these children. It is to teach them to use their hands and stretch their minds and have fun and satisfaction in the process. Painting is always the favorite for all age groups. So is clay modeling. Many of the older children take to needle work.

PHOTOGRAPHS BY LEV BORODULIN

Character building must be given priority in a preschool institution. Kindergarten program and methodology is built in that principle. You can correct spelling and improve handwriting in later years, but you can't afford to leave character to the grade school. Comradeship, cooperative living, love of nature and of animals must be instilled early.

Parents say that children are hardest to handle from three to seven. One English parent figured out that his young daughter asked him 1,549 questions in a single month, and tough ones: What happens if you make a hole through the earth? Why is a bull so strong if he eats only grass? How does a fish know where to swim? Think of the number of questions this kindergarten teacher must have to answer in a single month!

A factory of any size will usually have a nursery or kindergarten or both attached. Children are divided into age groups: juniors, intermediates and seniors, with activities to suit. The littlest ones go for the toys, the seniors prefer handwork. Some of their creations, like this doll and owl shown here, make proud school displays.

In the early twenties the bigger towns and the cities swarmed with homeless, orphaned children.

ANTON MAKARENKO,

RUSSIA IN 1920, three years after the Revolution, faced a difficult future. The First World War had taken millions of lives. Industry was exhausted, transportation uncertain, farming debilitated. The Civil War and foreign intervention which followed shortly thereafter wrecked the country's economy completely.

Thousands of orphaned and homeless children roamed the cities and towns, begging for food and sleeping in doorways, sheds and even on the streets. They were rounded up and placed in the newly founded children's homes.

In the autumn of 1920 the Poltava (Ukraine) Department of Public Education asked 32-year-old Anton Makarenko to set up a colony for juvenile delinquents. He was assigned a building four miles from Poltava that had been used for the same purpose before the Revolution. But by 1917 all the furnishings and equipment had been stolen and the building was falling apart.

The young schoolteacher faced a Herculean job. He had no equipment, few experienced assistants, and a colony of unruly young vagrants. To complicate matters, he did not propose to be a warden, he wanted to make "new people" of these delinquents.

How? Educational theory had no ready answer.

From the very start Makarenko refused to accept the idea that he was dealing with adolescent criminals; to him they were young people who needed reeducation. How he reeducated them is the theme of his novel *The Road to Life*, the story of the birth and evolution of the colony.

It is an account of his first clash with his charges; his angers, despairs and small victories. It describes the work the youngsters did; the slow growth of a team spirit; how relations were established with the local farmers; how the first work teams were formed with their own team leaders; how the young people came to appreciate the values of culture and learning. It is an absorbing narrative of the trials and tribulations, and of the inspired moments, in building a children's collective on new and untried, educational principles.

And all of it is true, confirmed by the biographies of hundreds of thieves and pickpockets who became doctors, engineers, agronomists, teachers and scientists. Their reminiscences reveal the humanity and wisdom of Makarenko's educational principles. The inventiveness of this kindly but most demanding of educators, his bold and ingenious answers to knotty human problems make fascinating reading.

On one occasion Makarenko called in a teenager named Semyon Karabanov, told him to go to town and collect 500 rubles due the colony. He gave the lad a note and a revolver that had been taken away from one of the other boys. Imagine the impression that made on Karabanov, who had been transferred from prison to the colony. He came back with every kopeck.

Some time later Makarenko asked him to pick up 2,000 rubles.

"Two thousand?" Karabanov asked incredulously. "Suppose I don't come back?"

"Don't talk nonsense!" Makarenko said sharply. "You have your assignment. Get going."

Karabanov came back with the money. "Count it," he said.

"But you counted it."

"You count it, I insist."

"That will do!" Makarenko dismissed him curtly.

Karabanov, all worked up, cried out, "You're making fun of me! It isn't possible that you trust me so much! You've got something up your sleeve!"

Makarenko told him to stop getting hysterical.

"You're going to the woods with me right now!"

"If you only knew," said Karabanov when he quieted down, "I rode along thinking, just let God send someone to try and rob me. I'll shoot him, I'll bite him, I'll tear him to pieces like a dog, but I won't give up the money. And you were wondering whether I'd come back with it, weren't you? You were taking a risk, weren't you?"

"Don't be an idiot, Semyon. There's always a risk with money. You can't carry money without running a risk. But I decided that if you were carrying it there would be less risk. You're young and strong and you ride well. You'd get away from bandits, but they'd easily catch me."

Semyon laughed happily. "What a crafty man you are!"

"I'm not crafty, just sensible. Now that you know the procedure I'll be sending you in for money from here on. Nothing crafty about it and nothing to be afraid of. You're as honest as I am. I always knew it."

That was the "honor system" Makarenko used. There was, of course, a decided risk, but it was not a blind risk. Makarenko saw Semyon's good instincts under the unsightly outer layer. He simply broke through to those buried instincts, gave them a chance to show themselves. And he did it by trusting the boy, who later became his chief assistant and today is a famous educator, head of a large children's institution.

Then there was the time the girls at the colony came to Makarenko to complain that Vasya Gud was using foul language. Makarenko called Vasya in, pounced on, "How dare you dirty the beautiful Russian language?" Then, dropping his voice ominously he said,

Everyone waited for terrible things to happen.

Without a word Makarenko marched him into the woods and stopped in a small clearing.

"Here!" he took off his wristwatch and handed it to Vasya.

"Use this to time yourself. It's twelve o'clock now. Sit down on that stump and don't dare to get up until six. And swear. This is no punishment. You like to swear. Go ahead, swear your head off. I'm giving you the chance to swear in peace." And he walked off.

When the rest of the colony heard what was

EDUCATOR

BY LEV LEVSHIN

going on,they doubled up with laughter. There was no swearing after that. If someone let a foul word drop, everybody around yelled in concert, "To the woods with you."

Makarenko had dozens of such tricks. Semyon Karabanov (his real name is Kalabalin) makes this comment: "He used to say that if there are a million misdemeanors,there should be two million different kinds of punishments. And he had two million. In 19 years of living and working with him I don't remember that he repeated himself once."

Makarenko's educational methods would not have won such wide recognition, however, if they had been merely ingenious or novel, and nothing more. His contribution is much larger; he built an educational system based on new and progressive principles.

What were these principles? Working with adolescents who had been torn away from family and school, shut out of normal social relationships, Makarenko established an important truth—that the absence of social relationships distorts the child's personality development. Reconstruct these relationships and you correct his development. Consequently, to educate is to see that the adolescent forms the right relationships with society. "Since the relationship is the real objective of our educational work," said Makarenko, "we must always have a two-fold objective—the individual and society."

Society for the child is represented by his teachers, parents and the adults around him. A child's conduct is, in the final analysis, an answer to our attitudes toward him. We ourselves lay the foundation of the relationships that shape the child as an individual, as a human being.

What should the foundation be? Makarenko answers, "The greatest possible demands made on him and the greatest possible respect shown him." Demands and respect, both are essential to the relations between people in the new society.

In old Russia respect was enjoyed only by those who had power and wealth. Demands were made only on those who had neither power nor wealth. The new society makes real equality and comradeship possible. What do we demand of a person? The very best he has to offer: intelligence, kindness, industry, integrity, comradeship, culture. For these qualities, and only for these, we owe him respect. That is why there is no separating the demands we make on the individual from the respect we pay him. This new social principle is also a principle of education.

Some systems of education are concerned only with getting the child to respond to demands, disregarding his total personality in the process. Contrariwise, the theory of "free education" says, the individuality of the child and his freedom comes first. There is no unity of demands and respect possible here, since if we respect the child as an individual we have no right to make demands on him. The product of this kind of permissive education is a person whose world revolves completely around himself.

Makarenko rejected both extremes. He insisted that education was a two-way process in which adults and children participate, a joint activity. The problem, he said, was to find a way of organically combining for the child "the right to joy and the duty of responsibility." Educators who think joy and responsibility are mutually exclusive trip over that principle. What matters is to make the child's joy responsible and morally significant, and his responsibility a pleasure and a source of pride.

Makarenko solves this problem with his theory of "perspectives," of "future joy."

Joy is a vital need, common to all men. There are all kinds of joy. There is the direct joy that comes from playing, from eating tasty food, from bodily warmth, from affection, the joy that art gives. And then there is the other kind of joy, a very special kind, that evokes a tremendous upsurge of creativity and lifts man above all other creatures: the joy of having a goal and moving towards it, "future joy."

"To educate a man," says Makarenko, "means to make him see his perspectives, the directions that will lead to this 'future joy.' A whole methods manual could be written around this definition. It includes the development of new perspectives, the utilization of those already developed, the gradual preparation for more productive perspectives."

The theory of "future joy" is very much in keeping with the nature of the child as a growing and developing human being. It provides the key to his education.

His joy is the first indication that the child is actively participating in the educational process. No joy and the process is like an idling wheel. With a definition of "future" in mind, the educator must analyze the child's joy. Is it only "present" joy, or has it been produced by creative enthusiasm, an exertion of the will, the excitement of working toward a goal? Education converts the first kind of

Amateur theater company of Anton Makarenko's Children's Collective poses after a performance.

joy into the second. "Here," Makarenko remarked, "we have an interesting line from primitive satisfaction straight to the deepest sense of duty."

How is such a line of ascent achieved? Makarenko's answer is his theory of the children's collective.

Man is educated by society. But a child is not yet able to develop a multilateral relationship with society. Yet he needs such a relationship if he is to grow into a fully rounded individual. The contradiction is resolved by having the child become a member of a children's collective, the "educational model" of society. The children's collective reproduces many of the social relationships of the adult world. It continually involves the child, directs his personal inclinations and desires into social channels.

The study, creative and work activities of the children's collective relate it to society and make it a small but very real social force. The child feels he is taking part in the national effort. But the children's collective educates only when its activities move toward a definite goal, when everything it does has a sense of "future joy."

The idea of educating the child in the collective and through the collective was advanced by Nadezhda Krupskaya, Lenin's wife, and other Soviet educators in the early years after the Revolution. Makarenko developed the idea and made it a principle of the children's collective. He worked out the structure of the collective, its educational methods, and its relations with the child and with other collectives. Makarenko made major contributions to work education, esthetic education, the training values of discipline, the use of rewards and punishment, and the building of traditions. He deals with these matters in his *Book for Parents*, a fictionalized treatment of educational methods.

Today Makarenko is considered a classic of Soviet education. His ideas continue to be developed, particularly those relating to the "individual and the collective." Essentially, he sees the collective as the medium through which the individual is educated. Some educators, however, emphasize the organization of the collective at the expense of the more difficult but very productive sphere of child-collective relations. This has hindered efforts to educate the complete human being, one of our major goals in building the new society.

Makarenko discards both these competitive approaches to the teaching process: the first reduces teaching to the passive assimilation by the child of a prepared body of knowledge presented by the teacher. The second does just the opposite, it assigns a secondary role to the teacher and makes the independent accumulation of experience by the pupil the decisive factor. Real teaching, says Makarenko, is the organic fusion of the knowledge given by the teacher and the maximum development of the independence and individual experience of the child. Our educators are doing considerable research and experimentation along these lines.

The collective, said Makarenko, brings children into diverse relationships with one another, thereby greatly stimulating personality development. Why not develop these active, creative relationships in the teaching process as well? Why cannot children learn from one another, do scientific experiments together, supplement and correct one another's observations and ideas, hold discussions among themselves, acquire knowledge collectively? And why cannot adults have active intellectual exchanges with children? We are also experimenting with this type of mutual instruction, with parents involved.

Researchers are now paying particular attention to the problems of "educational logic" that Makarenko was working on in the last years of his life. He was looking for a comprehensive scientific method. Death interrupted this work, but his many educational inventions and discoveries point the way to such a scientific method.

Makarenko (right) with some of his charges. The radical methods he used so successfully in his colony are now basic principles of Soviet education.

LETTERS TO THE EDITOR

Dear Sir:

The closest to the Soviet Union I ever came was at your Pavilion at EXPO-67 in Montreal. Nearly two full days were spent viewing your exhibit and movies. My reaction, and I know by studying others' reactions, that one can only stand mutely and admire the giant step forward in the lives of all Soviet people and their achievements. For when one considers that nearly a half of the 50 years of Soviet power had to be spent on wars to defend the homeland from those who would destroy it, and reconstruction, one can only admire the work of your people. . . .

I wish I could express my thanks to all your people for what their work has done to make needed changes, not only in their land, but in much of the rest of the world. Many others in power were forced to better living conditions, give their workers paid vacations, hospital care for the aged, to name only two, such as they are, none were attained without the Russian Revolution. . . .

Sincerely,
J. H.
Stevensville, Michigan

Dear Sirs:

I'm presently a student of Russian at St. Vincent College in Latrobe, Pa. While reading some back issues of your magazine SOVIET LIFE, I came across, in the October 1966 issue, a photo that deeply moved me. The picture was credited to Victor Kinelovsky and was printed on pages 60-61. . . .

I was wondering if it would be at all possible for me to obtain in some way a reprint of that photo. I would sincerely appreciate hearing from you concerning this matter. . . .

J.M.S.

The photo in question is that of a Nazi soldier sitting on a crushed howitzer and entitled "The End".

Incidentally, from time to time we get requests from readers for copies of photographs which have appeared in the magazine. Inasmuch as we have only one copy of each photo on hand, we are unable to comply with these requests and accordingly suggest they write directly to:

Department of Photography,
Novosti Press Agency
2 Pushkin Square
Moscow, USSR

Editor

We wish all our readers Merry Christmas and Happy New Year.

We thank everyone who sent us New Year Greetings.

WHAT'S MY LINE?

By Nariman Aitov

Master of Science (Philosophy)

FIFTY YEARS ago, before the October 1917 Revolution, there was no problem of choosing a trade or profession because there was no choice. The son of a peasant would automatically become a peasant. From childhood he would see his father plowing and harvesting, work with him when he grew older, and inherit when his father died. If the patch of land did not suffice to feed the family he would go to town and take the first job that came his way, even if it paid only enough to keep body and soul together. And if he did have the choice of a factory trade, which was rare, he always chose the one that paid more. As for the sons and daughters of factory workers, they learned the same trades as their parents; they could not hope to aspire to anything better.

Soviet power changed all that. One of the by-products of industrialization was a great population shift. The cultural revolution made literacy universal. Hundreds of fields opened up and living standards rose.

Last year sociologists polled 3,200 factory and office workers over 31 years of age in the Urals cities of Ufa and Orenburg. The results showed that only 65 per cent of the children of factory workers followed factory trades; the remainder either became professionals (23 per cent) or sales clerks, bookkeepers, cashiers, typists, secretaries, militiamen, etc. By contrast 30 per cent of the children of office workers and professionals went into factory trades. More than half the children of collective farmers moved to the cities to become factory and office workers. This would indicate first, that from a third to a half of the young people change their status and, second, that more than three quarters choose occupations different from their parents'.

Socialism gives people the chance to change their occupational status, the complete freedom to prepare for and work at the occupation of their choice, certainly one of the great social achievements of our time. But this raises certain problems—which occupation is one to choose, which is one best suited to, which is one most inclined to?

Now if living standards were low and young people could get no more than a few years of schooling, a choice would be simple, the pay would be decisive. But the higher the living standards, the more do other factors tend to influence occupational choices. Educated people have intellectual needs, a job must do more than provide a living, it must be interesting. Students of labor mobility note that low-skilled workers look for better paid jobs, highly skilled people look for more interesting jobs, even if the pay is less.

But the teenager is not equipped to decide which occupation is going to interest him.

Last spring more than 1,000 rural and urban boys and girls in the autonomous republic of Bashkiria were asked to write a graduation composition on the subject "The Occupation I Would Choose and What I Know About It." They listed 55 professions and trades, with 90 per cent saying they wanted to become professional and office workers, seven per cent, factory workers and three per cent, sales clerks or the like.

Currently our professional and office workers account for 12 to 13 per cent of all the gainfully employed. The need for these types of workers is expected to stay at approximately the present level for the next 10 years. Yet here we see that nine of every 10 graduates aspire to these jobs. A sensible choice of career assumes that one knows the possibilities. We asked professional people—doctors, schoolteachers, engineers—those whose professions were listed in the compositions, to indicate how much the teenagers knew about the professions of their choice, a "four" to signify a fairly good knowledge, a "three" a general idea, a "two" a very hazy idea and a "one" no idea at all. The average proved to be 2.5, somewhere between "a very hazy idea" and "a general idea." The average for the mental occupations was 2.6 and for the manual occupations 2.3. That is understandable. Every child knows more or less what the doctor and the teacher, whom he sees rather often, do. He also knows that a pilot flies an airplane, a physicist experiments with reactors, a detective unravels mysteries and a journalist writes. In a nutshell, the teenager has a fairly good idea of professions and trades he either meets up with himself or reads about. But what does the joiner, whom many people confuse with carpenter, do? The average was 2.2, not much more than "a very hazy idea." Most graduates know only that a joiner makes things out of wood. Or that a turner—the average was also 2.2—operates a lathe. It is something of a paradox for graduates in Bashkiria, with its many oilfields, to average only 2.3 in their knowledge of the oilman's trade. Some of those who listed oilman as their favored trade knew that he extracted oil, nothing more.

There is a widespread notion that if an individual chooses the vocation he has been dreaming about from childhood his problems are over. But a study of these compositions forces us to the conclusion that these childhood dreamers know very little, if anything at all about the career they want to embark on! The notion is also current that an individual who is not able to pursue the occupation of his early dreams will be badly frustrated. That would seem to be much exaggerated, considering how little information and therefore serious thought there is to back most of these dream-choices. The greater likelihood is that the person who realizes his dream and then finds out that the work in fact is different from the vague conception he had, would be even more frustrated. A comic Finnish song says, "If your fiance jilts you for another man, it's hard to say who's the luckier of the two."

Teenagers live in a controlled school environment, their picture of life is theoretical, idealized. Their small world has its own people (teachers and schoolmates), its own pursuits, its own rules and its own interests. As for other "worlds," the schoolboy gets his notions of them from grown-ups and books, the movies and television, not from personal experience. Of course, all these sources of information do reflect reality in one way or another. But how faithful is the reflection?

We analyzed the occupations of the central characters of 100 novels and 100 motion pictures—a random selection—about postwar Soviet life. We found that 61 per cent of the main characters in the movies and 65 per cent of the main characters in the novels were scientists, doctors, detectives, actors, writers, party workers or school teachers. (Incidentally the teacher in most cases was the villain of the piece.) The effect is to give young people the idea that only the intellectual does interesting work and leads an interesting life, that the life and work of factory workers, collective farmers and sales clerk are plain monotony. That idea is accentuated by the very spirit of our age of scientific and technical revolution, symbolized by the physicist and rocket engineer. That idea is further buttressed by the fact that the secondary school curriculum seems to be designed wholly to prepare people for college entrance, although 70 to 80 per cent of our graduates go to work.

That the glamorizing of certain occupations in books and movies

has its influence on the teenager is illustrated by a comparison of graduates' fancies about a future career and what their parents want.

Teenagers' choices (in per cent on basis of the 1,000 compositions written)	doctor	teacher	engineer	geologist	chemist	flyer
	19.2	17.3	9.9	9.0	7.3	6.6
Parents' choices (in per cent on basis of the 3,200 people over age 31 polled)	**engineer**	**doctor**	**army officer**	**teacher**	**scientist**	**writer or artist**
	43.1	9.8	8.1	7.3	6.8	5.0

There is a signal difference between what parents and children want. Both like the idea of professional work, but the prestige the different professions enjoy varies. Parents know life better and so, nearly half of them think an engineer's career best for their children. The children prefer the occupations they think glamorous. Parents evidently think pay an important consideration and moreover, out of the wisdom of their experience, are interested in the working conditions—which is why they put flyer and geologist at the bottom of the list.

One cannot make a sensible choice without knowing something about the occupation, we say. But does this mean the right occupation is to be found by pure trial and error? Because that is what happens time and again. For instance, a young man dreams of a doctor's career. He does not pass his college entrance exams and learns the fitter's trade. He doesn't like that and learns how to operate a milling machine. He doesn't like that and starts driving a truck. Then he finally takes a wireless operator's job which he does like. What of it? you say. But this is a process that wastes years of training, retraining and more training; time, energy and money gone down the drain. In Ufa alone, we lose several million rubles worth of goods unproduced every year as a result of job-changing. The country loses 3 billion rubles. Personnel under the age of 30 comprise 56 per cent of all factory workers in Ufa, and 73 per cent of all job quitters have a work total of less than two years. The hit-and-miss method of choosing an occupation is expensive for both the state and the individual.

That way, one may miss one's calling altogether, considering there are thousands of occupations and only 40 to 45 years to try them all. In that plight one feels absolutely frustrated, takes the first job at hand and becomes an indifferent "journeyman."

Career choosing should be scientifically grounded. Every schoolboy must be able to get information on every trade and profession. This means that books and articles need to be written and radio and television talks given by people in the various trades and professions. Second, each schoolboy must know his job capacities and limitations, mental and manual. A good deal is being done along these lines. We have career-advising groups helping young people. Psychologists, physicians and teachers discuss the student's future with his parents. The student is interviewed and is given a thorough medical and psychological check-up. All this helps him to make a choice. Because when all is said and done it is a choice he himself must make. One career-advising problem of the Soviet school is to provide the teenager with a gauge with which he can size up both his strong and weak points. Another is to guide occupation choosing so that it meets the country's manpower needs. A considerable volume of experience has already been accumulated; the more it is disseminated the less hazy will be the teenager's notion of the occupations he can choose from.

Courtesy of Znaniye—Sila

THE SECRET OF ETERNAL YOUTH

(Continued from page 27)

Dead Souls: "All this can happen to a man. The ardent youth of today would start back in horror if you could show him his portrait in old age. As you pass from the soft years of youth into harsh, hardening manhood, be sure you take with you on the way all the humane emotions, do not leave them on the road! You will not pick them up again afterwards! Old age is before you, threatening and terrible, and it will give you nothing back again!"

As you see, the great scientist and the great writer had the same thing to say about the creative attitude toward life that conquers death itself.

Probably, every creative work done by a human being has a kind of cognition, a kind of beauty. There is an element of cognition in the very uniqueness of the emotional content of every work of art. We learn something new about man and the world, something which we can learn from nothing else than that particular work of art. That is why as Pushkin said, it is impossible to describe Raphael's *Madonna* in words.

On the other hand, no scientific work (including mathematical) can be stripped of esthetic emotion. It demands at some moment that complete tension of all the intellectual, volitional and emotional powers which the poets call inspiration. This inspiration is a vital element in the cognition of mathematical truth, when, suddenly, after long and fruitless efforts a curtain rises and the horizon opens up. In mathematics, as the experience of all those seriously engaged in it shows (just as in all the other sciences, most likely), the cognitional criterion is inseparable from the pleasure one suddenly experiences in revealing the beauty of a law finally cognized.

A creative perception of the world and one's own life is not only accessible, but characteristic of every man in his adolescence. That distinguished representative of medical psychology, Ernst Kretschmer, says that every person between 16 and 25 and even older, is potentially gifted. The job of the teacher is to develop that potential.

I cannot do better than cite Lobachevsky's inspiring words; they are a hymn to the student years: "You are now entering the world. The novelty and variety of impressions leave no room for meditation. But the time will come when upon the sheen of the present will suddenly appear the enchanting dimness of the past, like worn carving on bright gold, like reflected objects in a dim mirror, and then the years of education, the years of carefree youth with all its innocent pleasures will rise in your memory as the image of perfect happiness lost forever, and you will see your comrade, with whom you studied together, as someone near and dear; then in talking about your youth you will mention the names of your mentors with gratitude and remember how much good they wished you, and with thanksgiving you will promise one another to follow their examples . . .

"Examples are better teachers than lectures and books. You, students of this institution, you have yourselves followed examples. You will learn, and the experience of the world will convince you even more, that it is the feeling of love alone, love for one's near and dear ones, love disinterested and unbiased, the genuine desire to help you that obligates us to enlighten your minds, to cultivate in you a desire for glory, sentiments of nobility, justice and honor, that austere inviolable honesty which can withstand the tempting examples of abuse that are safe from punishment."

To be able to say this to students, one must fulfill one's obligation to them. That obligation requires more than teaching: it requires cultivating in our students all those qualities Lobachevsky mentioned. We must contribute our share to the joyful period of man's flowering by working together with you.

A great French writer described the student years as "that eternal spring whose name is twenty." Teaching is a happy calling. It knows the secret of eternal youth. One generation replaces another, but we always see young and happy faces around us.

It is our duty to do more than train specialists. It is with living young people, living human souls that we must concern ourselves, use our best abilities, all our hearts. We must raise them so they take along the human emotions Gogol spoke about. We must make these emotions so much a part of their very beings that they cannot possibly be dropped carelessly on the roads of life!

At the Moscow Vocational Training School No. 1

VOCATIONAL AND TECHNICAL SCHOOLS

APPRENTICESHIP on the job was the way prerevolutionary Russia trained most of its skilled workers. The teenager was regarded as cheap labor.

After the October 1917 Revolution, the Soviet Government legislated a six-hour day, a one month vacation, and a minimum wage for juvenile workers. Special safety and health standards were established. A 1918 decree required factory and office workers between the ages of 15 and 17 to go to school two hours daily, six times a week. In the early 1920s factory training schools were set up. They gave both practical training and a general education.

The factory school course of study was four years, sometimes three. By 1923-1924 about 70 per cent of the apprentices were studying in these schools. As a rule, they required seven years of schooling but for a time admitted those with less (a minimum of four years).

During the first and second five-year plan periods these schools prepared about 2,000,000 young skilled workers. But every factory trained workers to meet its own needs, without any consideration for the economy as a whole. A countrywide system was obviously required. In 1940, while keeping a number of the factory training schools going, a system of vocational schools (for the more skilled trades) and industrial training schools (for the more common trades) was organized. The system was designed to train 1,000,000 young workers annually.

Tuition in the vocational and industrial training schools was free; the state provided students with food, clothing and textbooks and, in case of need, hostel accommodations. In 1954, special schools were organized to train secondary school graduates for highly skilled and junior technical jobs.

At present, both urban and rural areas have uniform vocational schools. They accept youngsters from 15 to 16 who have had eight years of schooling. Students are fully maintained by the state or get a stipend. The course of study varies from one to three years in urban schools and from one to two years in rural schools.

Urban vocational schools are specialized, they train for specific trades in industry, construction, transport, communications, public utilities, trade, and the cultural and service areas. Rural vocational schools train farm machine operators, tractor drivers, electricians, farm machinery mechanics, builders, etc.

* * *

Prior to the Revolution, the secondary schools graduated very few technicians. The large factories and plants were staffed predominantly by foreign technicians.

A system of technical and other specialized secondary schools was developed in Soviet times. They require eight years of schooling as a prerequisite and a competitive examination. The age limits are from 14 to 30, except for evening and correspondence schools which have no age limits. The course of study in day technical schools is four years and in evening and correspondence schools five years. Students get a stipend.

Secondary school graduates who enter technical schools are enrolled in special groups and their courses of study run from 1.5 to 2.5 years (a year longer for those who study evenings or by correspondence).

The academic year in technical and other specialized secondary schools begins on September 1 and ends on June 30. There is a summer holiday of two months. All graduates of technical and other specialized secondary schools are given jobs in their specialty. They may go on to college and university.

TOMORROW'S ADULTS

"It would be a good idea for a child to write a book for adults, considering that every adult writes for children."

The comment was made by G. C. Lichtenberg, eighteenth century German thinker, but it might have been made today.

The twentieth century is not yet over but it has been crowded with events, more than most centuries that preceded it. It has brought Russia three revolutions, two world wars, a civil war, collectivization and industrialization, the building of communism, and space exploration.

Our chidren inevitably carry the mark of this century of technological and social progress, of great wars and revolutions. But the children of the sixties are already somewhat different from those of the fifties. The present ten-and-twelve-year-olds belong to the third generation molded by the Soviet years. Their parents and even their grandparents have lived all their lives under socialism.

There are values, however, that have to be handed down from generation to generation, such eternal values as respect for one's parents, love of one's native land, a sense of responsibility for the community of which one is a part.

How much of these basic values do we discard for illusory new values, poets and novelists ask. How is the child to find his bearings in this more complex world? Where must we direct our efforts to educate the well-rounded man?

TRUE VALUES

By Victor Rozov
Playwright

OF THE INNUMERABLE problems that bear on education I want to select one I think is most important—the attitude to things, in both the broad and narrow sense.

The modern young man's desire to possess things is much too great, unfortunately, and it begins far too early. He wants skates, skis, a camera, a bicycle—things—but not what is essential. He wants what is popular and unnecessary, even superfluous.

The possession of expensive and fashionable things, luxury items, is justified only when they are a by-product of their owner's efforts in quite another direction. Take a young man who is engrossed in mathematics. It is his passion, his vocation, the creative meaning of his life. He wins recognition in his field and is well paid for his work. When he surrounds himself with costly things he is not being vulgar, because they are not the important things in his life. But when a young man devotes all his mental, spiritual and even physical energy to the acquisition of fashionable shirts and shoes and expensive transistor sets and record players because they are status symbols you may be sure he will never make a first-rate scientist, at best he will be a hanger-on in his field. He will never know the great joys of knowledge and discovery, having exchanged them for the petty, hollow, worldly pleasures in which people so often drown themselves.

It makes me sad and sorry to see a young person struggle to acquire things he does not need. Young people should be taught from childhood not to attach too much importance to things. It is better for them and for the society they live in.

Everyone should have the good things of life. But the pursuit of these good things must not become the meaning of life. That is wasteful and degrading.

Like the rest of us I have enormous admiration for the technical marvels of our age. But, blasphemous as this may sound, I do not believe landing a man on the Moon, Mars or Venus will by itself make people happier. Man's loftiest aspirations are social, spiritual, ethical and aesthetic. To love, be a friend, be loyal, to know how to suppress one's selfish and malicious inclinations, to know how to bring people joy through your actions, even to say a kind word at the right time, to establish a human relationship—those are the real values.

I am 54. For 36 years of my life I was poor, sometimes very poor, but most of the time I was happy. I studied, loved, made friends, learned about the world. And no matter whether the sky in the morning was clear or cloudy, it was always beautiful to me, it made me happy. People used to say, "It's a poor sort of life you're leading." I laughed. "Money doesn't matter," I told them. They shook their heads sadly. "You say that because you haven't any."

The latter part of my life has been prosperous. But I still value most the things I valued before. The only thing I have come to appreciate more is good health, perhaps because it is gone. But now when I say, "Money doesn't matter," people shake their heads and tell me, "You say that because you have it."

Perhaps I ought to say nothing, so that I don't sound like a hypocrite. But I still believe it is true.

THE CHILD AND HIS TIME

By Ivan Yefremov
Professor of Paleontology, Science Fiction Writer

IN EVERY AGE the problems of the "Child and His Time" and "Children: Present and Future" acquire new meaning. Science and technology have given us power. We have made tremendous advances technically. But morally, from the viewpoint of social education, we have not yet risen to the level of the new demands. Our complex technological civilization makes moral education more urgent than ever.

Our colossal achievements may turn into a curse if we do not learn how to use them. Nor have we yet come to terms with the nervous tension the new age requires of us. In our complex modern production the slightest mistake can throw a whole chain out of gear with catastrophic results. Modern life requires the closest attention, the most complete concentration. Take the streets of a big ciy as an example. Civilization will become more complex and the demands on us will continue to grow.

Are we prepared for this, intellectually and psychologically? No. And this is especially true of children. It is impossible today, as it once was, to keep everything we need to know in our heads. Eighteen thousand novels come off the world's presses every year, 240,000 chemistry papers are published annually. Unless we teach our children to select what is important they will be swept away by this flood of unsystematized information.

Our job is to teach the adolescent to orient himself in this ocean of information so he knows what to select and to use. Today's educational system, a product of the nineteenth century, fails in many respects to help man acquire the enormous volume of knowledge he needs. Secondary schools must be designed along the lines of schools of higher learning and not vice versa, the way they are today, when colleges and universities resemble secondary schools.

I agree with Harlow Shapley, the American scientist, who thinks that the system of secondary education should be shifted from the vertical to the horizontal. The student should be given a wide spectrum of knowledge—the essentials of history and technology, the basic laws of physics, chemistry and biology and their practical applications.

He should not have to memorize a zoological system but should be shown, for example, a general scheme of the development of the animal world. Secondary schooling should be in breadth.

Literature is of the greatest importance in character building. My interest in paleontology, which I have retained all my life, started with a cheap little book. All that I am I owe to books; my imagination, my desire for knowledge, the people I patterned myself on—they have all come from my reading.

We try to give our children an education. But we do little to teach them to think of others. Unless a man thinks of others he will inevitably do them harm. We do not permit carelessness in the preparation of sophisticated chemical substances or in work with nuclear reactors. Human relationships call for even greater care. We have it in our power to educate the child to be a truly modern man, a visionary and a builder of the future.

PROTRACTED CHILDHOOD

By Alexander Kitaigorodsky
Doctor of Science (Physics and Mathematics)

THE "SOCIETY of the young" has concerned adults of all centuries and generations. This "society" has differed through the ages, but it has always demanded attention. Our children are unlike their coevals in the past. They are separated from them by time, historical events and the march of progress.

Take Stendhal. Although his characters were young, they attacked life with courage and independence. Here in Russia, at the time of the Revolution, the Civil War and the Great Patriotic War, boys of 15 and 16 were old enough to contribute to the common cause.

Our society is based on kindness, sympathy and concern for others. Here lies its strength. But are we not making things too easy for our children? And do we not keep them children far too long, surrounding them with solicitude when we should be making demands on them?

At the age of 16 I was teaching school. I was adult, I knew what I could do and what I wanted to do. Nor was I the only one. We grew up at a time when adolescents matured early. Today's children are childish in all ways—in their attitude to life, to people, to their responsibilities, even to themselves. I sense this at gatherings of children when I talk to them and listen to their debates and arguments.

The delay in their growth, it seems to me, is due to inadequacies in their schooling.

Parents and teachers often have distorted ideas of how to raise children. It is easier with small ones—feed them and send them out to play. But what is the right way to guide the development of the teenager? How do you go about arousing his desire to do what is kind and good?

We are all selfish, more or less. We keep repeating that selfishness is a bad character trait. Nevertheless, if we teach the teenager to do good by appealing to his personal interests he will undoubtedly respond faster than if we call on him for self-sacrifice.

Naturalists have the most sensible approach to life, I believe. It always works. There is nothing you can do about the way nature behaves; you cannot make an electron move any differently. In the final analysis, the scientist adapts his instruments to the electron. The naturalist is not passive in the face of nature. On the contrary, all his activity is directed to overcoming the resistance of nature, to fighting its "secrecy." The researcher must always take reality into account, he must proceed from reality. Otherwise he will make no progress.

Physicists, mathematicians and naturalists gradually come to adopt the same attitude to everything else around them, and that puts a definite stamp on their relationships with people.

Scientists do not moralize. They are less frequently disappointed and are rarely discouraged by mistakes and failures. I am not proposing that all our children be educated as natural scientists. What they are going to be is something they must decide for themselves. What I am proposing is that they be taught a serious and mature attitude to life.

THE CONSTANCY OF HUMAN NATURE

By Alexei Markushevich
Vice President, Academy of Pedagogical Science of the USSR

SAMUEL KRAMER, American historian of the Ancient East, quotes in his *History Begins at Sumer* (the book was recently published in Russian) a father complaining about his son. Instead of working and studying,the good for nothing hangs around the streets eyeing the girls and, when he grows into a husky, broad-shouldered, arrogant young man, spends his days and nights in search of pleasure.

It sounds very much like a letter our youth newspaper *Komsomolskaya Pravda* might have received from a despairing pensioner. Actually, it is a translation of a cuneiform text inscribed on clay tablets about 3,700 years ago.

You may be sure there has not been one generation since that has not accused its younger generation of idling and dissipation and that has not recalled its own youth as a time when every virtue flourished. This constancy in human nature gives me comfort. We really feel that we have a right to the great cultural heritage created over the course of thousands of years when we realize that we have inherited everything from our forefathers, including their weaknesses. I realize this, and so I no longer doubt that our younger generation as a whole is no worse than their fathers and grandfathers despite all the grumbling.

This does not mean, of course, that I think we can close our eyes to the many deficiencies in education. But we should not let a few twisted trees hide the forest of fresh young saplings. Nor do I want to repeat Ecclesiastes' dreary refrain: "That which is done is that which shall be done, and there is no new thing under the sun." The constancy of human nature, at least throughout the historical period of mankind's development, to me signifies only this: that if a child born in ancient Rome or Babylon were by a miracle transported to our age and lived under the same conditions as our children, he would grow and develop in much the same way they do.

The late French mathematician Emil Borel made an interesting comparison between mathematical concepts and plants and animals. He compared, for example, "domesticated" horses, cows, wheat and grapes, which have worked for man for a long time, to multinominals, trigonometric functions and logarithms. Stretching the comparison, one might say that while the number of domesticated creatures has increased very slowly, the range of scientific concepts that were once beyond man and now are known is expanding rapidly.

Yes, it is true that scientific ideas are constantly being "domesticated." And this is where I hear cries of "That's the real reason why schoolchildren are overburdened." But is that really so? Actually, the problem is much more complicated. In his memoirs, our well-known naval architect Alexei Krylov describes the private school in Marseilles he attended as a child of nine in the seventies of the last century. There was no question of teaching innovations, the children were taught only French, geography, arithmetic and bookkeeping. Yet they studied 11 hours a day. That was because they had to learn by heart much that we think is of minor importance.

We could conclude that the volume of academic work and its emphasis are not directly related to the increasing demands for higher educational standards. On the contrary, that as the gap between teaching methods and modern knowledge narrows study will become easier and more interesting. The point is that when the student grasps general ideas, principles and laws he is able to relate a great many scattered facts and details, put them in a single frame of reference, evaluate them. He does not have to remember them as isolated facts and details.

Of course I agree with Ivan Yefremov that it is impossible nowadays to keep all the necessary information in your head. But I do not go along with him when, echoing Shapley, he wants education shifted "from the vertical to the horizontal," teaching "in breadth."

I grant that the author has something positive in mind, but it seems to me there is a danger that the "breadth" will be at the expense of deep and thorough knowledge. Is he proposing that study material no longer be grouped into separate subjects, which in the main represent corresponding fields of science?

I am against blank partitions between areas of knowledge. I want all areas to contribute to molding a man of culture with an integral outlook on life. But I am certain this cannot be done without scientific method. And that presupposes a specific methodology and the division of material by subjects.

A few words in response to my respected colleague Alexander Kitaigorodsky. In the main I disagree with him. I feel that his carping at the young generation for prolonged childhood has no basis in fact, nor has his advice about education through selfishness. This last idea does not help us to solve our big and most difficult problem: how to fuse the personal with the social, how to teach young people to take pleasure in following the code of communist ethics and to feel outraged when they contemplate an action that violates the code.

Courtesy of Detskaya Literatura

Seventy-six research institutes forecast the vocations first class of 1970 high school graduates will choose.

WHAT'S A GOOD TRADE FOR 1970?

By Valentina Krevnevich

BOYS AND GIRLS who are fifteen today will be graduating high school in 1970, some 2.8 million of them. Do we have any information now that will help them choose their trades and professions?

Let's begin with the colleges. The full-time day divisions of institutes and universities in 1970 will accept 490,000 students; 630,000 will be admitted to technicums, the specialized secondary schools; the rest, 1,680,000 or 60 per cent, will take jobs.

Some young people have the idea they do not need a ten-year secondary education to become an industrial worker, that eight years of schooling is enough. They forget that technical progress not only affects the machines, it affects the men who make them and run them. Adjusters of automated production lines have to know something about hydraulics, electronics, pneumatics, technological mechanics, machine-building technology, and metal technology. Besides that they need more than an acquaintance with machine-tools, electric wiring, and the operation of control and measurement instruments. They also have to master the theory of cutting. A high school education is minimal.

An electrical equipment operator and a mechanic need about the same technical background, so do fitters and operators of control and measuring apparatus and automatic devices. It is no accident that at up-to-date chemical plants the fitters and operators are technicians by training, and that electronic computer operators are engineers. It is hard to tell sometimes where the machine operator leaves off and the engineer begins.

Research institutes made a study of the changes taking place in vocational composition as a result of technical progress; the purpose of the study was to determine how many workers and with what skills industry would need. A recent vocational census had ascertained the number of people employed at each trade and profession, their skills, and to what degree their work was mechanized. Comparison of the data showed that the vocational composition was changing. To find out whether the trade itself changes, and in what ways engineering and technology alter the nature of an industrial worker's job, observations were made at enterprises with varying levels of automation. Operation times, technological processes and time limits were studied. The manpower requirement of each branch of industry was found by going over their plans for installing new machinery, introducing new processes, mechanizing or automating.

Will lathe operators be needed in 1970? Will their jobs all be automated? Nothing of the kind. Though the demand for lathe operators is growing at a slower rate than it did several years ago, it *is* growing, and in 1970 machine building will need more than 160,000 lathe operators. It is no simple matter to become a lathe operator nowadays, and it will become harder as time goes on; the job keeps getting more sophisticated.

The jobs of machinist and assemblymen are also becoming more complicated. A machinist has to be able to adjust automated hydraulic and pneumatic devices and check the operation of complex units and mechanisms. Machinists now have to do as much head as hand work. They have a future, and a good one, because any piece of equipment, including the most advanced, has to be assembled, adjusted, and repaired. This trade will account for over 600,000 young workers in 1970.

The rate of increase of manpower demand will be highest in chemicals, maritime transport and communications. But the greatest number of workers—more than 1.7 million—will be required by the machine-building industry. The building trades will need 1.5 million, the consumers' goods industry—about 600,000, railroad transport—about 200,000.

But how about the young man who decides to work in construction but doesn't want to bother learning a trade, he just wants to be a pick-and-shovel man? He will have a hard time finding a job. All the construction projects put together will need only six thousand pick-and-shovel men; but they will need 248,000 building machine operators and drivers.

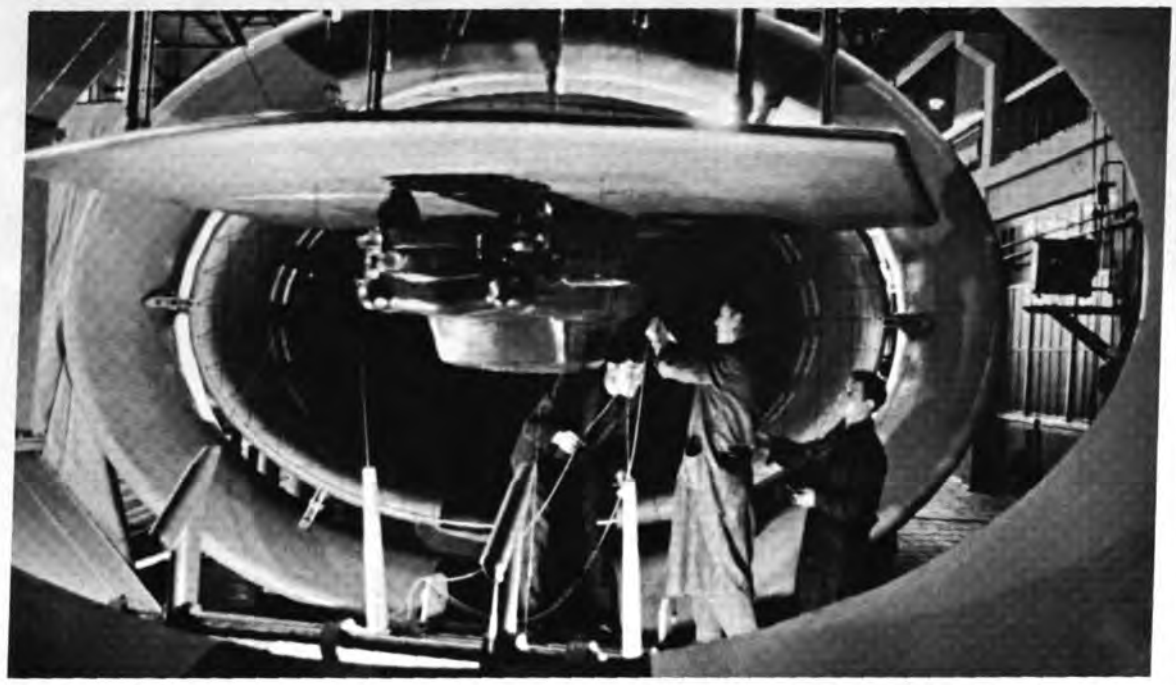
Economists in every country are concerned with the correlation between general educational level and national income growth. These seemingly different categories are closely related. The time required to acquire higher level skills, the increase in labor productivity, reduction of spoilage and the like all depend upon the level of general education.

They depend even more on the level of vocational training. Trained adjusters have usually had experience in other trades, most of them have been lathe operators and fitters. It takes 13 to 15 years to become a skilled adjuster, and the lower the general educational level, the longer it takes. And professional training? A ten-year school graduate with technical training will need only four years to rate top class as an adjuster, but one who has finished an eight-year school will need eight and a half years.

Thus, when a young man chooses what at first seems the shortest way—off to work without finishing secondary school—he loses more time than he saves. As a rule, he will become a top-class adjuster at 33, while the tenth-grader, trained at a technical school, will make it at 25. The long way round saves eight years.

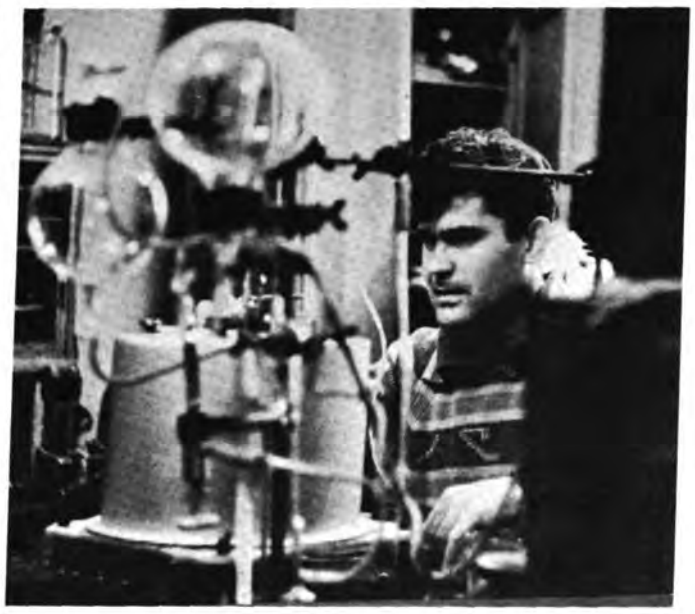
Courtesy of Znaniye—Sila

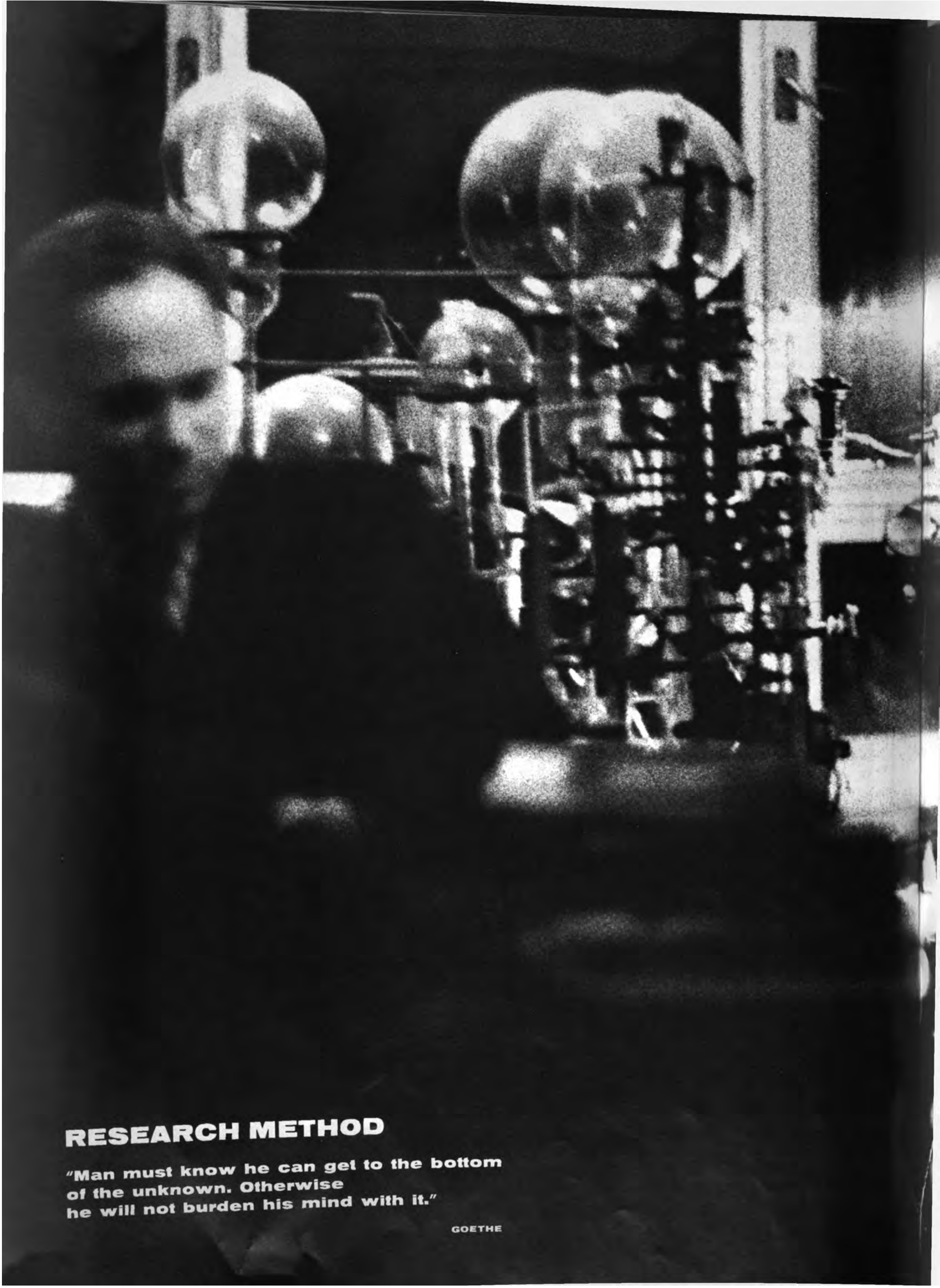
WE OF THE MOSCOW UNIVERSITY



"Science is infinite, daily it poses us more unsolved problems. The purpose of university education is to arouse in students the desire to contribute to the treasury of science."

MENDELEYEV

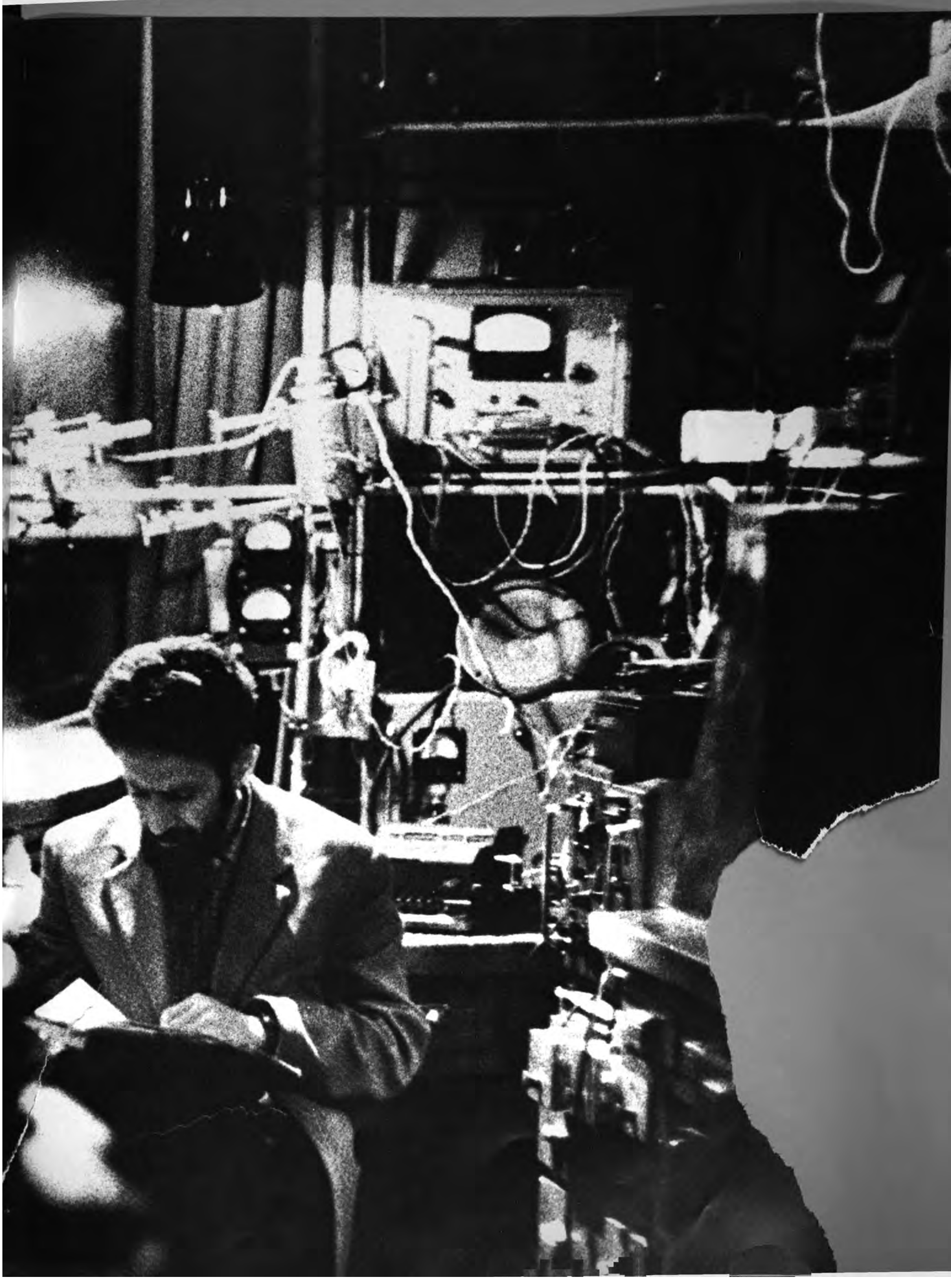




RESEARCH METHOD

"Man must know he can get to the bottom of the unknown. Otherwise he will not burden his mind with it."

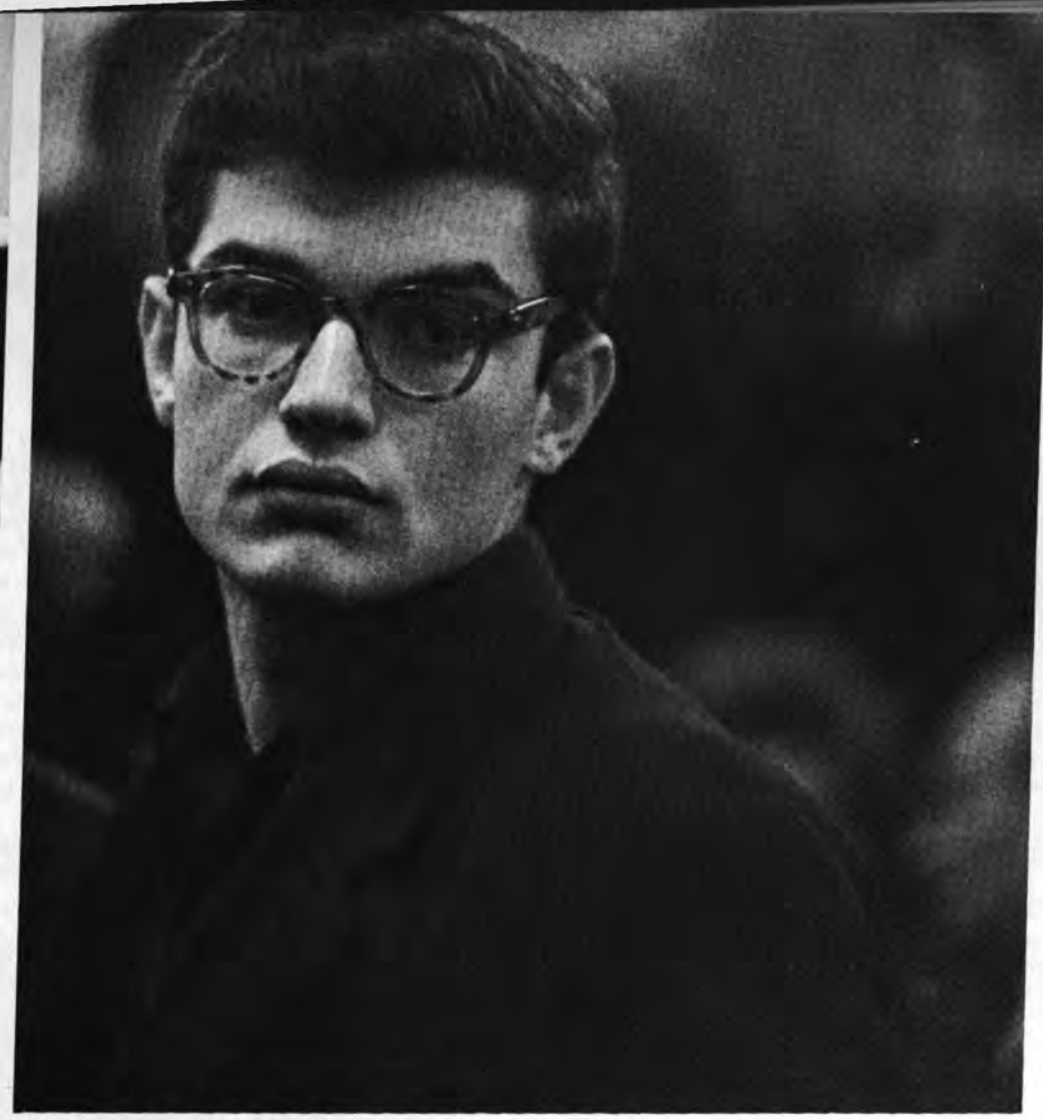
GOETHE



WORK AND LEISURE GO TOGETHER

"The sun shines bright for students from exams to exams. But exams are only twice a year."

From a student song.



HIGHER EDUCATION:

PROBLEMS AND PROSPECTS

BY IGOR SEDYKH

ANYONE WITH ten years of schooling may apply for admission to an institution of higher education. If he passes the entrance examinations he is admitted. After four to six years of study he earns a diploma and is provided with a job in his specialty. This is Soviet higher education in outline.

The specifics, of course, are much more complicated, the reason for the periodic newspaper debates on higher education, particularly on admissions.

Admission Requirements

Some 872,000 applicants were admitted to Soviet colleges and universities in 1967. Of these, almost half enrolled in the day divisions and the rest in the evening and correspondence divisions, combining work with study. In 1970 some 940,000 will be admitted, a considerable number. But in 1967 the secondary schools graduated 2.4 million students, including more than 700,000 young factory workers and farmers who completed evening high school courses. The total will increase by 1970, what with the introduction of compulsory ten-year education. Besides this recent crop of secondary school graduates there are a great many young factory and office workers, farmers and demobilized servicemen who have college aspirations.

To be admitted to a Soviet school of higher education you must take competitive entrance examinations in four subjects, three of them related to the subject in which you propose to major. Those wishing to enter the physics department of a university, for example, must take an oral examination in physics and oral and written exams in mathematics. The fourth, a written examination in Russian and also Russian literature, tests the general level of education.

An oral examination is supposed to take at least fifteen minutes, enough time to give the admissions committee an idea of how good the applicant's background is in that particular subject. Whether the exam does that is arguable. The element of chance is always present. The questions on the examination cards cannot possibly be of equal difficulty, and the card an applicant happens to draw may ask questions which he cannot answer nearly as well as those on another card. These are the factors that account for the insistent demand for a better system of entrance exams.

Priority Admission

Priority admission to higher educational institutions goes to World War II veterans, demobilized servicemen, and men and women who have worked in industry or farming for at least two years—so-called "production workers." Those graduating from secondary or specialized secondary schools with honors also have priority; they take only one exam, in the subject most closely related to their future major, but they must get a mark of "excellent" to be exempt from the other three.

In discussions of the admissions problem the right of "production workers" to priority is often questioned. Why, it is asked, should someone who is often not as well-prepared for college study as far as theory is concerned and, besides, has gotten out of the habit of studying be preferred to that year's secondary school graduate? As a result of criticism in the press from educators the ministry adopted a proportional admission system. "Production workers" and secondary school graduates are divided into two examination groups, although the examinations are the same for both. If, for example, there are 100 places open and of 300 applicants 100 are "production workers" (33.3 per cent) and 200 recent secondary school graduates (66.6 per cent) they will be admitted in that proportion. In both instances there are three applicants for one student place. The chances are the same for both sides, the ministry believes, and competitive examinations are fairer.

Officials of the ministries (there is a Ministry of Higher Education in each of the 15 union republics and a Ministry of Higher Education of the USSR) frankly say they want to see an increase in the number of applicants competing for places. The stiffer the competition the higher the standards of admission. For the competitors it means, of course, less chance of getting in.

Obligatory Lectures?

Our higher educational institutions use the lecture-seminar system for required courses. Attendance at lectures is obligatory. Examinations in these subjects are held twice yearly, in winter and early summer. Between examinations there are tests on the material of the seminars or lectures. Tests, unlike examinations, are not graded; the mark is simply passed or failed.

The first two years the student takes the required courses. In the third year he takes lecture courses related to his specialty and a special seminar which prepares him for an independent piece of research, one of the requirements for graduation. He is free, of course, to choose his own specialty.

Some people feel that there is too much required lecture and seminar work in the final years and not enough free time for independent study and thinking. They would like to see compulsory lecture attendance abolished.

"A Specialist Is Like a Swollen Cheek; Only One Side is Full"

The aphorism comes from Kozma Prutkov* and was probably true for his time. Our higher educational institutions have a different approach. All courses of study include political economy, history and philosophy; they take up 10 per cent of classroom time. Our principle is that specialists must be familiar with developments in other fields as well as their own.

The rectors are responsible not only for actual course instruction but for extracurricular activities as well. The state allocates large sums for student recreation centers. Together with the student trade unions and the Young Communist League, college heads help to plan student activities and relate them to the community. Student research is encouraged in science clubs guided by faculty people. During vacations students help take in the harvest and work at construction sites. The work is voluntary and well paid and there are always more applicants than jobs.

A College Education for Everybody

For various reasons, not all young people who want a college education can study full time. Those who cannot, study evenings or by correspondence.

Students in evening divisions take classes three to five times a week, sessions are four hours. The schedule is arranged for people with full-time jobs. The subjects are the same as in the regular day divisions but since there is less classroom time per week the period of study is a year longer. Some subjects are omitted from the curriculum because of the practical experience the students get on the job. Most of them work in the field in which they are majoring.

In correspondence divisions consultations substitute for seminars and lectures. With study aids sent by the school the student goes through the course and then has either oral or written consultations with his teachers. His work is judged by tests and examinations.

Examinations in the evening and correspondence divisions are also given twice a year. Correspondence students, however, may take them at any time. To prepare for his exams the student is entitled to a 30-to-40-day paid leave from his job. In his last year he is also entitled to a paid leave to prepare his diploma project or his thesis.

Not only is the right to an education guaranteed to the working student, it is very much in the interest of the state to see that he takes advantage of the right. This is an instance where the interests of the state and those of the individual coincide completely. Although state expenditures for evening and correspondence study are considerable, the state only stands to gain since specialists get their training and hold down jobs at the same time.

Every effort is made to provide the best possible conditions for study after work or by correspondence. Increasing numbers of study aids and guides are issued. TV Channel 3 schedules lectures and experimental demonstrations on a variety of subjects.

There are people who feel that combined work and study means skimping somewhere along the line, but experience has shown that specialists who got their education in evening and correspondence divisions do as well as graduates of day departments, sometimes better, since most of them major in the field in which they are already working.

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* Kozma Prutkov, a character created by the Zhemchuzhnikov brothers and the poet Alexei K. Tolstoy in the nineteenth century, was an original type of worldly philosopher.

ENTRANCE EXAM SYSTEM: PRO AND CON

VYACHESLAV YELYUTIN

MINISTER OF HIGHER AND SPECIALIZED SECONDARY EDUCATION INTERVIEWED

Q. The press has been running letters and articles, pro and con, on our college extrance exam system. Some of the comments characterize the exams as a lottery. What do you think?

A. Lottery is hardly a fair description. Our entrance examinations are simply a way of checking up on the background a young person brings with him from secondary school. I agree that an applicant has a difficult time, but it seems to me that it is precisely under the difficult conditions of competitive exams that he must be able to show what he knows. If he has assimilated his knowledge he should be able to demonstrate that even under difficult conditions.

Q. Critics claim that in cases where entrance exam standings vary by only a fraction of a point there is no assurance that the best man is the one on top of the list. They suggest a category of "candidate students" who would be allowed to sit in on lectures and perhaps take the places of those who drop out. What does the ministry think of the idea?

A. We think it is a poor idea. Every student would have the feeling that there was someone sitting around waiting for him to fail. It would create an unhealthy kind of pressure and competition. There are these other aspects also. What would be the economic and legal status of the candidate? Seventy-five per cent of our students get stipends, the candidate would not. And this is not the only case where a "candidate student" would have no legal status. In other words, we would not be able to guarantee him his constitutional right to study.

Q. As I understand it, our system of admission is more like Britain's, based on strict selection, than the American system with its much less rigid entrance requirements and its subsequent drop-outs?

A. The American method may be all right for America but it does not suit us. It is too easy for a young person to lose his bearings. Our student knows he is in college to study, otherwise he goes out and gets a job. For someone who is not ready to study or does not have the necessary background, college is a waste of time.

Q. Are you saying there are no drop-outs in our colleges?

A. Of course not. From statistical data we have collected over many years we know that the drop-out percentage in the day divisions is 15 per cent. Since the training of college educated specialists is an element in the country's economic plan we estimate how many specialists we shall need in the various fields. We add 15 per cent to this figure and thus get the number of students we have to admit.

Q. Do you agree with those who say it is unfair for production workers—those who worked in a factory or on a farm for at least two years after high school graduation—to be given preference for college admission?

A. The production worker has already made a social contribution. There is also the consideration that it is harder for him to get back to his studies than for a recent high school graduate. Giving him preference restores the balance. In simple justice we should give preference to those with more life experience and more practical training. Last but not least, let us not forget that since our education is free, the work these young people did helped to feed the recent high school graduates. I think that the system of proportionate admission is fair. The two groups—recent graduates and production workers—take the same exams but they take them separately. The admission mark for production workers is somewhat lower.

Q. Comparatively few specialists were trained in prerevolutionary Russia. Doesn't the large-scale training of specialists today have the latent danger of lowering standards?

A. Probably every country in the world realizes, as we do, that its growth depends on the rate at which it trains specialists. We see no evidence of lower standards, quite the contrary. Our educational system is turning out highly skilled personnel for a national economy which is developing vigorously.

Q. Is it possible for a person to earn a college diploma as an extra-mural student?

A. You mean without attending lectures and classes? Then why enroll for full-time study? Enrolling in the day division without attending classes is like buying a train ticket and then walking. The courses are planned for class study with an instructor. No matter how good a textbook is, the instructor will usually have something current to add, he will advise, guide, help to select the important points of emphasis. Those who prefer to study on their own can take correspondence courses.

Q. In this connection, how much of a place should independent study have in the student's preparation and training?

A. A large place. Aside from the very considerable work a student does for his courses, he also attends meetings of one or more of our 250 student scientific societies. We do not, of course, expect him to master such difficult subjects as modern physics, chemistry, or engineering design on his own. Independent work should be a part, an indispensable part, of the study process, not instead of lectures but parallel with lectures and other types of guided study.

Q. Is independent research encouraged?

A. Very much so. Research ability is a requisite for the well-equipped specialist today. Prizes and scholarships are offered for excellence in studies and research. Some 300 different medals are awarded for undergraduate research projects. Palis, a student at the Kaunas Polytechnic Institute, won the first prize at the National Architectural Review for his diploma project "Resort in Anagune." His work was also displayed at the World Congress of Architects in Paris.

Q. Coming back to the lecture method; doesn't that limit discussion?

A. The seminars are for discussion of lecture and textbook material and we have seminars in all subjects.

Q. What would you say is the main task of our colleges today?

A. Our main task is to keep up with technical and scientific progress, to meet the requirements of the country and the economy. This is the primary direction of our efforts to improve our system of college education.

Early Date With a Muse

WHEN, ABOUT FIFTEEN years ago, I began to lead a literature circle for children, the last thing I expected was to discover poets. Let me tell you about it.

A small, quiet, inconspicuous fair-haired boy of ten or so, in a gray school jacket, had been coming to my circle for some time. Once, when the children were writing a composition on a free theme, he beckoned to me with a folded sheet of paper torn from his notebook.

"What's this?"

"Poetry."

"I'll look it over and talk to you about it next time."

At home when I took the paper out of my pocket and unfolded it I could hardly believe my eyes. Six fine poems. Here is the first of them:

THE FLOWER

It bloomed forth.
The butterfly adored it.
And the cat
Just sat
And sat,
With his nose explored it.

These first children's poems convinced me that there is such a thing as poetry by children and that it could have quality and freshness. It was then that I really grasped what Leo Tolstoy was getting at in his article "Who Should Learn to Write from Whom, the Peasant Children from Us, or We from the Peasant Children?" His idea was that the literary word, whether it comes from Goethe or Fedka (a common boy's name) differs from the non-literary word in that it suggests a host of thoughts, ideas and recollections.

It was on reading these poems that I began to have a feeling for children's poetry. From then on I no longer merely knew, abstractly, that there are children who write wonderful poetry; I had actually seen one of them. I kept my eye on him, and, with time, on others like him. I studied them and tried to help them in every way to develop their gift.

As I went on I began to come across the widespread notion that children's poems were something like "growing pains." And indeed, to judge from many of the published attempts we might very well conclude that someone was deliberately trying to convince us that children's poetry is imitative.

From the very beginning I felt it necessary to disprove this notion. I wanted adults to be delighted by and admire children's verse as much as they admire and are delighted by children's drawings. But I realized that I could not possibly interest others by publishing the usual doggerel. Therefore, when I chose poems for publication, I was governed by one criterion: their natural childish quality, which meant for me—their artistic merit. I tried to apply this principle first to occasional poems I sent to juvenile newspapers and magazines and the adult press, and, later, in books I compiled, *Volodya Lapin's Notebook* and *The Early Sun.*

Samuel Marshak, in his foreword to *The Early Sun,* wrote that there was no way of telling whether all the children whose poems were in this book would become poets, but one thing was certain: right now they were poets. And he concluded: "I happened to be one of the first to read this small book. And I was happy at the thought that these 22 poems are only a sample taken from that sea of poetry which overflows the hearts of millions of our children. If that is the case, then poetry is immortal."

Only good children's poetry can reveal their poetic world—that was the point of view I argued in *Children Write Poetry* (1964), a book which sums up my ten years of study of children's writing.

There is a children's library on Chekhov Street in Moscow. I used to go there myself to borrow books. Later, when I became a college student, I worked with the children there. I organized a literary circle in which my pupils advanced as they grew up, from the youngest group (6-11) to the middle group (12-14), to the senior group (15-17). When children are ready to go to school their parents go with them to register, but when they wanted to join my group the children usually came by themselves, and brought their friends and also their younger brothers and sisters.

I never ask a child who comes to our circle whether he writes poetry, nor do I divide the group into writers and non-writers. I have learned that a child who has never written a line of poetry before today tomorrow may delight you with his poetic inventions.

What is my purpose? To give the child a taste for, a feeling for poetry, and a curiosity about life. As for the poets, I want to give them a good working environment.

In autumn, when the youngsters come to the circle for the first time, I ask each of them to tell me what signs of autumn they observed on the boulevard along which they just walked. And as might be expected, their observations are superficial. They had not really looked and therefore had seen very little. But then we take a walk along the boulevard together. Now they see "better," and are surprised at all the new things there are to see. They very much need such a circle because poetry means just that—the ability to find the unusual in the ordinary, in the familiar. I take the children to a bakery, deliberately to one where the baking is still done almost completely by hand. What is there to see in a mechanized bakery? I also take them to a print shop where children's books are printed, to the zoo, to a river port and to other interesting places.

We all know what great creative potential there is in the child's wish to fathom the unknown, the exotic. I therefore have ethnographers, oceanographers and travelers talk to our circle. No question but that these meetings impel the youngsters to write.

City children, who are cut off from nature, particularly need a change of impressions.

Once that fair-haired boy said to me: "Do you know where I greet the spring every

BLACK PANTHER

She's like a night in a midday fair,
I see her lie and at me stare.
And in the dark her green eyes glow,
In fact, she *is* the dark, I know.

Kostya Raikin, 11 years old

ЧЕРНАЯ ПАНТЕРА

Она как ночь средь бела дня
Лежит и смотрит на меня.
Её глаза во тьме горят.
А эта тьма — она сама.

КОСТЯ РАЙКИН, 11 лет

TRAIN

The train is like a centipede,
Its headlight whisker probes the night.
But morning clouds will soon appear
And shave it off, all right.

Sasha Laskin, 9 years old

ПОЕЗД

Поезд — тысяченожка
с зажженными фарами-усами.
А утром облака их срежут
своими острыми ножами.

САША ЛАСКИН, 9 лет

DAYS

The days all follow, one by one.
First Monday, like a child,
Comes skipping down the street.
And Saturday, like ancient bard,
Comes playing on a lute,
To die the night that Sunday comes,
To live again next week.
The days are seven little sparks
That pass before me, one by one,
That only burn a little while,
And then they fade away.

Sasha Laskin, 9 years old

year? At the market, where they sell flowers. The bees always fly down there."

Of course he did not go to the market searching for lines of poetry. I don't recall a single poem of his that had anything to do with these walks directly. But he missed something in the city spring which had no bees.

During the school year, when the children are busy with their lessons, I take every opportunity to prod their creativity—with excursions, hikes, trips out of town, anything of that kind.

In the circle we also read and talk about classic and modern poems. If it is true that poetry moves us all, it is especially true for those who write poetry. There is a direct connection between the verse a child reads and the verse he writes. These two currents, life and literature, nourish creativity.

The poetry and prose the children write circulate in manuscript magazines. There is such a manuscript magazine for each age group and sometimes several magazines are issued by one group. They are as unlike one another as their publishers. The children are very proud of their magazines. Those of the younger groups have such titles as "Cock-a-doodle-doo!", "The Sunflower," "The Horned Deer." The titles older children choose are more sedate but also more playful: "An Endless Magazine," "The Grave" (humorous), etc. The children themselves choose everything that goes in.

If this gives the impression I stand by looking on, that is by no means so. The children show me their verse first, not because they have to, but because they want to. Then they canvass the opinion of their fellows. But since we know how sensitive children are to the opinion of others, and how pliable their taste is, we must be careful not only about where we guide them but how we guide them. And all told we must be careful with children's creative work. It would never occur to us, when we see a swollen bud in spring, to force it open with our fingers to help the leaves come out. We know that if we did, the bud would wither. To be careful with something a child does, means, first of all, to let it live in its natural environment. We must not deprive it of its natural and innate juices and forces. We must be ever mindful that crude interference may wither creativity.

If the instructor guides wisely, tactfully, he will lead the child from banal and formless verse to fresh poetry that speaks with the voice of the growing person.

In six years, from the age of 10 to 16, that fair-haired boy wrote 684 poems. Of course, not every child-poet is so productive. Most children write less intensively. But their work provides a whole library of material for generalization. As we observe the young writer day by day, sometimes knowing what it was that inspired a poem, tracing the ties between the poetic image he uses and the things that surround him and occupy his mind, we get an insight into the child's creative world.

Read this poem by six-year-old Maya about Yerevan:

Yerevan, Yerevan,
Cool and crystal water,
It I drink
And wash my face,
Just like children ought to.

It was not without hesitation, fearful of trampling on some delicate image of the city where Maya had spent her summer that I asked her:

"Why did you write: 'Yerevan, Yerevan, cool and crystal water'?"

"There are little fountains in the streets there, and people drink from them. But I also washed my face with that water."

Yet children's poetry, like all creative work, is still a mystery to us adults. No one, not even the poet himself can say why, after lines that are quite childish, an unexpectedly mature line follows. And then again something childish, obvious, transparent. Is this zigzag accidental? Or is it the way a child thinks poetically?

Many adults waved away my explanation when they read "Reminiscence About Autumn," which that fair-haired boy wrote when he was 12:

A cricket in the grass was lying:
It could no longer start.
In fact, the little thing was dying,
For autumn, even without trying,
Had stabbed it in the heart.

The poetic gift of a child develops in a very intricate and always individual way. I did not trust my own experience, but sought counsel with masters of poetry. The late Samuel Marshak, who had once worked with such youthful poets, often met with my students and loved to hear what they had written. My talks with Marshak about children's poetry and child-poets confirmed much of what I had found out myself and helped me correct some of my judgments. Now my chief consultant is Kornei Chukovsky, who has more understanding of children's work than anyone I know, a famous poet for children and author of that inimitable book: *From Two to Five.*

What appeals to us most in children's poetry? The child feels he is a discoverer. He does not hesitate to poetize what we adults long ago accepted as pedestrian fact. For him there are no objects or phenomena in the world about him which cannot be combined in poetic pictures.

Ever more examples add to our knowledge of children's poetry. At times I almost think that at last we are beginning to understand the mysterious mechanism that makes children creative. But then we get a new example and with it, a new puzzle.

The editorial boards of children's magazines and newspapers receive thousands of letters every day, many of them with poems written in a child's hand. The poetry mail sent to our most popular youth magazine, *Pioneer,* is read by that fair-haired boy. Only he is now an adult, a father, and a poet with his work in print. Children's verse is his passion. He does not overlook a single good line, a single spark of talent.

ДНИ

Шел день второй, четвёртый, пятый . . .
Понедельник, как маленький ребёнок,
прыгал на одной ноге.
Суббота, седой старик,
играл на шарманке,
чтоб ночью в воскресенье умереть,
а утром вновь воскреснуть.
А дни-это семь искр,
которые поодиночке,
через двадцать четыре часа,
гаснут.

САША ЛАСКИН, 9 лет

LIONESS AND CUB

Beasts went down the trail to drink,
When the lion cub did stray.
Bad cub! But, what do you think?
Mother wants him anyway.

Volodya Lapin, 11 years old

SNOWFLAKE

A snowflake has settled upon the soft snow.
But how to lift it, I really don't know.

Oleg Pavlov, 10 years old

* * *

How I wish time would pass with the speed
Of a wind blowing steady and free.
Then my life would be briefer, indeed,
But at least many things I would see.

Volodya Lapin, 13 years old

ЛЬВИЦА И ЛЬВЁНОК

Звери шли на водопой,
Потерялся львёнок.
Нужен маме хоть плохой,
А все-таки ребёнок.

ВОЛОДЯ ЛАПИН, 11 лет

СНЕЖИНКА

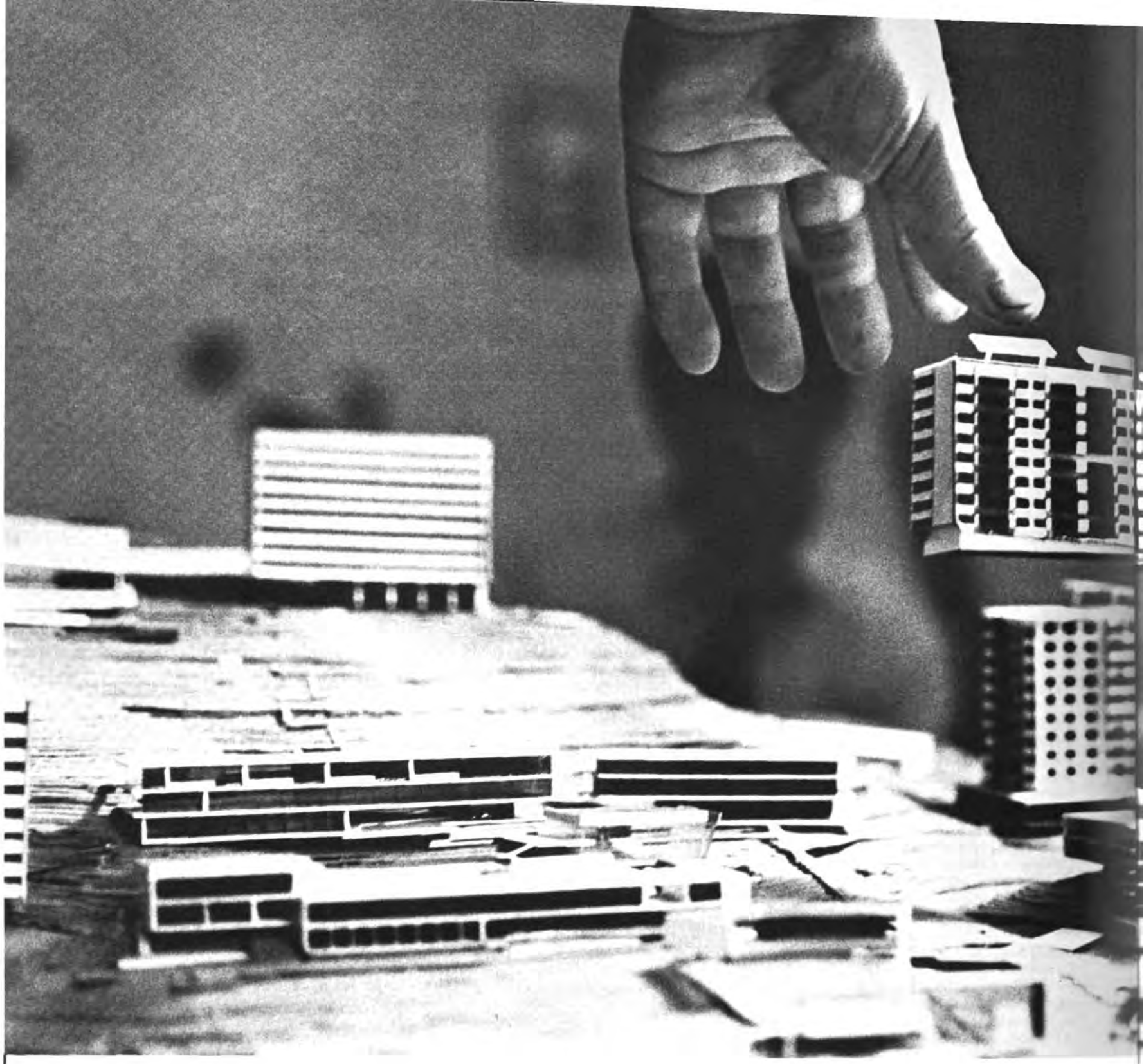
Снежинка застыла на мягком снегу.
Снежинку со снега поднять не могу.

ОЛЕГ ПАВЛОВ, 10 лет

* * *

Я хочу, чтобы время бежало,
Словно быстрые-быстрые лыжи.
Проживу я тогда очень мало,
Но зато очень много увижу.

ВОЛОДЯ ЛАПИН 13 лет



EXTRACURRICULAR PROFESSIONALS

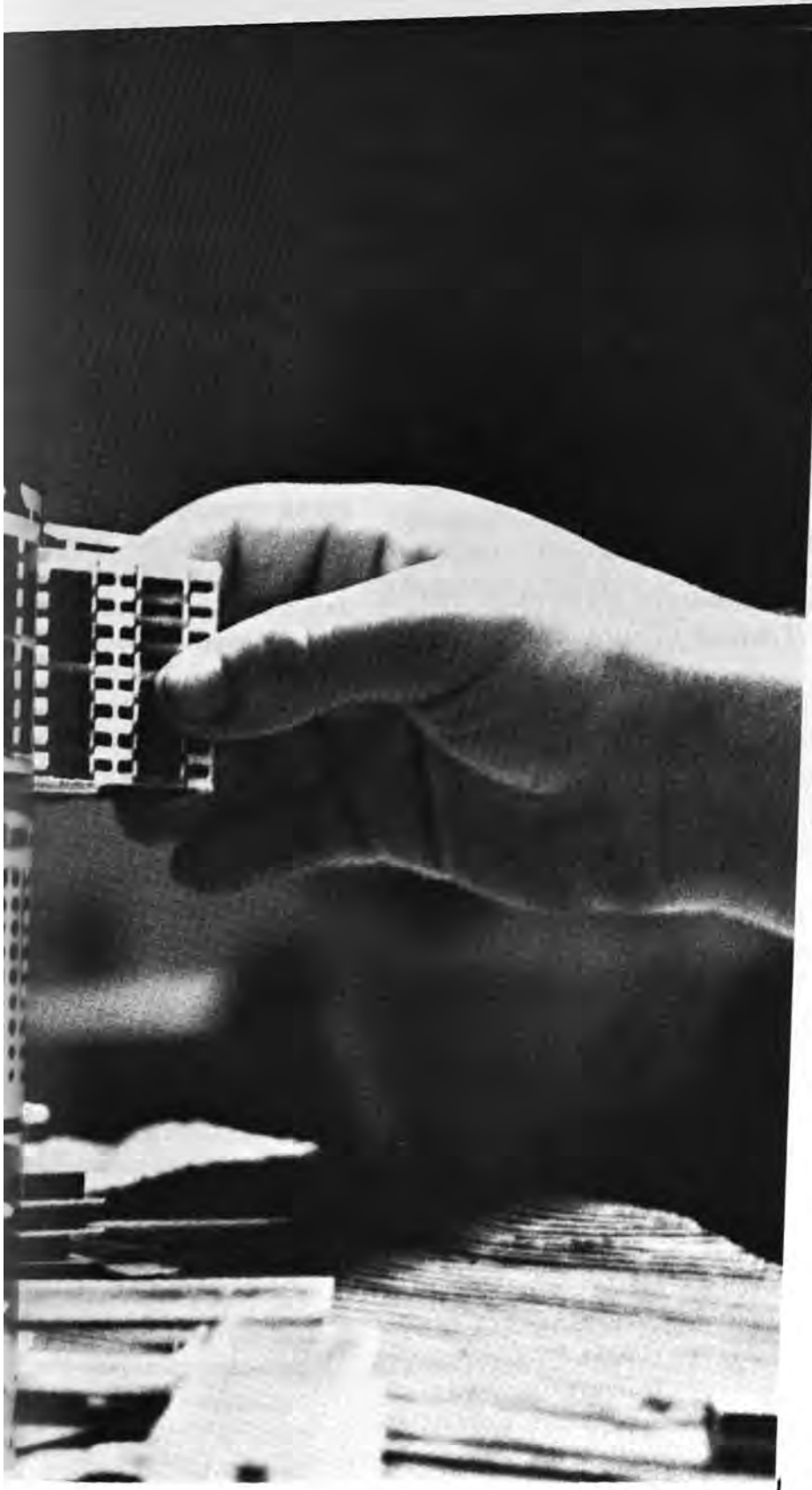
By Vladimir Popov

ONE OF THE USSR's 200 student engineering and architectural design workshops is at the Lvov Polytechnic Institute. The largest of the 11 colleges in this old city in Western Ukraine, the institute's 14 departments give training in 60 specialties to a student body of 25,000.

The workshop—an extracurricular activity—is seven years old. In the period students have filled several hundred orders worth about two million rubles from industrial establishments, research institutions and schools. When they set up this workshop, the institute authorities had purely instructional goals in mind. The first designs were, so to speak, for home consumption.

On picturesque Crimean mountain slopes a mile or so from the seaside, near the popular Alushta health resort, is a student sports camp called "Politekhnik." Living quarters are cottages and tents spaced by shady avenues and athletic grounds. Facilities include a club, tennis courts and a swimming pool, all designed by the student workshop of the Lvov Institute.

"After building 'Politekhnik,'" engineer Ivan Maximov, workshop head and himself a graduate of the institute, told me, "we thought we would tackle more serious problems. We've been branching out ever since on buildings of various kinds. This is all spare time work. Some of the students try their hands at individual projects



with guidance from instructors and very often write their term papers and graduation theses around them."

Maximov listed several good-sized projects built over the last year from student designs, among them a building for the Polytechnic institute with an assembly hall seating 1,200, a student hostel and a school.

On workshop drafting boards are several other projects—two kindergartens, a greenhouse for the Botanical Gardens of Lvov University, three schools and two buildings—of six and nine stories —for the institute itself.

One of the evenings I spent at the workshop I watched a fifth-year student, Yuri Yasilyev, with friends assisting, building toy houses of wood, cardboard and foam plastic. It was the model for a science township to be built in Lvov in the next few years. The highlight will be a 22-story building with an ellipsoidal ground story to house the institute museum.

The idea came from student architects after a detailed study of the 15-year master plan to rebuild the city. Yuri and his friends will eventually be seeing their cardboard, wood and plastic brainchild transmuted into glass, concrete and steel. Three years ago they and other students drafted several designs for student hostels which were accepted for experimental construction in Lvov, Kiev, Odessa and elsewhere in the Ukraine.

NEXT ISSUE

Among the many art exhibitions held to commemorate the fiftieth anniversary of the founding of the Soviet Union was a retrospective survey of a half century of stage design. The show, held at the Central Exhibition Hall on Manège Square in Moscow, displayed the work of some 400 artists. They ranged from turn-of-the-century sets, when a few painted trees or an uninspired room interior served for all occasions, to the best of today's evocative stage designs. The first sketches exhibited, appropriately enough, were Alexander Golovin's for Lermontov's drama *The Masquerade* staged by Meyerhold in St. Petersburg in the spring of 1917. The play opened the day the February Revolution broke out. The most interesting of the 1920 and 1930 displays, a period of effervescent innovation and experiment, were scale models of sets made by Isaac Rabinovich for Aristophanes' *Lysistrata.* Stanislavsky called these sets the quintessence of ancient Greece. Rabinovich stripped away the traditional curtain; he designed for a revolving stage and used light and space in ways new to the theater. His influence on stage decor was world wide. Today's scenic artists, their displays indicated, blend the new and the traditional. Valeri Levental, a young artist, has done sets for musical and drama theaters. His designs for the Moussorgsky opera *Khovanshchina* attracted much attention. Nikolai Zolotarev's sketches for *Boris Godunov* were a fresh treatment of an old theme. Iosif Sumbatashvili's sets for *Death of Ivan the Terrible* and Brecht's *Puntila* showed an original command of scenic space, as did Einar Stenberg's designs for Alexander Blok's poem *The Twelve.* The full story in the February issue.

Hundreds of thousands of orphans were one of the by-products of the war. Our photo story is about a children's home located on what was once the estate of the writer Leo Tolstoy. As the staff of the home sees their job, it is not simply to provide a place where a child can eat and sleep and learn to be self-supporting. It is to make a home for him, to give him a sense of belonging to a family.

COMING SOON

A special issue on Soviet Armenia, one of the union republics. About the people, geography, history and culture of this land which predates Rome.

MAILBAGS OF INVENTIONS

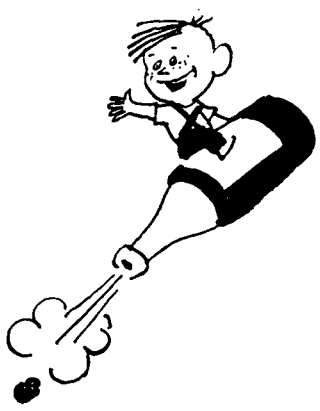
Children's Patent Office

By Albina Levina

"I know that a perpetual motion machine cannot be invented, but I invented one all the same. My machine runs without energy."

"We are glad that the problem of perpetual motion has at last been solved. Get into your machine and drive to our editorial office without energy."

From reader correspondence of the magazine
Yunyi Tekhnik (Young Technician)



IT IS EVENING, and practically everyone is gone. From only one room in the editorial offices of the *Yunyi Tekhnik* come loud voices and clouds of cigarette smoke. Around the desk are an engineer, a pilot, a college student, an assistant professor with a master's degree in science, another engineer, and another assistant professor.

The talk will be going on till midnight. Sheets of paper with drawings and formulas are piled on the desk; only a few letters remain in what was a packed folder. We shall not divulge editorial secrets. For the names of the boys who wrote these few letters see the Patent Bureau section of the next issue of the *Yunyi Tekhnik*. It is the fate of these letters that the council of experts is deciding.

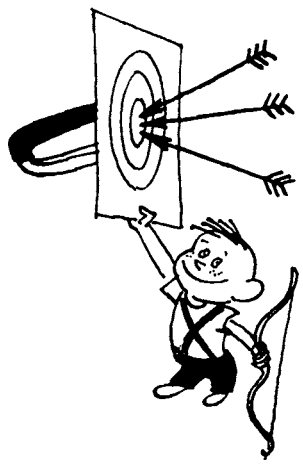
I ask if I can glance at the letters and pick at random from the batch. In the first one is a drawing on graph paper. The letter begins: "I got down to work and invented . . . " A description of an automatic machine, "A Teaspoonful an Hour," for feeding aquarium fishes, follows. The second letter is a design for a new ballpoint pen. Other letters say:

" . . . I have invented an electric target . . . "

" . . . my idea for a band saw modeled on the Mobius Surface . . . "

" . . . I am in the eighth grade and I help out a second grade class. I invented a chart for studying the multiplication table."

Projects, proposals, ideas, flow as it were from a horn of plenty.

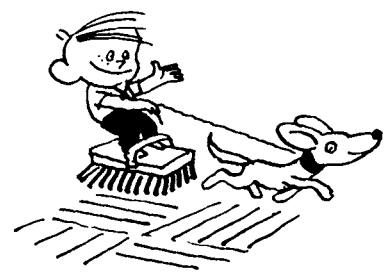


"I am sending a design for an astroplane and I ask you to print it soon before anyone else invents it."

That thought apparently troubles many a young inventor. I was told that three years ago, when the YT patent office was founded, the editorial board was practically inundated with unworkable inventions.

And truly, is it easy to invent when radio, the locomotive, TV and even the soda water slot-machine have already been invented for you? The old days were really a paradise for inventors and scientists: You lie down in a bath tub and discover the law of Archimedes; you walk through an orchard on the alert and you catch Newton's law and an apple falling from a tree at the same time. It's not easy for the pioneer inventor nowadays. But once you have decided to invent, go ahead and try!

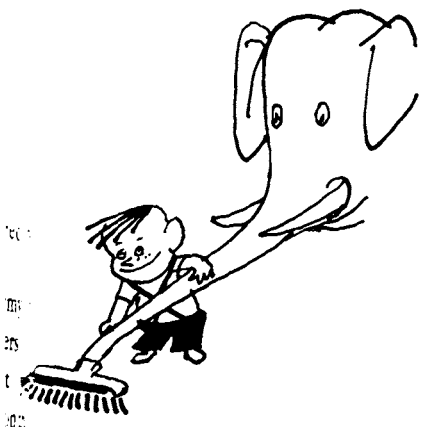
Ninety out of a hundred letters used to be projects for astroplanes and (that indestructible desire to make mankind happy) perpetual motion. The proportion is reversed today. I leaf through the letters. It is hard to conceive of a project they do not contain; automatic glueing brushes, a machine for threshing grain and picking fruit; automatic loaders; transistor exposure meters; a radio-controlled microphone for actors. Showers of ideas, fireworks of proposals. Big and little ones, original ones and reinvented bicycles. But they all bear the imprint of an astonishing, irrepressible revolutionariness. There are so many things needing reconstruction.



Thus far, the army of young overthrowers of the old has not yet stopped to ponder on the fact that it is guided by experienced generals. The *Yunyi Tekhnik* Council is the headquarters of this army; it meets evenings twice a month. It is directed by a former captain of an ocean-going ship and now science correspondent of the Novosti Press Agency Yuri, Moralevich. Preoccupied adults have been literally carried away by the children's technical work.

They have read heavy batches of letters in these three years and written thousands of answers. They have discussed hundreds of proposals made by children and issued some 500 "patent certificates."

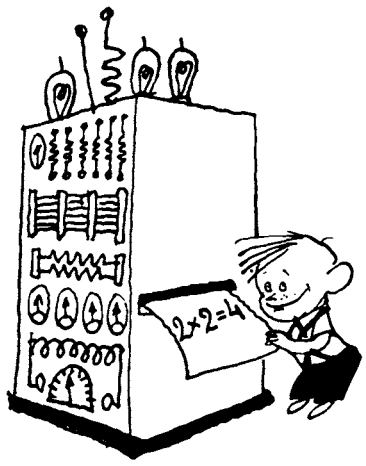
What qualifies the boys for patent certificates?



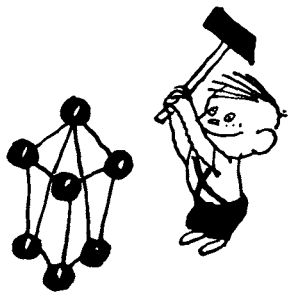
Two Alexeis, Khardikov and Zhyryakov from Magadan (Far East), have patented an automatic grain loader," The Magadanets." Ivan Bryantsev from Voronezh Region (Central Russia) has an idea for a machine to spread fertilizer. While he was in the dentist's chair, Anatoli Abramenko thought up an automatic washer for tubes based on the principle of the boring machine. Volodya Feschenko from Kiev Region was watching a harrow and invented an apparatus for cleaning harrows. Volodya Ulyanov from Syktyvkar (capital of the Komi ASSR) has built an automatic feed distributor for poultry farms.

The conclusions some of these youngsters arrive at from their observations of familiar objects and processes would do credit to adult designers. Volodya Chugainov, who grew up on the bank of a river in a forest region of the Urals, has seen how hard it is to load logs from the river onto a barge. He proposed an original solution: lower the deck of a timber freighter until it is under water and therefore under the logs, pump out the water and the loaded freighter is ready to sail.

Alexei Zvyagintsev suggested a conveyor arrangement for hydroponic cultivation of vegetables, with automatic devices handling everything from planting to harvesting. This schoolboy's idea, which involves no hand work at all, has attracted the interest of specialists. A request for the ingenious design has even come from abroad.

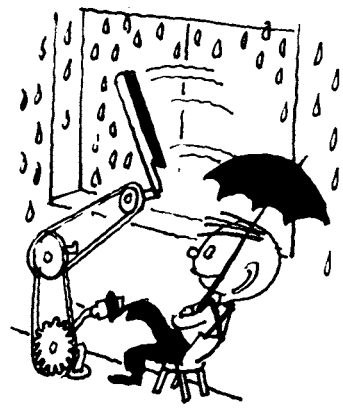


For centuries upon centuries people have watched butterflies in motion. But it took Sasha Bolozdyn from Artemovsk to watch with an imaginative eye and think up the idea of a "submarine butterfly" engine as a substitute for oars. Sasha's unusual and very original invention has been highly praised by shipbuilding experts.



I asked the judges how many of these thousands of juvenile inventions are worth remembering: "Quite a number," answered engineer Kiril Chirikov. "Ideas like those suggested by Sasha Bolozdyn or Alexei Zvyagintsev are too good to forget. Or, this one from Gennadi Kolotka of the city of Thorez. His original treatment of generally known designs has impressed specialists. We had to give him three patents simultaneously.

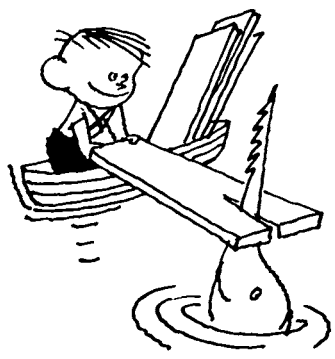
What projects stimulate the imagination of young inventors most? The truck, was the unanimous feeling. The children have sent in thousands of inventions for modernizing trucks. Next in order of favorites is the alarm clock. In third place are devices for improved aquariums.

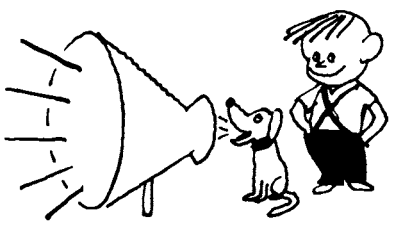


Of course, there are any number of comic projects: It was even necessary to invent a special "humoron" programmed with letters from children to provide the wittiest answers. That was to help the council of experts fight off the really witless ideas and that chronically boring perpetual motion.

What the *Yunyi Tekhnik* is doing seems so full of promise that one is tempted to speculate. Suppose it were possible to trace the destinies of all the magazine's 20,000 correspondents. How many of them will YT give credentials to the world of adult inventors? For the YT invention office is not merely a game, despite the fact that its patent certificates have no legal value.

What started out as a game—the patents, the council of experts, the projects—to get children thinking inventively has turned out to be unexpectedly and enthusiastically productive.





Courtesy of
Komsomolskaya Pravda

DRAWINGS BY YURI CHEREPANOV

Children's Patent Office

MAILBAGS OF INVENTIONS

QUERIES FROM READERS

New Year Holiday

QUESTION: Our children had to report on Christmas in other lands, and to our surprise—no mention is ever made of this in your magazine. Do you have any festivities during this season? (Dr. Lewis E. Weeks, Jr., Potsdam, New York)

ANSWER: In the Soviet Union we celebrate New Year holidays—grownups go to New Year's balls and parties, while children enjoy the festivities for several days—these coincide with school winter vacations.

The preparations for New Year celebrations begin at least one month before: Fir trees are set up in cities and town squares, at schools, stores; special New Year bazaars are opened in various places. Children are also very busy these days: They prepare various shows for the occasion, costumes for parties, or they plan a special New Year trip to a theater, to the circus or to New Year's entertainment at skating rinks or specially built snow towns in city parks.

Do Russians have fir trees in their homes? The answer is yes. Almost every family has one. New Year's, like Christmas in other countries, is considered a family holiday, and all members of the family get together on this day, dancing and singing as the tree lights glow. It is traditional in all homes to begin the New Year with a toast of champagne at exactly midnight, when the Kremlin chimes strike twelve. New Year greeting cards are sent to friends and relatives everywhere; presents are exchanged. Children are told that the presents are being sent by Granddad Frost. January 1 is a legal holiday in the Soviet Union.

All New Year entertainments for children have one common feature—they are directed by Granddad Frost and his daughter Snow Maiden. Usually the entertainment starts with the lighting of the tree. All children, on the advice of Granddad Frost in a loud voice order: "One, two, three, light up, fir tree." With these words thousands of colorful bulbs brighten the tree, and entertainment starts, with hares, foxes, bears and other members of the forest family dancing around. Granddad Frost calls on actors he has brought with him, and they participate in the show and dance. During intermissions Granddad Frost, Snow Maiden and many of their staff of clowns and fairies give all children special Happy New Year presents: candies, cookies, chocolates.

The New Year entertainments around the fir tree go on for 10 or 12 days, so that a great many children can be invited to take part in the festivities. In Moscow entertainments are held at the skating rink of the Sports Palace, at the House of Trade Unions, in the Grand Palace of the Kremlin and many other places: schools, palaces of culture, houses of Young Pioneers. Incidentally, most popular among Moscow boys and girls are the Kremlin fir tree parties, and they all want to go there. So how is the problem solved? Invitation tickets are distributed among Moscow schools, and children of each school select the best pupils among them to send off to the Kremlin.

Ring-around in the Sokolniki Park of Moscow.

Granddad Frost and Snow Maiden with the children.

A Show at the House of Trade Unions.

Granddad Frost comes to the show in a spaceship.

Teenagers and Employment

HOW THE PROBLEM IS SOLVED

by Alexander Vasilyev

Head of the Research Institute for Vocational Training

THE GOOD JOB is the job a person likes. It is pointless, therefore, to argue the advantages of one vocation over another or to force decisions on young people. Soviet young people have to make a choice at either 15 or 17, depending on whether they intend to go to work after eight years of schooling or stay on for another two years for a complete secondary education. After secondary school, some of them enter college, others go to work.

Job placement is a problem all countries face now. How well they solve it depends upon how well they prepare their teenagers for gainful employment at general-education or vocational schools.

Soviet schools use a variety of methods to prepare their students for gainful employment. The trend is to give the academic subjects, especially natural science and math, a practical orientation. A good deal of time is set aside for independent experimental work, excursions and practical training. In physics the student learns about simple mechanisms, internal combustion engines, the generation, transmission and use of electric power, communications, and electrical devices He is given survey lectures in physics and engineering. He studies the elements of design in technical lessons. Natural science classes introduce him to farming (in particular, to the biological mechanisms of plant-growing and livestock raising) and to medicine. He learns how to handle a microscope and to test seeds for germination.

Another method is vocational orientation, which takes in both class work and extra-curricular activity. A special-interest club sometimes decides the choice of occupation.

Vocational orientation has two sides: occupational information and occupational guidance.

Occupational information is intended to enlarge the pupil's knowledge of various occupations, the qualities and skills each requires and their promotion possibilities. Occupational information is given early, in the junior grades. The student learns about various occupations in his classes, workshops, on the school's plot of land, by watching adults work, from books, movies, radio and television.

Teachers probably know better than anyone else the inclinations of teenagers. Sometimes they evaluate their pupil's possibilities more objectively than his partial parents. For several years the teacher has been observing his pupil to help him choose the most suitable sphere of activity. Occupational advice must be individualized. Its aim is not to make the decision for the pupil but to help him with advice based on many years of observation. Psychological and sociological studies in job inclinations and methods of determining and shaping occupational interests are helpful here.

In occupational orientation the teacher must explain the vocational changes brought about by technological progress. He must make it clear that each occupation consists of successive stages of skill development. Gradually the student improves his skill or moves to related higher skill occupations, often an introductory stage to engineering or scientific research.

Teachers' colleges and schools make use of such activities as these: a society called "Knowledge" at the Palace of Young Pioneers in Irkutsk introduces its members (1,700 seniors from 80 high schools) to a variety of occupations. They go on field trips, expeditions, and during their vacations work in offices and laboratories. The society enlists the services of scientists, engineers and teachers. In Ivanovo a "university" has been set up for high school seniors, with college seniors doing the volunteer teaching. At the "university" 500 high school students are introduced to occupations likely to interest them through lectures, practical training and excursions.

Many cities have inter-school occupational guidance centers. One in Novokuznetsk that has been functioning for several years services four secondary (ten-year) schools and eight eight-year schools. The center is headed by a Public Council whose chairman is in charge of the District Department of Public Education; the other members are from the local teachers' college, Young Communist League, schools and the Young Pioneers' House.

The Council helps the schools with occupational orientation and job placement, and keeps them in touch with special schools and colleges. A single plan for the district pools resources and avoids duplication. In many cities special trade-union consultation offices have been set up (apart from occupational guidance centers) by the trade-union locals. These officers help both parents and the teenager who cannot decide whether to go to work or continue with his education.

Another method of preparing teenagers to choose vocations is a combination of academic study and practical work. Manual training is part of all school curriculums and is obligatory. Manual work (2 hours a week) is given in every school grade. Elementary grades make all kinds of useful objects from paper and cardboard. The aim is to teach the values of work. Grades 5 to 8 work in school shops (joinery, cabinet-making, electrical engineering, etc.) and on school farm plots. They are introduced to the principles of design by making simple equipment. The aim is to instill a creative attitude to work. Contests are held regularly to spot the best inventors and rationalizers. Seniors take a course of training at industrial plants, on farms or transport facilities.

Occupational training in the senior grades takes two forms, depending on local conditions.

(1) Industrial training in a specific occupation aimed at general practical experience rather than a skill rating. (A skill rating makes the student eligible for a job without any further preparation.) Under this arrangement pupils get their training in real shops, laboratories, design offices, computer centers and are introduced to metal-working, electrical engineering, woodwork, applied mathematics (programming and computer techniques) and applied chemistry.

(2) Additional "optional hours" are needed for a skill-rating. This kind of training is possible if there are adequate facilities locally.

What about occupations for which training for teenagers is not possible because of safety hazards? Occupational orientation is necessary here as well, but only those jobs which are suitable for pupils are chosen for training.

The types of student productive labor are many and varied in both urban and rural schools. In Prokopyevsk, for example, 322 repair and building teams were made up of 4,840 school pupils. They worked for part of their vacations as finishers, carpenters, joiners, electric assemblers, and masons. They were proud of having renovated and built schools by themselves! All told they did 384,000 rubles' worth of work. The schools they belonged to received prizes and the students free sightseeing trips to Moscow and Leningrad or free summer camp accommodations.

Today almost every occupation requires both a general and specialized background. Therefore, industrial training at schools aims specifically at preparing qualified manpower. Industrial training in general-type schools and vocational training in special schools are simply the two sides of a single process to prepare young people for productive work. Neither stage can be disregarded, nor can they be treated in isolation.

Enrollment in the day divisions of specialized secondary schools rose by 124,000 in 1966 as against 1965, and enrollment in occupational and technical schools rose by 132,000. Technological schools with shorter terms of training, set up by large industrial plants, state farms, construction agencies, etc., admitted 96,800 students last year.

Practical industrial training throughout the period of schooling is important not only for those who will be employed in related occupations but for future teachers, doctors, journalists and lawyers as well. Every child sees a salesman, librarian, or physician at work but few of them have any idea of industrial jobs; they see only the results (farming and building are exceptions to some degree).

When a teenager finishes school and has to choose between a job or further schooling, his decision is determined not only by what he learned in his classes but also by his practical training and occupational orientation.

We embark for the Solovetsky Islands, 90 of us, mostly Moscow University students, to rebuild a monastery.

We have volunteered for the first student expedition to help restore the country's architectural monuments.

On the islands, but in a poor state of repair, are a Kremlin, a monastery, canals, bridges and labyrinths.

We sleep in the 16th century cells where the monks did and we start the work day early, 6:30 in the morning.

PILGRIMAGE TO A MONASTERY

The Solovetsky Islands lie in the White Sea, at the entrance to the Gulf of Onega, between the 64th and 65th parallels. More than 42,000 acres of mixed forest, 400 lakes and innumerable bays give the islands their scenic beauty.

Harsh North has relented here and provided a moderate climate where the temperature in winter averages around 20 degrees above zero and in summer hovers around the 75 mark.

But the islands owe their popularity to more than natural beauty and a mild climate. Preserved there are architectural monuments of various kinds and periods: the Solovetsky Kremlin, a monastery, canals, bridges and labyrinths.

These are excerpts from a diary kept by 26-year-old Vsevolod Tverdislov, researcher in biophysics at Moscow University.

Tverdislov led a group of students who spent their summer vacation doing pick and shovel work in the Solovetsky Islands.

Almost half the group is made up of girls. They won't take any special treatment, so everybody does everything, pick-and-shovel work included.

PHOTOGRAPHS BY VSEVOLOD TARASEVICH

PILGRIMAGE TO A MONASTERY

June 25

Solovetsky! How much the word says to all of us. To the old people it speaks of chiming bells and the lonely melancholy of one of the most venerable and biggest monasteries in old Russia. To us the islands are history, but our history. We want to understand the history of our people, know ourselves, make a connection with our native country, a country that has been on the scene for hundreds of years.

And so ninety of us, mostly Moscow University undergraduates, are going to the Solovetsky Islands to help restore the monastery and build roads and bridges. We are going for one month. We will not be paid except for transportation and meals but we are going anyway.

June 30

We're off!

This will be my seventh trip to the White Sea. That is probably why I was chosen to head the team which has a very important-sounding title: the Solovetsky Restoration and Building Detachment of Moscow University.

We fill two railroad cars. I don't see many people I know, although most of them are from the physics department. There are 15 math students and a few historians and philologists. There is even an actor, also an undergraduate. Almost all of them are upperclassmen—and with experience, they worked on the virgin land development project in Kazakhstan. These are people who can work with their hands as well as their heads.

The last two days before we left were crammed with telephone calls. "Take me with you. I'm willing to do any kind of work!" Mostly girls. I told them it would be hard work; this is the North, after all. But they begged and begged and I had to give in. So now almost half the group consists of girls.

July 3

It takes a lot to make a Muscovite sit up, especially a college student. But when our ship, the *Bukovina*, approached the islands towards evening the students who lined the railing gaped. From out of the grey mist, as though out of a legend, rose the famous Solovetsky Kremlin.

The delicate pastel colors of the northern sky are unrivaled, and so is the beauty of the odd-shaped lakes and winding canals the monks built. There are more than 400 lakes on the islands, filled with fish. Muskrat breeds here. It all seems like a miracle when you remember the Arctic Circle is only 100 miles away.

July 5

We live in the monastery, in the refectory where the monks used to feed pilgrims.

Wax from millions of candles dripped on the monastery walls for centuries. The monks shrouded the Solovetsky Islands in legend. Pilgrims came from as far away as the Volga, the Urals, Karelia and the Don.

The monks had as many as 1,000 pilgrims working for them voluntarily, breeding cattle, fishing, mining salt, doing the hardest jobs. The monks imposed heavy penance for any infraction of their rules. The Solovetsky clergy had horrible prisons and dungeons they kept a dark secret. The czarist government exiled particularly dangerous people, revolutionaries, to the islands.

Like those pilgrims of old we are also working for an ideal, getting in return only our daily bread. Except that they built the cloister and we are helping to restore a historical and architectural monument. Our ideals

Hard to believe that the Arctic Circle is 100 miles away. The sun is warm, almost hot, and the scenery is beautiful.

Besides the job on the monastery we fixed roads, put up two radio towers and chopped a landing strip through the woods.

Nothing especially romantic about mixing and pouring cement, but it's a real satisfaction when you see the solid result.

These are excerpts from a diary kept by Moscow University student Vsevolod Tverdislov.

He led a group of students who spent their summer vacation doing pick and shovel work in the Solovetsky Islands.

The local people were dubious that Moscow intellectuals knew what work meant.

So we had to show them. We did a lot of sweating before they were convinced.

are quite different. But it is a little curious to think of Young Communist League members restoring a monastery.

Actually, what our restoration amounts to, so far, is clearing the monastery of debris. We're carrying out refuse piled up there for centuries.

The local people gave us a hospitable enough welcome but seem to be doubtful about our abilities. The authorities are not at all sure Moscow intellectuals know what work means. The fishermen and the workers stare at us curiously, as though they have their doubts too. Most of their visitors are vacationers. This is a heavenly spot for tourists.

July 8

The weather is sunny, even hot. So are the nights, the famous "White nights." We stroll around practically all night. In groups, and also in pairs. And come to work sleepy but cheerful.

I've been wondering why there are so many physics students in our group. Why is it that Moscow University physics students were the first ones to volunteer to build houses, hospitals and barns in the virgin lands in Kazakhstan? And the same here? Although we're not really building here. We're restoring historical and architectural monuments. This is cultural virgin land.

I think it is because physicists and mathematicians, even while they are undergraduates, deal so much with scientific abstractions. They may not see the results of their work for years, not within a reasonable future. And people feel the need to see the results of their work more immediately. And so you have physicists and mathematicians spending their vacations doing manual work all over the country.

Here on the islands they are getting obvious pleasure out of building the wooden sidewalks traditional in the North and fixing the roads. They can see the results of their work right away.

July 17

Our people are doing a wonderful job. We are cleaning up the monastery and repairing bridges and roads. We've put up two radio antenna towers and laid the foundations of a dwelling.

One of our teams, made up of two men and thirty-three girls, is simply superb. They are doing the hardest kind of work—cutting a landing strip through the forest.

There aren't enough axes and everyone wants to chop trees, so every morning there's an argument about who gets them.

It bothers an intellectual to see a forest cut down but it is absolutely essential here. The population of the islands is growing and the only way it can be supplied in winter is by plane.

We can feel the attitude of the local people changing. They see that we keep at it. They have been inviting us to their homes for a glass of milk and a talk. The people here are reticent but kindly, even sentimental.

July 20

Neither the eight-year siege, when a religious antigovernment rebellion broke out on the islands in 1668, nor the shelling of the monastery by two English frigates during the Crimean War did as much damage as the fire of 1923 and the wear and tear of almost half a century.

Thousands of tourists come to the islands. Many are disappointed when they see how this once flourishing area has declined.

Now the Solovetsky Islands have been declared a national preserve. But it needs people to save this monument of Russian history for future generations. The legendary monastery is a concentrated reflection of the thorny history of the Russian nation. The islands make one think. They have torn us away from the automated routine of city life and its superficial judgments. The islands are teaching us to think. That is why we are here.

July 30

It is time to leave. We must have done a good job for we have been invited to come again next summer. We shall, we certainly shall. We have fallen in love with the islands and the cold White Sea. We'll be back.

Sounding and exploring Blagopoluchiye Harbor you could hardly class as work.

A piece of the country's history, an old bell scarred by civil war rifle fire.

PILGRIMAGE TO A MONASTERY

Our month is up, too soon, and we have to bid the islands farewell.

But they've invited us to come again next summer. We accepted.

These are excerpts fro a diary kept by Mosco University student Vsevol Tverdislov.

He led a group of studen who spent their summe vacation doing pick an shovel work in the Solove sky Islands.

VALERI BRUMEL, SONJA HENIE OR JESSIE OWENS?

By Dr. Vladimir Nadein

WHAT KIND OF PHYSICAL education should we give a child? A poll of 50 parents, men and women, factory and office workers, asking what sport or sports they favored for their children, gave us these results:

Men		Women
40%	Swimming	30%
25%	Figure-skating	27%
15%	Gymnastics	14%
12%	Skiing, Ball Games, etc.	7%
8%	Any sport that benefits the child	22%

Most of the parents favored a single sport—swimming, figure skating, gymnastics, and skiing, in that order, as we see from the chart. Only a few parents were in favor of versatile training. These few, in my opinion, are on the right track. All-round sports is good physical education. History bears me out.

Murals in Egyptian tombs show us Pharaohs displaying their prowess not simply in one sport but in several—running, wrestling, heaving big stones, fencing.

The Greeks, who made a cult of physical perfection, were proponents of all-round sports competition.

The young North American Indian had to undergo a demanding physical test, an all-round trial.

A British aristocrat was expected to be a good horseman, to play tennis, swim, box and run.

Athletic Pharaohs, one could argue, can be counted on the fingers of a couple of hands. And athletes in ancient Greece perhaps in the thousands. So too for American Indians. Nor did the sportsmen of aristocratic Britain grow in legions.

How do we go about physically educating millions?

In the early years of Soviet power, a set of physical exercises, known as G.T.O. (Russian abbreviation for "Ready for Labor and Defense"), was widely publicized to teach people the values of calisthenics. But G.T.O. and its little brother, B.G.T.O. (abbreviation for "Be Ready for Labor and Defense," a set of exercises for boys and girls), gave a person only the most superficial introduction to calisthenics and sports, and this when he was already grown. There is general agreement that physical training should start early, but there is no settled agreement about what sport a person should take up, how he should train, in what order and in combination with what other sports.

My opinion is that at any age gymnastics should be the starter. The reason? Because gymnastics is something a person uses all his life.

Gymnastics exercises are built so as to force a man to overcome the resistance of his body. In a manner of speaking, a gymnast fights himself.

Simultaneously with gymnastics swimming should be taught early in life. Swimming is both pleasant and useful, it teaches one to breathe with the rhythm of his stroke. Neither running, skiing, nor other cyclical athletic exercises, with the possible exception of sculling, makes for such rhythmic breathing. Exhaling in the water forces a person to overcome the resistance of water, with the same result as though he were blowing out an air jet. Studies by pediatricians show that the lung capacity of youngsters who swim regularly is 10 to 15 per cent greater than that of nonswimming boys and girls the nonswimmers also get sick twice as often. A child should be able to stay afloat at seven or eight and be able to use different strokes and move along at a fairly fast clip at 10 or 11.

The next question is: can gymnastics and swimming be combined?

Many athletes and coaches believe that they are mutually exclusive. While a swimmer must work for elasticity of movement, a phase of full relaxation between strokes, a gymnast must strive for the greatest possible muscle tension and a certain rigidity of joints. All this is true, but that is precisely why gymnastics and swimming should be taken simultaneously.

Running is a natural way for a healthy young man to cover distance. Nobody runs so "biomechanically" correctly as a child of 10 to 12. Studies point to the high degree of coordination, the lightness and the elegance with which children run at that age. Unfortunately, this ability begins to be lost in the "ugly duckling" period (13 to 15), giving way to constraint and flaws in movement which stay on to adulthood. This is where a coach would help to develop natural ability into a real running style. The same goes for the throwing events.

Skiing is excellent winter exercise. To my mind a healthy man who cannot negotiate 10 to 12 miles on skis is simply robbing himself. Skiing develops agility, muscle tone and a strong heart, not to speak of the lift the mind and heart get from a lovely winter landscape. A child should be put on skis at four or five. He will be enjoying the sport immensely by the time he is six.

Life is hard for an adolescent, his arms and legs grow too fast and everyone is always telling him what to do with them. Sports are a great help. Ball games, for example, develop adroitness; they deserve to be more popular because, in addition to everything else, they cultivate a spirit of fellowship.

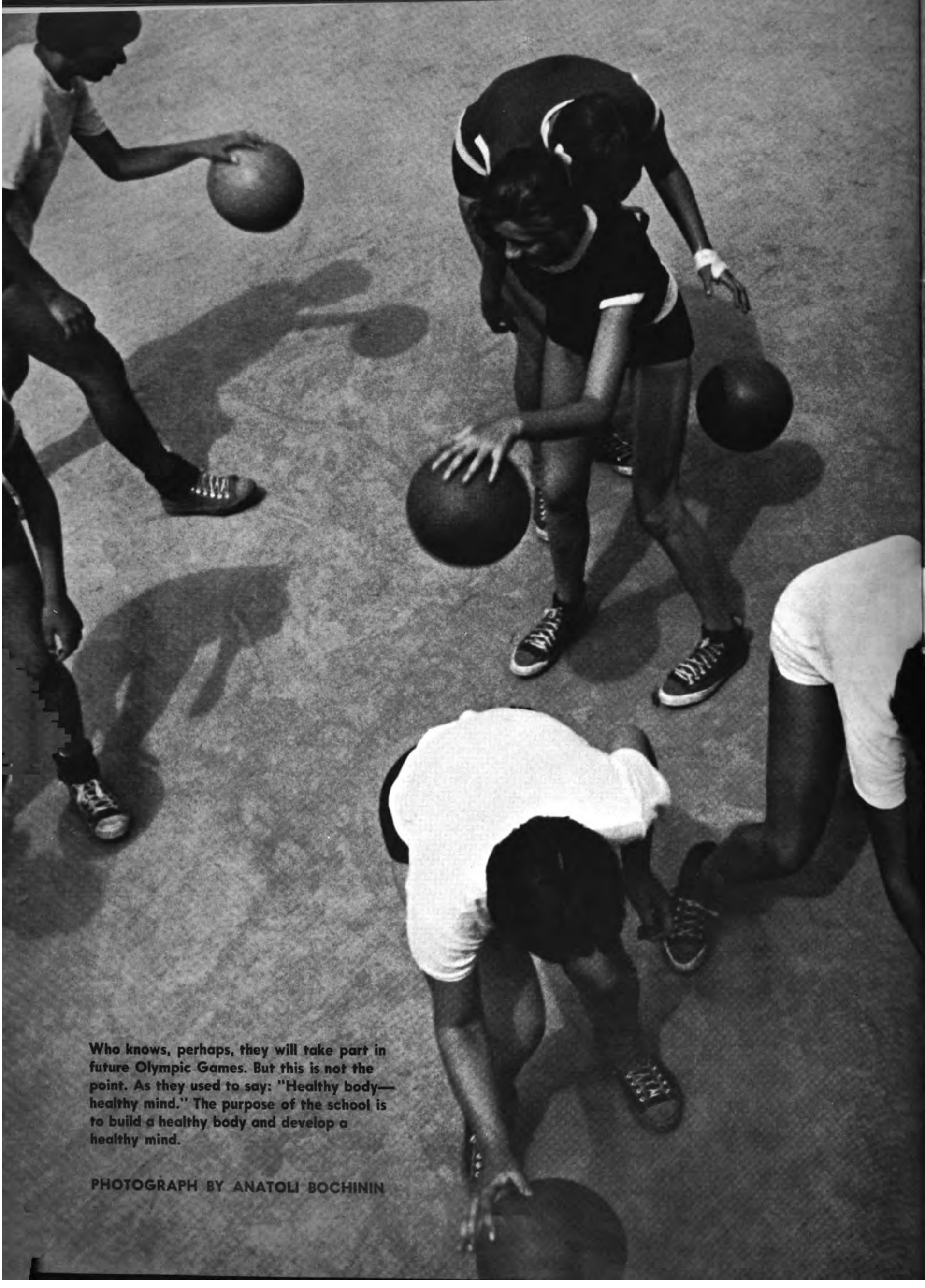
After 16 a boy should take up sports that have elements of single-handed combat—boxing, wrestling, sambo (Russian version of judo). For girls of this age, fencing is recommended.

Physical culture is fine for character building. An egoistic lad should be prodded to team sports—soccer, hockey, basketball, etc.—where cooperative effort is applauded. On the other hand, the shy, compromising, timid boy should be encouraged to go in for boxing, sambo and fencing.

A simplified version of the modern pentathlon can be mastered at 13 to 14.

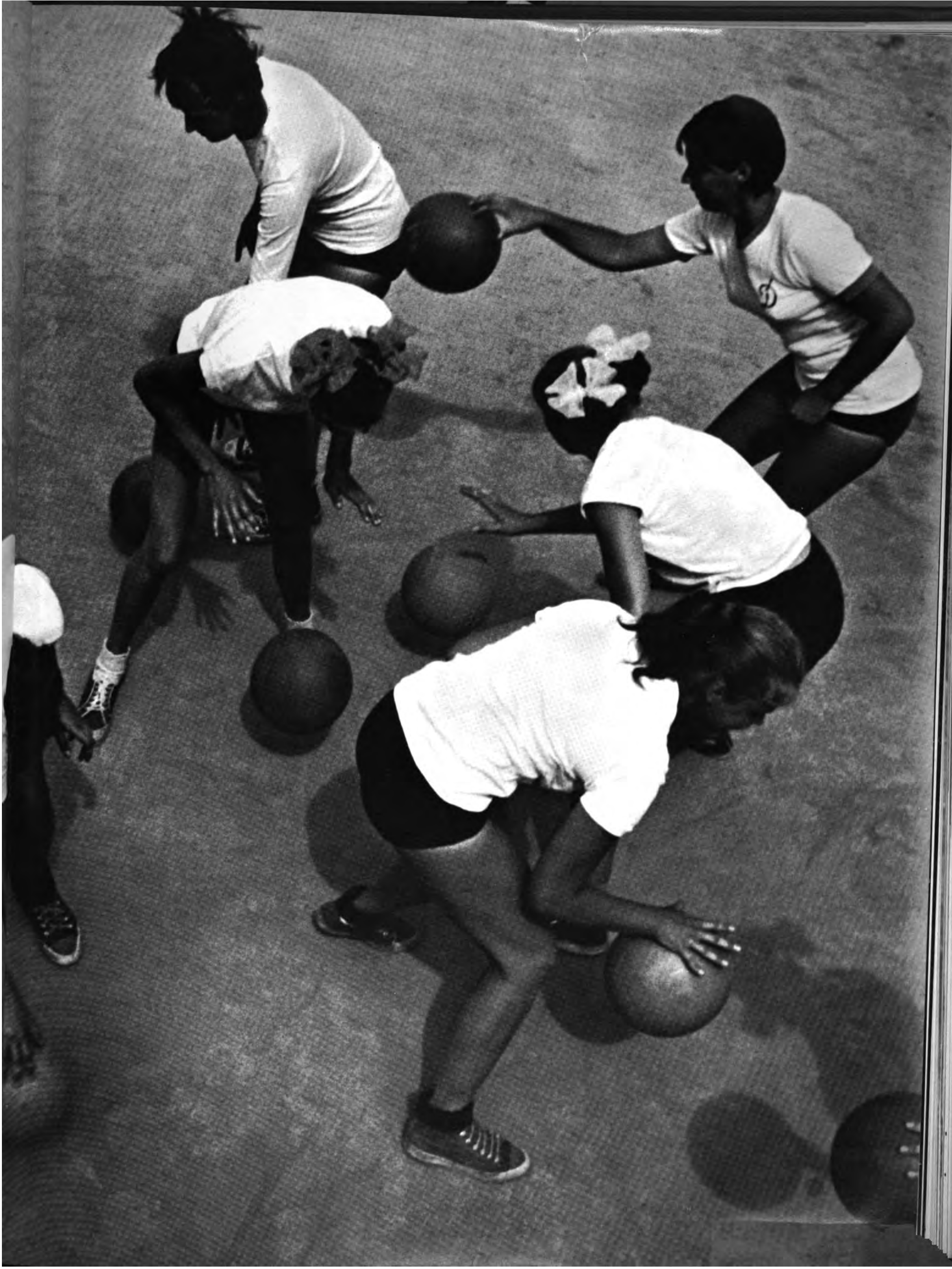
To sum up, the road to physical fitness lies through all-round sport.

Courtesy of Znaniye—Sila



Who knows, perhaps, they will take part in future Olympic Games. But this is not the point. As they used to say: "Healthy body—healthy mind." The purpose of the school is to build a healthy body and develop a healthy mind.

PHOTOGRAPH BY ANATOLI BOCHININ



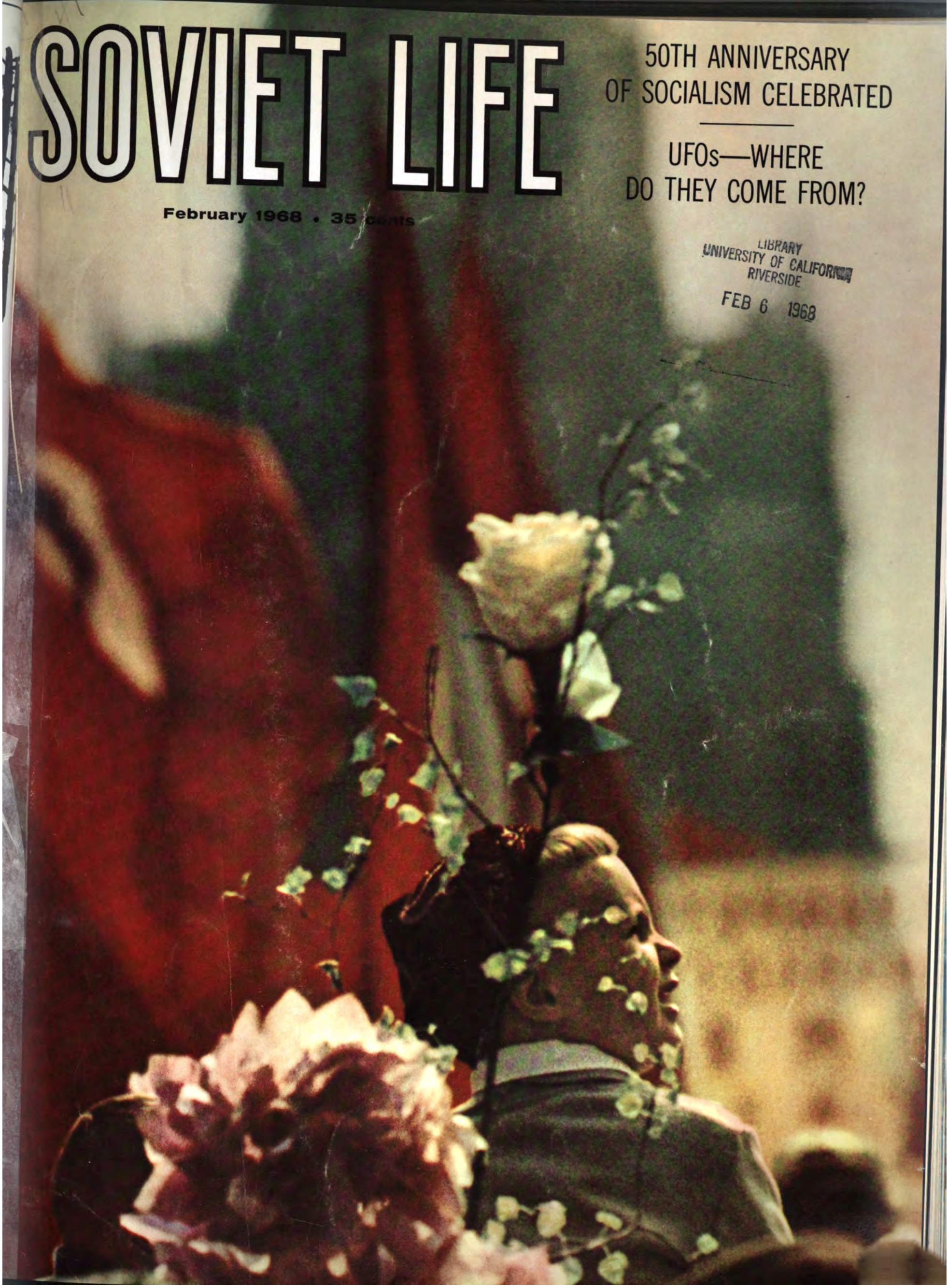
Drawing by Mai Miturich for Gennadi Snegirev's book *Inhabited Island*. 1963.

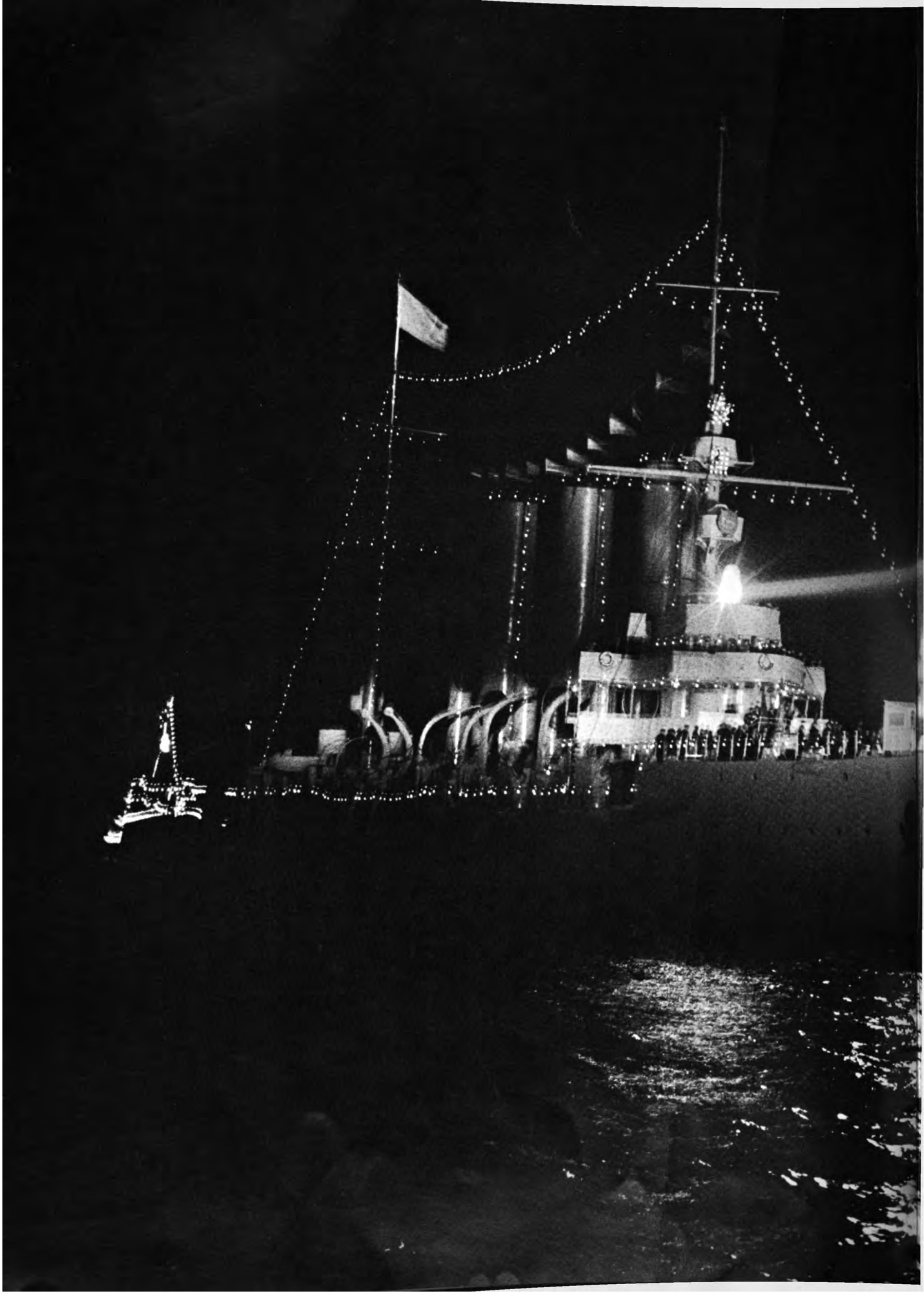
SOVIET LIFE

February 1968 • 35 cents

50TH ANNIVERSARY OF SOCIALISM CELEBRATED

UFOs—WHERE DO THEY COME FROM?





The red flag of revolution is slowly raised on the *Aurora,* which is anchored on the same spot on the Neva River where half a century ago it fired the signal for the attack on the Winter Palace, headquarters of the Provisional Government. It is nearing 9:45 p.m. As he did on the eve of the decisive charge, the first commissar of the *Aurora,* former Baltic sailor Alexander Belyshev, stands next to the gun, orders the crew ready for action, and gives the historic command: "Forward gun, fire!" Once again Leningrad hears the shot that began the ten days that shook the world. Fireworks light up the cruiser, the river, the city. Hundreds of guns elsewhere echo the *Aurora* shot in a holiday salute, heralding the second half-century of the Revolution.

FIFTY YEARS THAT CHANGED THE WORLD

Fifty years ago the country broke its chains; it has moved on irrepressibly since. This half-century anniversary of the October Revolution is dedicated to those who, with Vladimir Lenin, founded the Communist Party of Russia and led millions of workers and peasants in a struggle against autocracy and capitalist exploitation. It is dedicated to those millions who fought to defend the first socialist revolution, to a people who transformed a poverty-stricken and superstition-ridden country into a modern industrial and scientific power, a state whose guiding principles are: Peace, Labor, Freedom, Equality, Fraternity and Happiness for all peoples of the earth. Here is the celebration.

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FRONT COVER: Demonstration in Moscow Red Square. Photograph by Lev Ustinov.

See pages 10-19

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FIFTY YEARS OF THE GREAT ACHIEVEMENTS OF SOCIALISM

THE FOLLOWING IS A SUMMARY OF THE REPORT MADE BY LEONID I. BREZHNEV, GENERAL SECRETARY OF THE CPSU CENTRAL COMMITTEE, AT THE JOINT JUBILEE MEETING OF THE CPSU CENTRAL COMMITTEE, THE USSR SUPREME SOVIET AND THE SUPREME SOVIET OF THE RSFSR ON THE FIFTIETH ANNIVERSARY OF THE GREAT OCTOBER SOCIALIST REVOLUTION AT THE PALACE OF CONGRESSES IN MOSCOW, NOVEMBER 3, 1967.

THE GREAT OCTOBER SOCIALIST REVOLUTION— TRIUMPH OF MARXISM-LENINISM

November 7, 1917, marked the beginning of a new, socialist era in the history of mankind. On that day revolutionary workers and peasants, soldiers and sailors overthrew the bourgeois-landlord government of Russia. Despite the purely Russian conditions under which it was made, the October Revolution mirrored the basic, principal trend of a whole epoch, the epoch of transition from capitalism to socialism, a transition that was prepared by the entire course of world socioeconomic development. Marxism transformed socialism from a utopia into a science and pointed the road to freedom and happiness to all the oppressed and downtrodden.

The Socialist Revolution matured in the bosom of the old world, and it broke out in its weakest link—in Russia, the storm center of all the basic contradictions of imperialism at the beginning of the twentieth century. In no other country at that time were the social and political contradictions of the epoch so acute and inflamed.

The experience of the October Revolution of 1917 demonstrated that a revolution triumphs only when the objective conditions for it have taken shape. Nobody can repeal this immutable law. At the same time,

the October Revolution showed that besides the favorable conditions needed for the overthrow of the old system, the working masses must be properly prepared and organized for decisive battles with the class enemy. The working class of Russia successfully coped with that task. Its political role in the country's life was immeasurably greater than its numerical strength.

The experience of the October 1917 Revolution also demonstrated that even when conditions are most favorable, the working class can carry through a socialist revolution only if it is led by its vanguard, a Marxist party that has firm bonds with the masses, and has mastered all forms of revolutionary struggle. In a great debate between the opportunists of the Second International and the true followers of Marx and Engels in the international working class movement on how to move toward socialism:Through revolution or through reformism, the decisive word was said by historical practice.

The October Revolution signified more than a change of political power. It signified a most profound socioeconomic upheaval which had brought the working class, liberated from exploitation, to power, turned the enterprises over to the working people, gave land to the peasants, and abolished national oppression. Even in the face of the incredible difficulties created by the resistance of class enemies and by economic dislocation, the young Soviet state proved that the proletarian revolution was not merely the destruction of the old. Winning power was never an aim in itself for Communists: They saw and continue to see in the dictatorship of the proletariat the main instrument for the struggle to build a new, socialist society.

A noteworthy feature of the October Revolution was its proletarian internationalism, the unbreakable ties between the workers of Russia and their class brothers throughout the world. The powerful upsurge of the working class movement in Europe, the uprisings, strikes and demonstrations which took place under the slogan of "Hands off Russia!"—all this gives every justification for stating that the victory of the October Revolution was also a victory for the internationalist fraternity of the working people, a victory for proletarian internationalism.

On behalf of Soviet Communists and all Soviet people, Leonid Brezhnev expressed the country's profound respects and its warm gratitude to all comrades-in-arms of the 1917 Revolution abroad.

He went on to deal with the role and significance of Vladimir Lenin as the greatest leader, organizer, most talented scientist and strategist of the Revolution.

His creative approach to theory and politics made anything that smacked of bigotry or dogmatism organically alien to Lenin. Both as statesman and person Lenin was extraordinarily modest. He was 54 when his heart stopped beating. But death was helpless before the greatness of Lenin's genius. The party he created continued his cause.

BUILDING SOCIALISM IN THE USSR— A GREAT FEAT OF THE SOVIET PEOPLE

The working people of Soviet Russia led by the Leninist party started the ascent to the summits of socialism under exceedingly difficult conditions. They had taken over a country with a low level of development, under conditions of dislocation which had pushed the economy back years, under conditions of hostile capitalist encirclement and the unceasing resistance of the class enemies, as well as the attempts of Right and Left opportunists to divert the party from the Leninist line.

Building socialism was also a complicated business for us because we were pioneering, there was nobody from whom we could learn, the speaker pointed out. This was the situation when we started building socialism. From our present heights, he went on to say, it is not at all difficult to see the miscalculations and mistakes of the past. One should, however, always remember: Every step for us was a quest, every advance was made in continued struggle with the enemy inside the country and in the world arena.

For the main task, the country's industrialization, capital was lacking, machines were lacking, and the country was short of trained personnel. Nor could we count on assistance from abroad. However, we had the world's most progressive social system and the enormous revolutionary enthusiasm of the masses. And this made it possible for the Soviet Union to do what seemed the impossible.

The key problems of the country's industrialization were solved within less than three five-year periods. The party developed large-scale production, trained a galaxy of remarkable industry organizers, leaders of the national economy. The collectivization of the country, carried out in accordance with Lenin's plan for cooperation, was one of the key components of the Socialist Revolution. It took an acute struggle to break the resistance of the last and numerically largest exploiter class, the kulaks. The complexity of the social situation in the countryside, the fact that many of its needs had to be sacrificed for the sake of industrialization created numerous difficulties. But the purposefulness of the party and the active efforts of the working peasants and the working class made it possible to surmount these difficulties.

The socialist remaking of our country would have been inconceivable if, in the very first days after the October Revolution, the party had not energetically and purposefully launched a cultural revolution. Three-fourths of the population was illiterate when the October Revolution began. Today the Soviet Union amazes the world with its achievements in science and culture, but the foundation for these achievements was already laid when the party and the people, with enormous efforts, set up a ramified network of schools and libraries, of educational scientific institutions.

The Socialist Revolution opened the way to the solution of the national problem by tearing down the "prison of nations" that czarist Russia was. The formation in 1922 of the Union of Soviet Socialist Republics, a voluntary federation of nations welded together by a common struggle for a common objective, was the decisive condition for attaining the objectives of the Revolution and defending its gains.

Communists and all Soviet people knew that the building of socialism was only the first step toward a communist society. But before the first steps of the transition to this stage, mapped out as early as 1939, were taken, our country and our people had to withstand the sternest test in their history.

In 1941 the perfidious attack by nazi Germany cut short the peaceful labors of the Soviet people. We wanted no war and did everything possible to avert it. But we were not successful. Those who had not succeeded in strangling our Revolution in the cradle had gone on hatching plans to destroy us by force of arms. Our party had foreseen the possibility of a military clash with the forces of imperialism. The battle between the shock forces of imperialism and the first socialist state was fought on an unprecedented scale. The socioeconomic achievements made during the prewar five-year plan periods and the ideological and political unity of Soviet society forged in the course of building socialism laid the basis for the victory scored by our people in the Great Patriotic War.

This feat, which knows no equal, took four long years. The great battles near Odessa and Sevastopol, at the approaches to Moscow, at the walls of Leningrad, Stalingrad and Novorossiisk, in the Orel-Kursk Bulge and on the Dnieper and the Vistula have entered the history of wars as models of military art, of valor by armed forces, of extraordinary staunchness and courage by the civilian population. The heroic feat of the Soviet people gave the world fresh proof that no force exists which can defeat a people liberated from capitalist oppression, which can crush socialism, the social system created and loved by this people.

We have forgotten nothing of that heroic epic, the speaker declared. We remember the contribution that was made to the victory over the common enemy by the peoples of Poland, Yugoslavia, Britain, France, Czechoslovakia, the USA and other members of the anti-Hitler coalition. We remember the courage and valor of the Resistance fighters in enemy-occupied countries. We pay tribute to those leaders of the Allied countries of the West who, in the face of the threat of nazi enslavement and in spite of the differences in social systems, took the road of effective cooperation with the Soviet Union in the struggle against the aggressor.

The defeat of nazi Germany and its allies in Europe and Asia, a defeat in which our country played the decisive role, was of historic significance, for it opened for many nations and countries the road to freedom, independence and social progress.

The losses and destruction inflicted on us by the war are beyond compare. The bitterness of loss was hard to bear. But nothing could break the will of the Soviet people or stop the triumphant onward march of socialism. During the years of postwar rehabilitation, our people again displayed their wonderful qualities—staunchness, selflessness and industry. The prewar level of production was in the main achieved in 1948 in industry, and by 1950 in agriculture. In the subsequent years the Soviet people created the prerequisites for further progress on a scale far exceeding the prewar level, sufficient progress to begin the comprehensive construction of a communist society.

Today we can, with satisfaction and pride, sum up the majestic achievement.

The developed socialist society we have built is ruled by the principle: "From each according to his ability, to each according to his work." Our industry is expanding at a rapid rate. This year its output will be 73 times greater than in 1913. Agricultural output has multiplied threefold in that period. And this despite the fact that the number of people engaged in farming has diminished by more than half.

Testimony to the high level of development of Soviet industry, engineering and science are the world's largest electric power stations and their unique equipment, a machine-building industry which turns out as many as 200,000 metal-cutting lathes a year, an iron and steel industry which topped the figure of 100 million tons of steel, the accelerated growth of our chemicals, radio engineering, electronics, and atomic industries. Lastly, the high scientific and technical standards of the Soviet Union and its industrial progress are strikingly evident in its space exploration achievements. The successful landing of a spacecraft on the surface of Venus and the brilliant solution of the complex scientific and engineering problems involved in the automatic docking of spacecrafts in orbit are a splendid gift for the fiftieth anniversary of the Soviet state.

Socialism has radically transformed the class composition of our society. In socialist society the leading role is played by the working class. Collective labor has molded the new people of the Soviet countryside—our collective farmers. Important creative tasks are resolved by the people's intelligentsia, which is indissolubly linked up with the working class and the farmers. Socialism has brought women genuine emancipation. It has given them broad scope for the development of their talents and abilities.

Owing to the Leninist national policy all the nations and nationalities of the USSR have moved out onto the road to prosperity. The fiftieth anniversary of the October Revolution is an occasion for genuine rejoicing by the fraternal family of all the peoples forming the great Soviet Union.

The revolutionary dictatorship of the proletariat was the principal instrument used by the working people to destroy the old world and drastically change the destiny of their country.

No matter what form the dictatorship of the proletariat takes, the political power of the working class led by its vanguard, the Communist Party, is the indispensable condition for building socialism. Today, when exploiting classes are a thing of the distant past, when the triumph of socialism has brought the unbreakable ideological and political unity of our society, the Soviet state, originally a state of the dictatorship of the proletariat, has become a state of the entire people, a political organization of the whole people, with the working class playing the leading role.

The Twentieth Congress of the CPSU was a significant factor in the party's work to perfect socialist democracy and provide reliable guarantees for the observance of socialist laws. The congress adopted important decisions directed at the consistent and unvarying implementation of Leninist norms and principles in all spheres of the country's life.

The speaker dwelt on the strengthening of the Soviets of Working People's Deputies which have in their work volunteer assistants numbering more than 25 million people.

The trade unions with their more than 80 million members, the Leninist Komsomol with its 23 million members and many other mass organizations actively draw the masses into various forms of state administration. The Soviet people's standard of living has been and remains the focus of attention of the party and the Soviet state.

Socialism has given our people what the working people of even the richest capitalist countries lack, namely, freedom from capitalist oppression and confidence in the morrow. Soviet people neither know nor will ever know what unemployment is.

During the years of Soviet power the average working week in industry has been reduced by 18 hours. Real incomes of workers have risen six and a half times and incomes of collective farmers eight and a half times. In the past few years alone wage increases have been given to some 25 million workers and employees, and guaranteed payment for work, pensions and larger disability benefits to collective farmers. Today more than 34 million people draw pensions from either the state or collective farms. The new and important decisions to raise living standards adopted last September affect more than 50 million people.

There has been a considerable increase in the consumption of basic foods and manufactured goods. The number of urban housing units has multiplied more than seven fold. We are building more housing today than any other country in the world.

The fact that the average life span in the USSR is now 70 as compared with 32 in old Russia makes it possible to assess in a real way what has been done to improve living and working conditions, and to raise health and social insurance levels. Child mortality has dropped to less than one-tenth over the 50 years. Public education is on a mammoth scale. The number of students in general education schools, specialized secondary schools, institutions of higher learning and vocational schools is coming close to 60 million.

The past 50 years have changed people's lives completely. We have built a totally new world, a world of new, socialist relations, a world of the new, Soviet man, the speaker noted.

History is people, it is they who make it. The history made by tens of millions of workers and peasants, by generations of revolutionaries, by statesmen moved to the forefront by the Revolution, by military leaders, scientists, captains of industry and innovators will be remembered for generations to come.

TOWARD NEW ACHIEVEMENTS IN THE WORK FOR COMMUNISM

The scale and complexity of the tasks of communist construction charted by the Party Program make ever greater demands on everything we do, on our style and methods of work.

A rise in production efficiency and improvement in quality, balanced

production rates and ratios which would optimally meet the requirements of both production and consumption—are increasingly becoming the main source of economic growth.

We shall continue to devote primary attention to heavy industry. At the same time agriculture and the industries producing consumer goods and public services will be developed at accelerated rates.

The main goals of our economic reform are to make better use of economic tools and to more effectively combine centralized guidance and the initiative of the personnel of industrial enterprises and of state and collective farms. It is not long since we began to implement the party's decisions on economic management, but the very first results show that we are on the right road. In the last three years the growth rates of industrial and agricultural production have risen noticeably. Key sectors of the national economy have begun to operate more profitably. All this has made possible new measures to improve the general well-being.

The Soviet people have everything required to build an industry that will be the most powerful and advanced in the world as regards total output, scientific and technical level and main economic indices.

Brezhnev went on to speak of the problems of organizing highly developed agricultural production. For the USSR with its vast expanses and varying natural conditions, he stressed, a high and stable rate of growth of farming and animal husbandry is especially important. The long-term program of land reclamation and improvement,the introduction of chemicals, and improved growing methods is therefore of primary significance. With the present progress of science and engineering and the ability to allocate more resources to agricultural development, there is a real possibility of raising labor productivity and the use of machinery and scientific achievements on the farm to the level of socialist industry.

The role of science as a direct productive force keeps growing. The Soviet people expect of their scientists even greater successes in penetrating into the finest structure of matter, into the mysteries of life, of energy conversion, of controlled thermonuclear reactions, in the exploration of space and the study of the depths of the earth and the sea. There is much to be done also on problems of communist construction in the USSR and in studying questions of world development.

The Soviet people have every reason to speak of their successes but they also have their unsolved problems. We know, said the speaker, that not all Soviet people, not all families live the way we should like them to. That is why in all its work, in all its plans, the party pays particular attention to raising living standards. As our national income grows, wages of working people will rise and the production of consumer goods expand. We will continue to build housing and cultural and service facilities on a large scale.

The present-day level of production and scientific and technological progress increasingly bring the labor of the worker and farmer closer to that of the engineer, technician and agronomist.

Much has been done in the last few years to accelerate this process of drawing town and country together in the sphere of well-being and culture. The party strives to have all workers, all farmers become intellectuals in the broadest sense of the word and participate actively in society's spiritual life.

Our plans provide for the continued development of all facets of cultural activity,for improvements in the entire system of education. The party is much concerned with creating the most favorable conditions for the all-round development of the individual. The possibilities are that much greater now that working people have more leisure time.

As our society moves ahead, literature and the arts have a larger role to play. Men of letters and the arts are called upon to create works which will ideologically enrich the builders of the new society, instill communist morality and satisfy the growing esthetic requ rements of our people.

Better socialist social relations presuppose more socialist democracy, coordination and efficiency in the work of all levels of the state apparatus, the consolidation of law and order and state discipline, the elimination of all red tape.

The growing role of the Soviets of Working People's Deputies means a greater enlistment of the working masses in the practical management of the state.

By its nature communism is a society built by the efforts of the masses themselves in the interests of the entire people. But to be master means not only to have large powers, but also to assume large responsibilities for one's personal work and behavior and for the work of one's team, enterprise and the entire country. The inculcation of these qualities is one of the most important tasks the party faces in building communism.

THE GREAT OCTOBER REVOLUTION AND THE WORLD REVOLUTIONARY MOVEMENT

During the half-century the entire face of the world has changed, changed in large measure by the impact of the October Revolution of 1917 and its ideas and by the victories of socialism. The main hub of the class struggle has become the struggle between the two opposing socioeconomic systems.

In the course of the half-century struggle the relationship of forces in the world has fundamentally changed. One-third of mankind has embarked on the socialist path. The breakdown of the system of colonial slavery is being completed: More than 70 new states have arisen on the debris of former colonial empires. The organized working class movement in the capitalist countries has become a tremendous force. As a result of all these changes, it is no longer imperialism but socialism, the anti-imperialist forces that determine the main content and the main trend of social development.

Against this background of socialism's successes in ending exploitation of man by man and social oppression, in creating the possibilities for overcoming the backwardness and developing the productive forces of a nation, it has become even more obvious that capitalism is unable to solve the vital problems facing mankind. Imperialism is guilty of the death of scores of millions of people in two world wars. It breeds aggressive wars. It is responsible for threatening the world with thermonuclear conflict and for the tremendous expenditures of the arms race. It is the fault of imperialism that the countries which were enslaved by colonialism lag behind scores of years in their development.

In the half-century separating us from 1917 capitalism's general crisis has deepened and imperialism has been exposed in the eyes of the peoples and its influence undermined. But imperialism is not laying down arms. It is trying to learn from its defeats, to adapt itself to the new situation. The successes of socialism in competition with capitalism compel the bourgeoisie increasingly to resort to social demagogy and to state-monopoly regulation of the economy to mitigate crisis phenomena. On losing its colonies, imperialism turns to more crafty and refined methods of exploiting other peoples. Imperialism spares no efforts and resources in the struggle for people's minds.

There are still many battles to be fought and a great deal of work to be done before the ideas of socialism and progress triumph all over the world. But even the present stage marks an immense stride toward that goal. The development of a world socialist system, the spread of socialism beyond the frontiers of one country and the establishment of a whole system of socialist states is the most dramatic and most important feature of this stage. In the course of 20 years, most of

the socialist countries have made great progress economically and culturally, have developed new social relations and socialist democracy. We must emphasize particularly the development of a new type of relation among the socialist countries based on the growing trust and respect of their peoples and on socialist internationalism. Socialist countries have had to solve new and complex problems, have had to overcome the heritage of their capitalist past, have had to counter the schemes of imperialism to split their ranks.

Dwelling particularly on the situation in the People's Republic of China, the speaker underscored the fact that the victory of the revolution in China was of immense significance. It exerted a profound effect on the development of the national liberation and revolutionary movement in all the countries of Asia and Africa. But unfortunately, the speaker went on to say, the chauvinist and great-power course Mao Tse-tung's group followed in recent years has done serious damage to the cause of socialism in China. It undermines the unity of the world socialist community and the international communist movement, and is contrary to the interests of the revolutionary struggle of peoples.

The events in China have demonstrated the complete ideological and political degeneration of some of the CPC leaders. Events have also demonstrated that socialism in that country was able, even in so short a time and in the most difficult conditions, to strike root and to win over the broad masses of the people. This explains the persistent struggle which the best sons of the Communist Party of China are waging to preserve the gains of socialism and for the general line drafted by the Eighth Congress of the CPC in 1956.

The speaker said he was confident that the present events in China are a historically transient stage in that country's development and that the cause of socialism will win in the People's Republic of China despite all the difficulties.

Appraising the role and significance of the struggle of the working class in the developed capitalist countries, the speaker indicated that, regardless of obstacles, the working class movement in these countries is steadily gaining strength and experience. The working class succeeds more and more often in having its demands met and makes an increasingly larger contribution to the struggle against the economic and political rule of the monopolies.

The differences within the working class were and remain the main barrier to its victory. All the experience of the working class movement proves that unity is a vital necessity and that differences between Socialists and Communists must not interfere with efforts to rally the working class against the monopolies, against the danger of war, for the struggle for socialism. Despite the policy of rightwing social democratic leaders, paralyzed by their anticommunist views, the desire for unity is steadily growing, and in a number of countries there have been successful efforts at unity.

In the past 50 years we have witnessed a merger of the national liberation movement and the working class struggle into a single revolutionary stream. The fact that 1.5 billion people in former colonies and semicolonies have won their independence has not solved all the problems of the peoples of Asia, Africa and Latin America. A great deal must still be done to defend and consolidate this independence, to win economic independence, and to pull these countries out of cultural and economic backwardness. Proof of the success of the anti-imperialist policy is the alliance of the national liberation movement of the countries that have cast off the colonial yoke with world socialism, their strengthening cooperation with the socialist countries. One effect of the victories scored by world socialism has been to heighten the struggle of the peoples of Asia and Africa for progressive social systems. The fact that a number of young states have chosen a noncapitalist course of development is an event of great importance. The peoples of countries that have chosen the socialist orientation still have many problems to solve, pre-eminently to build a modern productive structure under conditions when the heritage of colonialism is still operative and when conservative elements still exert a great deal of influence.

The unity of all revolutionary forces is based on a common aim—struggle for the interests of the working people, for peace, democracy and freedom. It is the international communist movement that is the vanguard of the revolutionary forces, their standard-bearer. In 1917 there were only a few hundred thousand Communists, today there are 50 million fighters united in 88 Communist and Workers' Parties. Great courage and selflessness is needed by the Communists in the capitalist countries. In nearly 40 capitalist countries working class parties are outlawed.

The speaker sent warm greetings to all Communists, to all revolutionaries who languish in dungeons, to all the persecuted: Our hearts are with you, dear brothers and friends!

Mankind's transition from capitalism to socialism is an involved and many-sided process. An enemy as strong and treacherous as imperialism can be defeated only if it is opposed not only with resolution and selfless readiness for struggle, but also with sober political analysis and forms and methods of struggle which are most fully suited to the concrete conditions. This requires constant creative development of Marxist-Leninist theory. The Communist Parties are stepping up the offensive on the ideological positions of the bourgeoisie and are exposing the policy and ideology of anticommunism. They are revealing the groundlessness of the various new artful "theories" devised to whitewash capitalism.

The further consolidation of the world communist movement is dictated by the vital interests of each fraternal party. It goes without saying that each party has its own tasks and applies the appropriate forms and methods of struggle in each situation with complete independence. But the striking power and efficacy of a party's struggle depend not only on its achievements in its own country but also on the achievements of other fraternal parties, and the scale and depth of their cooperation based on the principles of internationalism.

The speaker was pleased to note that the CPSU was in complete agreement with the overwhelming majority of fraternal parties which called for communist unity on a principled Marxist-Leninist basis. Recalling the important effect of the meetings of representatives of the fraternal parties in 1957 and 1960 and the very significant Karlovy Vary Conference of European Communist Parties in 1967, he pointed out that

Left to right: The noted sculptor Yevgeni Vuchetich and Marshals Georgi Zhukov and Alexander Vasilevsky, who contributed to the defeat of the Nazis, chatting during a break in the anniversary meeting in the capital.

the majority of fraternal parties favor the convening of another international conference.

THE LENINIST FOREIGN POLICY OF THE SOVIET UNION

The victory of the Great October Revolution of 1917 revolutionized international relations. Here, for the first time in world history was a state which opposed the imperialist policy of oppressing and enslaving peoples, the policy of colonial exploitation, violence and predatory wars with a policy of safeguarding the peace and independence of peoples. The Soviet foreign policy which derives from the Socialist Revolution is founded on the Leninist directive to defend the gains of the October Revolution, to frustrate the imperialist intrigues and to ensure the necessary external conditions for building a communist society.

The spirit of revolutionary internationalism which permeates Soviet foreign policy can be seen in the many manifestations of the solidarity of Soviet Russia with the revolutionary proletariat of Germany and Hungary in 1918-1919, in the glorious epic of militant brotherhood with revolutionary Spain, in the liberating battles of the Great Patriotic War which freed so many countries from fascist enslavement.

By repudiating all the secret treaties concluded by czarist Russia, the Soviet Government put an end to the diplomatic deals of the exploiting classes, to policy made behind the backs of the peoples. On matters of moment that affected the destinies of mankind our country addressed not only the governments of other states, but also their peoples directly. The Soviet Republic unqualifiedly recognized the right of all nations, those which belonged to the former Russian Empire included, to self-determination, their right to decide their own destiny. It was the first power, with hitherto unprecedented initiative, which addressed proposals to conclude genuinely equitable treaties to such countries as Iran, Afghanistan, Turkey and China.

The history of the Soviet state is the history of a stubborn, unceasing struggle against the aggressive policy of the imperialists, struggle to save the peoples from the misfortunes of war. In one of its first decrees the Soviet Government called for peace, and today that call still has the same profound class and revolutionary content. The banner of peace and friendship among nations, raised high by the Land of Soviets, has the sympathy and support of many millions of people on all continents.

Leonid Brezhnev reminded his audience that the basic trends and tasks of our foreign policy for the next few years had been outlined by the Twenty-third Congress of the CPSU.

The Soviet Union's position is to further enlarge the area of cooperation with the fraternal socialist countries, to maintain ever closer and more regular contacts with the leadership of the Communist Parties and governments of the fraternal countries, to coordinate our policies and develop a variety of relations and exchanges among our peoples. He regarded the new treaties of friendship, cooperation and mutual aid the socialist countries had concluded as a new, higher stage in their relations. Their fruitful economic cooperation is being constantly developed and perfected. As hitherto, of exceptional importance is their cooperation on defense, with first emphasis on the relations of the Warsaw Treaty member countries.

Proof of the new efforts of the Soviet state to end all types of colonial and national oppression are the Declarations of the United Nations "On Granting Independence to Colonial Countries and Peoples" and "On the Impermissibility of Interference in the Internal Affairs of States, and on Protecting Independence and Sovereignty," adopted on the initiative of the Soviet Union. Now that the colonial system of imperialism has practically disintegrated, an especially vital task is cooperation with states that have already thrown off the colonial yoke and are fighting to consolidate their independence, fighting for social progress. The Soviet Union renders the young, newly-free countries friendly assistance to strengthen their independence and develop their economies. The USSR has established the closest economic and political relations, the closest contact with the countries which are steering a course for socialism in their development. The alliance with the national liberation movement, with the fighters against imperialism all over the world is one of the most important sources of our strength in the international arena.

The war in Vietnam, the events in Laos and the Middle East, the reactionary coups organized by the imperialists in some Asian, African, European and Latin American countries, the demands of West German revanchists for a revision of European borders and for access to nuclear weapons—all this shows that imperialism has not changed its aggressive nature. Its actions must be opposed by a united front of anti-imperialist forces. As the example of Vietnam shows, the imperialists do not achieve their aims when their aggressive attacks meet with the firm resistance of the liberation forces. With a heroism that thrills the whole world the Vietnamese people are throwing back the interventionists, dealing them one blow after another. In this they have the support of the progressive, peace-loving forces throughout the world, and most particularly the constant and extensive assistance of the Soviet Union and the other socialist states.

The combat successes of the Vietnamese people could have been even more remarkable, the speaker noted, if not for the position of the Mao Tse-tung group, which hampers the coordination of assistance to Vietnam from all the socialist countries, including China. The Soviet Union for its part is fully determined to render every assistance and support to the fraternal people.

The Arab peoples have seen once again that in the Soviet Union and the other socialist states they have true friends and reliable support for their independence. The speaker declared that the Soviet Union was determined to continue to help the fighters against imperialist aggression by every means the concrete circumstances indicated.

Since the might of the Soviet socialist power was and remains the main bulwark of world peace, the strengthening of the armed forces is one of the never-ending concerns of the Communist Party and the Government. The Soviet Army is a powerful, formidable and invincible force. It is supplied with the best equipment in the world. Soviet servicemen are devoted to communism. Should there be madmen who encroach upon the security of the USSR and its allies, they will be met with all-powerful might against which there is no protection and for which there are no distances.

The might of the Soviet Union is great, said Leonid Brezhnev, but it is not used for self-aggrandizement.

Marxists Leninists know that socialism is not exported from one country to another with military force, that it is the result of the internal development of each given society. They believe in the justice of their cause, in the superiority of the socialist system, and are convinced that for its victory there is no need to resort to wars between states. Lenin taught that our foreign policy must take into account both the plans of imperialist adventurers and the positions of sensible representatives of the bourgeoisie. We follow these directives today as well when the Soviet Union has unprecedented might. We call upon the governments of the bourgeois countries to heed the voice of the peoples who demand peace and a stable security.

The speaker dealt with the importance the Soviet Union attaches to the aspirations of the peoples for general and complete disarmament. He cited the value of such steps toward this goal as the banning of nuclear weapon tests, preventing the further spread of this weapon and forbidding its use; making the United Nations an effective body of international cooperation in the defense of peace and the rights of people, genuine security in Europe through the mutually beneficial cooperation of states with different social systems on the basis of the well-known principles of peaceful coexistence.

The struggle of the Soviet country for peace and friendship among nations has smashed to smithereens the imperialists' myths and legends about the "aggressive nature of Moscow," has placed the imperialist forces in a position of increasing isolation, and is shaking loose the NATO and SEATO aggressive military blocs that the imperialists were able to set up by deceiving the peoples.

The Soviet Union will continue the foreign policy it has followed for 50 years, a policy which is approved and supported by the entire Soviet people, the fraternal socialist countries and all the champions of freedom, progress and peace.

THE COMMUNIST PARTY —MILITANT VANGUARD OF THE SOVIET PEOPLE

Since the beginning of the twentieh century the history of our country has been indissolubly bound up with the Communist Party. There has not been a single major problem to which the party has not applied its wisdom, will and inexhaustible energy.

The speaker traced the long road traversed by the party in 50 years from scattered Marxist groups and circles to the organizing and guiding force of Soviet society.

The victory of the October Revolution and the formation of the Soviet state meant that the First Party Program had been realized. The completion of socialist construction in the USSR meant that the Second Party Program, adopted in 1919, had also been realized. The Third CPSU Program, adopted at the Twenty-second Party Congress, expressed the main content and problems for the construction of communist society. The road covered by our country in half a century has demonstrated that the words of the party are not at variance with its deeds. The Third Party Program will also be realized.

The life-giving source from which the CPSU draws its invincible strength is its close and indivisible bond with the people. The party's ideas for creating communist society have gripped the hearts and minds of the Soviet people and become their own cause. A testimony of the working people's boundless trust in the party is that at the most critical stages of history the flow of working people into the party was particularly great. In the years of the Great Patriotic War, for instance, more than five million people joined the party. This year half a million people joined, more than half of them workers. At present there are 13 million Communists in the CPSU.

To crystallize in a single policy the thoughts and the will of all tha party members, the most skillful organizational work is required. The party has constant contact with the masses through the Soviets, the trade unions, the YCL and the vountary societies of the working people. We do not have and cannot have any other political organization besides the Commnuist Party. The party takes into account the interests and the special needs of all the classes and social groups in our country, of all its nations and nationalities, of all the generations, and crystallizes these interests in its policy, declared Leonid Brezhnev.

We will continue to strengthen the party, to improve inner-party democracy, to consolidate the principle of collective leadership, to develop the initiative of the members of the party. We will continue to apply the Leninist principle of democratic centralism, to observe the Leninist standards of party life that we have read into law. At the threshold of the second half-century of the existence of the homeland of the October Revolution the Soviet Communists declare, with full realization of their responsibility, that they will continue to devote all their knowledge, strength and ability to the people, to the struggle for their interests and happiness.

Communists have often been told that the Marxist-Leninist teaching is outdated and has outlived its usefulness, observed the speaker. But only

Delegations from 95 countries came for the celebration. Left to right are veteran of the Revolution Konstantin Karpov, French Communist leader Jeannette Thorez-Vermeersch and Indian public figure Renu Chakravarti.

theories based on dogmas that cannot keep pace with the development of society grow obsolete. The strength of Marxism-Leninism lies in the fact that it rests on the revolutionary materialist dialectics which always calls for a concrete analysis of a concrete situation, on close contact with practice and life, on a scientific approach to reality. As befitting the heirs of the great teaching of Marx, Engels and Lenin, the Communists constantly develop and augment the theoretical wealth which has been handed down to them. The speaker paid tribute to the great struggles and the immense labors of the Communists of different generations —beginning with Lenin's Bolshevik Guard which made the Revolution and winding up with the present young generation of Communists who are following the road of their fathers.

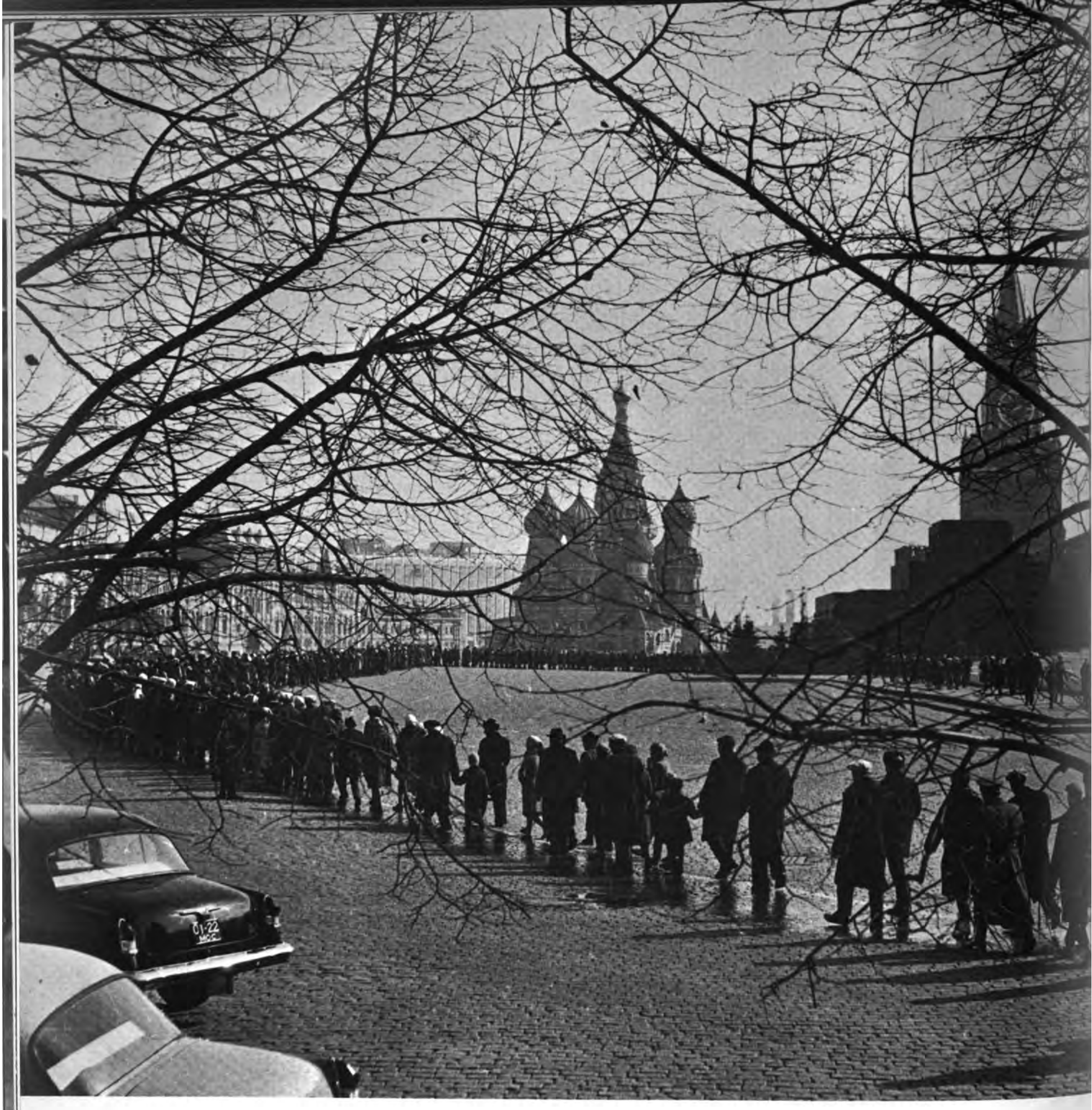
He spoke of the tremendous labor enthusiasm of the Soviet people who marked the fiftieth anniversary of Soviet power with new economic, scientific and cultural achievements. He congratulated the winners of the jubilee socialist emulation movement. The fiftieth anniversary of the October Revolution, he said, is a holiday not only for the Soviet people, but also for the peoples of the fraternal socialist countries, for the Communists of all countries, for the international labor movement, for all the working people whose friendship and solidarity have always been and will remain for Soviet people a source of inspiration in the struggle for communism.

He referred to the attempts of imperialist propaganda to make "its contribution" to the jubilee, to distort the real meaning of the Revolution and the gains of socialism. However, we live at a time, he said, when it is no longer possible to belittle the grand achievements of the Soviet Union. The efforts of our enemies, their calumny and falsehood will turn against them. The homeland of the October Revolution, the country of triumphant socialism, remains the hope and bulwark of all oppressed, of all those who are fighting for the peace, freedom and happiness of nations.

"The successes of the first half-century of the Soviet state, the successes scored in this period by all the detachments of the world revolutionary movement are a prologue to a still greater future for our country and the peoples of other countries," he concluded. "Before the working people of the world the Leninist party solemnly declares: The Communists of the Soviet Union, the great Soviet people will fulfill their historic mission, will build the world's first communist society."

KREMLIN DREAMER

H. G. Wells met Lenin when the young Soviet republic was fighting a Civil War and foreign intervention. He wrote a book called *Russia in the Shadows* in which he called Lenin the "Kremlin dreamer." Yes, Lenin was a dreamer. He had a vision of the future, he saw communism a reality. Reviewing its past, the nation once again honors his memory. A monument is unveiled in the Kremlin, November 2, 1967.



Poet Vladimir Mayakovsky said in his poem *Lenin:* "Lenin lived, Lenin is alive, Lenin will live!" Mayakovsky was right. Time cannot alter the memories deep in the hearts of the Soviet people; moreover, our country's accomplishments in building socialism are living monuments to Lenin's ideas and his dreams. An endless line of people walk toward the Mausoleum. They come from every part of our country, from every part of the world. All of them, young and old alike, come to pay honor to Vladimir Lenin.

The cities of Leningrad and Moscow were awarded the newly instituted Order of the October Revolution in recognition of the outstanding contributions citizens had made to the Revolution, the defense of the country and the building of communism. The order, a five-pointed star with an image of the *Aurora,* will be awarded to Soviet citizens and organizations, to factories and cities for revolutionary service, building communism, and for scientific, industrial and cultural contributions. The decoration will also be awarded to foreign citizens.

The setting for much of Soviet history has been Red Square. John Reed saw the Moscow Red Guards dig graves here at night for their comrades who fell in action against the counterrevolution. The ashes of John Reed himself, an American and one of the thousands of internationalists who sided with the workers and peasants of Russia, are interred in the Kremlin wall.

There was a grand fireworks display in Red Square on November 7, 1918, for the first anniversary of the Revolution. The square was plastered with placards and slogans, but there was not enough cloth to make flags. People were asked by the newspapers to bring what flags they had to the celebration. The parades and rallies went on all day. Effigies of the old order—the czar, capitalists and landowners—were burned. A tank, trophy of the Civil War, was slowly driven by Moscow workers through Red Square. Songs written for the occasion have survived and remain popular to this day. A balloon launched in the square carried a red flag to a height of more than 15,000 feet.

The square was a scene of mourning on that frosty day in January 1924 when the people bade their last farewell to Vladimir Lenin.

In peacetime years the Soviet people carried or drove through Red Square what they had produced: automobiles; machine tools; models of power stations, blast furnaces and factories; and sheaves of new varieties of wheat. These were the first samples of the country's common effort, and they were borne aloft by their makers with pride. "All this," they were saying, "down to the last screw, we made with our own hands!"

Regiments marched through the square on November 7, 1941, on the way to the front. They stopped the nazi advance on the approaches to Moscow and dealt the fascists their first major defeat.

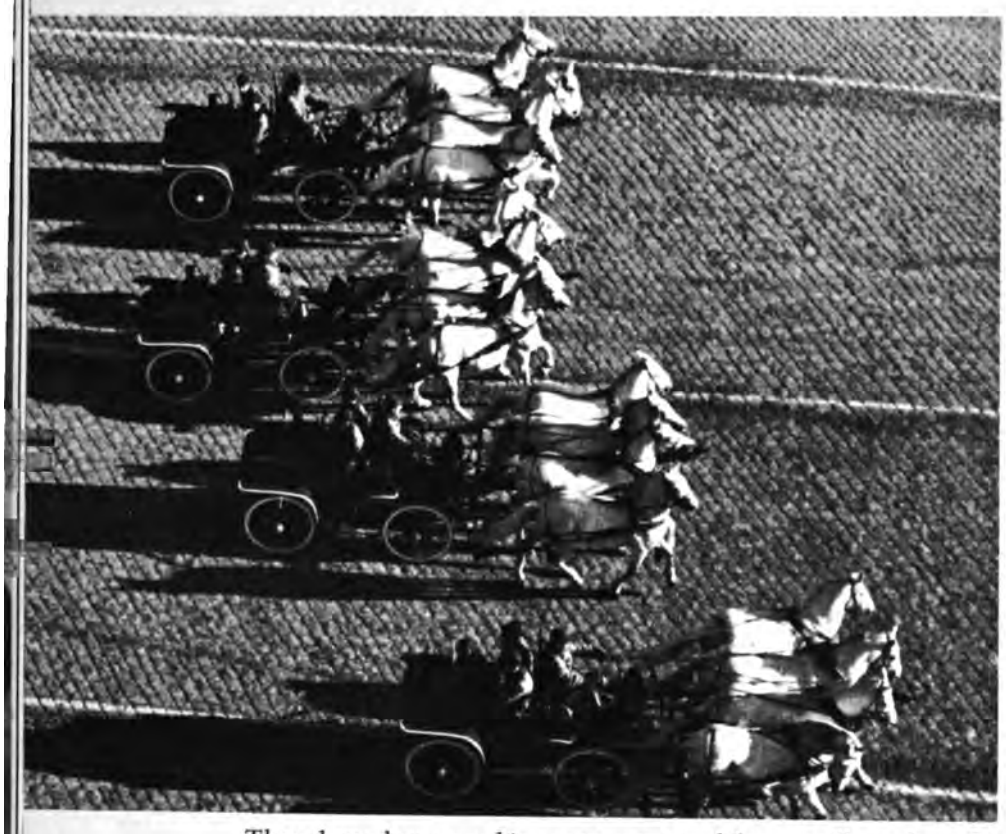
The soldiers returned to the square in June 1945 for the VE-Day parade. They threw the standards of the smashed nazi divisions—the emblems of defeated militarism—on the wet cobblestones at the foot of the Mausoleum.

Every year high school graduates gather in Red Square to see the sun rise, a symbol of adulthood.

And now, for the fiftieth anniversary of the Great October Socialist Revolution, the eyes of the world center on Red Square.

Minister of Defense Marshal Andrei Grechko and parade commander Colonel General Yevgeni Ivanovsky salute the cadet units standing at attention.

As though they were striding across five decades, columns of armed workers in leather coats stream through the square—the Red Guards of 1917.



These horse-drawn machine guns were used by guerrilla and cavalry units. They became famous for their surprise raids and swift getaways.

Red Army units of the Civil War period march past the reviewing stand. They fought off the interventionist armies of 14 capitalist countries.

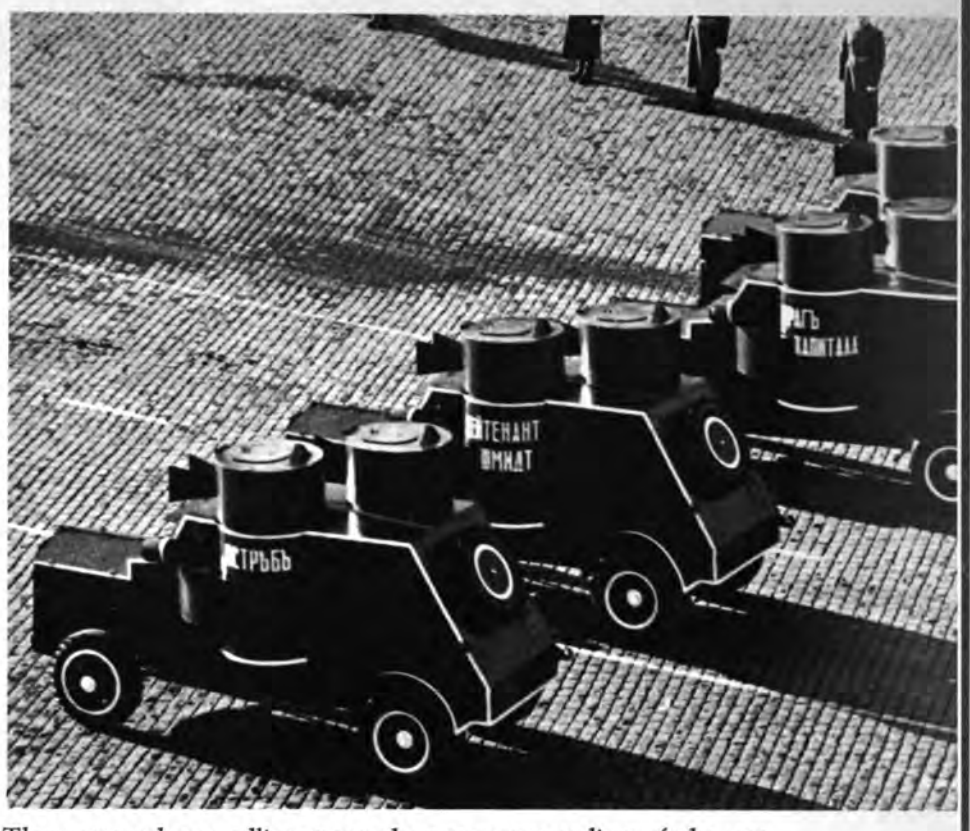
The Guards Kantemirovka Tank Division was formed during World War II. Thirty of its men have earned the title Hero of the Soviet Union.

First World War soldiers. The red ribbon on their sheepskin hats is for those who mutinied and went over to the people during the Revolution.

Next come units of revolutionary sailors. Leaving their ships for land, they threw back the enemy in some of the bloodiest Civil War battles.

50 YEARS WITHIN AN HOUR

In keeping with tradition, the Red Square celebration begins with a military parade. It was an unusual one this time, as though the history of the Soviet armed forces was being re-enacted for the people looking on. It began with the revolutionary workers' detachments and the units of the Red Army which confronted the invading troops of Kaiser Wilhelm in February 1918 and ended with the most advanced strategic missiles. On review was an army whose fighting capacity has made it a reliable shield for peace and socialism, a bulwark against aggression.



These armored cars rolling across the square are replicas of the one from which Lenin spoke to revolutionary Petrograd workers 50 years ago.

Missiles of different kinds and for different uses usually wind up the military part of the parade. Spectators saw some new types this time.

SMILES, FLOWERS, BANNERS

The colorful procession of people carrying flags, placards and flowers filled Red Square. It moved past the Mausoleum where stood government and party leaders and distinguished foreign guests (top photo). The marchers were workers and students, actors and physicists, young men and women and veterans of the Revolution, people from every one of the country's dozens of nationalities.

MOSCOW SALUTES THE ANNIVERSARY OF THE REVOLUTION

Fifty years ago—November 7—the *Aurora* fired the signal for attack on the Winter Palace. Now it signals the anniversary celebration. Moscow's night sky is stabbed by flashes of 50-gun salvoes, lighted by rainbows of fireworks in a giant birthday salute.

Man of a Thousand Faces

Interviewing Arkadi Raikin

By Konstantin Telyatnikov

NOBODY ever says, "I'm going to the Leningrad Theater of Miniatures tonight." Everybody says, "I'm going to see Raikin!" Not because there are no other actors worth seeing in this theater which Arkadi Raikin, People's Artist of the Russian Federation, has headed for a quarter of a century. But in a sense, this is a one-actor theater—Raikin's. He is a master of the grotesque, of parody, of clowning, all done with biting, sharp-edged characterization. And Raikin himself?

He has a kindly clever face with gentle eyes and a diffident smile. That is his natural face. But on the stage it wears a hundred masks— bureaucrat, ignoramus, bootlicker, coward, hooligan, bigot, bully, swindler—so cleverly mimicked that the spectator immediately recognizes a type he has had an encounter with at one time or another.

An evening's program by Raikin is a succession of two dozen or so short skits or miniatures with a caustic between-the-lines commentary. His characters live no more than two or three minutes, but they are sketched so clearly that their attitudes, morals and even ultimate futures are predictable.

His manner, on stage, is grave, confidential, chatty. He ranges widely for his subjects, prompted by an affection for his fellow men that guides him unfailingly to the what or the who that is blighting our lives. "You cannot really love without knowing how to hate," Gorky said. Raikin declares his love for his fellow men by hating everything that stands in the way of their happiness. His weapon is humor, at times innocuous but more often with barbed edge.

It is fascinating to watch Raikin's audience. Everybody is usually laughing uproariously, but here and there a person stiffens up with disapproval, even resentment. Not necessarily because he has no sense of humor or is personally sensitive to Raikin's ridicule, but because he believes that the business of art is to extol virtue, not to flay vice.

I asked Raikin what he thinks the function of satire is.

"The purpose of satire is not merely to expose vice but to help virtue take root in life. The satirist rejoices at everything that is good in society, perhaps more than other people can do. He points up what is sick and flays those who prefer not to notice it. To ignore vice actually means to permit it to exist. It is natural for the satirist to take special joy in seeing the illness being treated since he was the first to notice it."

"Who are your most common targets? Would you, if you thought it necessary, lampoon a government figure?"

"I never ask myself who may be satirized and who may not be. The question I do ask is what needs to be lashed out at. And for the answer I am responsible only to my own con-

science. It seems to me that to criticize anything is inevitably to speak up for its opposite. When we attack ignorance, we take up the cudgels for knowledge and enlightment.

"I don't have favorite objects of ridicule. If a high-ranking official shows lack of competence in his field, in agriculture, for example, he may very well become the subject for a satire program. In our program 'Wizards Live Around Us,' which is still being shown, we disguise one of our statesmen as a collective farm chairman. It would not be difficult to perform this skit today, but we did it long before he retired. There was no question about what we were saying—nobody had any doubt about who was being lampooned. True, many people thought we went too far and did not approve of us at the time. But the program continued, and it was a success. After the i's had been dotted and this man was no longer [illegible] people came to us and said [illegible]

"For example, the time wasted in waiting. Take a man who has lived to the age of 80, and think of the years he has spent waiting—on line to pay bills, to buy a ticket to the theater, cooling his heels in a bureaucrat's office or in a doctor's waiting room. When we add up the years wasted and years spent sleeping, we find that this octogenerian has done only 10 or 15 years of productive living. Isn't that too short a span of life?

"In another program we turn the spotlight on our young people. We want more thought given to the problems they themselves raise. Some time ago I had occasion to be present at an intercollege satire and humor festival. I was very much interested in the skits presented by the students and even more interested in the reaction of [illegible]

"Life itself chooses the problems which in one way or another are reflected in our shows. If they are only inventions, they rarely go over with the audience. We don't have to invent, however. The characters we lampoon are sliced from living reality. And the things we hold up to ridicule, we regard as incompatible with the principles of our society."

"Have theater executives ever used any pressure to make you change a program?"

"In the past 25 years we have presented 25 shows of three hours each with miniature skits on every possible current topic—literature, art, literary criticism, youth—and we've lashed out at bullies, ignoramuses and bureaucrats. Not once has a program or a single number been banned. There was one instance when [illegible] dress rehearsal we ourselves dropped [illegible] current enough."

SMALL ETHNIC GROUPS AND NATIONALITIES

Yesterday's old tombs and today's women's wear shop in Orjonikidze, capital of the Ossetian Autonomous Republic in the Caucasus Mountains.

MORE THAN 100 nationalities, large and small, live in the Union of Soviet Socialist Republics. In population they range from 100 million Russians to a few hundred Aleuts and Yukagirs.

The Declaration of the Rights of the Peoples of Russia, adopted almost immediately after the Revolution, announced the free development of all nationalities and ethnic groups as the law of the land. The administrative form for the large non-Russian nationalities was fairly clear, the establishment of national and autonomous states. That was how the Ukrainian, Uzbek, Georgian, Tatar, Bashkir and other republics were formed. What to do with the ethnic groups and small nationalities was not nearly so clear.

The Soviet Union has two main ethnic regions, the Caucasus and Siberia. In the Caucasus several dozen nationalities, from Azerbaijanians, Armenians and Georgians, each with a population of three million, to small ethnic groups (the Izhors number only 1,000), occupy a comparatively small territory, 170,000 square miles (two per cent of the total area of the Caucasus). The Autonomous Republic of Daghestan, for example, with 19,000 square miles and a total population of 1.3 million, has six relatively large Daghestanian peoples—the Avars, Darghins, Kumyks, Lezghians, Laks and Tabasarans, and another 25 small nationalities and ethnic groups, some consisting of only a single mountain village.

In Siberia, the other ethnic region, small nationalities are scattered over a vast territory and separated by hundreds of miles. The largest of the nationalities, the Khakass, numbers 57,000. For the most part, the sizes of the nationalities range from several hundred (there are 800 Orochs and 700 Nganasans) to several thousand.

What did "free development" signify for these peoples? How was "free development" to be guaranteed? A form of political organization had to be found for the small nationalities, a way to bring them into the mainstream of modern life.

Political Organization

Autonomous regions were set up for the largest of the small nationalities. An autonomous region is an administrative unit that is part of a republic or territory; there are now eight. The Khakass Autonomous Region, for example, is part of Krasnoyarsk Territory in Siberia. It does not have its own constitution like a union republic or an autonomous republic. It has an Autonomous Region Statute, drawn up by elected representatives of the people concerned and ratified by the Supreme Soviet of the union republic. School instruction, legal proceedings, the publication of laws, and government administration are all in the native language. Newspapers are published and radio programs are broadcast in the native language. The heads of the regional Soviet are natives of the region. Each autonomous region, regardless of its size, is represented in the USSR Supreme Soviet by five deputies.

Smaller nationalities form national areas, an administrative part of a region or territory; there are 10. The Chukchi National Area, for example, is part of Magadan Region. Each national area is represented by one delegate in the USSR Supreme Soviet. It has its own statute, which, like the Autonomous Region Statute, takes into account the specific features of life in the area. In the Chukchi National Area many reindeer herders still lead a nomad life. To encourage them to settle down, the Statute specifies that the state will pay 75 per cent of the cost of building a house for a nomad Chukchi. The Chukchi—there are now 12,000—receive free medical treatment, as do all Soviet people, and they are also entitled to free medical supplies under the Statute. This is part of the battle against disease, which was wiping out this nationality.

Still smaller nationalities have their own administrative units. There are nationalities districts within regions, and nationalities Soviets, the smallest administrative unit. The

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The first problem, the
tion of the small nationalities, to
years to solve. It was fairly well completed by the time the war broke out. The second problem, to make the small nationalities active participants in the life of the country, has taken much more time.

Doomed to Extinction?

The socioeconomic and cultural level of most of the small nationalities was primitive. Some (the Northern peoples) still had a tribal system; others (chiefly the nationalities in the Caucasus) combined leftovers of the tribal and feudal systems.

The Caucasian peoples were economically backward. They used wooden plows and hoes and ground grain by hand. Implements and household utensils were homemade. Education was embryonic. There was only one school of two grades in all of Karachai, a district inhabited by 81,000 people. The Karachais had a 4.5 per cent literacy rate, the Cherkesses three per cent, and the Balkarts less than one per cent. Health services were equally primitive. In 1920 in all of the present Karachai-Cherkess Autonomous Region (an area of 5,400 square miles inhabited by about 300,000 people) there was one small medical post staffed by a trained nurse. Epidemics of smallpox and leprosy were not infrequent among these small nationalities of the Caucasus.

But it was the Northern nationalities that suffered most from disease, primarily from tuberculosis. Russian merchants brought in more vodka than they did potatoes, and that took its toll also. Between 1885 and 1913 the Nenets population was reduced by seven-eighths. The Evenki, doomed to extinction, had wasted away to a few score by 1920. The peoples of the North had the lowest socioeconomic and cultural level in czarist Russia.

Ossetians young (right) and getting on (left). In this part of the world you aren't considered aged until you approach the 100 mark; there are 300 centenerians. Briss Tauteyev is 87 years young.

Nomad reindeer breeders, hunters and fishermen, they were almost all illiterate. Only 74 of the 10,000 Chukchi could read and write Russian. Not a single one of the Northern nationalities had a written language.

In the early twenties some scholars proposed that these nationalities be settled on reservations like those of the Indians in the United States, but the government and the Communist Party were strongly opposed. Instead, on Lenin's proposal, the principle adopted was to draw the small nationalities into the mainstream of Soviet life. To do this, their economic and cultural level had to match that of the more advanced peoples of the Soviet Union. Although the country was economically prostrate, the Communists decided to take that challenging course.

First of all, the small nationalities had to be saved from depopulation. They were granted special privileges and benefits. A network of health services was organized for them. They were supplied with the manufactured goods they needed and exempted from taxes. A special decree signed by Lenin "On Practical Measures to Supply the Hunting Population with Food and Hunting Equipment" ordered 74 trading stations set up on the Yenisei where hunters could exchange furs for food, guns, gunpowder, and other necessities. The purchase price of furs was raised and the prices of manufactured goods reduced.

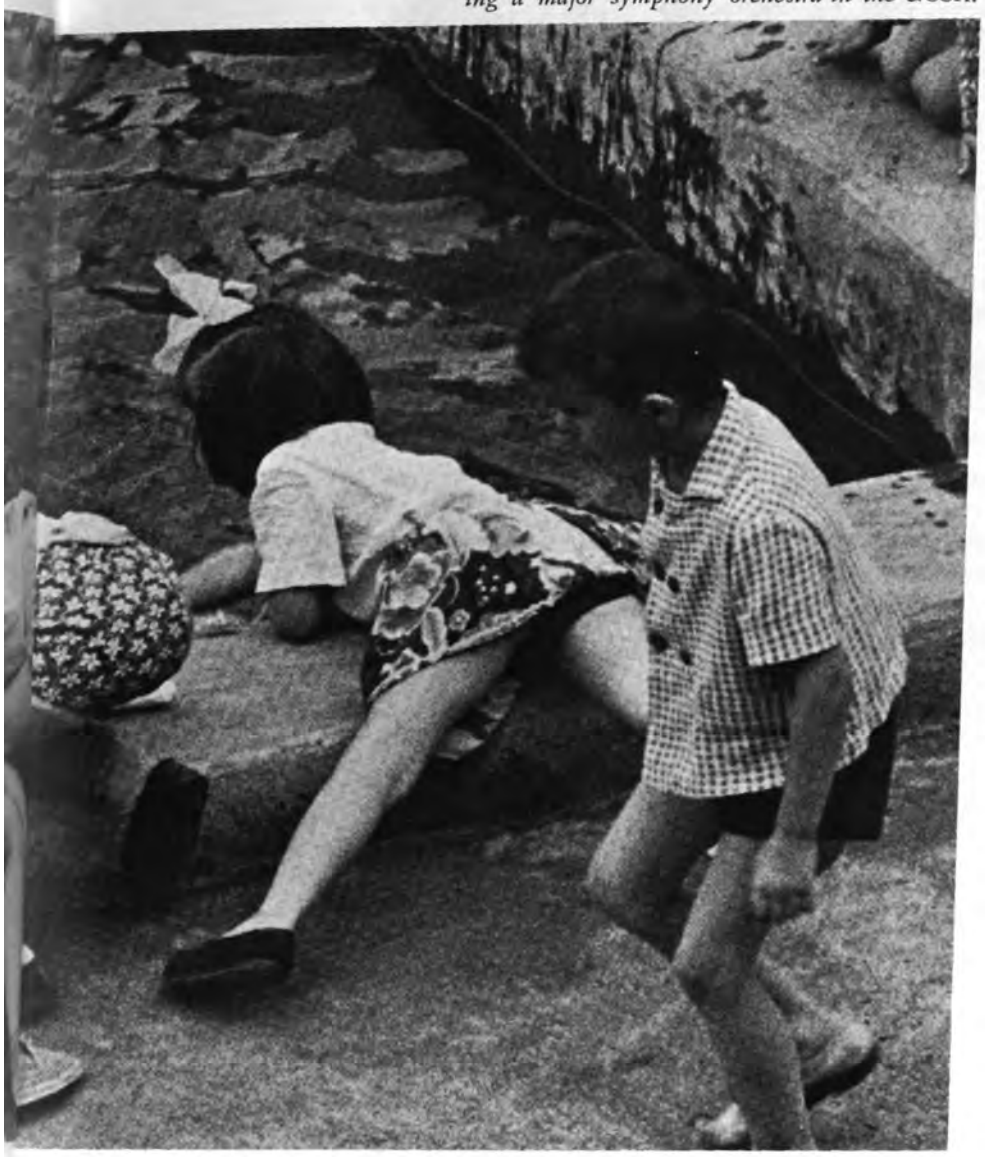
A Council of the North was formed in 1922 to protect the interests of the small nationalities during the formative period, while they built their own political organizations. Members of the Council included scholars familiar with the way of life of the nationalities, Communists, and the few local people able to contribute to community development. The Council of the North was empowered to initiate legislation. It recommended laws, subsequently adopted by the Soviet Government, on economic reconstruction, land use, trade, schools, medical care and a system of privileges for the small nationalities. The laws took into consideration the local way of life and the specific development of each ethnic group. Written languages were created for many of the small nationalities. (The first all-Russia conference on the development of the spoken and written languages of the Northern peoples was held in 1931.) Appropriate textbooks, readers and popular science books were written and published. It was not enough to establish schools. Parents had to be persuaded to send their children. Boarding schools were established where children were housed, fed and clothed at government expense. Traveling schools and mobile medical centers were organized for the nomad peoples. High salaries were offered teachers and doctors willing to work in remote areas. The high school graduates willing to continue their education were sent to the Institute of the North in Leningrad.

Results

The Daghestan Autonomous Republic, composed of dozens of nationalities speaking different languages, was formed in 1921. The republic now has well-developed oil, gas, chemical and machine-building industries. It can claim a 100 per cent literacy rate, and it trains its own professionals, a sign of good intellectual health. The republic has four colleges, one university, 22 research institutes, and a branch of the USSR Academy of Sciences. Former cattle herders and farmers have become capable engineers and industrial managers. In 1920 Daghestan had 40 college graduates; now it has 16,000. The Institute of Physics is headed by Academician Khabibulla Amirkhanov, one of the country's leading scientists. He is a Darghin. Before the Revolution the Darghin people had no written language of their own. The Institute of Geology is headed by Academician Musa Aliev, a Doctor of Geological Sciences. He is a Lak. Helped by all the Soviet nations to lift themselves out of ignorance, the small nationalities are now making their cultural contributions. Such poets as Suleiman Stalsky, a Lezghian; Rasul Gamzatov, an Avar; Effendi Kapiev, a Lak, are known and read in the Soviet Union and abroad.

In the North the rigorous climate complicated the problems of housing, schools and health services. Today the Chukchi National Area has one doctor per 204 of the population.

The Khakass Autonomous Region in Western Siberia has more college students per 10,000 of the population than the average for the country generally. In the thirties members of the small nationalities received their professional training at the Institute of the North



People's Artist Veronica Dudarova, a native of this once culturally and economically depressed mountain republic, is the only woman conducting a major symphony orchestra in the USSR.

and at Departments of the North in Leningrad. This is no longer necessary. Schools in the regions where these nationalities live now prepare their graduates for admission to any college or university in the country. The small nationalities still have certain priorities for college entrance.

The culture of the North has merged with the country's while retaining its national flavor. The novels and short stories of the Chukchi author Yuri Rytkheyu are popular throughout the Soviet Union. The rich colors in the paintings of Tyko Vylka, a Nenets, have influenced many young Russian painters.

Prospects

The policy followed for the small nationalities has solved many problems and brought dozens of new ones. For example, young people, fired by the opportunities for cultural and educational advancement, often forget the traditions of their people. Assimilation is a factor to be reckoned with. Marriage between members of large and small nationalities is frequent and encounters no moral or material barriers. The need for contact between nationalities increases the influence of the Russian language and culture.

Does this mean the eventual disappearance of the small nationalities? The answer probably is: The small nationalities are not exotic exhibits to be kept on museum reservations. They are living organisms. Like all the nations of the world, they are developing toward a single world nation.

SOVIET ARMY

FILMED BY WABC-TV

THIS IS NOT a sequel to *The Russians Are Coming, The Russians Are Coming!*, and Hollywood is not trying to put another Soviet landing party ashore in an old New England town. No, WABC News has filmed a 60-minute color TV documentary on the Soviet Army on location—the USSR—release date, February 1968.

As conceived by director Desmond Smith, the narration centers around three people: inductee Anatoli Sizonenko, Lieutenant Alexander Levchenko and General Pyotr Bimbash. The camera introduces Sizonenko while he is still a civilian, working in a design office and playing a saxophone in an amateur band. It follows him to the induction center, through his medical exam and into the barber shop, where he gets the regulation cut. The film moves on with shots of military units stationed in southern USSR and then to Frunze Military College in Moscow, one of the oldest such schools in the country.

Every morning Director Smith rounded up his film crew for the bus ride to location by blowing on a police whistle. The crew obligingly responded with a series of cowboy yells, to the mystification of local people passing by the hotel.

On shooting days, General Bimbash's apartment looked like a bivouac on the march, with equipment cases and tripods all over the place and a mass of wiring that the general's wife, his student daughter and youngest son, Pyotr, Jr., kept getting tangled up in. Order was restored only when the shooting was all over and the general's family and the film crew gathered around the dinner table to discuss the documentary and toast its future success.

Smith and his crew followed a Soviet Army platoon around for several days. Reveille, morning exercise, drill, classroom studies and free time —all of it was shot by Ralph Mayer and Novosti Press Agency cameraman Boris Yurchenko.

Shooting a D-Day scene: "Ready," the director announces, and a minute later artillery opens fire at "enemy" defenses on the other side of the lake. Submachine and machine guns burst away. Armored carriers lumber through the water to the "enemy"-occupied shore. Helicopters, with airborne troops aboard, sweep over at hedge-hopping altitudes. John Dignen records the "battle."

It looks as though everything is going along fine, but Desmond Smith doesn't think so; he orders another take. And so the sound of the cannonade dies down, and the soldiers, in their camouflage capes, go back to their original positions to do it all over again.

WABC News and Novosti worked on the film for more than a month. The American crew saw an army inseparable from the people, and we hope that will come through in the narration of script writer George Watson, WABC News' "Man in Moscow."

The documentary is expected to be on American TV screens this month, when the Soviet Armed Forces celebrate their fiftieth anniversary.

UNIDENTIFIED FLYING OBJECTS

First the facts: several striking and reliable UFO observations; and then, conclusions.

By Felix Zigel
Doctor of Science (Technology)
Assistant Professor,
Moscow Aviation Institute

First Account

THE PLACE of observation is Kazakhstan, the field camp of a geophysical expedition from a Leningrad research institute. The nearest populated locality, Koktal, is 11 miles away. The time of observation is August 16, 1960, about 11 P.M. local time.

According to Master of Geology and Minerology Nikolai Sochevanov, the camp chief, a strange, luminous body suddenly appeared over the mountains on the eastern slope of the valley. It was moving from north to south, and its visible diameter was one and a half times longer than the Moon's.

A few seconds later the body disappeared behind a mountain top, reappeared and headed southeast, keeping constant speed and height above the Earth. The mysterious object was lens-shaped and bright, the edges being somewhat less luminous than the center.

The body described an arc in the sky and disappeared behind the mountains, leaving no trace.

The unidentified flying object (UFO) was observed by eight scientific workers, members of the geophysical expedition.

Second Account

On July 26, 1965, Latvian astronomers Robert Vitolniek, Yan Melderis and Esmeralda Vitolniek were studying noctilucent clouds at an observation station at Ogra. At 9:35 P.M. they noticed an unusually bright star moving slowly in a westerly direction. Looked at through binoculars with a magnification of eight diameters, the "star" resolved itself into a small, flat speck. The telescope then disclosed the following incredible picture.

In the heart of a lens-shaped disc, which the astronomers estimated to be about 325 feet across, was clearly evident a thickened part, a small sphere. Around the disc, at a distance of two diameters, were three spheres resembling the one in the center. The spheres slowly rotated around the disc as the entire system diminished in size, gradually leaving the Earth. Some 15 to 20 minutes later the spheres began to move away from the disc, as if receding in different directions. The sphere in the center also left its place and moved away. Finally at 10 P.M. all these shining emerald green bodies were so far away that the astronomers lost sight of them.

This strange picture was observed in the northwestern part of the sky at about 60 degrees above the horizon. The astronomers estimated that the enigmatic objects were about 60 miles above the Earth.

Third Account

A long radiogram arrived at the office of the magazine *Smena*, for which I had written an article on UFOs. It was sent by First Mate Bazhazhin on behalf of the crew of the Soviet ship *Izhevsk*.

On August 2, 1967, at 11:30 P.M. Moscow time, while crossing the Norwegian Sea in a westerly direction, *Izhevsk* sailors witnessed this unusual phenomenon, said the radiogram:

"There were three of us in the cabin—Captain Markov, Senior Engineer Ivanov and myself. Sysoyev, navigator on duty, reported a strange phenomenon in the sky. We ran to the bridge and saw a sphere-like whitish spot moving southward.

"A few minutes later a bright spot flared up high in the sky. For a couple of seconds it rushed headlong from west to east at an angle of 45 degrees to the Earth, getting much larger. Suddenly it came to a stop and with a play of bright rainbow colors (yellow predominating) began throwing off sparks and became enveloped in a white shroud.

"Once again the sphere-like white nebula began moving south. The procedure was repeated four times. On the fifth and last time the spot's behavior changed. It stopped midway, turned over and assumed the shape of an

egg with the thicker end up. Then a powerful white jet squirted from the lower end, after which the 'egg' grew pale, became enveloped in white mist and, with its white tail, began to head southward."

All this strange celestial activity was visible for an hour and then vanished into thin air.

Fourth Account

Not one but several reports came from astronomers at the Mountain Astrophysical Station, USSR Academy of Sciences, 12 miles from Kislovodsk, Caucasus.

In July 1967 the station received letters from local newspapers reporting the flight of a strange reddish crescent across the sky at 9:20 P.M. on July 17.

In the very early morning of July 18, 1967, astronomer H. I. Potter, who was observing the Moon at the Mountain Station, noticed a strange formation against a clear starry sky at 2:50 A.M. Moscow time. A white cloud appeared in the northeast at an elevation of about 20 degrees. Its diameter was twice as long as that of the Moon but its nose was several times less bright.

The cloud itself had a dense milky-white color, with a rosy-red nucleus clearly discernible near its northern end. The cloud expanded and grew paler. A few minutes later the white cloud dispersed completely, but the reddish nucleus remained. Toward daybreak it lost its outlines and then disappeared. Photographs showing its changes were taken.

At 8:40 P.M. on August 8, 1967, at the same Mountain Station astronomer Anatoli Sazanov observed an unfamiliar flying object. It was shaped like an asymmetrical crescent, with its convex side turned in the direction of its movement. Narrow, faintly luminous ribbons resembling the condensation trail of a jet plane followed behind the horns of the crescent. Its diameter was two-thirds that of the Moon, and it was not as bright. It was yellow with a reddish tinge.

The object was flying horizontally in the northern part of the sky, from west to east, at about 20 degrees above the horizon. It covered the distance from Ursa Major to Cassiopeya in half a minute. A bright star of the first magnitude was moving at a constant distance ahead of the crescent.

As it moved away from the observers, the crescent dwindled, turned into a small disc and then instantly disappeared.

The mysterious object was seen by 10 of the station's scientific workers. It was also observed in Kislovodsk. According to Sazanov, the crescent was 12 miles away, and it was no less than 500 feet across.

Optical Illusion?

Let us stop here and draw some conclusions. Even if all the UFO evidence amounted to no more than these four accounts, it is clear that the evidence exists. The fact of the matter is, however, that many thousands of such observations have been documented in the past 20 years. They come from dozens of countries and virtually every corner of our planet, including the Arctic and Antarctic. The UFO phenomenon is too widespread and popularly accepted to be dismissed lightly.

A growing number of serious scientists are not satisfied with explanations characterizing the sightings as visual aberrations. It goes without saying that the phenomenon attracts, and will unfortunately continue to, all sorts of publicity-seekers. But we do not stop using money because there are counterfeiters. The task of science is, precisely, the obligation to distinguish between the false and the true.

Thus, if science considers flying saucers a hallucination, it still must explain the cause of this global psychic illness. That may well be as difficult to establish as the true nature of UFOs.

The well-known American astrophysicist Donald Menzel says that flying saucers are optical phenomena in the Earth's atmosphere. Because of Professor Menzel's scientific prestige the explanation is generally accepted. But it does not hold water. As soon as we go on from this generalization to concrete interpretations of concrete observations, it becomes evident that UFOs will not reduce themselves to optical phenomena of the mirage, rainbow or halo type. Try the Menzel explanation on the four accounts we cited earlier. Nothing intelligible will emerge. What we seem to be dealing with here is a kind of reality still unexplored.

The appearance of UFOs is almost always accompanied by a luminescence of air and the formation of an atmospheric plasma. This fact is the basis for the "plasma" hypothesis of UFOs as accumulations of atmospheric plasma of the ball lightning type. But this explanation does not hold up either. Ball lightning is always a thunderstorm product, and the appearance of UFOs has no relation to weather. Ball lightning diameters as a rule run four to five inches, no larger; the diameters of flying discs are tens and even hundreds of times that size. The behavior of UFOs, their shapes and other physical properties are quite different from what we know of ball lightning.

Saucers and Balls

To find a clue to the nature of UFOs, we must study all the reports on these surprising and, to my mind, real objects. Only a scientific analysis will reveal the truth. What is, however, clear already is that UFO phenomenon can be objectively analyzed and classified. The UFO classification adopted by foreign investigators is also confirmed by Soviet observers.

By day when observed from Earth or planes, UFOs appear as bright discs with a metallic tinge. Assistant Professor Vyacheslav Zaitsev observed such a flying saucer in 1964, above Bologoye, from a TU-104 aircraft making a scheduled flight. The huge bright metal disc slid under the liner's belly, made a turn and at some distance took a course parallel with the aircraft. A bulging core resembling a cabin could be seen in the heart of the disc. After flying alongside the plane for several seconds, it swerved abruptly and disappeared.

A similar object was observed by geodetic astronomer Lyudmila Tsekhanovich in the summer of 1965 near Sukhumi, Caucasus. The UFO made a swift maneuver over the sea, then headed for the mountains. The astronomer was, however, able to see that the central protruding part of the disc had holes which seemed to be lit from the inside.

UFO movements are peculiar. Sometimes they hover over the earth for tens of minutes. In flight they can develop incredible speeds and accelerations.

At 9:45 on the evening of June 17, 1966, on the outskirts of Enlista a team of geophysicists from the Institute of Oil and Gas Industry, Volgograd, led by V. G. Krylov, noticed a reddish object moving across the sky. It was shaped like a small disc.

Suddenly the body began to fall swiftly along a helical trajectory, its reddish color changing to bright white-blue. Then there was a sort of flare, and instead of the body a bright-blue round cloud appeared. It quickly spread out and melted away.

Depending on the viewing angle, flying discs look flattened or cigar-shaped or spherical. In some cases a UFO appears as a crescent, turning into a disc before your eyes.

The belief that UFOs are real is also borne out by the fact that these enigmatic objects are not only visible to the naked eye, but leave distinct images on photographic plates and are recorded by such impartial "witnesses" as radar screens.

Air Force Major Baidukov, on a night mission above the Odessa Region on April 4, 1966, noticed on the screen of his plane's radar a strange object which was also spotted by ground-based radar units. Within 15 minutes the object dropped from 31 to 18 miles, in the next quarter of an hour to 15 miles, and in the next 10 minutes to 11 miles. The UFO remained unidentified.

Maneuver and Pursuit

The well-known Soviet pilot, chief navigator of Soviet polar aviation Valentin Akkuratov, describes one of his encounters with flying discs:

"In 1956, engaged in strategic ice reconnaissance in a TU-4 plane in the area of Cape Jesup (Greenland), we dropped down from

the clouds to fair weather and suddenly noticed an unknown flying craft moving on our portside parallel to our course. It looked very much like a large pearl-colored lens with wavy, pulsating edges. At first we thought it was an American aircraft of an unknown design, and since we did not want to encounter it we went into the clouds again. After we had flown for 40 minutes toward Bear Island, the cloud cover ended abruptly, it cleared ahead and on our portside we saw once again that same unknown craft. Making up our minds to see it at close quarters, we changed our course abruptly and began the approach movement, informing our base at Amderma of the maneuver. When we changed our course, the unknown flying machine followed suit and moved parallel at our speed.

"After 15 to 18 minutes of flight the unknown craft sharply altered its course, sped ahead of us and rose quickly until it disappeared in the blue sky. We spotted no aerials, superstructure, wings or portholes on that disc. Nor did we see an exhaust gases or condensation trail. It flew at what seemed to us an impossible speed."

No Prejudices

Until recently no scientific study of UFOs has been made in the Soviet Union. More than that, the prevailing and, in my opinion, mistaken view was that UFOs are common optical phenomena in the Earth's atmosphere. There was no collection of UFO observations, and the general impression was that flying saucers are fantasies. The situation now is changing.

In 1968 the Nauka Publishing House of the USSR Academy of Sciences is scheduled to bring out a book titled *Populated Outer Space,* edited by Academician Boris Konstantinov, Vice President of the USSR Academy of Sciences. The distinguished Soviet and foreign contributors include: Academicians Victor Ambartsumyan, Alexander Oparin, Alexander Imshenetsky, Andrei Kolmogorov; Corresponding Members of the USSR Academy of Sciences Vasili Kuprevich, Alexander Vologdin, Iosif Shklovsky; and eminent foreign scientists Melvin Calvin, William Pickering, Frank Salisbury (USA), Norman Pirie, Bernard Lovell (Great Britain), Hans Freudenthal (Netherlands), Giuseppe Piccardi (Italy) and many others.

The anthology will have a special section devoted to the UFO problem, with contributions from American scientists Joseph Hynek, James McDonald, Jack Valley, and Frank Salisbury, articles by Soviet writers and UFO observations made in the Soviet Union.

Soviet observations of UFOs, like those I cited earlier, were not taken from a systematic collection of information of this kind; they were spontaneous responses to my article in *Smena.* This fact warrants the conclusion that there have been many more UFO observations in the USSR. We have already collected some dozens of well-documented reports and accounts.

In May 1967 a sponsoring group of scientists, the military, writers and public figures met to form an unofficial body whose purpose it would be to conduct a preliminary scientific investigation of UFOs. Those present included Professor Heinrich Ludwig; Doctors of Science Nikolai Zhirov and Igor Bestuzhev-Lada; chief navigator of Soviet polar aviation Valentine Akkuratov; Generals Porfiri Stolyarov, Leonid Reino, Georgi Uger and Georgi Zevalkin; twice Hero of the Soviet Union Grigori Sivkov, Master of Science (engineering); Heroes of the Soviet Union docent Yekaterina Ryabova and Natalia Kravtsova.

The organization, set up October 1967, is called the UFO Section of the All-Union Cosmonautics Committee, with headquarters at the Central House of Aviation and Cosmonautics in Moscow. Air Force Major General Porfiri Stolyarov was elected chairman of the section.

Those of us who are participating in this new and exciting undertaking have an ambitious program of work ahead. The first step will be to organize the collection of reliable information on UFOs. That will be done at the outset by the existing systems of astronomical, meteorological and geophysical observatories, satellite and space-rocket tracking stations and the radar installations of civilian airports and the hydrometeorological service. All these organizations can make UFO observations with equipment now available.

In the design stage are special devices for photographing UFOs and recording the radiation and magnetic disturbances which they may be responsible for.

Guests from Other Worlds?

The recorded observations will serve to check hypotheses. These hypotheses should not, in my opinion, attempt to explain the nature of UFOs in terms of familiar phenomena. Judging by other surprises, nature has some in store for us here too, and we must be ready for perhaps a radical "reassessment of values."

The hypothesis that UFOs originate in other worlds, that they are flying craft from planets other than Earth, merits the most serious examination.

Observations show that UFOs behave "sensibly." In a group formation flight they maintain a pattern. They are most often spotted over airfields, atomic stations and other very new engineering installations. On encountering aircraft, they always maneuver so as to avoid direct contact. A considerable list of these seemingly intelligent actions gives the impression that UFOs are investigating, perhaps even reconnoitering.

Curiously enough, the number of UFO observations increases as Mars approaches the Earth. Is that pure coincidence?

Some people think that UFOs have appeared in the Earth's atmosphere only during the past two decades. This is not the case. The UFO phenomenon has been observed throughout the history of mankind. There are medieval and ancient reports strikingly similar to ours.

Among the earlier UFO reports, as an example, may be the well-documented observations of a "large saucer" in 1882 and a "procession of bolides" in 1913. These reports still await investigation.

The most remarkable UFO phenomenon is the famous "Tungusky meteorite." In recent years Soviet scientists have established that the Tungusky explosion had every parameter of an air nuclear blast. *The USSR Academy of Sciences Reports* (Volume 172, Nos. 4 and 5, 1967) have studies by Alexei Zolotov to prove that the Tungusky body could not be a meteorite or a comet.

In the summer of 1967 the Joint Institute of Nuclear Research at Dubna published a study by Vladimir Mekhedov, who concludes that the Tungusky blast left considerable residual radioactivity. Finally, as recently as 1966, after analyzing the sum total of observations on the Tungusky body's flight, this writer showed that before the blast the Tungusky body described in the atmosphere a tremendous arc of about 375 miles in extent (in azimuth), that is, carried out a maneuver.

All these new results warrant the conclusion that the Tungusky body seems to have been an artificial flying craft from some other planet.

Should this be finally confirmed by investigations now in progress, the significance of the Tungusky disaster would be inestimable.

But this, incidentally, will pose new problems. If we are indeed being studied by creatures from other planets, what is their purpose? Why are they so studiously avoiding any direct contact? Is their unsociability the result of so high a level of development that they study us from that "height" just as we look upon and study ants? Or is there still the possibility of common understanding since we are born in the same Universe and obey the same laws of nature?

Yes, there will be many questions, but all are in the distant future. Our study of UFOs may lead to quite different conclusions and present mankind with quite different problems.

The important thing now is for us to discard any preconceived notions about UFOs and to organize on a global scale a calm, sensation-free and strictly scientific study of this strange phenomenon. The subject and aims of the investigation are so serious that they justify any efforts. It goes without saying that international cooperation is vital.

The Art of Stage Design

By Olga Aizenshtat

Art Critic

INCLUDED AMONG many art exhibitions commemorating the Soviet Union's fiftieth anniversary was a retrospective survey of a half century of stage design. The show was held in Moscow at the big Central Exhibition Hall in Manège Square.

Russian stage designers made an international name for themselves early in the century. Lev Bakst, Nikolai Roerich, Alexander Golovin, Konstantin Korovin, Alexander Benua and Konstantin Yuon became world-famous theater names during the "Diaghilev seasons" in Paris. For the first time in theater history painters of scenery shared the applause accorded to directors and actors. They transformed sets and props, which until then had been nothing more than auxiliary means for placing the action, into a dynamic component of the production.

The Moscow Art Theater was founded at the turn of the century with the idea of creating techniques and forms appropriate to the new content of the drama. Its dominating and absolutely new principle was that every element contributing to the drama must be directed to expressing a single concept. The director-producer was moved to the foreground. What resulted was the development of the complex art of stage direction, without which no play, film, television or radio show can be produced today.

New demands were made on the artist as well. He was now looked upon not simply as an illustrator, but as an equal participant in the production, a co-author and active interpreter of a dramatic presentation.

The exhibition in the Manège was therefore more than a collection of sketches, sets, costumes, props and posters; it was a review of the 50-year-old history of Soviet theater.

And it was not by coincidence that the exhibition led off with the sets of Alexander Golovin for Lermontov's drama *The Masquerade,* staged by Vsevolod Meyerhold at the Alexandrinsky Theater in St. Petersburg in the spring of 1917. The play opened on the very day of the February Revolution. Sergei Eisenstein, who was a student at the St. Petersburg Institute of Civil Engineering at the time, was in the audience. The pioneering film director recollected later that the play was the final determinant in his decision to give up engineering and devote himself entirely to the stage.

The most interesting display of the 1920s and 1930s, a period of experiment and innovation, of artistic diversity and individuality, was a scale model of Isaac Rabinovich's set for the *Lysistrata* of Aristophanes. Alongside it was another model of the same set half the size of the original. Stanislavsky called this set, which won a gold medal at the World Paris Exhibition of 1925, the quintessence of ancient Greece. *The New York Times* said that same year of the *Lysistrata,* which the Musical Studio of the Moscow Art Theater brought to America, that never before had there been presented in the theater such harmony of scenic design.

Rabinovich was the first to dispense with the traditional curtain and, with the audience looking on, to change the place of action by means of a revolving stage. Today this is very common, but then it was a radical innovation, and its influence on stage design was world-wide. He also used space and light in ways new to the theater. The scale model, with its snow-white pillars set against a bright blue background of sky, and the sketches of the colorful costumes alongside it made an extraordinarily vivid picture.

Other displays of the period included sketches by the brilliant galaxy of artists who worked under the well-known producer of the Kamerny Theater, Alexander Tairov—Vadim Ryndin's sets for *Optimistic Tragedy,* a drama by Vsevolod Vishnevsky, Alexander Vesnin's cubist sketches for *Phaedra,* Alexandra Ekster's costumes for *Romeo and Juliet* and the constructionist designs of Vladimir and Georgi Stenberg.

Anatoli Arapov's sets for *Rasteryayev Street* by Gleb Uspensky (1929) staged by the Maly Theater derive from the same period. By means of a striking and very unusual manner of painting the artist was able to recreate the atmosphere of a prerevolutionary provincial Russian town: drowsy firemen on the watchtower, the ever present puddle in the middle of the street, shop signs listing sideways, the characters in the local tavern.

The bold experimentation of those artists who

worked with Meyerhold brings to mind the radical changes that have taken place in today's theater. Meyerhold's theater solved the problem of scenic space in an altogether new way. The so-called "fourth wall" was completely removed and replaced by a structure in depth that conveyed the theme of the play visually. Walking in step with Meyerhold, some artists radically changed the relations of the stage and the house by moving the place of action into the very middle of the auditorium. In this theater-in-the-round the audience was more than spectator; it became a participant in the performance.

But the twenties and thirties are remarkable not only for their constructionist decor and changes in the scenic platform. This was the time that molded artistic individuals like Vladimir Dmitriev. He brought to stage designing a profound philosophic understanding of the principles of playwriting—striking imagery, emotional power and abundance of color. His were truly psychological settings. Vladimir Nemirovich-Danchenko called them "personages in the play." The exhibition showed Dmitriev's sketches and scale models for Shakespeare's *Hamlet*, Gorky's *Yegor Bulichoff*, Ostrovsky's *The Girl Without a Dowry*, Gogol's *Dead Souls*, Tolstoy's *Resurrection* and Pushkin's *Queen of Spades*.

The sketches of Pyotr Williams, another artist of the same generation, introduced to the stage a sense of gaiety and the unexpected, heightened by his beauty of line and color. On display were Williams' sketches for *The Pickwick Club*, the ballets *Romeo and Juliet* and *Cinderella* and the operas *Eugene Onegin* and *La Traviata*.

Among the best works shown were the sketches and scale models of Nison Shifrin. He spent the last 25 years of his life designing for the enormous stage of the Central Soviet Army Theater. With a bold use of its great dimensions, the artist created magnificent settings for Shakespeare's comedies and brilliantly evocative battle scenes and pictures of the Great Patriotic War. Other comment-provoking displays included the designs of the famous cartoonists, Kukryniksy for Mayakovsky's *The Bedbug*, Martiros Saryan's for the opera *Almast*, Petrov-Vodkin's for *The Diary of Mephistopheles* by Irakli Gamrekeli, and Alexander Tyshler's for a series of Shakespeare's plays.

But most interesting were the works of the present day, for no matter how exciting the past might have been, our lives are in the present. The seeds sown by the old masters have yielded their good harvest. The exhibition introduced visitors to a whole galaxy of artists who have devoted their talents to stage decor. Their designs give evidence of their modern experimental approach as well as their ability to utilize the best of Russian traditional decor painting.

Valeri Levental, for instance, is a very young artist who has already created sets for both musical and drama theaters. He did the impressive 36-foot-high panels on theater and film themes. Very interesting also were his sketches for Moussorgsky's opera *Khovanshchina* in which, through the charred logs of a dissenters' monastery, symbolizing the end of the period of ancient Russia, one sees the flames in which the dissenters burned themselves.

Iosif Sumbatashvili shows a remarkable control of scenic space in his sets for *Ivan the Terrible*, staged by the Central Soviet Army Theater, and for Brecht's *Puntila*, staged by the Drama Theater in Taganskaya Square.

Einar Stenberg, son of one of the senior artists of the Kamerny Theater, has chosen his own direction, very precise and understated but most expressive. This is evident from his sketches for a ballet after Alexander Blok's famous poem *The Twelve* and his sets for Brecht's *Galileo*.

Vasili Shaporin, a Novosibirsk artist, in his sketches for Dostoyevsky's works, proves himself a true disciple of Dmitriev. With depth and clarity he reveals the tragic world peopled by the great Russian novelist.

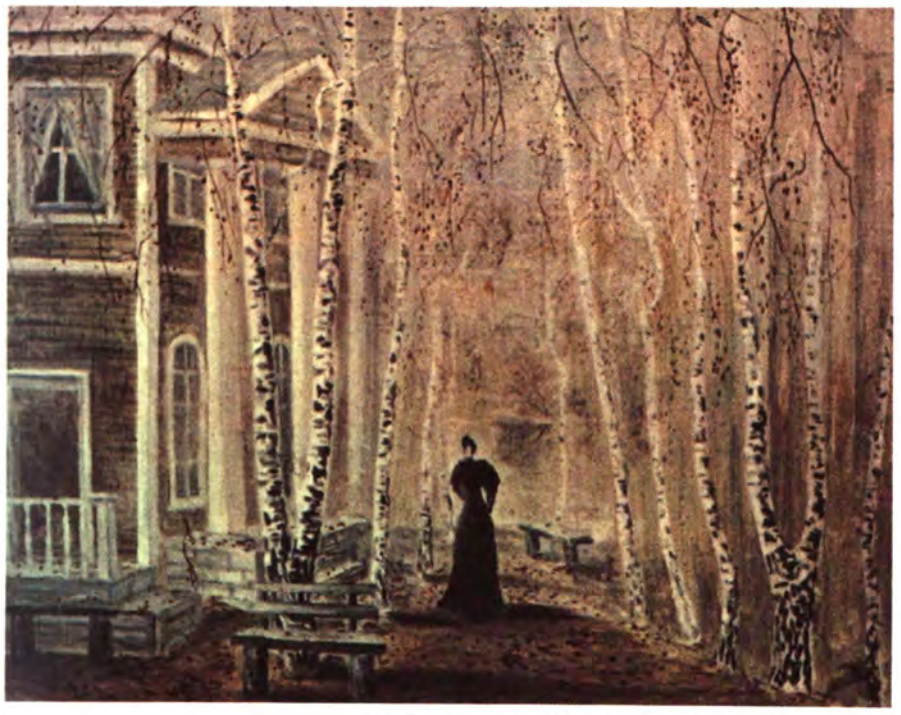
The works drawn from many of the towns and cities of the Russian Federation, as well as from the other 14 union republics, testified to the fact that there are artists of talent in theaters far beyond Moscow. The exhibition, the first retrospective of its kind, showed about 4,000 works by 800 artists from all parts of the Soviet Union.

The Flea. *Set. Boris Kustodiyev.*

Romeo and Juliet. *Sketch. Valeri Levental.*

Lieutenant Kije. *Sketch. Boris Messerer.*

The Three Sisters. *Sketch. Vladimir Dmitriev.*



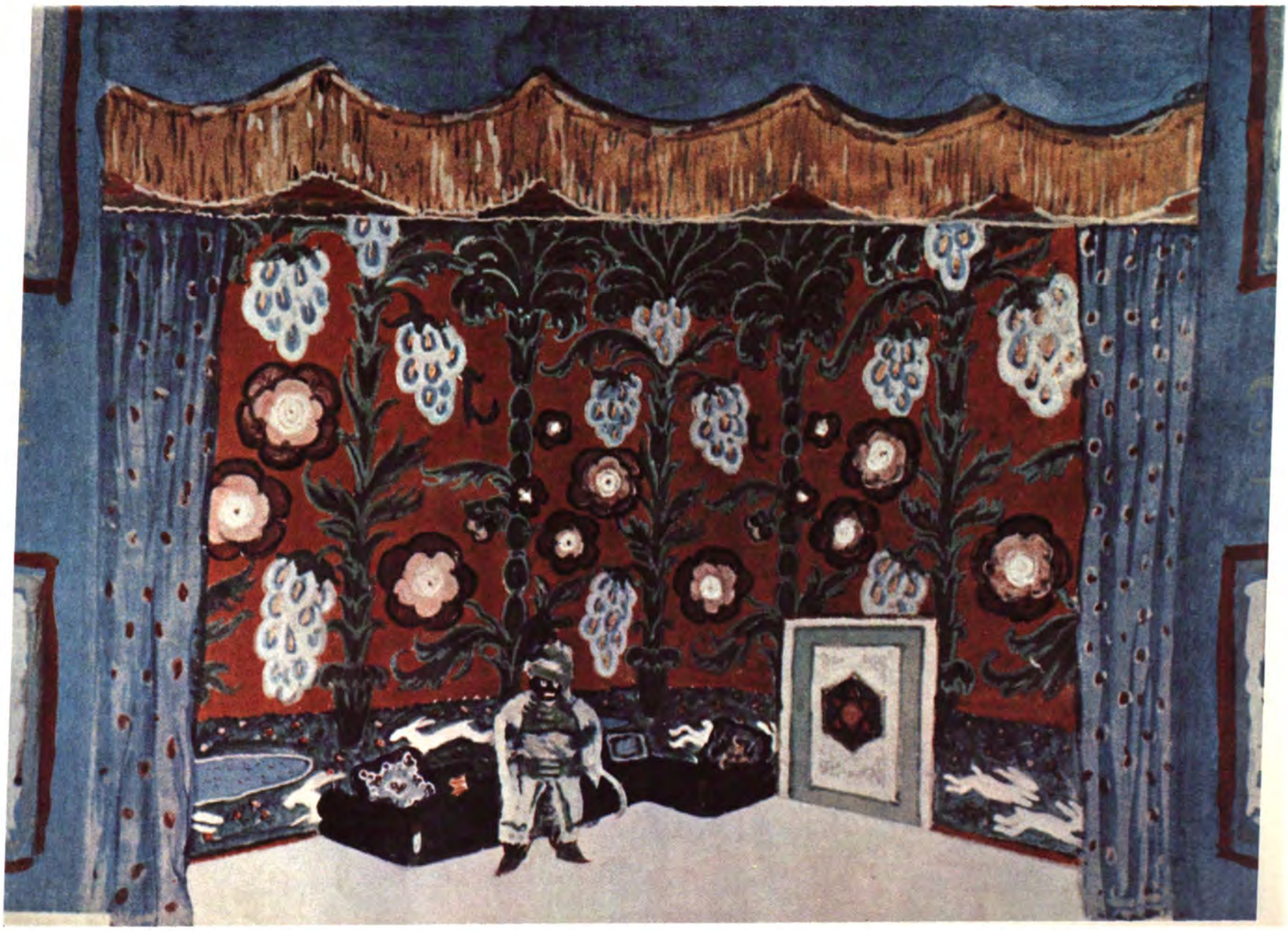
Virgin Soil Upturned. *Sketch. Nison Shifrin.*

The Pickwick Club. *Sketch. Pyotr Williams.*

Optimistic Tragedy. *Sketch. Vadim Ryndin.*

Strumming. *Sketch. Sofia Stavtseva.*

Punch. *Sketch. Alexander Benua.*



Rasteryayev Street. *Anatoli Arapov.*

Lysistrata. *Scale model. Isaac Rabinovich.*

Romeo and Juliet. *Costumes. Alexander Ekster.*

Three Fat Men. *Costumes. Boris Erdman.*

Hamlet. *Costumes. Nikolai Akimov.*

Virineya. *Sketch. Nikolai Zolotarev.*

The Bedbug. *Costume. Kukryniksy.*

The Embezzlers. *Sketches. Isaac Rabinovich.*

Twelfth Night. *Costume. Alexander Tyshler.*

TO EACH ACCORDING TO HIS NEEDS

BY MIKHAIL SAKOV

TRADITION AND CUSTOM, cultural heritage, the national character, geography and climate, family relations—all in one way or another play their part in shaping a people and its way of life. Marxist philosophy, however, believes the dominant influence to be socioeconomic, namely, the society's mode of production of material values and its political system. Our way of life is the result of the country's development in the past 50 years. Its present is socialism, and its historical perspective is communism. It is a logical perspective, for it follows from what we have already done. "We can advance only by moving toward communism," says the Party Central Committee's Theses for the fiftieth anniversary of Soviet power.

The foundation of both socialism and communism is public ownership of the means of production. Both imply that it is every citizen's duty to work and that every citizen must be provided with the opportunity to work. The difference between the two stages is expressed in the socialist principle: *From each according to his ability, to each according to his work;* and the communist principle: *From each according to his ability, to each according to his needs.*

From Each According to His Ability

Public ownership makes it impossible for any sphere of the economy —industry, transport, trading, banking—and money as well, to become private capital. Hence, what determines an individual's income and status in the community are his work and talent used for the general welfare.

There is no one in the Soviet Union who lives on the income from his capital. True, more than 60 million depositors have a total of 23 billion rubles in savings banks, but this is money they have saved from their own earnings.

Both the socialist and communist principles assume that work is fundamental. That is implicit in the common opening phrase, *from each according to his ability.*

Here we have the old precept spelled out: "He who does not work, neither shall he eat." In our society work is an imperative. The more capable a person is, the more he is expected to contribute to his society, and if he has the necessary talent and knowledge, he is expected to manage it as well.

The principle *from each according to his ability* in the socialist stage presupposes that the individual will be stimulated to work more productively by material incentives.

Given the ability, an individual in socialist society has the choice of any trade or profession. Free education and training are readily accessible. People, however, are guided not only by their inclinations; they are influenced by material considerations also. Under socialism, the distinctions between mental and physical labor and between skilled and unskilled labor still exist. Wage differentials help to attract those skills society needs at a particular time.

The reason for the emphasis on material incentive is to get people to give their best efforts and talent to the job, to reward more productive and more creative work.

To that end planning and management are being overhauled, and profit is playing a larger role. This, however, is profit operating within the framework of socialist economics, where the commodity-money mechanism and such factors as price, trade, finance and credit are used for the common good. Greater productivity and more economical operation will work to the advantage of the individual, his factory and society as a whole.

Among other things, this economic overhauling gives local management more independence and encourages the involvement of larger numbers of workers in economic and administrative decision-making.

"From each according to his ability" is more than a theoretical principle for Soviet workers; they have given the phrase substance time and time again. Instances are the competitions between shops, plants, and industrial areas, the campaign for a communist attitude toward work, the growing number of volunteer innovators. In 1950 efficiency suggestions were submitted by 550,000 workers, in 1966 by 4,000,000.

The practical possibilities for using one's abilities more completely keep growing. Scientific and technical progress is changing the nature of human labor. Today's society needs highly skilled workers. The countryside is catching up with the city as the number of machine operators, engineers, agronomists, doctors and teachers in the villages increase. The once very great gap in skills and cultural levels that separated the worker from the intellectual is gradually being bridged.

How soon it will be before the gap is closed depends on how we improve our system of education and special training, how well we keep it in step with the time. In the past seven years the number of industrial workers with a secondary education (complete or incomplete) has risen from 45 per cent to 58, and the number of collective farmers from 23 per cent to 31. The transition to universal compulsory secondary (10-year) schooling is to be completed by 1970.

Progress in any area of life in socialist society opens up avenues for people's all-round development. As time goes on, therefore, the socialist requirement of "from each according to his ability" gradually changes its character and takes on a communist content. This transformation will be completed when society reaches the stage of social and economic maturity at which work according to ability becomes a basic psychological necessity for every person. So far as material things are concerned, the needs of all members of society will be provided for equally by then.

To Each According to His Work

However, that will be when the stage of communism is reached. Until then the socialist principle "to each according to his work" will operate. That is an objective necessity for this stage of society's economic development. Until we are able to produce an abundance of material goods, we must control consumption and are compelled to make a person's income commensurate with his contribution to the country's needs. In our country work is the universal measure of income and consumption. What a person gets from society depends upon what he gives it.

Work is paid for, in the main, in money: in the form of wages at factories, commercial enterprises and state farms, and in the form of a share of the farm's income, both in money and kind, at collective farms.

We have, in addition, the communist form of distribution of wealth which, in principle, is not related to a person's work contribution. It comes from the public consumption fund. As yet this form covers only a part of man's requirements, but a very important part. For example, last year 45 billion rubles of this fund paid for social insurance, free education and medical services, grants in aid, pensions, scholarships, accommodations at sanatoriums or rest homes (free or at a 70 per cent

discount), vacations, and the maintenance of kindergartens and nurseries. The public consumption fund gives every person, regardless of the work he does and what he is paid for his work, essentially the same benefits when it comes to education, medical services and rest cures. As we progress toward communism, it will cover more and more of the citizen's needs. But at the present stage his rising standard of living comes mostly through higher wages and higher farm income.

By 1970 the rising volume of production and growing labor productivity will push national income up 38 to 41 per cent over 1965, and real income per capita roughly 30 per cent. The absolute increase in the consumption fund, in other words, the total amount of material wealth intended for public consumption, in 1966-1970 will be 70 per cent more than in the previous five-year period.

Wage increases come from the government's centralized resources (wage and salary fund) and a part of the income (profit) of factories and other enterprises, which is used, among other things, to set up an incentive fund. Approximately a third of the increase in average wages planned by industry for the current five-year plan period will come from this fund. The economic reforms under way make the interest of society as a whole the interest of each factory and each worker. Higher profit means more national wealth and a larger share of that wealth distributed for work done.

The rising general wage tends to bring the level of security of different categories of working people closer together. But this has nothing in common with wage leveling. Rather it testifies to the fact that the various categories of labor are becoming more skilled and creative.

To Each According to His Needs

Our goal is to be able to apply the principle, "to each according to his needs," but for that we must build the material and technical basis of communism that will give us the capacity to produce an abundance of material and cultural values. How we will relate distribution according to needs to work according to ability, we cannot predict now. The probability is that we shall have to set up controls until communist standards of social behavior become habitual, second nature.

Some sociologists in the West believe that even with superabundance distribution according to needs will be in conflict with economic and social goals because it will lead to waste and mismanagement, to loss of incentive to work and, in the final analysis, to the degradation of man.

But when we speak of distribution according to needs, we do not have extravagant desires in mind, the unhealthy craving to enrich oneself, the satisfaction of every whim and caprice. What we mean are the things a reasonable, intelligent individual needs to develop physically and spiritually—proper food, clothing and housing, a good education, medical attention, civilized amusements, rest and sports. Also included are esthetic needs, those which demonstrate that a person has creative values, that he is not merely the recipient of gifts.

These requirements society should be able to satisfy in the fairly near historical future by making intelligent use of the possibilities afforded by scientific and technical progress and the development of the productive forces.

Now, will all incentive to work be lost? No! For we do not see the transition to distribution according to needs as a measure forced upon people but as the logical development of an entirely new concept of work. Under communism there will be no need for extraneous material incentive. Work will be self-motivating because it will be creative.

To make work universally creative, every individual, every family, must be freed from insecurity, from worry about the means of subsistence, which up to now have absorbed so much of man's vital energy. This society will do by the free distribution of its material wealth. Relieved forever of the burden of everyday cares, people will at last be able to use their talents and abilities in their work. Their creative labor, no longer a measure of distribution, will be given voluntarily to their society, a society of working people. Distribution according to needs will become the only possible remuneration for work, since payment in money will have lost all economic sense. Communist distribution, therefore, is not simply a desired end but primarily an *economic* principle, and in time it will become an objective necessity.

The transition to communism is a complicated process. It encompasses production, new relations between people, and the psychological transformation of the individual. The new society, actuated by the principle of, "From each according to his ability, to each according to his needs," will be motivated—materially, socially and morally—by creative effort for the common good.

This is the historical perspective we see. Communism does not arise of itself; it is the result of the conscious effort of a whole people. Therein are to be found both the difficulty and the reality of our road to the future.

The Hare, The Wasp And The Wolf

Late one afternoon the Hare heard a voice crying for help. "What help could I be?" he muttered. "I'm the world's biggest coward!"

But the voice went on crying: "Hare, please save me!"

And the Hare spied a Wasp, caught in a spider's web.

Taking pity on the poor insect, he untangled it. "Thanks!" said the Wasp. "One day I'll repay the favor!"

And he smoothed his wings, stretched his legs and off he flew.

Hare's friends were amused when they heard the story. "What help do you think a Wasp can give?" they asked.

But one day, Hare was so busy munching a cabbage that he didn't notice Wolf creeping up.

"Got you!" snarled Wolf. "You'll make a fine dinner for my cubs."

Hare was all of a tremble, but he knew it was no good begging for mercy. Wolf would never let him go.

Suddenly out of the blue came the Wasp and settled on Wolf's nose. Wolf tried to swat it with his paw, but all he got was a terrible pain. Wasp stung and stung and stung.

With a howl of rage Wolf let the Hare go. "Well, I never!" said all the other hares. "Imagine, a Wasp getting the better of a Wolf!"

Courtesy of *Soviet Weekly*

The Fight Against Infant Paralysis

THE SOURCE of infant cerebral palsy is unknown. Scientists are more and more inclined to believe that the disease arises from intera-uteral, infectious toxemia or from other lesions of the fetus. The lesions cause difficult labor and asphyxia(respiratory)arrest in the newborn baby. Oxygen deficiency primarily affects the nervous system of the infant. If the respiratory arrest lasts for a considerable time, then disturbances in the function of the brain can be expected. Paralysis develops in all limbs to much the same degree or mainly in the legs, depending on which parts of the brain are most affected. Attendant effects are either excessive mobility (hyperkinesia) or disturbed coordination of movements, which occurs when the frontal lobes and the cerebellum in particular have received the most damage. Various factors, which aggravate the general picture of the cerebral palsy syndrome, such as disturbances of the intellect and speech and difficulty in chewing, swallowing and other functions, are related to the severity of the affliction and its locality.

A century has elapsed since William John Little, the British obstetrician, gave the first systematic description of this disease. Neuropathologists, surgeons and orthopedists have searched unceasingly for ways to help children who suffer from this terrible and seemingly incurable disease. Leading surgeons performed innumerable simple, complex and multistage operations, but the results were not promising.

The pharmacologist came to the aid of the surgeon with dozens of preparations for reducing muscular tone. The nerve stimuli may then pass more actively along their complex ways to the muscles, making it possible for the child to move its limbs purposefully. At first this treatment seemed to offer great promise: Muscle tension was reduced, the child who had been doubled up straightened out, the limbs even began to move; but as soon as the drug was stopped, muscular tone increased and the movements weakened.

After testing a multitude of ways and means, our scientists came to the conclusion that drugs can only serve as an aid to basic treatment in the form of therapeutic physical exercise. Where the two were skillfully blended, the treatment had a certain success, although it was far from effective in all forms of cerebral palsy. There was a good deal of success with light forms of the paralysis of all four limbs, of one pair of limbs and in cases of mild hyperkinesia.

Where there was severe paralysis and the connections of the frontal lobes and cerebellum were deeply disturbed, as in cases when the deep subcortical parts were severely afflicted, the physician was practically helpless.

A close study of these cases showed, however, that they were not hopeless. Physiologists proved that when the cerebral cortex of animals was removed, muscular tone increased sharply under the influence of stimuli coming from the muscles, ligaments and joints. Rigidity set in, and when the upper and lower limbs were straightened out, a great deal of physical effort was needed to bend them. Such a condition may result in cases when the functions of the cortical motor zones are greatly weakened. Then the sub-

By PROFESSOR KSENIYA SEMYONOVA

cortical-stem systems of the brain, which are not controlled, exercise an activating influence on muscular tone. Muscle activity, however, is under the direct influence of stimuli coming from different receptors, particularly from the muscle and joint receptors. The development of excessive mobility is just as closely connected with inflowing stimuli.

Hence, in order to restrict the increase of tone or at least temporarily avoid its pathological state in the form of hyperkinesia, it is necessary to restrict the flow of stimuli from the joints and muscles to the brain. This was the basic idea of the German neuropathologist and neurosurgeon O. Ferster when he crossed the posterior roots of the spinal cord, along which the stimuli pass to the brain. The operation, however, proved very exhausting, and, more important, its results were not permanent, because the stimuli found roundabout ways to get to the brain.

The author of this article proposed to influence the same systems by using a method based on principles developed by the well-known Russian physiologist Nikolai Vvedensky (1852-1922). These principles presume that the activity of the nerve ending (receptor) is reduced if a constant, though weak, rhythmic stimulator is applied for some considerable time. By following a specific method of applying this stimulus current, it proved possible to bring about this subdued condition of the nerve endings in sick children. In many of the children excessive mobility diminished, muscular tone became normal, and coordination clearly improved. As a result of the deep changes that took place in the nervous system, the child's speech and mental faculties began to develop. The method proved most effective in afflictions involving the frontal lobes and cerebellum and in hyperkinesia.

In combination with drug therapy (chlorpromazine and its analogues: oxazine, galanthamine, pyrogenal, cerebrolizine, gamalon, cerimon, vitamins B_{12}, B_{15} and others) therapeutic physical exercises eased the suffering of thousands of infants.

For the first months of life the infants are treated at home. During this period the mother, who is trained in special departments of hospitals and polyclinics to put the infant to bed properly, to develop all the motor reflexes of the first year of its life and to administer medicines, can make a substantial contribution. In serious cases mothers are assisted by physicians, therapeutic exercise instructors, speech specialists and psychologists. The child is placed for a period of three to six months in a psychoneurological sanatorium. A commission selects and sends those suffering from cerebral palsy—if the intellect is not seriously impaired—to these sanatoriums for children.

Keeping a child at such an institution costs five to six rubles a day, and the child must be treated over a period of years. This, of course, would be beyond the means of parents. The state therefore pays the bill. In several months at such a sanatorium the child is taught to sit, stand and even talk. When he learns to play, he is sent home to his parents. This is necessary for his emotional-psychological development. The child at home continues to get free medical treatment as an out-patient, in accordance with the instructions and advice of the sanatorium physicians. Later he goes back to the same sanatorium for another three to six months. If the signs of the disease are still evident at the age of four, the child is transferred to another psychoneurological sanatorium for children from four to eight or nine years of age. Drugs and exercises are selected for each individual child. A speech specialist and teacher work to develop the child's intellectual faculties.

Thus, thanks to the joint efforts of physicians and parents, most of these children manage to develop the use of their limbs and speech by the time they are eight. Over half the children treated can later go to school and follow the normal curriculum. They go to special boarding schools, where they live, study, continue to be treated and are trained for a vocation. The sooner the child is treated, the better chance there is that he will walk, talk and study normally.

Lectures are given regularly for pediatrician-psychoneurologists at the Moscow Psychoneurological Clinic, on modern methods of early diagnosis, treatment and care of children suffering from cerebral palsy. This clearly has had positive effect. The central commission which deals with children suffering from severe forms of this disease (those with constrained movements, those who are doubled up, helpless, unable to talk and even pick up a piece of bread) finds that there are fewer and fewer such cases.

Early treatment of child cerebral paralysis is becoming more and more effective, but up to now all we can do is prevent severe disability. Disorders of motor functions and speech can rarely be cured completely. Our problem, therefore, besides the search for methods of treatment, is the prevention of this serious disease.

State Farms Yesterday and Today

By Valentin Polyanovsky

TWO-THIRDS OF the 906.9 million acres of cultivated land in czarist Russia was owned by the big landowners and kulaks; the overwhelming majority of the peasants farmed tiny marginal plots. The large estates averaged 6,200 acres; the poor peasant farms (67 out of every 100) averaged two and a half to five acres.

The Socialist Revolution of 1917 gave the peasants land and freed them from exploitation by the large landowners and kulaks. But to feed itself, the country had to modernize agriculture, use machinery and scientific methods. Before the Revolution 35 per cent of the peasant farms had no horses and 34 per cent had no implements of their own; 15 per cent did not even plant crops. Under Russian conditions progress meant combining the small holdings into large farms which the state would equip.

The first such farms, organized in 1918, were state-owned. They were set up on former estates and on virgin land. In the first Soviet decade and later, in the thirties, during the prewar five-year plan periods, these state farms provided the cities with foodstuffs and industry with raw materials. They were vitally important in the early Soviet years. The country had been laid waste by the First World War and the Civil War which followed, and thousands were threatened with starvation.

By the end of the twenties the peasants were beginning to unite their holdings to form collective farms. When the war against fascism began, these cooperative enterprises were growing the main part of the country's produce. The state farms continued to operate side by side with the collective farms.

Besides their productive potential, the state farms had other values. They demonstrated that a large-scale agricultural undertaking based on common ownership could work. They showed the small holders in the vicinity that farms could operate without private ownership, that people could work together efficiently, and that large socialist farms could do better than small, privately owned farms. And, finally, they helped to popularize better methods of cultivating the soil and raising livestock.

The number of state farms has grown steadily. In 1928 there were 1,407; by 1966 the number had risen to 12,196. Livestock totals have multiplied dozens of times over; output of all types of farm commodities has risen. Today these big, machine-operated state farms raise 20 per cent of the country's cotton (the remaining 80 per cent comes from the collective farms), 14 per cent of the sunflower seed, 57 per cent of the vegetables, and 45 per cent of the cattle, poultry and eggs. They also raise more than half the country's marketable grain.

Grain and Meat

State farms are usually more specialized than collective farms. Some raise grain, others cotton, still others produce milk and meat, grow fruits and grapes, potatoes and other vegetables. The grain state farms use their by-products to feed cattle for milk and meat. Vegetable-growing state farms use their waste material to raise pigs and dairy cows.

A considerable number of state farms are diversified. The Kudinovo pedigree pig-breeding state farm 60 miles from the industrial town of Kaluga is an example. It raises several thousand purebred Landrace pigs for market annually. In addition, it has a herd of 800 cows, each of which produces more than 950 gallons of milk a year. The farm made an over-all net profit of 270,000 rubles in 1966.

The 12,000 state farms employ eight million people. The following is a picture of the average state farm:

	1958	1964	1966
Number employed	639	721	650
Area under grain crops (thousands of acres)	21.5	21.2	18
Beef and dairy cattle	1,370	2,201	2,075
Including cows	472	803	769
Pigs	1,355	1,144	1,051
Sheep and goats	4,401	4,378	4,073

Until 1964 there was a tendency to combine state farms into bigger units. But over the past two years that was discontinued and the average size of the state farm has diminished somewhat.

Land reclamation work, the use of chemicals and scientific growing methods is Feonin Nikolayev's (second from right) job. Here he tries to justify an expenditure to economy-minded director Ivan Shinkaryov (back to camera). turned the Detskoselsky State Farm into a big producer. Land improvement

Two Types of Property

Both state and collective farms are operated on socialist principles, and production in both is planned. How then do they differ?

On state farms all the means of production—the land, buildings, machinery, equipment, livestock and seed—belong to the state. The people who work on state farms are paid wages just as they would be if they worked in factories or offices.

Collective farms are cooperatives. The land they farm is public property, it belongs to the state; the means of production are owned by the members of the collective. Unlike the state farms, the collective farms dispose of their produce and their revenue themselves. Collective farmers are paid according to the workday units they produce. (A workday unit is a standard for measuring quality and quantity of work.) They buy machinery from the state and sell the state grain and meat at fixed prices.

After the war many unprofitable collective farms asked to be converted into state farms, which increased the number of state farms. Is this trend expected to continue? The March 1965 plenary meeting of the Central Committee of the Communist Party declared that the goal was not to accelerate that trend, that present policy was to develop both state and collective farms as parallel forms.

Economic reforms, similar to those now under way in industry, are being introduced on state farms. They are being given greater independence and a larger voice in deciding how to use their profits. What a state farm is like can be seen from one of the best farms in Leningrad Region.

The Detskoselsky State Farm

The Detskoselsky State Farm produces vegetables, milk and meat for Leningrad. It was organized in 1931, but was completely destroyed in the war and was rebuilt, literally from the ground up, in 1945.

The farm covers an area of 9,078 acres, 6,454 of which are arable: 5,053 acres are field, and the rest are orchard, berry patch, hay meadow and pasture. The soil is not particularly good; it is too moist. This holds up both spring field work and harvesting. A good deal of reclamation work has to be done; 80 per cent of the soil retains excess water for a long period and the rest for a short period. The use of a closed-type drainage system and chemicals since 1959 combined with scientific growing methods has transformed the farm from the unprofitable, unproductive enterprise it was immediately after the war into a big producer of vegetables, milk and meat.

In 1966 Detskoselsky produced 2,200 tons of potatoes, 11,000 tons of other vegetables, 715,000 gallons of milk and 2,100 tons of meat. The farm now grows a larger variety of vegetables. Such labor-consuming crops as carrots, red beets, sorrel, dill, lettuce and radishes account for 43 per cent of the total.

Organization and Management

For more efficient production and management the farm has three independent territorial departments, each with its own manager. The chief agronomist coordinates the crop work of all three departments and the chief zootechnician all the animal breeding work. The chief veterinary and the land reclamation specialist head up their areas, and the chief engineer is responsible for the operation, maintenance and repair of all farm equipment and machinery. Each territorial department has its own staff of animal breeders, agronomists and veterinaries.

Analysis and coordination of production processes and distribution of labor as well as payment for work are the province of a chief planning expert. At the top of the organizational pyramid is the farm director, who has an assistant to handle financial matters, including the sale of the farm's produce, a very important item.

Work is done by teams. The big concentration is on stock raising and dairy farming. There are four cattle-breeding farms with 680 cows and 600 calves. In 1966 the average milk yield per cow was 1,167 gallons. Each dairymaid—they work in teams—tends an average of 20 cows or 45 to 60 calves. The dairymaids are paid according to the amount of milk their cows yield and its butterfat content. For milk produced over and above plan they receive a bonus, paid every three months, equal to 12 per cent of the value of the above-plan milk. For those who tend calves, the pay depends on how much weight the animals gain.

Detskoselsky has two pig farms: one for breeding, which raises 5,000 suckling pigs annually, and one for fattening, which raises an annual 22,000 for the market. The farm buys 17,000 suckling pigs for fattening from other farms with larger breeding facilities.

The crop-growing divisions also work in teams. Four specialized teams raise vegetables. Two of the teams, each with four sections of 10 to 14 permanent members, grow vegetables outdoors on 940 acres. The two teams have the use of 22 tractors between them. The other two teams grow vegetables in hothouses.

Three tractor-and-field teams grow feed for the livestock sections and other crops as well.

Such big farms as Detskoselsky have the look of agricultural factories. The farm has 106 tractors (in terms of 15-horsepower units), 56 trucks, and power installations with a 10,000-horsepower capacity. Manure removal and milking are mechanized. The milk is automatically pasteurized and cooled. Feed transportation and distribution is being mechanized. Machinery is serviced and repaired by the farm's own shops.

The Plan and the Budget

The produce which the farm grows is sent to Leningrad shops on orders from the wholesale fruit and vegetable center. Detskoselsky has a contract to supply milk daily to Leningrad hospitals, kindergartens and baby foods centers; its milk is certified by the regional health department. Because it does its own pasteurizing, the farm gets more for its milk. Unpasteurized milk costs 19 kopecks a quart and pasteurized milk 26 kopecks. The farm sells 2,300 gallons daily and makes an additional 630 rubles—18,900 rubles a month.

Any increase in fixed assets—for instance, building to enlarge capacity or buying machinery to mechanize more of the work—is paid for out of profits. If there is not enough in the profit fund, the farm may borrow from the bank and repay the loan from the fund in subsequent years. Profits also go into an incentive fund from which bonuses are paid. The fund is made up of 15 per cent of the planned profits and half of the above-plan profits. The volume of produce to be sold to the state, the size of the profits (determined by the farm itself and approved by the higher bodies), the total wage fund and the payment to the state budget for the use of fixed production assets—all these are planned for the farm.

There are not anywhere near as many of these planned indexes today as there were a few years ago, when the state regulated all the economic activity of the state farms. The state allocated the entire capital investment, both for fixed assets and circulating assets, and it covered the losses if production costs were higher than the income from the sale of produce. There were not many unprofitable state farms left by 1965, but even those that made a profit were not permitted to use much of it and hence were not particularly interested in increasing production or cutting costs. The state farms are now on a completely self-supporting basis. They have to pay their own way, but they have also been given much more freedom to dispose of the profits they make. This should serve as an incentive since increased productivity means higher profits and hence bigger bonuses.

State farm workers also have a personal interest in another new fund which comes out of profits and pays for housing construction, kindergartens and nurseries, sports facilities and children's summer camps.

Here are some 1966 figures on the Detskoselsky State Farm:

1. Fixed assets (farm buildings, machinery, equipment, livestock and agricultural implements, dwellings, schools, clubhouses), the value of land reclamation: 8,018,900 rubles.
2. Total acreage: 9,078 acres, of which 6,454 acres are arable.
3. Total number of workers: 1,197, including 89 tractor drivers, 237 in livestock farming, 533 in crop raising, and 338 in administration and economic management, bookkeeping, the housing office, the children's facilities, the building department, motor vehicles park, repair shops and foundry shop.
4. Production costs in 1966—4,940,400 rubles.
5. Receipts from produce sold—6,594,600 rubles.
6. Profits—1,654,200 rubles.
7. Expenditures to maintain housing and communal services—191,900 rubles.
8. Remaining profits—1,462,300 rubles.
9. Planned profits—853,300 rubles.
10. Profits made above plan—609,000 rubles.

Distribution of Profits	Planned Profits	Above-Plan Profits	Total
Payments on loans from State Bank	28,400	—	28,400
Insurance fund of Ministry of Agriculture*	247,400	—	247,400
Payments into State Budget for use of fixed production assets	88,600	—	88,600
Financing of capital investments under the plan	214,400	—	214,400
Increase in circulating funds under the plan	162,000	—	162,000
Incentive fund** (worker bonuses)	33,000	77,000	110,000
Bonuses for administrative staff and experts**	—	30,500	30,500
Consolidation and Expansion Fund**	66,000	304,500	370,500
Remaining profits	13,500	197,000	210,500
Total	853,300	609,000	1,462,300

* To cover losses due to natural calamities.

** To be spent at the discretion of the state farm.

The 1966 budget was adopted before the decree of the Council of Ministers making the state farms completely self-supporting went into effect. Consequently, the items listed under profit distribution differ somewhat in description from those presently in use.

The Detskoselsky State Farm was one of the first to switch over to the new system. The incentives the new system offers—bonuses out of profits, higher wages for exceeding the plan figures, the new fund for welfare and cultural facilities and housing construction—have all helped to raise productivity and efficiency. With rising profits has come a rise in living standards. The farm is growing into a modern town of four- and five-story apartment houses with central heating, hot water and gas. A new clubhouse with an auditorium for showing films was recently completed. More nurseries and kindergarten have made it easier for women to work.

Family Budget

The Bakhvalovs both work on the farm, have two children and are probably typical of most of the families at Detskoselsky. Sergei Bakhvalov is 39. After finishing technical school, he was a miner in the Donets coal fields. He came to work on the farm in 1961, where his first job was in the fields. Evenings he attended courses for farm-machine operators free of charge. Since then he has been driving a tractor.

Sergei now works most of the time with the vegetable-crop team on interrow cultivation of beets and carrots. His wife Maria, 35, works in the dairy section. She started by tending cattle but for the past four years has been a dairymaid responsible for 27 purebred cows.

At the end of 1965 the Bakhvalovs were given a two-bedroom apartment in a new five-story house built by the farm.

Maria makes 140 rubles a month and Sergei 235 rubles.

Their annual income is 4,500 rubles before taxes. Expenditures, including taxes, came to 4,367 rubles last year, leaving 133 rubles for deposit in the savings bank.

The Bakhvalov Family's Expenditures

	Amount in Rubles	Percentage of Total Income
Income tax	558	12.4
Food	1,921	42.7
at home	1,800	
school lunches	121	
Rent	156	3.5
Purchase of furniture and household appliances	261	5.8
Clothing and care of clothing	804	17.9
Sergei	299	
Maria	388	
Two boys	117	
Transportation	123	2.7
Automobile	—	0.0
Medical care	—	0.0
Recreation (TV, radio, vacation)	371	8.2
Books, newspapers, magazines	56	1.2
Education (tuition)	—	0.0
Trade union dues	45	1.0
Other dues	60	1.3
Miscellaneous	12	0.3
Total expenses	4,367	97.0
Deposit savings	133	3.0
Total income	4,500	100.0

They supplement store food with produce from their own garden, which they cultivate with the help of the state farm. It yields, among other things, 1,430 pounds of potatoes a year, a saving of 65 rubles. They buy their other vegetables from the state farm at reduced prices.

The two children have some of their meals at school. The older boy Vladimir has lunch there, for which his parents pay three rubles and 84 kopecks a month. Eleven-year-old Alexander is at school all day and has two meals which cost six rubles and 24 kopecks a month.

The Bakhvalovs subscribe to three newspapers and four magazines. They have a refrigerator, washing machine and vacuum cleaner, bought in the past 10 years. They use gas for cooking.

In summer the children usually go to the camp run by the state farm. A month's stay for one child costs the parents nine rubles and 20 kopecks. The state farm pays the 45 to 50 rubles to cover the actual cost of maintenance for one child. The husband and wife sometimes get accommodations at a health or vacation resort at reduced rates, but they usually prefer to spend their vacation with Maria's relatives in a village in Byelorussia.

The entire family gets free medical care, including hospitalization when necessary. When a cow stepped on Maria's foot last year, she was out of work for 10 days. Her medical care was free, and she was paid her regular wages for the period.

The Bakhvalovs like the recent government decision to give state farms greater economic independence. The new system has been in effect on the Detskoselsky State Farms for two years now, and their growing prosperity during this time is all the proof they need of its advantages.

QUERIES FROM READERS

RUSSIA: FEDERATION AND AUTONOMY

Victor Jackovich of Indiana asks about the governmental structure of the Russian Federation and the relations between its federal bodies and autonomous formations.

Khrisanf Neshkov, Secretary of the Presidium of the Supreme Soviet of the Russian Federation, answers the questions.

QUESTION: How did the Russian Federation originate? What is its present structure?

ANSWER: Russia was declared a Soviet Republic on November 7, 1917. In 1918 it took its present name—the Russian Soviet Federative Socialist Republic (RSFSR). In January 1918 the Third All-Russia Congress of Soviets declared that the Russian Soviet Socialist Republic is established on the basis of the voluntary union of the peoples of Russia as a federation of the Soviet republics of these peoples. In July of the same year the Fifth All-Russia Congress of Soviets adopted the first Constitution of the RSFSR.

Since time immemorial Russia has been a conglomerate of many nationalities. Much before the Revolution, therefore, the Communists had worked out their program on the national question. When the Soviet Republic was founded, steps were taken to make the peoples on the territory of the Russian Federation autonomous. By the mid-1920s the RSFSR was comprised of 10 autonomous republics and 13 autonomous regions.

As they developed economically and culturally, many of the autonomous regions in the Russian Federation became autonomous republics, and some of the autonomous republics developed into union republics. For instance, the Turkestan Autonomous Republic, which in the early years of the Soviet system was part of the Russian Federation, eventually evolved into five union republics—the Kazakh, Kirghiz, Tajik, Turkmen and Uzbek republics. Today they are all sovereign member-republics of the USSR.

There are 16 atonomous republics, 5 autonomous regions and 10 national areas in the Russian Federation today.

QUESTION: What different autonomous formations are there in the RSFSR? What is an autonomous republic?

ANSWER: As I indicated, the RSFSR takes in autonomous republics, autonomous regions and national areas. The major differences considered in setting up these three types of autonomy were the numerical strength and population density of the ethnic group which gives its name to the autonomy and its level of economic, social and cultural development.

An autonomous republic is a form of political autonomy, *i.e.*, a sovereign state which is a direct affiliate of the RSFSR. An autonomous region and a national area are forms of administrative autonomy; they are affiliates of larger administrative-territorial units.

Since it is a sovereign state, an autonomous republic has its own constitution, its own flag and emblem, its capital, and its own legislative, executive and judicial bodies. The territory of an autonomous Soviet socialist republic cannot be altered without its consent.

All three types of autonomies are represented in the USSR's bicameral parliament—the Supreme Soviet. Each autonomous republic elects 11 deputies to the Soviet of Nationalities, one of the two chambers; each autonomous region elects five, and each national area one. Deputies to the Soviet of the Union, the other chamber, are elected on the basis of population.

QUESTION: What principles govern the relations between the central bodies of the Russian Federation and the autonomous republics?

ANSWER: These relations are based, first and foremost, on fraternal cooperation and mutual assistance. The Federation is responsible for the political, economic and cultural development of its autonomous but component parts.

The representation of each autonomy in the Federation's parliament—the Supreme Soviet of the RSFSR—is determined by its population. The constitution of the Federation also requires that a vice president of the Presidium of the Federation's Supreme Soviet be elected from each of the autonomous republics. The vice president represents the interests of his own republic in the highest governing body of the Federation. The autonomies are directly represented on all the standing committees of the Supreme Soviet of the RSFSR. Their governments and planning bodies work with the equivalent bodies of the Federation. No matter affecting an autonomous republic is settled without its direct participation, nor is the Federation permitted to intervene in matters that are solely within the competence of the autonomous republic.

QUESTION: From what sources does the autonomous republic get its budget income?

ANSWER: From the profits of local enterprises and allocations from the State Budget. The stability of the republic's budget is guaranteed by the steady growth in the accumulations of the enterprises on its territory and the development of industry, agriculture, trade and other sectors of its economy.

The autonomous republic's budgetary funds are invested in local industry, agriculture, transport, housing and municipal construction, and also go to finance welfare and cultural services. Major capital investment projects and other large-scale capital investments are financed in part from the budget of the Federation or the USSR.

QUESTION: Are there ever any differences between the agencies of an autonomous republic and those of the Federation? How are they settled, and who is the arbitrator?

ANSWER: There are, of course, differences, but nothing basic. Mostly they have to do with the budget and related economic matters. The idea is to find a formula that will serve the country as a whole and yet meet the needs of the autonomous republic concerned.

The matter is discussed jointly. If it cannot be settled on the level of, say, ministries (*i.e.*, a ministry of the autonomous republic and its counterpart in the Federation), then it goes to a higher level for solution: the Council of Ministers of the Federation and the Council of Ministers of the given autonomous republic. If no solution is found here, the matter goes to the Supreme Soviet of the Federation, the final arbiter.

QUESTION: What is the pattern of economic relations between autonomous republics and the adjacent territories?

ANSWER: As a rule, the republics and the territories and regions they border on are component parts of a single economic entity. Their industries cooperate, they exchange goods, raw materials, etc. Take, for instance, the Karelian Autonomous Republic (north of the European part of the Federation), which borders on Murmansk, Arkhangelsk, Vologda and Leningrad regions. In conformity with the Federation's over-all plan, Karelia supplies Murmansk Region with paper and timber in exchange for Murmansk fish and fish products. It supplies Leningrad Region with sawn timber, paper, tractors and woodworking machines, and gets back metalworking machines, various manufactured metal goods and foodstuffs. Karelia is also connected by reciprocal deliveries with other neighboring areas. Its cultural relations with them are also many-sided.

QUESTION: Do autonomous republics that border on foreign states have direct relations with these states?

ANSWER: Relations with foreign countries are the prerogative of the USSR as a whole and its union republics, including the Russian Federation. Autonomous republics maintain relations with neighboring countries through the Federation or the Soviet Union.

Only three—Buryatia, Karelia and Tuva—of the 16 autonomous republics in our Federation border on foreign countries. They have good, neighborly economic and cultural relations with them. The relations between Karelia and Finland are a typical example.

AROUND the COUNTRY

GRANDDAD AND GRANDSON

At the Museum of the Revolution in Moscow a scale model of the DT-75 diesel crawler tractor with a mounted plow stands alongside the first tractor made by the Volgograd Tractor Plant. The granddad tractor has a long record of service. It was made on June 17, 1930, has plowed over 32,000 acres of land, hauled guns in the war, and pulled out bogged-down trucks. The new tractor is a worthy successor. It has already made a reputation for itself on the farms.

A RUSSIAN DOCTOR IN MALI

Georgi Leonov, a Russian surgeon, worked in the town of Nioro du Sahel, Mali, for two years. No North European before him had been able to stay there for any length of time because of the climate. The surgeon was a one-man polyclinic: He treated fractured skulls, operated on internal organs, saved people bitten by snakes. He performed a grand total of 3,260 operations, working 16 and 17 hours a day, in the town and outside it. The climate did not spare him either. He had five bouts with malaria and four with amebiasis, but sick or well, he took calls. The Malians were sorry to see him go.

VOSTOK IN PARIS

Seven years ago Major Yuri Gagarin became the first man to be rocketed into outer space. His capsule was placed in orbit by the *Vostok*, a three-stage booster system. Last summer the rocket was displayed at the Twenty-seventh International Aeronautics and Space Show in Paris.

The system is made up of six units and a nose cone which protects the capsule in the dense strata of the atmosphere. It develops a thrust of 20-million-horsepower, is 125 feet high and has a 33-foot diameter at the base.

Displayed with the *Vostok* were scale models of many of the Soviet space probes, including *Luna 10*, which is now a satellite of the Moon.

After the Paris show the exhibits were all moved to the USSR Exhibition of Economic Achievements in Moscow.

MUSHROOM ROCK

This mushroom rock can be seen in the Tien-Shan Mountains. Its stone cap measuring 82 feet across rests on a pillar of ice. Two hypotheses have been advanced to explain its origin. The first holds that the stone was carried along by an advancing glacier and that the ice pillar sheltered in the shadow of the cap remained when the glacier receded. The other says that a rock rolled down from the mountains onto a solid snow bed and the weight of the rock turned the snow to ice.

NEW GLIDING RECORDS

Flying Blanick gliders, Soviet pilots Yuri Kuznetsov and Anatoli Zaitsev, and Izabella Gorokhova and Tatiana Pavlova set two world records. The men flew a 569-mile straight course, and the women 540.5 miles.

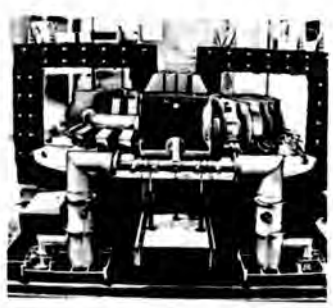
FILM FOR HOTHOUSES

Viewed from a distance, hothouses made of film look like huge grounded barrage balloons.

In the Soviet Union they were first used in Latvia, then in Siberia. Their spherical domes readily collect sunlight. A compressor feeds warm air into the hothouses at subzero temperature outdoors and cooled air when it is hot outside. Air keeps the domes inflated; they need no additional support.

AURORA EXPRESS

The Aurora, a fast express, has been running between Moscow and Leningrad since last summer. On some sections of the line the train develops a speed of 124 miles per hour. It has cut the travel time between these two busy metropolitan centers appreciably.



PLASMA TRAP

Physicists in many countries have been looking for ways of containing plasma in "vessels" woven from magnetic fields. One such vessel is the Sirius trap set in operation in the Soviet Union recently. In the Sirius the plasma is contained by helical magnetic fields. The temperature of the electrons in the plasma is 15 million degrees, and the density of the plasma is 10^{13} particles per cubic centimeter. The photograph shows a mockup of the Sirius.

TRAPPING SUNSHINE

A community is being planned on the coast of the Arctic Ocean where for nine months of the year the weather is all snowstorm and blizzard. The buildings will be set in a huge cup of concrete and glass. The houses will be oriented with their windows facing south, so that during the Arctic day the apartments will be flooded with sun. The road to the port will be laid underground.

TRANSISTOR PROBE FOR ANIMALS

This transistor probe locates metal objects that animals have swallowed with their fodder. It was designed at the Veterinary Institute in Yerevan, the capital of Armenia. The device is powered by a flashlight battery good for 200 hours, enough time for the veterinarian to examine 2,500 head of cattle. The detected objects are retrieved from the intestines with a magnetic catheter.

FIRST SOVIET MEDAL

Because of the Soviet Union's fiftieth anniversary there is a particular interest in such relics of the founding years as the first Soviet medal. On April 29, 1921, the Labor and Defense Council ordered the Leningrad Mint reopened. Its first product was a medal with images of Karl Marx and Vladimir Lenin on one side and a grouping symbolizing Liberated Labor on the other. The medal was designed by Dmitri Stepanov, an old master, in 1919, but it was not until late 1921 that 350 copies were struck in silver and in red copper.

DIAMONDS BY THE POUND

A newly opened shop in Kiev, capital of the Ukraine, has been drawing steady crowds. It sells diamonds made by an experimental factory producing synthetic and hard-alloy materials and tools. The first batch of synthetic diamonds was prepared by Ukrainian researchers five years ago. Today they are in wide use industrially. There is one grinding wheel that has diamonds totaling 356 carats—a royal treasure.

Synthetic diamonds save industry 200 million rubles a year.

WHALE GUNS

One of the earliest products of the engineering works in the old Ural city of Perm was the Czarina, a huge marine cannon. The "biography" of the Czarina, engraved on a brass plate reads: "Cast at the Perm Gun Foundry in 1868. Weight of barrel, 2,800 poods (one pood equals 36 pounds); weight of cannon ball, 30 poods; weight of powder charge, 4 poods. Tests, 300 shots." The cannon proved too heavy to be handled, and marine artillerymen turned it down. Today the plant makes peacetime weapons —whale guns.

MORE WEEKENDING

With the five-day week now general, people who work at the Kirov Plant in Leningred can take two-day weekends out of town. Many of them go to the plant's tent camp near Sukhodol Lake on the Karelian Isthmus. The facilities, including rowboats and assorted sports gear, are provided free of charge by the local trade union.

WAR MEMORIAL

The situation was critical in 1942; the Nazis had hammered their way into the Transcaucasian area. A handful of Soviet soldiers, with only the ice blocks and boulders of the Marukh Pass to protect them, stood solid against the Jaeger troops of Hitler's Edelweiss Division. The Hitlerites never got across the passes of the Main Caucasian Ridge to the oil fields of Baku. There is now a monument and a museum at the scene of the fighting.

MONKEYS NEAR MOSCOW

You blink at the sight of tropical jungle dwellers swinging from snow-covered trees in a forest near Moscow. The Poliomyelitis Institute of the USSR Academy of Medical Sciences keeps a flock of monkeys in open-air enclosures in a birch grove all year round. The "forest department" of the institute was set up five years ago to determine whether it is possible to acclimatize and, eventually, breed these animals, so essential to almost every kind of medical research.

DIAGNOSIS AFTER 6,000 YEARS

By studying the fossilized bones of Baltic people, Latvian X-ray specialist Vilis Derums has been able to identify several of the diseases they suffered from five or six thousand years ago.

The findings were presented as a dissertation for a doctor's degree. Derums used present-day techniques to make his diagnosis. The bones of the legs, he found, showed dystrophic changes, a sign of premature aging. He concludes that the ancient Baltic people lived an average of 30 years. He also found that tooth decay got worse as cooking improved. From what he has learned about the injuries and wounds of his forebears, Derums believes that they did successful skull and other major surgery as early as the ninth century A.D.

SUNSHADE FOR A CITY

Twenty years ago Ashkhabad was wiped out by an earthquake. Its oldest building dates back to 1948.

The city is bounded by a desert, and the temperature in summer goes up to 115°F., something architects and city planners have taken into account. The new streets are laid out so that the breezes from the mountains cool the residential areas at night. The houses, mainly two- and three-story, are fenced off from the sun by alleys of tall southern trees which make a sort of green barrier. Much thought has been given to a roofed market place that will be modern and still retain the traditional quality of an Oriental bazaar. The roof over the market place will be suspended on steel rods, and cold-storage rooms will be placed underground. Sellers and buyers will feel comfortable on the hottest summer days.

MILLIONTH VOLGA CAR

A garlanded Volga—the millionth manufactured—rolled off the assembly line at the Gorky Auto Plant, biggest in the Soviet Union, last summer.

The Volga is a familiar sight on the roads of many countries and has won many admirers. Currently, the workers at the plant are putting the finishing touches on the GAZ-24, an improved model.

WORKER TURNED ENGINEER

In the early sixties Vasili Stebli-anko, a miner from the Donbas coal fields, visited collieries in England. His knowledge impressed the English. At the time, however, he was about to take the entrance exams for the Polytechnic Institute. Four years later he got his degree in engineering. His graduation thesis was titled "Mechanization of Coal Mining."

SPUTNIK ON THE GROUND

This Sputnik is in operation at the USSR Exhibition of Economic Achievements in Moscow. A metal model of the earth has two rockets circling it in a spiral orbit. With passengers aboard, the rockets shoot up to a height of 36 feet, make two turns around the globe, and then race earthward. It is especially popular with younger visitors.

ANIMAL CENSUS

A census of wild animals was recently taken in the Ussuri taiga. Using helicopters and amphibian trucks to get to hard-to-reach areas, the census parties covered 198 million acres of forest. They reported that no more than 45 tigers, scattered over an area of 12 million acres, now live in the Ussuri valley. On the other hand, the deer and elk herd has expanded to 30,000 head due to conservation efforts.

FIRST KORYAK BALLET

Last year the Koryaks, who live on the Kamchatka Peninsula, staged *Mengo*, their first national ballet, for a Moscow audience. This was not a professional production; the dancers were amateurs from the village of Palana. Tambourine rhythms underscored the folk melodies and exotic dances. The high praise of the Moscow spectators went to Lisa Ilyinskaya, a five-year-old from the kindergarten in Palana, who danced the role of Mengo.

MICROTELESCOPE

Boris Matalayev of Moscow, a microbiologist by profession, has built a microtelescope. It attaches to any 35-millimeter camera. One of Matalayev's shots shows an area of the Moon's surface in detail. The attachment will be useful to amateur astronomers, natural scientists and especially to microbiologists, since it gives clear images of very thin sections.

WARM ANTARCTIC

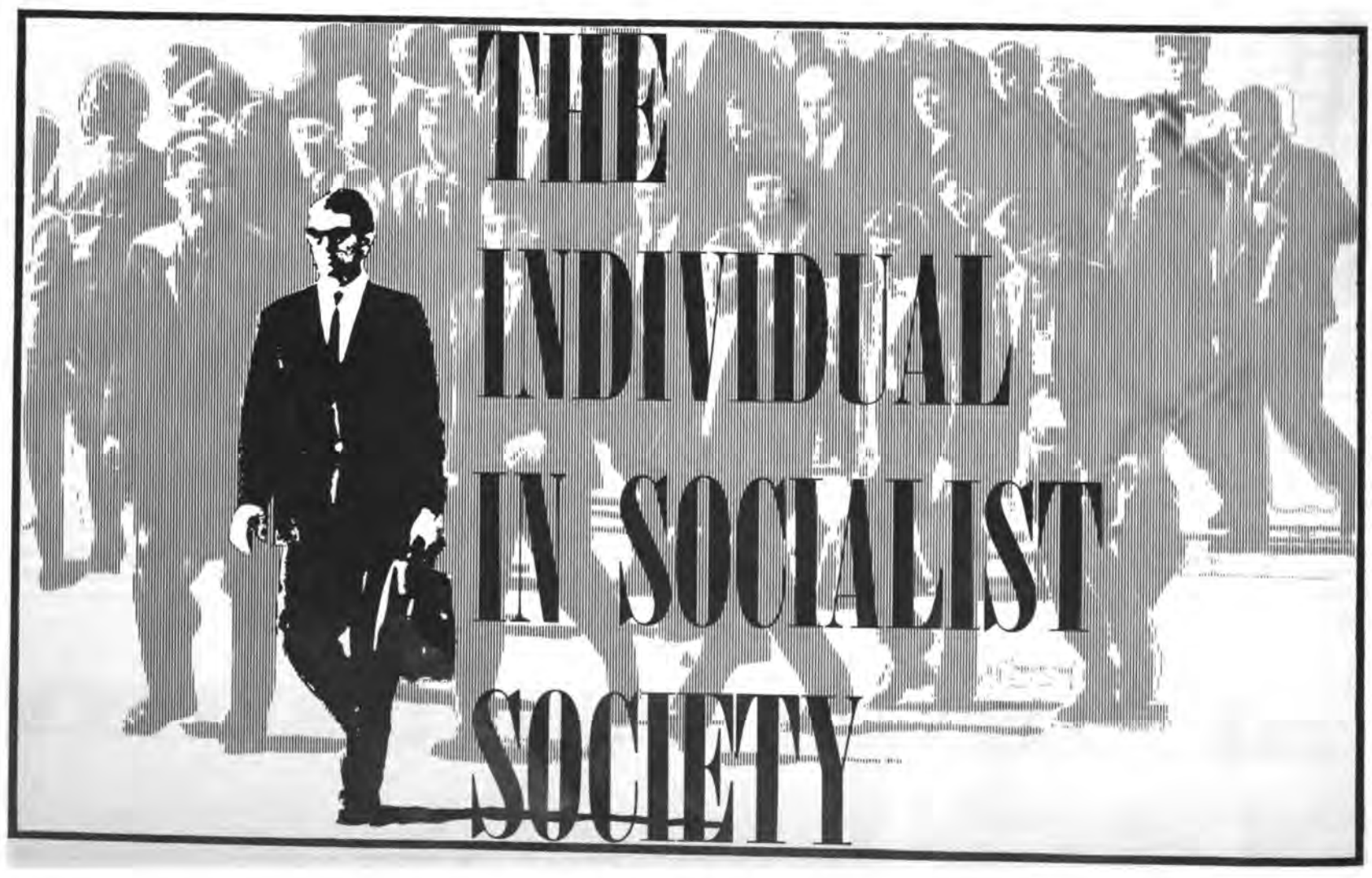
Ten years ago Soviet Antarctic explorers ran into a small bay without ice cover. They found it hard to believe. Last year they discovered that the temperature of the surface water in Prydze Bay (Commonwealth Sea) was 35°F. The key to the mystery lies in the relief of the sea bottom. The warm subsurface water rises to the surface and melts the ice. The dark top of the water table absorbs sunlight, raising the temperature still more.

AROUND the COUNTRY

"In place of the old bourgeois society, with its classes and class antagonisms, we shall have an association, in which the free development of each is the condition for the free development of all." So declared the **Manifesto of the Communist Party,** *published in 1848 by Karl Marx and Friedrich Engels.*

In 1894 the Italian magazine **Era Nuova** *asked Engels for a quotation from Marx that would define the spirit of communist society as precisely as Dante defined the spirit of the old society in the statement "Some dominate, others are oppressed." In reply Engels quoted the words: "The free development of each is the condition for the free development of all."*

Fifty years have passed since the new society was founded in Russia. How is the ideal of Marxism being realized? What problems and difficulties are being encountered? SOVIET LIFE invited a group of Soviet philosophers and sociologists to exchange opinions on the subject "The Individual in Socialist Society." Yuri Zamoshkin chaired the meeting. This is a stenographic transcript of the discussion.



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RANGE OF PROBLEMS

YURI ZAMOSHKIN:

Ours is not an easy assignment. In one discussion it is obviously impossible to do more than touch on the various aspects of the development of the individual and his relationship to society. May I suggest that we center our discussion around three sets of problems.

First: In our twentieth century industrial society people are objectively interrelated in a single social organism. They are tied together by the nature of the productive forces, the process of socialized production and the logic of economic life. We therefore have to look for an answer to this question: To what extent is the individual the master of his society's productive forces and its economic wealth? The 50-year history of socialism in our country shows that in an economy based on the public ownership of the means of production man can be the master of the productive forces.

Second: Public ownership of the means of production is only the economic prerequisite for giving the individual a real voice in governing his society through collective decision making. For the individual to be able to exercise the rights of master, the corresponding political and government institutions of his very complex society must encourage him to be active politically, to take creative initiative, to use his potentials, to defend his interests. In other words, when we talk of the individual and society, we must also talk of the system of democratic institutions in the Soviet Union, of collectivism and the development of collective social relations. We must, in particular, differentiate between genuine collectivism and sham collectivism or, to use an expression of Karl Marx's, substitutes for collectivism, bureaucratic organizations whose last concern is the interests of the individual. The experience of our society has produced many kinds of genuine collectives.

Third: We must discuss the development of the individual himself, his intellect, emotions and moral values. How do we create a social environment that will nurture individuals who actively decide their own destiny and the destiny of their society as well? We set ourselves this difficult task because man confined to the narrow limits of his microworld and his own daily round cannot find his way in our complex modern society. And so we have the problem of the social orientation of the individual to consider.

With these remarks, I want to throw the floor open for discussion.

CONFORMISM AND COLLECTIVISM

IGOR KON:

One important consideration in any examination of our society's development is the emergence of the individual as an active creative force. Formerly—and this was not so long ago—we often made the statement that the individual is a product of the social relations. This is correct but one-sided. There is another side: the individual as a creative force.

If we look at the individual as a socially active force and not merely as a cog in a wheel, we have to begin by saying that the greater activity of the individual is rooted in the demands of our social system. The more intricate and differentiated the social system, the more creative must be its individual components—men.

Let me consider one important problem in shaping a creative personality—the relation between conformism and collectivism. Conformity is the individual's submission. A man is subjected to pressure not only by his total environment but also by his own immediate environment, the smaller group to which he belongs.

The American psychologist Solomon Asch did this experiment, variants of which have been done by Soviet researchers. Two sheets of paper were given to a group consisting of from seven to nine people. One line was drawn on one sheet and three lines on the other. The subject was asked to decide which of the three lines on the second sheet was equal in length to the line on the first. The answer was obvious. But the trick was that all the members of the group except one naïve subject had been primed by the experimenter to give a deliberately wrong answer. The question the experiment posed was: Will the naïve subject believe the evidence of his own eyes or will he follow the majority? The experiment demonstrated that the unanimous opinion of the group strongly affected the individual: 37 per

cent of the answers given by the naïve subjects were wrong.

The subjects were then interviewed, and it was found that, as a rule, when a person's own perception clashed with the opinion of the group, he began to doubt the evidence of his own eyes. If his perception differed from the opinion of the majority, a great deal of effort was required by the subject to hold on to his independent judgment. Many people cannot do it.

Researchers are working on this old problem: Is the ability to preserve independent judgment displayed by some people and the greater submissiveness shown by others a purely individual trait or is it explained by a complex of social factors?

Experiments have conclusively demonstrated that conformity is not an innate characteristic. The same individual, depending on the social situation, will display greater or lesser independence. A vital element is his upbringing, to what degree he has developed stable character traits.

Simple appraisals of conformism—whether it is good or bad—are impossible. Evidently, in any activity the process of training begins with the individual's at first consciously learning some set model, collective discipline. Only when he has achieved a degree of perfection is he capable of displaying real independence.

If collective rules are assimilated mechanically, not in a creative way, without critical understanding, the individual learns to conform to the principles, style and opinion of the collective. On the whole this is good, but the trouble then is that he becomes incapable of displaying initiative, of introducing something new in collective activity, of leading.

Communists have always fought individualism. But we must wage a more active struggle against conformism. We must stimulate independence and initiative. The steps we are taking to make our economic activities more democratic (I am referring in particular to our economic reform) will be helpful in this respect. But they, of course, must be combined with an appropriate system of upbringing. Here, it seems to me, we have a whole range of practical problems to deal with.

Yuri Zamoshkin: I know that in America the problem of conformism is widely discussed. Herbert Marcuse's *One Dimensional Man* emphasizes the problem of conformism in industry. One very interesting element of Soviet experience is that our scientists are examining technological development as it affects our humanist goal, the development of personality. In other words, problem situations arising in technology are being utilized to develop personality. Where we have monotonous unskilled operations, we must find ways to encourage inventive activity, creative effort, the use of potentials that will develop personality.

Igor Kon: Your supplement is welcome, but why reduce the problem of bringing up the individual solely to the sphere of labor? In my opinion, "the individual and labor" is only part of the problem. Development of personality means development in all of its dimensions. I think these are the important ones: man as worker, man as citizen, man as collector of knowledge and culture.

MAN AND HIS TIES

EDWARD ROSENTAL:

At the Sixth World Sociological Congress held in Evian, Igor Kon and I participated in a seminar on "The Image of Man and the Choice of Hypotheses." I remember the speech made by the Belgian sociologist Henri Jean. He regarded the intellect and other spiritual qualities of man as hereditary derivatives of various combinations of genes. True, he did not deny the environmental factor, but he reduced its influence to 20 per cent, crediting the other 80 per cent to heredity. Moreover, Jean holds that heredity, and with it the nature of man, his intellect, are improved from generation to generation. Therefore, in his opinion, heredity is taking on ever greater weight at the expense of the social factor.

The logic of this position leads to the conclusion that eventually the social factor will be reduced to naught. It is no accident that in the concluding part of his speech Jean urged sociologists to study not man in capitalist society or socialist society but man in general.

I think the formula "man is the sum total of all social relations" is not abstracted from the creative element but incorporates it. In our understanding, man is both a "product of the environment" and a "creator." The two are indivisible. Man cannot be an individual without social ties. Even less so can he develop his gifts and talents outside society, outside a collective.

Of decisive significance here is the nature of the man-society ties. Socialism by its very nature gives man the opportunity to develop his creative gifts on an immeasurably grander scale than all preceding systems. Neither feudalism nor capitalism raised the question of man's place in life to the level that socialism has. Formerly man's place in life was determined spontaneously, for the most part, by the operation of such social factors as the group and class to which an individual belonged, his property status, competitive struggle, etc. And always it has been mostly the task of the individual himself to find his place in the sun.

Helping man develop his abilities, says socialism, is a major task of society. Socialist society demands of each member that he think in terms of the state, that he reason as a citizen, that he view all things and phenomena from the standpoint of its social usefulness. That relations of this kind between the individual and society is of optimal benefit for the development of personality is beyond dispute.

By the way, Igor Kon reminded me recently of Mark Twain's story about an obscure Tennessee tailor who goes to paradise after his death. Homer and other great poets of the past pay him homage because he had a great poetic gift which remained untapped. The tailor from Tennessee is an imaginary character, but how many real talents have been aborted in societies which took no interest in the destiny of the individual?

Strange as it may seem, some Western philosophers take socialism to task for helping the individual develop. In their opinion, the state must not intrude in matters that concern the individual because this supposedly leads to the loss of his freedom. But how do such philosophers understand individual freedom? If we are to believe, say, the authors of the *Philosophical Dictionary* published in Stuttgart, West Germany, "freedom is the possibility to act as one wants to. Freedom is freedom of will." But this is an abstraction of the worst kind!

We will not be able in the course of this discussion to cover the very complicated problem of freedom of the individual, but a certain minimum must be said about it here. It is obvious enough, for example, that freedom cannot be won singlehanded. A man cannot be free if other people around him are not free. Freedom is man's domination of both nature and social relations. And this he can achieve only in union with other people, given the appropriate activity of the whole of society. It is this aim that socialism sets itself.

MAN AND LABOR

VLADIMIR YADOV:

I agree with Igor Kon that we must not consider man only in his function as worker. We must take him in the round and in all his complexity—as a citizen with great potentialities. Nevertheless, labor is his major social contribution.

What I want to talk about is the possibilities for making labor creative. Marx uses the expression "simple process of labor," that is, direct labor activity, to differentiate it from social forms of labor. Many studies are being done in the Soviet Union on the subject. We want to find out more about the simple process of labor: Is it monotonous, uniform work or is it work which by virtue of its objective content and internal complexity obligates man to make decisions? Also, does the content of the work affect the individual's attitude toward it?

We did a survey of 2,665 young workers in Leningrad. These were people under 30, the most representative age group, socially speaking, because the future belongs to it. A few figures will help illustrate the idea I want to get across. We wanted to compare to what degree people doing monotonous work and those doing diversified work liked their jobs. We measured work satisfaction by an index. There is no need here to go into details, but the range was from +1 to −1.

We began with a group doing manual work —loaders and auxiliary workers whose jobs do not require much skill, training and education. Their index of work satisfaction was 0.12. Setup men we also placed in the category of manual workers, but highly skilled. Here the index was 0.34, almost three times higher. Next came operators of automatic machine tools. This is skilled machine labor. The index was 0.35. Evidently, satisfaction with work does not depend only on the fact that in one case the labor is less creative. Other elements play a part.

In January 1966 SOVIET LIFE * ran a dialogue between Frederick Herzberg, West-

* "The Soviet and American Worker: Job Attitudes"

ern Reserve University psychologist, and myself. A comparison of our data showed that there are essential differences in the job motivations of Soviet and American workers. For American workers job security, which depends on the general employment level in the given area, is an important consideration. Soviet workers are not faced with the problem of employment because everyone is guaranteed a job.

Herzberg's reply to this point was that it showed a certain prejudgment. He suggested a stricter analysis. We agreed to do a study using the same criteria. Unfortunately, I cannot describe the study in detail at this time because I do not have the permission of my American colleague to release the data. We still have to agree on the conclusions. But I think some things I can make public.

The use of the same criteria and the same research technique gave us a very interesting picture. Job satisfaction in the United States was higher than in the Soviet Union for all labor groups. From this Herzberg draws the conclusion that the American workers are happier.

Second, in the United States the satisfaction index of workers doing simple, monotonous labor and complicated labor is almost the same, that is, people are equally satisfied. In our country, however, the difference is striking.

I think we have here evidence of the influence exerted by social conditions on the attitude to the simple process of labor. Job satisfaction can be expressed by a simple fraction: the numerator is the possibility of satisfying the need, the denominator is the level of need. The higher the level of need, the lower the satisfaction. The greater the possibility of satisfying the need, the higher the satisfaction.

Why is the satisfaction level so high in the United States? There are three possibilities: either the level of need is insufficiently high, or satisfaction with the given work receded to the background since the individual had to take the only work available at the given moment, or the level of need is high and the possibility of satisfying it is great. The last variant I reject for the reason that the functional content of labor in both the United States and the Soviet Union is about the same at the present stage of development of production.

What is the reason for the low satisfaction level of the Soviet worker with monotonous labor? I see only one answer: high requirements. Proof of this is contained in our empirical material. When the level of work satisfaction of people in the same group is compared—fitters, for example—we find that the higher the education, the higher the requirements. The group of workers I mentioned, people under 30, have eight years or more of schooling. In the next several years our workers will have close to nine years of schooling.

But this is not the main thing. Sweden, for example, has the same level of education and so does the United States. In other words, education is not the only factor. Value orientation, the environment in which a man is brought up, that indefinable quality we call culture, the ideological climate—all these products of 50 years of socialism—are critical factors.

At this point we have a paradox beginning to operate. While the level of the spiritual requirements of the Soviet worker today is high, the possibilities of satisfying these needs are still rather limited. Calculations show that the technology and organization of our present-day industry, transport and construction demand of the worker only seven years of schooling on the average, while his actual level of education is already more than eight years. There is a certain surplus of education, so to speak. A Soviet sociologist even uses the term "devaluation of education." But is there really such a devaluation? I think a broader view of the problem must be taken. If the education of those who are now 20 is reduced, their children will have lower requirements.

We often speak of deficiencies and mistakes in the building of socialism. This is correct, this is self-criticism. But no one can challenge our purposefulness in education as well as in other spheres of endeavor. This is closely related to the problem of the individual and society we are discussing.

Yuri Zamoshkin: I think Edward Rosental wants to say something.

Edward Rosental: Vladimir Yadov mentioned in passing the ideological climate in the process of labor. I want to expand on this point. Sociologists will often resolve the problem of job satisfaction by overemphasizing the technical or, to be more exact, technological characteristics, and underestimating the moral factor. Yet experience shows that a worker can be dissatisfied with his monotonous labor and at the same time value it, take pride in it because his contribution is needed by society. In 1960 a sociological study published in Paris analyzed a poll of 58 workers of different trades, age, sex and skill. Here is an illuminating point. To the question "What do you dislike most at the factory?" only seven people indicated work as such; 42 replied: "subordination, dependence."

Here we deal with the social aspect of labor. I concur with Igor Kon's comment about a certain abstraction in raising the question "the individual and labor." It is impossible to understand the individual as a worker without establishing the place and role of man in all other spheres and, above all, his role as citizen. Marx pointed out, in his time, that dissatisfaction with labor and the social system as such grows as the worker becomes aware of his unequal position. This holds true to this day. But the consciousness of the worker grows with his education and general cultural development, and that, in turn, depends largely on the introduction of more complex production processes. As a result of vocational and general cultural progress, an entirely different attitude toward labor frequently develops among workers in different social systems.

SOCIAL ORIENTATION

YURI ZAMOSHKIN:

I shall take advantage of being chairman to give the floor to myself, now, because the problems I want to raise are closely related to the thoughts voiced by Vladimir Yadov. I want to speak about the social orientation of man in our society and in the contemporary world in general. This is a very serious problem because life is becoming more complex, there is a greater division of labor, and the entire social organism is becoming increasingly multifaceted. So that when we talk of man being capable of initiative, it is most important that we know how well he orients himself in society, how well he understands his place, his role in society at the given stage and the prospects for social progress.

It is in this context that the problem of his level of expectations arises. Typical of our society is a high expectation level, a characteristic that has its source in the October Revolution. Social revolutions always orient the people to build a more developed society and, consequently, stimulate man to strive for something higher.

The high level of expectations in our society derives from our ideological and psychological needs. If man wants to better himself —and this is a characteristic of the contemporary individual—he can do so only through his activity in society. Important here is an understanding of the general social prospects —not only the immediate but also the more distant prospects. This assumes a qualitative social change. The theory of scientific communism presupposes an intimate connection between the building of communism and a better life for the individual. This is how people brought up in Soviet conditions see the future.

Studies made by sociologists of *Komsomolskaya Pravda*, a youth newspaper, show that our younger generation is oriented toward social progress. Sociopsychological experiments demonstrate the importance of this factor. When a man encounters difficulties, natural in contemporary society, how he will react depends on how dynamic his principles are, how compelling his orientation system. We know, for example, that when faced with the tremendous difficulties of the initial Soviet period (a legacy of poverty from czarism) and later during the anti-Hitler war, Soviet people showed fortitude, bravery and the ability to withstand hardship and privation.

Problems of orientation are much debated in the United States. Daniel Bell's *The End of Ideology*, for example, regards any projections of the future of human society as utopian. Bell holds that scientific orientation of man, scientific guidance of the individual, can serve only for the immediate present. He sees the strength of the typical American mainly in his pragmatic orientation, his ability to adapt himself to a current situation. Such principles of upbringing and personality development are challenged by many sociologists in the United States who believe that young Americans suffer morally and ideologically without some vision of social progress.

When I speak of the necessity for orientation toward the future, what I have in mind, of course, are scientific and social long-range programs. If science does not engage in forecasting and does not give the individual an

understanding of future prospects, it will be replaced by pseudo doctrines or a pseudo sociology. Scientists must do social forecasting; it is their duty.

Orientation toward progress is the road to real progress because an individual striving for progress revolutionizes society, forces it ahead. This is vital if we are to avoid the large-scale breeding of Babbittry, opportunism and the cynicism which makes man a pliant tool in the hands of the bureaucrat.

Prognoses of the future, naturally, must be scientific. They must be based on real possibilities and proceed from present-day tendencies. The pictures of tomorrow and today must be coordinated. Soviet sociologists are concentrating their efforts on a scientific system of man's orientation which will include a knowledge of the social mechanisms operating today and an idea of tomorrow's prospects.

Let us take the specific example mentioned earlier—the fact that the educational level has outstripped the current needs of production. We must properly understand this phenomenon both as a guarantee for future development and as a factor that raises the expectation level. A poorly oriented man suffers psychological anguish and makes mistakes, which is why scientific orientation is a major task for our scientists and educators.

A man's personal preparedness for life is a problem for the whole of his society. Social dynamics, the progress of society in all spheres, depends on how society solves the orientation problem. The better it is solved, the more dynamic will progress be.

Vladimir Fyodorovich[1]**:** The fact that labor motivation in our country was lower than in the United States and our "devaluation of education" were both mentioned. Are not these the result of our poor social orientation?

Yuri Zamoshkin: Rather they point to a certain disfunction in the orientation system of young people who see work only as highly creative labor. What they actually have in mind is the labor of the future and not the real work of today, which is determined by the level of the current productive forces. They come to work badly prepared psychologically. And so their requirements are high and they make great demands on production.

By itself this is not so bad. What is bad is that these requirements are the result not only of education, but of an inadequate understanding of the real conditions of life. The flow of information about the state of affairs today must be speeded up. A bridge of sober understanding must be built from the objective possibilities of the present to the prospects of the future. At times we onesidedly orient people toward the future while insufficiently orienting them toward the present. This is the crux of the matter. We need to bring up individuals with dynamic personalities who strive for the future but do so knowingly, understanding present reality and future possibilities.

Igor Kon: This is a very necessary reminder. A sober attitude almost always has a greater moral effect than lofty models as yet impossible of achievement.

Yuri Zamoshkin: That's the point. Let me conclude by saying that the big problem of social orientation in our country is to set our sights on the progress of society as a whole, to scientifically predict the future, which we know will be better than the present.

[1] Senior editor of *Soviet Life*.

THE INDIVIDUAL AND CREATIVE ENDEAVOR

ERIC SOLOVYOV:

It seems to me that, among other things, we have touched on quite a delicate area—our unduly high expectations and the adverse influence this might have on the individual. I, too, favor a more sober and more effective orientation.

Let me go back to the subject of labor. Vladimir Yadov regards creative labor as the basic yardstick of rounded individual life. This is correct in principle. There can be no social theory of the individual which in one way or another does not focus attention on man's creative potentialities. Nevertheless, to present creative labor as the main ethical model for all members of our society would be premature under presentday conditions.

At our present level of production, the truly creative jobs are relatively few. We must take this into account in considering the individual's social orientation. After all, the farmer grows the selfsame produce year after year using approximately the same methods, but this does not make his labor socially inferior.

I agree with the opinion voiced here that creative strivings, which the modern system of education fosters, are by far not always realized. I am sure that future production will offer a very wide range of creative jobs, an area of choice too large to even imagine today. But we must be aware that this will not affect the present generation. Such a wide range of creative jobs will not, in my opinion, be available for several generations.

But to see Yadov's scheme in proper perspective, we must remember that people use their knowledge and creative gifts in other areas than direct production, labor. There are many other spheres of life where both knowledge and creative endeavor are needed, and frequently of a higher order than required by production. Take our society after the Twentieth Party Congress. Greater activity and creative investigation are the rule, with more and more people participating. The most recent example is economic reform. Here we have many new problems which demand from people, including the "average" worker, new ideas and new thinking. Political life, too, has become more involved. What about the arts and sciences? All this (perhaps here above all, and not in the sphere of production) makes it necessary to discard old stereotypes and to view things critically, with a searching eye. Everyone has creative problems to solve, and not simply as a worker on his job, but first and foremost as citizen.

It seems to me that if we look at this broad range of vital decisions required of the individual, the idea of "devaluation of education" will collapse of itself. Education is superfluous only for a Babbitt, who identifies his social duties with the narrowly understood duties of his job and tries to evade civic and cultural issues.

A society capable of constant improvement is undoubtedly more progressive than other types of society. But an individual oriented toward constant, steady, as it were, "guaranteed" or "automatic" progress is far from a complete person. Such an individual reacts painfully to zigzags and temporary crises of growth and is not prepared for sharp turns. As a rule he loses the ability to see society's prospects.

It is a prime duty of our sociologists, philosophers and writers to rear individuals who see society, not from a personal angle, but as an objective unity of tasks for which the successive work of several generations is required.

FREEDOM AND RESPONSIBILITY

EDWARD ARAB-OGLY:

Two concepts for solving the problems of the "individual and society" collapsed in the past 100 years. The first was the concept of rational egoism. It was based on the premise that if each individual rationally defended his interests, it would be good for others and society as a whole. The second was the concept of naïve collectivism. It thought that if some kind of rational aims were set for each collective and for society as a whole, this would also be good for each individual. But experience demonstrated that both schemes are impotent because they oversimplify the complex. The problem remains unsolved, and the search continues.

In the intricate skein of this important problem is one particularly difficult concept—freedom. Several decades ago Pavel Axelrod, a Russian philosopher, in a polemic with Karl Kautsky wrote, "All the sap has been squeezed out of the concept of freedom." Since then technology has advanced, and what could not be squeezed then can be squeezed now.

The concept of freedom has always been linked with responsibility. Without freedom, the individual cannot be held responsible for his actions. That is why all philosophies, in the past, too, were compelled to deal with freedom. True, they more frequently admitted the freedom of sin than the freedom of virtue. Now it is generally accepted that the measure of responsibility is determined by the measure of freedom: the more freedom, the greater the responsibility.

Freedom, of course, is associated with choice. The limits of this choice, its nature and the object of choice differ in different societies. There can be no absolute choice because any choice, any preference, means giving up something else. Choosing one thing means sacrificing another.

We used to say, and still do occasionally, that under communism a man's freedom will grow, especially because he would not be tied to one occupation. Today he is a baker, tomorrow a druggist, and the day after tomorrow a philosopher. But now we question this view. It is clear that greater specialization will be required in all occupations, and not the reverse.

What then is the genuinely Marxist concept

of the individual, a concept that would not suffer from oversimplification?

The ideal of socialism and communism is that choice should no longer be irreversible; that a man who chooses a vocation should not be bound to that choice for life; that his initial choice, which often is determined by transitory circumstances, should not turn him into a slave.

I think that big steps along these lines have been made in our society. We have a developed system with diverse types of education. This helps a man to escape becoming a slave of his initial choice. He can retrain not only when he is young, but even at a mature age.

Some Western philosophers project this dilemma: either an egoistic society or an anthill society. *Tertium non datur,* there is no third way, they claim. The second type of society, naturally, is attributed to socialism, with some facts from the experience of separate socialist countries adduced as proof. But socialism is not what its critics think it is. Nor are some of its distortions, which actually occur in some places, intrinsic to it. In brief, socialism is simply a normal human society.

One more point. At times utopian views of the individual and society are imputed to us. It is held, for example, that "under socialism everything has to be the reverse of capitalism," as in one French utopian novel where people wear hats on their feet and shoes on their heads. Why? For what purpose? Yet, not only capitalist ideologists, but also some socialist theoreticians want to impose this "reverse" on us. Their absurd scheme looks something like this: full freedom under capitalism—full responsibility under socialism; only profit under capitalism—no profit at all under socialism; material interests under capitalism—no material interests at all under socialism.

We must underscore the fact that socialism is not capitalism in reverse, that the best achievements of capitalism must be assessed, accepted and developed under socialism. We must embody not only the principles of Marx and Lenin, but also those of Jefferson and Locke.

Yuri Zamoshkin: A few words in conclusion. This meeting of sociologists and philosophers has been useful. The concrete questions raised by pragmatic sociologists have been supplemented by the very interesting presentation of general questions by philosophers. All this is of more than theoretical interest to us. In summing up the experience of the past 50 years, it is important for us to establish that our history, by the logic of its development, has refuted the various vulgar, utopian, primitive notions of communism. Yet we are very often judged from the viewpoint of these notions, and then our entire development seems incomprehensible, mystical or simply absurd.

These vulgar concepts must be exposed and refuted. We must show that the ideas of Soviet philosophers and sociologists do not stay confined within the limits imposed on them by people elsewhere. The task is very important, and this discussion is designed to help carry it out. We appreciate this opportunity to communicate our thoughts to American students, cultural workers, public leaders and other readers of the magazine.

QUIZ CONTEST WINNERS

"50 YEARS OF SOVIET POWER"

FINAL RESULTS

Here are the final results of the Quiz Contest published in SOVIET LIFE in August and September 1967. It certainly was not an easy contest, but as we say: "The harder the work, the more pleasant the results." And we hope our readers enjoyed scanning various books in quest of the answers to the contest questions.

First Prize

Sybil Ramsing
Clinton, Connecticut

Second Prize

Anne Fries
Indiana, Pennsylvania

M. Sloan
Pacific Grove, California

John Hubbard
Baltimore, Maryland

Jack Tate
Arlington, Massachusetts

Robert Rose
Fremont, California

Richard Lee Hartness
Wynne, Arkansas

Rose Apolloni
New York, N. Y.

Floyd Clark
Inglewood, California

Mr. Joe Moran
Chicago, Illinois

Louis Wolpoff
Santa Monica, California

Ita Jones
Austin, Texas

Jules Allen Goldstein
St. Paul, Minnesota

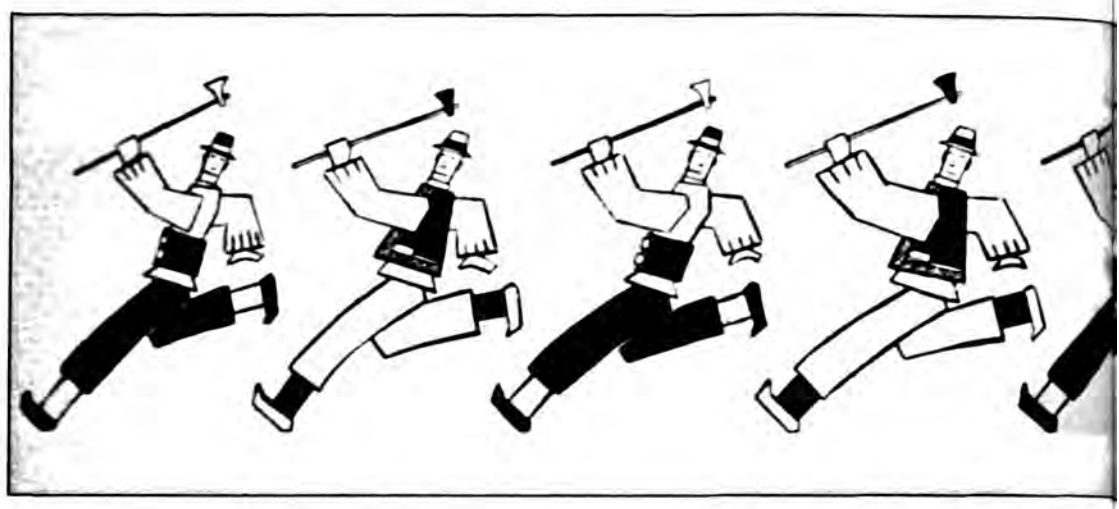
J. R. Mitchell
Berkeley, California

Karen Meldahl
Granville, Ohio

John Hawks
Lafayette, Indiana

Third Prize

Fifty winners received a three-year subscription and all have been notified personally by mail.



JOSEPH THE MADMAN

BY YURI DOKUCHAYEV

Photographs by Alexander Mokletsov

THE CULTURAL BOARD of the Transcarpathian Region in Uzhgorod is bombarded with telegrams asking for the loan of Joseph Gomoki.

He seems to be the answer to a long-raging argument as to how public buildings, from the smallest cafés to the big department stores and palaces of culture, ought to be designed and decorated.

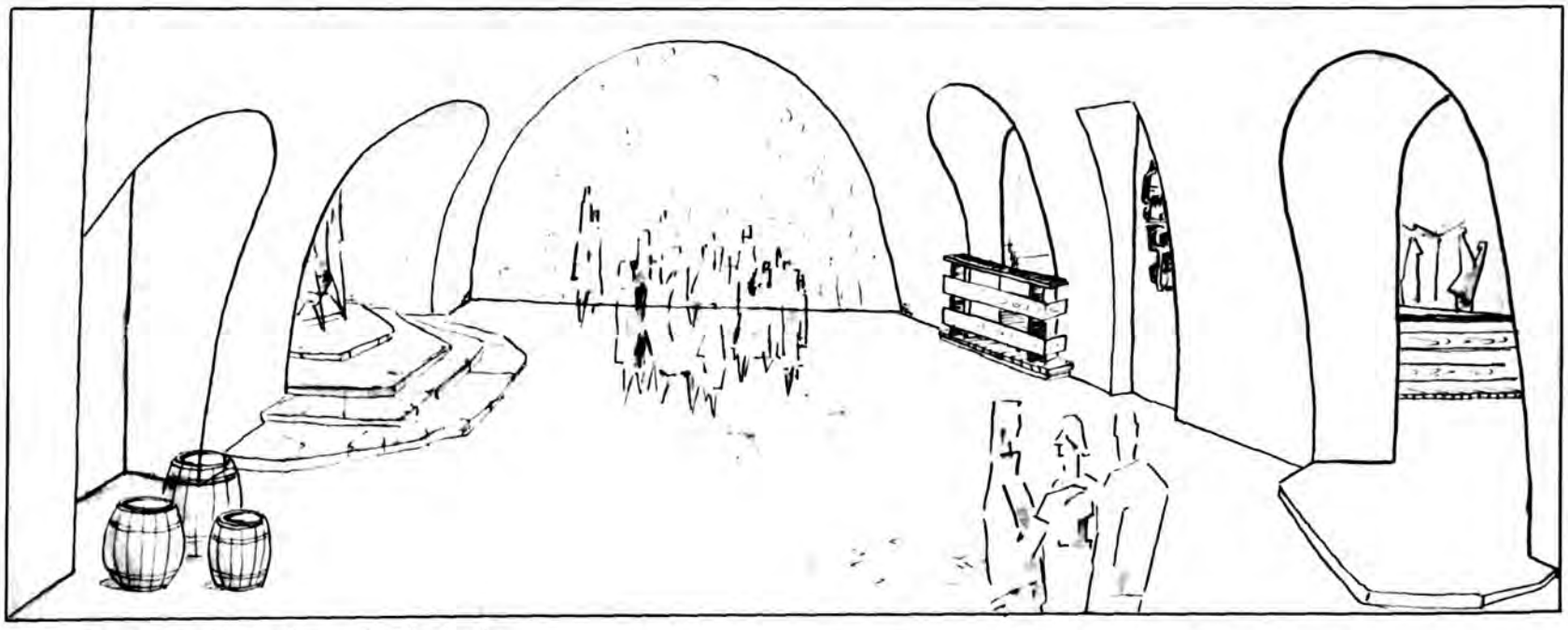
"If you want to see Gomoki," I was told by the board, "you'll have to go to the town of Beregovo. That's where he lives and works. Right now he is designing a store for Nevsky Prospect in Leningrad."

How It Began

Nine years ago Joseph Gomoki came back to Beregovo, his home town. And that same evening he conducted the jazz band in the town's main dance hall. The next day he went round to the city Soviet and demanded permanent quarters where the amateur band could rehearse.

"Look here, Gomoki," he was told, "who do you think you are, a celebrity? Just arrived from the Lvov Conservatory? We've got enough headaches without you."

Gomoki had gone to no conservatory. He was a graduate of the Lvov Polytechnic Institute. But the Music Festival was just around the corner, and his home town was going to make a good showing if he had anything to



Joseph Gomoki sketches out his idea for the interior of a new restaurant. What he aims for is spaciousness, light and beauty.

Gomoki never repeats himself. He feels that there are any number of ways to make even a small coffee bar visually interesting.

Sketch for a frieze to decorate a new café—a Transcarpathian equivalent of the legendary American lumberjack Paul Bunyan.

Everyone takes pride in the fiery and contentious Gomoki, whose love for both work and town contribute to the growth of each.

do with it. He got what he wanted, he usually does. His band competed at the city and republic festivals and was among the best on the list.

Joseph got a job with the Beregovo city Soviet. He was put in charge of road maintenance, and the first thing he did was to raise a fuss about how the city was neglecting its roads. Next he worked as chief of the Building Assembly Board and stirred things up there. Then he was promoted to the position of chief engineer of repairs. But no matter what job he happened to be holding down, you could bank on somebody's fur flying. It got so the minute city Soviet officials caught sight of him, they took to their heels. Joseph was at them all the time: The repairs were all wrong, or the building work was not up to the mark, or money was being squandered, or . . . etc., etc. As for the design of the geologists' district—that was just a mess.

"You know, Joseph," the mayor of Beregovo could contain himself no longer, "it's easy enough to criticize. Why don't you take over the designing and building yourself since you know so much?"

Gomoki glared at the mayor.

"You think I can't?" he said. "All right, I will. But with no interference."

Gomoki alone knows how many sleepless nights he spent over his drawings and sketches. Finally, tucking the rolled-up designs under his arm, he rushed to the construction site.

He found plenty of supporters, but there were opponents too, and they interfered plenty in spite of the mayor's promises.

The district was built, and now, whenever visitors come, the mayor takes them to see the Café Geologist, the department store and the kindergarten. He draws their attention to the interior decorations of the café, done in the national tradition. The decor, he explains, was all designed by Gomoki and took hardly any extra outlays. But if anybody asks him who Gomoki is, he says, "Oh, he's a madman."

The Madman

Everywhere in Beregovo and neighboring communities you will come across Gomoki's work—the Troyanda Tea House in Muzhievo Village, the Leanka Wine-Tasting Cellars on the outskirts of Beregovo, the Café Beryozka, the auditoriums, halls and gymnasium of the Chapayev Collective Farm's big club.

The bas reliefs and chased metalwork are

He makes skillful use of local materials, fieldstone, pebbles, even coal, for wall decorations based on the national motifs.

One of Gomoki's answers to the problem of individualizing mass-produced structures is a fresco like this one at the front entrance.

all derived from national motifs. The designer, you can see, has made skillful and tasteful use of such ordinary materials as stones, pebbles, even coal. The little cafés are cosy, the big halls are roomy and full of light. Every line, every element of the interior decorations stress freedom of space.

The mayor's deputy—with little enthusiasm, I noticed—volunteered to take us round to Gomoki's home.

Joseph was out.

Just as we drove onto the town's main street, a car came speeding toward us.

"There he is!" cried the mayor's deputy.

We managed to stop Gomoki's car.

"So here you are," raged Gomoki, falling upon the mayor's deputy. "Who the hell has been painting the Children's Park yellow? Are you people out of your minds?"

"Eh-h," faltered the mayor's deputy. "I'm sure I don't know. But will you let me introduce you to these people before you blow your head off?"

Gomoki apologized and invited us to get into his car. With a sigh of relief the mayor's deputy drove off.

Visiting Joseph

We talked and even argued about music and the latest trends in art and finally returned to Gomoki's work. He showed us his designs of the past two years. Their bulk alone proves how popular his work has become.

Lvov has opened a large Transcarpathian Store in Kiev, capital of the Ukraine; the design is Joseph's. Similar stores are to be opened in Moscow, Leningrad and Yerevan, all designed by Joseph. One of the largest restaurants in the country, the Metro, is being built in Kiev. The interiors of its four halls, four cafés, lobbies and youth bar will be based on Joseph's design. Gomoki is flooded with requests to do interiors.

What he hopes for is a commission to design the interior of a monumental building, an international airport or a large exhibition pavilion. He'll probably get one.

"Why is it the mayor doesn't like you, Joseph?" I asked him with a smile.

His eyes flashed angrily.

"It's mutual. I can't stand him either. I haven't liked that man from the day he poked me with a pen at school and demanded that I let him copy my algebra answers. Way back then he had the makings of a boss."

This outburst lasted for only a minute, however. The next moment he was all smiles.

"I give him a pretty hard time, I will say. I love my town and plague him and everybody else to make it more beautiful."

Before leaving, I dropped in to say goodbye to the mayor. "What do you say to Gomoki's moving to Kiev or Leningrad?" I asked him.

"Oh, no!" he cried. "Not Joseph. No, no. He needs us; we need him. Please don't put the idea in his head. He's a madman but not that mad!"

THINGS CULTURAL

By Natalia Chulaki.

FILM COMEDY IS BACK

After nearly three decades of a relative dearth of film comedies, we have in the past few years seen some surprising developments in this line. As for which type of comedy is the most conducive to laughter, here the film makers simply turned their backs on theory and proceeded to turn out one good picture after another, most of them defying classification as to their exact ingredients. The social satire of **33** (starring Boris Leonov), for example, abounded in situations everyone deplored and was glad to see poked fun at. **Watch Out for the Car!**, with Innokenti (Hamlet) Smoktunovsky as a modern Robin Hood, gave us a more complex psychological comedy, but the elements of slapstick in it—the classic chase, for one—were literally gobbled up, mouths watering for more. A recent film in a different medium, **Aibolit-66**, retold an old children's story in a style close to theatrical grotesque.

Meanwhile, movie director Leonid Gaidai introduced a superb comedy trio, billed as "The Dope," "Worrywart," and "He's-been-around" (Yuri Nikulin,* George Vitsin, and Yevgeni Morgunov), in a little 20-minute slapstick film called **The Poachers,** borrowing generously from the great silent comedies of the twenties. Gaidai's second effort in this direction was **Operation "Y"**, a full-length picture devoted almost entirely to buffoonery, with only the faintest line of plot and once again exploiting the talents of the three comics already mentioned and introducing tow-headed, bespectacled Alexander Demyanenko as the pleasantly naive young hero, who seems to gravitate toward everything untoward. But this film was only moderately funny compared to the director's latest venture, another full-length comedy called **Captive of the Caucasus.** This film is inspired slapstick. It has everything its predecessors had—and then some! A grab bag as far as comedy forms are concerned, it has greater artistic unity than any of the others. One feels the steadying hand of the director as the film skips merrily from one episode to the next. The brilliant, pin-point timing of the action ties in organically with the music of Alexander Zatsepin.

In a cascade of unexpected situations, Natasha Varley, a charming newcomer from the circus, costars with Alex Demyanenko and the three comedians. Etouche, as the principal satirical type, a modern bureaucrat, decides (privately, of course) to revive an old custom traditional among his people a hundred years ago or less (depending upon when contemporary civilization reached a given area). He has in mind stealing himself a bride, a certain coed (Natasha Varley) on vacation in her home town, who, if she be too unwilling (which she will), might yet be prevailed upon—to come quietly—by the three antisocial types hired for this purpose (Nikulin, Vitsin, Morgunov). Only two people now stand in the way of this plan. These are the prospective bride's uncle, who is persuaded to cooperate through some hard financial bargaining, and Shurik (Demyanenko), the girl's new and chivalrous friend. But Shurik is tricked into believing he is helping the girl, and the adventures follow thick and fast, the scene changing at breakneck speed from runaway jalopy to psychiatric ward to mountain villa to craggy mountains complete with raging river. Playing opposite Etouche and the dynamic trio, Natasha is a "natural" for comedy films, her acrobatic accomplishments seemingly as effortless as her smile. She, as the Captive of the Caucasus, is living proof that slapstick is still the most effective laugh producer of them all!

MUSICAL COMEDY

The Odessa Musical Comedy Theater arrived at the Hermitage Gardens with a repertory ranging from typically Odessan tragicomedy to Cole Porter. And since Maxim Vodyanoy would be worth hearing even if it meant going all the way to Odessa, it was a double pleasure right here in town. The three main presentations were **At Dawn, My Crazy Brother** and **Kiss Me, Kate.**

MODERN OPERA

Soviet composer Kirill Molchanov has written another opera, this one of unusual power. **The Fortress** is modern in both music and staging. It may prove timeless or it may not, but its impact today, when so many of us still remember the war, is very great.

The idea crystallized out of the 25 years and more since the beginning of World War II. The libretto, written by the composer himself, is based on the book, **Brest Fortress,** by Sergei Smirnov, which documents one of the most unforgettable events in our history, the defense of the first outpost attacked by the Germans. But in the opera there is a dissociation from specific details, even names, so that the personal tragedy of those involved at the time becomes the high tragedy of the war as a whole, of human beings pitted against its total inhumanity.

As the curtain goes up, the wounded commander, apparently the sole survivor of the battle, stands listening to the soft, faraway voices of his men. They wonder at the silence. The enemy has stopped firing, and the quiet is startling. But the voices are only an illusion, for all are dead. This is how we are introduced to one of the opera's main characters, and to Molchanov's chorus, the propelling force of the work as a whole. I call it Molchanov's chorus because he has used it so individually, with so much freedom and variety and to such effect throughout the opera.

A series of flashbacks shows us what happened earlier, when the commander and the commissar, the other man responsible for the fort, were confronted with a dilemma: Shall they allow the women and children to wait for a slow death by starvation or let them join in the actual shooting—as more than one of the women would have wished it—or as the two captains are forced to decide, shall they send them from the fortress, carrying the white flag of truce, to give themselves up to the Germans—and to slavery. The tortured farewell of the commissar and his wife ends on her scream: "Oh war, be damned forever!" The chorus, which is both commentator and actual participant, takes up these words as a refrain but speaks them in an expressionless kind of staccato chant. Then begins the slow, sad ascent of the women to the surface, for most of the action takes place deep within the casemates of the fort. Here another device from the movies, the double exposure, is employed, cutting through the brick walls, as it were, and giving us a view of the whole, long, zigzagging procession. The women's chorus sings in unison with the solo vocalise, reminiscent of the famous Rachmaninoff "Vocalise," evoking memories of the peaceful life before the war.

The acting has sensitivity and taste. No appeal to sentimentality is ever made. The intense emotional effect is produced without heroics and the usual operatic cliches, but it is, in places, almost unbearable.

Some of the critics found that Molchanov as librettist gave himself little scope as composer, not allowing most of his characters much in the way of melody, to say nothing of showing off their voices in the traditional operatic style. In the case of a good basso like Alexander Vedernikov, who sings the commander, they may be right. He should have been given something more than all that recitative or his grim, low-register monologues. On the other hand, the general austerity piles up the dramatic tension and does provide a good background for the almost rapturous singing of the nurse (Nelli Lebedeva) in the improvised underground hospital of Act II.

For the wounded soldiers lying on the floor, hers is the voice of home. Against the general anxiety and suffering her personality has all the freshness of an apple tree in bloom. It is an exquisite pleasure to know that she is here but also an aching sadness, for she too is a victim of the war instead of being safe and sound at home.

A tense scene follows as the Germans broad-

* Yuri Nikulin was with the Moscow Circus, which performed in the United States from October 1967 through mid-January.

cast an ultimatum to surrender. This is ironically discussed with bitter humor by the men and categorically rejected. The handful of remaining soldiers makes a desperate attack. Later, the dead men, visible now, join those still left alive to sing a moving soldiers' chorus. There is a touch of grim comedy as the walking wounded joke about the food or the lack of it. Then there is a curiously affecting ceremony as the men decide to bury their flag before making their last break for freedom.

The epilogue returns us to the beginning as the commander, half-delirious now, is offered a drink of water by a little boy who has somehow managed to stay alive and hidden after the departure of the women.

Another word about the sets that help so much to create the atmosphere of the besieged fortress. They are by the chief designer of the Bolshoi, Vadim Ryndin. The vaulted brick walls have a function in the opera, but they also have their own desolate beauty, strictly in an abstract sense, and Ryndin's use of light is very dramatic. When the scenery walls move apart, they reveal a piece of sky that by contrast is strangely calm and pure. Twice Ryndin makes use of a monumental figure towering over the actors and dominating the stage. The first time it is a symbolic representation of a woman with her head bowed in grief as the procession of women makes its way up the stairs in Act I. The second figure is a representation of the now familiar statue of a Soviet soldier holding a small child in his arms. It appears in the finale as the commander leaves the stage with a real little boy on his shoulder. This strikes some as being too obvious; perhaps future productions will agree that the clear blue sky is enough.

Veteran director Boris Haikin conducted the Bolshoi Theater Orchestra in a deeply moving reading of the Molchanov score. Boris Pokrovsky did an equally effective job on the staging.

Incidentally, the world premiere of the opera was presented a month earlier, under the name of **The Brest Fortress,** by a very lively and active small company, the Opera Theater in Voronezh. Those who saw it were impressed by the force of the work and the impeccable performance of the chorus. The opera has since been staged also by the National Opera Theater of Kirghizia, in the Kirghiz language.

BALLET NEW AND OLD

Another new production at the Bolshoi (first produced last season) is called **Asele** (composer Vladimir Vlassov, choreographer Oleg Vinogradov). The ballet is set in the remote mountains of Kirghizia, near the deep blue waters of Lake Issyk-Kul.

While **Asele** is a modern ballet in every sense of the word, it is based on classical dance techniques. As a matter of fact, the solid foundation of old-fashioned ballet training is what develops in a choreographer the most telling means of expression and in a dancer the greatest freedom. In **Asele,** both the author of the story and the choreographer have a lot to say, and they say it with a freshness not often met with nowadays. Too often, "modern" seems to mean only "violent." The choreographer gets bogged down in his own symbolism and ends up being merely pretentious.

The story of **Asele** tells what happens to some very plain, ordinary, unballet-like people when one of them takes a wrong turning in life.

Ilyas, Asele's husband, is a dashing young truck driver with very little sense of responsibility. At a critical moment he betrays his fellow drivers and wrongs Asele, then shuts himself off from everyone except Kadycha, a woman who approves of anything he does. "Take what you can from life before it's too late" becomes his philosophy. But soon it is too late. Asele is a gentle girl, very much in love, but she is a person who cannot live with falsehood. Defeated in her efforts to help her husband and desperately unhappy herself, she leaves Ilyas. And only when she meets Baitemir, a man as bleakly alone as herself, does she find the strength to build a new life. When at last Ilyas finds her and begs her to return, Asele shakes her head "no."

An essential part of the drama is played by the corps de ballet, especially the young men who are friends of Ilyas. Individually their dancing is brilliant, and the support they give Asele as a group—this is a theme that recurs throughout the ballet—is as moving a piece of stagecraft as I've ever seen. Oleg Vinogradov, the choreographer of **Asele,** is 28 years old and already known as a highly original artist. He has left the old, illustrative type of choreography but is also moving away from stylization, a trend that seems to be gaining again, as it does every few years or so. He is reaching out toward a greater expressiveness, toward a humanization of the ballet.

The ballerina Nina Timofeyeva, who created the role of Asele, has danced in such classical ballets as **Swan Lake** and **Gissele** and has pioneered, along with Maya Plisetskaya, in modern ballet works. Not until **Asele,** though, had she ever done any real acting. She was known mainly for her virtuoso technique. In **Asele,** however, she has been able to sink her teeth into a part that is dramatic and at the same time poetic enough to suit her temperament. No wonder the critics agree that this is her most exciting role to date.

Timofeyeva is particularly happy working in **Asele** because she dances with two of her favorite partners, Nikolai Fadeyechev and Yaroslav Sekh. Incidentally, **Asele** marks a kind of debut for Fadeyechev because in the role of Ilyas, the handsome truck driver, he has at last graduated from what seemed to be a never-ending stream of Prince Charmings in the classical ballets. Never has there been a more convincing or a more welcome transformation. The strong and steady Baitemir, who finds and befriends the despairing Asele, is danced with great understanding by Yaroslav Sekh. And speaking of transformations, the part of the passionate and aggressive Kadycha, the "other woman" in the ballet, is performed by Yelena Ryabinkina, up to now best known for her lyrical parts.

The very fragile and poetic-looking Timofeyeva, like every other ballerina in the world, is a fanatic for work and more than enthusiastic about **Asele.** She finds the choreography "enormously interesting," her role taxing—physically and emotionally—but very exciting.

Some critics disagreed with the "paraphrase" approach to the work as a whole, finding that the characters and situations in the original story of Asele (**My Little Poplar in the Red Kerchief** by Chinghis Aitmatov) were in some cases deeper, in others merely different, from their counterparts in the ballet. On the other hand, the elaboration of the Baitemir story to include an end-of-the-war episode absent in the book has given us the beautiful and moving Requiem, danced by the corps de ballet.

This production may in the future be considered an experiment, especially since there are actually two complete casts at the Bolshoi —the one reviewed here and the one consisting entirely of Bolshoi youth, whose interpretation presents some interesting differences. Meanwhile, it is an exhilarating experience.

One of the featured visitors at Leningrad's White Nights Festival was the Classical Ballet Ensemble of the Novgorod Philharmonic Society. The town that produced this small company with the long name never had a claim to fame for anything but old church architecture. In the last few years, though, this dance group has grown in size and stature until now its activities (which easily take in such diverse works as Tchaikovsky's **Swan Lake** and Shostakovich's **The Lady and the Hooligan**) are the talk of the town.

From Novosibirsk, one of the most forward-looking big cities in Siberia, the opera and ballet companies came to perform at the Bolshoi. The outstanding contribution, in my opinion, is a ballet, **Romeo and Juliet,** entirely different from the Lavrovsky (Bolshoi Theater) production, known to many Americans from the Soviet film **Romeo and Juliet,** starring Galina Ulanova (1956). The new ballet was produced by the young choreographer of **Asele,** Oleg Vinogradov.

CULTURE ON THE MOVE

"Toe-dancing for men?!" A most emphatic "yes" when the men you mean belong to the male half of the Georgian National Folk Dance Company. This vibrant and vivacious troupe has danced in 33 countries, reviving the ancient dances of Georgia and creating new ones based on local traditions. The intense and fiery performance of the men, dressed in the dark, cartridge-trimmed tunics, tight trousers and boots of the horseman, is in striking contrast with the floating, faintly challenging, grace of the women.

For one week in June, the arts of Georgia took Moscow's theaters and concert halls by storm, with exhibits and performances at the huge Exhibition of Economic Achievements, at colleges, city parks, industrial plants and even a big state farm.

Like some fantastic, all-star spectacle, the "Week of Georgian Culture" in Moscow flew by. Brilliant festivals from Armenia and Azerbaijan were followed by visits from each of the remaining constituent republics, as part of a huge cultural exchange program within the Soviet Union this anniversary year.

It seemed as if everyone were on the go, with an Uzbek festival in Byelorussia, Lithuanians in Central Russia, Moldavians in Azerbaijan, Russians in Georgia, Estonians in Moldavia and so on. Beginning with the three Caucasian cultures, we in Moscow saw the "cream of the cream" of their artistic worlds. The musical contingent from Armenia included such world renowned figures as composer Aram Khachaturyan and coloratura Goar Gasparyan as well as the top symphonic and chamber orchestras and choruses of the republic, artists from the national opera and ballet theater, the national dance ensemble, children's and amateur groups, popular combos.

The music of Azerbaijan is full of contrasts. This year's visit brought an authentic trio of **ashugs,** traditional improviser-performers in the national style, followed by **Gaya,** a thoroughly up-to-date vocal group featuring four genial young men with undistinguished haircuts but with a lilting rhythm all their own. It is hoped that such large-scale exchange festivals will become a regular thing.

Books on the Soviet Union

THE NOVOSTI PRESS AGENCY Publishing House puts out an extensive selection of books, brochures and booklets in many languages for foreign readers interested in Soviet affairs.

One recent series of booklets with the overall title *USSR. 1958-1965-1970* (taking in the seven-year period ending 1965 and the current five-year plan) covers "Industry," "Social Security," "Housing Construction" and other major areas. Each of the booklets is illustrated and has a dozen or so charts.

Another series of 15 books takes you on a guided tour of the past and present of the 15 republics constituting the USSR. The well-illustrated pocket-size books sketch out the economic and cultural story of each of the republics and outline their administrative structures and their relationship to the central government.

USSR. Questions and Answers replies to 700 of the questions most frequently asked by foreigners.

For the fiftieth anniversary of Soviet power, Novosti Publishers issued several titles on the theory and practice of Marxism-Leninism. In *How Marxism Appeared and Why* Professor Teodor Oizerman presents for popular consumption a description of Marxism's historical roots and the objective conditions from which it emerged.

October Revolution Wins in Russia describes the origin and growth of the Communist Party under Lenin's leadership and its role in founding the Soviet state.

In *How Socialism Was Built* Ilya Berkhin traces the concrete steps taken by the new government, in the early years, toward political, economic and cultural growth.

For the many foreigners visiting the USSR Novosti publishes tourist guides of Moscow, Leningrad and other cities, profusely illustrated and with many maps.

Sergei Tolstoi's *The Soviet Union* is a helpful introduction to the country, with concrete tips on everything from getting a visa to choosing itineraries.

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NEXT ISSUE

Armenia will be the feature story in March. This Transcaucasian nation is the oldest in the Soviet Union and one of the oldest in the world. Time after time conquering armies have overrun this land, plundered its resources and scattered its people. To give a rounded picture of Armenia's past, present and planned future, we have asked historians, statesmen, scientists, artists and students to contribute to the issue. The republic's President is interviewed. The head of Armenia's Academy of Sciences outlines some of the pioneering research done by its astronomers, physicists and chemists. A photo story in color describes the work of the republic's painters. Martiros Saryan, the venerable and distinguished artist, writes about esthetics, love of country and other matters. Armenia is mountainous, its soil rocky. To create farms in the highlands, the soil had to be carried up from the valley in bags. But Armenians do more than make light of their burdens, one article in this issue demonstrates; they have learned to use them. The republic's scientists have transformed native rock into a dozen or more valuable commercial products.

For an Armenian Lake Sevan is more than a sky-blue, nature-made ensemble of mountains and water; it is as much a symbol as Mount Ararat. But Sevan is also a serious problem. Six hydropower stations, the Sevan-Razdan cascade, built in the thirties, have been depleting the lake's water, defacing it, killing off its fish population, and changing the climate and water regime of a considerable part of the republic. On the credit side, the power stations have been supplying Armenia with vital electricity. The original planners knew what would happen, but they had no alternative. Now there is an alternative. Huge deposits of natural gas have been found in the neighboring republic of Azerbaijan, which supplies Armenia. A thermal power plant has been built in Yerevan with an output equal to all six stations of the Sevan-Razdan cascade, and work on a second and even larger thermal project has begun. The much argued Sevan problem will be discussed in the Armenia issue. Also appearing in this issue is an extract from Nikolai Mikhailov's new book in which he takes the reader on a voyage in time and geography through the Soviet Union.

COMING SOON

Fishermen, raftsmen, customs and festivals on the Pechora River.

Children Without Parents

By MYUDA DEREVYANKINA

THE FAMOUS SCHOOL on Leo Tolstoy's estate, Yasnaya Polyana, where he taught peasant children, was razed by the Nazis. It was later rebuilt, and on September 9, 1948, the one hundred twentieth anniversary of the writer's birth, it was reopened.

Tolstoy's guiding principle for parents and teachers was: Bring up your child to be a human being, a free and humane individual.

When the school reopened half its pupils were war orphans. With an adult tutorial staff of ten they lived in a two-story white stone cottage facing the Yasnaya Polyana park. This was one of thousands of such homes opened in the postwar years for ten million children without parents.

In 1945, the year the war ended, three billion rubles were allocated by the government to the maintenance of such orphanages. But far more had to be done for these children than to clothe or feed them, difficult as that was in a country as devastated by war as the Soviet Union. These were children who had witnessed the worst horrors—they had seen their mothers murdered, their homes burned, their older brothers and sisters driven off to Germany's slave camps.

At Yasnaya Polyana there were 197 such children. When one afternoon Faina Sokolova, the superintendent of the home, let her hand fall affectionately on the shoulder of 11-year-old Tolya Ivanov, the boy started and became hysterical. For two years he had lived in nazi-occupied territory, "under the fascists," as he put it; he had seen things too ghastly to put into language.

Nina Yeremeyeva was wounded in an air raid which killed all her relatives. She was so terrified of loud noises that when it thundered, she hid herself in a cupboard and would be persuaded to come out only after an "all-clear" signal had been simulated.

Each of the 197 children had suffered similar horrors.

Biography No. 198

The personal experience of the home's superintendent was no less tragic and typical of many Russian women. Her mother was a widow with four children. Faina Sokolova got hold of her first primer when she was ten.

"I was so delighted with that primer," she said, smiling, "that for long years afterward I would not part with it and finally became a schoolteacher."

She was 20 when she started teaching. At 21 she married and at 23 was a war widow with two babies. Her husband Vladimir, also a schoolteacher, fell in battle in the very first month of war.

"Like my mother, I brought my children up alone and like her received assistance from the state. When the war ended, the Tula District Board of Education asked me to take charge of the Yasnaya Polyana children's home. I refused. A responsible job like that, I explained, would leave me no time for my own growing children. They talked me into going down and having a look. There were then 40 children, housed in the old cottage, not the new building of today. They looked terribly forlorn and neglected, many crying. It was more than I could stand, and I took on the job.

"That was 20 years ago. My own children have grown up. My son is an engineer and my daughter in college. But my charges do not grow up, for there are always new ones to take the place of those graduated into the school of life.

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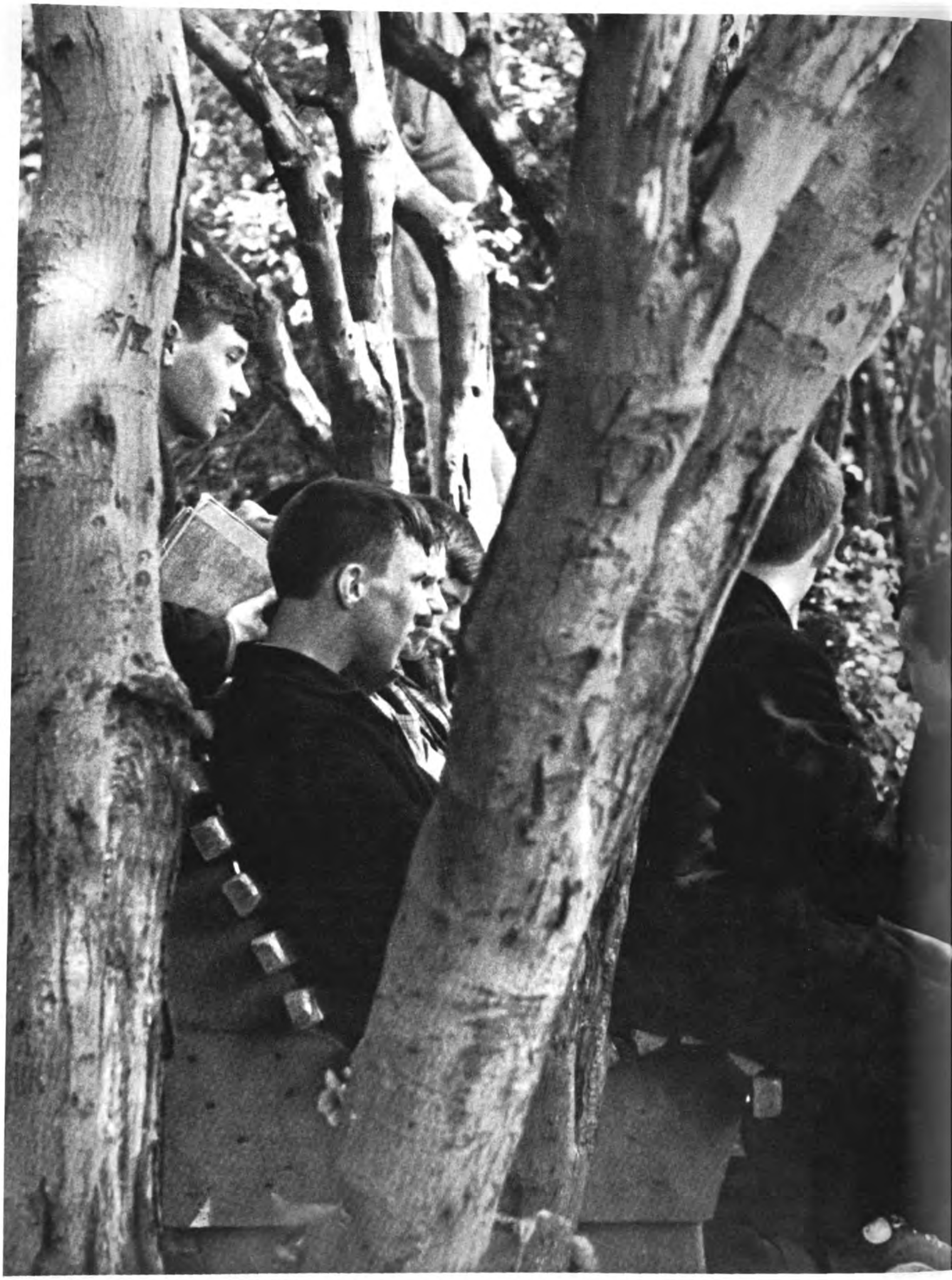
Schoolchildren from Yasnaya Polyana look like those from regular families, but their grades are better.



The park is a fine place for studying in summer near the end of term.

(Continued from page 57)

I do not have to try to be a mother to them, I feel like one. When I hear their happy laughter I am happy too. How right Tolstoy was when he said there is no sweeter music in the world than the laughter of children. I correspond with many of my former charges and am delighted to welcome them here when they come to visit the place many of them still think of as home. I hate the thought of retiring. I've reached pension age."

A Look at a Map

Faina Sokolova holds the title of Merited Teacher and for her services to education has been awarded the Order of Lenin, the highest Soviet decoration. She gets 50 or

more letters a day from her grown-up children. This is from a recent note:

"Our dear mother, I hope you remember us. We were among your first charges, Katya and Natasha Panteleyeva. We live in different cities, Natasha in Leningrad and I in Nikolayev. I am a doctor and have two children. My boy's

name is Sasha and my girl's Faina. When I told my mother-in-law that I had named her after you, our mother, she was taken aback. An orphan brought up in a home, she said, does not have a mother. That may be true in a general sense, I replied, but in our home we had a mother."

Faina's first 197 charges were her hardest. For this reason, perhaps, she remembers them best—197 different natures, 197 different backgrounds. Of this group 150 finished the 10-year Tolstoy school, 78 went on to college and became doctors, engineers and teachers. Many of her early charges are now married and have children of their own. But they still have fond memories of the one home they all shared in Yasnaya Polyana and

the woman they thought of as their mother.

A big map with different colored markers—some 3,000 of them—hangs in the home's sitting room. The markers show where the home's former residents now live. Those in the open sea are for Vitya Sakharov and Gena Mikhov, two of the boys who became seamen. Other markers point to Moscow, to places in remote Kamchatka, to London and Berlin. The map is a fine visual aid for the home's geography classes.

Upbringing

"I learned so much from you that I use your experience to bring up my own children," wrote mathematician Felix Gross to Faina Sokolova.

And what does this experience show? "You remember, of course,

what Tolstoy said about bringing up the child to be a free and humane individual," Faina explains. "How can we do that? If only we knew! But there is one thing we do know—that a standardized approach is unacceptable. Qualities like self-reliance and confidence must be fostered, we believe, along with shoulder-to-shoulder comradeship. There must be trust in the child and in the collective. Many of our key problems, by the way, are settled by a self-elected children's council. Humor and

(Continued on page 64)

Every girl dreams herself a Tolstoy heroine. The home was his estate.

Home from college on a visit, he is big brother, as in every family.

Soccer, played spring through fall, calls for dash, daring, and endurance.

All four horses (especially Ryzhi) prefer 14-year-old Misha Belousov.

To the goalie of the winning team: the treasured and battered gloves.

(Continued from page 61)
good-natured ridicule often do better than compulsion and punishment.

"When you have a hundred children you are not just dealing with a big family but with society in miniature. The children have to assume part of the responsibility for their own upbringing. The council they run is a sort of parliament in which, for example, they vote on who is to go on a pleasure trip to Prague. They decided to pick the 10 boys and girls who were 'best-known for unselfishness.' The council has the job of appointing kitchen and house monitors; it settles many sports, educational and housekeeping problems and assists the teachers in difficult situations."

Like any other community, this one has not only its poets and historians (the manuscript "History of Our Home" reads like a novel), but also its troublemakers. And in instances when the teacher sheds tears of frustration in her own room and Faina Sokolova grimly recalls Rousseau's definition of education as "pushing back the water from the shore," the council has its say. A boy deaf to adult remonstrations will often be very sensitive to the opinions of other children.

Punishment of a special kind can be very effective. For example, Grisha Nikonov, a 12-year-old, took such a violent dislike to history that he could not get a passing mark in the subject. The children's council thought strict measures were indicated, and so

Grisha and the rest of the boys in his dormitory were barred from a Sunday excursion. It worked.

The home puts out its own *Yasnaya Polyana* newspaper, an important character-forming and educational aid. It takes up matters of domestic and general interest, publishes poetry and songs and may hold an entire dormitory up to ridicule for "getting too conceited" with a catch phrase like "criticism is not directed against the man but against his vices."

"Why Make Hay When You Don't Eat It?" This challenge, the title of an article by Yura Pimenov, a seventh grader, was picked up by the home's agronomist Fyodor Polikarpov and bookkeeper Nina Ivanteyeva in two very serious articles—"How Buns Grow" and "What Is a Budget?"

Out of Whose Pocket?

Budget is a very familiar word to the children. The home's annual budget is discussed at their meetings. But there is one boy—to avoid mentioning his real name, for obvious reasons, let us call him Kolya Popov—who probably knows the word better than the others. Kolya was brought to the home when he was 11. He had run away from his alcoholic father three years before and become a vagrant. To him Yasnaya Polyana was another temporary lodging which he intended running away from as soon as the warm weather set in. The very first week he smashed a big plate glass window in a nearby café, "just for the fun of it." He was not worried about the consequences; he knew that corporal punishment was forbidden by law, and he was no stranger to the law.

Instead of being summoned to the superintendent's office, Kolya was called to a meeting of the council, where he listened to a discussion in which the word budget came up over and over again. Out of whose pocket was the money to come from to pay for the smashed shop window? Out of the home's? That meant the state's money. But the state was not to blame for Kolya's behavior. In that case, the children wisely concluded, the family should pay. And they were his family. The older boys worked two full Sundays on a building site to pay "Kolya's debt," as they put it. He was too small to work, but they insisted that he stand by, watch and listen to them talk about how he had cheated them out of the good time they could have had those two Sundays—the movies or a soccer game or a trip to the river.

Kolya, now in the eighth grade, running away the farthest thing from his mind, remembers those Sundays to this day.

The home is subsidized by the state, which means that the Tula District Board of Education allocates funds for all its needs—food, clothing, building repairs, teaching equipment and books. Since the boys and girls brought up at the home are expected to be paying their expenses by the time they are 17 or 18, training is directed to that end. The state assigns a definite sum for food (1 ruble 50 kopecks per child a day). But the home has its own farm acreage and workshops, which bring in an annual income of 20,000 rubles. All of that goes to augment the state allocation. The home's orchard and kitchen garden supply fresh fruit and vegetables most of the year.

There is emphasis on "do-it-yourself" training. The children are so handy with tools that the 25,000 rubles set aside in last year's budget for capital repairs were not touched and, instead, were used to furnish a pleasant lounge. The older boys did the repairs themselves, with guidance from skilled builders.

Clothing (amounting to 110 rubles per child a year) is supplemented by products of the home's garment factory, which makes boys' shirts and girls' summer dresses for both the home's consumption and for sale to the local shops. The factory made a profit of 13,000 rubles last year. The money was used for recreation, the council and general meeting deciding particulars. Last summer it paid for a trip to Czechoslovakia. It goes for summer vacations in the Crimea and the Caucasus (all children go to summer camps free of charge), for trips to the big Bratsk power project in Siberia, to Moscow, to Leningrad and for theater and concert parties. Part of the money is also used to supplement the maintenance scholarships of former Yasnaya Polyana charges who are away at college. On holidays, on their birthdays and pretty regularly at the end of the month, these college students are sent small sums of money, packages of home-cooked food and clothes made at the home's factory. Ask those Yasnaya Polyana graduates now studying in Tula, Moscow, Kalinin or other towns where the packages and letters come from and they answer, "From home."

The home builds self-confidence for a job, for school, as well as for life.

It Is Home to Them

"It's not fair; some kids have lots of relatives, and others don't even have a second cousin."

"You're a fool. Do you think a second cousin would care anything about you? Look at Nina. She ran away from an aunt who kept telling her—'I feed you and you'd better be thankful.' Nobody begrudges you what you get here, you're your own boss."

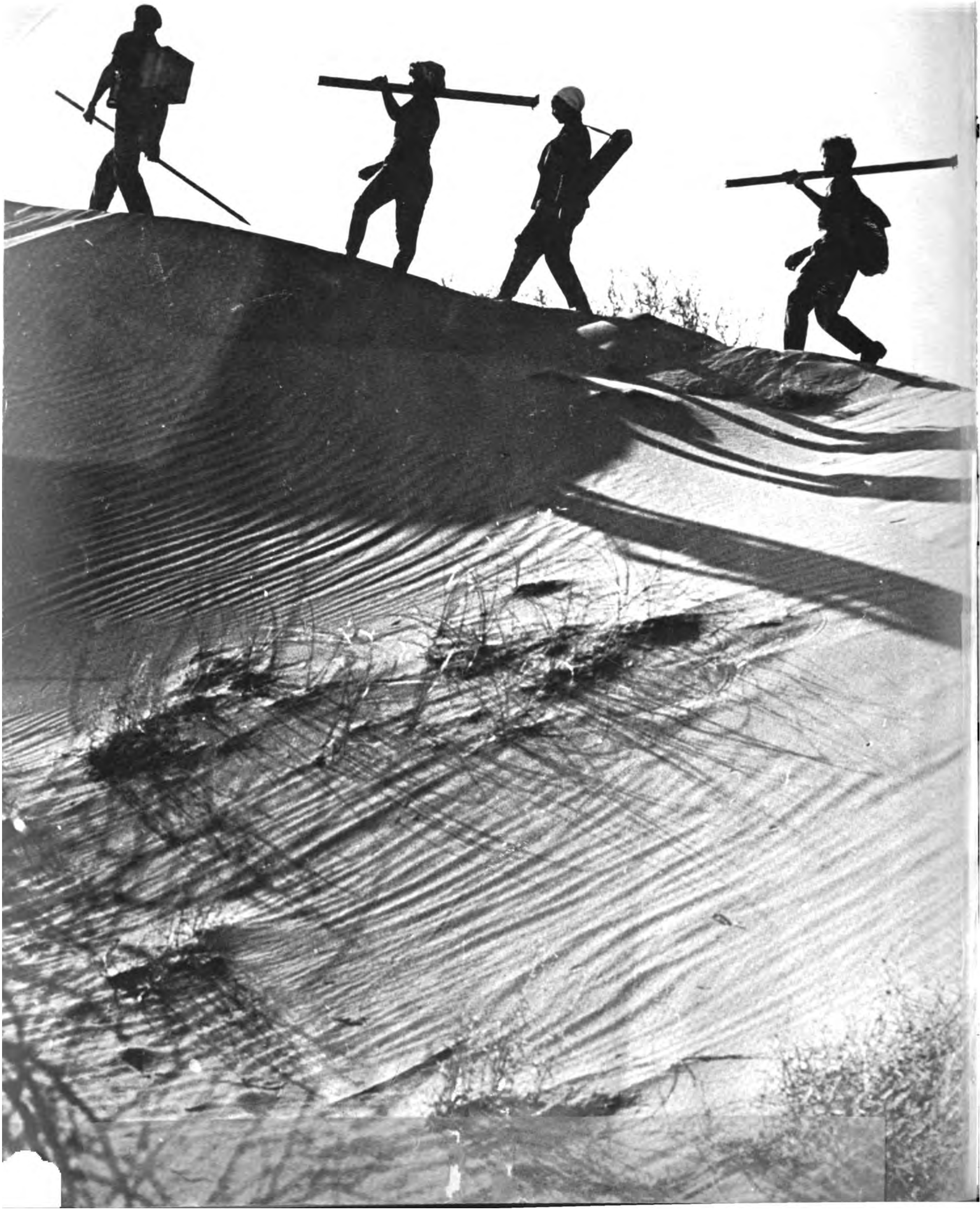
This brief dialogue between a Yasnaya Polyana newcomer and an old-timer says a great deal. The old-timer, Sasha Borovkov, is one of four Borovkov children brought up at the home. Sasha, his younger brother Volodya, and his two sisters Valya and Vera came to Yasnaya Polyana five years ago. Both their parents had died of cancer the same year. Sasha is in the eighth grade, Volodya in the first, the eldest sister Vera is in her last year at medical school, and Valya is in her second at a teachers college. Both sisters come back to Yasnaya Polyana for their holidays and during the period when they are away from college getting practical experience in their major.

A chapter in the history of the home the children themselves are writing is called "Typhoid or the Plague?" It tells rather humorously how Vera, during her student medical practice at the home three years before, thought she had discovered a case of typhoid. The patient was her own brother Volodya. Her diagnosis started a panic, and a specialist was called in from Tula, the nearest city, only to have Volodya confess that he had eaten too many crab apples. Vera wept in embarrassment, but the doctor from Tula was somewhat consoling when he told her that such mistakes were not uncommon for a beginner. The children at the home, however, have not stopped teasing her about it ever since.

Those away at college come back frequently for visits and long "big brother" and "big sister" talks with the older boys and girls.

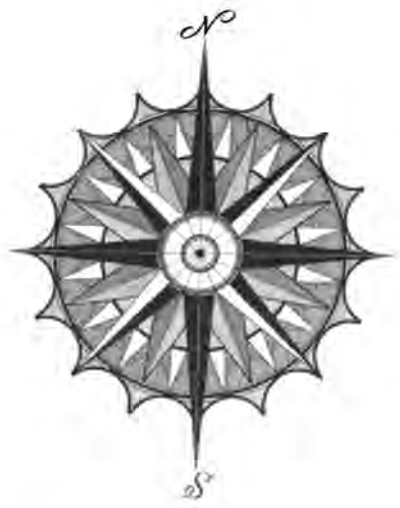
"These children have to go through life without parents," says Faina Sokolova, "but not without a home. To them Yasnaya Polyana is really home."

Geologists in the Sands of Kazakhstan



FIFTY GIANT STEPS

A Half Century of Geography



NIKOLAI N. MIKHAILOV

LIKE ANY OTHER MAN well on in years I would, of course, like to be younger than I am now. And yet if by some miracle I could choose the year of my birth, I would not change the year fate itself selected.

In 1917, when the Great October Revolution took place, I was 12. Had I been younger, I would have no memories of old Russia, nor would I have seen the starting line from which my country took off to make the stupendous progress of the past 50 years of Soviet power. Had I been older, the period of my conscious life would not have coincided with these great and hard years in which the country climbed from backwardness to become a world power.

As the Soviet Union neared its golden jubilee, I completed a rather big book, the result of many years of study. The book describes how the country, its member republics and its landscape have changed over this period. Its title is **Following in the Giant's Footsteps,** and it has already been published.

I carefully considered the structure of the book. Finally, I decided on a travelogue, a description of the USSR from the westernmost point on the Baltic Sea at Kaliningrad in the heart of Europe to the easternmost point—Ratmanov Island in the Bering Strait, which separates the continent of Asia from America; from the North Pole to Kushka on the border of Afghanistan, the southernmost point of the USSR in the depths of Asia. In short, my idea was to take the reader on an extended tour of the world's biggest country, occupying one-sixth of the surface of the globe.

This was to be a trip not only in space, but in time, not only because one place differed from the other, but because the same place changed with the years.

My purpose was to take the reader to many places, show him what they were like once and what they are like now.

I have always been obsessed with the desire to see the earth with my own eyes. As a boy I dreamed of traveling. But all I saw was Moscow, where I was born, and a little town nearby, where I spent my childhood.

Many years have passed since.

In my student years I was a romantic and climbed the glaciers and peaks of the unexplored Pamirs and the mysterious Tien Shan. Later I realized that it was not there—in the mountain heights above the clouds—that history was being made and the fate of my country was being decided. Young people like myself were then attracted to the blast furnaces of newly born Magnitogorsk, the mines of the Donets Basin, the construction cranes of the Dnieper Dam and the irrigation canals of the Fergana.

In my lifetime I have managed to see practically the whole of the Soviet Union. My trips, my desire to see how my people had altered the face of the land, moved me to write this book.

I had to visit many of the places again of course. To write the story I had to go to each of the extreme ends of the USSR—West, North, South and East.

Each chapter opens with introductory remarks in the form of a diary, telling when I visited the place, how I got there, what I saw this time and the things I remembered from my last visit.

Here are a few excerpts.

The westernmost point . . . A frontier guard-patrol boat took me across the Bay of Kaliningrad to a sand spit. I thought it looked more like a lake in the forest than a part of the Baltic Sea. The horizon was narrowed from all sides by the velvet of the pines.

Looking back I observed the smokestacks of Kaliningrad's industries.

In the city you feel the breath of the Atlantic, for the paper **Kaliningradskaya Pravda** carries daily reports of trawlers making hauls off the shores of Dahomey, or returning from the Gulf of Mexico, with a stop at Havana.

This news is mostly for the families of fishermen who read the paper. The restaurants serve soup made of fish with such odd names as **moroz** or **lufar** (bluefish), and the food shops sell squid, which tastes like a cross between crabmeat and turkey. The local artists who decorate the interiors of public buildings often paint penguins on the walls.

The craft wedged into the sand with a hiss. The seagulls hovering overhead called raucous-

ly. We started negotiating the steep slope of the dune, sinking knee-deep into the sand.

The bare sand hills towering above us were like the ones I had seen in the Kara-Kum Desert. The slopes were rippled, with bunches of sand oats growing here and there. You could see bird tracks that looked like fancy needlework patterns. But most of the hills were overgrown with trees: pine, low silver birch, sometimes aspen and a few mountain ash. In earlier times the dunes shifted and buried the houses. But now with conservation efforts they have been fixed. I wonder why hikers are so careless with their campfires. One Sunday when I walked around the Nide spit, the forest patrol put out 26 fires. Kursha spit is now a preserve.

I climbed to the crest. The dunes on the spits here are the highest in Europe, some of them are 225 feet, just a little lower than the Tower of Ivan the Great in the Moscow Kremlin.

The sand is fine, very fine, like that used in an hourglass. There are bits of hardly discernible gold in the sand—amber apparently.

From the observation point on the crest you get a broad view: A half mile ahead the breakers of the endless sea roll over the beach with a roar; a half mile behind is a quiet bay. On either side, rimmed by the blue waters, the narrow green blade of the spit stretches miles out to sea.

On the spit is a red and green frontier post marking the westernmost point of my country.

I turned my eyes eastward. There the whole great mass of my country lay, reaching nearly to Alaska.

These spits mark the border of the Baltic countries.

Before I sat down to write the chapters on the Baltic Republics, I toured them more than once: I visited Estonia, with its pink heather, Latvia, with its century-old oaks, and Lithuania, with its beds of fragrant rue. I walked the streets of old-new Tallinn, where you can buy antibiotics in a drugstore that dates back to 1422 and where the ultramodern buildings of Mustamyaye district are built into a pine grove. I saw old-new Riga, where a medieval castle with round towers of dolomite slabs has been turned into a Young Pioneer palace, the old Doma Cathedral into a concert hall. The fast electric trains built by the local plant start off so smoothly not a drop spills out of a water glass filled to the brim. Old new Vilnius still has a house with a false third story, protection from the burning arrows of besieging enemies. The new industries of Vilnius manufacture machine tools, welding equipment, electronic computers and TV assemblies. Old-new Narva was badly scarred by the war: Of its 3,550 buildings only 111 were left intact. But today Narva's shale power station generates as much electricity as all the stations provided for by the postrevolution Plan for the Electrification of Russia.

I had not seen the Baltic countries before. That is why I did not write about them. But the Caucasus is dear to me—it was the subject of my first literary work. In the late twenties I hiked through the Caucasian mountains and wrote a sketch titled "Karachai," which appeared in a magazine.

When I started working on the chapter about the Caucasus. I dug up the old magazine to see what I had written in those youthful days.

I certainly lacked skill then and indulged myself in questionable artistic effects, but one thing I was clear about. Although many years have passed, the purpose of my life's work has not changed. As in my first sketch I am still trying to show the changing countenance of my land.

Karachai takes in several valleys on the northern slopes of the Caucasian range. It is inhabited by a numerically small people, the Karachai highlanders. When I made my first visit, Karachai was already an independent autonomous region.

Economic and cultural backwardness still fettered its progress. I had written: "The survivals of the past are still strong. There are still leftovers of blood feuds. . . . The wife is completely subjugated by the man. . . . You see a man riding on horseback, his wife trudging by his side with a heavy load. . . ."

But there were already rudiments of the new: "The shepherds are building their first town. . . . All the children go to school. . . . In each mountain village you find a doctor or doctor's assistant."

The fiery flood of war swept across Karachai, a terrible calamity.

I shall never forget the sight of abandoned Karachai villages on the slopes of the Elbrus, near Bermamyt. The doors of the cottages were open; the **aryks** (irrigation ditches) were dry. The ancestral graves were overgrown, and the roofs attacked by burdock.

I recently went to Karachai-Cherkess. A new town in the mountain valley is named Karachayevsk. The gray edifice of the Pedagogic Institute dominates the houses. There are several industries: a creamery, a cheese factory, furniture and machine-manufacturing plants. There are coal, lead and zinc mines. Barite and minium are being extracted and a copper refinery built. The country's first mountain polyethylene milk pipelines have been commissioned there.

Also there are the mountain climbers' camps in Dombai Valley.

The local Writers' Union consists of five sections: Karachai, Circassian, Abazin, Nogai and Russian. The regional papers publish in five languages: **Krasni Karachai**—in Karachai; **Leninskoye Znamya**—in Russian; **Cherkesskaya Pravda**—in Circassian; **Svet Kommunizma**—in Abazin; and **Po Leninskomu Puti**—in Nogai. Radio stations also broadcast in five languages.

Many of the highland girls have become doctors, teachers and engineers.

To write about the Caucasus today you have to see it to learn:

That the percentage of people with a higher education in Georgia is, perhaps, the highest in the world. That the oil men of Baku have also become sailors and learned to build ships and special well-drilling craft. That they have extended the trestle bridgework on Neftyaniye Kamni over more than 125 miles of Caspian Sea. That the Ossetian actor Tkhapsayev is one of the best Othellos. That university students all over the world are studying stellar physics from a textbooks written by Ambartsumyan. That the tentacles of the Georgian-built, Sakartvelo tea-picking machine are as sensitive as human fingers. That the wonderful city the citizens of Yerevan built of pink tufa and gray basalt has more doctors and masters of science than it has workers. We might note in passing that today's Yerevan has too many factories. It is time we stopped overindustrializing the capitals of our republics. Industries should be dispersed among smaller towns.

To write about the Caucasus you must experience the joy of climbing above the coniferous depths of Baksan Gorge to the snow-capped peaks. Ride in a telpher chair to the summit of Cheget and come down on skis. You will rage when you see the shallow banks of Lake Sevan. I did. The water of Lake Sevan has done its bit. Armenia has highly developed power and chemical industries. In terms of per capita output Armenia's power-generating facilities have out-stripped those of France, Italy and Japan. But this could have been done without so much waste. I wonder if the lesson of Sevan will not teach us to be wiser with Lake Baikal.

IN his **Wounds of Armenia** Khachatur Abovyan wrote: "I shall convey to my beloved Volga the good wishes of my own Sevan."

I saw the old Volga and the new. It is hard to believe the river could have changed so much in less than the lifetime of a single generation.

On the old Volga a sailor continually took soundings with a pole. There was always the danger of running aground.

There is a whole cascade of hydroelectric power stations on the new Volga. The seventh is already nearing completion. Europe's biggest river has been turned into a chain of deep, wide and slow-flowing lakes. This man-made change perhaps may be observed from another planet.

In the twenties I went to Nizhni Novgorod, where I saw the shabby, charred buildings of the Sormovo Works. When I recently visited Gorky, the rejuvenated Krasnoye Sormovo yards were building hydrofoil and air-cushion craft. I remember Yaroslavl without its motor and synthetic rubber industries, without its tire factory and modern printing plants. The town of Ples was once a landscape for paint-

ers—it had no other reason for existence. Today you see a canal there and a pump station which lifts the waters of the Volga to a height of 150 feet to deliver them to Ivanovo. I remember when, near Tver— today's Kalinin—the Volga was only a winding rivulet at the site of the big man-made Moscow Sea. I also recall the time when the belfry of Kalyazin Cathedral was not washed by the waters of the Volga. I saw Stalingrad after it was razed by the nazis—a blood-chilling sight. Today the city has a population of more than 700,000.

In 1950 I witnessed the start of a dam at the point where the flow was fastest. Geologists were making ground tests at the site of the dam to be. They took me over to the other side saying: "A town will be built here." All I could see was an empty stretch of land with a windmill in sight. There was no housing, but there was a huge pile of mattresses for the builders who were expected.

The station was built. I think of it as built a long time ago because the Bratsk station has already surpassed it. The Krasnoyarsk and Nurek stations are also nearing completion.

The Volgograd station is generating cheap power. A kilowatt-hour costs less than a tenth the price of a box of matches. Trains and motor vehicles run across the dam. The space in the station engine room is the same as the huge Moscow University building on Lenin Hills. Near the dam where I saw the pile of mattresses for the builders and where I walked on the dusty but fragrant wormwood is a white city called Volzhsk, with factories, park, winter swimming pool and palace of culture. For some reason it reminded me of the Parthenon: On the Acropolis the weeds are as dry as the wormwood here.

A short while ago I was in Kazan. The city is no longer four miles from the Volga, where it used to be. It is on the bank of a big reservoir, which was formed by the dam built for the power station at Kuibyshev. I was thrilled by the sight of the great sea rippling at the walls of the Kazan Kremlin, at the foot of Syumbeki Tower.

In my opinion we do not have too much reason to rejoice about our man-made seas. They are necessities but costly ones. They steal good arable land from us, ruin forests, cover up mineral wealth and force us to move whole towns. It is a pity that to get the good things we have not learned how to avoid doing damage.

We have improved the Volga as a waterway but have polluted it with sewage and oil, and thereby hurting the fisheries. Now we have this problem to solve also.

I just crossed the Ukraine three times: via the Donbas, by the Dnieper and along the Carpathian Mountains. Much of what I saw was there before, half a century ago, i.e., the fertile soil under the poplars. But a lot more was not there before. More than that, it either did not exist or was destroyed.

In 1917 the things that the Revolution created did not exist.

In 1945 the things that Hitler destroyed also did not exist.

In the last war 700 Ukranian cities, towns and townships were burned down. One out of every three persons was left without shelter; one out of every 10 persons was killed.

I could not help thinking about this in the Ukraine because I saw the construction effort and saw the ruins.

I saw the Dneiper project launched. For our generation it was like falling in love for the first time. Then I came again when the ferro-alloy plant was commissioned. I crossed a vacant lot to the river, walked to the other bank across the completed dam. I could hear the waters of the Dnieper roaring through the open ports. In the quiet control room the colored indicator lights in the marble panels were glowing. The duty engineer was sitting at the desk. With a turn of his hands he controlled the mighty power of the station. When the Soviet armies retreated, the sappers had to blast the Dnieper Dam. You can imagine how they felt. The output of the station is greater now than before the war. It will be more than doubled; the plan is to build Dnieper Dam Project II, with additional power-generating units installed in the left-bank section of the dam.

I used to live in some of the Crimea towns, others I visited. In fact, I toured the peninsula on foot. My first trip in the days of my youth was, of course, to the Crimea.

In Sevastopol the white-walled houses were blinding in the bright sun against the blue sea. . . . The tall poplars used to grow virtually on the platform at the railway station. They were like old friends coming out to meet you.

I remember visiting Sevastopol soon after the enemy was driven out. Our beloved Sevastopol was a sorrowful sight. The white city against the blue sea was now gray. The limestone was a shapeless heap; the stone walls had no roofs; there were only holes instead of windows and piles of broken stones. The round building of the Battle of Sevastopol Panorama was crowned with a frame of roof timbers. The bronze statues of the soldiers who defended Sevastopol in 1854 were pierced with shell splinters. You could see the harbor through the gaps in the rows of houses that used to line the streets. Staircases were ripped open, streetcar rails torn up. The people took shelter in cellars. You could see an iron pipe sticking out of the ground in Primorsky Boulevard, a thin column of smoke rising from it. The railway station was totally destroyed, and the tall poplars that were so dear to me from my youth looked miserable, their tops shaven off by artillery fire.

Sevastopol rebuilt is more beautiful than it ever was and full of sunny people.

Before the Revolution there were five towns in the Donbas; today there are a hundred. Full of bitter irony, Anton Chekhov wrote: "In a thousand years Slavyansk will have telephone service." Slavyansk is now assembling an 800,000-kilowatt power-generating unit—the first one in the country. This single unit generates nearly as much electricity as all the power stations of czarist Russia put together.

I made frequent trips to Byelorussia. If there is a slight frost in Moscow, it thaws by the time you reach Byelorussia. It is closer to the Atlantic, farther west. Historically speaking, Minsk suffered for that reason: In the 900 years since its founding it was destroyed seven times. The last invasion was the worst. In Karl Marx Street—one of the city's main thoroughfares—only three buildings were left standing. The republic lost more than half its national wealth.

Minsk is a completely new city. Its factory districts look more like separate towns. Some miracle saved the nine-story Government House, built before the war. It is like a gray faceted rock, still one of the biggest buildings in Minsk. And yet each shop of the new tractor works occupies more space than all of Government House. Byelorussia manufactures the biggest truck in the country and the smallest Luch watch—the size of a one-kopeck piece.

You may ask whether I can see my country any other way than how it was and how it is now.

The Ural Region is different. There was no direct fighting in the area.

In my day I saw the socialist industries born in the Ural Region. But before the war I had no idea that I was witnessing, in construction, the guarantee of our independence. The might of the Urals helped us break Hitler. That is why I so cherish these details my memory has retained.

About 10 years before I had walked through the shops of the Uralmash Engineering Works. It had just been finished, and outside you could hear the rustle of age-old pines. That was how an engineering industry was being created in the Urals. The earlier propositions of science I had studied—economic geography of the world—were being proved wrong.

Uralmash now manufactures excavators 25 stories tall. One of them does the work of 15,000 laborers. A single blooming mill in that plant produces as much rolled metal in a year as the entire metal-making industry of prerevolutionary Russia. The personnel of Uralmash have written some 30 books about their work.

Between the Urals and the Volga there are new oilfields which give more oil than those of Baku. They supplied us in that time of desperate need when the nazi armies cut the direct route to the oilfields of the Caucasus. I recall the rumor that reached me in 1932. It was that in Bashkiria in the western foothills of the Ural Range, at the foot of the shikhans —prehistoric sea reefs—there had been a rich oil strike after continuous tries, a tremend-

(Continued on page 60)

More than 50 German and Austro-Hungarian divisions overran the territory of Soviet Russia in February 1918. The socialist republic, which had been established a little over three months before, was in mortal danger. The old Russian army no longer existed: Its soldiers, fed up with the First World War, left the trenches and headed for home. Most of the officers and generals were reactionary-minded and violently opposed to the Soviet power, which had stripped them of their privileges, estates, and wealth. There were only Red Guard detachments of workers to fight off the approaching invasion.

The Bolsheviks took vigorous measures. "The Socialist Fatherland Is in Danger!", an appeal written by Lenin, called on Communists, soldiers, workers and peasants to take up arms against the intervention forces.

It was in this trying period that the first detachments of the Red Army were organized. Tens of thousands joined.

The German divisions were the first to feel the might of a people, fighting to defend its hard-won freedom. Defeated on the approaches to Petrograd, the Germans were forced to agree to peace negotiations.

Soviet Army Day on February 23 commemorates those 1918 winter days when the Red Army had its baptism of fire.

The invasion of Kaiser Wilhelm's divisions was only the prelude to a bloody and bitter battle. The forces of the old world rose against Socialist Russia in order, as Winston Churchill put it, "to strangle the Bolshevik Revolution in its cradle."

Russia was fenced in by the intervention forces of 14 countries and its internal counterrevolutionaries, the White Guards.

The Red Army was short of weapons and ammunition. Its soldiers were inadequately clothed, and its commanders lacked combat experience. And yet, in a short span of time, this army developed into a force that smashed the crack, well-supplied armies of the intervention forces and the White Guard generals.

Among the millions who took up arms to defend the Socialist Revolution was a peasant lad from the Ukraine, Kirill Moskalenko, now a marshal and a Hero of the Soviet Union. He fought in many battles of the Second World War and was decorated by his own and foreign countries.

For a number of years, Marshal Moskalenko commanded military areas and headed the Soviet Strategic Missile Forces. He is now a Deputy Minister of Defense of the USSR.

Soviet Life correspondent Felix Alexeyev interviewed the marshal on the eve of the fiftieth anniversary of the Soviet Army.

SHIELD OF SOCIALISM

INTERVIEW WITH MARSHAL OF THE SOVIET UNION KIRILL MOSKALENKO, DEPUTY MINISTER OF DEFENSE

Q: Half a century has passed, Comrade Marshal. Do you remember your first battle in the Civil War?

A: In 1920, I together with buddies of mine, young fellows like myself, joined the guerillas. I was 17 then. Our detachment operated in the South Ukranian steppe against counterrevolutionary bands. We delivered lightning blows to the regular units of the White Guard Army commanded by Baron Wrangel. The enemy couldn't crush the guerillas. We knew the terrain very well, had the support of the population, who hated the White Guards, so it was difficult catching us.

Our guerilla detachment later merged with the famous First Cavalry Army, commanded by Semyon Budyonny. Incidentally, down there, in the southern part of the Ukraine, I saw the novelty of the First World War, a big, clumsy tank, sent to the White Guards by the intervention forces—either the British or French, I don't remember. It was knocked out of commission by our soldiers. Naturally, I couldn't even imagine at that time that I would be commanding a whole tank army in the war against the Nazis.

Q: What, in your opinion, Comrade Marshal, prompted millions of people in those years to take up arms? What gave them the strength to throw back the attack of the intervention and internal counterrevolutionary forces?

A: There was no other course for us. The people were not only defending their country, but, even more important, their right to build a new, socialist world, to be free. Naturally, many of us at that time had no well-defined idea of what this new world would be like. But we

knew that there would be no place in it for exploitation, injustice and forced labor for a master; that there would be no place in it for poverty and ignorance, for oppression of nationalities. Revolutionary enthusiasm, the love of our native land and faith in the ideas of the Communist Party—all this gave us courage, daring and made us fearless in battle. We went into action for a just cause, a cause which was close to our hearts, and on which our destinies, our future, depended. That's why we won.

Q. It's impossible, of course, to even outline the history of the Soviet Army in an interview. Still, could you give us the main stages in the development of the Soviet Armed Forces?

A: The first chapter of this history was the Civil War. Toward its end, in 1920, the Red Army had 5.5 million men and constituted a formidable combat force. But, as we all know, victory in wars is achieved not only by numerical strength. It was an army of a new type, inseparably bound up with the people. Its weapons were not aimed to annex foreign territories and enslave other nations; they defended the gains of the Revolution. This was what imparted to Red Army soldiers their fighting spirit and the ability to face any obstacles and hardships.

The next stage, in my opinion, was the period between the Civil War and the attack of nazi Germany. Right after the end of the Civil War, the numerical strength of the Red Army was greatly reduced. Its soldiers returned to peacetime jobs. They faced the Herculean task of rebuilding the war-devastated country. For those of us who became professional soldiers, the years ahead were also not easy. The Red Army had to become a dependable shield to defend peaceful socialist construction. This was the assignment which the Communist Party set before us.

It was a period of basic military reforms, of a search for new combat techniques and their application, and for the elaboration of military doctrine of our own. To a great extent we were taken up with the mastery of new types of armaments. The socialist industrialization of the country made it possible in a short period to build up a defense industry capable of providing the army with every type of combat equipment then known.

When I recall the army of those years, it seems like a mammoth school to me. Everyone, from privates to top commanders, was studying on proving-grounds and in maneuvers as well as in military schools and colleges.

Nazi Germany and its satellites invaded the Soviet Union on June 22, 1941. This was the beginning of the Great Patriotic War, the gravest and most heroic period in the history of the Red Army and in the lives of all people of our country.

The readers of your magazine are probably familiar enough with the history of the anti-Hitler coalition of nations. I would just like to make this comment.

As we all know, the situation at the start of the war was bad: The aggressor overran large territories and was pushing deeper and deeper into our country. Once again, as in the Civil War, our homeland was in mortal danger.

What were the reasons for our retreat in the early months of the war?

Long before it began its aggressive action, nazi Germany had converted to a war economy. The industry and resources of captive nations were at its disposal. The victories in Europe ensured nazi Germany an advantageous strategic position and afforded the possibility of building up and deploying a vast army.

Nearly 190 divisions were hurled against the Soviet Union. More than 47,000 guns and mortars, nearly 3,700 tanks and approximately 5,000 war planes brought death and destruction to our land. Moreover, the nazi generals had had time to acquire considerable combat experience. The army they commanded was then the strongest in the capitalist world.

I was among those who felt the weight of the Wehrmach onslaught in the very first days of the war. The formation which I commanded was subjected to the heavy fire of units of Field Marshal Reichenau's Sixth Army. Military fate pitted me against this army once more later on, on the banks of the Volga and in different circumstances.

Unquestionably miscalculation in assessing the military and political situation, notably, the time of a possible attack by the Nazis, was a decisive factor. Therefore, their strike at daybreak on Sunday, June 22, was, to a considerable extent, a surprise.

In my opinion, however, this was not the main reason for that early setback. Our leadership foresaw the possibility of a military clash with nazi Germany and took vigorous measures to build up our defense capacity. The Soviet people made the greatest sacrifices. They denied themselves every basic necessity in order to build a modern army and a mighty defense potential. Unfortunately, there was not enough time for us to finish this job. Perhaps no other nation would have been able to withstand such a surprise attack by overwhelming enemy forces, but the Soviet state did. Even then, in this crucial moment for us, the adventurism of the nazi plan, based upon the weakness and demoralization of the Soviet Army and disintegration of the entire Soviet system, was quite clear. The Wehrmacht could not repeat the successes of its blitz Western campaigns. In the East, there was bitter fighting for every inch of ground, and when they made a gain, the Nazis paid a heavy price for it. Soon after the invasion, General Halder, Chief of the General Staff of the German land forces, made this entry in his diary: "The set schedule of advance of Hitler's divisions is being wrecked by the unforseen and stubborn resistance of the Russian soldiers."

The Red Army found the strength to hold out: The grim trials did not break its fighting spirit. And even when the army withdrew to wage continuous and bitter defensive battles, its strength and resistance increased from day to day. The will of the soldiers to win was nourished by the fortitude of the entire nation, by the confidence in millions of men and women that nazism would not destroy the achievements of the Socialist Revolution.

The country became one big united front. What brought us victory was this unity of the people at the front and in the rear, the unique benefits of the new, socialist system and also the character of this war of liberation, which our people were fighting under the leadership of the Communist Party. It was precisely on the Eastern front of the Second World War that the main forces of nazism were crushed. Hundreds of enemy divisions met their end here. Of the 14 million casualties suffered by the Germans in the whole war, at least 10 million were killed, wounded and taken prisoner on the Soviet front. While noticing the decisive role of the Soviet Army in the rout of nazism, we do not minimize the contribution made by the armies of our allies, including the United States.

The great victory of the Soviet Army was won in the fire and blood of battles fought on an unprecedented scale. And finally over Berlin, over the Reichstag, the scarlet banner—the banner of freedom and delivery of the peoples from nazi slavery—was unfurled. These davs will never be forgotten. Soviet soldiers cleared the towns and villages of invaders, and millions of rejoicing people gratefully called them soldiers of freedom. For a soldier there is no higher award than this grateful memory of liberated peoples.

Q: As I understand it, current development of the Soviet Armed Forces is determined by the advent of nuclear missiles in the postwar period. Is that so?

A: Indeed it is so. In the postwar years we have had a veritable revolution in military science. One of the basic reasons for this military and technical revolution is the development of nuclear missiles of unprecedented destructive power. It is worth noting that these weapons have deleted from textbooks on strategy the concept of "geographical unvulnerability."

These nuclear missiles have colossal destructive power. One single missile with a thermonuclear warhead is capable of discharging energy exceeding the total capacity of all explosives used in all previous wars. In a global clash an "exchange" of blows of such force may result in the death of hundreds of millions of people, the destruction of many states and nations and the poisoning of the surface of the earth and the atmosphere.

The Soviet Army began to equip with nuclear weapons in the early fifties. In 1957 foreign military observers first saw our intercontinental ballistic missiles at the traditional review for the fortieth anniversary of the October Revolution. Now our army has various types of missiles, including compact, hard-fuel intercontinental missiles on mobile launchers. A special feature of these missile complexes is that they are always in launching readiness. We also now have intercontinental and orbital types of missiles, which can deliver superpowerful warheads. Not only do these weapons have a practically unlimited range of operation, but what is most important, remarkable precision in hitting the target.

We also have a strong atom-powered missile submarine fleet, missile-carrying strategic air force. The strategic missile force, the nuclear submarine fleet and the strategic air force now hold the leading position in our entire system of defense. When we talk of a revolution in the theory and practice of war, we mean, first of all, the new means of armed struggle. But, these changes are not limited to materiel. There are also significant changes in the character of our army and navy

personnel. For instance, nearly half the personnel of our armed forces now have a higher or secondary education. Every fourth officer has graduated from a higher institution of military or special education, and 75 out of every 100 officers of the missile forces are engineers or technicians. All these changes are the natural result of the vast socio-economic transformations in the 50 years of Soviet government. The socialist state is growing and maturing, and its armed forces are becoming increasingly stronger with it.

Q: I would like to return to the events of the last war. You commanded the First Tank Army and the First Guards Army and you fought in the Battle on the Volga. Different versions in the Western press, give various explanations for the failure of the nazi advance on Stalingrad. How do you explain this fateful defeat of the Wehrmacht?

A: True, Western military historians have more than once tried to explain the rout of the Hitler forces in Russia in general, and on the banks of the Volga in particular, with talk about the "boundless expanses" of our country, "General Frost" and, of course, about the mysterious Russian soul." These arguments cannot be taken seriously. There is also a widespread notion that our forces in Stalingrad outnumbered those of the enemy many times over. This is also not true. In November 1942 the relationship in manpower and aircraft was equal. We did, indeed, have a certain advantage in the number of artillery pieces and tanks. The credit for this belongs to the Soviet workers and engineers, who risked their lives under enemy fire to evacuate plants from areas which we abandoned and rebuilt a powerful defense industry in the briefest possible time in the eastern parts of the country.

As we all remember, by the summer of 1942 the Nazis managed to recover from their defeat on the approaches to Moscow and recaptured the strategic initiative. Taking advantage of the absence of a second front in Europe, they rushed fresh divisions to the East—more than 80 per cent of their armed forces were concentrated there—and went over to the offensive.

Hitler ordered his generals to carry through, at any cost, the following assignment: Reach the Volga on the march, sever our communications in the area of Stalingrad and break through to the Caucasian oilfields.

The battle which raged between the Don and the Volga was unprecedented in the annals of war. Guns belched continuously 200 days and nights. In separate stages of this battle, fought over a territory of nearly 40,000 square miles, more than two million officers and men took part. Twenty-six thousand artillery pieces and mortars, more than 2,000 tanks and an equal number of warplanes were employed in the struggle.

In defensive battles the Soviet troops mauled and bled white the best divisions of the Wehrmacht and undermined its offensive capacity. Later, without an operational pause, the Soviet armies switched to a vigorous counteroffensive, which caught the enemy by surprise. They encircled and smashed the 330,000-strong German grouping under the command of Field Marshal Paulus. Among the enemy troops, which were torn to shreds, were the divisions of the Sixth Army. All in all, according to estimates of the nazi general staff, the German troops lost 1,200,000 officers and men in the Battle of Stalingrad.

The reasons for our victory are not those offered by Western military authorities. The defeat of the Wehrmacht was not a mechanical operation; it was not crushed by numerical superiority, but by the enhanced combat prowess of our troops, by the great skill of our army leaders and, last but hardly least, by the moral disposition and superior morale of the Soviet Army.

When I think of those memorable days, I always recall a letter found on the body of a German soldier killed on the approaches to Stalingrad. He wrote: "We have only one more mile to go to reach the Volga, but we can't negotiate it. Our fight for this one mile is taking longer than our whole war in France."

The soldier failed to cover that last mile.

Could this stubbornness and fortitude possibly be what the military theorists call the "mysterious Russian soul"? If this is the case, then the stanchness of those men who, in our times, are fighting for the freedom and independence of their respective countries, will also remain a riddle to these theorists.

Q: You emphasized that faith in the country's ideals and moral steadfastness helped the Soviet Army hold out. There is discussion now among military experts of the part technical and moral factors play in modern combat conditions. Which, would you say, dominates?

A: When you come right down to it, this debate is really about the role man and technology play in modern war.

Because scientific and technological progress has been responsible for new weapons, such as nuclear missiles, some military experts are under the illusion that the physical and moral strength of people is no longer a determining factor, as was the case in past wars. I do not believe this is so. Soviet military doctrine sees man and his combat equipment as a unit. Only man can create powerful weapons. He alone can operate them. The more complicated the combat equipment, the greater the demands on the soldiers. Modern weapons demand the utmost in intellectual and physical stamina, initiative, responsibility, swiftness in sizing up a constantly changing situation, daring and determination to achieve the goal set. Time is counted in minutes and even seconds in today's army.

For this reason, other conditions being equal, I am convinced that the moral factor continues to be decisive. For all the tremendous importance of nuclear missile armaments and the equipping of troops with superior weapons, it is the soldier who operates these weapons, is still the main force. The faith of soldiers in victory, their trust in their officers, fade from battle to battle if they don't know what they are fighting for. In such conditions, even a continued arms buildup will not lead to victories.

I must say that realistically minded political and military leaders of other countries are well aware of this consideration and take it into account. Discussions on this subject are usually limited to a theoretical angle or for propaganda purposes.

Q: Colossal stockpiles of highly destructive weapons have been accumulated in the world today, and the danger of military conflicts has not been removed. Is a nuclear missile war inevitable according to the Soviet military doctrine?

A: I would like to point out that the Soviet military doctrine rules out aggressive intentions, for it is designed to defend the peaceful labor of the Soviet people and the peoples of the fraternal socialist countries.

The egoistic, aggressive nature of militarist-minded imperialist circles has not changed. That is where the threat to peace and security still comes from. No one should forget this. We heed the lessons of the past and are doing everything we can not to be caught napping by anybody.

The Soviet military doctrine, developed by the political and military leadership of the Soviet Union has the answers to all probable variants of attack and has made every provision for immediate and inevitable retaliation should the aggressor attempt to violate the peace. Today the Soviet Army is outfitted with the best weapons in the world. We are maintaining our defense potential at a level which will ensure a complete and crushing defeat of any aggressor who dares to trespass upon the Soviet Union.

As to the question of whether a thermonuclear conflict is inevitable: We are not pessimists. We believe mankind can be saved from the calamities of a world nuclear missile war. And this is not wishful thinking; it is based on our conclusions on the world situation today, which has changed radically and in favor of socialism. Imperialist policy is no longer free to play with the destinies of peoples and states. At present even those anti-Soviet hotheads who are ready to plunge into a new world war in order to "destroy communism" hold back. They are forced to reckon with the new reality: the existence of the Soviet Union and the other fraternal socialist countries, their military and technical might, their political and ideological influence. Naturally we military men regard this military power which we have built up as the main obstacle in the way of imperialist gambles. But there are other potent political factors which frustrate the plans of aggressive militarism. They were mentioned by Leonid Brezhnev, General Secretary of the Central Committee of the Communist Party of the Soviet Union, in a speech delivered during the fiftieth anniversary celebrations of the October Revolution, who emphasized that averting the danger of a new world war is one of the conditions essential for peaceful communist construction. These factors are: Soviet policy, which opposes attempts to resolve issues between different social systems by force of arms and is trying to create international conditions in which all peoples can develop freely along lines of national and social progress; the struggle of the international working class against militarism and military gambles; the anti-imperialist course steered by the young developing countries; the constructive policy of states which have declared their nonalignment with aggressive blocs and their realistic approach to problems of world policy; and last, but not least, the ardent desire of millions of common people to save the world from the threat of a nuclear clash. Their combined efforts, energy and will can prevent the outbreak of a new world war.

Samvel Matevosyan at an international symposium on geological history held at Yerevan (on his left is U.S. geology professor George White).

SAMVEL MATEVOSYAN'S GOLD

THE EVENTS he crowded into his life would suffice for five ordinary people.

"I am a man of action," he says about himself. "The time between making a decision and acting on it is a minimum in my case. That characteristic of mine has gotten me into trouble more than once. But on the other hand, it has saved me more than once also."

Samvel's father was a worker. His big family fled from Kars in 1915 to escape massacre. It took a lot of work to get things going again. Samvel was 18 and decided to start out on his own. His father was not happy at the idea.

Here we've just gotten ourselves settled, and you're going somewhere else."

He was headed for the Institute of Nonferrous Metals in Moscow. In the thirties the Armenian institutes could take relatively few students; the others went to institutes in Tbilisi, Leningrad and Moscow.

He graduated as a geological engineer and went back to Armenia. Sergo Orjonikidze, the Commissar of Heavy Industry, told the young specialists who were going back home:

"It may be that in your Armenia nonferrous metals occur very rarely. But if you look hard enough, you'll find them."

Samvel did indeed look hard. Metals were vital. Armenia was developing industrially. Factories, colleges, whole cities were being built. The republic seemed to know it had only a few precious years of peace. They began in 1921, when Armenia became a Soviet republic, and ended in 1941, with the nazi invasion.

Samvel met the war in the Brest fortress. Today every schoolboy knows about the heroes of the Brest fortress. However, in those first days of invasion the soldiers of the Brest fortress, surrounded by the enemy, did not have the time to speculate on whether they were heroes. They simply fought for 30 days of fire and death, until the last cartridge. The Nazis called Brest the "Mad Fortress."

During the battle Matevosyan was appointed deputy commissar. He was in the first line of the first and hardest counterattack.

He fought a long war, all the way from Brest to Berlin. He got to Berlin and wrote on the walls of the Reichstag: "Yerevan-Brest-Berlin. Matevosyan."

On the approaches to Berlin he had been cited for the highest military decoration: the Gold Star of a Hero.

"It was some time before I caught up with that Gold Star. Our units advanced so fast, the decoration couldn't keep up. That gold of mine chased after me for quite a while. I didn't know then that I would be racing after other gold one day. And take a good deal longer getting to it."

He meant the gold deposits of Armenia. They had been described by many ancient historians, Plutarch among others. In the sixth century B.C. Armenia shipped its gold to Byzantium and the Middle East. Alexander the Great sent his troops there to capture the gold deposits near Mt. Zod.

The ancient Greek historian Strabo noted in his book that though the deposits were captured, the Armenians from Zod were not. "They remained invincible in their hearts."

"Evidently the spirit of my ancestors is too strong in me," Samvel smiles. "Because whenever it all seemed wasted time, 'I remained invincible in my heart.' Or maybe that was just plain Armenian stubbornness. Anyway, I was determined to find that ancient gold. I reasoned like this: "For many centuries the gold mines yielded gold—ergo: they were rich mines. The equipment of that day was too poor to exhaust the mines. In other words, they mined the placer but did not reach the vein itself. And that's what I proposed to do."

The pass was 8,000 feet high. The wind and cold were fierce. Trucks could not reach the highest bores. In blizzard weather fuel had to be passed along from hand to hand after the tractors had climbed as high as they could. The ministry kept nudging him, wrote him that the mountain should be worth its weight in gold. His family—wife, son, daughter—kept nudging him too. They wanted him to come down to earth.

Matevosyan's expedition kept gnawing into the mountain. Abandoned mines cropped up more and more often. They helped morally (so they were headed right!) and hindered physically (caved in when least expected). They also found stone mortars, in which the gold was pulverized, and stone cups. Then they found the first grains of gold. The find coincided with another interesting discovery: Armenian archeologists found tombs dating from the fifth and sixth centuries B.C. on the bottom of Lake Sevan. Microanalysis indicated that the gold beads from the tombs and the gold grains mined by the geologists came from the same source. Armenia's ancient gold had been found.

Samvel Matevosyan, head of Armenia's Trust of Nonferrous Metals, and his coworkers were decorated and written up in the newspapers.

Not long ago his name cropped up in the press again, this time in the press of West Germany. The article, about war veterans, was headlined "An Armenian at the Munich Meeting." Matevosyan called it "a meeting of those who missed their aim."

"The people who sat next to me at the conference table fired at me 20 years ago, and I fired at them. Fortunately, we both missed. I still can't get over it. I hadn't been taught to fire at people; the Nazis taught me that. I remember in Brest seeing the enemy for the first time, a nazi soldier. For a long time I couldn't pull the trigger. He raised his submachine gun but I was still looking at him. I was sorry for him, he was so young. But I was young too. He fired before I did. That was my first wound. I was wounded seven times before the war was over.

"At the meetings in Munich and Frankfurt am Main I was asked: Why did you Armenians fight so hard—the German Army hadn't invaded Armenia. I answered that we hadn't waited for them to invade. We weren't fighting against the Germans, we were fighting nazism. And we, like other people of our country, weren't fighting only for Armenia, but for the whole Soviet Union. When Hitler was making preparations for the offensive on the Caucasus, he noted in his order that an 'especially strong resistance can be expected from the Armenians.' He was right. We knew that nazism meant genocide, the destruction of nations, the end of the life of peaceful creative work we had cherished. Every Armenian village has monuments to the fallen. Many Armenians were decorated with Gold Stars and became Heroes of the Soviet Union. This is also the gold of Armenia. We never got peace the easy way. We've had a long history, and we've learned from it, learned well."

FACTS AND FIGURES

Yerevan is the only city in the world to grow 20-fold in 47 years.

The electrification of the Araks-Ani section, just completed, makes the Leningrad-Moscow-Yerevan-Lake Sevan-Ani line the longest electrified railroad in the country.

Wages at Armenia's industrial plants more than tripled between 1940 and 1965. So did the pay for work on collective farms.

Industrial facilities in Yerevan produce in one day almost four times as much as all of Armenia did in 1920. Industry now accounts for more than 70 per cent of the total value of the republic's output, as against 14 per cent in 1920.

Armenia is more active in housing development than the country as a whole. About 10 apartments for every 1,000 people are built annually in the Soviet Union. The figure for Armenia is 14 apartments. Rent and utilities come to only four or five per cent of wages.

About 3,000 out of every 10,000 people in Armenia are in elementary and secondary schools. About 200 in every 10,000 are in schools of higher education and specialized secondary schools. This is more than the figures for England, France or the Federal Republic of Germany. The state spends more than 100 rubles a year on education per schoolchild and about 1,000 rubles a year per university student.

PUBLIC NOMINEES

HIS MUSIC

ARNO BABAJANYAN has admirers inside and outside the Soviet Union. Music lovers have followed the progress of this composer since his talented childhood.

His early compositions, a piano and a violin concerto and a polyphonic sonata, were very well received. His *Heroic Ballad* (symphonic variations for piano and orchestra), performed in 1950 won him world recognition.

Among his recent compositions are six musical études for piano. Their rare color and subtle changes of mood made them immediately popular.

Babajanyan is a very versatile composer. He writes songs, pieces for variety orchestras and music for films. His songs seem to have a compelling attraction. Once they have been played or sung on the variety stage, they are picked up by everyone who can whistle or hum, especially young people. His "Yerevan," "Song about Yerevan," "My Yerevan," "Lights of Yerevan" and "Spring Yerevan" are heard everywhere. Muscovites very naturally prefer his "Roaming Through Moscow at Night."

"How do you compose your songs?" Babajanyan was asked once. "I simply hear them," he answered. "There is music everywhere!"

Babajanyan's song "Call Me" was performed in many languages at the International Youth Song Festival at Sochi. It offered every opportunity to the singers to display their individuality.

The young singers like Babajanyan because he is always experimenting and producing something new. A popular young singer once said: "Babajanyan's songs are like glucose: They are assimilated in no time and to the last drop." The same words of tenderness and sorrow one could hear in Polish, Hungarian, German: "Even though you don't love me, please call me, if things go wrong with you, please call me." . . . The song offered every opportunity to the singers to display their individuality.

THE YENGIBARYANS

VLADIMIR YENGIBARYAN'S school for young boxers is on Nalbandyan Street in Yerevan.

Yengibaryan has devoted more than 20 of his 35 years to boxing. He brought home a gold Olympic medal from Melbourne, won the European championship three times, and is a three-time USSR champion.

Three of his pupils—Surik Kazaryan, Gagig Derbinyan and Arutyun Kazanchyan—have made the USSR national youth team.

Another of his pupils, Misha Ogepyan, looks like a miniature Yengibaryan in the ring. He has the same style and technique, even uses the same left hook. Last year his young pupils won eight medals in the All-Union competitions.

The school is the pride of sports-minded Armenia. Organized eight years ago, it opened with about 100 youngsters; today it has 600. Many of its 4,000 graduates have become first-class boxers.

When boxers leave the ring, they usually put on weight. Yengibaryan still weighs in at 143 pounds. He keeps in shape with tennis and basketball and, of course, often puts on gloves to demonstrate the art to the little Yengibaryans.

In Yerevan and other towns there are many sports schools, such as schools for gymnastics, pentathlon and chess. Each is headed by a distinguished master in his field. Boxing, however, is still the most popular sport among youngsters.

Vladimir Yengibaryan says: "Although boxing is a sport for the strong, I do not encourage brutality. Strength must give confidence in one's ability to defend oneself or a weaker friend but not confidence to bully anybody. I am for kindness even in boxing."

The school was founded in 1959. That year marked a decisive turn in Armenian sports. It was then that the Yerevan State Institute of Physical Culture completed the construction of a big athletic complex. A little later another school—the higher school of sports—was set up.

SUN IN A BOTTLE

"COGNAC IS SUN sealed in a bottle," says Markar Sedrakyan, director of the Ararat cognac distillery. For the special bouquet of Armenian cognac everything is important: the number of years it stands, the barrel it is stored in, the valley or mountain slope where the grape is grown, even the mountain's degree of inclination, Sedrakyan thinks.

Knowledgeable people always add: The most important thing is the hand of the master. Markar Sedrakyan has been working at Ararat for 40 years; the distillery itself is 80 years old. It used to employ 10 people and turn out 50,000 bottles of cognac a year; today the Ararat distillery turns out that many bottles every two days.

The best brands of Armenian cognac are Dvin, Otborny (Select), Yerevan, Yubileiny (Anniversary) and Armenia. Yubileiny won a gold and silver medal at international contests; Armenia—two gold medals; Dvin—four gold medals and one silver.

Armenian cognac is known for its potency, velvety taste and dark gold color that warms the eye. It is hard to say which of the cognacs has the finest taste and color. Sedrakyan himself prefers Armenia.

In the basement storeroom of Ararat are bottles of cognac that have been standing for 70 years, and others in huge tuns marked with the years 1902, 1906, 1907, 1914 and later.

The Ararat basement is a sort of cognac tasting museum. In a thick book of visitors' comments is one by Maxim Gorky which cautions imprudent tasters: "It is easier to climb up Mt. Ararat than to come out of the Ararat basement."

Markar Sedrakyan is so popular that there probably is not a single Armenian poet who has not dedicated some of his lines to this man and his cognacs. One poem says, "The taste of Akhtamar is the taste of the sun, the hot earth and mountain water." A little exaggerated, perhaps, but not very much, you think, when you taste this superb brandy.

CHESS CHAMP

HIS NAME is Tigran Petrosyan. Armenians call him "Tigran IX." He is the ninth world chess champion.

When Petrosyan comes to Armenia, chess fans declare a holiday. The time he won his first world title, every taxi driver in Yerevan waited for his train in front of the railway station, hoping to chauffeur him and also get his autograph. You couldn't find a taxi for love or money. But since everybody else in town was celebrating the victory, it didn't matter.

Three years later, in 1966, he had to defend his title against Boris Spassky. It was no easy triumph, but Petrosyan is a careful, patient man. Max Euwe, former world champion, says of his playing: "Petrosyan is not a tiger, he doesn't leap on his prey; he is more like a python—he chokes his victim—or a crocodile, who waits for hours to deal the decisive blow."

When he plays for the world championship, Tigran receives hundreds of well-wishing telegrams from Armenia. Once, after a particularly rough tournament, he came home to the smell of an Armenian national dish, "dolmy," that fans had sent him by plane from Yerevan for "material support." It may have helped; that was when he won the title of the world's best player a second time.

Petrosyan is a journalist. He is now completing his graduate studies in the philology department of Yerevan University and will soon add the academic degree of Master of Science to the title of World Chess Champion.

He has two sons, both of them good players. Twelve-year-old Vartan is already the subject of a joke which pokes fun at Petrosyan's many draws when he plays opposite Mikhail Botvinnik: "If Botvinnik offers Vartan a draw, the boy will tell him: 'We'll play it out. I'm not Petrosyan!' "

Optimists forecast that this son of the champ is Armenia's chess future.

OUR GOAR

GOAR GASPARYAN was 'unknown when Yerevan billboards announced her concert in May 1949. There were empty seats in the hall as the first notes sounded, but by the beginning of the second half, the hall was filled.

Gasparyan's next concert two weeks later was in the summer theater. Its very large auditorium was not big enough for the crowd.

She was born in Cairo in 1922, and came to Armenia in 1947 with one of the first groups of repatriated Armenians.

Her popularity grew with phenomenal speed. Critics talked of the unusual beauty of her voice, which combined the characteristics of a coloratura and a lyrical-dramatic soprano and ranged through three octaves. As the years passed, her performances took on such grace and power that some critics began to compare her with Galli-Curci. Others, not without reason, said that her voice had the rich timber of a Stradivarius.

This very gifted singer gives superb renditions of works by composers of many styles and epochs, from the polyphonists of the sixteenth and seventeenth centuries to the moderns. Her repertoire includes Bach, Handel, Gluck, Mozart, Beethoven, Schubert, Puccini, Rachmaninoff. There is no one who matches her interpretations of Armenian compositions, those of Komitas, Spendiarov, Sayat-Nova, Romanos Melikyan.

Her operatic roles include Lakmé, Rosina, Margarita, Gilda, Anush and Olympias.

Gasparyan does a great deal of touring, too much, think some Yerevan people who would like to hear their Pearl (the English for Goar) sing at home more often. On the other hand they are proud that their Goar is very popular and requests for her concerts are pouring from various Soviet republics and from abroad.

Gasparyan recently toured Japan, Iraq and the United States, and is planning a South American trip.

THE USELESS ROCKS

MANVEL MANVELYAN, when a little boy, during the years of the First World War had fled from Turkey to save his life. His native Armenia, as poor as the boy himself, could give him only life and a piece of bread. Six-year-old Manvel earned that piece of bread by shining shoes and carrying water along the dusty streets of Yerevan.

"There were three roads I could take when I was young," Academician Manvel Manvelyan recalls. "I could have become a good shoemaker since I was not a bad bootblack. I could have become a mediocre poet for I wrote poetry. And I could simply have died of hunger, as many children my age did. But I became a chemist.

"Of course, I had frequently heard that the rocks were Armenia's curse," says Manvelyan, "but at times it seemed to me that there was something here we just did not understand. I believe it was their beauty, the essential utility of our mountains that inspired my searching out ways of putting our Armenian rocks to their full use. Such mountains must harbor some unknown riches and simply could not be wasted. In nature they indeed do not go to waste, but nature is in no hurry: Nepheline syenites are the huge gray 'useless' rocks of Armenia which, over millions of years, are transformed into such useful things as, for example, soda and sand.

Manvelyan began his long and difficult experiments to extract alumina from nephelines by a new method.

There is no waste in the nepheline syenites obtained by Manvelyan's method. In the process a dozen valuable by-products are obtained. Not a bit of the gray stone is lost.

QUESTION: What seven objects most characteristic of present-day Armenia would you put in a capsule to be dug up in the year 2000?

ANSWER: The little sack of earth my wandering grandfather carried away from his native land and my father brought back.

Gaik Melikyan, chemistry major

HARD IS THE SOIL

ARMENIA IS SMALL, but it has all the climates there are. Spring comes to this land several times a year. All the climatic zones—from alpine meadows to subtropical vegetation—are represented.

When in the Ararat Valley fall is well on and grapes are ripening, summer is still young in the foothills: The wheat is just taking on a golden hue. The grass is still fresh, and poppies are in full bloom on alpine meadows then, but the mountain peaks are covered with year-round snow and battered by winter gales.

A torrential mountain stream, born of melting snow on the slopes of the Aragats, on its way to the Razdan River may encounter all the seasons—winter, spring, summer and fall—in the span of a single day.

The Armenian countryside is beautiful, but there has always been too little of it. Stones have smothered it.

The vineyards of Ashtarak village are surrounded by many small hills. Native of Ashtarak and farmer's son though I am, I thought for a long time that these were natural hills, and only recently did I find out that they are built of the rocks our grandfathers and great-grandfathers picked up one by one, hauled to the outskirts of the village and piled up into pyramids.

This is a hard land—Armenia—but it has found a match in its people.

Fighting an endless battle with stone, the Armenians grew wheat and barley. (The drink they made out of barley pleased the Athenian historian Xenophon.) Between the stones they grew vineyards, and, drunk with inspiration (and wine), they carved on these stones vines, pomegranates, ears of wheat and eagles but most often vines.

The vine is hardy and stubborn, like our people. It can stand both heat and cold. The wine it yields is sweet with a taste of bitterness, like the destiny of the Armenians. This bitter taste is for the hardships they suffered, and the sweetness is for their faith in the morrow.

Like our people, the wine has come through recurrent wars and invasion, fire and sword.

In 1920 only 12,000 acres of vineyards had survived the Civil War battles. But every spring since then new vines have sprouted, and now they spread over 96,000 acres.

This land and those who work it have been born again. The once ill-starred peasant parted with his sooty adobe and homemade shoes long ago. In his new stone house he has a TV set, a radio, piano and bookshelves (where, incidentally, he also keeps the high school and college diplomas of his children).

His native earth, a handful of which his grandfather carried with him when he left for foreign lands, now provides a good life for his children and grandchildren.

OF AYASTAN

By Gevorg Ehmin

A LUMP OF EARTH

BY EDWARD MELIK-NUBAROV

"The earth is everything to man. It is the source of life, beauty and happiness. Farming is not only the oldest but, to my mind, the noblest and most important of all occupations."

Martiros Saryan

WHEN CONQUERORS came, they found nobody in this village. Nothing but pigeons. The people had taken refuge on Mt. Aragats.

The enemy had burned down all the houses, uprooted the vineyards and cut down the trees. "Men shall not live here, only pigeons," the army commander had said. This desolate spot came to be called Akhavnatun, the Pigeon Dwelling.

But it was not deserted for long. The descendants of those who had been forced to leave their birthplace returned to it. They planted apricot and peach trees and vineyards.

The ancestors of my friend Grigor Grigoryan, the son, grandson and great-grandson of farmers, came back with the others.

I spent two days with Grigor in Akhavnatun at the height of the golden Armenian fall.

I had been there two years before, not a long time, but there had been a great many changes in the village since. There were no more adobe huts. In their place stood houses of pink, brown and orange tufa, each with its own vineyard, vegetable patch and garden.

Akhavnatun is on the edge of Ararat Valley, where it slopes up Mt. Aragats. It is an ordinary village, neither small nor big, neither poor nor very rich. It is an average 1,500-year-old village, an average age for Armenia. The 2,000 villagers grow grapes, melons, fruit, vegetables and tobacco. They also breed livestock since there are good Alpine meadows on Mt. Aragats.

Children make up almost a third of the population. They are ordinary enough children but, of course, flowers of the earth to the villagers. They run about, get into mischief, worship their heroes: the giant David of Sasun, Vasili Chapayev, Sherlock Holmes, the Pathfinder, spaceman Gagarin. They play football and break windows. But how they study! Many of them will be engineers, doctors, lawyers, agronomists and architects like their older brothers, who studied in the old school. The collective farm recently built a new one accommodating 1,000 pupils. Only some 600 are attending it now, but Akhavnatun people are the kind who look ahead. The new school will be big enough for the next 10 or 15 years, and then they will build another.

In Grigoryan's yard a fire was crackling. Lined up near it were spits on which chunks of mutton, tomatoes and eggplant stuffed with tail fat were impaled. The traditional *khorovatz* was in the making.

The table was laid in the big dining room, and almost the whole family had come, besides the guests. The older son Henrich and his wife Emilia were there from Echmiadzin. (The young couple are teachers—she teaches chemistry, and he, Armenian language and literature.) Rafik, the second son, and his wife Mariam (both work on the collective farm), were there and also 19-year-old Ashot and schoolgirls Susanna and Sirunik.

"Come, sit down to the table, dinner is ready," announced Khanazand, Grigor's wife. "It's a happy day for me when the family gets together and we have guests."

Soon the good smell of roast mutton floated in through the open window, and 30 minutes later it was steaming appetizingly on the table. We drank *majar*—young wine—with the meat.

The *tamada* or toastmaster was Grigor. We drank to the guests, to the family, to friendship, to peace, to fulfillment of our hopes, to the children. The *tamada* did not relinquish his post until well into the night, and then we toasted his health in the proper Armenian tradition.

I woke up early the next morning. Grigor was already out.

"Daddy's gone to the collective farm orchard," Susanna told me. "He said for you to join him there. I'll take you. That garden is like a son to him. Nobody thought he could grow anything on that barren lot. But he believes in the earth. He knows that it only has to be helped along to flower. We all helped him plant fruit trees, get the stones out and water the saplings. We brought water up from the spring. Many of the people laughed at Dad; they thought he was working for nothing. But we stood by him. When the first trees bore fruit, he picked six or seven pounds of peaches and went round to the collective farm board. 'Here, this is from my orchard,' he told the chairman. 'What's the point? We all have our own orchards and peach trees,' said the chairman.

" 'Ah, but these are special peaches, from the barren lot.'

"That was a big day for father and for the orchard."

Now it spreads across 12 acres of land. The collective farm chairman promised Grigor several assistants. His son Ashot is working with him. This year Ashot graduated from the 10-year school and took the entrance examinations for the Physics Department of Yerevan University. The competition was heavy, and he did not pass. He returned, very unwillingly, to Akhavnatun. The farm board offered to make him assistant to his father.

But Ashot does not want to be a farmer.

"I'd rather go to Yerevan. I want to be a physicist; farming doesn't interest me," he said.

His father was hurt but said nothing. His brother Henrich, a teacher, talked to the boy and persuaded him to stay at the farm until he passes the entrance exams.

When we came to the orchard, we found Grigor-*dai* standing under a peach tree drooping with large fruit. He was bandaging a cracked branch, and Henrich and Ashot were lending him a hand.

"No, no," smiled Grigor, "I have no intention of making a farmer out of Ashot. If his dream is physics, let him be a physicist. If he can, of course. But I want him to get the feel of the earth like the rest of us. Henrich told him that the earth is made up of atoms too. It can't hurt a physicist, can it?"

The old farmer picked up a lump of earth and rubbed it slowly in his hands. His earth is made of more than atoms. It is made of rock and sun and the labor, love and care of many generations of Grigoryans.

Armenia through the eyes of its visitors:

Avetis Alexanyan, journalist, France: "For the first time in their history the Armenian people are cultivating their land in their own Soviet country knowing they will take in the harvest themselves, that no one else will dare to strip the fruit from their orchards."

William Saroyan, American author: "Armenia grows and flourishes more and more each day. When I look at it, my heart fills with pride."

Rockwell Kent, American artist: "No country has worked more miracles than Armenia. May the land of the Armenians, cradle of talent and great accomplishments, be thrice blessed."

FACTS AND FIGURES

The Armenian Republic has more than 500 collective farms and 200 state farms. They use 14,000 tractors and 1,600 combines.

Seven thousand agronomists and veterinarians are employed in the rural areas, the majority of them graduates of Armenian higher educational institutions.

Eight research institutes and 10 laboratories work on urgent agricultural problems.

Vruir Galstyan

By Artsvin Grigoryan

VRUIR DOES NOT EXHIBIT most of his pictures. Ask him whether he likes his work, and he mutters: "No." This is not a pose. Galstyan's is the dissatisfaction of a man endowed with a happy but tormenting talent. His world is so complex that some distance in time is needed to grasp it. Every canvas of his is a confession, and his sincerity, like a torrential mountain river, sweeps you along with him. It is only later that you understand to what a pure and extraordinary world this torrent has carried you.

Away from his work Vruir is stiff, even awkward. But at his easel he is transformed. His brush strokes build up fireworks of color. He seems to be afraid of missing something. Without a brush in his hand Vruir is taciturn; when he paints he is eloquent, and yet there is terseness in his eloquence. For all the wealth of his palette, it is never exuberant.

Vruir does portraits, landscapes and still lifes. For many years he has been fascinated by the image of Egishé Charents, a noted Armenian poet whose life was tragic and whose inner world was vivid and complex. The artist has painted a whole gallery of finished portraits of Charents, but he is still working on *the* portrait. He has read and reread dozens of books about the poet and has made hundreds of sketches and drawings.

A portrait of Charents he painted in 1964 hangs on a studio wall. The poet's eyes meet every visitor and never leave him. This effect is not a matter of form or color. The spectator is aware of a great emotional intensity; he feels it almost tangibly. For those who knew Charents well, the portrait is a meeting with the poet reborn.

Galstyan's forte is his vibrant perception of nature. His landscapes and still lifes are very simple: the corner of a yard, a few houses, a cactus on the balcony, a table with a bottle, flowers in a mug, a faucet. Yet in this simplicity Vruir sees the poetry hidden from a less sophisticated observer. Looking at his pictures, you think: "I did not see it!", "How could I not help seeing it!"

Last year Martiros Saryan, the veteran Armenian artist, visited Galstyan's studio. For several hours he went through Vruir's canvases. As he left, he said: "I have looked at nearly all of Vruir Galstyan's paintings, and I believe that his work merits particular attention."

In Yerevan they think of Vruir as a "left" artist. Told that, he smiles his slow, strange smile: "Yes, maybe, but certainly no more on the left than the heart is."

THE GIFT OF WONDER

LENIN AVENUE, the most modern street in our capital, starts at the majestic Matenadaran building. The coincidence has great symbolic meaning. History and the contemporary are closely intertwined in Armenia. Ancient manuscripts that contain 2,000 years of the daring searches of human thought are stored and studied in the Matenadaran. For centuries our ancestors dreamt of the triumph of justice and reason.

Now that the Armenian people have come into possession of the creative heritage of their writers, artists and composers, they can grow culturally and in new ways. There is no longer that tragic separation of a people from its richness. Culture has spread through city and village. It has become an integral part of people's lives.

The ancient monuments of Armenia, the inimitable color-groupings of its modern towns and villages, the fruitful work of its scientists, workers and engineers, bear witness to our people's creativity, to their ability to wonder at the world around them and at the way they have transformed that world with their own hands.

Wonderment is not a simple thing. It is a gift that is one of the great blessings nature has bestowed on man. The smaller this gift, the poorer a person's soul is and the greater his stony indifference to everything. That is why any true work of art must, to my mind, evoke surprise and admiration for human skill.

Armenia of today and first and foremost its people—its workers, farmers, scientists and artists—provide more than enough food to inspire creation and fascinate the questing mind.

The greatness of any real artist depends on his closeness to the people and the way he expresses their history, spirit and aspirations. In the end it is the people who create real art, for all art is nurtured on national tradition.

A true artist owes all his ideas, inspiration and art to the people. He derives everything from the people and gives his books, his pictures, his songs in return. And what he gives must be equal in value to what he takes. That is why a really great artist always feels himself indebted to the people and is impelled, for that reason, to work harder to perfect his skill. An artist who loses this feeling of responsibility runs the risk of artistic bankruptcy.

In creating its national culture, a people enriches that of the world. Because an international content is inherent in every national culture, there is an inseparable bond in the progressive culture of all mankind. The artists of Russia and the Ukraine, Georgia and Azerbaijan, come to our republic not only as visitors; their art has become the property of our people as well. And Armenian art, in its turn, makes its gifts to the art of the whole country. Art is a wreath of laurels with which the people decorates itself.

Nature has painted Armenia from a rich and colorful palette. But one must be able to see its poetry. Colors are a miracle of nature. To sense color is one of the great human joys. With color the artist creates a whole world. There are people for whom the only key to the beauty of the world is a photographic replica. They approach the gates of art, try to open them with their key and are disappointed: "I have never seen anything like that!" they exclaim. But we know that not everyone who looks really sees.

It is spring in Armenia now. All nature is filled with new life, the valleys are covered with fresh green grass, and the snowy summits of the mountains sparkle in the transparent air. There should be spring in every man's heart, for man is a creator by nature. He is born to create and not to destroy.

Many of my fellow Armenians are scattered all over the world. From the pages of this magazine published in America, I want to say a word of greeting to those who live in the United States.

My dear sisters, brothers and grandchildren, I send you my warmest regards on behalf of our motherland Armenia.

My dear ones, I wish you luck and the best of health. I am sure that you have not forgotten our centuries-old history and traditions, and our successes, I hope, make you happy too.

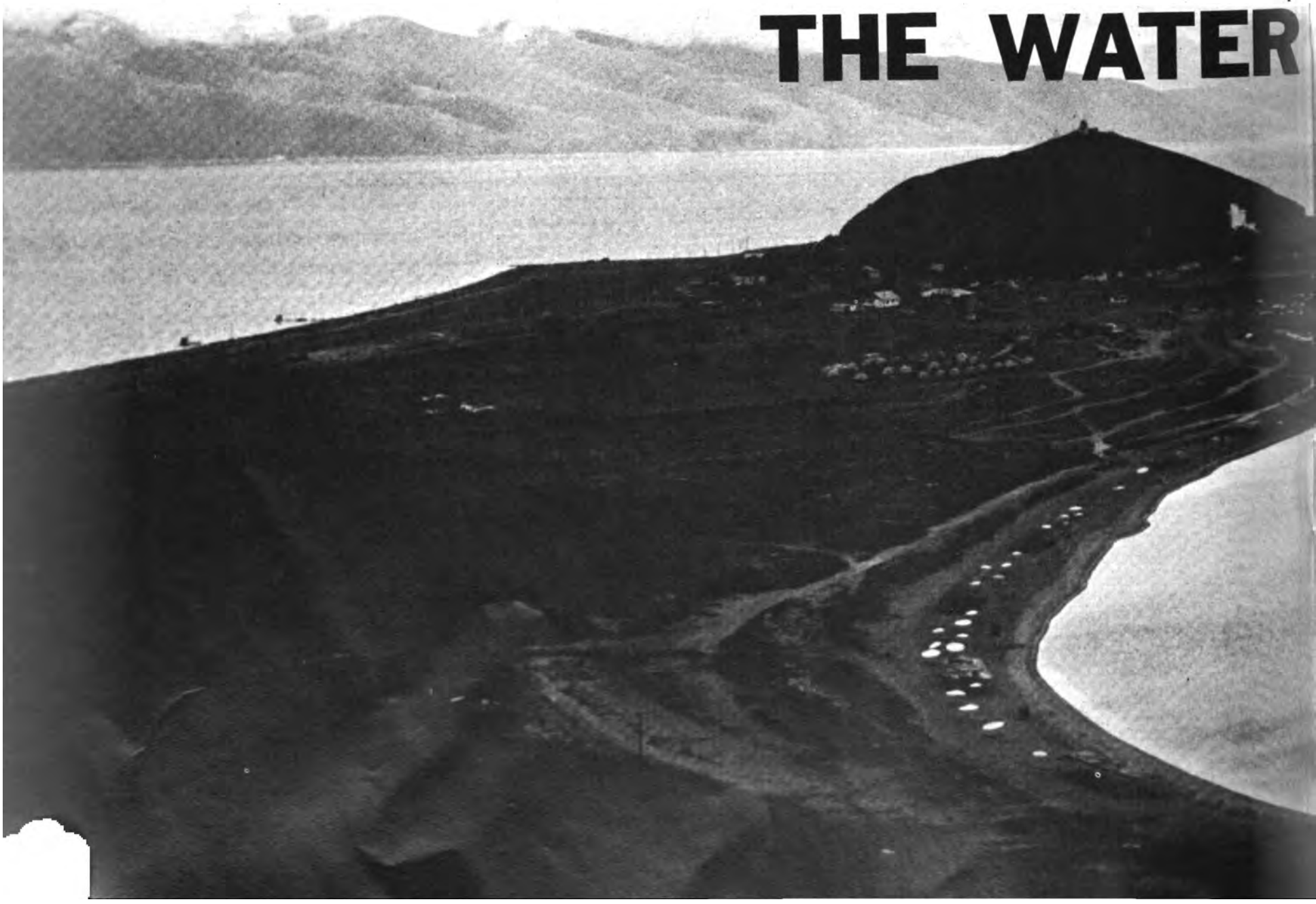
Yours,
Martiros Saryan,
People's Artist of the USSR

QUESTION: What seven objects most characteristic of present-day Armenia would you put in a capsule to be dug up in the year 2000?

ANSWER: A model of the Arpa-Sevan tunnel. Preserving Lake Sevan is Armenia's most pressing problem today.

Marietta Khachaturyan, philology major

THE WATER



WATER HAS BEEN WORSHIPPED and fought over in this part of the world from time immemorial. The stone dragons, "vyshaps," that still stand on the slopes of Mt. Aragats and the fortresses built at river sources bear witness to the need for guarding the waters.

They say that in the Kotai District there is still a stone on which this warning is carved: "This water belongs to Melik-Agamalyants. Cursed be he who steals it and his descendants after him."

And a tombstone in the cemetery of Ashtarak village tells passers-by that the man lying under it was killed by his brother in a quarrel over water.

The last volleys of the Civil War in Armenia coincided with the blasts at the canal construction site. Since then not a year has passed without the addition of a new canal to its irrigation network. The Echmiadzinsky, Oktemberyansky, Shiraksky canals, those in Garni, Sisian, Tallinn, the Arani-Shamiramsky Canal, the Kotaiksky Canal—it would take pages to list all of them, large and small, that Armenia has built in recent decades.

Two of the canals, the Shamiramsky and Ashtaraksky, are ancient. Centuries ago they irrigated the lands of the Urartu kings; now they bring water to the nationalized Ashtarak and Echmiadzin lands.

Even though most villages had a spring on a mountain slope or in a valley until a relatively short time ago few Armenian cities and villages had drinking water readily available. A young man from the mountain village of Gndevaz was considered a poor prospect for a husband because any girl who married him would have to spend three hours a day lugging up water from the valley. Even the inhabitants of Yerevan, the capital, drank water from ditches; water mains were laid there only 30 years ago. But very recently Yerevan's water won the top award at a municipal water contest in Paris.

Water is prized in today's Armenia, too; memorable places and people have springs named after them. The most recent instance is a spring in a Yerevan park named for Sayat-Nova, an eighteenth century poet. Out of a wall of white marble, on which the profile of the poet is carved, runs a limpid stream of water, and as it falls you may, perhaps, hear Sayat-Nova's lines in its faint murmer:

"My springs are not for all to drink: they have a special taste,
those streams of mine!
My writings are not for all to read: they have a special meaning,
those scripts of mine!
Do not believe my tide can readily be turned: of granite rock
that river bed of mine!"

OF ARMENIA

A view of Lake Sevan and the Akhtamar Peninsula

THE LAKE SEVAN PROBLEM

BY YURI MARYAN

EVERY ARMENIAN learns about Lake Sevan in childhood. Those who live in Armenia learn at firsthand, while those who live abroad learn from drawings and photographs, songs and poems, from the stories of their fathers and grandfathers.

For an Armenian Lake Sevan is more than a beautiful, nature-made ensemble of mountains and water. It has become a kind of symbol. Our people are inclined to create symbols and surround them with a halo. Such are twin-headed Mount Ararat, Ararat Valley with its slender poplars, the storks and cranes eternally faithful to their nests, the folk hero Sasuntzi David on his rearing steed, and the sky blue Sevan among our native hills.

How did Lake Sevan become a problem? Only one river issues from it, the Razdan, which flows through the fertile but once very arid and salty lands of the Ararat Valley. But this water was used for irrigation only periodically, when it was needed. Back in the nineteenth century the idea cropped up of building structures to retain the Sevan water so it would be there when it was needed during the irrigation season. But the czarist government was not eager to spend money on Armenian needs, and the plan was shelved.

About 1910 the English engineer-capitalist Charles Steward appeared on the scene. He proposed boring a tunnel through the mountains to drain off the Sevan and use its energy to generate electric power and its water to irrigate the Mugan Steppe in Azerbaijan.

A counterproposal was made at the same time: If the Sevan water is to be drained, then it should be channeled to the Ararat Valley, which is closer than the Mugan Steppe and also needs water. It would make no difference so far as electric power was concerned. This plan was advanced by Sukyas Manaseryan, the son of a peasant and a self-taught hydrotechnician. The Englishman wanted the profitable concession and spared no money bribing officials. Sukyas Manaseryan had no chance against him.

In 1914 Steward was granted the concession. The work never began, and the plan remained on paper. The reason was World War I. Then followed the Revolution and the Civil War.

Soviet Armenia inherited hunger and ruin, a primitive industry and a broken-down agriculture. But the faith in possible change was there. The primary job was to make this agrarian region industrial. But the big prerequisite was electric power. Where was it to come from? Armenia had no coal, no oil, no gas. There were mountain streams, but they were shallow and seasonal. This was when Sukyas Manaseryan's plan was recalled.

Scientists and engineers investigated, weighed the pros and cons and decided to build.

But hold on. The Sevan is a sacred symbol, the pride of a people! Poets, artists and composers spoke up: Do not touch our Sevan! Arguments raged—in government circles, at scientific conferences, at meetings of cultural and student groups, in homes over dinner tables, in restaurants over glasses of cognac, in cafés over cups of coffee.

But since no alternative idea for generating electricity was put forward, a plan for harnessing the Sevan water was drafted, and work soon began.

Were the drafters of the plan indifferent to the Sevan? Nothing of the kind! In the early thirties, when the plan was still on paper, writer Marietta Shaginyan, who had followed the Sevan project closely, wrote:

"I know a prominent academician whose judgment was crucial in deciding the fate of the beautiful mountain lake. Having made the decision, he said he was glad that he would not live to see the lake emptied."

What was the plan of the thirties? From its tributaries and precipitation Lake Sevan receives 20 times as much water as the Razdan River drains off. The rest evaporates. To decrease evaporation, it was necessary to reduce the lake's surface to one-fifth its size and to lower its level some 150 feet. An enormous volume of water would then become available. The water falling into the Ararat Valley could be used to generate electric power and then to irrigate the arid lands. After half a century, draining off the lake water could be discontinued. The surface of the lake would be smaller and the evaporation much less. Practically all of the intake could be utilized to generate electricity and for irrigation.

The plan, as I said, was adopted and the job done. The six hydroelectric stations of the Sevan-Razdan cascade supplied the republic with ample power. In output (not in absolute figures, naturally, but per capita, for Armenia is a little country) the republic outstripped many of the world's big countries. The former steppes of the Ararat Valley blossomed.

Nearly 30 years passed. The Sevan problem was still around and even more disturbing: its beauty was going, its fish resources were dwindling, the climate and water regime of a considerable part of the republic were changing.

A new plan was advanced.

Today's Plan

Armenia's economy grew so fast that the power provided by the Sevan-Razdan cascade was no longer adequate. But now there was an alternative. Huge deposits of natural gas were discovered in the neighboring republic of Azerbaijan, which made a supply available to Armenia. A thermal power plant has been built in Yerevan, with an output equal to all the six stations of the Sevan-Razdan cascade, and work on a second, still more powerful, thermal power station has begun. In addition, high-voltage power transmission lines have been built which stride over the mountains, connecting the power grids of the republics of Armenia, Georgia and Azerbaijan.

All this makes it possible to shut down the Sevan-Razdan cascade stations and to stop draining Lake Sevan for power. But what about irrigation?

To meet this problem, the decision was taken to divert the mountain stream Arpa, which flows down the opposite side of the Sevan Vardeniss Ridge fringing Lake Sevan. The Arpa water has the same content and would replenish the lake. But for this a 30-mile-long tunnel had to be drilled through the snow-capped ridge!

A complex engineering plan was drafted and work begun. A tunnel is already being drilled from the Arpa side and deep shafts sunk by the builders on the Sevan side. The rescue of the Sevan is at stake, and all Armenia is involved. Students pitch in during their vacations, scientists during their leaves; everyone wants to do his bit. And not only Armenians. The republic could not finance such large-scale work alone. Funds have been allocated by the central government, and the other republics are helping out with personnel, building materials and equipment.

Five miles of the tunnel have already been dug through the ridge, and the rate of construction is speeding up.

Concluding my tale of today's plan for solving the Sevan problem, I must answer this question: What will the Arpa-Sevan tunnel do?

Since the cascade turbines started turning, the level of the water in the lake has dropped 50 feet. Unfortunately, nothing can be done about that. The Arpa will supply the Sevan with the water to irrigate the Ararat Valley. This will make it possible to keep the lake at its present level. As for the stations of the Sevan-Razdan cascade, they will operate under irrigation conditions, as the hydrotechnicians say, that is, only when water is drained off for irrigation.

Preparing this article, I made a point of finding out what the current talk is on the Sevan problem.

Nearly all the "lyricists"—the poets, artists, composers and actors—stick to their former point of view: The Sevan should not have been touched. That was a mistake.

The engineers and economists say that it was a necessity.

Academician Ivan Yegazaryan, a leading hydroelectric power specialist (incidentally, he is a member of the American Society of Civil Engineers and a founder and honorary member of the International Association for Hydraulic Research), says:

"Building the cascade itself was no mistake. But there were mistakes. In the first place, at that time it seemed that the volume of power produced was simply fantastic. Now the republic consumes twice as much and does not have enough. Also it was then believed that with the reduction in the lake's surface, more than 250,000 acres of its bottom would become available for agriculture. For mountainous and rocky Armenia, this was very important. But the land proved unsuitable for farming."

Ruben Gevorkyan is a hydraulic engineer. He did not work on the draft of either of the plans, but in both cases he was one of the executors: He helped carry out the first plan to drain the Sevan, and now he is chief engineer of the building trust working to save the Sevan!

The question of whether it was a mistake or a necessity he thinks is rhetorical. Of course it was a necessity. At the time there was no other way out.

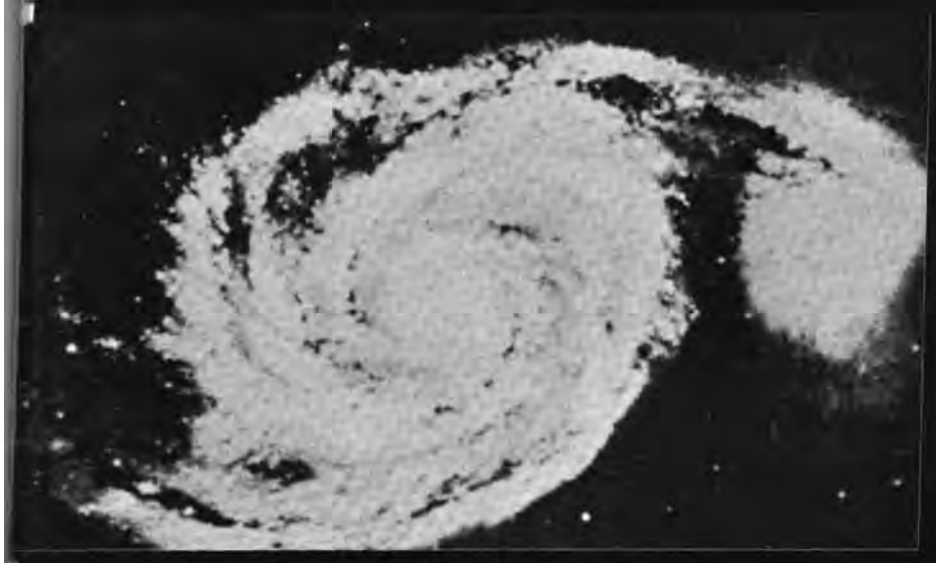
Why couldn't the problem have been solved in the thirties the way it is being solved now? "Because gas had not been discovered in the Caucasus then," Gevorkyan says.

And that's the whole story of the Sevan problem. The picture is clear. The draining of the lake will stop. A grand and unique hydrotechnical tunnel is being built. Lake Sevan will be saved.

physicist

QUESTION: What seven objects most characteristic of present day Armenia would you put in a capsule to be dug up in the year 2000? ANSWER: The papers of the International Symposium on Extraterrestrial Civilizations held at the Byurakan Observatory in Armenia, and the doctoral thesis of Sergei Mergelyan.

Rafael Mkhitaryan, physics major



in antiquity and the sources of knowledge. It contains treatises by the Greek and Byzantine scholars Eusebius of Caesarea, Zeno and others. In ancient times they were translated from their native tongues into Armenian. The originals were subsequently lost, and now only the Armenian translations exist. No research in the history of the ancient world can be done today without the Matenadaran library. This unique repository is not only busy publishing and translating its manuscripts into other languages, but is searching for new treasures which will give us more insight into the ancient history of mankind and stimulate fresh discoveries."

"What, in your opinion, is the most interesting scientific discovery made in Armenia recently? The most important invention? The most fruitful dissertation?"

"The most important discovery, I believe, is Academician Manvelyan's method of chemical concentration of nepheline syenites, thanks to which we can now produce a number of completely new materials for industry in unlimited quantities. One of the biggest enterprises in Armenia, the Razdan Mining and Chemical Plant, is now being built around the discovery.

"Our industry badly needs more up-to-date methods of transporting pulp and loose material. Professor Gasparyan and his assistants have worked out an advanced technical solution for the problem of pneumatic transport.

"As for the dissertation. I should point out that whenever I suggest a new subject to one of my graduate students, I consider that one the most interesting. More concretely, however, the best dissertation is probably the one submitted by Sergei Mergelyan, the youngest Doctor of Science we have had in the Soviet Union. He defended his thesis at the age of 21. Mergelyan is now director of the Yerevan Computer Institute."

"As an astronomer, what do you expect from future space research?"

"I should like to see a telescope placed in orbit around the Earth, a big one. I probably share that wish with all astronomers. And, of course, I hope that in time astronomers will be able to make their observations from the surface of the Moon."

"What are your hobbies?"

"I have none. My only passion is science, astronomy. Like a jealous wife, it expects a man to give all of himself. It forgives no neglect, even the slightest. It takes an awful revenge: It leaves you and cannot be persuaded to return. That is why I have no hobbies. My friends tell me that I miss a great deal, and I agree. But my four children, two sons and two daughters, share my feeling. Two of them are enthusiastic mathematicians, and the other two no less enthusiastic physicists. The only follower of the humanities in our family is my wife—Vera Ambartsumyan. She teaches English. I owe it to her that I was able to read my papers in the United States and Britain in English. Although she refuses to become reconciled to my barbarous pronunciation, as she describes it."

"And the last question, one of those answered by students in a recent questionnaire. What seven articles, most typical of modern Armenia, would you bury in a capsule to be opened in the year 2000?"

"I would choose an artificial ruby for the laser produced at our plants; a synthetic diamond; one of the semiconductor elements; a bottle of Dvin brandy (brandy improves with age); a small cube of the crystal Academician Manvelyan obtained from Armenian rock; the photograph of the spectrum of a galaxy 300 million light years away, recently obtained at the Byurakan Observatory; a book on the history of the rebirth of the Armenian nation since the founding of the Armenian Soviet Socialist Republic."

These galaxies in the Andromeda and Sombrero nebulae in the constellation of Canes Venatici were photographed by two research workers at Byurakan Observatory.

ABOUT THE UNIVERSI

By Alk Markoryan
and Samvel Kosyan
Journalism Students
and Gevork Arakelyan
Physics Student

WE THREE are students at Yerevan State University. We were responsible for the "Armenia Today" poll. You have probably noticed by this time that for us Armenians everything is either the "oldest" or the "newest" or at the very least "the world's one and only." So right from the start let us inform you that our Yerevan University is the oldest, the newest and the world's one and only, all wrapped up in the same package.

It is the oldest because we maintain that our university is the direct descendant of Armenia's tenth century Anii, thirteenth century Gladzor, and fourteenth century Tatev monastery universities. And speaking of monasteries, it is interesting to note that even the term "dean" is of monastic origin; it was the title given the leader of 10 "student" monks. Our rector, historian Minas Nazaryan, leads not 10 but 10,000—more precisely 10,642—students, although he does have to share his power with student self-govern ment.

But the monastery parallel stops there. None of us are monks. For evidence of that fact we always cite our philosophy department, which has the smallest student body but holds an unbeaten record over the years for married couples. All the other departments can do is get wedded to the sciences or to the arts.

We have 11 departments in all: physics, mechanics and mathematics, biology, geography, geology, chemistry, philology, history, economics, commodity marketing analyses and trade economics.

This list alone justifies our claim to being the newest university if we need any other justification than chronology. For nearly 600 years Armenia had no university until ours was founded in January 1921, a month after it became a Soviet republic.

And why the world's one and only? Well, because it is the one and only university where the teaching is done in Armenian.

Our university opened in 1922 with a student body of 470 and two departments—in the technical and social sciences. Subsequently these departments split into separate, independent colleges. The Polytechnic College and the Medical College are two examples. These offspring of ours are now our biggest sports competitors.

But we manage to keep the university colors flying high. Our soccer team is Yerevan's best, and our basketball team Armenia's best. Our chess players captured all three first places in the USSR Student Chess Tournament. Our variety band is also one of the leading university ensembles. It has toured nearly all the Soviet republics and has brought back seven prizes from seven trips abroad. And our chorus . . . but haven't you heard that "when an Armenian starts bragging, he stops only on top of Mt. Ararat?"

Though our students have a multitude of interests, central is, of course, the interest that brought us all together. "Liye and learn" is a maxim the freshman recollects only during semester exams in January and June. But he soon gets down to business and realizes that he is no longer a schoolboy who is taught but a student who must teach himself.

"Think about it yourself even if Einstein thought about it before you" is the motto of sophomores in the mechanics and mathematics department. Third-year students, being a bit more knowledgeable, are not so cocky. However, they draw inspiration from the fact that their university has trained such celebrated physicists, astrophysicists and mathematicians as Victor Ambartsumyan, Vladimir Alikhanyan and Sergei Mergelyan—whose lectures can be heard in simultaneous Russian and English translation in the big assembly hall.

Although the teaching is done in Armenian —96 per cent of the student body are Armenians—you can hear English, French and Arabic spoken in classrooms and corridors. This year we have 500 Armenian students from abroad who, besides taking the usual university courses will be traveling through Armenia and the Soviet Union.

We natives also get around. Our Student Council arranges trips to the other Soviet republics—the Ukraine, Lithuania, Latvia and the Central Asian Republics. We learn a lot on these trips, get new insights and discover capacities that the university campus did not bring to light.

Boys and girls our age in other countries who know little more about the Soviet Union than that we have balalaikas and sputniks should come along and see for themselves how much is squeezed in between the two. Indeed, traveling confirms one more Armenian proverb which goes something like: "One look at Lake Sevan even in bad weather will tell you more than a hundred recitations of how beautiful it is," the Armenian for "Seeing is believing," of course.

Student life itself answers many of the questions foreigners studying at our university ask. University democracy? Become active in the Student Council or the trade union. Want to do research on your own? Join the student science society. Its 1,700 members—so far—have to their credit some 300 projects that industry has applied.

The fact is though that we bump into our foreign students not at sessions of the Student Council which are grappling with such major problems as the building of a sports field, for example, but in and around the biology department, making arrangements for dances. The prettiest girls on the campus are biologists. Girls comprise half our student body, so the unmonkish disposition of our philosophy students is understandable.

But we do not always understand the disposition of the girls themselves, who seek to learn professions which we think are for men only. We mean computer programmers, astrophysicists and econometricians. Over the past three years, in response to industrial needs, the university has opened seven new subdepartments in computers, astrophysics, semiconductors, and so on. The girls have "grabbed"—after competitive exams, of course —nearly half the places. And they talk of the "timid submissive Armenian woman"!

Like many other old myths and customs, that one is disappearing. It was Vergil who retold the old Armenian legend of the turbulent Araxes which, brooking no interference, smashes all bridges on its way. The legend went on to say that anyone who tamed Araxes would be able to foresee the future. Today this river, like many others in the republic, has been tamed. As for us students, we have reinterpreted the old legend, and at the popular student café Araxes, where we traditionally celebrate all special events—from passing exams to getting married—we clink our glasses to past, present and future.

We have heard that there is a café by the same name, Araxes, in Fresno in the USA. If you happen to be there, please raise your glass to the same three toasts, but mostly to the future. Because after all, the future, child of past and present, is the most important time for us. We look at the past with respect, at the present with confidence, and to the future with hope. We who are 20 today will be helping to shape it.

natural wealth, but for its living conditions and modern amenities.

Beyond Siberia is the Soviet Far East. When I first arrived at Komsomolsk-on-Amur by boat (there was no railway line in those days), its builders, half-grown youngsters, were erecting stone factory shops some distance from the river. Meanwhile they were living in shabby cottages on the bank of the Amur. The cottages were inherited from the village of Permskoye. The fire brigade was using the belfry of a wooden church as a fire tower. Today Komsomolsk-on-Amur has a population of 200,000, and its libraries shelve one million volumes.

When I first came to Sakhalin Island, oil derricks were already shooting up in Okha, but in Doue coal was mined by a Japanese firm. The southern part of the island was never Japanese really. Today in the northern part the forest of oil derricks looks denser than the surrounding taiga. Okha people pulled down their scurvy hospital; in the last 30 years there hasn't been a single case.

The master of the ship which took us into Nagayevo Harbor, to the newborn city of Magadan, was using sailing directions which read in part: "In Nagayevo Harbor there are no houses, settlements or even single nomad tents." Today Magadan has 60 miles of modern paved streets.

I made frequent returns to this territory, my beloved Far East. I was there only a short while ago.

Petropavlovsk-Kamchatski. Strange to say, the gay embankment of this port on a sunny summer day reminded me more of Yalta than of Vladivostok. A bit of an exaggeration, perhaps, but permissible because the contrast with the past is so striking. A refrigerator-trawler was berthed alongside the embankment. In the charthouse I saw an instrument which plotted on paper tape the contour of a school of nearby fish.

I did not go to the Kuriles by boat. I took a plane instead to get a bird's-eye view of the volcano craters. Nor did I explore on foot the Valley of Geysers, where boiling water breaks through to the surface. I flew in a helicopter over the taiga and watched the wild bears, frightened by the roar of the engine, running off in all directions.

On several occasions I traveled via Leningrad to Murmansk, beyond the Arctic Circle. I first went to the Kola Peninsula in 1926, when I was a college freshman. It was untrodden territory then. You would meet Saami people (they used to be called Lopars), dressed in furs, journeying through the wilderness in reindeer-drawn sledges. Once a team of reindeer brought me to a Lopar village. I went into a log cabin and saw a woman sitting by the fire with a naked baby in her arms. It was a scene from Hans Andersen. The cabin had no chimney, and the smoke made my eyes smart.

Murmansk, which had been founded a short while before, was a very small place. There was not a single structure you could call a house. People lived in wooden huts with semicircular iron roofs. The saying: "It is only two steps from Kola to the inferno" was still in circulation.

My second visit to the Kola Peninsula was in 1931. Murmansk had spread out; there were quite a number of wooden houses. The Saami were settling down, giving up their nomadic ways. In the midst of the rocky hills a town of log houses, Khibinogorsk, had grown up near a new mine in Umptek Valley. In Saami Umptek means "doubly inaccessible." But nature still had the upper hand. I remember losing my way in a blizzard on the town's main street.

Today Murmansk on the Kola Peninsula is a modern city with broad asphalt-covered streets lined with trees. A fishing fleet of more than 200 ships is based in the port. The city has good trolley bus service, a puppet theater and a larger population than Iceland. TV broadcasts reach not only the city, but the nearby settlements and the coastal fishing vessels. Khibinogorsk has been renamed Kirovsk. It has become a world center for mining the raw material for phosphate fertilizer. Research institutes have been set up in the region to study the ocean bed and the Aurora Borealis. A tidal power station is under construction. The urban population is 95 per cent of the total. The Kola Peninsula publishes a dozen dailies.

Arctic farming has been making headway. During the long polar nights the hens are kept in warm, electric-lighted coops. They are being conditioned to 18- instead of 24-hour days and are laying more eggs.

The living conditions of the Saami are not much different from conditions in the central regions. But the Saami are not a striking example because they live near big towns and railway lines. Even in remote Evenki each inhabitant saw an average of 43 feature films in 1963.

Murmansk is a wonderful region, and it would not be wrong to say that it has been built anew.

Northernmost point. The northernmost point of the Soviet mainland is on the coast of the Taimyr Peninsula close to Cape Chelyuskin. I saw it, but my intention was to reach the northernmost point of the Soviet sector in the Arctic. In August 1954 there was a functioning research station on the North Pole (North Pole 3), and I was flown there from Moscow. We crossed the 600-mile expanse of the Arctic Ocean to the dark tents on the snow-white ice-floe in the middle of the sea. The narrow, short landing strip was strewn with sharp ice splinters. On the right side flags marked the margin of the strip, on the left was a dark **polynia** (unfrozen patch of water), and very close ahead was a ridge of ice. We landed.

On the floe there was a clubhouse—"ward room" in the local lingo—with a piano. Stuck on the wall next to the bookshelves was an order a wall newspaper and a chess tournament chart. The order, signed by the expedition head A. F. Tryoshnikov, read in part: "Unorganized chasing of polar bears not allowed."

These exciting eyewitness experiences give me at least some understanding of the problems of Arctic exploration and reclaiming the Far North.

Lomonosov said in the eighteenth century: "Russia's future will arise from Siberia." This quotation from his work has been inscribed on the walls of the Siberian Branch of the USSR Academy of Sciences in Novosibirsk. But he has not been quoted in full. He said: "Russia's future will arise from Siberia and the Arctic Ocean."

I like Central Asia more than any other part of the USSR because I have not only literary, but cherished personal memories of the region. In my youth I went to Central Asia on geographical and mountain-climbing expeditions. It is an enchanting world of unending torrid desert and high ice-capped mountain, a world of ancient oriental cities like Bagdad of the Arabian Nights. There on the heights of the Pamir and Tien-Shan I first faced the formidable dangers of which there are many in the life of a wanderer. One night I slipped into a deep crack in the glacier but was saved in some miraculous way. I was taken prisoner by a Basmatch counterrevolutionary robber gang, but I managed to escape on horseback. After graduating from an institute in my native Moscow, I went to work in Tashkent. There in my wanderings I met the person from whom I have have not parted for 30 years. To use the words of the poet Tyutchev, Central Asia for me is a land "of the great festival of splendid youth."

Only a short while before my first visit there, Central Asia had been a colony. Gradually the traces of exotic but miserable and suffering Bagdad began to vanish.

Today Central Asia has its own academies of sciences, and the products of its manufacturing industries are sold in most countries of the world.

In a land where the fields were watered from earthen jugs attached to creaking wooden wheels, in a land where half-naked scabby dervishes used to wander through the bazaars, modern industrial complexes have been built and dozens of higher-educational institutions opened. Illiteracy has been wiped out. The airlines carry as much freight as those of West Europe. New highways with tunnels thread through the high mountains. Cities have risen in reclaimed desert.

When I first came to Central Asia, it was a cotton-growing country. Then it became a cotton-processing and ore-extracting country. And now I see its industrial future: Cheap electricity generated by its hydraulic power stations and cheap natural gas will turn Cen-

tral Asia into a land of modern power-consuming industries, just like Siberia. In Tajikistan, for instance, the 2.7-million-kilowatt Nurek Dam. Regar with its aluminum plants and Yavan with its electrochemical works are nearing completion.

It is not easy to reclaim a sandy wilderness and rocky mountain where a water shortage and intense heat are serious problems. The proportion of rural population is still large as compared to the urban. There has been an overemphasis on heavy industry, and the light industries have suffered. The engineering industries are still lagging behind. The economy is not yet balanced. Hand labor is still used in the cotton fields. There has been too much standardization in housing construction and not enough consideration given to natural conditions. A hot climate calls for higher ceilings, fewer stories, plenty of shade trees and, strange though it may seem, windows facing the south: At noon the direct sun will not glare into the room. Many of the survivals of the past still persist. Consider: Central Asia has been Soviet for 50 years; only a hundred years ago Tashkent had a slave market. This alone shows the rapid progress the country has made and under what circumstances.

To give you an idea of Central Asia today, here is one of my own experiences. About 10 years ago a small plane was hovering over the Kara-Kum Desert. It was carrying a team of economists and architects. I happened to be with them. The team was selecting a site for a new town. The plane was tearing over the sand hills and the ruins of the ancient fortresses of Khorezm. From the air I identified the mausoleum of a queen who lived long ago. Its stone slabs had an Arabic inscription which read: "Life is beautiful. Too bad it is not everlasting."

Then we landed on a flat **takyr.** The builders got out and walked about a bit. Then the construction head stamped his foot as if to say, this is where the new town will be.

Southernmost point. It is the Turkmen village of Childukhter near Kushka, on the same latitude as Algeria and Syria.

In clear weather I saw the snow-capped peaks of the Afghan mountain range Paropamsus. Through air shimmering with heat I looked at the hills of sand covered with groves of pistachio trees.

The township, with the old wall of the fortress, is situated on a gentle slope. The valley is farther away, in the immediate proximity of the frontier. There it takes the shape of a shallow gorge.

I learned about Kushka from the story told by the writer Pyotr Pavlenko and from his book **Trip to Turkmenistan.** His description reads: "From the mountains and the Kazachi Pass it looks like a heap of white apples with pink and reddish spots, packed in green shavings."

Kushka became livelier when the Afghans, with Soviet assistance, built a 450-mile highway from Kushka to Herat and Kandahar through mountain and desert. From Afghanistan the trucks carry wool, nuts, figs and pomegranate juice and from us—tractors, cement and machinery. New pistachio groves have been planted near Kushka. Quite recently a prospecting party found rich deposits of natural gas. The township began to grow fast, fast enough to need a wide-screen movie house.

Central Russia is my native region. For the last half-century I have lived there, in the heart of the country.

People come from all corners of the world to see the new Moscow. I remember the old Moscow, so I can compare the two. I grew up in Moscow in a small log house with no running water or sewage facilities. And the house was not on the outskirts; it was at Vysoki Bridge in the Garden Circle, which is now considered part of the city center.

Moscow is my home, and I remember the Kremlin as long as I remember myself. When Mother first took me to the Kremlin, I was five years old. In the Red Square near the Spasskaya Tower gate the policeman motioned to me to take my cap off: It was wrong to go through the gate with your head covered.

In those days the square was paved with cobblestone, and there was a street car line on it. It was Eastertide, and there was a bazaar for the occasion. At the Kremlin wall people were selling velvet devils, sea animals, whistles and other such items.

Much time has passed. Russia lived through great years and survived the peril. I lived through those same years.

I remember the roar of cannon in October 1917. A battery was firing at military school cadets who had taken up positions in the Kremlin. The battery positions were on a hill dominating the Yauza River, close to Andronyevski Monastery. The window panes were jarring sadly. Daddy did not come home for several nights; he was a company feldsher and was dressing the wounded somewhere on the approaches to the Kremlin.

Once Father took me to the Red Square, hoping to see Lenin addressing a rally. But I saw him later, when he was no longer alive, in the terrible winter of 1924. As you walked, the snow creaked under your feet in the square. The biting wind tore the breath out of your mouth. I remember the white vapor rising over the helmets of the Red Army men. I remember the red buttonhole strips on their greatcoats. It was the day Lenin was buried. The tomb was made of wood then.

On November 7, the anniversary of the Revolution, and on May Day I marched through Red Square, at first in the schoolchildren's and later in the students' column. I saw the first Soviet-built truck and tractor there.

I was there the evening of May 9, 1945, V-Day. The blue beams of searchlights tied the ground to the sky. Multicolored stars showered down. A thousand-gun salvo roared out. I watched strangers hug each other. It was the end of a war which had taken 20 million Soviet lives, among them some of my close friends and relatives.

Finally we moved from our dilapidated house to a new one on the other bank of Moscow River, on Lenin Hills, in the new southwestern district. This is a brand-new part of the city built on an empty plateau, the remains of a pre-glacial hill sliced off by the flowing river. It already has three-quarters of a million inhabitants.

The huge university complex is not far off. My daughter would run to her classes every morning, and I would watch her from my sixth-floor window.

Easternmost point. I had not seen the Chukchi Peninsula before 1965. The pattern of my book forced me to go there and to try to reach the easternmost point of the USSR, beyond Cape Dezhnev.

The Moscow-Anadyr flight is nothing unusual. It is on regular schedule, and the flight number is 1263. But in a way it is enchanting, absolutely. I do not know whether there is another such flight in the world. Perhaps there is to Terra del Fuego.

You are airborne for nearly 16 hours. You take off from Sheremetyevo Airport in the daytime. And it never grows dark. But somewhere, in the proximity of the East Siberian Sea, the crew is relieved, and the new stewardess greets you with a "good morning."

Personally I thought it was getting late. There is a 10-hour difference between Moscow and Anadyr.

The route passes along the northern coast of Siberia. Down below, the greenish-brown tundra with its endless number of lakes alternates with the Arctic Ocean and its floating icebergs and floes. In the sky you are accompanied by the never-setting sun haloed in enamel. We landed on fields which I had only yesterday thought inaccessible. The estuary of the Kolyma or the Indigirka welcomed us with fluffy tassels of white flowers we had never seen before.

We changed planes at Anadyr. In flight we crossed the 180-degree meridian, and east longtitude changed to west. We landed between two hills in a murky, misty rain. There, in that farthest away of places, I saw a new town with multistory buildings.

A collier took me to Uelen Island. The seals displayed their whiskers on top of the water, and you could see the shale spouts.

Chukchi Peninsula is as big as France, with enough space left over to accommodate England too. The bare hills stretch over a vast expanse of land until they break off abruptly at the sea to form fjords. In the beauty of the Chukchi Peninsula there is the charm of restraint, as in the valleys of the Pamir highlands. Perhaps there is something common in

this beauty with the smooth virgin wall of an old cathedral in Pskov.

A helicopter hovered over a reindeer herd. A tattooed Eskimo was carrying a Spidola transistor set. Some of the mines are worked with automatic equipment, and an atomic power station is under construction.

On the beach of Uelen Island you see whale ribs and vertebrae lying around. In the settlement is a bone-cutting handicraft shop with a notice board: "Northern Souvenirs." It looks like a dentist's office. From walrus tusks craftsmen carve figures of animals, models of ships and, if you ask them kindly, a forgotten Eskimo totem. What tools do they use? A buzzing dentist's drill.

A patrol vessel came for me during a storm. The rollers were too high for a motor boat to come alongside. So the men launched an inflated pontoon with a line attached, which immediately struck ground. They put an orange Mae West life vest on me, just in case. The color stood out against the blue water. I recalled that Italian road workers wore orange jackets when repairing super highways, a safety-engineering requirement.

As I was hauled in against the breakers, the towing line snapped, the pontoon began to whirl and scooped water. Finally they fished me out, and I climbed aboard by the storm ladder.

We arrived at Cape Dezhnev. There were patches of snow—as white as ermine—on the rock. Through my binoculars I could clearly see an obelisk with the bronze, bearded face of a Siberian Cossack. There is a metal plaque, which, I know, bears this inscription: "S. I. Dezhnev in 1648 was the first to discover and navigate the strait separating Asia and America."

The vessel headed eastward across the Bering Strait. It was rolling heavily. A black island dived out of the waves, a flat surface with steep edges. From that surface towered a bare, wind-beaten, oblique peak. To me the island looked like a huge grand piano standing in the sea with its lid open.

At the foot of the rock the rollers foamed into spray. The craft approached the shore with difficulty. All I could see were remnants of rock, moss and overhanging cliff.

Beyond the crest of Ratmanov Island, close in sight—only two and a half miles away—was a neighboring island—Krusenstern Island, which is United States soil. I could see a few houses and a mast. On our island it was July 24, but over there across the International Date Line it was still July 23.

Farther east through the mist you could make out the heavy silhouette of the Alaskan mainland.

On the cliff of Ratmanov Island was a red and green frontier post which marked the easternmost point of the Soviet Union.

I turned my eyes west, just as I had turned them east on the sand spit in the Baltic. There lay my country.

Courtesy of Novy Mir

NEXT ISSUE

An illustrated armchair voyage along the Pechora, a far northern river that cuts through dense primeval forest to flow into the Arctic Ocean. A group of photo stories about salmon poachers, hereditary lumberjacks and raftsmen, and fascinating century-old traditions and customs that are still very much part of a remote but no longer isolated area in the Soviet Union that is becoming industrialized.

An analysis in depth of *Crime and Punishment* on the centenary of publication of the Dostoyevsky classic. The critical essay, by Yuri Karyakin, begins with a biographical background; Dostoyevsky's financial difficulties, his personal relations, Balzac's influence. Among other things, the essay evaluates the book's emphasis on "arithmetic" and human relations, Dostoyevsky's realism, his search for an alternative for the biblical future. It also comments on "A Duel Between Marx and Dostoyevsky," an article by the writer Alberto Moravia.

Other articles in the April issue:

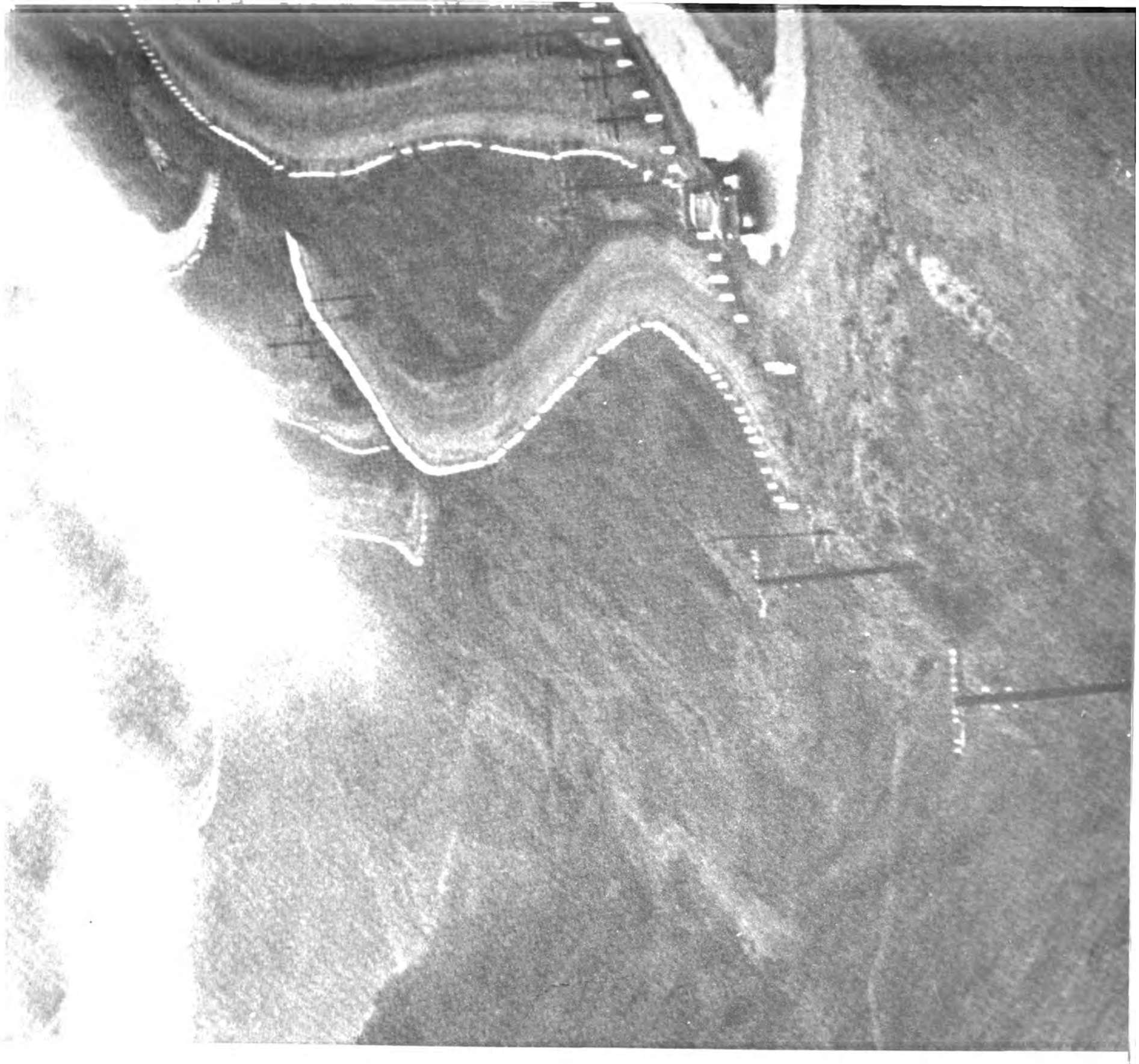
Tyumen has been in the Soviet economic spotlight ever since oil fields were discovered under the tundra and marshland of this sparsely inhabited region. A photo story of the prospectors who locate the gushers and the men who extract the oil in this cold, gnat-ridden part of Western Siberia.

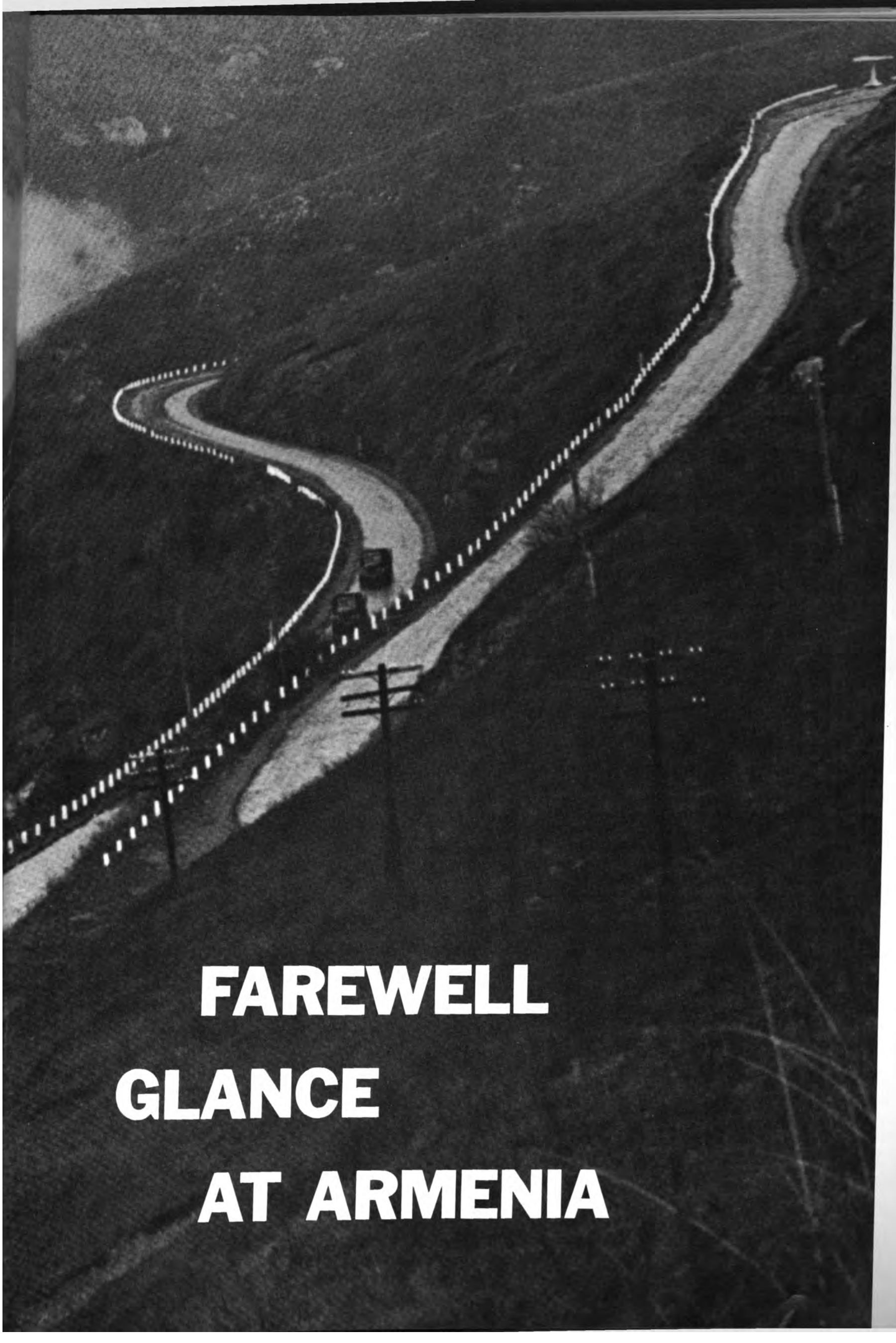
Franklin Folsom, American writer of books for children, wrote *The Soviet Union: A View from Within* after an extended visit to the USSR. It was published in the United States. Teenagers in a Moscow secondary school read the book and offer their view from within in this uninhibited article.

Amber is the fossilized resin of conifers, scientifically speaking. Amber is also the source of legends, Homer spoke of its beauty. A fascinating history, scientific and legendary, of this glowing crystal found on the shores of the Baltic, and photos of the jewelry and sculpture that it makes.

COMING SOON

A series of articles on Marxism today.
Life in the old Russian city of Novgorod.

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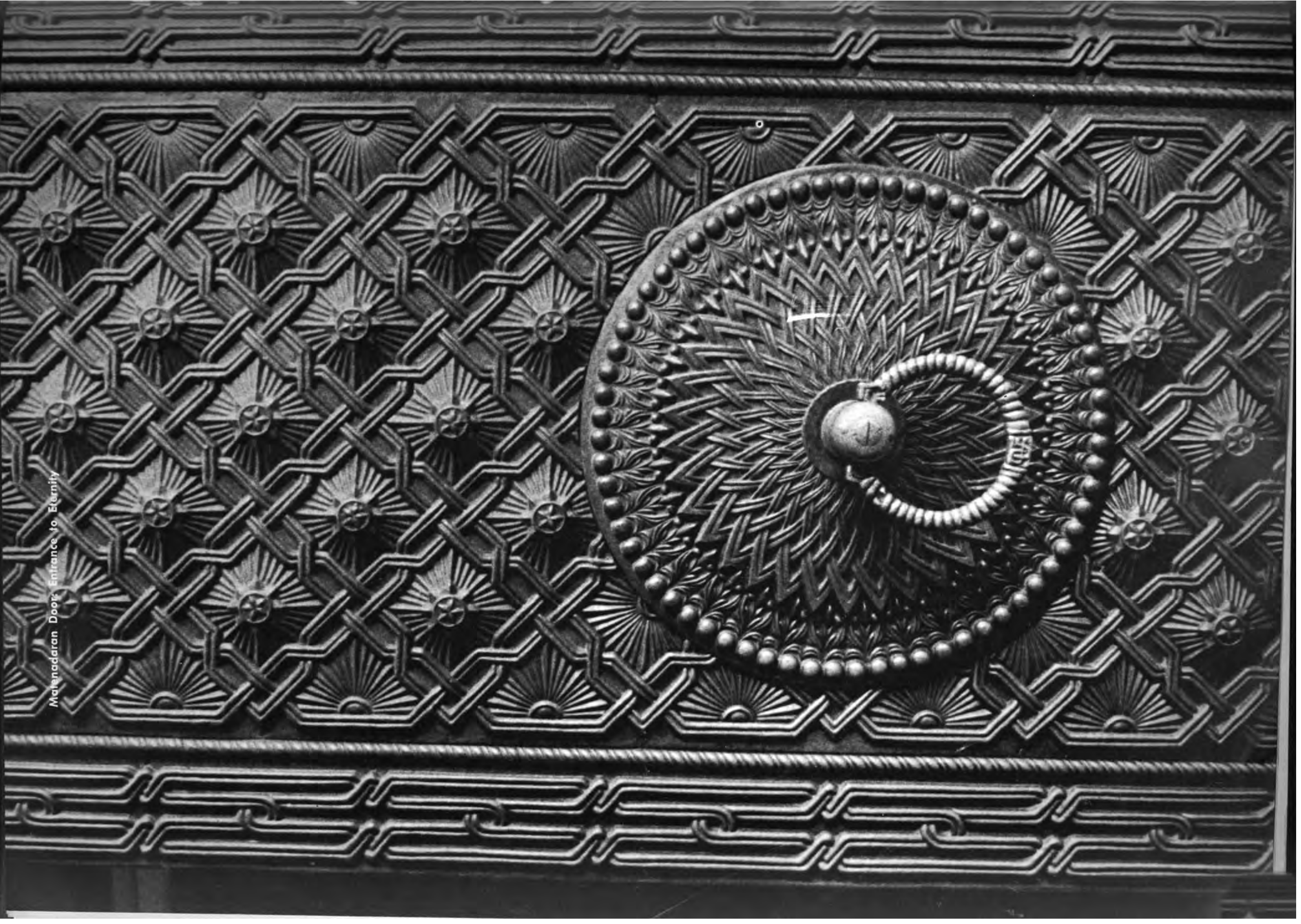

Mahanadaran Door, Entrance to Eternity

SOVIET LIFE

April 1968 • 35 cents

GORKY MEETS MARK TWAIN

4-H'ERS TOUR RUSSIA

What is this thing called spring?

Spring comes with the slow drip of wet snow from the silver birches, the buds beginning to form, the bare earth turning grass-green. In the crisp, transparent air treetops, roofs and shadows of passers-by seem to pulsate. By an unwritten law of which poets keep reminding us, this is the season when a young man's fancy turns to thoughts of love. But for many of us who are not so young it brings an occasional melancholy too. Perhaps because we must look at so much of this resurrection from inside. The wind is still too strong, the air too sharp, and our daily cares, come any season, too much with us.

They had skied in that same patch of woods last winter. She had been delighted to find the very silver birch they had rested under then.

After a walk in the woods it was good getting back to town. This lovely spring day even the sameness of the housing blocks was good to look at.

They stopped in the first café they came to with music. The band was playing tunes of the twenties, pleasantly sad. This time she made him dance, and he hardly missed a step.

Then they sat quiet for a while, sipping their coffee. She didn't mind when there was a gap in the talk. Nor did he. He wasn't bored, she knew; he liked looking at her face across the table.

They took a taxi back. It smelled springy even in the taxi. They talked about a car of their own. She liked the idea, to get out to the country more. He thought it would be a headache.

This time, somehow, she didn't mind when he said goodby. He had to visit relatives in the suburbs. She almost wanted to be alone. It had been a wonderful day, and she wanted to think about it.

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FRONT COVER: Dressed for the *gorka*, a 450-year-old song and dance performance that has become traditional in Ust-Tsilma.

See story on page 34.

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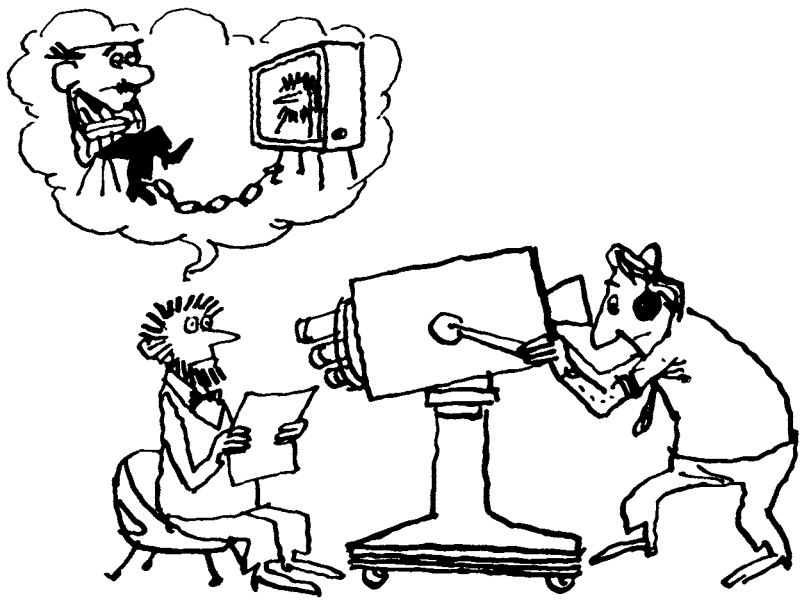
COLLAPSE OF A PHANTOM

By ALEXANDER RUDENKO
Film Critic

TO EQUATE prejudice with ignorance is an oversimplification.

Many years ago I met a brilliant student and lover of art. As we talked, he said casually: "I must confess, I've never seen a movie."

Several days ago I met a young philosopher. The range of his interests is vast, and yet he told me: "Television? I never watch it." And there was a note of pride in his voice.



A Prejudice Defying Progress

The first automobile was the butt of lavish witticisms. But then people began to take it seriously. The first airplane evoked fear. But this too passed with time and experience. It seems to be much more difficult to eradicate the snobbish attitude of some intellectuals toward television. The more widespread television viewing became, the more it was associated with a stick-at-home illuminated by an eerie bluish light, ridiculous bedroom slippers dangling from his feet. The "typical televiewer" was pictured swallowing, along with his sandwich, space exploration news, Shakespeare, fashions, boxing, detective mysteries, and anything else that flashed on the screen. What he watched presumably made no difference; the important thing was watching. This individual has been defined as a "TV idiot," and the young philosopher was perhaps afraid of being put into that category.

I would not say that there is not an iota of truth in this notion. The delivery of information and plays at home must have encouraged passive contemplation in many. On the other hand, there were surely people disinclined to encumber their leisure with Dostoyevsky, Beethoven or Rembrandt long before the advent of television. For these people the television screen provided a beautiful opportunity for a pastime with a minimum expenditure of spiritual and physical energy. In other words, what TV perhaps did was to encourage a tendency already in existence.

I am not saying that television has never undermined the determination of even the most resolute soul. I doubt that there is anyone who has not experienced the hypnotic power of the home screen. A click of the knob, and a book remains unread, an interesting meeting is put off, a conversation flags to monosyllables.

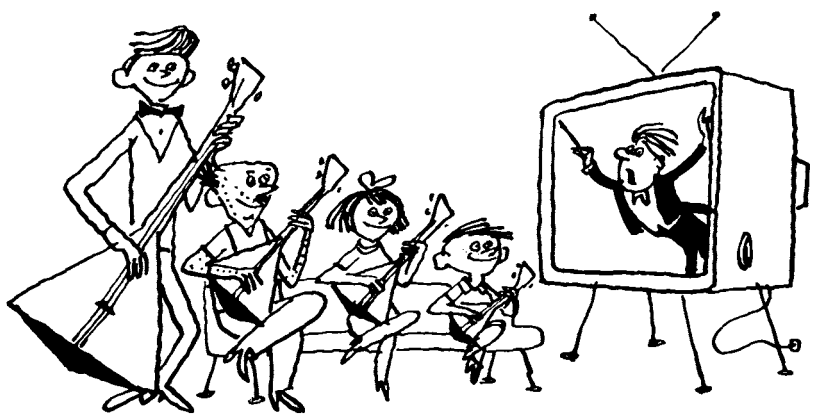
Still there is a definite development which cannot be passed in silence. In my professional capacity I regularly view the programs of our central television studio. I think that the progress is unmistakable. The programs are more interesting, and their intellectual level keeps rising. Can we conclude from this that TV is gaining larger audiences and that the number of people spending all their leisure in front of the TV screen may become alarmingly large?

It doesn't seem to work that way. In Moscow there has been a growing interest in the theater. To get a ticket for any of the good plays is a problem even for newsmen. The reading rooms of libraries are over-

crowded evenings, and the lines of people waiting to see the first-rate movies stretch around the block.

Our polls indicate that the same people who are interested in the theater, books and movies also spend much time watching television, yet the TV viewer with dangling bedroom slippers is still goggling from the pages of humor magazines. I am the last one to deny the existence of TV addicts. But I do think it is high time to make a critical appraisal of the sinister legend about TV addiction.

In every field there may be phantoms. The phantom of the TV addict incapable of moving away from the set is dangerous for many reasons. To begin with, it may influence the quality of a TV script writer's work. "Well, I know the kind of people who will watch it!" The phantom scares away creative talent and we find that the TV script writer problem is quite acute. A well-known actor confessed: "I often lack confidence in front of the TV camera. I get the feeling that I am just an intruder. The family is drinking tea or discussing the color of wallpaper, and in I come. If they want to, they listen to me, and if they don't, they just turn the sound off, and here I am silently opening and closing my mouth like a fish dragged ashore."



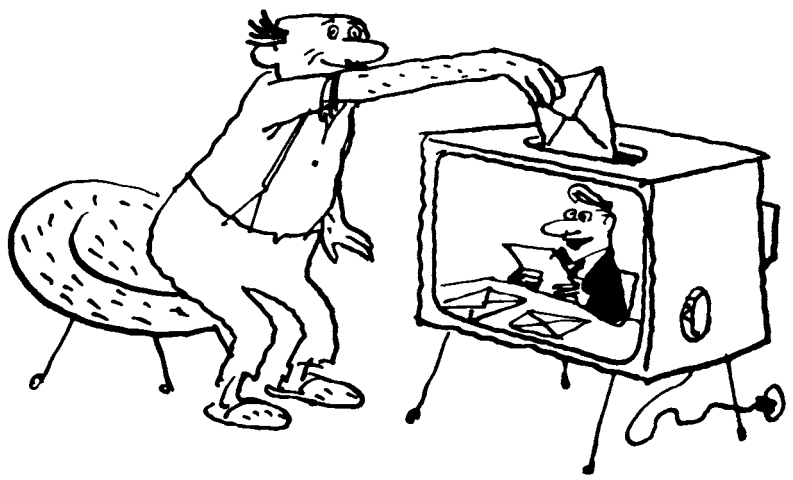
Bedroom Slippers Versus Shining Armor

I think that the following statement made by a colleague of mine in the newspaper *Sovetskaya Kultura* is sensible. He noted that formal dress is not necessary for a rendezvous with truth, and today one need not be clad in shining armor to fight for his ideals.

Reporter Rein Karemee of the Estonian television network regards journalism as above all a social mission. Karemee presented a telecast entitled "worker or pupil?" in which the problems of school education were discussed with frankness and vision. Not too long ago our educators advanced the theory of combining academic studies with training in industrial skills. As is clear from the title of the telecast, its author criticized the scheme and argued that the "double duty" was good neither for study nor for production. The program caused a stir throughout Estonia. It was approved by wide sections of the public and worked havoc in the ranks of educational casuists.

Incidentally, the system against which the TV program was aimed has been abolished. While the program was not the only reason for it, it did play an important role since it gave expression to a widely held opinion on an important issue.

Such programs outline their presentation. They rely on emotional and intellectual civic awareness, and the Estonian TV reporter was hardly worried about the dress his viewers would be wearing in front of the TV screen.



To Enlighten While Amusing

While disuniting society into the cells of private apartments, television at the same time creates entirely new social relations. Thus, a peasant of a faraway Siberian village may be vibrantly aware of everything happening in the wide, wide world.

However, if on the screen the Siberian peasant views a pianist in a concert hall, this does not automatically imply that the owner of the TV set feels at home in the world of Scriabin and Debussy. At first he may not be able to enjoy such programs without the help of a book, perhaps, or a friend well-versed in music. Feature articles in the TV Program—"Music Kiosk,""Talks at the Piano" and "Music and Time"—provide expert guides through the world of music for the less experienced TV viewer.

The author Sergei Smirnov has produced a cycle of TV programs entitled "Stories of the Heroic." He is searching for people who displayed special heroism in World War II but for some reason remain unknown. Smirnov appeals to civic awareness, to the feeling of everyone's responsibility for the destiny of the world. Never forget the price of freedom won with courage and blood, he insists.

Tens of thousands of letters received by the central TV studio showed that the author's message was not in vain. Quite often Smirnov devotes part of a program to people who sent him recollections and stories about unknown heroes.

It is not only the heroic that is the subject of Smirnov's program. He likes to probe human dramas. The author's own example is a lesson in citizenship. Many a person has had his good name restored thanks to him. The war created such tragedy and confusion that sometimes the name of an honest and brave soldier would get into the list of cowards and traitors. Smirnov does not conceal the truth. He shows how hard it is to ferret out the truth sometimes and how important it is to persist until you get all the facts.

The central television studio devoted one of its programs to alcoholism. It dealt with the problems of the children of alcoholics, a schoolboy who cannot concentrate on his studies, a young woman whose family life is destroyed because of her husband's addiction to vodka, a court hearing depriving a drunkard of parental rights. The entire heartbreaking kaleidoscope was relentlessly recorded by the TV camera.

The authors of the program do not present a single fact whose objectivity can be doubted. However, they do not simply proclaim "objectivity above all." They show the price of your indifference to a drunken scene on a staircase, the result of your condescension toward a friend who likes to down a glass or two on some occasion—or without it, the inhumanity of ignoring the perpetual expression of fear and suspicion on the face of the little girl next door.

The program does not whisper words of consolation, nor is its purpose to intimidate. It simply robs you of complacency, prevents you from luxuriating in your own virtue at the sight of human degradation. This is a discussion of tragedies whose prevention can and must involve every TV viewer.

The program has been repeated several times at the TV viewers' requests. These requests are not like those asking for variety shows. In other words, bedroom slippers do not interfere with a great civic message.

"Horizon": The Frontier of Search

Sociological inquiries in Leningrad indicate that most TV viewers are young people. This upsets the customary notion that the home screen attracts mainly retired old men—or youngsters who would rather do anything than their lessons.

The Leningrad television studio has been preparing its program for young people more thoroughly, and the popularity of "Horizon," a TV program for young people, keeps growing. What are the subjects of "Horizon"? Here is one currently under discussion. What happens to the young specialist when he gets his degree? He has several jobs to choose from. But is this the only problem that confronts him? Does every graduate become a creative leader in his field and not simply a diligent worker? Does the bustle of daily life destroy his yearning for knowledge and self-improvement?

The young people at the narrator's desk are not afraid to grapple with ideas. They take seriously what is serious. Their discussion is intended for those who can think and analyze, not for those who are satisfied to rehash the obvious. Are all TV viewers capable of thinking and analyzing? We can all learn how, the program tells us.

"Horizon" sponsored something like a medieval tournament of poets except that the poetry recited was modern. Romance, originality, humor and imagination were the features of this tournament, and it was not difficult to imagine the typical viewer of the program.

Or here is a fellow in a rough sweater strumming his guitar and singing in undertones. Like his audience, he is not in the habit of shouting what he feels, and that is why he is singing in a soft, low voice, and television is an excellent medium for this kind of intimate mood.

And here is "Horizon" introducing you to the students who volunteered to build a railway during their vacation. They show a film they shot. Mud knee-deep, temperature 105 degrees, strenuous work. The difficulties are brushed aside. Young people hate high-flown words; they would laugh if they were called heroic.

This is just a sampling of the subject matter of "Horizon" and the difficulties the narrators, producers, editors and all others preparing every program have to deal with. Young people hate clichés, stilted repetitions, sentimentality. It is not easy to win over an audience of young people, but neither is it impossible.

It would be wrong to say that the whole credit for attracting the attention of young audiences belongs to "Horizon." There are many other programs that young people 20 to 25 years of age find stimulating. Among them is the Leningrad TV Theater, probably one of the best in the country. The TV viewer sees a drawing with a caption: "An Island," and the actors, without any props or makeup, develop the action. They rely on imagination, intelligence, humor; their art is full of controversial ideas; they are willing to take chances in order to provide serious food for thought. Their acting is not forgotten when the TV set is switched off. It is part of the general discussion about what young people discovering the world for themselves need more than anything else.

Granddad Shneiderov

In 1960 a graying bulky man appeared on the TV screens of Moscow and said in an unhurried leisurely voice: "We are about to begin the first meeting of the TV Travelers' Club."

Today the club gathers close to 70 million spectators. The programs are produced and moderated by Vladimir Shneiderov, a well-known science film director.

I have met Vladimir Shneiderov several times, though I would not say that I know him well. He has traveled all over the world, and his apartment looks like an ethnographic museum. However, he doesn't try to impress the viewers with his knowledge of the world, but rather inspires them with confidence in their ability to learn about it. Even the most timid ones begin to feel at home in the world through which he guides them. His kindness combines with irony, sometimes barely perceptible, and the conservatism of his judgments alternates with almost boyish inventiveness.

Here are notes from my pad.

Question: What would you say is unique about the TV Travelers' Club?

Answer: The fact that very many high school students are permanent correspondents. Seven years ago they called me Uncle Shneiderov; now they call me Granddad Shneiderov.

Question: What is the club's purpose?

Answer: We have a very poor knowledge of the earth and its treasures, its peoples and their customs. We also want to make the abstract notion of "motherland" more concrete. It's important for the individual to become conscious of his ties with his country. By getting to know more about every area of our planet, our viewers do not merely quench their thirst for knowledge. We hope that they will begin to realize that they are a part of mankind and are called upon to cherish and multiply the wealth of our earth. Accordingly, we are only satisfied with a script which can enhance the audience's respect for nature, for man's creative work and for every people, regardless of race or level of development.

* * *

The powerful mass medium called television is no longer a miracle. At present television is at a stage of intelligent interpretation and adjustment.

Here on my desk is a letter from a TV viewer. He is against filling the intermissions of a play with such things as sports, industrial and scientific news. He is not against this information in general, of course. The point he makes is that once an evening is devoted to a serious play, nothing should be allowed to interfere. He suggests that intermission time be spent in discussing the history of the theater, its actors and its plans.

The emergence of this type of TV viewer makes me optimistic. I am not idealizing the medium. But everyday facts persistently suggest that the sinister phantom of TV idiotism is vanishing.

Andrei Petrov: SONG MAKER

By Victor Bukhanov

ANYONE CALLED PETROV must do something really outstanding so that people won't have to ask "Which Petrov?" in a city where there are at least 40,000 people by that name.

Andrei Petrov is no longer confused with other Petrovs. His music is heard in concert halls and on the air, his ballets are staged at home and abroad, and his songs are sung in Vladivostok and Warsaw, Arkhangelsk and Sofia. His is now Chairman of the Board of Leningrad's Union of Composers.

Invitation to Art

The happiest people are those who find themselves early and whose life thereafter is one long fulfillment of a childhood aspiration. What explains it: tenacity? talent? a lucky coincidence?

Andrei Petrov has been living a dream he had when he was 14.

He returned to Leningrad after the evacuation. Ever since then the city has been associated for him with the dim light of an oil lamp on long winter evenings.

In Leningrad in 1944 Andrei went to the movies for the first time in his conscious life. The film was about Johann Strauss, and it decided what Andrei Petrov was going to do with his life. The boy got a glimpse into the laboratory of song making. True, it was a cheaply glamorized view, but at least he found out that music can not only be performed (he had played the violin before the war) but also composed.

He resumed playing the violin and tried to make up for neglecting the piano. He began to take lessons, working at a hectic pace. Then, by what he considers a small miracle, he passed the entrance exams for a music school which had a class in composition.

That was the end of his childhood and the beginning of nine years of study (including the conservatory) and attempts, successful and otherwise, at composition.

He was brimful of songs not yet composed, of still unformed music.

I Know That Tune

Two years ago I lived in Tallinn. All August was one unending rain. The sea was quiet, hazy. Mornings and evenings a little girl next door played a record, the same song from the film *Road to the Mooring*. Ship bells sounded in the song, a seaman whistled the refrain in a hollow fog, he sang that a "third must go."

At the time I did not know that it was Andrei Petrov's song. Now I can tell his songs from any other composer's; for me they are very special.

His colorful, flowing tunes can be compared (if people in both fields will allow me the comparison) with today's complex multistoried, yet light and soaring structures.

What is the source of his bold and intricate forms? Andrei Petrov also composes symphonies. What he achieves is a degree of mutual penetration: There is a song quality in his symphonies and a symphonic element in his songs.

Besides, Andrei told me, he now tries to get away from the primitive couplet form of the pop song, to make it sound more like a ballad or a classical song or even a finished musical scene, incorporating drama, poetic recital and pantomime.

"How would you say music is created? How much professionalism is involved in the process?"

"The creative process is essentially intuitive. But then the composer always has to fall back on ability and experience," said Andrei. "What you want to know is whether music can be 'invented,' 'calculated' by the laws of composition? No. The result will be dead music. It is true that if you have four bars, you can develop the next four analytically. Skill is necessary to shape what are essentially subconscious impulses. It's like playing chess: You can discover an effective move by intuition, but it takes a past master to develop it into a rounded game.

"The abstract birth of a melody is a rare thing with me. Most often my melody is born of an image and involves such seemingly irrelevant things as a color, a psychological quirk, or an unusual figure of speech."

"Can you tell in advance whether your song will be a hit?"

"No, never. The first time I heard somebody walking down Nevsky Prospect whistling my song, I stopped and thought: 'That sounds familiar.' Then I realized it was my song. I hadn't thought it would be sung in the streets like that."

Russian Twist

For all his partiality to the form, the young composer gives only part of his creative self to pop songs. The rest has been allocated up to now to three ballets, music for several films, concertos for voice and orchestra and art songs.

I heard his symphony cycle *The Song of Our Days* at Leningrad's House of Composers, a magnificent building whose walls, inlaid with special woods, are as sonorous as a cello.

It may be that I have too visual a perception of music, but anyway I was fascinated by Andrei Petrov's imagery. In the part "On the Storms" I heard a blizzard, revolutionary marches, spring coming and the juices in the earth and the trees, skies soaring upward and

torn asunder. In the fourth and fifth parts of the cycle, the surge of jubilant crowds streaked with dance and march bars was suddenly ripped open by air raids, and "there was only a handful of ashes where a hearth once stood."

I was also fascinated, though for a different reason, by his "Russian Twist." I had never thought that humor in music could provoke not simply smiles but frank robust laughter. And yet that humor was gentle, kind. It was a twist with a Russian shepherd's pipe and stringed balalaika, a twist of birch trees and of meadows, a twist like Russian whirl dances and tap dances, a twist of Russian *sarafan* skirts and bunting kerchiefs.

"How did you do it?"

Andrei laughed.

"Haven't you noticed how close modern twist rhythms are to those in our old *chastushka?*"

Walking Away from Success

By the fireplace at Composers' House I threw questions at him.

"Modern music," he said, "strikes me not so much as a search for new means of expression as a matter of selecting those which are most promising. I mean melody, harmony, polyphony, rhythm, orchestration. Each of these elements has almost limitless possibilities for development. It is time we thought of new fusions, for example, a fusion of opera and symphony instead of the traditional opera or a combination of opera and ballet, with contributions from radio and the movies as well."

Did he feel himself indebted to anyone? Andrei stopped to think. "I studied at a music school in what used to be someone's palace. Then I went to the Young Pioneer's House in which some aristocratic family once lived. And now I am working in a house which belonged to many titled personages. So I'd say I am indebted to those who won these palaces for the people in 1917. Otherwise I would probably not be what I am.

"I also owe a great deal to the Young Communist League. My YCL years were filled with interesting work, memorable impressions and talk. I learned then what was meant by a socially conscious attitude toward events and people. I have composed many songs about and for young people."

My last question:

"How do you feel about being so popular?"

"I suppose every artist needs applause; it expresses social recognition. But it is wrong to try to be popular with everybody. You must know for whom you are working. Besides, the greater the recognition, the greater the responsibility for subsequent works. The fact is that you are tempted to repeat what you have been applauded for. So you must have the courage to walk away from your success."

LETTERS TO THE EDITOR

YOUR ARTICLES

Gentlemen:

Today I was so fortunate as to come across the May '67 issue of your magazine, which at the time I must have been too busy to read. I have been so moved and touched by Yuri Bondarev's "Forgive Us" that I have read it twice, the second time aloud that I might see if it were truly as charming as I had thought on reading it to myself. It was, and I did not want tonight to pass without writing to congratulate you, and him, on it. One seldom finds a short story of such delicacy of feeling and told with such simplicity and sincerity. I put it down with the sense that Mr. Bondarev *must* have, himself, lived through this encounter.

And may I add that I thoroughly enjoy my subscription to SOVIET LIFE, which I have taken ever since I first heard of it, several years ago. It gives an excellent picture of life in the USSR in its text, and the photography is great.

Once again, my congratulations to Mr. Bondarev.

Your truly,
Mrs. Reginald Johnson
Pasadena, California

SOVIET UNION'S PART IN WORLD WAR II

Dear Sirs:

When I chanced to find a June copy of SOVIET LIFE on a newsstand I bought it and subscribed for the magazine immediately for fear I should not be able to find it everywhere. Every issue since has been a gem.

It is especially satisfying to see pictures and read the latest information about cities and places and palaces and rivers that I have known of and wondered about all my literate life. And, of course, I like to read of the people, to visit them in their homes and at their vacation places, to read the poetry; it is like meeting people one has admired from a distance for a long time and finding nothing to be disappointed in.

But most of all, the war and the Soviet Union's part in it grips my attention. Marshal Bagramyan's brief account was of great interest. I find myself returning often to the haunting picture on page 18 of the August issue—the foot soldier. The story of Leningrad (October) humbles the soul. They were not spared anything of misery or horror, neither the civilians, nor the soldiers, nor the partisans nor the prisoners of war. Yet, in the end, it was the Soviet peoples who destroyed the nazi evil.

Later, when grossly misunderstood, they did not whine; without help from more fortunate nations they pulled themselves up by their own bootstraps and set about rebuilding their ruined cities and ravaged lands and shattered lives.

How well they succeeded, all the world knows. Surely, the living peoples, their achievements, are the most fitting memorial to the 20 millions of gallant dead. . . .

Sincerely yours,
Mrs. R. W. Baird
New Orleans, Louisiana

COMMENT ON LENINGRAD ISSUE

Dear Editor:

A Leningrader, I particularly liked your October 1967 issue. It had excellent photos, but you should also have featured diagrams showing how our city's housing and our clubs, libraries and children's institutions looked in 1913 and 1967.

I know that Western newspapers often carry articles saying that Leningrad was one of the most beautiful cities in the world but that the Bolsheviks have neglected its magnificent monuments of architecture so much that they are getting ruined and that the new buildings are ugly box-like structures. Old photos from the collection of N. S. Tagrin and modern pictures of the same places would have shown that the city is becoming more beautiful than ever.

On page 29 you had a schematic map of Leningrad. But it did not show clearly enough which neighborhoods were there before 1917, which were built between 1917 and 1927, 1927 and 1937, etc. (decade by decade) and which are to be built in 1967-1977, 1977-1987, etc.

Just think of the number of picturesque parts of the city you did not show — Petrogradskaya Storona, Tchaikovsky Street and a number of the new districts.

You did not say enough about how Leningraders spend their leisure time. Your readers, I think, would probably like to see an article about a café, a youth club and a dance hall. Also more interviews, not only with prominent personalities, but with rank-and-file persons. For instance, a photo story about a rank-and-file factory worker, salesgirl, nurse, etc. The person in question should be a Leningrader by birth, one who has lived and worked in Leningrad all his life. Describe how he lives: Show his apartment, budget, recreation, hobbies.

However, even the things that you did show give one a good idea of Leningrad. It was a great pleasure to read the issue.

Sincerely yours,
Vadim Bystrov
Vasilievsky Island
Leningrad

NEW MAN IN THE MAKING

Dear Editor:

From time immemorial man has dreamed of developing the best within man. The caveman strove to make a better cave; the American Indians better tepees; while the early Americans settlers wanted to build better log cabins.

Cities and villages were built and the countryside developed. Then man realized that his work was not the best within man, for contradictions marred his creation with exploitation of man by man, ignorance, poverty and war. Man needed to find a better way to build.

It was at this time that Vladimir Lenin came to backward Russia with the better way—the creation of the New Man—the New Way of Life—unshackled from the traditions of the past and free to develop the very best within man.

Because Lenin lived the millions now living and yet to be born will have the more abundant life, and this is truly man's immortal dream.

Sincerely,
Edgar D. Evans
Columbus, Georgia

Drawings by Ernest Neizvestny

Dostoyevsky.

DOSTOYEVSKY'S
"CRIME AND PUNISHMENT"

On the Centenary of the Publication of the Novel

By Yuri Karyakin
Doctor of Science (Philosophy)

IN DECEMBER 1866 the magazine **Russki Vestnik** carried the concluding chapters of **Crime and Punishment.** In 1867 the novel came out in book form.

Dostoyevsky anniversaries can hardly be regarded as festive occasions, especially the centenary of **Crime and Punishment.**

"One Should Suffer to Be Able to Write Well!"

"One should suffer, yes, suffer, to be able to write well!" Dostoyevsky said over and over again.

And the author agonized more over **Crime and Punishment** than with any of his other novels. He told his brother: "All my heart, all my blood will go into this novel."

Never had he been in such a disastrous financial situation as in the years from 1863 to 1865. He went abroad to escape his creditors, played roulette, lost everything and had to pawn his watch and even a ring that belonged to his sweetheart Appolinaria Suslova. His dying wife was in Russia. "I need money. For myself, for you, for my wife, for writing a novel. . . . They win thousands here just like that. Yes, I have come here to save all of us and to get myself out of trouble, too," he wrote to his brother, who replied indignantly: "I don't understand how you can play roulette when you are traveling with the woman you love."

The threat of debtor's prison hung over Dostoyevsky in St. Petersburg all of 1864. He owed nearly 40,000 rubles. His wife, his brother Mikhail and his closest friend Appolon Grigoryev died ("I was left all alone, and I was seized by fear"). He went abroad again, played again and lost again.

The idea for **Crime and Punishment** was maturing when he was in Wiesbaden. He began working on the novel although "early in the morning the hotel told me that I would get neither dinner, tea nor coffee. I continue to skip dinner and subsist on morning and evening tea for three days. Strangely enough, I am not hungry at all. What is really bad is the fact that they are unfair and sometimes deny me lights in the evening. . . ."

Those years he himself lived through many experiences which were embodied in the ideas of the novel. He found the spiritual suffering much harder to bear than physical hardships. Two facts stand out:

Suslova confessed that she had dreamed of assassinating the czar: "It is almost irresistible. The immensity of the act. After all, it is so simple. Just think of it—one gesture, one movement, and you are one of the host of celebrities, geniuses, great people, saviors of mankind." (Obviously, Raskolnikov's "Napoleonic dream")

Dostoyevsky objected morosely: "Glory is won by labor . . . or by unheard-of boldness. . . . Have you thought of the agony?"

Three years later, we may note, on April 4, 1866, when Dmitri Karakozov fired at Czar Alexander II and missed, Dostoyevsky called him a "wretched, blind suicide." He was at the high point of his work on the novel then, and there is no question that Karakozov's shot had an impact on the book.

The other fact is even more significant. The day after his wife's death Dostoyevsky made this striking confession:

"April 16. Masha is lying on the table. Will I ever see Masha again?

"To love thy neighbor like thyself, according to Christ, is impossible. The law of personality on earth is binding. Our ego prevents. . . .

"Thus, man strives on earth for an ideal which is against his nature. When man does not comply with the law of striving for the ideal, that is, does not, through love, sacrifice his ego for the sake of people or another being (I and Masha), he suffers and calls this condition sinful.

"Thus, man is bound to suffer constantly, and the suffering is balanced by the heavenly joy of fulfilling the commandments, that is, his sacrifice. This is where the balance of life on earth lies. Otherwise, life on earth would be meaningless. . . ."

Meanwhile the "age of vices and railroads" was coming to Russia. Baal was growing strong in this country as well. The tavern was ousting the church. (Originally the novel was to be called **The Drunkards** and the Marmeladov theme was central.)

In Europe Dostoyevsky was stunned by triumphant philistinism, with its creed of "saving money and getting as many things as possible" and the freedom it gave to dangerously ambitious men. One of them, perhaps the most insignificant and most prosperous, Napoleon III, was even writing **The History of Julius Caesar,** justifying, by means of history, the right of a genius, especially a political genius, to go to any lengths because "everything is permitted."

In general, "mankind is becoming too noisy and industrial" and "the sources of life have grown turbid."

The novel was written mainly in Lyublino near Moscow. Dostoyevsky dictated the last chapter to Anna Snitkina. On November 8, 1866, he told her, deeply agitated: "Please imagine that I told you of my love for you and asked you to be my wife. What would you answer?" She: "I would answer that I love you and will love you all my life." A few days later he dictated to his fiancée the lines about the love of Raskolnikov and Sonya Marmeladova: "The heart of each held infinite sources of life for the heart of the other."

Crime and Punishment is an artistic fusion of his experiences and his thinking about himself, his people and the destiny of mankind.

Arithmetic

Vengeance

"Simple Arithmetic!"

Today **Crime and Punishment** is one of the most widely read books in the world and perhaps the best known of Dostoyevsky's novels. It is also his most dramatic and objective novel. For a hundred years the attention of readers has been focused on this book. Here we should add: unfortunately. Unfortunately because the novel remains relevant today, because there have been too many crimes and too few punishments in these hundred-odd years. There have been more Oswiecims than Nurembergs. Here we also have to add a word: fortunately. Fortunately because people do not put up with crimes as readily as they used to: They are thinking harder about how to get rid of both Oswiecims and Nurembergs.

Dostoyevsky was possessed by the belief that ideas do not grow in books but in minds and hearts and that they are sown not on paper but in human souls. There are no ideas outside man. Ideas are not books, but man's flesh and blood, man's soul. They are not folios arranged neatly on shelves, but people, millions of people locked in a chaotic life-and-death struggle. Ideas are the pernicious or beneficial microbes of man's soul. They have no existence outside it. The main murderer is, according to Dostoyevsky, he who justifies murder ideologically. At the beginning was the word. In one of his rough-copy notes Dostoyevsky called the Raskolnikov theme the story of a "theoretical crime." For him, ideologists are the most responsible people, at any rate no less responsible than politicians. Dostoyevsky realized that externally attractive, mathematically proven and absolutely irrefutable syllogisms sometimes had to be paid for in blood, in much blood, and, moreover, in blood not the ideologists'.

The basic idea of the novel—the inseparability of intelligence and conscience, the indivisibility of all the people in the world—first came to Dostoyevsky from Balzac in the thirties and forties. Dostoyevsky read him prodigiously at the time and even translated **Eugénie Grandet.**

In Balzac's **Le Père Goriot** a student in Paris facetiously discusses the question whether it is permissible to become rich and famous at the price of an unknown mandarin's death. Wealth and fame for the asking. But the student was humane; he let the mandarin live.

Dostoyevsky reworked this idea. On the eve of the murder, Raskolnikov calls on the usurer. Right there, in her apartment, it occurs to him: "So the sun will shine like this **then** too." A world without sun is inconceivable.

Moreover, it seems to him that the sun will be shining even more brightly for, having killed the usurer, he will, "according to theory," "according to arithmetic," do a double deed: He will deliver the world from a parasite and will use her wealth to benefit people. "Kill her, take her money and with the help of it devote oneself to the service of humanity and the good of all. What do you think, would not one tiny crime be wiped out by thousands of good deeds? For one life thousands would be saved from corruption and decay. One death and a hundred lives in exchange—it's simple arithmetic! Besides, what value has the life of that sickly, stupid, ill-natured old woman in the balance of existence? No more than the life of a louse, of a black beetle, less in fact because the old woman is doing harm."

Thus, the need is justified arithmetically. The theory of "shedding blood by conscience" is approved. The practice begins.

"By accident" he also has to kill Lizaveta, the old woman's sister, who witnesses the crime. More than that, she is said to have been pregnant, and then it turns out (again accidentally) that she had exchanged crosses with Sonechka Marmeladova. Instead of Raskolnikov, the innocent, crushed Mikolka pleads guilty—also "by accident." And then another idea begins to agitate him: Surely that old woman has not been a louse from birth?

As for Raskolnikov, he has cut himself adrift from mankind—he has killed himself.

The sun has been extinguished. Things have not been running according to arithmetic. One death has not settled the matter. The reaction is unpredictable, spontaneous, uncontrollable. Its inexorable and terrible logic takes over.

Finally, his mother dies because of his crime.

Infinitely complex and contradictory, life proves to be accidental—it cannot be squeezed into a multiplication table no matter haw necessary the act.

If the road to hell is paved with good intentions, where does the road paved with bad ones lead?

If even one ideological, antihuman microbe, even in such an essentially clever head as Raskolnikov's, even in such an essentially pure heart as his, does so much harm, what happens if such microbes breed in a bad soil—suppose in a muddled head and an evil heart? Suppose a crime is committed, not for the sake of the shining sun, not to make real a bright idea, but a dark one, for the sake of that future which Svidrigailov described: "What if it's one little room, like a bathhouse in the country, black and grimy and spiders in every corner, and that's all eternity is?" Raskolnikov in his nightmares sees a terrible picture of an ideological plague, anthropophagy, seizing the world.

And all this began with arithmetic, with the decision that human destinies can be determined by a $2\times2=4$.

The real beginning should be the declaration that man cannot be fitted into the laws of arithmetic. When you are dealing with people, arithmetic is the most dangerous of sciences, the science of death justifying "universal cannibalism." If people are counted, they must be counted separately, every individuol; there must be no rounding off the figure either by a million or by a score. Rounding off leads to the guillotine. We are forever indebted to Dostoyevsky. Perhaps more than any other artist he makes us fear the danger of arithmetic, makes us realize that our salvation is in counting each person separately.

The case, however, is obviously more complex than simply the evil thought of pure-hearted Raskolnikov that the crime is for the benefit of a mankind ground down by society. Raskolnikov cannot be understood if he is reduced to the problem: good goal—evil means. This antinomy is superficial.

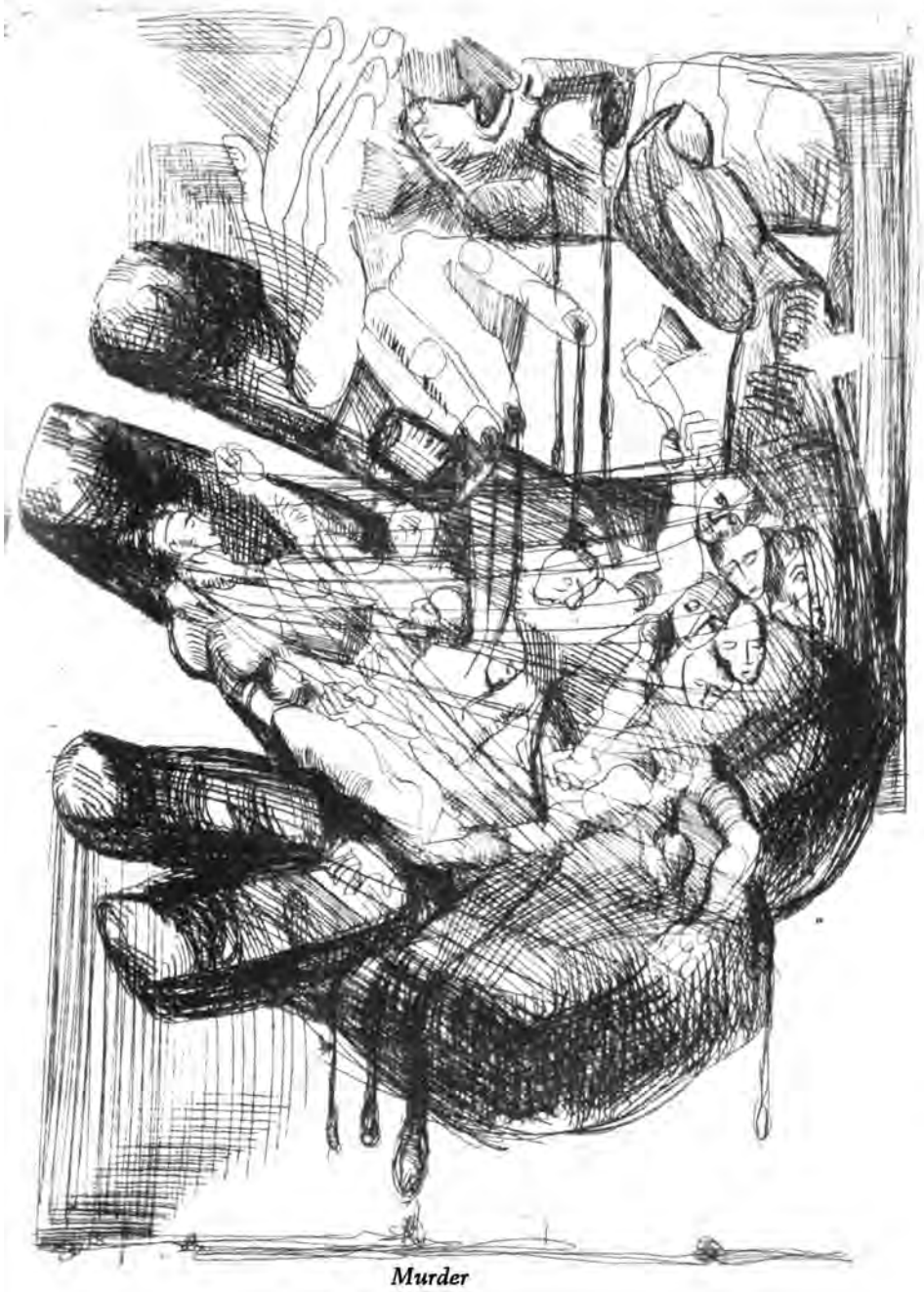
In his early drafts Dostoyevsky said about Raskolnikov: **"In his portrait** the thought of immeasurable pride, arrogance and contempt for society is expressed in the novel. **His idea: assume power** over this society **so as to do good for it** (the bald words were crossed out by Dostoyevsky!). Despotism is his characteristic trait. . . . He wants power. . . . Get power as quickly as possible and get rich. The idea of murdering comes to him

ready-made. . . ." "Freedom and power, but the chief thing, power! Over all the trembling features, over the entire anthill," exclaims Raskolnikov. This is in the novel, not in the rough draft. "What can I do with a few kopecks," he says, "I want all the capital at once. . . . Well, life is given to me only once. I don't want to wait for 'universal happiness.' I want to live on my own terms or not at all."

This is the worm that is gnawing this soul, too. This is the "underground" goal (the motive) which clashes with another goal ("universal good"). For a time the first triumphs over the second and at the same time hides behind it. (Characteristically, Svidrigailov tells Raskolnikov: "The two of us have a common point of view, eh?")

In other words, it is the purpose of this self-assertion that determines the means, and the means are nothing more than the realization of just **this** purpose. What we must do is get to a man's **real** purpose, his genuine motives, the sources of his activity. These sources, according to Dostoyevsky, turn out to be what is most contaminated, the reason Raskolnikov does not repent, literally, to the last page of the novel. The idea of arithmetic is not only a justification of the means, but an expression of a genuine motive, a genuine purpose. This is a purpose unto itself.

The motive for shedding blood out of conscience is to drown an unclear conscience, to justify it by historical expediency, to give it a progressive coloration. The phrases about universal good turn out to be the craving for egotistic self-assertion. The apparently holy impatience to see the world bright and new hides a by-no-means sacred impatience of an entirely different kind: to take one's own as soon as possible, while one is alive and to let others pay and sacrifice themselves, to interpret this pay and sacrifice as happiness and great trust. And the means in question are well suited to **this** evil purpose.



Murder

A hundred is larger than one. This idea masks its diametric opposite: One (!!) **is larger than a hundred or a thousand or a million.** Therefore, "everything is permitted" to me alone and no one else.

Thus, the count in arithmetic proves to be dual. This is realized not always nor immediately, but the entire progress of personality, the entire humanization of man depends on his constant awareness of this duality.

Such is Dostoyevsky's logic.

There is still another major and unavoidable problem: All these truths are excellent, pure, noble, but what do we do with them in a life that is real, still untransformed, rather than one that is ideal?

Suppose, for example, Raskolnikov had had to save the honor of his sister from the same Svidrigailov and there was no other way but violence or even murder to meet violence? The episode in the park, when Raskolnikov attacks a fop who **looks** like Svidrigailov and is molesting not his sister but a girl passing by, leaves no doubt as to Dostoyevsky's answer. It seems that violence is not **absolutely** impermissible and **absolutely** immoral.

I think that even Dostoyevsky, were he alive today, would hardly differ with our viewpoint on the question whether there is any way of saving mankind from nazism than by destroying nazism. At any rate, many admirers of Dostoyevsky today, even among the clergy, took part in the war and blessed the war against the Nazis, having, incidentally, resolved what doubts they had of a contradiction between means and end, for the end here was to save mankind by destroying nazism. The count had to run into millions in order to save hundreds of millions.

An uncompromising realist in exposing crime, Dostoyevsky is most often utopian as far as punishment is concerned. Not always though.

Nowhere in Russian literature is an idea developed with so much concentration and tension as when Ivan Karamazov talks with his brother Alyosha in a tavern in the provincial town of Skotoprigonyevsk. "Listen!" says Ivan. "I took the case of children only to make my case clearer. Of the other tears of humanity with which the earth is soaked from its crust to its center I will say nothing. . . . If all must suffer to pay for the eternal harmony, what have children to do with it, tell me, please?" Ivan refuses to accept paradise, the "eternal harmony": "It's not worth the tears of one tortured child . . . I don't want the mother to embrace the oppressor, who threw her son to the dogs. She dare not forgive him!" In answer to the question what the murderer deserved, Alyosha (a monk!) whispers: "To be shot!"

If such lightning strikes from so innocent-looking and bright a cloudlet, what tempests and storms was Russia to go through? Though Dostoyevsky tried to moderate and reconcile irreconcilable social interests, despite his intentions, these pages, as well as many others, radiate the spirit of class struggle.

Dostoyevsky knew what anger meant: His father was killed by peasants, and the event left a deep and lasting impression on his mind. He was 18 when it happened. According to his daughter, "All his life he tried to figure out the reasons for this terrible death." That short answer "To be shot!" comes from the most profound inner struggle. These are indeed the most trenchant pages in Russian literature.

This brings us round to the question again: What would Dostoyevsky say about Oswiecim?

Making Oneself into a Man

The danger of arithmetic and the need for counting each person separately were pivotal ideas of all Dostoyevsky's books. To recall a familiar incident: Ivan Karamazov returns his "ticket" to world harmony, rejects a palace built on suffering.

How hard it is for man to make himself a man and to educate himself was another idea which he followed through for nearly 40 years.

This idea was originally part of **Crime and Punishment:** "There is no happiness in comfort; happiness is bought by suffering. Man is not born for happiness. Man earns his happiness, and always by suffering. There's no injustice here, because the knowledge of life and consciousness (that is, that which is felt immediately with your body and spirit, that is, through the whole vital process of life) is acquired by experience **pro and contra,** which one must take upon one's self. By suffering, such is the law of our planet, but this immediate awareness is such a great joy that one gladly pays with years of suffering for it." (from **The Notebooks for Crime and Punishment)**

When he was working on **Crime and Punishment,** Dostoyevsky made

(continued on page 59)

DOCTOR VITALI POPOV: *preventing heart disease*

Cardiovascular disease is medicine's No. 1 problem. Soviet cardiologist Professor Vitali Popov has made a considerable contribution to the decrease in the number of cardiovascular disorders during the 40 years in which he has been auscultating hearts.

As a youth he came to Moscow in 1922 from the village of Morozovy Barki (he had to stow away, having no money for fare) and entered the medical institute. The boy got a free medical education, the country a gifted physician.

World War II was part of his education. He volunteered for frontline service, was taken prisoner, and saw for himself all the horrors of a fascist concentration camp. "While I was performing operations with a kitchen knife, trying to save each human being," he recalls, "I saw how thousands were being exterminated, how little each life was valued. I will hate war and every sign of repression, no matter how small, as long as I live."

When Professor Popov is telling his students what is required to be a good doctor, his emphasis is on love—not love of self, but love of people. Techniques and knowledge, he says, derive from this love.

Continual progress in medicine, says Dr. Popov, is not possible without an exchange of the latest information in one's specific field. That goes for sharing knowledge and experience with colleagues both at home and abroad.

QUESTION: One of the causes of cardiovascular diseases is the hectic pace of modern life. What are we doing to prevent and treat these ailments?

POPOV: First and most important is early detection. For this purpose we have more than 2,000 special cardiology departments at polyclinics and an extensive network of preventive medicine clinics, where specific treatment is given. In 1965 alone more than 170 million Soviet citizens, over 77 per cent of the population, were given preventive examinations. The results are already being felt—the number of cardiovascular disorders in the Soviet Union shows a downward trend.

QUESTION: But suppose a person does develop a serious heart ailment? What course of treatment is he given? Can he eventually return to a normally active life, or must he live out his days with the Damocles sword of a diseased heart?

POPOV: If a person does become sick, he undergoes lengthy treatment in a hospital and a sanatorium. There is a close connection between heart disease and the suppression of emotion. In our country, the patient, who has enough cares as it is, at least does not have to worry about paying for treatment since all medical services are free. There is discussion now concerning granting patients with hypertension and other cardiovascular diseases an additional month's vacation, as is done with patients having tuberculosis. We are restoring to normally active lives more and more heart patients whose disorders were until recently considered fatal, people with myocardial infarction, for example.

Patients with such "wounded hearts" must remain absolutely quiet. To move them from home to hospital is dangerous. What we had here was a dilemma: The patient required constant and skilled attention but he could not be moved to the hospital. Now our clinical scientists have developed and are using a whole new system for transporting such patients. The Moscow Emergency Station has equipped special ambulances and organized special teams for treating the most serious types of infarction. Thousands of people seriously ill have been brought to hospitals and been saved. A brief decade ago half the victims of infarction died. Now the death rate has been halved. Preventive care, new methods of diagnosis (some utilizing supersonic apparatus), powerful drugs, and modern medical equipment are all at the disposal of the cardiologist. And from him who is better armed we can expect and demand greater victories.

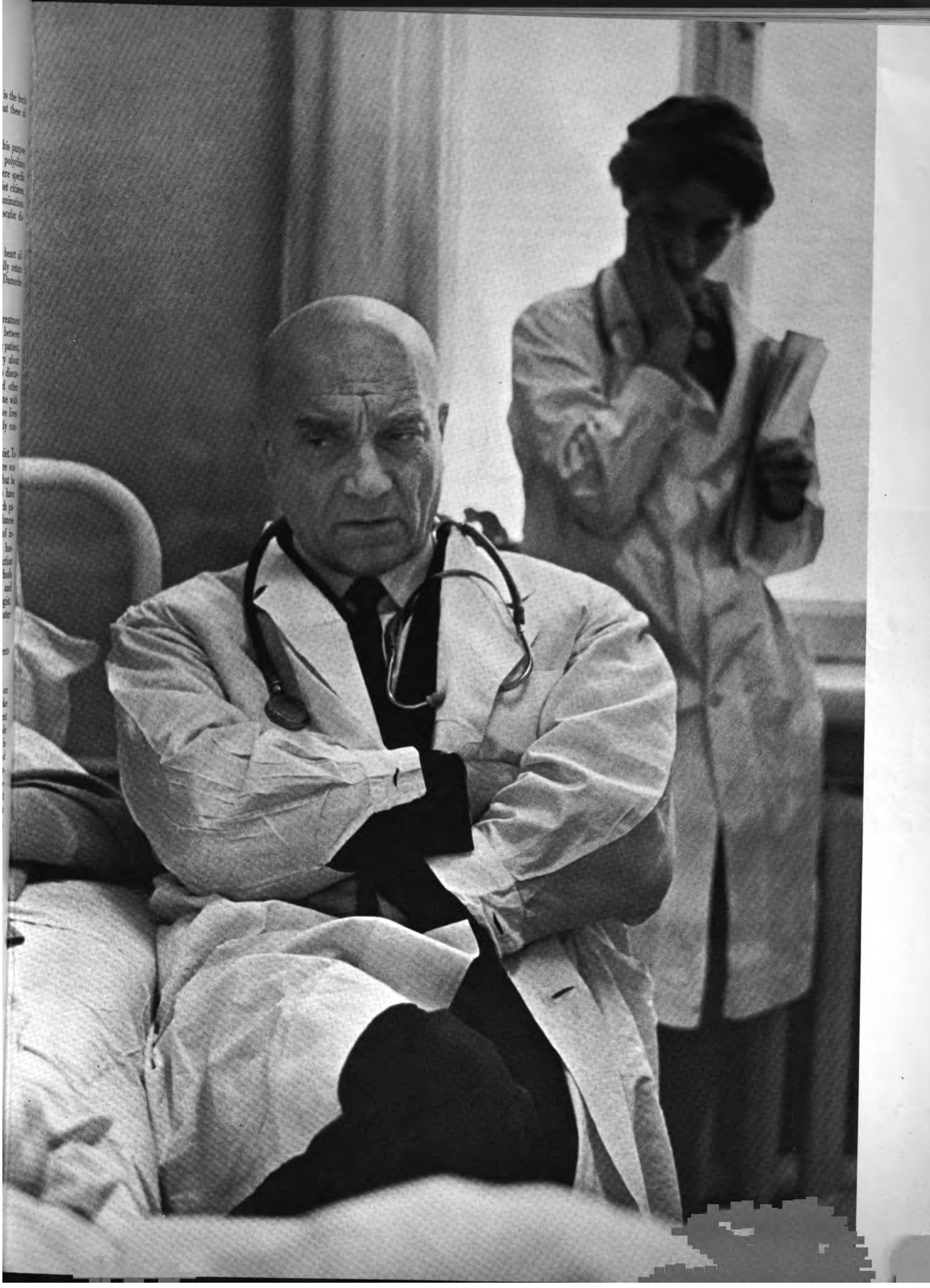
QUESTION: Do you believe the increased use of medical instruments will diminish the role of the physician and his personality?

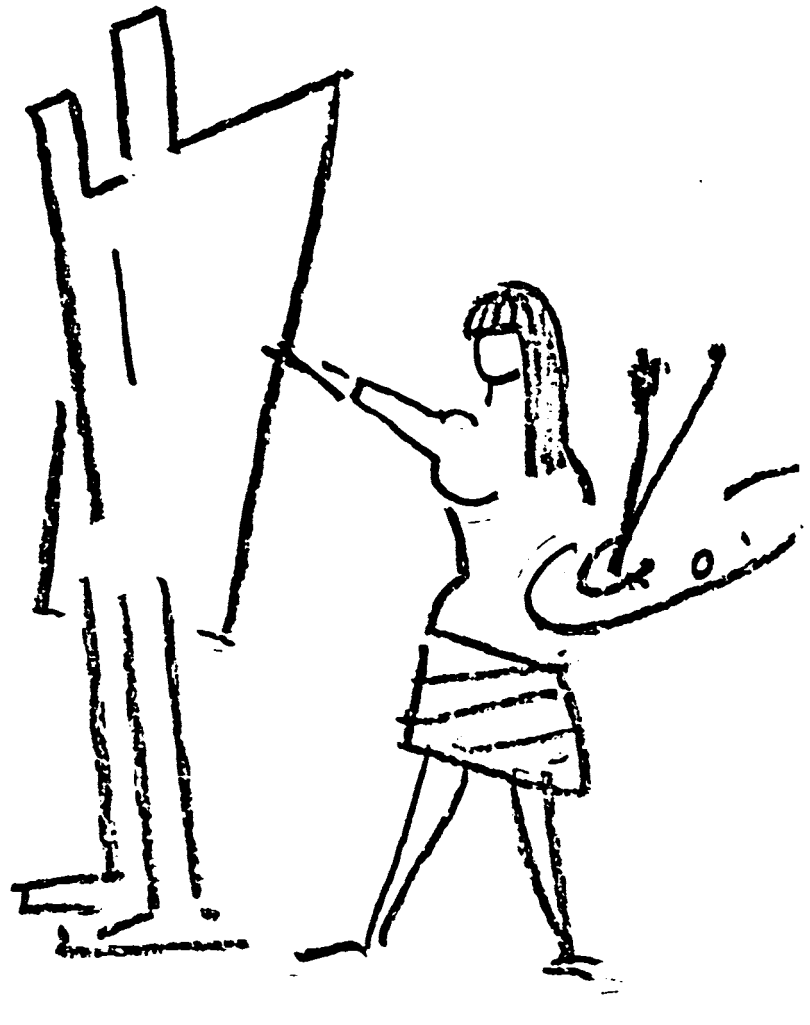
POPOV: No, I do not. I'm all in favor of the growing emphasis on such instruments. But even if a new computer is built that can make flawless diagnoses, I cannot imagine a machine that can cure a patient any more than I can imagine a machine that can write poetry. The role of a physician and his personality, his love for people and patients is increasing and not decreasing, just as human personality in general and human emotions are growing more complex. Statistics, which are scientific and not emotional, show that it is not only drugs and new equipment that cure but also the kind word of the physician, his honestly felt sympathy. By the way, the word "sympathy" comes from the Greek *syn* meaning "together" and *patheia* meaning "feelings," in other words, feelings shared with another, in this case, with a patient. The well-known internist Maxim Konchalovsky once said that if after seeing his doctor a patient does not feel better, it means he has seen a bad doctor. With minor reservations, I agree.

QUESTION: This is the last question. Do you think there is sufficient exchange of information and sharing of experience among cardiologists?

POPOV: For me, as for anyone who wants to know everything that is doing in his field, there is never enough information. A good deal of work is being done by the International Society of Cardiology but I believe that every country, every institution and every individual cardiologist should spare no effort to extend and intensify the exchange of information. I personally have profited greatly from my visits to hospitals in the United States. The American physicians I met were glad to cooperate. At the USSR Congress of Cardiologists I was happy to welcome our old friend Dr. Paul White and listened to his report with interest. There are things we can learn from American cardiologists and things they can learn from us. So the more we cooperate, the more we have to gain in this grandest of all struggles, the struggle for human life.

The eminent Soviet biologist Academician Vladimir Engelhardt once prophesied: "By the year A.D. 2,000 the average life span will be 150 years." I am a contemporary of this century, having been born soon after it began, and would not mind testing this optimistic prophecy myself. But, alas, there is little likelihood of that. However, I can hope that by the turn of the next century, when patients are asked "How is your heart?" most of them will be able to answer, "Just fine."





LET TALENT AWAKEN!

By Alexander Tsipko

I AM PRESENT at a remarkable demonstration of hypnosis. What is enacted before my eyes is not a miracle, yet I cannot help thinking that it is.

A young girl is given a pencil and a sheet of drawing paper. With a few quick motions of his hands Dr.Vladimir Raikov puts her in a trance. He first whispers softly to her and then in a firm but gentle voice says: "You feel a great creative urge!" and in a more peremptory tone he continues, "Concentrate! Don't let anything distract you. Now draw!"

I watch the doctor's eyes. They are fastened on the girl, and his concentrated will seems to transmit itself to her.

The girl responds immediately. Her face lights up, her movements acquire purpose, the pencil flutters across the paper. In a flash, in about two or three minutes, the outlines of a portrait emerge.

I cannot resist the temptation to question the hypnotized subject.

"Who are you?" I ask the young girl.

"I'm Ilya Repin." Repin was a famous Russian painter who was born in 1844 and died in 1930.

"Where are we? Who are the people with us?"

I keep shooting questions at the girl. Her answers tell me that this is the year 1900, that she (or rather he, since she imagines herself a man) was born in Russia, that she knows nothing of the present day, that neither the consultation room nor Russia of the year 1966 means anything to her. The doctor stops my questioning and tries to explain the phenomenon to me.

"You are witnessing," he tells me, "what is known as hypnotic reincarnation. Ira, our subject, is quite convinced that she is a great painter."

Dr. Raikov continued to initiate me into the "mystery" of this hypnotic transformation. It seems that "Repin" as a keyword or symbol helps the hypnotizer in experiments on tapping the great reserves of latent human potential and talent upon which we fail to draw in our conscious state. During a hypnotic experiment, a word has the power to induce in the brain centers images and associations connected with it. Thus the word "Repin," the name of a great artist, has proved effective in stimulating the urge to draw. Actually there is nothing very mysterious about this. The mechanism of the effect of a word in hypnosis was first described by Ivan Pavlov, the Russian physiologist. With the help of a definite word, the doctor can, by inhibiting certain centers of gray matter, establish a seat of heightened excitability in other sections of the brain, directing in this way the entire attention of the subject toward a given creative process. Dr. Raikov made his subject concentrate all her attention on drawing.

"Does the state of 'incarnation' stimulate the urge to act in a subject?"

"It does indeed. That's why this is such a singular method of instruction. If later, however, during a passive hypnotic state, only man-to-man contact between the hypnotizer and his subject is established, in such a form of hypnosis, the conduct of the subject depends on new and as yet little explored laws. This is the field of my main research now."

Dr. Raikov later introduced me to one of his pupils, Alla B., a physics student who has been studying drawing by hypnotism since March.

"She is our most capable student."

With these words Dr. Raikov showed me a folio of her drawings. I was particularly struck with the skill of one drawing, a self-portrait. Next to it another of her drawings looked like the feeble attempt of a child.

"No more than three months divide this drawing from the self-portrait," explained Dr. Raikov. "She has actually already mastered draughtsmanship technique. And today the girl can't decide whether to continue her studies as a physics student at Moscow University or to pursue a painting career."

Alla was meanwhile getting ready for a hypnosis session. After first asking the girl if she felt fit enough and inclined to draw, Dr. Raikov put her in a state of deep slumber. This was accomplished with the most astonishing speed, entirely incomprehensible to the layman. Soon the young girl was in a hypnotic trance, a form of sleep that is difficult to induce but which, too, took the doctor only a few seconds to achieve. Next, Dr. Raikov ordered Alla to rise to her feet, which she did in a listless manner, with her eyes shut and her arms limp at her sides. She was now offered an imaginary drink.

"Drink this glass of orange juice and you'll feel much better," the doctor said to her.

She took the imaginary glass, raised it to her lips and made several motions of swallowing.

"This is a form of passive hypnosis," Dr. Raikov explained.

The session was over. Now I asked the doctor seemingly quite simple but actually very difficult questions to answer.

"What is the scientific significance of the experiment, its practical value, the prospects of its widespread application?"

"Scientifically speaking, the very phenomenon of inducing an active hypnotic state and accompanying 'reincarnation' is important as it helps reveal hitherto unexplored aspects of human psychic activity. The practical application of such experiments is possible. An active hypnotic state can help stimulate the development of musical, artistic and mathematical faculties. Moreover, a subject taught during hypnotic sleep automatically acquires the techniques of autosuggestion and training of will and memory.

"Another point to be stressed is that what is learned about drawing, for example, in a state of hypnosis is retained in a wakeful state."

THE BALTIC, that tempestuous yet generous body of water, has been known as the Amber Sea from time immemorial, not only to those who dwelt on its shores, but to the people of faraway places to which its amber was exported. Ornaments of Baltic amber have been found in excavation sites of nations that rose and fell thousands of years ago. Amber was prized in ancient Greece, Rome and Phoenicia; it adorned swords, toilet articles and royal attire. Its beauty was eulogized by Homer and Herodotus and acclaimed in verse by Aristophanes, Plato, Tacitus and Lomonosov.

Geologists say there are 37 places in the world where amber is found. But the Baltic shores account for more than 90 per cent of the total.

The Baltics are indeed the land of amber. There is no telling how many legends have been woven around it, how many hopes have been associated with it and how much sorrow it has brought. It was the recurring theme of the songs of the common shore folk who collected the amber; never for themselves, alas, an incision in the bark of any conifer. Resin will ooze out. That is what turns into amber. Let the resin cool and harden, bury it in the ground and pack layer after layer of earth on top. In our day and age of science and engineering the sea water needed to flood our "burial plot" presents no problem. All we have to do then is wait—for a mere 40 million years. That, scholars say, is how old amber is.

Amber is mostly yellow, but we also find it in shades ranging from straw to reddish, depending on the variety of tree and the conditions in which the exuded resin fossilized. Weight also varies from small grains to several pounds. The biggest chunk ever found—in 1860—tipped the scales at 20 pounds.

Specially prized are bits of amber with inclusions—plants, ants, flies, butterflies and other insects, all prehistoric, mummified inside forever. The famous Russian scientist Lomonosov, who demonstrated amber's vegetable origin, put into Russian and into verse Martial's celebrated epigram: "An ant wandering in the shade of the tree of Phaëthon was enveloped by a drop of amber. The tiny insect, disregarded in life, became precious through death."

Cunning swindlers did a good trade in false inclusions. Bits of amber with such inclusions were skillfully faked hundreds of years ago. The authentic inclusion is valuable for the study of the evolution of nature. Amber has brought down to us specimens of flora and fauna that inhabited this planet of ours tens of millions of years ago. Even inclusions of drops of water have not evaporated in all that time.

And speaking of water, amber floats; it has almost the same specific gravity as water. Because of that, it is often cast ashore by the tide. For centuries people in the Baltic countries made their living collecting this cast-up amber. To this day craftsmen work quantities of amber gathered in this fashion. As the amber industry developed, however, the amount the sea surrendered was not sufficient. And so people braved the deep, and with something like a butterfly net fastened to a long stick, they scooped up the amber riding the whitecaps. The sea parted with its treasures reluctantly, often engulfing both the catcher and his prize.

In the early eighteenth century divers took over, but even this hazardous method could not guarantee a steady supply. The most efficient way is to mine amber by digging into sea bed and shore. Vessels built somewhat like dredges extract the mineral together with silt and sand from the sea floor. And where the receding sea has left a plentiful treasury of amber embedded in layers of what is called "blue earth," powerful excavators quarry it. One such quarry is located in the township of Yantarny, the Russian word for amber, in Kaliningrad Region, a major amber-mining area. Here also is a large enterprise that works the amber.

Baltic craftsmen have long been famous for their amber jewelry; they have plied their craft for centuries. Quite recently, in an excavation north of the Latvian city of Liepaja, archeologist L. Vankina unearthed an early Bronze Age amber workshop, flints lying alongside articles made of amber.

Gifts from the Amber Sea

By Yan Tickonov

for amber jewelry was not for the poor. It all had to be surrendered to the authorities. Any attempt to pocket the amber cast up so plentifully by the tide was severely punished. For many a long year the notorious "amber courts" dispensed summary judgment. Hanging was the penalty for hiding a mere two pounds of amber; you were broken on the wheel if you stole more.

Hold a piece of it. The honey-tinted crystal glows and sparkles like a blazing sun, unreal and alluring, yet surprisingly warm and welcoming. Scholars have long known what amber is—the fossil resin of the conifers that grew on the ancient continent of Fennoscandia. Through the slightest crack they exuded their resin. It dripped to the ground and quickly solidified. Subsequently layer upon layer of earth and dust covered it. As the eons rolled by, the deluging seas receded. All this created an environment in the bowels of the earth in which organic substances did not rot but fossilized. That was what happened to conifer resin: It was fossilized into the amber we prize so much.

Let us try to reproduce the process. Make

To this day Klaipeda, Palanga, Yantarny, Kretinga, Liepaja, Ventspils and other places on the Baltic coast are famous amber-working centers. They employ both self-taught folk craftsmen and college-trained artists. The best craftsmen and artists not only preserve but even accentuate the mineral's natural qualities. The rough natural edge is left intact wherever possible and the original shape preserved. This fossil resin shows to particular advantage set in bracelets, brooches and necklaces made of silver and other metals.

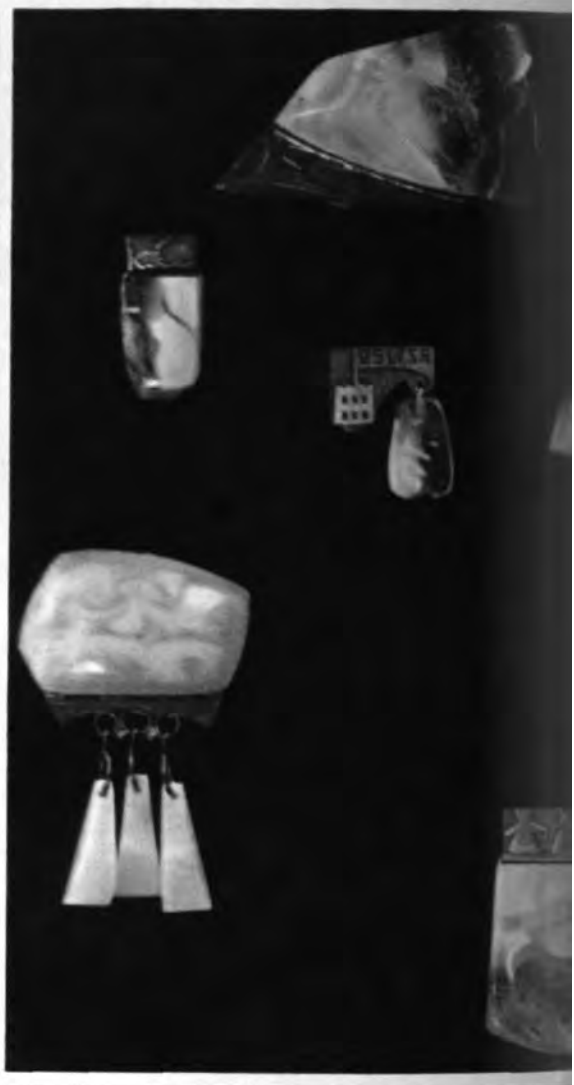
The fine work of such artists as F. Daukantas, E. Mikuliavicius, R. Zove and L. Burvis, among others, has been exhibited in the Soviet Union and abroad. The creations of George Romulis, a leading Riga craftsman, were much admired by connoisseurs at the International Jewelry Show in Jablonec, Czechoslovakia.

Experts say that amber is climbing vigorously into fashion the world over. Many visitors from Britain, France, Japan, the United States and other countries, entranced with the magnificent jewelry, leave with an amber memento, a tiny golden-hued sun which will shine forever somewhere across the sea.

PHOTOGRAPHS BY ALEXANDER TARTAKOVSKY

Baltic craftsmen are famous for their amber jewelry.

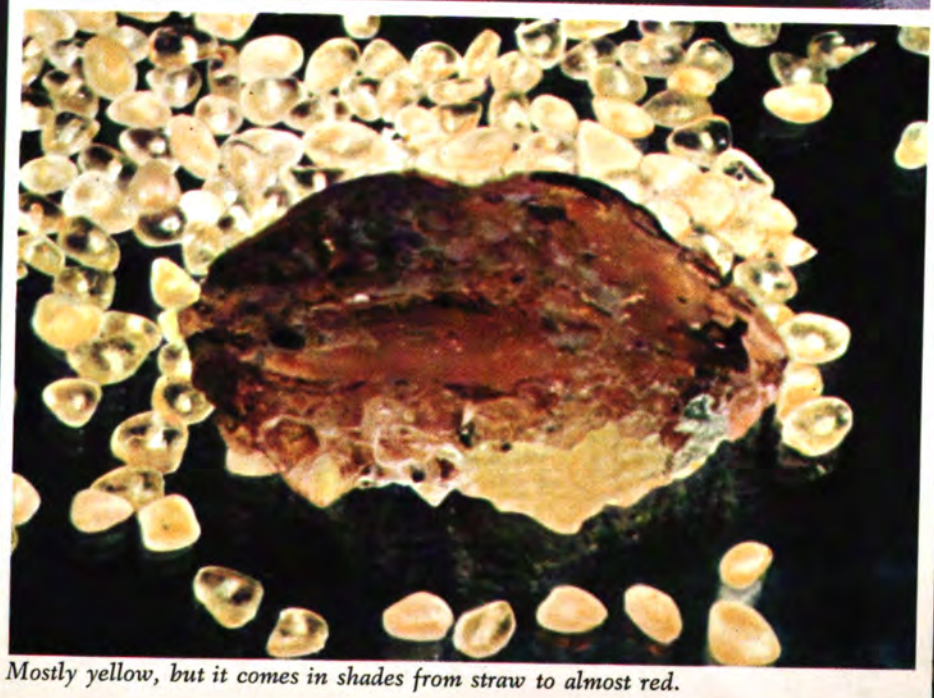
Amber sculptured by nature.



Horse carved of amber and wood in folk toy style.

Gold and amber pendant called Vesna (Spring).

The Fantazia bracelet (upper part of photo) combines slightly polished amber and Cornelian cherry stones. The one below is made of uniform amber pieces.



Mostly yellow, but it comes in shades from straw to almost red.

SOCIALIST REALISM AND THE WRITER

EVEN in our age of spectacular science and engineering, art in its ideal form is still one of the most extraordinary manifestations of personality. The qualification "in its ideal form" is, unfortunately, necessary because there are efforts to streamline and mass-scale, to industrialize and commercialize the production of art, and, given high standards of professionalism, they may even be successful efforts so far as the less discerning reader or viewer or listener is concerned.

To some extent art is always subjective. But it remains only personal until the midwives—publishers, producers, theater directors—help it emerge into the world at large. The artist is an individualist by virtue of his talent which is individual, but as soon as his work enters the real world, it becomes an esthetic and social force.

Forty years ago a new movement in literature, socialist realism, grew up. It originated in the first years of Soviet power, but time and social ideas, heated debate and complex juxtapositions of life and art shaped it as a creative method in the late twenties and the early thirties. To argue which appeared first —the method or the movement—is to argue along chicken-or-egg lines. Both method and art were born as a result of those social changes which the October Revolution brought. New ideas give rise to new movements in art.

The Sources

Soviet literature was fortunate because it inherited the legacy of giants like Alexander Pushkin, Mikhail Lermontov, Nikolai Gogol and Leo Tolstoy. The method of socialist realism emerged naturally from classic Russian literature and its mainstream in the second half of the nineteenth century, critical realism.

Critical realism expressed the attitude of progressive Russian writers toward the realities of Russia under the czars. They expressed these realities with pulsing, living authenticity, and their works were, deliberately or subconsciously, a harsh verdict returned on the czarist regime which relentlessly suppressed free thought or any expression of human personality.

This is what united the esthetic credos of Leo Tolstoy and Anton Chekhov, of Fyodor Dostoyevsky and Ivan Turgenev. No doubt their views of social development were different. But their social diagnosis was much the same: Society is sick and needs radical treatment.

However, critical realism proposed no positive program. It was authentic, yet passive. In this context permit me a rather long quotation.

"Let us remember that those writers we call immortal or simply good, those who move us, have a common and rather important quality: They are going somewhere and are calling you to join them. And you feel, not with your mind alone, but with your entire being, that they have a goal. The best of them are realists and they show life as it is. Since every line of theirs runs, like a tree with sap, with their awareness of this goal, you feel not only life as it is, but also life as it must be, and that is what moves you. Now what about ourselves? We show life as it is, and not a jot beyond this. We have neither immediate nor distant goals. . . . We have no politics, we do not believe in the revolution, there is no God. . . . He who wants nothing, hopes for nothing and is afraid of nothing cannot be an artist."

This was written by Chekhov 70-odd years ago. It was not self-flagellation (though Chekhov writes "we" he means the aching of someone else's heart felt by his own). The words of this subtlest and most perceptive of writers are worth pondering. Essentially, they denounce critical realism as a literary trend, unable to transform reality since its authentic interpretation of life is not vitalized by the awareness of a goal. Chekhov also said that "intelligent life without a definite world view is not life, but boredom and horror."

Nothing true in art comes miraculously like biblical manna in the wilderness. New movements in art grow on cultural traditions enriched with a new content.

Though not known by that name, socialist realism matured within the framework of critical realism. The general development of Russian social and political thought and the revolutionary movement led most writers to reinterpret the purposes and methods of literature. But their authentic representation of life, the hallmark of critical realism, became one of the cornerstones of the new movement as well.

Awareness of Goal

Maxim Gorky defined the method of Soviet literature this way: "Socialist realism is the realism of people reforming the world; it is realistic thinking in images based on socialist experience." Gorky, who put so much time and energy into the development of a new culture, never considered it in isolation from earlier literary movements, as some ultraleft reformists tried to do. He repeatedly referred to that new content with which Soviet literature should infuse the old values. Gorky had a high regard not only for realism but also for romanticism, which he interpreted under the new conditions as the poetry of labor called upon to stimulate an active attitude toward reality, the will to live and the creation of new ways of life.

The writer creates a world of his own, large or small, for many or for few. While creating it, he expresses his personal world view multiplied by the world views of many.

"To speak honestly to the reader, to tell people the truth—grim at times but always courageous—to strengthen in people's hearts a faith in their future, in their power to build this future. . . . Art has a powerful influence on the human mind and heart. I believe only he who uses this influence to awaken the beautiful in man's nature, only he who uses this influence for the good of man has a right to call himself an artist."

Mikhail Sholokhov made this statement when he was awarded the Nobel Prize. It reflects fairly accurately the orientation of Soviet art.

Dreams of a better life have never left mankind. Utopians, who were more philosophers than writers, tried to anticipate the social design of the future. But their dream was so far removed from reality that the word utopia acquired a new sense. The realist Chekhov exposed ignorance, narrow-mindedness, philistinism and barbarism and expressed the hope that in three hundred years life on earth might be beautiful.

We agree with Chekhov. But we prefer to lay the foundation of the future today and see it in daily work. Socialist realism is an interpretation by art of reality and those forces which refashion it. There is no doubt that man is the driving force. The first People's Commissar of Education Anatoli Lunacharsky said that a "person who does not understand development will never see the truth because the truth is always different, it does not stay put, it flies; the truth is development, the truth is the conflict, the truth is struggle, the truth is the morrow."

The artist's eye should not be a camera, no matter how sensitive. He differs from other human beings in his ability to see selectively and differently, and he can, therefore, discover for us what we have not noticed.

In a society whose members are trying to refashion life, the writer's social vision is of great value. By his social vision I mean his ability to foresee new relations or new qualities or, on the contrary, his ability to discern something socially sick, ugly, something that is stunting the healthy development of the social organism.

"I" and "We"

A natural question arises: How can we fit into one method such dissimilar writers and poets as Maxim Gorky and Isaak Babel, Mikhail Sholokhov and Valentin Katayev, Anna Akhmatova and Vladimir Mayakovsky, Yevgeni Yevtushenko and Eduardas Mieželaitis, Yuri Kazakov and Vasili Aksyonov? How do they manage to use the method of socialist realism (as they have repeatedly said they

By Alexander Avdeyenko,
Literary Critic

do) and remain true to themselves, to their individual talents?

There is no contradiction here. The ultimate goal does not rule out an infinite variety of ways of leading to it. If an artist does not know where he is going and why, it makes no difference to him which road he takes. But if he has a goal in sight, he chooses a road which will lead to it.

The goal of our movement is the same for all: building a communist society. Ways to this goal are as varied as life itself.

The tradition of the classic Russian novel, the *War and Peace* tradition, is strong in Soviet literature. Mikhail Sholokhov, Alexander Fadeyev, Leonid Leonov and Konstantin Simonov build their works on many planes, populate them with dozens of characters and trace by their destinies the destinies of the country and the people. A wide panoramic scope and epical elaboration of characters and their environment are characteristics of their novels.

In the works of Vasili Aksyonov, Anatoli Gladilin and Mikolas Sluckis events develop apace; the language is colloquial and there is hardly any description of nature.

And on the contrary, landscape—forests and fields, dawns and sunsets—becomes the "main character" for Konstantin Paustovsky, Yuri Kazakov, Vladimir Soloukhin or Eduard Shim.

A new content brings new forms of expression. Vladimir Mayakovsky and Boris Pasternak described the world around them differently, but it was the Revolution that stimulated them both. Mayakovsky saw himself as a soldier of the Revolution, and the untamed revolutionary energy of the world transformation resounds in each line of his. Boris Pasternak is a poet in a different key, though any number of his poems have to do with the Revolution and its heroes. Pasternak's poetry bears the imprint of the times; it could not have been written by any other poet of any other epoch in any other country.

But experience of these two leading Russian poets has not become canonical though it remains in Russian poetry forever. For all their reverence for Mayakovsky and Pasternak, the poets of younger generations are striking out in directions of their own. Well-beaten tracks are not worth much in art. Alexander Tvardovsky relies on the folk traditions of the song and is fond of precise and salient detail; Eduardas Mieželaitis goes in for imagery on a cosmic scale, and his lines are replete with symbolism and hyperbole.

Andrei Voznesensky and Yevgeni Yevtushenko are almost the same age. Both are popular in our country and abroad, and a mention of one often brings the other to mind. However, one line is enough for a discerning reader to tell them apart. Although their themes often overlap and their ideals are kindred, poetically these two are poles apart.

If the method of socialist realism meant conformity to a certain code of rules, one poet or writer would be enough. Actually, the process is the reverse: What we observe is a deepening differentiation of styles, approaches, interpretations through each artist's own experience and personality.

"It is only in the exchange of a myriad of observations that we can create an edifice of individual experiences valuable for all Soviet literature both theoretically and practically," said Konstantin Fedin, Chairman of the Board of the Union of Soviet Writers . It is this careful agreement of "I" and "We" that produces the wealth of Soviet literature: The individual is not dissolved in the collective but finds himself in the collective, in its general movement forward, expressing his personality.

Complex vs. Complicated

We sometimes hear that socialist realism is puritanically deaf to all kinds of fashionable innovations. It is true that Soviet writers are rather cautious of modernistic experimentation, and this perhaps follows from the old traditions of Russian literature with its sober and realistic perception of life.

In the first years of the October Revolution Soviet power proposed cooperation to all artists regardless of movements. By no means all of them responded to the call of the Revolution. The most determined of the iconoclasts—futurists, cubists, imaginists and constructivists—responded readily to the call since they hoped to win the state's support for their experimentation. However, they could not stand the competition with realism which refused to destroy for the sake of destruction. Formal techniques which were not justified by content did not take hold. A lucid and meaningful view of life triumphed.

This view should not be simplified. The essence of socialist realism is not petty verisimilitude, but loyalty to the essence of reality. A realistic work by no means rules out imagination or experiment if it is justified by the author's idea.

In Balzac's *La Peau de chagrin* the fantastic story is no more than a convention illustrating his idea.

When the devil, elaborately described from the expression of his eyes to the lapel of his suit, walks on Moscow streets and into Soviet offices in the novel *The Master and Margarita* by the Soviet author Mikhail Bulgakov, this is not unreality for the sake of unreality. With satire, Bulgakov shows the absurdity of some aspects of reality which seem sometimes more improbable than the devil or a black cat that talks.

Valentin Katayev's *Sacred Well* also has a complex structure. The novel has no plot in the conventional sense. The cohesion is provided by the personality of the author surveying his life as he waits to be operated on. Memories alternate with visions. Fragments of clear, almost Bunin-like prose change over to telegraphese:The past cuts into the present; the present dovetails with the future; real sensations intertwine with subconscious streams, irony with gravity, jokes with bitterness.

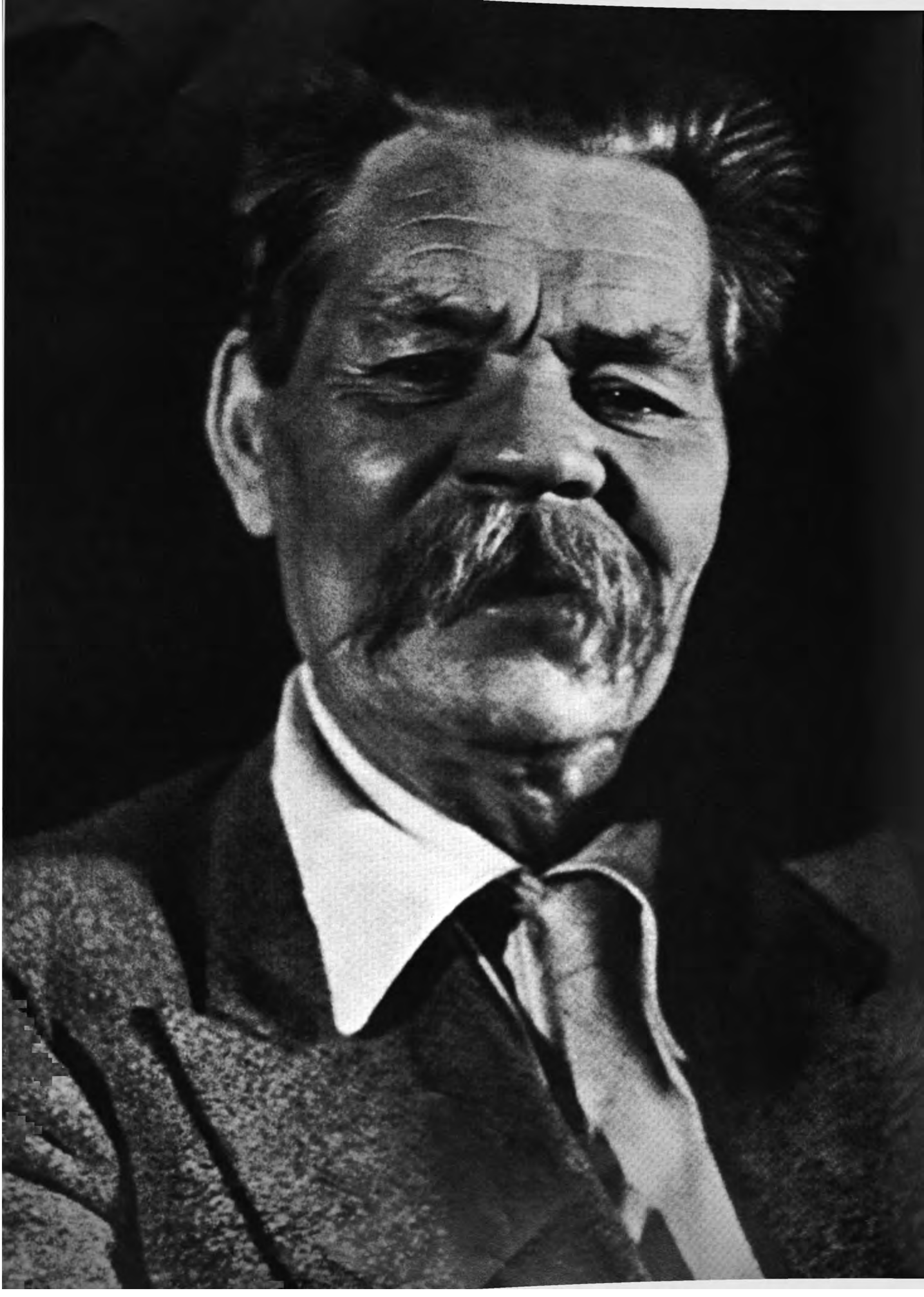
Vasili Aksyonov, one of our most popular young writers, is rather traditional in his first books *Colleagues* and *Ticket to the Stars*.Experimentally, he has recently written a satirical play entitled *Always on Sale* staged by the Sovremennik Theater, a capricious interlude of real and imaginary events,and yet a deeply modern, realistic and social play. In some of his latest stories like "Pity, You Weren't With Us Then,"Aksyonov has found a very effective method of stratifying the action of a story and presenting it over different time lengths. While describing young people of the postwar generation—vigorous, active, somewhat ironic—the author is himself ironic in the construction of his stories. They incorporate certain phantasmagoric complexities reminiscent of Federico Fellini. However, this is not the author's admiration of form for form's sake or the juggling of tricky techniques to titillate or entice the reader. His gift is lyrical, and seemingly ashamed of being lyrical, poking gentle fun at himself and his heroes, the author conveys with amazing precision and impact the current psychological atmosphere.

Complexity is also a constituent of many modern poets, both young and old. The most prominent of them is perhaps Andrei Voznesensky, whose complex structures are, in his opinion, justified by the complexity of life and by the complexity of perception. He argues that this machine world of ours is not simple. He is for a complexity of feeling confronted by a complexity of life. He does not want to simplify love, faith, doubt, joy—or verse.

Some readers consider him too esoteric, but he sees his way and this conviction commands respect and sympathy.

Nothing is more disastrous for art than the need to be "in" at all costs. The artist's desire to be always modern indicates not his spontaneity but, on the contrary, his derivativeness. Fashion is fashion, and if it were less ephemeral, it would no longer be fashion.

Another danger is the ready-made recipe. Neither subject, nor problems (still less, good intentions) are sufficient to create a work of art. Unless reincarnated by talent into an expressive and vital entity, all this will remain an abstract message which has nothing to do with art. This complex sphere of human activity—art—depends for success on the artist's individuality. Yet a factor like collective experience is also basic to this success.



FOUNDER OF SOVIET LITERATURE

By Boris Gilenson
Master of Science (Philology)

Maxim Gorky was born on March 28, 1868. His early stories, which brought him fame, were published at the turn of the century. His plays, The Lower Depths *and* The Philistines, *staged by the Moscow Art Theater, were enormously popular. His revolutionary views were expressed in the rhythmic prose of his "Song of the Falcon" and "Song of the Stormy Petrel." His novel* Mother, *on the revolutionary struggle of the Russian workers, has been widely translated, as have been his autobiographical* Childhood, In the World *and* My Universities. *Gorky was the herald of the new Soviet literature, the literature of the revolution and socialist construction.*

He headed the Union of Writers of the USSR. After his death, Nizhni Novgorod, the third largest city in Russia, was named in his honor. His name is also carried by the Moscow Art Theater, where his plays are perennial favorites.

GORKY ARRIVED for a visit to the United States on March 28, 1906, his thirty-eighth birthday.

A year or so before this trip, the czarist government had kept the writer in solitary at the Petropavlovsk Fortress in St. Petersburg, long notorious as a prison for "particularly dangerous" political opponents of the autocracy. This was during the 1905 Revolution. The writer's imprisonment aroused a storm of indignation, not only in Russia, but in Europe and America. In the United States the American Union of Guildsmen protested. The protests reached such proportions that the czarist authorities were forced to set him free.

His political sympathies even then were with the Bolsheviks. He corresponded with Lenin and gave large sums to the party. One of the reasons for his trip to America was to raise funds for the Russian revolution.

He Meets Mark Twain

At the pier in New York Maxim Gorky was welcomed by workers' delegations, writers and leaders of the socialist parties. The following day, March 29, a banquet in his honor was given at the A Club. It was there he met Mark Twain. In the photo they are sitting next to each other at the table. They were much different and yet much alike; both were self-taught, self-made men.

Mark Twain called on Americans to support the Russian Revolution. While he was speaking, Gorky jotted this down in a notebook resting on his knees:

"His round skull is haloed by riotous tongues of white, cold fire. From under the heavy, always half-closed lids, one rarely glimpses the clever, sharp glitter of his gray eyes. But when they look you straight in the face, you feel that all the wrinkles on it are measured and stamped for all time on the memory of this man. His brittle bones move carefully; each of them feels its age.

" 'Gentlemen!' he said, standing up and gripping the back of his chair. 'I am too old to be sentimental, but until now I was obviously too young to understand this country of wonders and crimes, martyrs and executioners, as we know it. Afterward we began to understand a few things—the barricades in Moscow —that was understandable to us, although they weren't built for the sake of dollars. Have I made myself clear?'

"Of course he had. That is evident in the exclamations of approval and the smiles. He seems very old, but it is obvious he is only playing the role of an old man, for his movements and gestures are frequently so strong, deft and graceful that you are apt to forget about his gray head."

"I Am a Revolutionary"

April 1, the third day of Gorky's stay in the United States, turned out to be a most unamusing April Fool's Day for him. Returning from a reception, he found his belongings and those of his wife Maria Andreyeva, an actress of the Art Theater, on the street. He had been thrown out of the hotel. No other hotel would check him in. The newspapers attacked him. The reason? His marriage with Andreyeva had not been sanctified by the church. It was not too rare a union in Russia, but the papers were scandalized—he had violated the proprieties. Gorky replied: "My wife is my wife, the wife of M. Gorky. Both she and I consider it beneath our dignity to discuss the point. Of course every man has the right to say and think what he likes about us, but we also reserve the right to ignore gossip."

The real reason for the scandal lay elsewhere. Obviously, the czarist embassy in Washington had stirred it up.

Gorky, however, stuck to his scheduled program. The same day, on April 1, he spoke at a big meeting in the Grand Central Palace, and later on to American newsmen. In one of his statements to the press he said: "I am a revolutionary by birth, literary taste and principle. I have always stood on the side of the revolutionaries."

On April 12 he spoke on "The European Problem" to an audience of 5,000. His speech flayed the czarist government for its pogrom policy and condemned all racial discrimination.

Many letters of sympathy from workers and intellectuals came to Gorky at the Young Writers Club on Fifth Avenue, where he was living. A Mr. and Mrs. Martin invited Gorky and Andreyeva to stay at their house on Staten Island. It was on Staten Island that he met H. G. Wells and Ernest Rutherford, the physicist.

In May he began a brief but eventful cross-country tour. He addressed a meeting in Williamsburg, Virginia, and made a speech on "The Czar, the Duma and the People" at the Grand Opera Theater in Boston. In June he moved from the Martin house on Staten Island to their home in the Adirondacks, where he spent almost all summer. There he wrote the play *Enemies*, his famous novel *Mother* and a series of pamphlets and essays subsequently included in his book *In America*.

On September 30, 1906, Gorky sailed for home on the *Princess Irene*. A big crowd of well-wishers saw him off. "I am crossing to the other side of the ocean to be closer to the revolution and to continue my work for freedom," he said in parting.

His American Impressions

Gorky's impressions of the United States were diverse and complex. His caustic articles and pamphlets "The City of the Yellow Devil," "The Kingdom of Boredom" and "The Millionaire" reflected his view of the world. He was dismayed by some aspects of American reality that violated his humanist sensibilities. He wrote about all this trenchantly, in bold, biting language.

But Gorky was sensitive to other facets of American life as well: the industry of the people and their talent for organization. Speaking of the campaign for aid to San Francisco—the earthquake happened three weeks after his arrival—he wrote: "These Americans! In three days they collected six million for the victims of Frisco. They are a splendid people, let me tell you! They are too busy making money, though, and have little spirit, but that will all come. . . . They work like the magicians in fairy tales. A 33-story house built in 57 days. Can you imagine that?"

Their energy and creative power—those were perhaps the qualities he most admired in Americans.

American Friends

His trip to the United States helped Gorky make friendly and creative contacts with American writers. Soon after his arrival in New York, he met poet Edwin Markham, who protested the persecution of Gorky by the press. In a letter Markham expressed the hope that Gorky would be able to carry out his mission for Russian freedom and made several helpful suggestions for his lecture tour.

Gorky corresponded for many years with Upton Sinclair, whom he met in the United States. Their first exchange of letters dates back to 1912, when Sinclair was in Holland. They discussed an "International League" for peace, initiated by Sinclair. Gorky supported Sinclair's effort. He thought it could make a signal contribution to international solidarity and the struggle for peace and social justice. "This may be a great cause; it may prove of enormous significance," wrote Gorky.

In the twenties, when Gorky took on the enormous job of editing a series called *World Literature*, Upton Sinclair sent him his books and asked for his critical opinion. In March 1923, Gorky replied:

"Dear old friend! I received your letter. Thanks! *100%* has been published in *World Literature*, as well as *Jimmie Higgins*. *Jimmie* is a fine book and widely read in Russia. You are writing better all the time. I congratulate you from the bottom of my heart.

In one of his letters, Upton Sinclair calls Gorky the man who taught him to understand that great literature sprouts from the struggle for the poor and unfortunate.

On March 28, 1928, on his sixtieth birthday, Gorky received a greeting from the United States. The cable, signed by Upton Sinclair, John Erskine, Sherwood Anderson, Theodore Dreiser, journalists Burton Rascoe and Oswald Garrison Villard, and theater critic Oliver Saylor, called him a "genius of literature" and a "teacher of the nations."

Literary Affinities

Gorky had an affinity for American literature, an affinity which was mutual and had historical roots. Theodore Dreiser, William Dean Howells and Ernest Hemingway admired Leo Tolstoy, and Tolstoy admired the abolitionists and the books of Henry Thoreau. Henry James popularized Turgenev, and Turgenev translated Walt Whitman.

Maxim Gorky and Jack London never met. But in 1901, when the translation of Gorky's long story, *Foma Gordeyev*, was published in the United States, Jack London wrote a favorable review. For Maxim Gorky, Jack London's writing represented the better achievements of American literature, appreciated by the Russian reader for its spirit of courage, daring and struggle. Of Jack London's popularity in Russia, Gorky said: "In Murmansk somebody told me, 'This is a good place to read Jack London.' That is so. On the austere shores of the Arctic Ocean, where the polar night oppresses people in winter, man has to have an enormous will for life, and Jack London is a writer who perceived and felt deeply the creative power of will. He knew how to depict strong-willed men."

Gorky also commented on the educational role played by such American writers as James Fenimore Cooper. "For almost a hundred years," wrote Gorky, "his books were the favorite reading matter of the youth of all countries. Reading the reminiscences of the Russian revolutionaries, for instance, we often come across indications that Cooper's books had served as teachers of honor, courage and industry."

Maxim Gorky greeted the trend toward realism in American literature in the years after World War I. He did everything possible to have the best American writers translated. Judging from the size of editions and number of titles published, in the twenties Americans were the most popular of the foreign writers read in the Soviet Union. Gorky prized the satirical gifts of Sinclair Lewis and rated the novel *Babbitt* with Galsworthy's *Forsyte Saga* and Thomas Mann's *Buddenbrooks*. He thought John Dos Passos' *Manhattan Transfer* "very interesting," and liked the "sharpness" of Ring Lardner and the "bold social criticism" of Upton Sinclair. He considered the books of Sherwood Anderson and Theodore Dreiser and the plays of Eugene O'Neill high points in American writing.

In the thirties, Gorky, with Romain Rolland and Henri Barbusse, became an acknowledged leader of the cultural antifascist and antiwar movement. His death in June 1936 was regarded by American writers as a great loss to world literature. Carl Sandburg wrote:

"Though I never met Gorky, the news of his death is like the news of the death of a beloved friend."

Man Can Be Remolded

By Maxim Gorky

WE LIVE in a country where the working class has set itself the difficult and wonderful task of destroying the conditions which mentally cripple people from childhood. We are working to establish real freedom for man, a freedom which is possible only when there are no causes for envy, greed and hostility. We know for a certainty that these causes can and will be eliminated. What the political and cultural activity of the Socialists in the Soviet Union boils down to basically is not a struggle against man, but a struggle to free man of those foul attributes, habits and prejudices with which he has been infected by the bourgeoisie, the degenerate and mentally sick bourgeoisie. We are fighting against the zoological idealism of the philistines in order to create conditions for the free development of individual capacities, in order to ensure for all human beings complete freedom of creative endeavor in every sphere of life.

There are people who do not believe man can be remolded, relieved of the burden of scrap and refuse, of age-old violence. They do not believe because they are carrying this burden themselves, a burden which blots out their view so much that they are incapable of studying life, of seeing its dirty and shameful horror, of arming themselves with the creative anger to fight against the organizers of this horror. These are lazy and indifferent people. They want to live calmly, and that is all they want.

A new kind of man is being brought into being in the Soviet Union.

When people put up a new building, they do not think of the earthquake which can destroy it. We have no desire to hide from life behind fruitless and whimsical speculation about possible calamities in outer space, about the possibility that our sun may turn cold in a million years. We are learning to think through our labor, and this labor is teaching us the mysteries of the world. We are really transforming life. We make mistakes, but the only ones who do not make mistakes are dead people, and this because they cannot act.

. . . In our day man is subject to the many-sided effects of a very turbulent reality. Going on inside him is the struggle between the individualist and the socialist, a struggle of irreconcilable contradictions, a clash of attitudes and habits he inherited. The yoke he carries—the age-old violence of philistinism—clashes with the resolute and austere demand of history, with the demands of the working class party which has been assigned by history to be the father of a new kind of man. There are people in whom revolutionary class-consciousness has already developed into an emotion, into an element of unbreakable will. With them it has become as much an instinct as hunger and love. However, there are people whose consciousness, so to speak, lies on the surface of their reason and continually oscillates from left to right, an easy prey to the flows of our militant reality.

It is convenient (though this might sound rather crude) to subdivide the attitude of men toward the world in these four ways: perception of the world, *i.e.*, a passive realization of reality as a chain of various and unremovable counteractions to man's growth and progress; contemplation of the world, *i.e.*, an indifference and "objectivity" which can be afforded only by those who have enough to eat, who lead a calm and secure life and who are sure that there will be enough of everything for their lifetime; world outlook, *i.e.*, a system of "rational" views assimilated in the family and at school and supplemented by reading. However, the most dramatic figure of our time is the person who tries to understand the world, strives to study and comprehend the world so as to acquire full mastery of it and use it.

Excerpt from the article "On The Play," 1933.

QUERIES FROM READERS

QUESTION: Of all great Americans, past or present, I am more interested in John Philip Sousa, the "March King" (1854-1932). Is this American known at all by the Soviet populace today? (Edward Martin, Danbury, Connecticut)

ANSWER: Professional musicians and those especially interested in American music know John Philip Sousa, but Samuel Barber, George Gershwin, Jerome Kern and Leonard Bernstein are much better known.

QUESTION: How many libraries, books and subscribers are there in the Soviet Union? (Paul Stable, Cincinnati, Ohio)

ANSWER: Our 370,000 libraries meet the reading needs of more than 110 million subscribers of all nationalities. They have a combined total of more than 2.3 billion books, about 10 books for each of the 235 million people in the country. Books are published in 90 of the languages spoken in the USSR and 50 of the languages spoken in other countries. Every fourth book published in the world is a Soviet book; 1.3 billion copies were printed in 1966.

QUESTION: How much does sports training cost in the USSR? (John Ortiz, New York)

ANSWER: That depends on the kind of sport and whether you belong to a sports club. If you do not belong to a club, you have to buy your own equipment, shoes, gym suit, but you do not have to pay for the use of the gym, playing field, etc. As a rule, though, people belong to a sports club at their place of work or in their neighborhood. Membership entitles them to join any group in the club, use the club facilities, equipment, the services of coaches and take part in competitions—all without charge. For example, those belonging to the motorcycle group of a club get the use of a motorcycle, a leather jacket, boots, helmet and goggles for their very modest membership dues of 30 kopecks* a year. The trade unions and the state subsidize sports.

QUESTION: I understand that you have published a new Moon Atlas. Will you tell me about it? (John Ortiz)

ANSWER: In 1967 we published the second part of a Moon Atlas. The first part, published in 1960, showed the visible side of the Moon; the second part shows the dark side of the Moon. It also contains information on the basic principles of selenographic charting. More than 3,500 elements of the lunar relief appear on the chart.

QUESTION: Why are there no monasteries in your country? (Mrs. Gloria Breth, New York)

ANSWER: There are. The biggest are the monastery of the Russian Orthodox Church near Moscow, the Zagorsk Troitse-Sergievo Monastery, the Pochayev Monastery in the western part of the Ukraine, the Catholic Monastery in Aglon (Latvia), the monastery of the Armenian Apostolic Church in Echmiadzin (Armenia), and the Buddhist and Moslem monasteries in Siberia and Central Asia.

QUESTION: Which industrial crops are grown in the Soviet Union? (Samuel Pearson, Detroit, Michigan)

ANSWER: Sugar beet, cotton, sunflower, flax, hemp, tobacco and others—more than 30 all told. The industrial crops acreage keeps increasing and now exceeds 37 million acres.

QUESTION: How many theaters are there in the Soviet Union? (Pius Lock, Westchester, Illinois)

ANSWER: Our more than 500 professional theaters with permanent companies stage plays in 45 languages. The annual audience exceeds 100 million. We also have about a thousand people's theaters and 400,000 amateur theater groups in factories, schools, collective and state farms with more than 10 million active members. The performances staged by the people's theaters are of very high caliber though the members of these companies are amateurs. SOVIET LIFE carried an article on such a theater in December 1967.

QUESTION: Which countries were the first to establish diplomatic relations with Soviet Russia? When did the USA, Britain and France recognize the new regime? (Herbert Stafford, Los Angeles, California)

ANSWER: The first countries to establish diplomatic relations with us were Turkey and Finland in 1920, and Iran, Poland and Afghanistan in 1921. Diplomatic relations with Britain were established in February 1924, with France in October of that year, and with the USA in November 1933.

QUESTION: Do Soviet seamen help foreign ships in distress? (T. S. Wilson, Seattle, Washington)

ANSWER: Of course. In the past two years alone Soviet ships on 30 occasions rendered aid to crews of foreign ships and rescued 181 foreign sailors. The Soviet Union is a party to the International Convention for the Safety of Life at Sea.

QUESTION: When does an inhabited area become a town? (John Reuter, Fayetteville, Arkansas)

ANSWER: An inhabited area becomes a town when it is the industrial and cultural center of the locality; when it has a population of at least 12,000, four-fifths of which are industrial or office workers; and when public services and amenities have reached a high enough level.

QUESTION: Have you any youth cafés? (Harry Marsh, Orlando, Florida)

ANSWER: Yes, practically every town has at least one and cities have several. In between drinks and snacks people dance, have discussions, recite poems, sing, talk business or play chess. Some cafés feature amateur film showings, exhibitions of paintings by young artists, quiz contests, poetry readings, jazz band competitions. Meetings of Soviet and foreign young people are often held in these cafés.

QUESTION: How many marriages and divorces take place in your country on an average per year per thousand of the population? (Mrs. Catherine Drove, Baltimore, Maryland)

ANSWER: Our statistics say 9.1 marriages and 1.6 divorces.

QUESTION: What is the size of the USSR merchant fleet and what is your foreign trade turnover? (Daniel Provezano, Salt Lake City, Utah)

ANSWER: The tonnage of the 1,300 ships of our merchant fleet is more than 10 million, and four-fifths of the ships were built in the past 10 years.

The volume of sea shipping last year to the 100 countries with which the Soviet Union trades ran to 150 million tons. The annual foreign trade turnover in 1966 was more than 15 billion rubles, with the socialist countries accounting for two-thirds of the total.

QUESTION: Can the magnetic field be used for treating diseases? If so, which? (Fred Smith, Philadelphia, Pennsylvania)

ANSWER: Magnetic field treatment is still in the experimental stage. Researchers Yuri Kholodov and Alexander Vyalov report favorable effects with cancer, radiation sickness, eczema and certain heart diseases. Unfortunately, negative effects were also observed for which the magnetic field may be responsible. In animals tested, growth was retarded and there were signs of fatigue, sleeplessness, etc. There has been some success with magnetic field treatment, but the results are still very inconclusive.

QUESTION: Do you have places that rent cars, radios, etc.? (Alfred Tolley, Sacramento, California)

ANSWER: Yes, in practically every town. For a nominal charge you can rent a car, a movie camera, a radio, typewriter, dishes, sports equipment, musical instruments, etc.

QUESTION: How large are your forest reserves and what area do they cover? Which species of trees are most widespread? (Jack Motte, Boston, Massachusetts)

ANSWER: Forest and land earmarked for forest planting cover half the country's territory, Vasili Rubtsov, Chairman of the State Committee for Forestry, tells us. The Soviet Union has one-third of the world's forest reserves. Its total stocks of timber exceed 2.8 trillion cubic feet and the annual growth is 28 billion cubic feet, which means that the increment alone is enough to supply all the countries in the world.

The most widespread species are larch, pine, fir, silver fir, cedar, birch, oak, hornbeam, lime, maple, beech and ash.

* There are 100 kopecks in one ruble, which equals $1.10.

A BRIDGE FROM EARTH TO VENUS

ON OCTOBER 18, 1967, the automatic interplanetary station Venus 4 made history's first soft descent and landing on the surface of Venus.

The station covered a distance of 217,500,000 miles in four months.

The earlier launchings in the direction of Venus were in the nature of preparatory stages for the soft landing of Venus 4. Venus 1 had covered a mere 1,865,000 miles when it stopped signaling. Venus 2 reached a point 15,500 miles from the planet, following a preset trajectory.

On March 1, 1966, Venus 3 reached its destination and planted on the surface of Venus a pennant with the Soviet emblem. When it entered the planet's gravitational field, however, the station stopped transmitting.

Venus 4, during its entire flight, was in regular communication with the Long-Range Space Communication Center, from which it was controlled. In the four months of its flight the station transmitted a mass of data on the physical properties of outer space.

But its main assignment was to obtain data on the atmosphere of Venus. Before the launching there was no way of predicting flight conditions. What data there was on the temperature and the gas composition of the planet's atmosphere were contradictory. Assumptions concerning the toxic gas content of the atmosphere and also the duration of flight made it imperative to reinforce the reliability of all the systems. For instance, the orientation system valve, which switched on about 30,000 times during the flight, was tested 300,000 times on Earth. All the units, systems and installations were put to the proof and checked in conditions simulating those of outer space. The apparatus itself was tested on a centrifugal stand and on a vibration stand and was then dropped by parachute.

Long before June 12, 1967, launching day, a duplicate of Venus 4 had been assembled and put through the "launching" and the entire flight. The complete modeling of the experiment helped to check all the equipment and to eliminate flaws before the actual launching. However, even after Venus 4 was launched, the replica went on "following the station." It not only followed but on occasions went ahead, to see ahead of time what would happen with Venus 4 after a certain span of time and to correct its flight.

All the systems of the automatic station worked faultlessly, and on the morning of October 18 Venus 4 entered the atmosphere of Venus. A research laboratory separated from the station and by parachute began making a smooth descent to the surface.

For the hour and a half it took to descend the 15.5 miles to the surface, the research equipment measured the parameters of the atmosphere and transmitted the data to the Long-Range Space Communication Center. Finally the apparatus landed on the surface of the planet and placed on it the second pennant with the Soviet emblem.

Measurements of pressure, density, temperature and chemical composition were made of the atmosphere of Venus. During the period when the measurements were taken, the temperature changed from 104° F. to 536° F. and the atmospheric pressure from 1 to 15 atmospheres. On the trajectory of the station's flight, right up to a distance of a couple of hundred miles from the surface of the planet, no magnetic field was found whose tension would be more than .0003 of the Earth's magnetic field.

The experiments with the traps for charged particles showed that the concentration of these particles in the planet's atmosphere (at an altitude of more than 60 miles) is smaller at least by a factor of 10^2 than the concentration of charged particles in the ionosphere of the Earth.

The volume of hydrogen in the atmosphere of Venus is approximately 1,000 times smaller than in the terrestrial atmosphere. Measurements showed that the atmosphere of the planet consists almost completely of carbon dioxide and that oxygen and water vapor make up about 1.5 per cent.

The unique data disproved many previously held conceptions of Venus. For example, various hypotheses which pictured the surface of the planet as a red-hot desert, an ocean of water and a great reservoir of oil were shown to be without foundation.

Soviet scientists commented in detail on the data transmitted by the station.

Professor Nikolai Kozyrev:

"Soviet scientists obtained new and important information on the nature of Venus. Brightly shining molecules were found in its atmosphere, and Venus 4 has now established that they are oxygen molecules, whose presence casts light on another mysterious phenomenon—the so-called ashen glow of the Venus night sky. What sort of phenomenon is that? We know that there is no absolute darkness even on the darkest of nights on Earth due in substantial measure to the glow of the sky. During the day the gas molecules in the ionosphere decompose under the influence of solar radiation. At night these molecules are restored to the natural composition, and in the process they emit light energy. We have proof now that a similar phenomenon takes place on Venus, though the ashen glow of the sky there is 50 to 100 times brighter than on Earth.

"The density of the atmosphere of Venus is so great that solar rays cannot penetrate it. That is why there is apparently permanent twilight on the planet's surface. However, there can be no life without light. Obviously, what life there may be on the planet exists in the humid and dense atmosphere closer to the Sun. This may be a kind of plankton which can cause the mysterious glow we see in the seas and oceans of the Earth that abound in plankton."

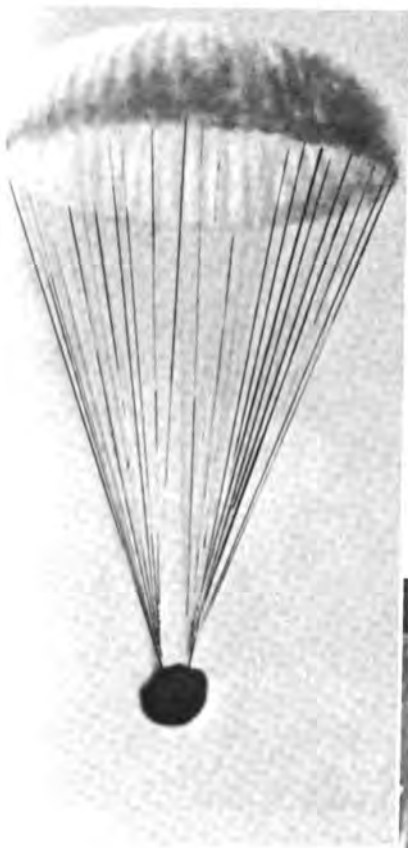
Academician Alexander Oparin:

"The formation of Venus and its development followed a course somewhat different from the evolution of the Earth. Proof of that is the composition of the planet's atmosphere. The formation and the subsequent transformation of the regenerated carbon compounds, which led to the appearance of life on our planet, apparently did not take place on Venus. Present in its atmosphere is only the completely oxidized carbon in the form of carbon dioxide. The fact that the atmosphere of Venus does not reveal the presence of any hydrocarbon, which served as the initial material for the appearance of living organisms, does not offer great hope that life exists on the planet."

Nikolai Krasilnikov, Corresponding Member of the USSR Academy of Sciences:

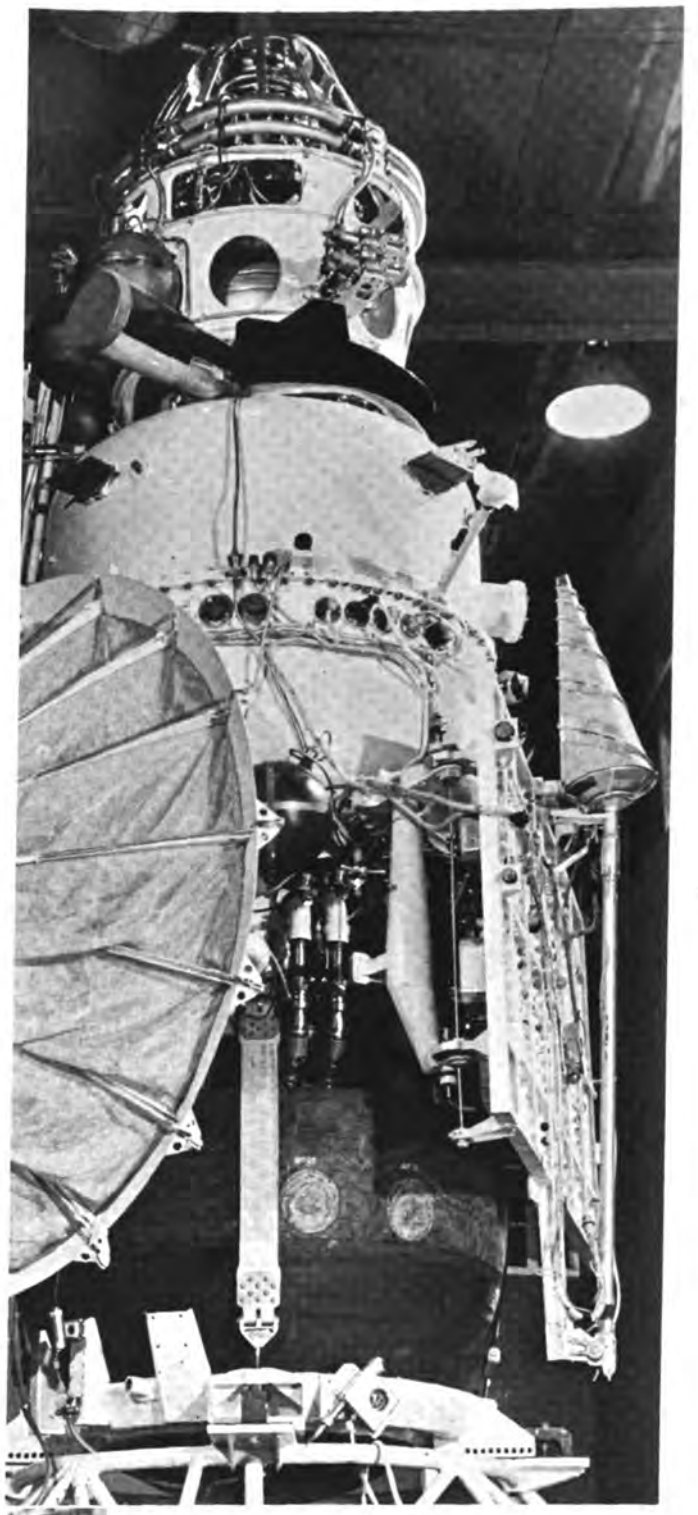
"The data transmitted by Venus 4 gives one reason to assume that there nevertheless may be life on the mysterious planet. Carbon dioxide, oxygen and water vapor are not a bad medium for energy-producing processes, and it is quite possible that there is a synthesis of primitive organic substances of the carbohydrate type. If such is the case, biological processes are also possible. Naturally, it is still too early to assume in what forms they develop. The answer to this question will be supplied by future explorations in space which, I am sure, will be just as fantastic."

Pennant with the gold arms of the USSR and a national flag of the Soviet Union delivered to Venus on October 18, 1967.



Tests of soft landing of a research station

Ground tests of the parachute system



Venus 4 station

Adjustment of the station's radio antennas was conducted long before the launching.

SURVEY OF PROGRAMMED LEARNING

By Professor Axel Berg

WITH THE AMOUNT of scientific and technical information doubling every ten years, the need for a change in educational methods has now become acute.

It is not just a question of improving existing methods, but also of a search for new methods better adapted to the training of specialists in the present situation.

Some three or four years ago, programmed learning was introduced into Soviet education, and its use has been increasing steadily.

Essentially, the process of education can be regarded as a system of control to which the methods of cybernetics can be applied.

One result of adopting this standpoint is to show clearly that traditional methods of class teaching do not allow the teacher to exercise effective control over the progress of the students.

FIRST PROBLEM

With three million teachers and 70 million students in the Soviet Union, teachers cannot keep themselves continuously informed on how each student is mastering the subject matter.

The first problem to which programmed learning offers a solution is that of effective control over the student's acquisition of knowledge.

Tests and examinations provide only a very belated check on progress.

If a teacher could keep a continuous eye on how each student masters the subject matter, a new method of teaching could be applied. Some students would repeat this or that material or be shown a fresh approach; others would be reminded of what they have forgotten; still others, who have mastered the subject matter, would be supplied with new information.

Under the present conditions of mass education, the teacher usually finds the way out by keeping an eye on the so-called "average" student, both in the manner and rate of the presentation of the information.

The resultant shortcomings are obvious: Weak students do not improve their academic record; those more capable do not progress fast enough.

SECOND PROBLEM

So the second problem arises—how to adapt teaching methods to the capability of each student.

Many other important issues crop up, and they still await solution by psychologists and educators.

The first all-Union conference on programming methods, held in Moscow recently, showed that particular headway had been made in designing and applying devices that can maintain a more effective control of the study process.

These various technical gadgets (among them there were rather original contrivances, operating on punch cards) help teachers to check on the student's performance. They can also be used by students to check on their own progress.

Much attention is given to training appliances, which can help students to acquire professional skills (especially those of manipulation).

Experience, both at home and abroad, shows that devices of this type can yield good results when used for training qualified personnel for industry, trade, transport, etc.

Education, however, cannot be confined to control alone. Researchers working on programming methods have taken a step further: They strive to design teaching programs and appliances that would be able to realize the major principles of education.

Some researchers believe that these principles could successfully operate with the help of programming manuals.

Suppose you familiarized yourself with a new concept. The machine offers you a question. If your answer is wrong, you are referred to the corresponding part of the subject matter. If it is not, you are given new information.

POSITIVE RESULTS

Other researchers speak out for effective technical devices of adaptation—also for those operating as computers—that would make it possible to realize the ideas of programming teaching more completely.

While new avenues are being explored in this field and special books and devices being tested for practical application, it would be premature to draw up a final balance of the relative advantages of this or that method, of this or that program or appliance.

But even now most educators agree that these new trends in education yield positive results, stimulating the activity of students, improving their knowledge, economizing on the time of study.

The new trend in teaching has its own organizational problems to cope with. An interdepartmental scientific committee dealing with questions of programming teaching has been set up to promote and co-ordinate all work in this field.

However, this committee cannot function successfully, because of the very limited number of qualified experts in this field.

The bulk of time-consuming research is carried on by enthusiasts in their spare time, although they are very busy with their chief job as teachers.

All this necessitates the creation of a network of laboratories, attached to different schools, together with a research center on programming methods.

Many theoretical and methodological problems would be tackled by this center

Its tasks are complicated, requiring the co-ordination of work of specialists in different fields: educators, psychologists, mathematicians, logicians, engineers and, of course, teachers.

THE TEACHER

Cybernetic devices will never be able to replace a good teacher. His tasks will only become different. He will, however, be saved the purely mechanical work, which at present is a considerable tax on his time and energy.

The best lecturers and educators will take care of programming teaching aids. The teacher will be able to establish contact with each student of the class.

In each case he will find an individual approach to every student and stimulate his interest in the subject matter.

I believe that, in the near future, all conditions necessary for the further elaboration of new trends in education, of a new branch of science—cybernetic teaching—will be created.

Yevgeni Kurbatov is fish warden on the Pechora. Its banks are inhabited by Russians, Komi, Nenets—sturdy hard-working people. They have to be in this climate. They and their fathers have always fished the Pechora for salmon and they see no reason why they should stop now. Kurbatov's job is to see that there is no poaching: The country's salmon is being fished out.

SALMON POACHERS

By Pavel Kukhtin

FRIGHTENING UP the ducks as it breaks through the reeds, a motorboat describes a broad arc and makes a bee-line for the opposite shore. There, silhouetted by the morning mist, are a half-dozen small boats. The motorboat closes in on the floats of a fishing net rocking on the surface. The fishermen, taken aback by the new arrival, mutter something about appetizers for Sunday dinner.

"Let's see those appetizers of yours," the man in the motorboat says shortly.

The fishermen, very reluctantly, begin to haul in the net. Fortunately for them, there are no fish in the nets. The men, bolder now, smile sarcastically. The incident ends peacefully with a parting comment from Yevgeni Kurbatov, the man in the motorboat, to the effect that when he does catch them, he'll make it good and hot for them.

Heading for shore, he angrily shakes his head: "They were poaching, netting salmon. It's against the law."

It is episodes like this that make up Yevgeni Kurbatov's working day. He is the fishing patrolman for Ust-Tsilma. His day begins at dawn and ends at nightfall, and his beat takes in a few dozen miles of the Pechora and up the Tsilma where salmon spawn.

In his five years as patrolman Kurbatov has had as many adventures as Charlie Legrant of Jack London's *Tales of the Fish Patrol*. Though Charlie, who chased poachers all over San Francisco Bay, had tougher types to contend with than those in Ust-Tsilma, Yevgeni has had his unpleasant moments. He has even been shot at. Luckily, nervous poachers are not the best shots in the world.

Yevgeni strikes terror into the hearts

The man in the hat is Kurbatov. His beat is along the Pechora a few dozen miles and up the Tsilma where the salmon do their spawning. His working day begins at dawn and ends whenever he gets to bed. One of his duties is to control the commercial catch. Only salmon of a specified size and weight may be taken. Young and big fish are protected to ensure the best progeny.

of Ust-Tsilma's unregenerate poachers; he can fine them or bring them into court. Tall and broad-shouldered, he looks every bit the Viking he is not. His strength and obstinacy are Northern attributes, while his face and vivacity are more Southern. He comes from the South, the Ukraine. People wonder what brought him so far North, where there are neither pyramidal poplars, nor warm velvety Ukrainian nights, nor cherry orchards, nor white-painted houses. Along the frigid Pechora, with its mesh of tributaries red from the marsh waters, stand blackened log cabins surrounded by either a monotonous plain carpeted with light green moss or gloomy low-growing thickets.

Kurbatov lives alone. He has no family and does little visiting. He knows that if he drops in for a visit, he will be treated to a spread, and his host, with characteristic peasant cunning, will try to soft-soap him into looking the other way at a little poaching. Why shouldn't he fish for salmon when his father and grandfather did before him? How could a few salmon hurt the state?

There is no thawing Yevgeni with a drink, and it's useless to try to bribe him. Still, he is not a hard-bitten man. He is cordial enough with friends and colleagues. Simply, his job requires him to be hard, and so he prefers to stay at home and read. He is taking a correspondence course at a fishing institute.

When he first came North, Kurbatov knew next to nothing about fish, except for the dishes they make. Nor was it easy to learn about them—the theoreticians said one thing, the fishermen another. For instance, the books said that during the spawning season the female salmon dug a hole six feet long at the bottom of the river and then covered it up, while the old-timers said: "Nonsense! It doesn't have to cover the hole up because the male 'stands watch' and keeps the graylings off." In short, ichthyologists have yet to establish the living habits of the Pechora salmon, a problem that happens to be important commercially.

Russia has long been famous for fish, but of late the catch of such valued species as the salmon has dropped sharply, the reason for the crackdown on poaching.

Some people just refuse to obey the law, what with so much salmon right there for the having! Anglers from other places don't mind leaving the salmon alone, since the local perch, roach and sundry other fish will rise to almost anything. But the local folk look down their noses at any other fish; only salmon suits their palates.

"I came here just to see what the place was like. I'd never been North," Kurbatov says. "When I was trying to decide what work I wanted to do, I met an old fisherman. He got me interested in salmon. I wanted to do something to keep them from disappearing altogether.

"Of course, it's not a job to write home about. I don't enjoy getting people mad at me. But when there's plenty of salmon, the ban will be lifted. Our most rabid poachers are beginning to behave themselves. And those who hanker after a plate of salmon soup every now and again—they see our point of view and keep their appetites down. The thing is to get as many people as possible on your side."

Begin to make the rounds with Yevgeni and you get the impression that he is all alone, the honest hero of a film bristling with bad men. But then you notice him joking with one man, assigning a job to a second, having a smoke and a chat with a third. Apparently he has

PHOTOGRAPHS BY FRED GRINBERG AND DMITRI DONSKOY

plenty of friends, and even a few voluntary aides.

"What did you think? The world isn't all populated by poachers." Squinting from the smoke, Kurbatov stirs up his campfire, glancing from time to time at the river. "On the whole, the people here are all right, very friendly. They poach mostly out of habit—they've been catching salmon all their lives and they don't see why they should stop now. They're not easily convinced. Especially since our authorities don't always agree on the rules. For instance, right now the Pechora is dammed up by nets at the source. They say it's better that way. But I—and many of the experts—think they're wrong."

Yevgeni suddenly jumps up and peers into the darkness. Then he resumes his seat at the fire.

"I thought I heard an oar. It's only fish playing. We inspectors and ichthyologists have decided to draw up a list, make a few suggestions. No, that isn't fish playing. Somebody's on the river."

He slips down to his boat, and without switching on the engine, manipulates his oar skillfully and vanishes in the darkness.

Fishing is the oldest trade on the Pechora and fish protection the youngest and least welcome. Kurbatov has his unpleasant moments. He was even shot at once. Happily, nervous poachers do not make good shots.

A local game—bowling on the sand. Says Kurbatov: "People here aren't bad. Very hospitable. They poach mostly out of habit. They have been catching salmon all their lives and suddenly it's against the law. They are not easily convinced that it should be, especially since some of the rules laid down are pretty questionable."

Kurbatov keeps one eye open for potential poachers and the other, a very knowledgeable eye, on the fish. He works closely with government ichthyologists who are studying the habits of the Pechora salmon.

This is rugged country, around the Pechora. The farther up the river you go, the cooler the rays of the sun. In the winter you see it above the horizon for only a few hours a day. And although it shines nearly round the clock in summer, there are very few days that are really warm.

RAFTSMEN

PHOTOGRAPHS BY FRED GRINBERG
AND DMITRI DONSKOY

ARE you tourists?" asked the sheepherder.

"That's right," replied Sergei for the rest of the group.

"W[illegible] you went to see in [illegible]echora.

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The Pechora basin is famous for its lumber. There are times, during the rafting season, when you can hardly see the water for the floating logs, several layers thick. Power tools and hauling tractors now do much of the heavy work, but lumbering is still no job for the tyro. Sergei Cherkassov (extreme left), Moscow University student, found that out when he spent a summer vacation rafting on the Pechora River with hereditary lumberjacks.

There are as many lumber yards on the banks of the Pechora and its tributary, the Podcherem, as there are settlements. The high-grade lumber goes to coal mines, for shoring, and to furniture and woodworking factories in many parts of the Soviet Union. A good percentage of it is exported now.

floating logs are several layers thick. Old-timers say there are times when the logs jam up as high as a house. This year, though, for the first time in 30 years, was an especially bad one for rafting. There was hardly any snow, the rivers froze deep and in the summer they dried up from the unusual heat. Many logs that had drifted down from the lumber camps and upper reaches of the Podcherem never reached their destination: They were grounded. Prodding them loose took care of the jam, but a lot of the timber remained.

Sergei's job was simple, but it took a lot of work. He had to sort and push the logs through a hole in the dam, where a machine bound them into rafts. Tugs pulled them out to the Pechora to drift downriver. But that wasn't Sergei's concern. He saw nothing but the end of his pole. His job was to push and to watch out that he didn't fall off his perch on a slippery log. That took all his time and attention.

Next to him worked experienced raftsmen, some of them local men. Short and wiry, they worked and argued like devils. There were also a few Transcarpathians, who had come to the Pechora to make some money (there are more raftsmen but less timber in the Transcarpathian Ukraine than in the north). These boys were hereditary raftsmen. Their skill had been handed down from generation to generation. They were broad of shoulder, narrow of hip and balanced themselves like circus artists. They stepped along a rolling log as though it were firm ground. At home the Transcarpathians sail their rafts down rivers so turbulent that the Podcherem looks to them like a swimming pool.

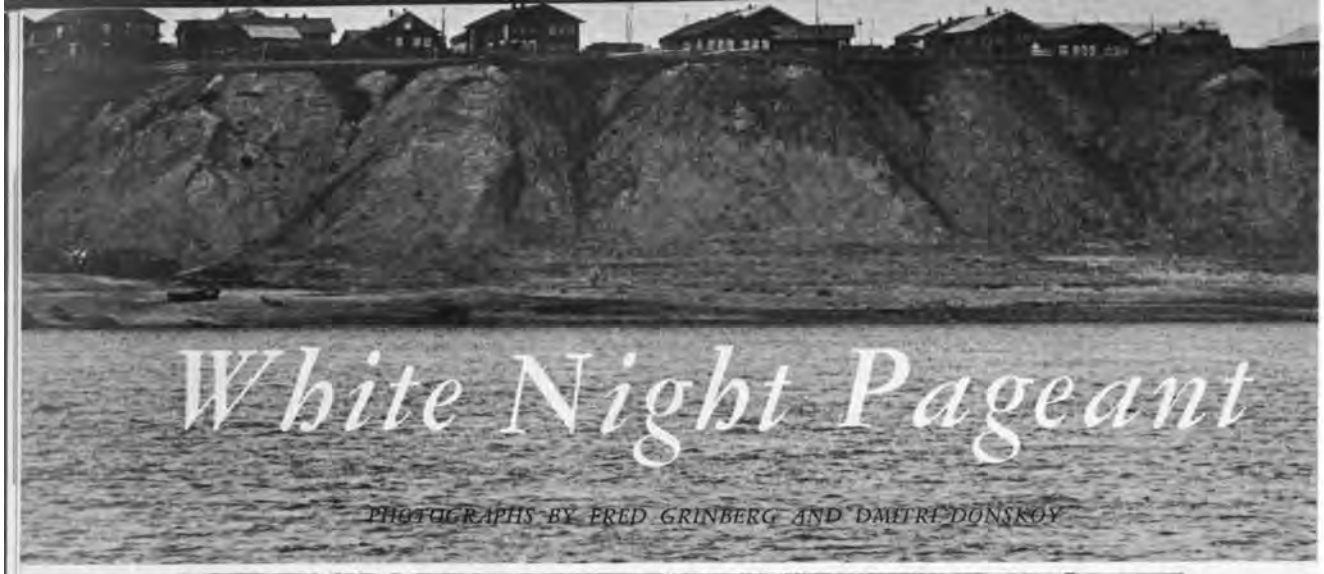
Sergei took a back seat among those virtuosos. He was teased and trained at the same time. Gradually he caught on and became a pretty good raftsman himself. In the evenings, when the team gathered round a campfire, Sergei was the center of attention.

"Come on, student, tell us what they think about this in Moscow."

The rugged men would listen to him open-mouthed, as naïve as children, but when they had something to say, Sergei marveled at how sharp they were.

At the university when he got back, Sergei strutted about like a hero, talking about his summer job and enlarging on his romantic adventures. For a while, that is, until he was swallowed up by routine—lectures, seminars, study. Then the summer was forgotten.

Forgotten until the day he read in the newspapers that the Pechora woods had supplied almost 700 million cubic feet of timber. He stopped to figure out his contribution to that number.



White Night Pageant

PHOTOGRAPHS BY FRED GRINBERG AND DMITRI DONSKOY

TO BE in Ust-Tsilma and to miss the *gorka* (hill) was to miss Ust-Tsilma altogether. This advice we got from an old-timer in this ancient village on the shore of the Pechora 75 miles south of the Arctic Circle. It was hard for us to realize we were so far north. It was early July, the thermometer read 82°, the sun blazed down brightly from a cloudless blue sky, and everything around was green. Thick grass sprouted up through cracks in the board sidewalks and carpeted the sloping hill backing the high bank of the river along which the village stretched for some three miles.

We thought the hill had given its name to the *gorka* festivities and had imagined holiday-costumed women dancing in rings amidst the flowers and grass on its slopes. The women did wear their holiday best and they did dance in rings, but not on the hill. They danced and sang right in the streets. The name *gorka* comes from the steepest street in Ust-Tsilma.

We could not establish the origin of this holiday, but we did learn that for all 450 years of the village's existence, its residents have been celebrating the *gorka* with unabating enthusiasm.

The *gorka* had taken place only two weeks before we arrived, and that meant waiting a whole year for the next time. Warm days are short-lived up North, and the villagers have plenty to do in the summer besides staging pageants. They had to get the hay in, for instance. The Pechora meadows are the reason livestock-breeding is the main branch of Ust-Tsilma's agriculture. Everybody lends a hand at getting the hay in.

However, a *gorka* was held especially for us newsmen the day after we arrived. Reporters were obviously rare guests in those parts. We marveled at how quickly the villagers made the arrangements. It was due to the "*sarafan* post," we learned. The moment Aunt Marfa learns that a *gorka* is wanted, the news is re-

Ust-Tsilma is typical of the villages along the Pechora. There are many of them and they are much alike. The houses are all built of heavy, weathered logs. For an antique hunter, they would be veritable Golcondas, full of carved spinning wheels, ancient kitchen utensils and icons painted by long-dead local Russian masters. The people along the Pechora, isolated from the rest of the country for centuries, have preserved their old customs, of which ritual singing through the white night is a fascinating example. The customs persist even at this late date, when air travel is common and the young people go to colleges in Moscow and Leningrad.

layed to all the other participants in the dance, and they gather in their beautiful *sarafans*, embroidered shawls, earrings and beads.

At about 10 P.M. we went to the steep *gorka*. Summer nights in the North are white. The sun dips behind the horizon for a brief spell, during which the sky remains light. It is strange to see daylit village streets deserted. That night they were as full of people as though it were daytime. Women in holiday attire walked down the board sidewalks holding hands, proud of the attention they were getting from the onlookers—men, for the most part, and children, who were allowed to stay up late on these occasions.

At first there were no more than 10 women in *sarafans*. They began by strolling up and down the street for a space of 10 yards or so. There were few observers. Gradually the number of women in *sarafans* increased. They appeared at the end of the street singly or in twos and threes. Soon the *gorka* became crowded, and the women extended the dance area to 20 yards.

They kept coming and enlarging the *gorka* area until it was 100 yards. The women skipped along, and as though somebody had plucked the heartstrings of the past, a song rose into the warm nocturnal air. The women sang in chorus to the tune of an old folk song that lives in each of us, though we may never suspect it is there.

We tried to make out the words. They sang about the past, the ancient Russian town of Novgorod, and the people of Novgorod who had founded the village of Ust-Tsilma. They also sang about the Swan Czarevna. We caught a few modern words, "plane" and "helicopter." The lyrics seemed to be about events today, but the singing was in the old style. To tell the truth, we were not nearly so interested in the words as in watching the procession and listening to the melodies—now rising, now falling.

We glanced around at the spectators to see how they were taking it. The children were staring open-eyed at their mothers and grandmothers, as though these were characters come to life from Russian fairy tales they had heard from the famous local story tellers.

The young people looked on amused. Some of the girls giggled into their kerchiefs; the boys tried to hide their interest by a show of sophistication.

The old folks went on talking about their affairs, but they did not miss a trick. They glanced at us every so often to see how we were reacting.

The *gorka* went on for several hours. Afterward we sat in a rowboat moored at the riverside and gazed at the dark taiga on the low bank opposite. We stared up at the pale blue, almost white sky, which looked as though it were glazed and lit from inside, and tried to recall the singing. There was a feeling of timelessness, of Old Russia about the festival. When we returned to our hotel, the *gorka* was over, and the streets were deserted. It was quiet and everything around had a touch of magic.

EDUCATION AND CULTURE

NEW PROBINGS IN ART

If there is anything in common among the young painters exhibiting in group shows this past year, it is their fierce desire to be themselves. Whatever they have to say is stated with style and conviction. Without making any blanket judgment, I would say there was more personality per show than for many a year past. And this considering the general turbulence on the artistic scene in the last decade or so and its many changes in approach as well as style.

Form today seems all-important as a powerful means of conveying the vital, new attitudes of today's society, especially those of the young people. Many artists seem content to give their view of the life about them in a buoyant, half romantic style that in itself suggests the bubbling enthusiasm of the young. Certain of the newcomers, however, are discovering the heady excitement of original experimentation. These are the seekers, the probers, whose paintings glow with an inner intensity not readily perceptible on the surface. The variety of themes is endless, the expression individual, the aim —communication.

There have probably not been enough shows to determine what in a picture, if anything, is typical. This insufficiency of exhibition space and time is a sore point with the youth and with the public. Still, one can easily see what is absent. Certain approaches and techniques are unquestionably on their way out. One is the long-winded pictorial narrative, another is the pompous, official-looking action picture with posed figures and dramatic gestures and lighting.

Among the newcomers, the seekers probably have the largest, most articulately appreciative following. But disagreements over one picture or another are common.

Two, by Victor Popkov, has aroused conflicting opinions. But to most viewers the small world he has painted in shifting perspective, using a double outline, color contrast and other devices, comes through as a fresh and poignant treatment of an old story. It is the essence of first love, minus the mush.

Boris Shatokhin's **Polyushko-Polye** (Cavalry Song of the Fields) seems itself to have an almost musical appeal. The boy lying (wounded?) at the bottom of a great green field seems to perceive the waving grass of the field as a resounding in his ears. The circular pattern is repeated subtly in the lines of the white horse standing by. The same painter's **Soldier of the Soviet Land** is a tenderly affecting statement, reflecting the artist's innermost feelings. The subject of **Soldier** may be sincerity, it may be youth; it could be war or even a historical portrait. Perhaps it is all of them. The historical theme in art, incidentally, is a tradition that has never died in this country. It lives on in painting as it does in music and literature, in marked contrast with art in the West, where the historical theme now survives only in music and literature, having been ousted long since from the graphic arts.

The modern approach to a moment in history —Nikolai Eryshev's **Division of the Land,** one of the most serious comments by a young painter on rural life in the postrevolutionary period—relegates the action to the background, centering attention on the emotional response of a family getting a plot of land from the state. The glowing, smoldering red of the earth pervades the scene and seems to set the whole, strangely solemn tone of the work.

Gennadi Myznikov in **May Day Picnic** takes us back to the days before the Revolution, when it was illegal for workers to hold meetings in town. There is suppressed excitement in the dynamic pattern of subdued color alternating with white shirt sleeves, leggings, kerchiefs, paper and cloth.

Works from Georgia, Armenia, Estonia, Moldavia and one or two of the Central Asian republics were impressive. The vigor and the poetry of national traditions sometimes develop in unexpected ways.

The **Shepherds** of Tengis Mirzashvili, of Georgia, in bronzes and browns, is a small painting but, like the Eryshev work, it has a monumental quality. The sheep at the very top (compare with the sky in a child's picture) are cream and gray. In the weary, strongly modeled faces of the men, their rough work clothes, their close-knit position in relation to one another, there is a solid feeling of the earth. But more than one of the shepherds has an inward gaze. Are their thoughts of home, warmth and the family or something less distinct, floating above their mountains in the clouds like the sheep at the top? This picture definitely grows on you.

Idyll by Ashot Melkonyan (Armenia), through meaningful use of line, tone and unusual aerial perspective and especially composition, gives us a feeling of exciting open spaces warmed by human closeness.

The new look in the Baltic Republics is rep-

The Shepherds of Georgian Tengis Mirzashvili, a painting with monumental quality.

Two, by Victor Popkov, stirred up various conflicting judgments. The artist used double outline, color contrast and other devices to give fresh and poignant treatment to an old theme—first love.

Division of the Land, *by Nikolai Eryshev, is a fine comment on postrevolutionary farm life.*

resented chiefly by print makers, and not only by the young ones. They have excited comment at several international shows in Japan and elsewhere.

The Folk Epic Storyteller is a small sculptural group from Kirghizia by S. Bakashev, who seems engrossed in textures and uses them to emphasize his ideas about folk stories, the storyteller, his muse and his listeners.

But the reduction in the number of such performances and, even more important, the increase in the ranks of the probers is one of the most encouraging signs of the season.

PORTRAIT OF AN OPERA STAR

One of the brightest stars in Moscow's Bolshoi Opera today is the young soprano Tamara Milashkina. Her emotional approach to a role puts her in the company of the few dramatic actresses on the operatic stage. But it is the quality of her voice, variously described as rich, satiny, creamy, that brings the house down. Beginning with a solid, mezzo-like low register, it floats through the middle tones out into a thrilling high treble.

As a young girl, Tamara traveled 1,500 miles from her home town in Astrakhan to apply for admission to the conservatory in Moscow. Although she had had almost no musical training, she was singled out for her beautiful, natural voice. The color she could put into an old folk song evoked pictures of the rolling countryside and the fragrance of the fields and forests.

But if being accepted at the conservatory was a stroke of luck, then surely the teacher she had there, her "beloved professor" as she always refers to her, was another. The late Yelena Katulskaya, a singer of the school of Pauline Viardot-Garcia, linked the generation of Chaliapin—she sang with the great Russian basso—with today's young artists at the Bolshoi. A born teacher, she had the wisdom never to hurry her students. In addition to training their voices according to the European system, including exercises and scales, Katulskaya put great emphasis on expression, the psychological approach that characterizes the Russian school of singing.

While young Tamara was still a student at the conservatory, she had her next stroke of luck—the one she says is the most important—she was offered a contract at the Bolshoi or, rather, a permanent job. Serving no apprenticeship to speak of, Milashkina was given one leading role after another but more slowly than is usual for a rising star elsewhere. Today she is grateful for this leisurely progress, which allowed her voice to grow strong and her dramatic gifts to mature. She now sings many of the main soprano roles in the Bolshoi repertoire, including the standard European operas, the Russian classics—Tchaikovsky, Rimsky-Korsakov, Borodin—and Soviet opera, from Prokofiev to the younger generation of composers.

One fine day the successful young singer was told that she and two other Bolshoi singers had been chosen for a year of study in Italy. It was while working at La Scala, Milan, that Tamara was offered the lead in the **La Battaglia di Legnano** of Giuseppe Verdi, the first Russian in over 50 years to sing at La Scala. She remembers the first orchestra rehearsal, directly following a rehearsal in which the celebrated soprano Maria Callas was singing.

"I had a sudden fit of shyness," she recalls. "I could not step out on that stage right after Callas!" It was all Madame Callas could do to persuade her to go on. Later, even the musicians applauded!

Back in Moscow, Tamara was more popular than ever. She sang Tatiana in Tchaikovsky's **Eugene Onegin** and Liza in **Queen of Spades.** Two years later she was invited to tour the

United States in a concert version of **Queen of Spades.** The critics found her performance sensitive, her voice exciting and called her a true cultural ambassador!

Back at the Bolshoi came more new roles, including Fevronia in a revival of the Rimsky-Korsakov opera **The Legend of the Invisible City of Kitezh.**

Between performances she made a film about her career. The movie was shot at Mosfilm Studios and on location in the Volga River delta.

Her latest role at the Bolshoi is Aïda. As the small, dusky-faced princess, she is by turns tender, entreating, imperious and despairing.

Appearing with the Bolshoi troupe at EXPO-67 in Montreal last summer, Milashkina was once again singled out for her magnificent timbre. Whatever it was that La Scala added to the Russian school of singing, it made a powerful brew!

NEW POTTERY

Konakovo pottery and faïence are rich in tradition. Rare pieces are collected like fine old china. But a look at what Konakovo is turning out today makes you forget the rare old pieces—it is that good! New sets and single pieces now being made there are the sort a woman sets her heart on.

I don't know what these particular designers were doing a few years back, but they apparently were not working at Konakovo, for paterns today, and especially shapes, have changed radically. It is as if two schools of thought developing in different directions (and each about to run into a dead end, incidentally) suddenly converged, and everything fell into place.

The functional modern school had been streamlining pitchers into something monotonous and banal. Colors were muted (read "anemic"), decoration taboo. A cup was a cup was a cup.

Folksy traditional, on the other hand, had worn the peasant patterns dangerously thin. Even the famous Ukrainian ring-style pitcher, with the hole in the center, could not appeal to people forever.

And suddenly—the Konakovo people say it was a technical innovation, but it must have coincided with a considerable flight of imagination—out came an entirely new line. The improved technique made it possible to paint a design on under the secret-process glaze. My own feeling is that this was merely the jumping-off place for the designer's imagination, which must have been ripe for a change. The new designs crystallized into fine, definite shapes, the taller pieces somewhat squat, others generously round.

And the designs are big and beautiful. Brilliant outsize flowers on white adorn a tea set that is itself somewhat larger than life.

An original sort of vessel is shaped like a cube. It is stone-colored, with prehistoric-looking scratches for decoration.

Guzuls Dancing, a candlestick, is an exuberant sculpture, pint-sized.

A tall vessel, between pitcher and decanter, is made to hold kvas (bread brew). The clearly defined neck and body shapes, white, are softened by the transparent ultramarine of the over-all painted flower pattern. I'd buy that one any day! Kvas, anybody?

GEORGIAN VOCAL OCTET

A vocal group of unusual interest made its Moscow debut recently at the Little Hall of the Conservatory. The Gordelo Male Octet from the republic of Georgia was not only impressive musically, artistically, historically, but, what is much more rare, really moving emotionally. Their virtuosity is so little geared to effects and, indeed, so matter of fact that it seems almost as natural as speech. The charm of their art begins perhaps with the casual penetration of the consciousness. Before you know it, you are carried away to the Georgia of old, the traditional songs of the mountain people, shepherds' tunes, an ancient hymn to Queen Tamara, harmonies that go back to the twelfth century and earlier yet have a strangely modern crispness and color. Here a well-hidden but authoritative technique asserts itself in subtle nuances of expression, which while ranging from a pianissimo that is a mere whisper of the wind to a full-bodied blast of what sounds like a dozen mountain horns, remains manly and vigorous. The Georgian style of folk singing is much closer to the Russian than most other Eastern nations, and the Gordelo Octet brings out in addition the specific cadences and harmonies traditional to their people. This little ensemble, I hope, will soon be paying us frequent visits.

TV PROGRAM EXPANSION

A fourth channel now opened on Moscow television is to devote all its time to programs of exceptional cultural interest. Avowedly an ambitious project, it offers viewers a serious acquaintance with contemporary literature, music, painting, theater, film. Beginning with three hours a day, viewing time will gradually be increased to a full eight hours. The program will also include an introduction to various fields of science—though presented in a different vein from the strictly academic courses which the educational Third Channel programs will continue—and travel impressions by well-known writers and other personalities. Television critics here agree with an opinion voiced on Prague TV: A day's program, to have general acceptance, must in part appeal to the more sophisticated portion of the audience, which has special knowledge in uncommon fields.

SIBERIAN DOCUMENTARY

Some of the people who live in Siberia were born and bred there, others came there to work, some were curious, and still others felt the romantic call of the wild. **The Spell of Siberia,** a new documentary film, is about the people who decided to stay. The young director and cameraman, Ivan Gallin, tells about bear hunters and atomic scientists, construction workers, geologists, hydraulic engineers, how they live and work, what they talk about, their relations with one another and the whole great, snowy country around them.

"CLUB OF 10" DISCUSSES F

FRANKLIN FOLSOM's The Soviet Union *was published in the United States at the end of 1965. In his foreword, the author wrote that he wanted to show the Soviet Union "from within," just as the Soviet people, particularly the young people, see it. (The book is intended for schools and libraries.) When it came out, Mr. Folsom sent a copy to the editors of SOVIET LIFE with the request that it be discussed by one of our schools so he could find out whether his "view from within" was the same as the children's.*

A SOVIET LIFE reporter dropped into the tenth grade class of Moscow School No. 7 which had read the book and had decided opinions about it.

Why was this school chosen? Because English is taught there.

Grades 10-A and 10-B have been giving their teachers some trouble for they have the usual quota of those vivid personalities which do not bend easily to discipline and order. In the first to fifth grades, the "wipe-your-nose" period, you have fights and mischief-making. In the sixth to sev-

YES, BUT...

Enver Fazelyanov: "Personally, I object to the phrase 'a view from within.' Is that really the case? To my mind, it's not an inside view, but that of a man from the outside, of a foreigner."

ENVER FAZYELANOV, 17:
"I'm either many-sided or just not serious. In sports, say, I have gone in for boxing, water polo, wrestling and basketball. I hope to be an interpreter."

LENA KREMENETSKAYA, 16:
"I'm crazy about modern painting. I think Picasso is the greatest. There was a Picasso show in Moscow not long ago, and I arranged for the whole class to go. I plan to be a linquist, but I intend to keep up with painting even then."

Many agreed, but was it good or bad?

Konstantin Popov: "I think it's good. The author often notes what we ourselves are apt to take for granted. For example, he describes our public health system and medical aid, pointing out that anybody can get qualified aid at once. Do any of us ever think of that? If you have a toothache, you go to the dentist and have the tooth treated. Or your mother calls the doctor, and you're put in the hospital for a month or sent to a sanatorium (my friend has a rheumatic heart so he's graduating from the sanatorium school)—and we receive all this free of charge. The author goes into some detail on this point, which means that it is interesting to Americans. To us it isn't, because it's just part of our day to day living.

ES RANKLIN FOLSOM'S BOOK

enth grades, you have an effervescent interest in engineering and explosions in the chemistry classroom, the louder the better. The eighth and ninth grades are in the throes of excursions, field trips, self-analysis and arguments about "whether boys and girls can be friends." As for the young people in the tenth and last grade, they personify the present, and nothing is so difficult to define as the present. So we shall leave this period without a definition. We borrowed the other definitions from the tenth graders' "Club of 10" wall newspaper called Time Is Irreversible. *It had stories of previous classes and old photographs of slim girls and quiet boys looking back at their own pasts with a smile.*

We hope this gives you an idea of the tenth graders who took part in the discussion. Time really is irreversible, and today is represented by serious young people interested in philosophy, mathematics and sports.

The discussion of Folsom's book turned out to be interesting.

THE GENERAL OPINION WAS:

Irina Bogacheva: "It's a good book. What I like about it is that the author cites plenty of facts. In general, I think it's to his advantage that the book gives so many facts. The information is, in the main, authentic and unbiased. I read the book with great interest and a feeling of gratitude to the author."

IRINA BOGACHEVA, 16:
"I suppose I'm one of these single-love people. With me it's literature. I can't stand math or any of the sciences. When I graduate, I'm going to try for Moscow University and take a major in literature. I know how hard the entrance exams are, but I'll get in if it takes me three years to do it. I've been an active member of the school book-lover club for years."

KOSTYA POPOV, 17:
"I give a lot of time to Komsomol work; this is my second year as school committee secretary. I hope to go to Moscow University and major in chemistry. If I don't pass the entrance exams right off, I'll take a job in a laboratory."

On the other hand, it was interesting to learn that there was a Buddhist seminary in Buryat. I know that in our country the church is separated from the state, but I'd never taken any special interest in the fact until I read Mr. Folsom's book.

"The book told me not only about us Russians, but about the Americans, too, for a man's interests are indicative of his character."

Tatyana Kremenetskaya: "No, it's bad. I think Mr. Folsom did not live in our country long enough, and some of his views are definitely 'from without'—generally recognized, but erroneous or superficial. I, for instance, was shocked by what he said about World War II: 'With the help of 11 billion dollars' worth of supplies and equipment lent by the United States, the Soviet armies drove out the invaders. . . . In our country nobody 'from within' would say such a thing, let alone think so.

"Although it is more than 20 years since Victory Day and my classmates and I were born after the war, the memory of it is still fresh in the minds of our people. We all know that the Soviet Union won that terrible war thanks to the courage of our soldiers, the unity and fortitude of our whole people, the selflessness of millions. Of course, the 11 billion dollars played its role. We are grateful for the help, but it is wrong to write about it in such a way."

LUDMILA TREPALINA, 17:
"Hobbies? Folk songs, piano, drawing cartoons. I'll be sorry to leave the school—the kids are great. I'm the only one in the class with a straight 'A' average, but I'm still popular. I plan to be a construction engineer."

Igor Kuvayev: "I think the book does just what the author says at the beginning—it gives no ready-made comparisons, so that any comparing is done in the reader's head. But sometimes a great deal depends on how the facts are presented, and this is particularly noticeable in the last chapter called 'Highlights on the History of the Soviet Union.' A case in point: Regarding Napoleon's invasion, we read that he occupied Moscow and was forced to retreat. That's all. But what about the defeat with which Napoleon's decline began? This, to my mind, is the basic significance of the year 1812. It seems to me that the last chapter is the weakest in the book."

Ludmila Trepalina: "On page 125, the author writes that until 1964 collective farmers did not get pensions and free medical care. This is wrong. Like city people, farmers have been receiving free medical aid since 1917—following the victory of the Revolution. As for pensions, prior to 1964, each farm handled the payment of pensions to its own members from its own funds. Starting with 1964, pensions for collective farmers have been financed from the State Budget. Nor is it true that most of the foodstuffs come from private gardens. Mother and I and many of our neighbors buy food in the groceries, that is, in the state stores. That is my personal experience, and statistics confirm it. Three per cent of the food products sold at the market are from private gardens, and the rest is provided by the collective farms and state farms. All these are minuses for the 'view from within.'"

Yevgeni Pugachov: "But I want to return to the 'pluses.' I liked the chapter on Uzbekistan and, in general, the stories about the republics. We often say words without thinking what they mean, even such important words as 'internationalism' and 'friendship among the peoples.' Mr. Folsom made me see the meaning of these words in a new way. Equal rights for all nations, not on paper, but in life. The concern for the small nations, schools for them, newspapers in the native languages—all these are convincingly shown in the example of Uzbekistan. The way life in this republic has changed, its cultural level risen, and how talented the people are. I read all about this with great interest and am sure American schoolchildren will find it interesting. The author supplies vivid details for each fact. We all know what a *paranjah* is (black horsehair veil to hide face and figure formerly worn by Uzbek women). We know that it spells backwardness, that it is being fought against and is almost extinct. But do you know that there is a legend about the *paranjah*? The *paranjah* is gone, but the legend is still there. After I read this chapter, I felt like going to Uzbekistan. I'll try to go there this summer."

Marina Sokolova: "The chapter on Siberia is also interesting. I would have liked to advise the author to use more picturesque photographs. Siberia is such a colorful and fascinating land. He could show the huge Krasnoyarsk Hydroelectric Power Station, and tiger hunting in the taiga, and Lake Baikal, the deepest lake in the world. I'm sure schoolchildren would find such photographs interesting."

MARINA SOKOLOVA, 17:

"I'm going to be an architect and that just about takes care of my hobbies, too. I draw a lot. I liked the USA Architecture Exhibit. The buildings were beautiful, modern and severe. The kids think I'm a teacher's pet, but that's because I have a low voice and nobody hears the awful things I say."

"What you see and "What you don't ..."

Tatyana Krementskaya: "In general the photographs are all very old —dating back to 1956 or 1958. When I look at these photos and look at my

MIKHAIL LOKSHIN, 17:
"I'm captain of the school basketball team. Math is my subject. I compete in the mathematics olympics. Solving a tough problem is like playing a good game. I'd like to go in for aviation: pilot first and then designer."

country, I see two different things. For instance, when I look at the magazine *America,* I see a country of big cities, rapid development, emotional faces. In Mr. Folsom's book our country, judging from the photos, seems frozen. Of course, many of them were taken by children, and that is fine. But the unskilled, stilted shots can keep the American schoolchildren from seeing my country as it is. I should have liked the author to give a few up-to-date photographs, both in content and execution."

Ilya Turetsky: "This applies chiefly to the chapter on Moscow. All of us are Muscovites and see our city changing day by day, and how animated and diverse it is. In the book new Moscow is shown only by this picture (shows it). It is called 'the old and the new.' All that is true, and we do still have plenty of old houses, but a picture like this could have been taken in any small town. It isn't a typical Moscow picture. If the author wishes to show the contrasts of Moscow, he ought to have made them more 'contrasting.'"

ILYA TURETSKY, 17:
"I look older than I really am. Also I'm the strongest kid in the class. I still don't know what I want to do. Probably I'll go in for some sort of technical work, take the entrance exams for some institute where they teach exact measuring procedure. I may change my mind—I really don't know yet."

"...It's Retrospective"

Mikhail Lokshin: "I found these old photographs interesting. We are living in the present and see only a part of the road, whereas in the book I suddenly discovered for myself the whole road. I saw how our life had changed in every way during the past five years. The cars shown in the photos are obsolete. In general I should like to say again how interesting it is to read about my country as seen by a visitor from abroad with kind and intelligent eyes. I like the fact that the author gives different viewpoints on many questions, letting the reader choose the one he thinks is right. In this I see both respect for and trust in the reader—even though he may be 13 years old. I like to read books of this kind about the United States. I am interested in America."

Reporter (to the students taking part in the discussion): "Is your interest in the United States of a general or practical nature?"

Konstantin Popov: "Well, I have read many of the books we have on the United States. Besides, I have learned a lot about it from fiction. We have many classics of American literature and the new authors, too. I like Hemingway and Salinger, for instance. I think I have a pretty good idea about America."

Tatyana Matveyeva: "I should like to thank Mr. Folsom for the good will he put into his book. In this book we Soviet schoolchildren seem a bit too well behaved, diligent and organized. I'm afraid we are not like that at all! But we really were diligent enough to read the book and to gather here to discuss it."

The participants in the discussion said they would like to hear from Mr. Folsom and know how he received their opinions. "We should also like to correspond with teenagers in the United States," they said. "Our address is Moscow 452, Chapayevsky Pereulok, School No. 7, 'Club of 10.'"

AROUND the COUNTRY

ASIAN GAS PIPED TO MOSCOW

The Central Asia-Central Russia gas pipeline, in operation since last October, is the longest gas line in the world. The 1,800-odd miles of steel pipe cross the deserts of Central Asia, the Ural Mountains and the forests and steppes of European Russia. Five union republics helped to build it.

AMERICANS RESCUED

Last fall a small craft headed out of Seattle for San Francisco was caught in a heavy storm. Great waves pounded the boat manned by two Americans, Henry Burbank and Steven Williams. The trawler *Trudoviye Reservy*, which was fishing in the area, caught the distress signals. Despite the storm, both Americans were rescued by the Soviet vessel.

GLACIERS THAWING FASTER?

Soviet scientists are checking by direct measurement a supposition that glaciers are thawing at an accelerated rate, an important supposition since they feed many mountain streams. A station has been set up in the Pamir-Altai range 12,500 feet above sea level to study the thermal balance of the Abramov Glacier and its movement. Fifty tons of goods were lifted by helicopters to build a house, station and storehouses.

HOTELS ON POINT PITSUNDA

The relict pine grove and the sandy point jutting into the Black Sea at Point Pitsunda (Caucasus) attract thousands of vacationers. Until recently there were no overnight accommodations on the point. After a rest and a swim, excursionists had to head for Gagra, the nearest town. Pitsunda now has seven 14-story hotels.

METAL MOLE

The cutting tool of this unique drill makes a thousand revolutions per minute. The fluid fired from its jets can cut metal and bore shafts 20 and more feet in diameter in rock of any hardness. In the six years this turbodrill has been operating, it has sunk 152 shafts in the Ukraine and Kazakhstan, and saved seven million rubles. Geologists plan to use it to drill a shaft to the earth's mantle.

MOUNTAIN SANCTUARY

A new preserve, the Sary-Chilek, was recently set up in the mountains of Kirghizia. The 60,000 acres in the middle of a chestnut forest create a sanctuary for the flora and fauna of many latitudes and continents. Lake Sary-Chilek has been compared to Lake Ritsa in the Caucasus, and its environs to Switzerland. Such comparisons do not do it full justice, however, for in the wealth of its plant kingdom Sary-Chilek can compete with tropical forests. This natural zoo is full of bison, ibex, bear, snow leopard, mink, and red and spotted deer. Some animals are natives, others come from distant parts. The plan is to turn this mountain paradise of Kirghizia into a tourist area.

TEENAGERS MAKE ROBOT

Kaliningrad teenage electronic hobbyists have built a robot in their club at the Young Technicians' Station. Their creation, named Electron, talks. It can say, "I have no heart. I get along on transistors and electronic units." The robot stands over six feet tall and measures more than three feet across the shoulders. He can carry out 216 orders. Electron has plenty of company—about a dozen older "brothers."

PLOWING CONTEST

Twenty boys and two girls, each in a tractor, lined up at the edge of an unplowed field at the Dawn of Communism State Farm near Moscow. Rocket signals were fired, and the contest for the USSR plowing championship was on. Judges tested the quality of the furrows and checked to see if the edges were straight and parallel. Prize winners were Jonas Kazokevicius of Lithuania, on a caterpillar tractor, and Aarne Saar of Estonia, on a wheel tractor. Each of them won a sidecar motorcycle.

NEW CANCER CENTER

Among the pines and sand dunes in the environs of Tallinn, the capital of Estonia, is a new building of glass and metal. It houses an oncological complex of hospital, polyclinic and research center which makes available to Estonian physicians the latest methods of treatment—radiation, chemotherapy and surgery—and the latest apparatus for diagnosis and treatment. The more interesting operations are relayed by closed-circuit television from the operating theater to a student auditorium. A prophylactic section of the complex is trying out new methods of early diagnosis of tumors.

MONUMENT TO A CITY

The Battle of Stalingrad was one of the most important in World War II, not only because a 300,000-strong nazi army was smashed, but because it was the turning point of the war. Stalingrad gave the enslaved peoples of Europe new hope of liberation. For the Germans this battle on the Volga shore was more than a military defeat; it was a great psychological blow. Last autumn a memorial complex was unveiled on Mamayev Hill, the scene of the fiercest fighting.

People with wreaths and dipped flags are shown in high relief. Behind the statue of a soldier loom the ruins of the city he is defending. In front of the common graves is the Square of Sorrow. It is approached through the Square of Heroes and the Hall of Military Glory, in which are 34 lowered ensigns with the names of the fallen. The main figure of the composition is a 100-foot statue of a mother mourning her fallen son. The memorial was created by a group of architects and sculptors headed by People's Artist of the USSR Yevgeni Vuchetich.

INCUBATOR-HATCHED VIPERS

Incubators are good for hatching not only chicks but snakes, Tashkent herpetologist Ludmila Korneva has proved. Under artificial conditions she raised a brood of one of the deadliest of snakes, the blunt-nosed viper. Her experiment is important, because pharmacology badly needs the poison of these snakes, the number of which is steadily declining. Moreover, breeding them in captivity will reduce the hazards of viper-catching.

PLANT HUNTERS

Many useful and medicinal plants grow in the sand hills of the Kara Kum Desert. For example, since time immemorial local people have used the root of the madder to dye the wool yarn for the famous Turkmenian carpets. No chemical dye gives the color madder does. Recently scientists of the Botany Institute of the Turkmenian Academy of Sciences obtained an extract from madder to treat nephrolithiasis and cholelithiasis. They are also looking for Salsola richteri or saltwort. The leaves of this plant contain alkaloid, salsolin and salsolidin, used to reduce blood pressure without weakening cardiac activity. Not long ago a field expedition brought back medicinal herbs from the Chardzhou Desert. Among the 150 species of desert plants, the expedition found many with medicinal properties. They will provide the raw material for the pharmaceutical factory under construction in Ashkhabad.

TELESCOPE IN THE STRATOSPHERE

Last October Soviet scientists for the second time raised an automatic observatory to the stratosphere by aerostat. The aim of these experiments, begun two years ago, is to photograph the sun free of most atmospheric interference. The observatory was crammed full of equipment, including a telescope, spectrograph, electronic equipment and telemetric apparatus.

Professor Vladimir Krat, director of the Pulkovo Observatory, said of the new launching: "Because of disturbances in the Earth's atmosphere, telescopes trained on the Sun from our planet do not allow us to discern details on its surface. The upper layers of the Earth's atmosphere absorb cosmic, roentgen and ultraviolet radiation. This deprives science of substantial information. These experiments have provided many photographs and spectrograms of the Sun's surface, taken without atmospheric interference."

NEW FISH-CATCHERS

The Industrial Fishery Experimental Base at Nakhodka in the Far East has been developing new types of fish-catchers. Their proving ground is the Pacific Ocean. The base has been trying out a new trawl. The operating principle is simple: A trawl is pulled by two ships. This method allows the enlargement of the swept area and the capacity of the trawl. A new method of catching saury uses electric light and electric current to attract them and a fish pump to pull them in.

Trawling will soon be monitored: Georgi Volkov, engineer at the base, has designed a net probe without cable anchoring. It looks like a small torpedo and is installed at the mouth of the trawl. Instrument readings tell the men whether there is enough fish in the trawl to warrant pulling it up.

NORTHERNMOST TV RELAY

A tall metal dish, an antenna, is the landmark of the isolated taiga town of Surgut in Western Siberia. The antenna not only provides contact with the rest of the world but serves to orient oil men working deep in the taiga. The Orbita relay station enables hunters and trappers to see TV broadcasts from Moscow via the *Molniya 1* artificial satellite. This is the northernmost station of the Orbita type in the USSR.

ALL-WOMAN FLIGHT RECORD

The turboprop IL-18 liner that flies the Moscow-Adler route is piloted by Lyubov Ulanova; the copilot is Valentina Slobodskaya; the mechanic, Valeria Popova; the navigator, Gertruda Olekhnovich; and the radio operator, Maria Adamenko. In September 1967 this all-woman crew set a world record: The IL-18 flew nonstop 4,350 miles from Simferopol in the Crimea to the Far Eastern airfield of Yuzhno-Sakhalinsk.

STREET LAMP HISTORY

St. Petersburg, present Leningrad, lit up its streets 15 years after it was founded. The hobby of retired naval officer Alexander Ivanov is research in street lamps. The 600 photographs of his collection show everything from quaint old cast-iron lamps to the ultramodern variety in new city neighborhoods. His book on the subject is soon to be published in Leningrad. Curiously, the first St. Petersburg street lamps cost the czar's treasury 20,000 silver rubles, a fabulous sum for the time. It required 54,000 pounds of hemp oil annually to light the capital. St. Petersburg started with 595 street lamps. Today Leningrad has over 72,000.

SCULPTURED ROOTS

These little figures of animals were carved by nature. The baby elephant, for instance, is a fir knot, and the exotic flamingo a bit of elm root. Of course, spotting these remarkable things takes the eye of an artist. Nikolai Kuzin, manager of a savings bank in Nvashinsk District, Gorky Region, has that kind of eye. He spends all his spare time—Sundays and vacations—in the woods. This nature lover has turned his apartment into a small museum.

LARGEST SYNCHROTRON

Soviet physicists have a new instrument for studying the structure of matter. Last October the world's largest synchrotron, designed to accelerate particles to 70 Bev electron volts, started operating in Serpukhov. With the power of the magnets and the systems even this energy can be exceeded. At the first trial, protons were obtained with an energy of 76 Bev.

These figures give some idea of the size of the Serpukhov giant: The accelerator ring circumference is one mile, the magnets weigh 20,000 tons. The supplier of nuclear particles for the installation is a linear accelerator injector in which the particles acquire an energy of 100 Mev. This injector is twice as powerful as the largest linear accelerators in the United States and Western Europe.

NEW INSTITUTE

An institute of steel and alloys is going up in Moscow's Leninsky Prospect. A 12-story classroom and laboratory building will accommodate 2,500 students. A four-story building adjoining the laboratory building will have four auditoriums, exhibition and reading halls, a library with stacks for a million volumes and a conference hall seating 1,200.

FROM A NEEDLE TO A CAR

The USSR Exhibition of Economic Achievements in Moscow is the largest in the country, with new pavilions opening every year. Last year the Cosmos Pavilion was built in Industry Square. Two aluminum and steel buildings have gone up next to it. One is intended for a new Chemistry Pavilion, the other for consumer goods. This last pavilion has 162,000 square feet of floor space and will be displaying everything produced by Soviet industry for the consumer, from a needle to a color TV to a car. Twenty-five ministries helped organize the consumer show. In all, the pavilion stands will display over 30,000 items.

BRIDGE SPANS SQUARE

One of Moscow's oldest squares, Samotechnaya, on the Sadovoye Ring (the city's main thoroughfare), has been transformed. This used to be one of the worst bottlenecks in the capital. The best drivers were confused by the many intersecting lines of traffic and the traffic signs. So this is where most traffic jams started, tempers were lost and accidents happened. A 2,300-foot overpass now spans the square, and traffic moves along without a hitch.

UNDERWATER LIVING TESTED BY WOMEN

Last autumn an expedition of aquanauts from the Ukrainian town of Donetsk did an undersea test in the secluded bay of Laspi off the southern coast of the Crimea. For two weeks two groups lived and worked in Neptune's kingdom in a structure lowered 40 feet below the surface. For the last three days operation Ichthyander-67 was conducted by Maria Barats and Galina Gusyeva, the first women in the world to make such a test. They felt fine and kept in touch with the world through television cameras. The experiment proved that people, given the proper precautions, can stay under water for lengthy periods without fear of succumbing to caisson disease, better known as the bends.

EDIBLE BOUQUET

Susanna Kaloshina of Yessentuki (Caucasus) submitted a lovely bouquet to a flower show: roses, lilies, daisies, tulips, chrysanthemums. But there was not a single flower in the bouquet. It was made of onions, carrots, turnips and radishes, with a head of cabbage serving as a vase.

PORPOISE SOS

This happened on a boat ride off the Crimean coast. One of the crew spotted a hole in the tank through which gasoline was leaking out. It was not far to shore, and there were oars on board, so there was no danger. As the boat approached Alushta, it was overtaken by porpoises, who milled around, obviously trying to attract attention. Finally someone realized that the porpoises were calling for help. The boat put back to sea, and the crew soon spotted a cork fisherman's buoy used to mark the position of nets. The water around it was churning: A baby porpoise had been caught in the net. The baby was freed and after resting in the boat's bottom for a while, stirred and began crying like a rabbit. When the baby was put back into the water, the porpoises round the boat whistled their thanks.

AROUND the COUNTRY

Yevgeni Lebedev (right) plays the lead role, a Moldavian peasant who feels the weight of his years. Here, in a touching scene with the eldest of his three sons, he recalls the days of his own youth and the good times and bad he has lived through. The film contrasts the old ways of life and the new.

A SERENE FILM

By Nina Ignatieva
Film Critic

A DEEP SERENITY settles on us as we watch this film with its scenes of far-flung open spaces, roads melting into steppeland vistas, pensive and reticent characters, all given point and unity in the running commentary by Innokenti Smoktunovsky. The famous actor reads the text in a slow and measured voice, with the gentle and intimate undertones of a trusted friend. There are no blazing passions, no dramatic clashes, no exciting plot or gripping events to relieve the simple and accustomed course of the life which this picture, *Autumn's Last Month* (screenplay by the Moldavian writer Ion Drutze, directed by Vadim Derbenev) brings to the screen.

And simple, too, is the idea behind the film, dealing with what we think of as eternal values. Unthrilling and uneventful as the action is, the picture deeply stirs the mind and heart. It is stimulating and precious, sad and at the same time elating.

The sadness is evoked by the flash of bare fields powdered with the first snow and sustained by the shift of scene to a lonely Moldavian cottage, clinging to a hillside, and its humble furnishings. We see a close-up of the melancholy face of an old mother in the failing twilight. She thinks only one thought, dreams only one dream. An echo of that thought is the exclamation uttered by the old father as he feebly gropes his way homeward: "The children have come!" The cry is a long-cherished hope, a wishful thought, a parent's need to see his children, the children he has lived for, with whom he has shared every shred of knowledge and gain he could tear from a long and troubled life. The pressing need to see his children is not so much a longing for affection and warmth, so needed in old age, as the desire to reassure himself that the seeds he has grown are good and strong.

Fathers and sons is a subject which our films have treated over and over again. The solutions have been profound or shallow, interesting or dull, some springing from the heart, others from current fashion. This film is a new effort, refreshing and compelling.

The story itself is quite commonplace. This episode gives a clue to the vein the picture strikes. On his long journey to visit his sons the father stops at a dried-out well to eat and rest. He notices how old and rickety the well is; the post to which the sweep is attached is rotted through, and there is only a thin film of water at the bottom of the shaft. Stroking the sides of the well, he lets his thoughts wander back to a sultry day many decades ago when on this very spot, where there had been a fresh water spring, he had met a young girl carrying an earthenware pitcher. From their meeting a family had grown. Their five children had gone their different ways, and the

The son has walked in his father's footsteps. He is a farmer too, married to a farm woman, and their children are being raised in a farm environment.

The eldest son gives a party for his father. It is a pleasant party, in the old tradition, with singing, dancing, horseplay, food and drink to spare.

He makes an unexpected visit to another of his sons, a writer who lives in town. The old man learns he is away and is not expected back for a month.

He visits his youngest, a student. The son arranges for a room for the old man at the hostel and introduces him to a friend. A girl wearing pants!

old father now wants to bring them together for a reunion. The well, dug in memory of that meeting, is worn out, but it stands on, like a poetic symbol, still holding its sweep high.

It is from the commentary that the audience learns the story of the well. Thus the film director wisely avoids the temptation of using flash-backs , startling angles and other fashionable shots, so that the poetry in the film is not artificially grafted but arises out of the real surroundings, the character of man and the quality of nature.

Whatever turmoil goes on in the father's soul—his anguish, doubt, fears and later joy and pride—there is no great display of feeling. But the emotional depth, the living experience from which it stems, the wisdom behind the old man's actions are not lost on us.

There is nothing uncommon about these actions. His first call takes the old father to Andrei, his eldest son, a tractor driver. He sees his grandchildren, dines with the family at the reunion and then searches through the woods for Anton, his second son. Anton leads a secluded life and is different from his other children. There is a brief, halting conversation between father and son. Anton is glad to see his father, but he is shy and retiring; his one love and attachment is the forest. The father next comes to a village where he finds himself with the merry company at a child's christening. He goes on to a small town on the Dniester to meet Serafim, his youngest son. He walks along the town's brightly lit main street with young girls who have been charmed by Serafim's poetic gifts, meets the girl Serafim is engaged to, and relaxes after the strenuous day in his son's crowded student dormitory. And so the action of the film goes on with little apparent drama or undercurrents of conflict.

The director of the film is concerned not so much with *what* his hero does as with *how* he does it. Hence the need not only to give the actions validity but to invest them with philosophical meaning.

Films that are supposed to have philosophical depth often strike very shallow ground. And the reason is almost always the same—they ignore life's realities, have a tendency to be too abstract, general, allegorical. Drutze and Derbenev have steered clear of such pitfalls. They have not sacrificed character to ideas.

What the film also conveys, in both the lyrical and dramatic sequences, is the throb of time, the fast pace of our age. The old father feels this most sharply on his visit to Serafim, when he finds himself with young people. The ways of the young, Serafim's somewhat condescending tone, are not what the old father can accept, but he is not resentful or distressed. He eyes the young people curiously, but he wishes them well and there is even something in his attitude which shows that he does not want to be thought old-fashioned or conservative. Realizing that time cannot stand still, that life changes, he greets the younger generation with a sober wisdom and an open mind. And we can divine that the source of his moral strength is that wisdom.

For his last visit, to the son who is a writer, the old father chooses the most modern means of transportation, the airplane. It is his first flight.

"A born gift to soar is a rare thing," comes from the commentary. "And it is all the more bitter when it is discovered in an octogenarian. The gift is there but hardly the man. . . ."

There is a new light in the old father's face. The flight gives him an exhilarating feeling of man's greatness, quickens his sense of living, fills him with a renewed love for the world, an awareness that there is beauty in all seasons—in the changing colors of autumn, in the icy snow of winter, in the sweltering heat of summer.

From this film we carry away that deep awareness—not a new but a precious feeling all the same—of the beauty of life and the dignity of man, its creator and continuer.

Produced in Moldavia, the film brings us the national flavor of its soil and people. But it does more than that. It tackles creditably a subject of universal appeal.

Lenin with Parley P. Christensen, who was the candidate for President of the United States of the Farmer-Labor Party in the 1920 elections.

A TALK WITH LENIN

By Semyon Burdyansky

THIS STILL from a film shows Lenin saying good-by to American economist Parley P. Christensen after a talk in the Kremlin. Christensen was the candidate of the Farmer-Labor Party for President of the United States in the 1920 elections. The platform of the newly formed party, which took a radical stand on a number of issues, called for *de jure* recognition and trade relations with Soviet Russia.

In August of the same year the Congress of the British Labor Party came out in defense of the Soviet Republic. The Lloyd George government, actively backing the White Poles, was preparing to intervene militarily. The Labor Congress set up a Committee of Action empowered to call a general strike should that be necessary.

When this news reached the United States, Christensen cabled London on behalf of his party, calling the initiative of the British workers a model of proletarian solidarity. Several months later, when President Woodrow Wilson approved the deportation of Soviet representative Ludwig Martens, Christensen sent an open letter of protest to the President. The letter pointed out that audiences Christensen had addressed in the country's major cities during the election campaign had reacted with unanimous sympathy to any mention of the Soviet Union. The deportation of the Soviet representative on orders from the President, the letter went on to say, therefore did not reflect the attitude of the American people to Soviet Russia. . . .

At the end of their talk, Christensen asked Lenin to pose with him for a photograph. Lenin agreed, we know from the memoirs of Boris Reinstein, representative of the People's Commissariat for Foreign Affairs, who was present, but asked for a return favor, "a more active collection of money from rank-and-file American farmers to aid the starving peasants of Russia. Is it a deal?"

"I accept your proposal," Christensen replied.

A real Yankee, Reinstein continues, Christensen got down to business at once. That same evening he sent a long cable to Washington to his friend Senator Ladd of North Dakota. "The famine in Russia," he wrote, "is becoming more desperate every day. Not only food but also wheat seed for the spring sowing are urgently needed. Our American farmers have the wheat. The Russians have all kinds of raw materials. Why not trade directly?"

Several years ago, Albert Rhys Williams, a great friend of the Soviet Union, persuaded Andrew Steiner, commentator on international affairs, to comb the American press for reports of talks Lenin had with American visitors during the first Soviet years. Among the discoveries was a hitherto unknown account given by Christensen of his conversation with Lenin in 1921, when the Soviet leader told him that "Russia is prepared to enter into business relations with America," and asked what the American objections were. "As far as we are concerned," Lenin declared, "nothing stands in the way."

Cameraman Alexander Levitsky, who shot a film of the meeting, added these details: "At the appointed time," he wrote, "a tall burly man carrying a huge briefcase entered the hall. With the American was a thin middle-aged man below medium height, who seemed to be a Foreign Office man or an interpreter. Nadezhda Krupskaya, Lenin's wife, ushered the two into Lenin's office. She soon came out and called Pyotr Voevodin, head of the film and photo department. Shortly afterward, the latter looked out and asked me to come in with my camera. I did and, after saying 'Good day,' stopped uncertainly near the door. Comrade Lenin returned my greeting and invited me to set up my camera and go ahead, adding that I would not be in the way at all. He then resumed his talk with Christensen. During a pause, while Christensen was looking for a paper in his bag, Voevodin asked Lenin for permission to photograph them."

The light in the office was poor but a while later, when Lenin came to the doorway to see Christensen off, the cameraman shot several feet of film. The film was developed almost immediately and brought to the Kremlin next morning, together with the photographs.

Unfortunately most of the film was lost later.

OUR CONTEMPORARIES

Antiworld Pioneer

By Wanda Beletskaya

TODAY basic research problems are tackled by groups, not individuals. New discoveries are born of the thinking of one person, plus the original approach of another, plus the bold experimental ideas of a third.

A 1967 Lenin Prize "For Developing the Method of Colliding Beams in Elementary Particles Physics" was awarded to a group of researchers at the Siberian Institute of Nuclear Physics. Alexander Skrinsky is a member of this group.

Skrinsky came to work at the institute when he was a third-year undergraduate. Today he heads a laboratory. The examining committee agreed unanimously that the dissertation he presented in 1965 for his master's degree was worth a doctor's degree.

Here is what they say of Skrinsky and his work:

Academician Bruno Pontecorvo: "The group of researchers and engineers who built this unique machine are to be congratulated. I envy those who will be using it for their experiments."

Gersh Budker, director of the Novosibirsk Institute of Nuclear Physics: "Skrinsky is a man with the gift of wisdom, a rare thing."

Stas Popov, who studied with Skrinsky: "I don't remember Alexander's having any other interest but physics."

The research problem which won the Lenin Prize was started five years ago. The institute, filled with young men Skrinsky's age, had just moved to Siberia.

Physicists build accelerators, giant microscopes with which to penetrate more deeply into the structure of matter, to find out how the smallest particles behave. In all the accelerators of five years ago a particle accelerated to a very high velocity bombarded a stationary target in the form of another particle.

But suppose the target does not remain stationary, suppose it begins moving toward the other particle at the same speed? What happens then is that there will be a very considerable increase in the force of their interaction.

It was a tempting prospect, especially since larger and larger accelerators were creating a virtually insoluble problem. Accelerators are expensive, and it would take one with a ring around the planet to satisfy today's physicists. Devices built on the principle of the colliding beam were very promising. In the United States a joint group from Stanford and Princeton Universities under Professor Panovsky was working on the same principle.

Their "Budker's team" proposed the completely fantastic idea of building a machine in which collisions would occur between oppositely charged particles, like electrons and positrons, which are essentially antiworlds.

Why was it necessary to bring matter and antimatter into collision? Because when these at first glance almost identical, but actually highly opposite, particles of matter collide, one of the sharpest conflicts in nature occurs, in which the innermost properties of matter are made manifest.

Mastery of the secret of antimatter will give the world a new and inconceivably large supply of energy. Devices like those the Siberian scientists have invented help us to learn how to control antimatter, "tame" it and bring nearer the possibility of utilizing its energy.

Twenty-five-year-old Alexander Skrinsky was assigned to head a section of the project.

The researchers worked all day and far into the night. They searched for and found new ways to solve the problem. If someone suggested an approach that was already known, the rest pounced on him with: "Another cliché. Why in the world should we do it that way? Because that's what the schools teach?"

When Budker, head of the team, was most enthusiastic, Skrinsky would begin to whistle a tune.

"Don't you think the idea is interesting?" Budker would ask in honest surprise.

"Oh yes," Skrinsky agreed. "Very interesting. Except that the idea has already been used."

So it went for five years, beginning with

1962. More than 1,800 days, evenings, nights.

Difficulties rained down on the group as though from a horn of plenty, beginning with the fact that positrons as such do not exist in terrestrial conditions but have to be produced artificially. A collision of high-energy electrons produces an avalanche of different particles, including positrons. Some of them can be caught and kept in the ring. The researchers produced repeated numbers of positrons for the experiment.

Positrons have to be kept somewhere. A particle savings bank must be the almost complete vacuum of outer space.

Also, the electrons must be so directed that they will strike the positrons, despite their fantastic speed. Not to speak of the microscopic size of both missiles and targets.

The machine for which Alexander Skrinsky, together with Academician Budker, Alexei Naumov, Vinyamin Sidorov and Vadim Panasyuk received the Lenin Prize, was a collective creation. There is no way of telling who said "a" and who said "b." But everyone knows that a great many of the ideas for harnessing the beam were Skrinsky's and that he followed through with the complicated calculations.

Under Yellow Umbrellas

By Leonid Korneshov

HER SLIPPERS might easily be in the heap of children's shoes that lie near the Oswiecim (Auschwitz) concentration camp crematory. They would undoubtedly be there if Violetta Palcinskaite had not been hidden away in Kaunas from the SS and their dogs in 1943. Yet with a poet's insight, in her mind's eye, she sees those pitiful slippers there today.

Boots—felt and leather,
slippers and shoes . . .
Shoes of all sizes, models and hues.
Shoes out of prisons,
Shoes out of ghettos,
Low-heeled and high-heeled,
ruder or better.
Shoes worn by scientists,
Artists and workers,
Doomed to starvation,
murder and tortures.
Burned or gassed

after months with no food or drink—
Mountains of shoes, too high to think,
They lie in the darkness, still dreaming
of roads,
Still feeling the feet
which they used to enclose,
Feet climbing uphill,
going down slopes . . .
Above them the clouds float majestic and
slow,
Cranes follow southward,
gossamer flies. . . .
Shoes,
shoes,
shoes,
every color and size . . .

Violetta Palcinskaite began writing poetry when she was nine. Her poems first appeared in the Young Pioneer newspaper for children. Her first admirers wrote:

"I want to congratulate you on your talent. I am also in the sixth grade. Don't get a swelled head. Victoras Buckus."

"You have a feeling for nature and can express it. That is important for a poet. Your poems create a summer mood as radiant as youth. Mindaucas."

Violetta marked her coming of age with the publication of her first collection, *The Land Sent Up Grass*. The family picture album shows a shy girl with long pigtails discussing that first book with a group of her graduation classmates.

As the years passed, other slim volumes of poetry appeared on Violetta's bookshelf—*Flowering Stones* (1963), *Squares* (1965) and a fairy tale in verse, *The Pea Pod*.

The more gifted the poet, the more beauty he sees in the world around him. The opening poem in Violetta's first book says that. As she mounts the staircase of time—the weeks, months and years—she dare not look below for fear of falling. But she strives onward and upward in order to meet someone a hundred years from now and be able to say, "Good-morning, my contemporary!"

After traveling to far places and speaking to big audiences, the girl hurries home. There is the piano at which her husband Julius, pianist and composer of promise, spends so much time. They have written one song, "Young Pioneer Bugle," together. In her study a big lobster, a gift from the crew of a fishing vessel, stares into the distance with glassy eyes.

In dashing from luggage racks
out onto platforms,
Forgotten, it vanished,
diminished and flattened,
My refuge, where slippers go pat-pitter-pat.
My own tiny bit of the planet, my flat.
All things there are odd, though not very
much used.
The bells ring like thunder
whenever they choose
And the place meant for all sorts of things
to be baked
Stands lost among plans I am wont to
forsake.
Better let it be florid and clean,
let us hear
Rain falling on temporary roofs far and
near.
Two winecups
and wheels that'll comment by stealth;
"How are you? How goes it?
Well, here's to your health!"
Four walls and two windows
Are all expectation.
The creak of old doors brings a break in
migration
And over the wardrobe,
us, visitors, meeting
Stuffed lobsters start waggling whiskers
in greeting.

Violetta's finest poetry is a hymn to man, to complicated, laughing, loving, hating man. She has things to say about the time in which she lives.

The planet's silhouette looks soft and mellow
Under the sun, beneath its gold umbrella.
There's lots of space for life on the old fellow
Under the sun, beneath its gold umbrella.
The stars pour down into the gloom of endless night.
Their cooling light subsides around my shoulders.
A tiny, helpless little bit of life,
Tenderly to my cheek I press the globe and hold it.
I hear a cry from somewhere on the earth
That calls, that begs for help and can't be calmed.
It seems to me, I hold the future's birth,
The planet's destiny in my cupped palm.
Here in my hands they lie, its pain and joy
And all the dreams and hopes I sanctify and hallow.
It's up to me to see if it survive or be destroyed
Under the sun, beneath its gold umbrella.

Under The Same Roof

By Vladimir Milyutenko

TWENTY YEARS AGO 36 families, total strangers, moved into 40 Sovnarkomovskaya Street in Gorky. They belonged to seven different nationalities and three religions, and they worked at 44 different trades and professions. How do they get along?

UNCLE FRANK

The brass nameplate on the door of apartment No.5 reads "Frank Good." When I rang, a six-foot, gray-haired Negro opened the door.

Frank Good was born in Chicago and came to Russia in 1934. For years he toured the country as a circus wrestler and finally settled in Gorky. He is now retired on pension.

"When we first came here," said his wife Alexandra, a typical Russian woman, "our bell kept ringing all the time, neighbors dropping in on all kinds of pretexts. It isn't any wonder, though, considering that Frank was the only Negro in Gorky, which has a population of several hundred thousand."

The Goods are still popular. Their most frequent visitors nowadays are boys who want tips on wrestling from "Uncle Frank."

They have friends in many towns, but letters are no substitute for friends on the spot. At his time of life, says Frank, it's important to have someone to talk to, even if it's only to muse about old times. Although he says he's not a good mixer, he has made close friends with retired colonel Ivan Lazhentsev from apartment No. 9, and pensioner Pyotr Reztsov from apartment No. 11, who used to be a steel worker.

"Lazhentsev and I talk international affairs and Reztsov is our sports commentator."

Their wives and children are also friends. On holidays they get together in one apartment or another.

On May 12 the party is at Frank's to celebrate a double birthday—his and his daughter Eslana's. She is a tenth grader.

Dominoes is another pastime they all enjoy. Frank prides himself on his game.

RACHEL AND MAKHTIYUR

Motl Pecker lives in apartment No 10. He is Jewish, 55, and works in furniture store.

He has three children. Mariana, 21, works days and studies nights—construction engineering. Sonya, 18, recently graduated from a specialized secondary school. Hershel, 9, is in grade school.

Motl is religious. For the Rosh Hashana holiday, the Jewish New Year, he always goes to Moscow.

"I like to hear the cantor in the Moscow synagogue," he explains.

As I said, at 40 Sovnarkomovskaya Street there are people who profess three religions, and many more who are atheists.

"It doesn't bother me," says Motl. "The Christians and Moslems congratulate me on my religious holidays and I do the same on theirs."

Motl's wife Rachel is friends with all the other housewives. They like her Jewish dishes. Visit one of the Russian, Ukrainian or Chuvash families in the house, and you are likely to be offered Jewish gefüllte fish or strudel made after her recipes.

The Peckers served me some unusual looking dumplings.

"Tatar *belyashi*," said Rachel, "minced meat wrapped in baked dough. Makhtiyur Alimove brought them around."

"NEIGHBORS IN NEED ARE NEIGHBORS INDEED"

That is what Maria Rogova, a Chuvash woman in apartment No. 1, told me and illustrated the proverb.

Last summer Maria's sister, Yevdokia Haze-

rier and her three children from Arkhangelsk, a town in the North, were due to visit. The day before they arrived Maria got sick and was taken to the hospital. To make things worse, Yevdokia got sick too and joined Maria in the hospital. That left Maria's husband to cope with the children.

But the neighbors took over. When it turned cold, Alexander Prudovsky saw that the children had warm clothing. Yevdokia, of course, had no idea they would be staying so long, and she and the children had come in summer things. When she left, all the neighbors saw her off.

NO ANGELS

I don't want to give you the impression that the tenants of 40 Sovnarkomovskaya Street are all angels.

They're the ordinary run of people. They have their arguments and even an occasional row at times, usually over the children.

If the boys get into a fight or a ball goes through a window, it's naturally someone else's boy who is to blame, and so Vovka of apartment No. 32 is forbidden to play with Seryozha of apartment No. 16. The boys violate the ban the next day, but it takes longer for the parents to thaw out. Several of the families like jazz, a nice arrangement, because they can borrow each other's tapes and records. But every so often a jazz lover forgets all and turns his tape recorder up to superloud, at which point even Tommy Steele or Ella Fitzgerald can be too much.

There's the dog problem, too. Dog owners want their pets exercised in the courtyard garden, and nonowners want the dogs walked as far from the house as possible.

They say you can't choose your neighbors. Could be, but in 20 years nobody has moved out of 40 Sovnarkomovskaya Street, Gorky.

Lullaby

By Yuri Moseshvili

THIS IS WHAT author Pyotr Pavlenko wrote of the last minutes of the life of Vinari's father, Grigol Skhulukhia.

"All the cruel and agonizing things those butchers could do to him they had already done. But Grigol Skhulukhia, 26-year-old Red Army man from Zugdidi, where even the birds come to learn to sing, remained staunch to the very end. Now he wanted to be alone, to look back on his life.

'Asiatic! So you want to die peacefully. We won't let you!' shouted the enraged German.

"But Skhulukhia was not a man to let himself be yelled at, especially when he was about to die.

" 'You're dirt,' he interrupted the German. 'We won't let you into Asia and we'll drive you out of Europe. You frighten yourself with your yelling, not me. Leave me alone!'

" 'Throw him on the fire,' the German ordered.

"The fire on which the soldiers had warmed their supper was dying down. Grigol was thrown on the glowing coals and straw piled on top of him.

" 'You have five minutes left,' said the German, bending over Grigol, who had suffered so much and endured so much he had no resistance left.

"The straw wouldn't catch. The German pulled out a big lighter with three wicks and touched it to the straw. The fire snapped and crackled as it spread.

"The local people who saw Skhulukhia burned alive say that when the fire touched his face he cried out in agony and tried to raise himself on his broken arms to climb out of the fire. Then they heard his last scream; it went on and on like a song.

"And that was all. He did not groan, and his body did not quiver. He died like a bird dropping from the sky and dying in flight.

"The village had been captured early in the evening. The fire still burned, and Skhulukhia's charred body showed a blackened star between the shoulder blades.

"Skhulukhia was like a banner that catches fire in battle, but the fire cannot touch the emblem, the star."

Grigol Skhulukhia died with a star on his back, a scarlet star the Nazis had carved into his flesh. But Grigol Skhulukhia lives on with the Gold Star of Hero of the Soviet Union.

Vinari never knew her father. She never saw him, for she was born five months after he left for the front. Later, as she grew older, she learned about his heroism from those who wrote songs and books about him, who named his native village Rukhi-Skhulukhia, and who erected a monument to their collective farm chairman in the center of the village.

Vinari's way home from the tea plantations does not run through the square where soldier Skhulukhia stands cast in bronze. But she and her mother often go that way.

There, in front of the statue, mother and daughter talk in low voices, as though telling Grigol how they live and work.

If you have never heard a Mingrel lullaby, there are no words to tell you what it sounds like.

Vinari's mother Ketevan made up new words for the lullaby. She sang it to her child. It told about her father coming home, throwing open the door, seeing the little girl and asking: *"Vin ari?"* "Who is that?"

Grigol never came home to ask, *"Vin ari?"*

That was how the baby, born in expectation of her father's return, got the name Vinari.

Ketevan, who heads a team of tea pickers, has many reasons to be proud. What is she most proud of? That her husband was a hero? That she herself has been decorated with the Order of the Red Banner of Labor? That she has raised a fine daughter? I did not ask her. It is not a question she could have answered. But one thing I do know. None of this happened by accident.

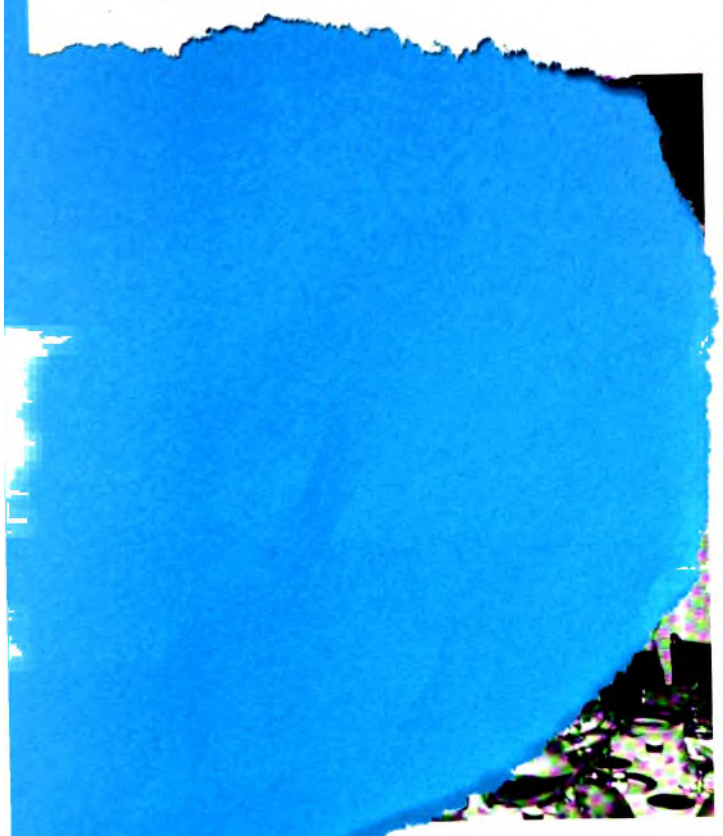
It was no accident that Vinari decided to stay at the collective farm working with her mother after she finished high school. Nor is it accidental that Vinari also heads a team of tea pickers, that she is leader of the YCLers in the village, that they unanimously chose her their delegate to a YCL congress, where she was elected a member of the Central Committee of the Young Communist League, and finally, that she holds the title of Hero of Socialist Labor.

In the Historical and Ethonographic Museum in the park at Zugdidi, the district center, where handicrafts, archeological finds and documents are on display, there are also a group of portraits of the region's outstanding people. Vinari's picture is among them. And in a display case not far from her picture is the YCL card that once belonged to Grigol Skhulukhia.

Courtesy of Literaturnaya Gazeta

WE LIKED THE RUSSIANS

By HAROLD B. TAYLOR, Bachelor of Science and Master of Science degrees at Purdue University. Farm Management Research Specialist, Indiana 4-H Member.



"...OAST to world peace and a better educa...tion for our children" said Mrs. Zavalskaya as she greeted our group of 4-H'ers at a collective farm luncheon in Southern Russia. Mrs. Zavalskaya is director of education for a 45,000-acre collective farm involving 2,500 families.

Our delegation included 48 outstanding 4-H boys and girls 16 to 18 years of age, all armed with cameras, anxious to visit firsthand with Russian people to see if we could, in a small way, further the objectives of the People to People Program by improving relations and understanding between Americans and the people of Europe.

On August 1 we flew from Warsaw to Moscow, which is written *Москва* in Russian. It is a fabulous city. Red Square and its famous buildings made a tremendous impression on the kids. It seemed odd to see only big apartment buildings making up the residential sections of the city, no one-family dwellings like ours.

We visited the Armory Chamber in the Kremlin where the Russians proudly showed us the costumes, jewels, coaches and other priceless riches of czarist days. A most impressive event was our visit to Lenin's Mausoleum. The waiting line, four abreast, was about two blocks long, extending across Red Square and beyond into the city. Through some special arrangement we were put in the line up near the front. On either side of the entrance to the Mausoleum were large bouquets of flowers. The inside was lined with marble, dimly lighted and air conditioned. We walked down two flights of stairs to get to Lenin's casket. There were two guards, one stationed at the head and one at the foot. No one talked. The silence, the reverence and the respect shown by the Russian people as they viewed their great leader was awe-inspiring.

The People to People Goodwill Tour was so jampacked with interesting sights to see that we seldom had a chance to go shopping. However, in Moscow, we took time to go through GUM, the huge state department store. The store covers nearly a city block and is three stories high with skylights over the hallways. Goods seemed to be in plentiful supply, and the store was crowded with customers. Prices were somewhat comparable to ours, but we were disappointed in the quality.

At the USSR Exhibition of Economic Achievements in Moscow, covering 534 acres, our boys particularly were intrigued with the large farm machinery: big four-wheel-drive tractors, combines, corn planters, grain drills and tillage tools. The use of squadron hitches to combine tillage tools and grain drills to a width of 20 to 30 feet is commonplace. I was told before we went to Russia that we would see large machinery on display at the exhibition but that it wouldn't be in use on farms. This we found out later was a myth, but there was one difference. The machinery at the exhibition was painted bright red trimmed in yellow. On the farm the same machinery was painted a drab, dull, rust-red color. We presumed since all the machinery is manufactured by the state and there is, hence, no competition for sales, that an attractive coat of paint was unnecessary. But this lack of attractiveness, lack of finish, seemed to be true of much of the Russian workmanship. The brickwork of their buildings was rough and shoddy, their lawns were unkept, plumbing in the bathrooms was not concealed in the walls like ours. In general, we came to the conclusion that the Russians do not consider attractive workmanship important.

We flew from Moscow to Krasnodar on a plane whose interior was much inferior to ours, and yet the pilots and the engines of the plane seemed to be excellent. Friendliness prevailed, however. We carried a supply of brochures showing pictures and information about each of our delegates. These were given to our hosts and new friends as souvenirs. The hostess of our plane was very much interested in a copy of the brochure and gave us a wine glass in exchange.

Krasnodar is a city of 600,000 located near the Black Sea in Southern Russia. We stayed overnight in a modern hotel where the meals were excellent, and then drove about 50 miles by bus early on the morning of August 3 to the Zavety Lenin a Collective Farm. The name Lenin, his picture or monument, was evident everywhere we went in Russia.

Our welcome to the big Russian farm was most cordial, and we could tell that the Russian people were just as interested in seeing us as we were in seeing them. Mr. Peter Kalchenko, chairman of the farm, welcomed our group officially in the farm library, where we were seated around tables laden with fresh fruits, soft drinks and other delicacies appropriate for visitors on a hot summer day. Mr. Kalchenko, speaking through our blond Russian guide, gave us information about the farm, its people, and their relationship to the government. He told us that the land belongs to the state but that all livestock and machinery are owned by the members of the collective farm. Sounded like a big farmers' cooperative to us. The management of the farm rests with a board of nine to eleven directors elected for two-year terms by the farmers. All of the directors that we met are college graduates. It was of interest to us that two of the directors in addition to Mrs. Zavalskaya were women, one in charge of the farm swine program and one in charge of farm planning.

The soil in the area is a flat dark loam somewhat inclined to be wet but seemingly very productive. It was evident that an effort is being made to make the farm as self-sufficient as possible. There were large gardens, vineyards, orchards, dairy and beef herds, poultry and swine. The main field crops were wheat, barley, sunflowers, sugar beets and corn. The sunflowers are grown primarily for oil.

Following Mr. Kalchenko's welcome, we toured the farm by bus, stopping frequently to get firsthand information about their farming operations. We were completely amazed at the large amount and huge size of their modern farm machinery. We saw big diesel tractors, 10-foot combines, tillage tools 20 to 30 feet in width, and at one stop there were ten 12-foot grain drills greased for storage and ready for wheat seeding.

After the farm tour we visited the children's nursery, where specially trained teachers were in charge. Mrs. Zavalskaya told us that expectant mothers may have 112 days of maternity leave with pay (56 days each before and after childbirth). Education for their children begins in the nursery, and every effort is made to further develop their educational programs. We were also entertained by a group of their people who get together socially and are organized as a club designed especially to develop their entertainment skills. The entertainment included singing quartets and trios, dances, some comic dialogue and pantomime. All in excellent taste and most enjoyable and refreshing to us.

The luncheon was fabulous! We were taken to a dining room that must have been prepared especially to accommodate our large group. On the tables were huge quantities of fresh fruits and bottles of soft drinks, vodka, champagne and other wines. The first course was assorted cold meats served family style on large platters. This was followed by a second course of delicious soup, then the main course of hot meats, potatoes and other vegetables. The fourth course was assorted cheeses, and the meal ended with a fifth course of fresh fruits for dessert. I was reminded of the big threshing dinners that we used to have on our farm when I was a kid, except the strongest drink then was lemonade.

The directors of the farm and other dignitaries were seated throughout the room to give our delegates a chance to visit with them. Some spoke a little English, and others relied upon the guides as interpreters. Many toasts were made, and always a part of each toast was reference to a desire for world peace and better education for their children. Peace, particularly, seemed to be dominant in the minds of these Russian leaders, and I am sure they were sincere. At the luncheon we had the opportunity to learn more about the collective farm. Mr. Kalchenko told us, in response to our question on communism, that some of the people on the farm were members of the Communist Party, but their jobs on the farm were not indicative of their relationships to the party. In fact, we were surprised to learn that not all of the directors of the farm belonged to the party.

At the conclusion of the meal we were presented with a replica of the monument to the Russian astronauts located in Moscow. We in turn gave each of the directors and farm administrators one of our 4-H knives. As we waved good-by, we realized more fully that these were sincere, friendly, educated people, interested in us and interested in helping us fulfill our People to People goal to achieve mutual understanding and world peace.

The next day, due to the cancellation of one of our planes, half of our group went by bus from Krasnodar to Rostov. This is another city of about 600,000, located 240 miles north of the collective farm. Going by bus gave us an opportunity to see the countryside firsthand. The road was nearly straight all of the way, the land practically level, and we could see on either side the farmsteads of the large collective farms that appeared to be comparable to the one that we visited. There were no fences, and any livestock that was grazing was accompanied by a herder.

At Rostov we visited Russia's largest grain combine assembly plant. They told us that one combine came off the assembly line every four minutes. The factory appeared to be comparable to any that we would see in this country, and we were allowed to take pictures throughout the plant.

Early the next morning we flew to Moscow, went through customs, did some shopping in the airport and boarded a plane to Copenhagen.

We were pleased with our six-day visit to Russia. The people were extremely friendly and courteous, the food and lodging were good. True, at least where we were, their standard of living in terms of television sets, automobiles and nice clothes is not comparable to ours, but who are we to say how important these material gadgets are to mankind? Perhaps cooperation, a willingness to share with others, interest in world peace and understanding are more important. At least, we hope our Goodwill People to People delegation of 4-H'ers had a small part in developing a little better understanding between a few interested Russians and a few enthusiastic teenage Hoosiers.

PIONEERING IN TUMEN WILDERNESS

Photographs by Victor Sakk

The dense taiga—almost endless miles of primeval forest—alternates with patchy, stunted growth like this, the snow barely covering the smoking swamps. The landscape of Tyumen Region is very typical of Western Siberia, but it hides great pools of oil and gas. Geologists are no strangers to the indigenous peoples, the Hants and the Mans. Field expeditions had been prospecting the area for some considerable time, but without any notable success. Finally, after the customary quota of false alarms and disappointments, in the spring of 1960 the first geyser of oil burst through to the surface on the shore of a taiga rivulet. As of today, 60 big oil and gas fields have been located, with more undoubtedly coming. As always, the prospectors keep moving on, keep blazing their trails in the taiga, heading toward the Arctic Ocean. After the geologists come the builders and drillers. They are working to raise the output of oil to 20-25 million tons annually by 1970. Tyumen is expected to become the major fuel supplier for the Urals as well as Western Siberia.

◀ *Twelve months from now these pipes will be carrying oil to Omsk, a big industrial centre. In the next few years all of the Tyumen oilfields will be linked up by a pipeline system.*

A bright sunny day is a rarity here. And if the sun comes out on a Sunday, it's an occasion

When this Young Communist League member finished school he volunteered for work in Western Siberia. The YCL has taken over the patronage of the oil and gas fields in this area

Taiga treasure hunters

◀ *Another jackpot and a cause for celebration. As soon as these geologists leave, construction workers and oilmen come in to get the derricks assembled and the field ready for production.*

This old-timer adheres to tradition and tradition says this is the proper way to sample oil that took a whole lot of finding. "Tastes like a big field," he's saying. He should know. ▼

Oil drilling through snow crust

▲ *This road, which connects with the most remote fields, is open only in the winter. In spring it becomes impassable bog, with mud up to and often above the hubcaps. Which is why all deliveries of equipment, building material and the like have to be made in the winter. But that presents its own problems when you are miles away from the nearest settlement. The reason you never see a single truck—they ride in caravans.*

Georgi Kulinich came here from the south. Siberian weather took getting used to but now he feels at home. At 22 he is a foreman—young for that job. ▶

His home town is in the sunny Caucasus. He worked on several of the big construction projects elsewhere in the country and wanted a look at Siberia. ▼

Getting this steel pipe unstuck and shifted takes some brawn but more skill, especially if the job has to be done with a couple of crowbars and a cable. ▶

◀ *This is the usual type of derrick but the men who work it have to be unusual: to fight not only hard rock, but frost and ice binding the pipes into one solid mass and polar winds that batter down big derricks.*

crust

Caterpillar-tread vehicles and helicopters are transportation musts in Siberia to carry goods and people to the remote parts of this continent-size territory. ▶

▲ *Hot food served indoors, out of the biting cold, feels almost like luxury living where these men work. The construction team is assembling one of the northernmost sections of the 600-mile pipeline which will connect Ust-Balyk with Omsk.*

The pipeline has to cross over hundreds of rivers of assorted sizes. Many of them constitute formidable barriers for the builders. Divers often have to be called in to assist. These underwater men are a very special breed. It's not everyone's job by a long shot. Even though the pay is high, there are few people who will work in water just above the freezing point. ▶

MAN, NATURE AND A NEW SCIENCE

By Lev Karpachevsky

By A.D. 2000, demographers say, the world population will be at least seven billion. To feed that many people we must study the earth's available resources and devise ways of exploiting them more productively.

The International Union of Biological Sciences has mapped out an International Biological Program for research on the productivity of seas, oceans, rivers, lakes, forests and arable land. Lev Karpachevsky, a senior researcher at the Silviculture Laboratory of the USSR Academy of Sciences, discusses some of the problems confronting the International Biological Program.

BIOGEOCENOLOGY, a new science, studies the bonds and relations which exist in nature. The term biogeocenology ("bio," meaning life; "geo," earth; "cenes," association; and "logy," science) was proposed by the late academician Vladimir Sukachev. With Vasili Dokuchayev, Vladimir Vernadsky, and Ivan Pavlov, he is considered a founding father of modern Russian biology.

Biogeocenology is an expression of a fundamental concept of the contemporary natural sciences: the very close connection between living and inanimate nature. The integrality of the "living" and the "inanimate" which is inherent in a given complex of soil, plants, insects and birds is called biogeocenosis. Woods, meadows, swamps, rivers and seas are all examples of biogeocenosis. Its principal characteristic (as of any other living system) is metabolism.

At the molecular level metabolism is the joining and splitting of separate parts of protein molecules. In an organism, it is called assimilation and dissimilation, that is, the absorption and discharge of substances by the organism. In biogeocenosis it is a rotation process: the movement of separate substances from some components of biogeocenosis to others.

Plants absorb mineral substances from the soil and, by using solar energy, synthesize sugar and starch from water and carbon dioxide from the air with the help of chlorophyll. Insects and herbivorous animals eat plants and convert the organic matter into proteins and fats. The solar energy stored by the plant is transformed into new forms. Birds eat insects, and predatory animals eat birds and herbivorous animals. But beasts of prey also become food for other animals and microorganisms in their turn. As a result the living substance, the organic material, is mineralized and reduced to simple compounds, including carbon dioxide and water, thus becoming food for plants. This is where the rotation begins anew.

In this system everything is interconnected in a most complicated structure. Biogeocenosis is self-regulating, a characteristic of all biological systems. For instance, large herds of young elk destroy pine seedlings, thus denuding the forest. But when the big gray wolves come, they devastate the herds of elk. When there are few elk, hunger forces the wolves to turn to other food sources. The balance is thus restored.

In the operation of biogeocenosis the wolf is no more harmful than the elk. They are both useful until they violate the regular and normal development of this system. Both will become harmful if they propagate a surplus; then the subsequent self-regulation of biogeocenosis may restore the balance.

But the disappearance of some component may impair biogeocenosis. Suppose the pike in a pond die. This should make life free and easy for the carp. At first the carp do multiply at a great rate. Even the weak and sick ones, which were formerly eaten by the pike, now survive. But the sick fish infect the healthy ones, and gradually the carp in the pond die out. The same is true of forest life: The hare and partridge die out from disease if the numbers of predatory animals—wolves, foxes and hawks—fall below the necessary minimum.

True, there is a phenomenon in nature, parasitism, which is harmful by its very nature. Parasites do not contribute to the process of rotation. They only make use of what results from the activities of other organisms.

The study of the very tenuous connections in living nature is of recent origin. Our sometimes disastrous interference in biogeocenosis can only be explained by our ignorance of, or, what is even worse, our disregard for those laws of nature science already knows. Here are some examples:

A hydroelectric station was built on Lake Sevan high in the mountains of Armenia. Unfortunately, no one took into account that the drop in the level of the lake could drain the springs in the low valleys, which is what happened. To raise the level of the lake again, an underground canal 30 miles long is now being built so the mountain river Arpa can flow into the Sevan. Miscalculations of this kind, resulting from man's interference with the balance of nature, could be cited for other countries as well. A particularly unfortunate example is the irrational exploitation of forests, which has eroded soil, dried up water sources and blighted large areas.

The use of chemicals to fight farm pests is not always beneficial because the poisons also destroy useful insects and birds. Knowledge of the biogeocenetic relationships involved could suggest new biological methods for fighting harmful insects.

Livestock breeders on the Caribbean island of Curacao were losing cattle from a bloodsucking parasite called the meat fly. Scientists observed that only female insects sucked blood; the males fed on the juice of plants. On their recommendation, male flies were grown in special incubators, sterilized by exposure to gamma-radiation and sprayed over the area from a plane. The females laid sterile eggs, and the number of bloodsucking insects was sharply reduced. The measure proved cheaper and more efficacious than chemicals.

In some countries predatory practices in agriculture have led to ruinous erosion and gullying. In his effort to grow bumper crops, man wears out the soil; he disturbs the natural balance, interferes with natural rotation. Soil should be thought of as more than a source of harvests, not only as an independent unit of nature, but as a unit of biogeocenosis which must be artificially supported. Knowing the principal laws of rotation in natural biogeocenoses, we can plan a crop rotation based on artificial biogeocenoses, which will yield rich and stable harvests.

The benefit to nature and the benefit to man will go hand in hand if we look upon benefit as more than the immediate return. We come into this world the heirs of all the civilizations that preceded ours. We have an obligation to leave to those who come after us rich, fruit-bearing lands, not barren deserts!

Courtesy of Znaniye—Sila

DOSTOYEVSKY'S

"CRIME AND PUNISHMENT"

(continued from page 13)

The Black Sun

this note in his rough draft: "Aleko has killed. He is aware that he himself is not worthy of the tormented soul. This is a crime and a punishment." And from his "Speech About Pushkin" about this same Aleko: "The truth is not in things, not outside yourself and not somewhere overseas, but in your own work, in yourself."

We may assume, not without good reason, that self-perfection according to Dostoyevsky is an amorphous, passive, religious ecstasy. But this is only one side, the undeniably dangerous and cruel side, of Dostoyevsky's contradiction. The other, sometimes the more important and even dominating, side is the rigor of the ethical demands he imposed first on himself and then on other people, especially those who pretend to the role of ideologists, the carriers of ideas, the carriers of a creed, so to speak. In his **Diary of a Writer** we read: "In my opinion, one thing is important: to understand that one cannot become a man overnight, that one must make himself into a man. A special kind of discipline is necessary. It is this constant discipline with respect to oneself that is rejected by some of our contemporary thinkers. . . . Moreover, they proclaim general laws, **i.e.,** rules that will make everyone happy without any effort as soon as these rules prevail. . . ." (These ideas were once maintained by Dostoyevsky himself: See his "The Dream of a Ridiculous Man.") "Even if this ideal were possible, no rules, not even those easiest to live by, will help if man has not yet made himself into man. It is by this tireless discipline and constant work that man proves his citizenship."

Not the individual, still less all mankind, can "make himself over all at once." This idea is no empty abstraction, especially when it is developed in a work of art. Any more than the idea of the danger of arithmetic and the need to count each person is an empty abstraction. These ideas had to be poid for dearly, very dearly, and to forget that can mean mankind's very existence. People, including Dostoyevsky, hold onto these ideas of life and life-giving which they express through an active humanism not because of religious tracts but in spite of them. "Yes, there is much brutality in the people," Dostoyevsky wrote, "but do not keep pointing at it. **The brutality is the scum of the centuries, and it will be cleaned out.**"

Open End

There is nothing more superficial and groundless than identifying Dostoyevsky's own views with those of his passionately believing heroes. Dostoyevsky creates both believer and atheist, gets them into a fight, suddenly finds the belief has perished, that it cannot be resurrected, and yet he implores it to rise from the dead. His "self-criticism" of Christianity is a suicide of religion. Dostoyevsky "wins" (so it seems to him) when he "bets on God." But then he "bets on atheism" and "wins again." The stakes get larger, losses alternate with winnings. But like a confirmed gambler, he cannot stop.

"I blaspheme for appearance's sake," he said once.

But if that was what he was doing, why those agonies of his?

". . . In Europe there is not, nor has there been, such strongly expressed atheism," wrote Dostoyevsky. "I believe in Christ and profess His teaching, but not as a child would—my hosanna has passed through a great crucible."

Not only "passed," we would say, but returned to this crucible.

"God has been a torment all my life. . . ."

This confession raises a question. God for him is now the worst "killer" (but He doesn't exist?), now the Savior (though the saving of the world is postponed while evil is not!).

Man, Not God, Was His Tormenter!

"Man is a mystery that needs to be divined," he wrote in 1838, when he was 17.

"The reality of man has to be discovered in man" (even in Svidrigailov, Stavrogin, Smerdyakov and the Great Inquisitor) is how Dostoyevsky formulated the cardinal purpose of art 40 years later, when he was close to 60.

"When will strife end and people come together?" was his lifelong theme.

The world he created revolves around man rather than around God. Man is the Sun of this world. Or at least he should be the Sun!

For him Christ was (essentially if not exclusively) a suffering human being rather than God, a live man, "this man here," like his Count Myshkin or Don Quixote.

With great artistic sensitivity Dostoyevsky breaks off **Crime and Punishment** just before Raskolnikov's "religious illumination." The illumination is merely noted. Dostoyevsky's religious convictions were not strong enough to dramatize his hero's "great future deed." But he did have sufficient strength of a different kind, the strength of reality. Raskolnikov was redeemed not by religion but by Sonya's love. Characteristically, he pleads guilty when he realizes that "Sonya was with him forever and would follow him to the ends of the earth, wherever fate might take him." It is right and natural that on the morning of his redemption (epilogue) we have the Sun image again, "vast steppe bathed in sunshine." Svidrigailov's decision to commit suicide (or as he put it, "to set off on a long journey," or "to America") is characteristically made irreversible by Dunya's "Never!"

There was a "common point" between Raskolnikov and Svidrigailov, but it vanished. The suicide of one is followed by the redemption of the other.

Dostoyevsky intended at the close of his novel to show the victory of religious antimicrobes over the "microbes of evil." Even he realized that the intention was utopian. Which is perhaps why his picture of a world holocaust ended on this note: "Only a few men could be saved in the whole world. They were a pure chosen people destined to found a new race and a new life, to renew and purify the earth, **but no one had**

seen these men, no one had heard their words and their voices." (my emphasis)

The **world** of which Dostoyevsky dreamed is the world where all and not only the "pure chosen" ore saved, and they are saved here, on earth, in this world.

No objective investigator would oscribe to Dostoyevsky an exclusively apocalyptic orientation. Indeed, while the search for the "innermost, unexpressed, future word," the prophecy of the development of mankind through the alembic of art is a major characteristic of Dostoyevsky's works, the future he is concerned with is rarely the biblical future. The dilemma—**between the cross and the axe, no third alternative existing!**—that Dostoyevsky presents he himself objectively destroys. He rejects not only the axe, but often the cross as well. It is a third alternative that Dostoyevsky was looking for.

At the close of the novel he writes about Raskolnikov: "Life had stepped into the place of theory, and something quite different would work itself out in his mind." Thus, in Dostoyevsky's terminology arithmetic is identified with what he calls theory. Today we could say that "life had stepped in," not to take the place of theory but of metaphysics, while it is theory that had to develop. What Dostoyevsky did prove objectively was not the bankruptcy of rationalism in general and the need for irrationality. He demonstrated the irrationality of the limited, one-sided, self-contained kind of rationalism. This is the rationalism, if we can call it that, which declares particular scientific findings to be absolutes and proceeds to build a system around them but is unable to generalize or systematize the findings of a continuously evolving science that is as powerful and irreplaceable a means of man's self-cognition as are the arts.

The incompleteness, the new possibilities, the **open end** is no external peculiarity of Dostoyevsky's novels but perhaps the most expressive and essential manifestation of his profoundly dialectical artistic thinking and more particularly a manifestation of the author's deep dissatisfaction with a ready-made New Testament solution.

We may isolate separate ideas of Dostoyevsky, but we should bear in mind that they are all closely linked in the world of his art. This linkage is not a chain that can be broken up: His ideas are like blood vessels, in a single organic system, bearing all the varied nutriments.

Despair

On the "Duel" Between Marx and Dostoyevsky

Another American edition of **Crime and Punishment** came out in New York in 1964. The new tronslation was accompanied by excerpts from Dostoyevsky's rough drafts and letters, as well as by essays about him by Soviet and non-Soviet, Marxist, non-Marxist and anti-Marxist writers. I would like to make some comments on one of these essays, Alberto Moravia's "The Duel Between Marx and Dostoyevsky."

To compare the world views of these two geniuses is an interesting approach that could lead to new and important conclusions. But Moravia did not use the opportunity, for in his duel between Marx and Dostoyevsky he disarmed Marx or, rather, did not confront Dostoyevsky with the real Marx. And so it was easy to let Dostoyevsky win.

Marx and Engels said: "A goal which requires the wrong means to attain is wrong." The goal Marx foresaw was a society in which "you can exchange love for love and nothing else, trust for trust . . . in which you influence other people by teaching them to use their potentialities." In this society we will have "truly human relations" founded on the "laws of the beautiful." In this society labor will no longer be "dictated by poverty and pressured by need" and the rounded development of personality will be the "purpose unto itself" of history. In **Capital,** the first volume of which came out in 1867, almost at the same time as **Crime and Punishment,** Marx envisioned a society in which human progress would cease to "resemble that hideous pagan idol, who drinks nectar only from the skulls of the slain." And in the **Manifesto of the Communist Party** Marx and Engels defined communism as an association in which the "free development of each is the condition for the free development of all."

These ideas Marx and Engels developed and matured during the forties and fifties, into the sixties and even through the seventies and eighties. The ideas were arrived at by means of that same rationalist yet genuinely scientific method which Dostoyevsky was so much against.

Marxism did more. It brought to light that most crucial of concepts: the alienation of labor. It defined the real, the objective, the revolutionary conditions required to end this alienation and thereby pointed out the only way to achieve those genuinely humanistic goals man has been working out and enunciating over the entire course of his development. Marxism proved that, without science, objectively accurate social orientation was not possible for either the individual or society at large. With the advent of Marxism sociology became a science, and now generalizing, rounding-off, was not only advisable but necessary; rounding-off now served rather than injured the individual and his society.

Alberto Moravia's essay made no mention of these ideas of Marx. Naturally, confronted in this abbreviated form with Dostoyevsky's world view, Marxism looks like the ghost of its real self.

Another point: Marxism has a rich tradition of vigorous struggle against "crude," "egalitarian," "light-minded" communism, **i.e.,** against that very "communism" which Dostoyevsky rejected and which he confused with true communism. The denial of personality is the initial and finite point of the ideology of crude communism, and Marx exposed it at every turn. Moravia did not, unfortunately, mention this aspect of Marx's struggle. The "duel" is therefore little more than an exercise in imagination.

Even our more scrupulous opponents—not to mention the others—too often get their judgments of Marx not from Marx himself but from his vulgar "interpreters." Of these interpreters Marx said a short time before his death, more bitterly than facetiously: "One thing is clear to me: I am not a Marxist."

Nor is there any reason to agree with Moravia's estimate of Raskolnikav: "In contrast to Stendhal's Julien Sorel, another worshiper of Napleon, Raskolnikov dreams of Justice rather than grandeur."

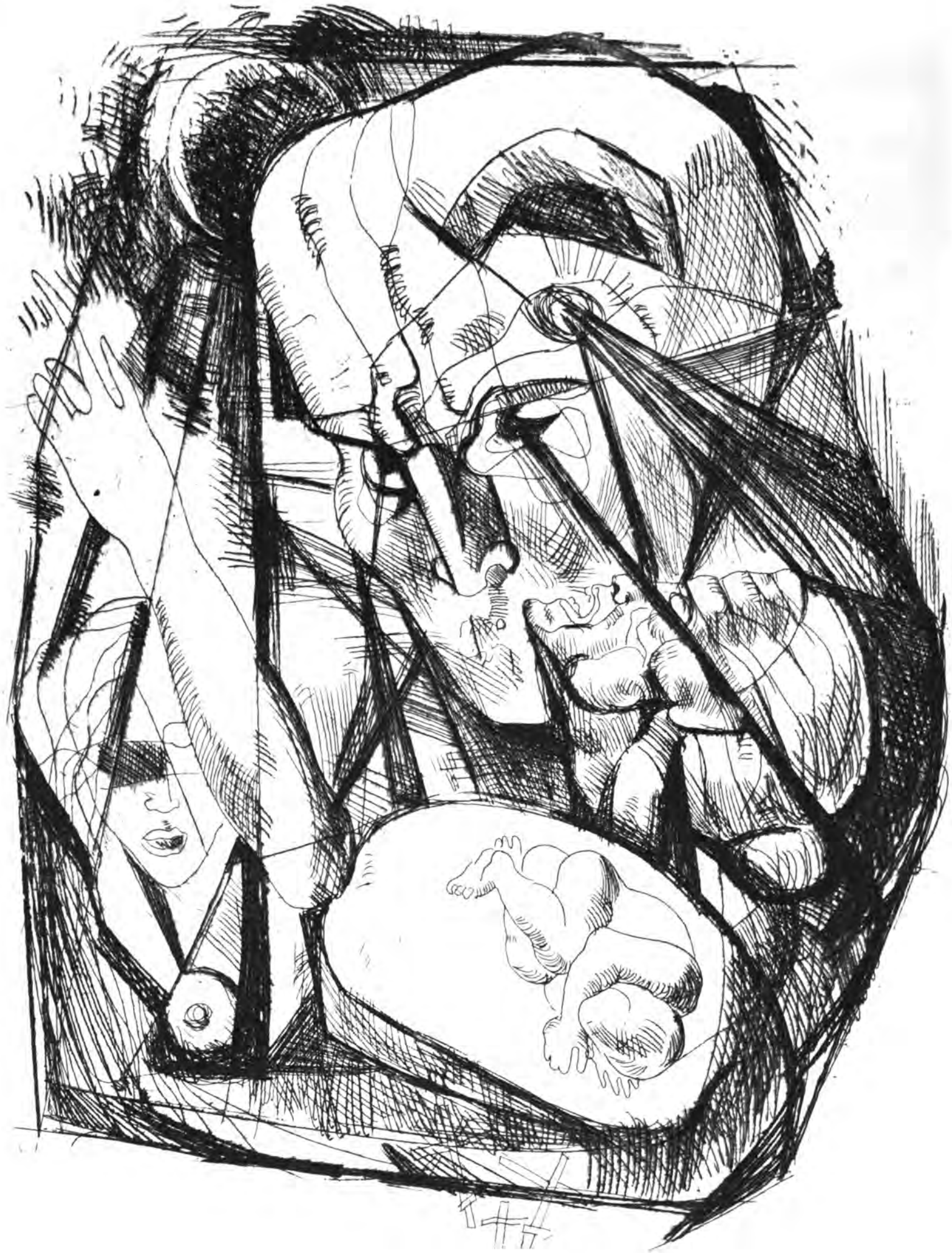
But this is not really so.

The entire content of the novel as well as the analysis of the rough draft and notebooks indicates that the formula "Not this but that" is inappropriate. The applicable formula is "This and that." It is "power" that Raskolnikov dreams of.

Which shows once again that the duel is nonexistent.

This is, however, perhaps not the main point. What really matters is that we develop our ability to retain every grain of the spiritual values created by the thinkers and artists of the past. In recent years Marxist researchers have broken through their bias and have re-evaluated their oversimplifications of Dostoyevsky. But many of our conscientious opponents, we feel, have still not overcome their bias against Marxism.

Courtesy of *Voprosy Philosophii*



Killing in Rife

MIKHAIL SVETLOV (1903-1964)

Those who knew Mikhail Svetlov all agree that he was a person of rare charm, inexhaustible kindness and sparkling humor. Many of his witticisms are still circulating. Even in his later years, they say, he lost none of his own youth and his love for young people and for the romantic. His poetry, too, retained its charm, kindliness, wit, youth and romance with the years.

Svetlov was a young boy during the Civil War period, a time when people matured early. He was still an adolescent when, with other Young Communists, he went after the White Guardist gangs that were stirring up trouble in Yekaterinoslav (now Dnepropetrovsk). At the age of 17 he traveled to Moscow for a congress of proletarian writers.

From 1925 onward he worked in what came to be known as the "Svetlov style" of his "Merry-Meeting," "To a Rabfak Girl" (student at a workers' school), "Before Battle" and the famous "Granada." Mayakovsky thought so highly of "Granada" that he recited the poem at readings of his own work. This "Svetlov style" is romantic metaphor interspersed with ironic everyday detail: "Today two drops of a war storm fell on my cheviot jacket." He built his images by bridging the prosaic and the romantic. In a girl student he saw Jeanne d'Arc; in the Ukrainian steppe, Granada; in the clink of goblets, the roar of battle.

He volunteered for frontline duty as a correspondent. During the Patriotic War years he wrote many poems, the best of which is, perhaps, "The Italian." It is interesting that the poems he wrote in the last years of his life (for which he was posthumously awarded a Lenin Prize in 1967) are not the calm, philosophical reflections of a sage; they are impetuous, idiosyncratic, expressions of youthful sensibility.

СПИЧКА

Неотвязчива сила привычки,
Бесконечно манит тепло...
Огонёк скучает по спичке,
Огоньку без неё тяжело.

Я шагаю за строчкой певучей,
Я вхожу в заповедник чудес,
Одиночество падает тучей
На покинутый лешими лес.

И стоит среди леса осина,
Ей на спички пойти предстоит.
Как пристанище блудного сына,
Беспроходная чаща шумит.

Я желаю и присно и ныне
Быть родителем всех огоньков.
Я желаю, подобно осине,
В сотни втиснуться коробков.

Чтоб носили меня, зажигали,
Чтобы я с человечеством был,
Чтоб солдат на коротком
привале
От меня, от меня прикурил...

А берёзы стоят, как принцессы,
Не отводят от солнышка глаз...
Трудовые проходят процессы.
Мы работаем. Спичка зажглась.

1960

THE MATCH

The strength of habit is continuous,
Warmth attracts perpetually . . .
The flame is homesick for the match,
Without it the flame finds the going hard.

I march after the singing line,
I enter the reservation of miracles,
Loneliness falls like a thunderhead
On the forest abandoned by the goblins.

And, in the middle of the forest, stands a hickory
Whose fate will be to become matchsticks.
Like the refuge of the prodigal son,
The dense thicket loudly rustles.

I wish for now and forever
To be the parent of all flames.
I wish, like the hickory,
To cram myself into hundreds of boxes.

So that people will carry me, light me,
So that I will be with humanity,
So that a soldier, during a brief
rest,
From me, from me will light up . . .

The birches stand like princesses,
Not shifting their eyes from the sun . . .
The process of labor continues.
We are working. The match has been lighted.

1960

NIKOLAI GRIBACHEV (1910-)

Nikolai Gribachev's life, full of stormy events and interesting travels, began in a remote village in the Bryansk forests. He would have duplicated his peasant father's existence—the backbreaking round of plowing, sowing and reaping—but the Revolution came to the village and then collectivization. He became the village correspondent for a central newspaper, went to a school for peasant youth and then to a hydraulic engineering school. Working in Karelia as a prospector, he tried his hand at newspaper work again and from then on devoted himself to writing.

During the war Gribachev commanded a battalion in the battle near Stalingrad. He went back to his own job, however, and arrived in Berlin a war correspondent. In the past 20 years he has traveled literally across the globe, made several Atlantic crossings and visited the United States frequently. Gribachev has the clarity and passion of the gifted journalist. Even in his

НОВОСЕЛЬЕ

Большого подворья останки:
кирпич, головешки, зола...
Два года в походной землянке
семья по-солдатски жила,
два года сочились с наката
по капле вода и смола.
Уже забывали ребята,
что хата когда-то была.

А нынче у них новоселье,
и медленно шествуют в дом
хозяйка с бельём и постелью,
мальчишка с зеленым ведром,
и сам, в порыжевшей шинели,
сходя по ступенькам крутым,
глядит, как льняною куделью
над крышей расправился дым.
как сладко зевнули ворота,
как, вечный нахлебник людей,
о чём-то чирикнув с разлёта,
стрельнул под стреху воробей.

Всё стало на прочное место,
свои утверждая права:
в деже поднимается тесто,
в печи запылали дрова,
и даже, нежданный, незваный,
с тех лет позабытый почти,
в свистульку, в манок
деревянный
сверчок заиграл на печи.
И скоро хозяйка в достатке,
тревог не забывши сполна,
припомнит о доле солдатки,
как будто приснилась она.

И резвые эти ребята,
уткнувшись в букварь у стола,
не вспомнят, что хатой когда-то
землянка в овраге была.
И лишь, когда, рощи пронзая,
вдруг скрестятся молний
штыки
на запад посмотрит хозяин
и молча сожмёт кулаки.

1945

verse he remains the journalist (poetry, you could say, is his second profession). At times he is perhaps too unsparing and too uncompromising for his literary opponents. But his precise and poster-like sketches are inimitably effective.

HOUSEWARMING

Ruins of a large homestead:
bricks, firebrands, ashes . . .
Two years in a wartime dugout
a family lived, soldier-like,
two years through the dead floor
oozed water and tar, drop after drop.
The children began to forget
that they had once had a home.

But now they are having a housewarming,
and slowly they pass into the house:
the mistress with laundry and bed sheets,
the boy with a green bucket,
and the master in an old great coat
as he descends the steep stairs
and looks at how, as flaxen tow
smoke uncurls over the roof,
how the gates yawn sweetly,
how that eternal hanger-on, the sparrow,
chirping about something on-the-wing,
flashes under the eaves.

Everything stands firmly in place,
confirming its rights:
dough rises in the pan,
logs blaze in the stove,
and even, unexpected, uncalled for,
almost forgotten during these years,
on its whistle,
its wooden fife
a cricket begins to play behind the hearth.
Soon the mistress, living well,
not quite having forgotten the past,
will think of those sufferings,
as of a far-off dream.

And these bustling boys,
noses glued to their ABCs on the table,
will not remember that once their home
was a dugout in a gulley.
Only when, splitting the grove,
flashes of lightning suddenly cross
swords,
the master looks toward the West
and silently clenches his fists.

1945

NEXT ISSUE

This year we celebrate the 150th anniversary of the birth of Karl Marx, the founder of scientific socialism. *Capital*, his seminal study of the origins of social development, has probably done more to change the world than any book ever written. The next issue features his life, work and influence. Historian Pavel Antonov describes his exile in London, the difficult circumstances under which he had to work, his family life. The economist Alexander Birman discusses his method of analyzing social phenomena in an article entitled *What Turns the Wheels of History?* Academician Nikolai Semenov, the Nobel Prize winner, considers the application of Marxist thinking to research and development in the sciences. Several contributions deal with Marx and the United States. For several years he was a correspondent on European affairs for the *New York Tribune*. *Repository No. 1*, an article on the Marx-Engels archives in Moscow, describes the efforts to prepare for press the very considerable body of their unpublished works.

Mangyshlak is a 25,000-square-mile peninsula on the eastern shore of the Caspian Sea. In this mountainous desert geologists have found rich deposits of phosphorites, manganese, brown coal and, even more important, great pools of oil and natural gas. This region, washed by the sea and virtually cut off from the continent by desert, is a wilderness of rock and sand, of dust storms and temperatures past endurance. Water, brought in by tankers from the Caucasus across the Caspian Sea, has to be doled out by the thimbleful. Despite the multitude of problems (the biggest is labor—who wants to work in this hellish climate, where water is rationed and supplies problematical?) Mangyshlak is being developed. Desalination plants are to be supplemented by a 150-mile water pipeline from the mouth of the Volga, and another from the Ural River. Several hundred miles of highway and a railroad line have already been built; ports with docks for tankers are in the drafting stage.

The Pamirs, roof of the world, has four summits just as challenging as the best—or the worst—the Himalayas has to offer. Only four Soviet alpinists have scaled all four and are entitled to wear the jealously guarded honorary award, the Snow Leopard badge. Last August, in an international climb to mark the fiftieth anniversary of the October Revolution, the unprecedented number of 301 alpinists from nine countries attempted Lenin Peak, one of the four. Reporter Ari Polyakov, a distinguished climber himself, gives us a picture of the contestants, a view of the base camp and some of the hazards of the climb, including a raging storm and a 15-hour descent with a climber at the point of death.

COMING SOON

The crown jewels and Siberian diamonds on display in the Kremlin.

SYNTHESIS OF STYLES

Transcarpathian Church Architecture

(Above) An interesting example of eighteenth century Ukranian church architecture. The only tool used by the builders was the ax. There is not a single nail in the structure.

(Left) Tower of Nevinsk Castle near Uzhgorod in central Transcarpathia. It was built in the twelfth century.

(Right) A small masterpiece of the baroque—eighteenth century wooden church, Mukachevo, Transcarpathia.

(Right center) Typical specimen of applied folk art—carved porch of an eighteenth century wooden church.

(Far right) The bastion of a fifteenth century castle in Mukachevo.

BY VLADIMIR DESYATNIKOV

IN TRANSCARPATHIA (see **SOVIET LIFE** December 1965) wood is the most common building material. Houses here are built to last a lifetime, to please the eye and cheer the heart. The local folk are not afraid of using gay, resounding colors. Thus, the walls may be a pale blue, the shutters green, the roof red and the carved porch yellow.

Transcarpathian wooden architecture has a long tradition. Many of the houses, churches and chapels still standing go back to the seventeenth and eighteenth centuries. Only the north of Russia can boast of a greater variety of architectural masterpieces in wood, places like Kizhi, for example, (see **USSR** for November 1964), Kandopoga and Kargopol.

The region was part of the territory inhabited by the Eastern Slavs. In the ninth and tenth centuries these lands were overrun by nomad Ugro-Finnish tribes (the Magyars, or Hungarians). In their fight against these invaders the local Slavs had the support of the powerful princes of Kiev Rus, and in the tenth and eleventh centuries they became vassals of that medieval state. However, Transcarpathia split into isolated feudal principalities and was once again seized by the Hungarian lords. Possession of this tempting region, set right in the heart of Europe and walled off from the greater part of Russia by the wooded Carpathian mountain range, was bitterly contested for many a long century. Oppressed by Hungarians and Germans, the local Slavonic population did not stop fighting for their independence until they were reunited with the Ukraine in 1946.

This brief historical introduction will serve to explain the singular quality of Transcarpathian architecture—its creative adaptation of Russian, Ukrainian and Western European influences, notably the Gothic and Baroque. It drew upon Romanesque style and European structural theory and practice, at the same time remaining faithful to Slavonic tradition.

Transcarpathia has several different types of wooden churches. Rectangular structures with distinctive roofs, most of them are built of axe-hewn logs notched to fasten horizontally into each other without iron nails. The Voditsa village church (1618) and the Church of St. Michael (1688) in the village of Krainikovo are two interesting examples among many.

The famous Shelestovo Church is a classic example of mixed Gothic and Baroque. Built in 1777 in the village of Shelestovo, it was later moved bodily to Mukachevo. It is outstanding for its sculpture-like form—it seems to have been carved from one solid piece of wood—and for the fine proportions of the altar, church proper and belfry. A broad, sunlit gallery surrounds the church on three sides and resembles the porch of a peasant house. It gives the church a festive, cheerful look.

Stone churches of Transcarpathia, especially the earlier ones, are more severe and ecclesiastical looking. A good example is the oldest, the twelfth-century Catholic Church of St. Anne in the village of Goryany near Uzhgorod, otherwise known as the "Goryany Rotonda," a fine Romanesque example of that distant period. It consists of two sections, an older, thick-walled rounded hexagon and a refectory. The rather gloomy interior is dimly lit by small, half-round windows.

Still visible are fragments of strikingly original twelfth- and thirteenth-century frescoes interpreting Bible scenes. A good deal of restoration work is being done on these frescoes in particular since no other Transcarpathian church has any of this period. The oldest Orthodox churches were razed by foreign invaders, and the Catholic churches were either rebuilt time after time or destroyed in one of the many wars— as happened to the thirteenth-century Romanesque-Gothic church in the village of Muzhilovo. Demolished several centuries ago, all that is left is part of the walls, with narrow long slits, and the portal, a memorable and impressive ruin.

The coming of Spring in the Moscow suburbs.

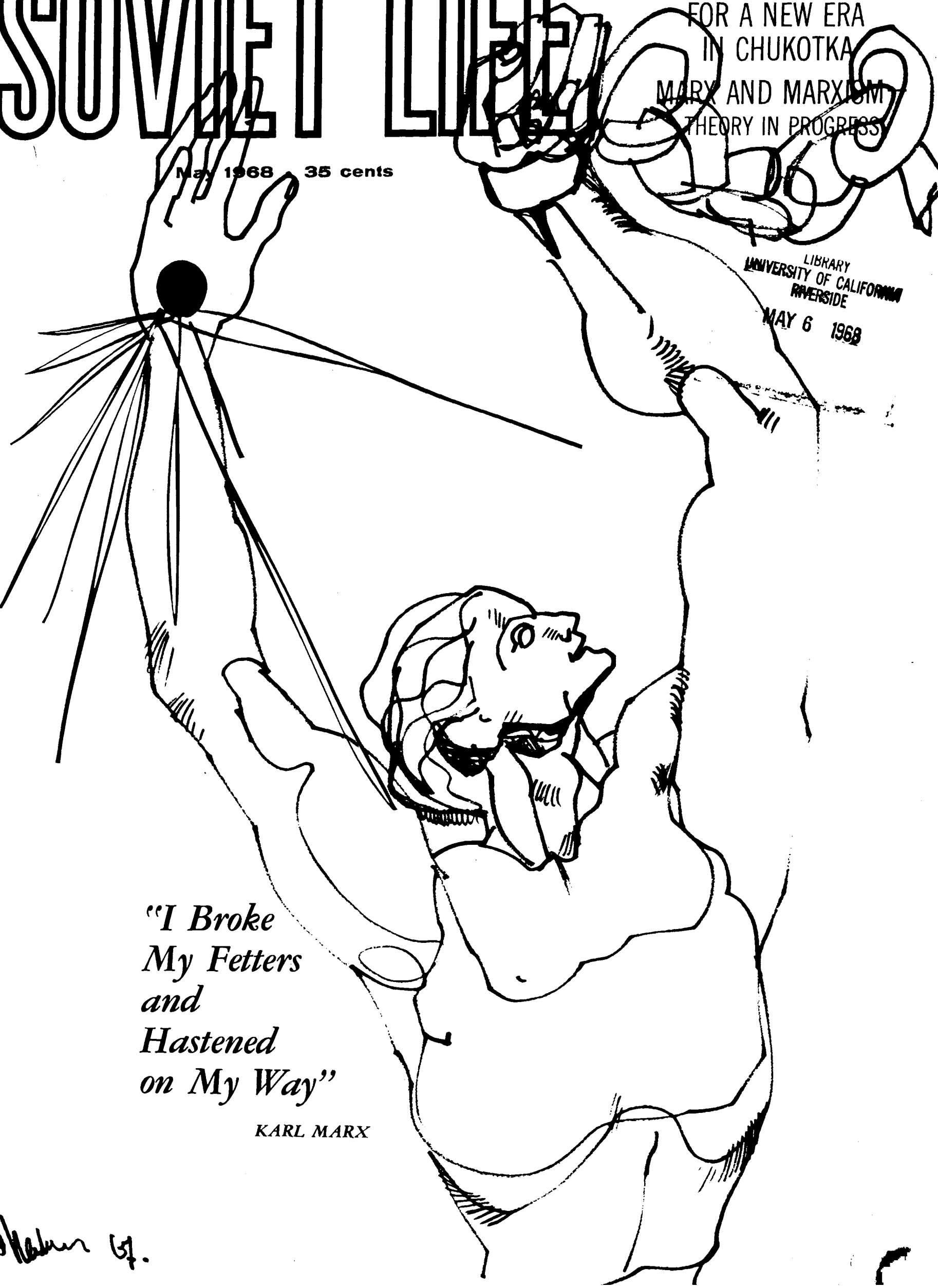
SOVIET LIFE

May 1968 35 cents

ATOMIC FUEL FOR A NEW ERA

IN CHUKOTKA

MARX AND MARXISM: THEORY IN PROGRESS



"I Broke My Fetters and Hastened on My Way"

KARL MARX

SOVIET LIFE

MAY 1968 No. 5 (140)

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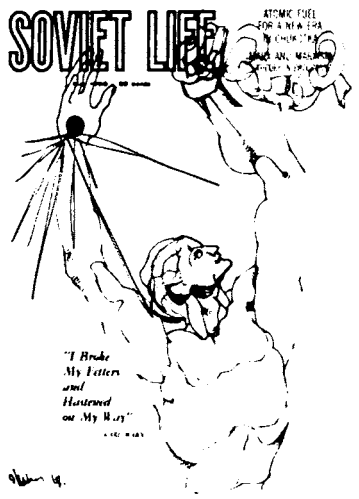

FRONT COVER: This allegorical drawing was done by the well-known Soviet artist Ernest Neizvestny, interviewed in our February 1967 issue.

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NOVOSTI PRESS AGENCY

MATERIAL FOR THIS ISSUE COURTESY OF NOVOSTI PRESS AGENCY

Domodedovo Airport, commissioned only a few years ago, is the largest of Moscow's three international airports. A decade ago the Soviet airlines carried only eight million passengers a year; now they number 54 million. About 150,000 are airborne every day.

CAMERAMAN'S EYEVIEW

Photographs and Text by Vasili Peskov

Kirghizia is the land of mountains and horsemen. In the last half-century the people of this once primitive outpost of the czarist empire have built modern industries. But the sheepherder is still very much on the scene.

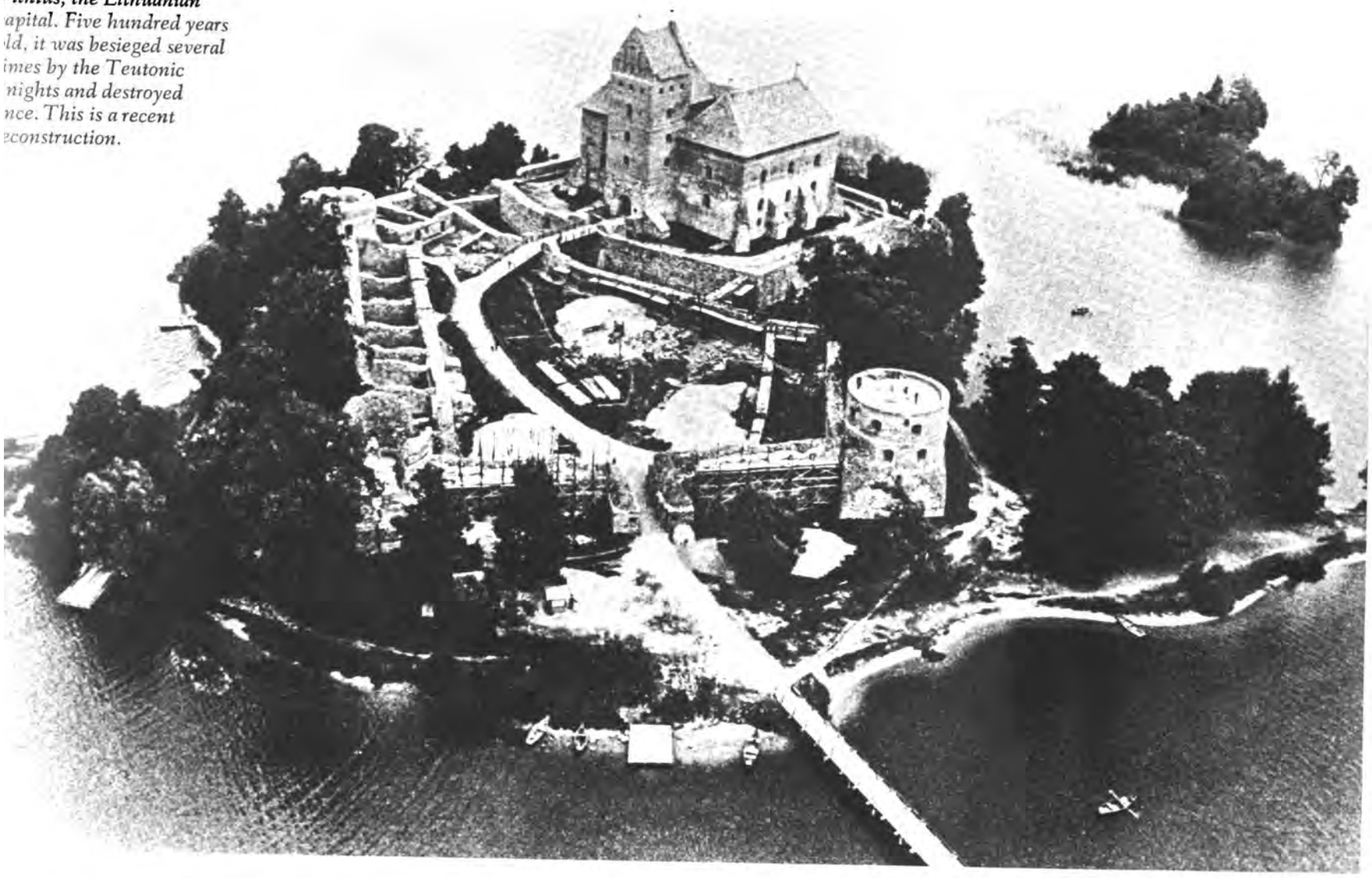
Practically every paper in the world ran a picture of the Dnieper Dam when it was built 36 years ago. Socialist Russia had just completed its first five-year plan for industrialization. Horse-drawn carts helped to build it, and men's feet mixed the concrete. Hard to imagine then the USSR would be producing the world's largest hydraulic turbines in a few decades. The dam was blasted during the war.

Vasili Peskov, shown here interviewing penguins in the Antarctic, is a special correspondent for Komsomolskaya Pravda. *He did this photostory, "the toughest assignment in my 14 years of experience," he says. His book* Steps in the Dew *won a Lenin Prize.*

To Soviet people Magnitogorsk is the word for staying power. If not for this giant built in the [illegible] in the early five-year-plan period, the country could not have fought [illegible] Nazis on the [illegible] Magnitogorsk made [illegible] for every second [illegible]

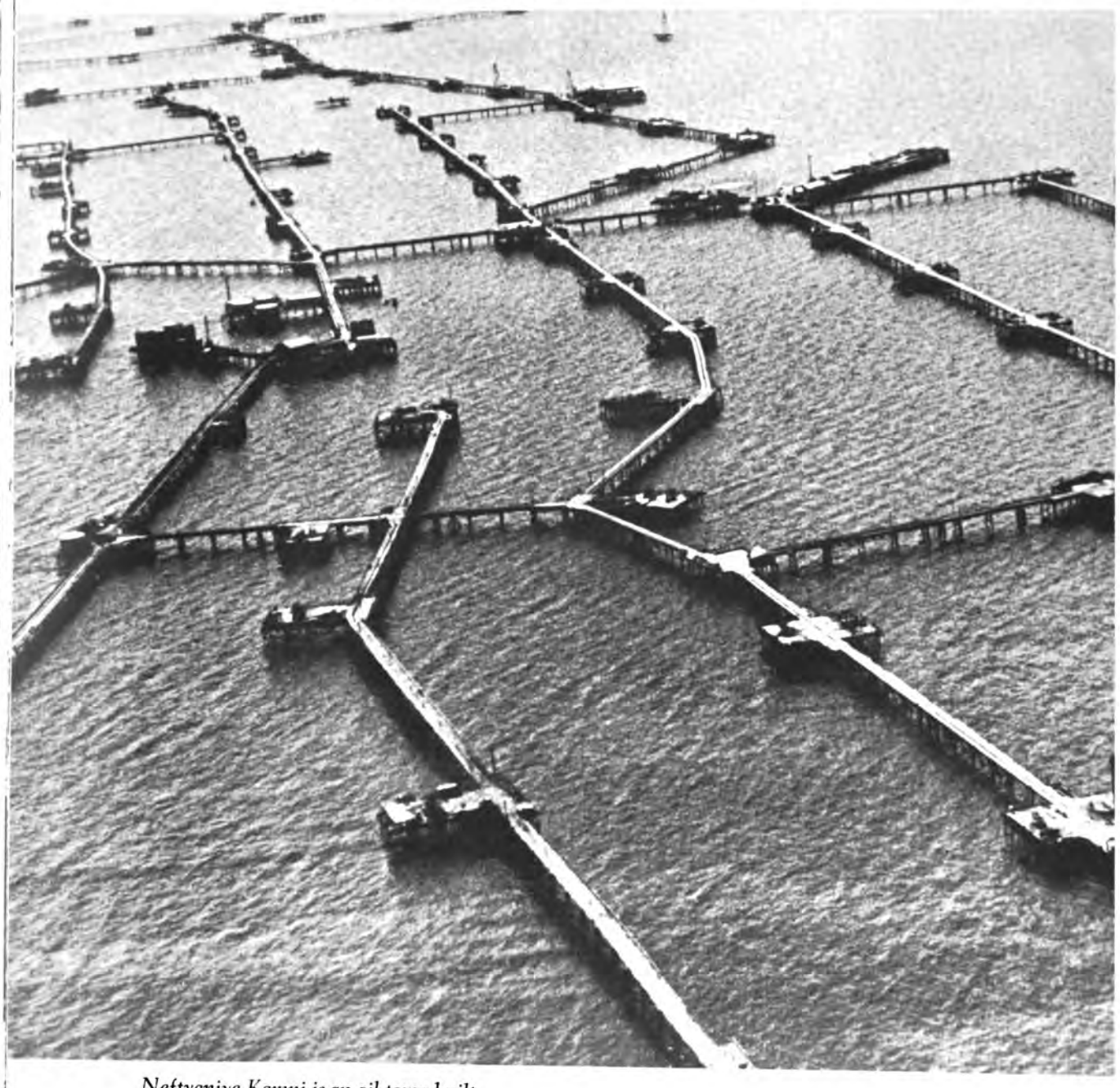
Our helicopter is having a hard time keeping up with this herd of frightened antelope. In the distance we can see zebra, ostrich and African Watusi cows. But we are still in the Soviet Union, in Southern Ukraine, to be exact. Askaniya-Nova is a wildlife preserve in the steppe.

When you visit the Soviet Baltic Republics try not to miss seeing Trakai Castle. It is only an hour's drive from Vilnius, the Lithuanian capital. Five hundred years old, it was besieged several times by the Teutonic knights and destroyed once. This is a recent reconstruction.



...are looking at half a ...awesome ...ndset of a great problem of ...our time, the problem of ...tween industry and ...ure. The logs are ...deadly killing water ... It is a problem for ...er countries, too. We no ...ger permit lumbering ...all our rivers.

This shot was taken from the helicopter just as the railway ferry was leaving Baku, capital of Soviet Azerbaijan. In 12 hours it was scheduled to arrive at Krasnovodsk, on the other shore of the Caspian. Krasnovodsk is the terminal for a railroad, through desert area, connecting Soviet Central Asia to Siberia.



Neftyaniye Kamni is an oil town built on piles in the Caspian Sea, not far from Baku. It has more than a thousand oil wells and all the attributes of a town on land: schools, shops, a newspaper, even a militia station. The population of 5,000 oil workers—men and women, all young—works 15 days running and goes ashore for the next 15.

"VAST IS MY LAND..."

Picture Story from the "Top Point"

By Vasili Peskov

Special Correspondent of *Komsomolskaya Pravda*

IT'S THE CAMERA'S-EYE view you're usually searching for. To find it you lie flat on your face or perch yourself on a chair, stump, fence, roof top or even on the pylon of a high-voltage line. In the excitement you climb like a cat, and when you cool off you wonder how you did it.

It's a pity that the gateways to all the older cities in the world are so unattractive. Moscow is no exception. But the Soviet capital is rebuilding these areas. Here you see the new outskirts, where tree-lined avenues border on fields, villages and woods. These are the residential streets of Moscow's southwestern district.

The West Siberian lowland has inexhaustible natural resources: timber, fish, fur and oil. New towns are being built by pioneering young people. In these dense forests the plane is the best, often the only, means of transport. The many rivers and lakes make fine natural landing strips.

This time it was a very high point, indeed. For 16 months running I took snapshots only from above, getting a kick out of all the fun and discomforts involved.

In the 14 years of my professional experience I never had a tougher assignment. It was work seven days a week. I'd go back to Moscow, write a story and leave by air the following day. Anybody who has taken snapshots from a plane knows the difficulties: on the spot development of film and on the spot printing. Besides taking photos, you have "to get down to earth" to write your story. Normally the pictures don't take much time. What does is getting a helicopter, waiting for good weather and flying to the location. It's not only time consuming, but a source of never ending worry.

As a rule I took photos from a helicopter. They let me stick my head out of a window. So I could do that in a Mi-1 the crew had to remove a door. In the summer it's a pleasant experience. But in winter. Oh! Just forget it.

When you fly in a small helicopter next to the pilot, it is easy to tell the spot over which you want to pass. But in a big helicopter you have to wear a flying helmet and talk to him by radio while watching your target from a window. "A little to the right, please, and now to the left and lower. Thank you."

It's far more difficult in places where helicopters are not available. There you have to take pictures from small planes. And in a conventional aircraft you can't say: "A little to the right or to the left, please." It's hard to hit the right spot for the camera's-eye view, and when you do, you have only a fraction of a second for the photo. Of course you point the camera lens through an opening in the window. A head wind squeezes tears out of your eyes and freezes you to the bone. At an altitude of 450-600 feet the target flashes by, and if you want to make another shot, you have to roll in for a full turn. Here you work under stress—so much stress that when you land, you can barely stand on your feet.

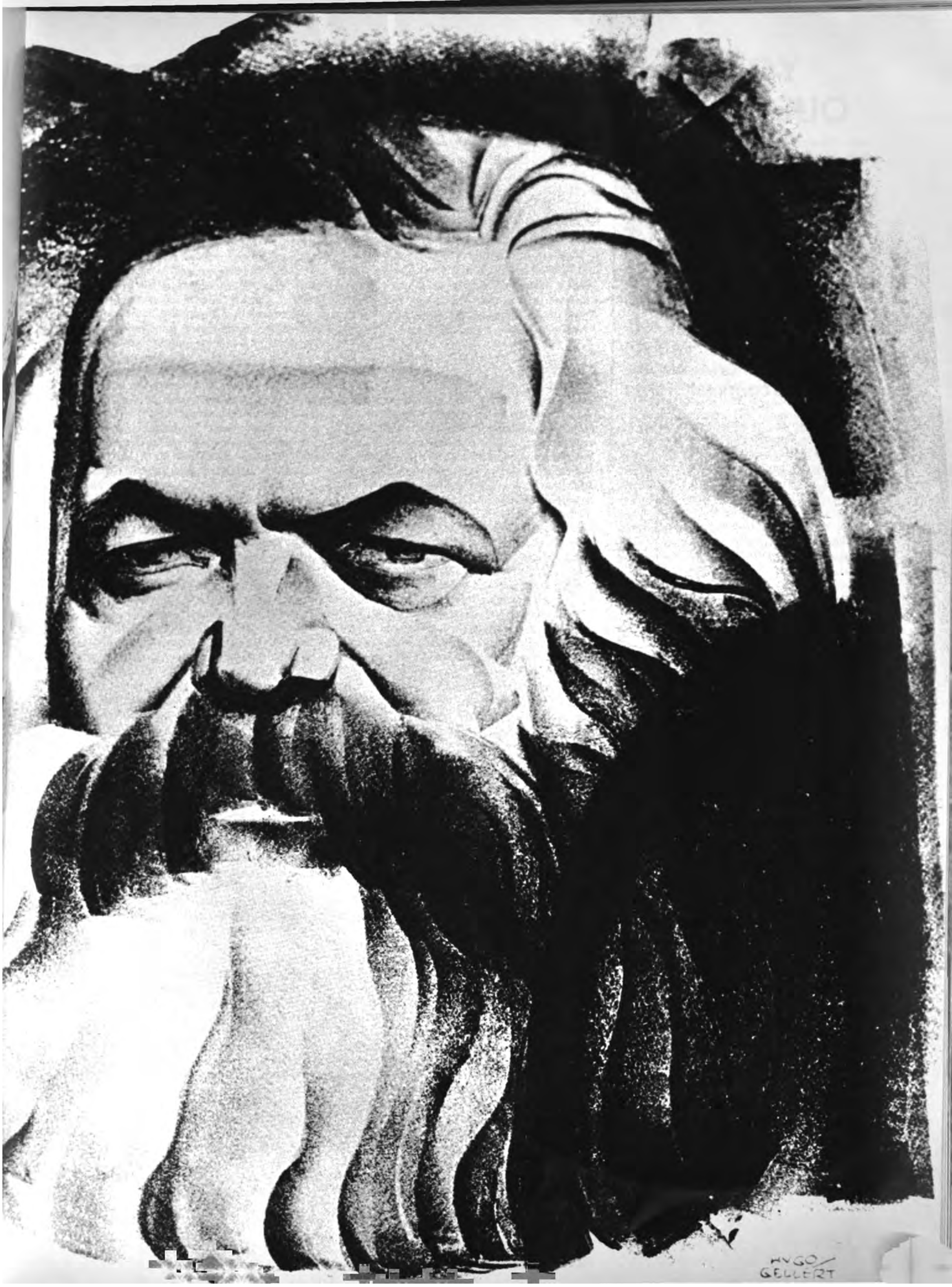
But it's a great feeling when you see just the view you're after in the frame. This was the case when I took Trakai Castle in Lithuania. Domodedovo Airport, Dnieper Hydroelectric Power Station and timber rafts floating down the Kama look different when they are seen from above. There are bad moments too. Many a time you circle over a target and find nothing worth taking.

Of course besides the difficult and bad moments, there are many happy ones on a trip, many amusing and instructive experiences. Productivity in my kind of work is not high because the investment in effort and preparation time is so great. But I did not regret this assignment because I had a chance to see many things. Readers of *Komsomolskaya Pravda* liked my story "Vast Is My Land." And although I had made many trips on previous assignments, this time I felt most acutely that our land is indeed vast and full of wonders.

KARL MARX, HIS LIFE AND TEACHINGS

DRAWING BY HUGO GELLERT

Periodically a man appears whose influence on world development far transcends his own time.
His pathfinding ideas change the direction of history, and every social process thereafter bears the imprint of his creative spirit. Karl Marx was such a man.
This year is the 150th anniversary of his birth.
Early in his vastly productive life he wrote:
"The philosophers have only interpreted the world in various ways; the point, however, is to change it."
He devoted the rest of his life to changing the world.
Russia was the first country to implement Marxist principles.
The teachings of Marx, expanded and enriched by Lenin, are part and parcel of our spiritual heritage.
Here we present a group of articles on the life and work of the founder of scientific communism.


HUGO
GELLERT

YOUR QUESTIONS ON COMMUNISM

THE FRATERNITY OF ALL NATIONS IS A TENET OF COMMUNISM. WHY, THEN, DO YOU HAVE SEPARATE REPUBLICS WITH THEIR OWN TERRITORIES? IS IT BECAUSE YOU ARE AFRAID OF RACIAL AND NATIONAL ANTAGONISMS AND CONTRADICTIONS?

The solution to the national problem proposed by the Communists is not determined by abstract ideals (for instance, "the fraternity of all nations") but by a scientific study of the role and place of nations in the historical process. What does history show? That national forms of development are the most stable. For hundreds of years national feeling has been a decisive factor in international relations; it has made its imprint on social development.

As for our own time, we are in the midst of a giant "explosion of nationalism," to use Arnold Toynbee's phrase, and its repercussions are not confined to the "third world"; they are felt everywhere to greater or lesser degree.

This growth of national self-consciousness, of feelings of national dignity and national pride is salutary. But, unfortunately, under certain conditions, what comes with it is an aggravation of international conflicts and distrust leading, sometimes, to armed conflict.

This is where we approach the essence of the problem. Marxist sociology claims that the national problem is in many respects the reflection of a social problem. That is to say, the social structure, the class composition of society and the nature of the relations of the principal social groups have a determining influence on relations between the nationalities. If a society is corroded by class contradictions, there is very little hope for a fraternity of nations. Hence, the solution of the social problem, *i.e.*, the transition of society to a socialist system, is an absolute prerequisite for the solution of the national problem.

The objective foundation for antagonism between nations disappears once you eliminate the antagonism between classes. For a fraternity of nations, you must have a program of concrete measures to break down national prejudices and national inequality. Such a program was worked out by the Russian Communists and made the law of the land after the October Revolution of 1917.

The Communists assumed that breaking down national and racial prejudice in Russia would be a lengthy and complicated process. Czarist Russia had been a prison of nations, and the national contradictions there were most acute. But to create a fraternity of nations requires more than the adoption of

(Continued on page 11)

IS MARXISM

Lev Leontyev (b. 1901) is the author of many works, among them,* Lenin's Notebooks on Imperialism *(1941);* On Marx's "Capital" *(1945), (an English edition of this book was also published in the United States);* Main Economic Task of the USSR *(1956);* Socialism in Economic Competition with Capitalism *(1958);* Problem of Equality in Marx's "Capital" *(1960);* Elementary Course in Political Economy *(1962);* Engels and Marxist Economic Theory *(1965).

Q. Marxism is more than a hundred years old, a long period considering the speed at which history is being made today. What is your answer to certain Western economists, sociologists and historians who say that "Marxism is dated"?

A. Although this idea is by no means new, it is still in fashion. Actually the printer's ink had not yet dried on Volume III of *Capital* (which came off the press in 1894) when opponents of Marxism declared that Marx's theory was already outdated. It may sound like a paradox, but the fact is that although Marxism is buried time and time again, it keeps winning more and more supporters. Opponents of Marxism never tire of repeating that it is outdated, and yet interest in Marxism is growing everywhere, including the West. On the 150th anniversary of the birth of Marx we can say that the practical importance of Marxist ideas has never been so great nor so apparent.

Q. Nevertheless, both in the West and in the East there are people, some of them fair-minded people, who are opposed to Marxism because they think it is dogma, unalterable doctrine. How do you explain that?

A. People who have learned about Marxism by hearsay and consequently have a distorted understanding of its content are inclined to such misapprehensions. This is obvious even from the phraseology they use. For instance, commentators in the West often talk of Marxist doctrine. Of course, if they mean theory, there is no objection to the word. But more often they mean "doctrinaire," and that has always been alien to Marxism. Marx, Engels and Lenin took every occasion to point out that their theory was not a dogma, but a guide to action, that it was to be regarded not as a complete set of immutable truths, but only as a method to be improved and developed with living practice. Engels made that point very plain when he said that a Marxist understanding of the world "gives no ready dogmas, but only points of departure for further investigation and a method to use for the investigation."[1]

Here is the gist of the matter. Make a careful study of Marxism and you will see, as Marx did, that his main task was to develop a method suitable for an understanding of social living in all its complexity and dynamism and with all its contradictions. Marx made it clear that he saw every aspect of social living not as static but in motion, in process of continuous change. His method has justified itself. It continues to justify itself to a degree which any other theory, including those in the exact and natural sciences, might envy.

Marx was no prophet. He had no use for scientists and scholars who ventured unsupported guesses or predictions. His approach was buttressed by the facts of history, and so he was able to show the logic behind social development and to reveal its laws. By that same token he was able to establish the laws which governed the development of capitalist society. The great attraction which Marxism has does not derive from the fact that Marx foresaw or guessed the concrete course of historical development of the last century in all its unique diversity. He never set himself that task, because had he done so, it would have contradicted the scientific nature of Marxism. But Marx gave us something of far greater value and importance: He developed a scientific theory which explains the entire process of the historical development of human society and reveals the motive forces behind social progress.

Some critics of Marx say that his predictions about revolutionary developments in certain countries did not come true. What of it? Lenin was perfectly ready to admit there were such deviations, but he also said that they were "quite insignificant from the standpoint of the general development of world history."[2]

Q. You said earlier that the more the opponents of Marxism call it dated, the more people are interested in it. How is that?

A. It should not be surprising that people all over the world today are interested in Marxism. And the claim of Western observers that Marxism is developing into a "religion" in the socialist countries has nothing to do with it. Religion is based on blind faith; Marxism is a demonstration of the triumph of scientific knowledge, the direct opposite of blind faith. Obviously the fact that Marxism is the ideology of a large group of countries that lead the world's social progress today makes people think, regardless of their points of view.

Even those most opposed to communism are studying the textbooks on Marxism and the works of Marx, Engels and Lenin. They are trying to master Marxist theory in order to fight it more successfully. But it is mostly unprejudiced people who are showing such a strong interest in Marxism. And they have the most unexpected reactions. People who know about Marx only from hearsay or from what was said by critics who are trying to prove him wrong stumble on real discoveries when they study

[1] Karl Marx and Friedrich Engels, *Collected Works*, Russian edition, Vol. XXXIX (Moscow: Political Literature Publishing House, 1966), p. 352.

[2] Vladimir Lenin, *Collected Works*, English edition, Vol. XXXIII (Moscow: Progress Publishers, 1966), p. 477.

IS MARXISM OUTDATED?

SOVIET LIFE correspondent interviews Lev Leontyev, Doctor of Science (Economics) Corresponding Member of the USSR Academy of Sciences

the actual works of Marx and Marxists.

Here is a case in point. Western economists who read *Capital* for the first time are surprised to find that many of the ideas proudly hailed as revelations by the champions of fashionable theories were really conceived by Marx. For instance, they learn from a reading of Marx's *Capital* that even in the days when classical economics was dominated by the individualist method which used only the so-called microeconomic approach, Marx based his analysis on macroeconomic investigation. These newcomers also learn from Marx about the two-sector economy model which is the subject of the patterns of reproduction set forth in *Capital*. The deeper the contemporary economists delve into the works of Marx, the more discoveries they make. This is a striking phenomenon, I think. In a small way it reflects the fact that history is following the course charted by Marx, Engels and Lenin.

It is noteworthy that in the past century or century and a half, particularly in the 50 years since the Socialist Revolution in Russia, social development has surged ahead so far and so fast that it poses a great many new and complex problems for the social sciences. The "secret" of the vitality of Marxism, of its perennial youth, if we may use this expression, lies in the fact that only Marxist theory offers a scientifically grounded explanation of all the large and small changes which have taken place. Only Marxism has ascertained the historical conditions that gave rise to these changes. Only Marxism has revealed their true content and has plotted the directions for continued social development. Under these circumstances, it cannot help but arouse interest.

There is nothing mysterious about the fact that Marxism is still very current. This theory alone explains in full the complex dynamics of the contemporary period, while the theories opposed to Marxism have been falling by the wayside.

The potency of Marxism stems from its creativity, from its capacity for further development. Using his method, his followers do not stop at the concrete conclusions drawn by Marx. They proceed further along the trail he blazed. They study new social phenomena and generalize from them. They draw fresh conclusions from their analysis of present-day reality.

Q. The capitalism we know today is not the capitalism Marx knew. What would you say about the argument that Marxists disregard the changes that have taken place?

A. It is true that present-day capitalism is different from the capitalism of Marx's time. Karl Marx knew its early phase, the capitalism of the nineteenth century. There have been many changes since. Of course Marxists recognize that the world has changed. It would be wrong to deny the far-reaching changes the world has undergone since Marx's time. As a matter of fact, far from proving Marxism wrong, these changes have most strikingly proved it right.

Let us take a look at these changes. The most pivotal is the triumph of the socialist system, first in Russia and then in a group of other countries. Does not this most important development of contemporary history prove Marxism right? Having transformed socialism from a utopia into a science, Marx set out to prove that, historically speaking, capitalism would inevitably be replaced by socialism. Marx's purpose was to formulate the objective laws of social development, which inevitably lead to the triumph of the socialist system. Marx proved that the capitalist system is pregnant with socialist revolution, just as dark clouds are pregnant with a vitalizing and refreshing thunderstorm. His ultimate goal was to formulate an economic law that governed the movement of capitalist society. As Lenin described it later, Marx deduced, entirely by himself, the inevitable transformation of capitalist society into socialist society. Lenin singled out the two cardinal points which comprise the economic law that governs the movement of capitalist society. First, the socialization of labor, the principal material base for the inevitable advent of socialism. Second, the proletariat bred by the capitalist system. The proletariat supplies the intellectual and moral motive power and transforms the moribund capitalist system into a new, higher form of social organization —the socialist system.[3]

The triumph of socialism in the USSR and several other countries graphically and incontrovertibly proves that Marxism is right.

Let us look into another process which has left an indelible imprint on the contemporary world. What I have in mind is the collapse of the colonial empires as a result of the national liberation struggle waged by the enslaved peoples. It was not so long ago that the colonial rulers thought their unlimited power over other nations was a gift from Providence given to them for eternity. Marxists, on the other hand, particularly Lenin and his followers, not only exposed the inhumanity of colonial oppression but also pointed to the inevitable collapse of a colonial system, which was condemned by history. In the past 15 or 20 years dozens of independent states have sprung up on the ruins of the old colonial empires. Of course the peoples who have discarded the yoke of colonialism and have won political independence still have a hard struggle ahead to achieve real independence and fight off the efforts of the neocolonialists to enslave them again. But there is no denying the fact that it is Marxism that is shedding light on the fundamental changes in the lives of hundreds of millions of people of the former colonies and semicolonies. It is simple enough to understand why the developing countries are so interested in Marxism. They are looking for answers to their key problems.

And now, finally, let us look into the changes that have taken place in the internal structure of capitalist society. Do these changes contradict Marxism? Consider them carefully and you will see that they are not contrary to Marxism, but are consistent with the laws of development established by Marxism. In this connection I would like to recall one circumstance which critics of Marxism either fail to see or deliberately wish to ignore.

In the preface of the first edition of *Capital* Marx noted that "the present society is no solid crystal, but an organism capable of change, and is constantly changing.[4] In my opinion this statement gives us the key to an understanding of the importance of Marx's theory for the contemporary period. Lenin demonstrated the capacity of Marxism for development. His works sum up the course of historical development of the late nineteenth and early twentieth century. His conclusions were a major contribution to Marx's theory; they raised it to a new and higher level. In subsequent decades the ideas of Marxism-Leninism were further developed by others who analyzed the history of their own time with the method of Marx, Engels and Lenin. That this method is productive is continuously confirmed by practical experience. As Lenin put it, true Marxists are not those who oppose all further development of Marx's theory, but those who develop "the basic tenets of Marxism in accordance with the changing conditions and with the local characteristics of the different countries."[5] Often this capacity for development and improvement is represented as a "crisis" by those who wish to prove Marxism wrong. Each time they do this, they expose the poverty of their own positions. Their claim that Marxism is finished is refuted by life itself.

Q. Will you illustrate the thesis that the changes in the capitalist system confirm the soundness of Marx's ideas?

A. The strength of Marxism as a science lies in the fact that it not only explains the present, but also shows future trends. *Capital* came off the press in 1867. This was just when capitalism was beginning the transition to its highest and final stage of development, imperialism. This highest stage of capitalism was analyzed by Lenin. The analysis of the changes that have occurred since is based on the works of both Marx and Lenin.

When he studied nineteenth century capitalism, Marx found in it the rudiments of all the changes that occurred later. In the time of Marx free competition was the characteristic of capitalist economics. Most economists and sociologists considered free competition the unshakable foundation of economic life, an inviolable law of nature. But Marx even then revealed the dialectics of historical development, that its direct opposite—monopoly—was inherent in free competition. Proceeding from Marx's theory and developing it further on the basis

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[3] Lenin, *Collected Works*, English edition, Vol. XXI (Moscow: Progress Publishers, 1964), p. 71.

[4] Karl Marx, *Capital*, Vol. I (New York: Modern Library, 1936), p. 16.

[5] Lenin, *Collected Works*, English edition, Vol. III (Moscow: Foreign Languages Publishing House, 1960), pp. 630-631.

of more recent historical experience, Lenin showed that free competition leads to concentration of production and concentration of capital. Concentration, in turn, inevitably leads to the emergence and dominance of monopolies. But monopoly, far from wiping out competition, sharpens it and makes it even more destructive.

They tell us that Marx's ideas have been disproved. And yet it is a fact that in twentieth century capitalism the monopolies hold a dominant position. It is a fact that the struggle between the monopolies, or what American economists call competition between the monopolies, has left an indelible imprint on the economic life of the capitalist countries. Does not the wave of take-overs and big corporate mergers testify to this fact too? I might mention another fact in passing, the concern of the big Western European corporations about American competition. They are looking for ways to build up giant monopoly associations comparable to the mammoth corporations of the United States.

Q. Marx regarded capitalism as anarchic. In many capitalist countries the state is now introducing elements of economic planning. What is your comment on this from the standpoint of Marxism?

A. It is true that in Marx's lifetime the state did not intervene economically on anywhere near the scale it does now. No economic development plans were drawn up by state agencies then. But this does not mean that Marx overlooked that eventuality. It was Marx who identified the process of socialization of production, which is an essential law of capitalist development. And it is this process that subsequently compelled the capitalists to resort to the services of the state.

In Marx's lifetime the overwhelming majority of economists maintained that the state should not intervene in economic matters. The state, they believed, should be a sort of night watchman, nothing more. Marx demonstrated the superficiality of some of the theories, for example, those that were known as the free trade theories or the Manchester school. He foresaw that with the advance of capitalism, with the growth of concentration and increased socialization of production, and with the mounting contradictions of capitalism, the ruling class would have to apply to the state for assistance, would have to use its powers to solve problems beyond the capacity of separate capitalist firms and associations, no matter how big.

Moving on from the deductions of Marx, Lenin showed that state regulation of the capitalist economy would be inevitable. He indicated the content and direction of the phenomenon which Marxists call state-monopoly capitalism. And during the next several decades of the twentieth century the state-monopoly system developed exactly as Lenin had outlined.

In the modern capitalist economy, the state acts as the biggest producer, particularly in the basic heavy industries. It is the biggest buyer of manufactured goods, particularly for military purposes. The state commands a sizable share of the capital investments that determine the structural shifts in the economy. It is a big banker and dominates the money market. Today you cannot conceive of capitalism existing without the bolsters created by state power. This, too, proves how right Marxist-Leninist theory is.

Q. Some people connect the development of state-monopoly capitalism with the existence of a socialist system. Would you explain the connection?

A. Western literature often speaks of the Soviet Union and the world system of socialism "challenging" the capitalist system. "Challenging" means a policy that will ensure a rapid rate of economic growth and successful competition with the capitalist countries. The ruling circles of the capitalist countries must see to it that they do not fall behind in the economic competition with the socialist countries. On the economics exchange therefore, all kinds of theories of economic growth are up for sale. And under the aegis of these theories, economic planning and programming is carried out.

One other point in this connection. The attempts to introduce planning in the economic life of capitalist countries are, figuratively speaking, borrowed from socialism. What these countries are trying to do is to transplant an economic characteristic which is inherent in a socialist economic system and foreign to a capitalist economic system. About the very serious limitations of capitalist planning and the many contradictions it gives rise to, it will be sufficient to say that full-scale economic planning is possible only when the means of production are publicly owned, that is, under socialism.

Q. Since you have already touched on the problem of planning under socialism, would you give us Marx's ideas on this question?

A. As Marx put it, public ownership of the means of production serves as a basis for abolishing anarchy of production. It makes possible and necessary the development of the country's economy along planned lines on a national scale.

The economic laws of socialism which replace the laws of capitalist commodity production govern the planned and balanced development of the economy and regulate this development to satisfy the needs of society and all its members. Marx writes: "After the abolition of the capitalist mode of production, but still retaining social production, the determination of value continues to prevail in the sense that the regulation of labor-time and the distribution of social labor among the various production groups, ultimately the bookkeeping encompassing all this, become more essential than ever."[6]

This makes clear the great responsibility that rests on the planning bodies of socialist society. What is required is a thorough, scientifically grounded elaboration of methods for determining the scope of production, the rate of development of the separate sectors and the proportions between the subdivisions of social production. Another important sphere in which Marx's proposition on the role played by accounting in communist society operates is in forecasting economic processes, in scientifically estimating the possible prospects of economic growth over long periods.

It should be pointed out that these theoretical propositions of Marx were often violated by the personnel of our planning bodies. Obviously this hindered the fulfillment of the plans. The Twenty-third Congress of the Communist Party of the Soviet Union held in March 1966 called for more balanced ratios in the national economy and for higher efficiency of capital investments. Its attention was focused on scientific planning and economic management.

As you see, Marxist ideas about planning are still valid and fruitful today.

Q. What did Marx have to say about planning in the economic relations between socialist countries?

A. As a consistent internationalist, Marx applied the law of planned organization of the socialist economy not only to an individual country, but to international economic relations between the socialist countries. He foresaw the need for "harmonious national and international coordination of social forms of production."[7]

Historical experience has proved that socialism makes for closer relations between peoples and countries and paves the way for economic cooperation on a broad scale. The Council for Mutual Economic Assistance plays an increasingly greater role in promoting the economies of the member countries. Economic relations are expanded. Production is more specialized and better coordinated. The socialist countries coordinate their economic development plans more and more.

The fraternal cooperation of the socialist countries is helping each of them to utilize its resources most rationally and to develop its productive forces most efficiently. An important characteristic of the world system of socialism is that its problems and contradictions are totally different from those of the world system of capitalism.

The contradictions inherent in the world system of capitalism are antagonistic and cannot be resolved within the framework of the capitalist system. The only way they can be resolved is in the new system under socialism.

The contradictions arising from time to time in the world system of socialism, however, can be resolved within the framework of socialism, *i.e.*, within the same system. As socialism progresses and resolves these contradictions, its foundations are strengthened rather than undermined.

Q. In the first version of *Capital* Marx wrote that in the future society with collective production "the saving of time, just like planned distribution of labor-time among the various sectors of production, will be the primary economic law. It will become law to an even greater degree."[8] What are the implications of this thesis?

A. This is one of the fundamental theses of Marx's theory. It is worth noting that a most vital principle of scientific communism, which differentiates it from all forms of equalitarian, ascetic and barracks-like

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[6] Karl Marx, *Capital*, English edition, Vol. III (Moscow: Foreign Languages Publishing House, 1962), p. 830.

[7] Marx and Engels, *Collected Works*, Russian edition, Vol. XVII (Moscow: Political Literature Publishing House, 1960), p. 553.

[8] Karl Marx. *Grundrisse der Kritik Politischen Ockonomie* (Moscow: 1939), p. 89.

"communism,"—namely the thesis on highly developed production as the basis of communist society—directly follows from the economic law quoted here. Please note: highly developed production. To continue the quotation. Having indicated that true economy consists in saving labor-time, Marx further explained: "But this saving is identical to the development of the productive forces. Therefore, this is by no means curtailment of *consumption*, but the development of the productive forces, development of the capacities for production and, hence, development of both the capacity for consumption and consumer items." [9]

Thus, Marx's economic theory proves the need for the greatest development of the productive forces if we are to build a socialist society and make the transition to a communist society. In this context it is clear how absurd are the arguments advanced by various "leftist" gamblers (some of whom claim to be Marxists) about higher living standards being dangerous under socialism. The real danger to socialism is not in growing social wealth and increasing personal consumption of the working people, but in inadequate economic expansion. As Marx put it, the key to the establishment of real communist society is the fullest development of the productive forces in order to satisfy needs, not the reduction of consumption on equalitarian principles to a pauper's level. "Communism" based on misery may ultimately lead to the collapse of the social economy. This is what Marx and Engels said on this point: "This development of productive forces . . . is an absolutely necessary practical premise [for communism, *Ed.*] firstly, because without it *want* is merely made general, and with *destitution* the struggle for necessities and all the old filthy business would necessarily be reproduced. . . ." [10]

Of course, the Communist Party of the Soviet Union is directing the country's economic development along the lines indicated by Marx.

Q. This is one of the most widespread arguments advanced by the "hypercritics" of Marxism. Marx, they say, maintained that with the advance of capitalism, the conditions of the working class would deteriorate steadily, whereas in fact we see a definite improvement in the living standards of people in the developed capitalist countries. Is this argument well-founded?

A. By no means. It is based either on an obvious misunderstanding or on a deliberate misrepresentation of the views of Marx and Marxists. Ascribing to Marxists the notion of the deterioration of working class conditions by the year, month and day is an unintelligent caricature of Marxism. Marx rejected the thesis of the "iron law" of wages under capitalism, which made it impossible for the working class to improve its living standards. Marx was speaking about a different thing, about the increasing exploitation of the working class. He was speaking of the widening gap between wealth and poverty. And do we not observe in the capitalist world today a gigantic growth of inequality between the rich and the mass of working people? Many Western economists refer to a "revolution in incomes," but their theories do not stand up against the facts. Marx further spoke about the wage worker's precarious conditions of existence. Many Western economists claim that the capitalist system is capable of providing "full employment." But tens of thousands and even hundreds of thousands of jobless workers in the Western countries have totally different opinions on this score.

Q. But it is a fact that in the industrially developed countries of the capitalist world today we nevertheless observe a certain improvement in the living standards of rather large sections of working people. What accounts for this?

A. Certainly not the kind hearts of employers. Over decades of struggle workers have managed to raise their wages and to win certain social benefits. All these things are not the result of altruism on the part of entrepreneurs, but are concessions wrested from them.

Marx attached enormous importance to the struggle of the working class for improvement in its conditions. He was most interested in the balance of forces between labor and capital, a balance achieved in the course of struggle. He considered this balance to have vital bearing on the actual position of the proletariat and its concrete conditions of life. In summing up the history of the struggle for the legislative limitation of the working day, Marx arrived at the conclusion that the establishment of fixed working hours was the outcome of the clash between the capitalist class and the working class. Today working people are in a better position to fight for their vital interests than ever before. The existence of a socialist social system in the USSR and a few other countries is of decisive importance, so much so that it has changed the social climate of our planet radically. The existence of a world system of socialism and its economic achievements, on the one hand, inspire the workers of the capitalist countries with confidence in their strength and, on the other, incline the entrepreneurs to make concessions.

When we say life has improved for the working people in a number of the industrially developed capitalist countries, we must not forget that it has been at the expense of the poor, hungry and sick in the economically underdeveloped countries, *i.e.* in the former colonies which the colonial powers plundered for decades, sucking the life out of hundreds of millions of people.

Concluding, I would like to point out once more that the victory of socialism in the Soviet Union and several other countries has been the greatest triumph of Marxist theory. The sociopolitical and economic progress of the socialist states has repeatedly confirmed the soundness of Marxist theory. This theory is not static; it is being creatively developed and offers ever new conclusions from the analyses of new experience. The economic, scientific, cultural and artistic progress in the socialist countries confirms Marx's forecast about the advantages of socialism. And this is the most dramatic demonstration of the vital strength of Marxist theory.

[9] *Ibid.*, p. 599.

[10] Karl Marx and Friedrich Engels, *The German Ideology*, English edition (Moscow: Progress Publishers, 1964), p. 46.

YOUR QUESTIONS ON COMMUNISM

(Continued from page 8)

equality in principle; you must have equality in fact, economically, politically and culturally.

Abstractly one could argue that this could also be done within the framework of a unitarian state. However, the Communists realized that what was called for at this stage was the creation of national political formations, with their own organs of power and administration, their own territory, etc. Only this would guarantee complete national expression, only this would break down the distrust built up between the nations over the centuries, only this would achieve genuine equality.

The point is not that we are afraid of national antagonisms and contradictions, but that we are aware that such contradictions exist and are trying to change the conditions which breed them. A half-century of experience testifies that we chose the right path, that we are eliminating the conditions that made for national distrust.

HOW DID MARX AND ENGELS ASSESS THE ROLE OF THE GREAT MEN IN HISTORY, SPECIFICALLY OF SUCH APOSTLES OF DEMOCRACY AS GEORGE WASHINGTON AND THOMAS JEFFERSON?

According to Marx, the course of history is determined by deep-rooted economic relationships. This being so, even a great man cannot stop the march of events. For example: The politicians who were at the head of some European countries did everything they could to preserve their colonial empires. Their efforts were unavailing. The colonial system collapsed. These men could not change the course of history.

People must act within the framework of objective conditions. They can change history to the degree that they understand the objective conditions the change requires.

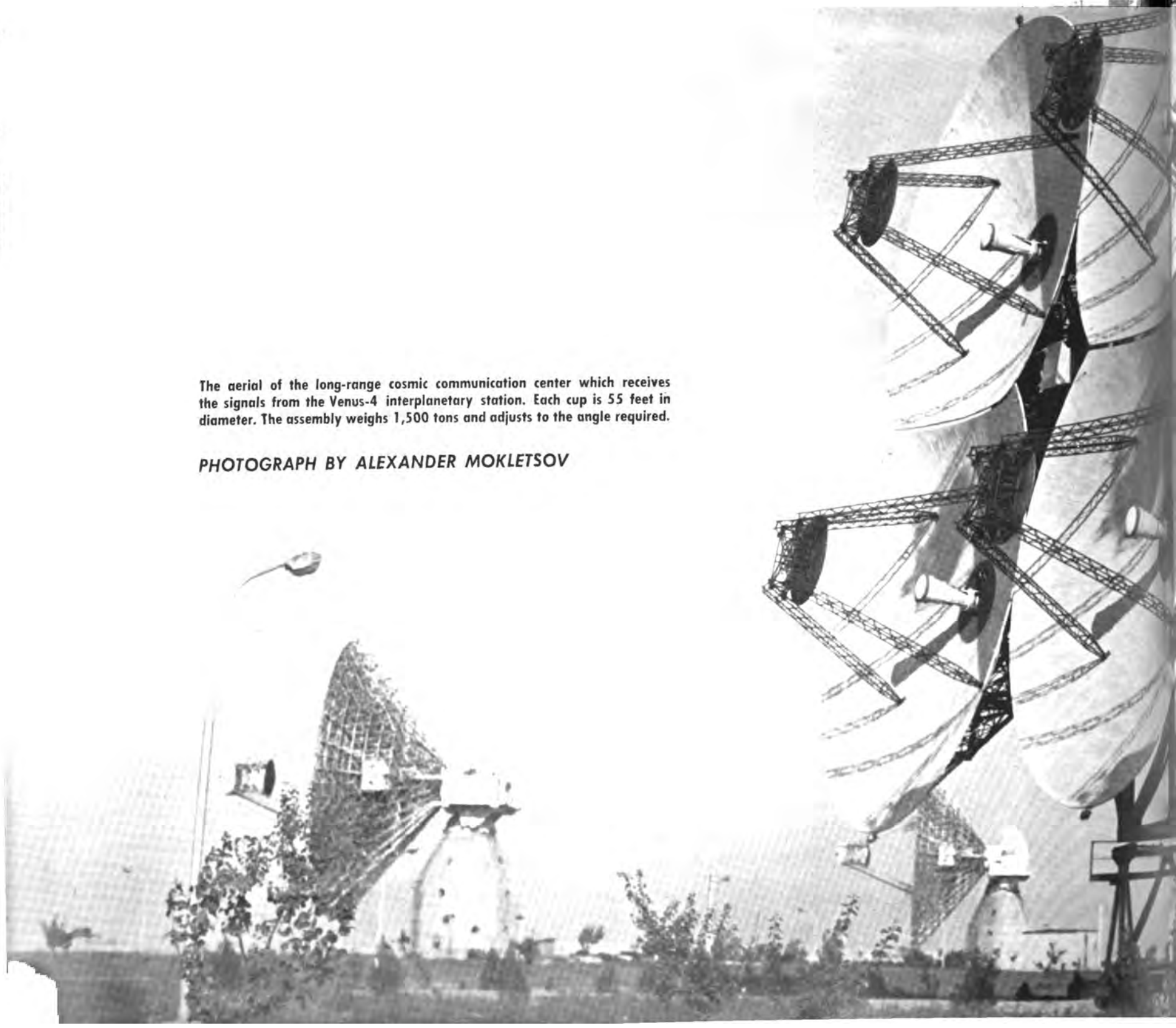
Then what role does the great man play? An indisputable one; Marxism does not question that obvious fact. Marx wrote that even a man's character leaves an imprint on the social movement he leads. He infuses the movement with his energy, talent, determination and conviction. A leader, depending on his understanding of the tasks of a social movement, can either speed up or slow down social progress, can make a historical goal easier or more difficult to achieve.

This is confirmed by history. The proletarian movement, for instance, produced its leaders—Karl Marx, Friedrich Engels and Vladimir Lenin. They armed the working masses with a progressive theory. They de-

(Continued on page 26)

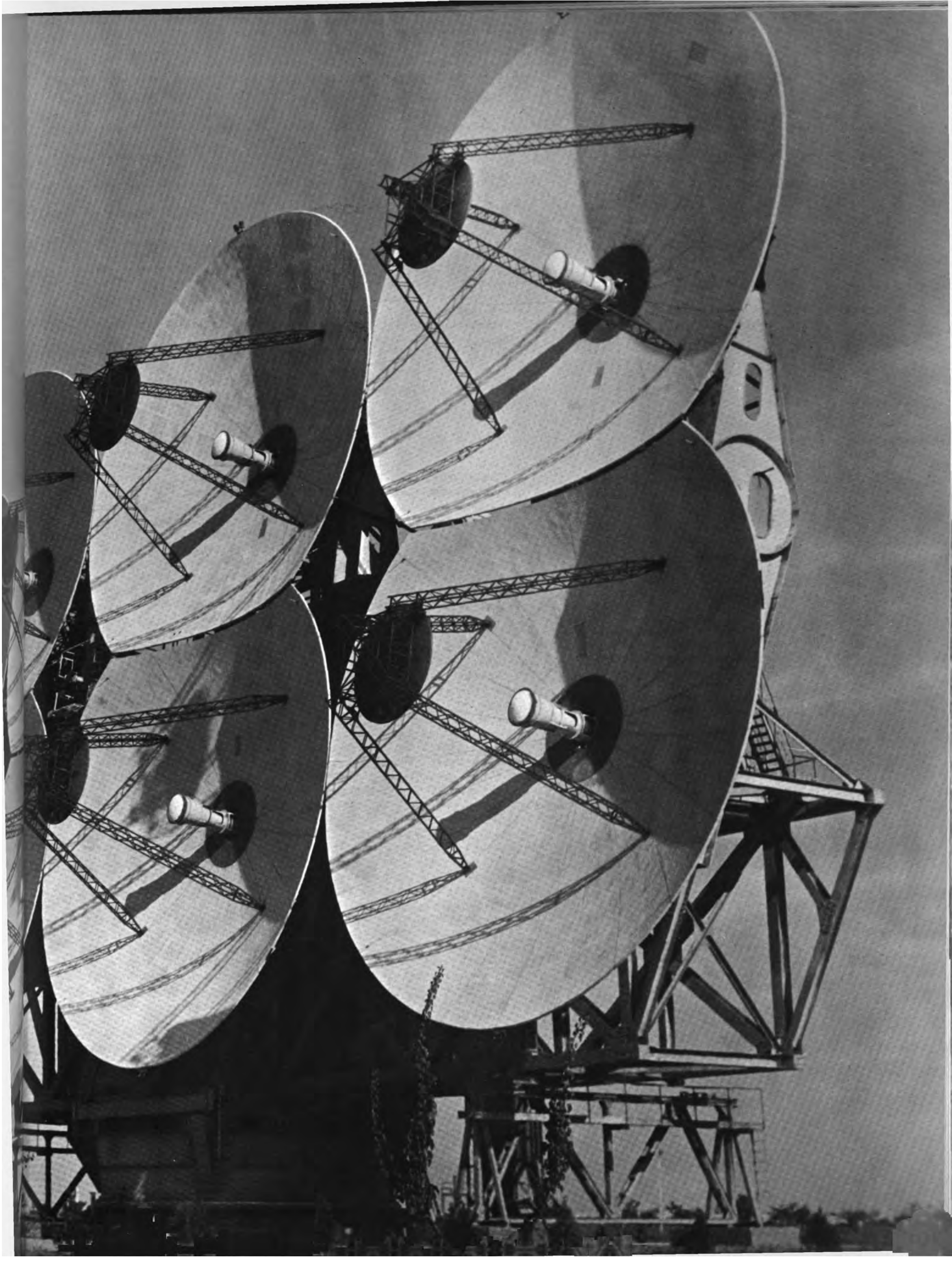
"There is no royal road to science, and only those who do not dread the fatiguing climb up its steep paths have a chance of winning its luminous summits."

Karl Marx



The aerial of the long-range cosmic communication center which receives the signals from the Venus-4 interplanetary station. Each cup is 55 feet in diameter. The assembly weighs 1,500 tons and adjusts to the angle required.

PHOTOGRAPH BY ALEXANDER MOKLETSOV



HOW "CAPITAL" WAS WRITTEN

BY VITALI VYGODSKY
Master of Science (History)

To illustrate primitive accumulation Marx cited land appropriation by the Duchess of Sutherland in the 19th century. From 1814 to 1820 she had 15,000 inhabitants of a single county driven off the land. They had no other means of subsistence and thus were driven into the city factories.

MEDIEVAL ENGRAVERS pictured the Earth resting on three whales. By analogy, one can speak of the three social doctrines that Marxism rests on.

"The history of philosophy and the history of social science," Lenin wrote, "show with perfect clarity that there is nothing resembling 'sectarianism' in Marxism, in the sense of its being a hidebound, petrified doctrine, a doctrine which arose away from the high road of the development of world civilization. On the contrary, the genius of Marx consists precisely in his having furnished answers to questions already raised by the foremost minds of mankind. His doctrine emerged as the direct and immediate *continuation* of the teachings of the greatest representatives of philosophy, socialism and political economy."

The main acquisition that Marx made from the storehouse of German classical philosophy, as represented primarily by Georg Wilhelm Friedrich Hegel and Ludwig Feuerbach, was dialectics, the doctrine of the fundamental laws governing the motion of eternally developing matter.

The growth of capitalist relations in France was accompanied by the rise of socialist doctrines that reflected a protest against the exploitation of the working people. However, the early socialism of Claude Henri de Saint-Simon and Charles Fourier was utopian in nature since it merely dreamed of a better social system and tried to convince the rich that exploitation is immoral. Marx developed these views into scientific socialism and drew the appropriate conclusion on the nature of the class struggle.

Marx posed this most basic question: What is the source of the capitalist mode of production? The source is the simultaneous effort of many workers, gathered in one place obeying the orders and serving the interests of the owners of the factories and the mines they work for.

Pre-Marxist classical political economy had its origin in England, the most advanced capitalist country of the time. British political economists Adam Smith and David Ricardo laid the foundations of the labor theory of value, which Marx later developed into the theory of surplus value. He proved that in any society the economic system is the foundation upon which the political and intellectual superstructure arises. It is to the study of the economic system of capitalist society that *Capital*, Marx's main work, is devoted.

Like human beings, books have their own destinies. The destiny of *Capital* has been so dramatic and eventful that it has interest for everyone, not only the historian.

Volume I of *Capital* was published 101 years ago. Five years later the author noted with satisfaction that it had met with understanding from the German workers. He called this the greatest reward for his labors. A recent statement of the French economist Emile James is an index to the current interest in the classic: "Never before have the works of Karl Marx come in for so much public attention as today, and this not only in the Soviet Union but in the countries of the West."

It would not be an exaggeration to call *Capital* an undying work. Why?

Because it has answers not only to problems presented by historical development a century ago but to many of the pressing problems that confront mankind today. Moreover, and this is the crux of the matter, *Capital* provides the method with which the problems can be solved.

The history of its writing is unusual. The manuscript of Volume IV, the concluding part, was completed in the early sixties of the last century, and work on Volume III in the mid-sixties. Volume I came out in 1867, and Volume II was prepared by Engels mainly on the basis of Marx's manuscripts of the seventies. Thus, *Capital* was written in reverse order.

To understand the reason for this creative method, one must examine the stages in which the work was written and also realize the speed with which Marx's economic theory developed and matured. The level of that development and the degree of its maturity differed in the various periods—from the forties to the fifties and the sixties, and even within each of these decades.

The history of *Capital* began in the early forties, the stages being marked by such writings as *The Economic and Philosophic Manuscripts of 1844*, *The German Ideology*, *The Poverty of Philosophy* and *Wage Labor and Capital*.

It was in the fifties, shortly after Marx and his family had emigrated to London, where he was to live the rest of his life, that his most intensive period of work on political economy set in.

So absorbed was Marx in his research that, to quote Wilhelm Pieper, German philologist, journalist and member of the Communist League, "Whenever you call on him you are met with economic categories." The outcome of seven years of study (represented by dozens of notebooks with excerpts from works on political economy; their publication will give us a better understanding of how Marx worked) was the lengthy manuscript of *A Critique of Political Economy*. It can properly be called the first variant of the future *Capital*, for in it Marx developed the theory of value and surplus value, the most important element of his economic theory.

There is a certain similarity in the creative methods of Karl Marx and Albert Einstein, both of whom regarded reality from the standpoint of dialectical materialism. Just as Einstein studied the laws of nature, Marx studied social relations in terms of the existence of definite general laws. "It is the ultimate aim of this work," he wrote in the preface to *Capital*, "to lay bare the economic law of motion of modern society."

What Einstein did for physics, Marx did for political economy. He made an analysis of the most general and basic concepts of that science—labor, value and commodity. This analysis, which he worked on during 1857-58, led him to the discovery of the commodity as bourgeois society's elementary "economic cell," which contains the embryo of all the contradictions in that society.

And last, as Einstein did with respect to nature, Marx proceeded from the standpoint that the paradoxical and contradictory forms of the manifestation of reality are merely a reflection of the paradoxical and contradictory nature of reality itself. In explaining his economic theory to the Central Council of the International Workingmen's Association, Marx said:

"To explain . . . the *general nature of profits*, you must start from the theorem that, on an average, commodities *are sold at their real value*, and that *profits are derived from selling them at their values*. This seems a paradox and contrary to everyday observation. It is also a paradox that the Earth moves around the Sun, and that water consists of two highly inflammable gases. Scientific truth is always a paradox if judged by everyday experience, which catches only the delusive appearance of things."

Though Marx's economic theory had already taken shape by the end of the fifties, it took another 10 years of hard work for it to find expression in Volume I of *Capital*, so scrupulous was the care with which Marx did his research.

In the early sixties he compiled a huge manuscript—*A Contribution to the Critique of Political Economy*, which may also be regarded as a variant of *Capital*. It was in process of work on this manuscript that his economic theory was rounded out and completed. This was followed by another, the third, variant of his fundamental work. It was only then that he began preparing the first volume of *Capital* for publication.

At last came the memorable day, April 10, 1867, when Marx boarded a London steamer for Hamburg. Disembarking two days later, he met publisher Otto Meissner, to whom he handed the manuscript of Volume I of *Capital*. Meissner sent it on to publisher Otto Wigand in Leipzig, whose firm was better equipped to handle serious scientific books. Printing began on April 29, and on May 5, his forty-ninth birthday, Marx received the proofs of the first signature. On September 14, 1867, Volume I of *Capital* came out in an edition of 1,000 copies.

The second edition, in German, of Volume I appeared in 1872-1873; the French translation, made under Marx's guidance, in 1872-1875. The Russian translation had appeared somewhat earlier, in 1872. It was done by two young revolutionaries, the Populists Hermann Lopatin and Nikolai Danielson. This was the first publication of the book outside Germany.

Until the end of his life Marx was engrossed in preparing Volumes II and III for publication. During the period he was especially interested in the economics of Russia and the United States, two countries that were relatively "young" from the standpoint of capitalist development. It fell to Friedrich Engels to bring out these two volumes. So significant was his contribution that, as Lenin pointed out, this part of *Capital* may well be called the joint work of Marx and Engels.

Engels, who attached great importance to the publication of Volume IV *(The Theory of Surplus Value)*, did not live to bring it to completion. It was only in 1954-61 that a really scientific edition was produced in the Soviet Union, and all four volumes of *Capital* were made available to the reader.

What makes this hand move? In an answer documented by a long history of exploitation. Marx proved that in a bourgeois society based on private ownership of the means of production, the length of the working day is decided primarily by the struggle of capitalists and working class.

Having taken over what its own labor has created, the working class revolutionizes the capitalist mode of production. It puts an end to social injustice and to national oppression. The historical mission of the working class is to build the society of the future, a communist society.

THE MAN WHO WROTE "CAPITAL"

BY PAVEL ANTONOV

Karl Marx with his eldest daughter Jenny, 1869.

IN 1956, more than 70 years after the death of Karl Marx, workers of many countries contributed money for a bronze bust to be erected on his grave at Highgate Cemetery in London. The bust proved to be too tall, and its base had to be cut down so that it would stand no higher than the tombstones. What one sees now is Marx's leonine head emerging as it were from the earth, an appropriate symbol: A thinker lies here.

Jenny

Karl Marx was born in 1818 in the German town of Trier. His father, a provincial lawyer of modest means, hoped Karl would follow the same calling.

Love of literature created a bond of friendship between the Marxes and the aristocratic von Westphalens. Jenny, one of the daughters, though four years older than Karl, became his very good friend. She was attracted by his knowledge, his wide-ranging imagination and his warmth of feeling. The most eligible girl in town, she turned down all her many suitors, some of them very good catches, and became secretly engaged to Karl Marx.

Karl was somewhat taller than average, sturdily built, with a torso a little too long for his legs. He was so swarthy that he was nicknamed The Moor. A luxuriant and curly beard covered half his face. He was far from being an ascetic, quite the opposite, and often initiated amusements which scandalized some of the overly proper townsfolk. Here is a description of Marx in a poem written by Friedrich Engels dedicated to the "Circle of Freemen":

Who rushes at full speed, like a fireball?
'Tis Trier's swarthy son, with raging soul.
He does not walk, he runs—no, fairly flies,
While daring valor shines forth from his eyes.
His hands reach out to catch the future bright,
It seems he would destroy the reign of night,
As with clenched fists, power beating in his breast,
He rushes on, as if he were possessed. . . .

Karl studied at the University of Bonn and then in Berlin. During his student days he developed a fondness for beer, tobacco and very late hours, though during his working years he spent those hours at his desk. More and more of his writing had to be done at night because his daytime hours were by then taken up with organization work.

Marx left Jena University in 1841 with a Doctor of Philosophy degree and moved to Cologne, where he began to work on the *Rheinische Zeitung*. Only a few months later, at the age of 24, he became editor in chief.

The impression he made at the time is summed up in a letter written by the German publicist Moses Hess to his friend, the writer Berthold Auerbach: "Picture to yourself the greatest and perhaps the only genuine philosopher of today, who, in the very near future, will draw the attention of all Germany. . . . Dr. Marx—that is the name of my idol—is quite a young man, but he will deal the *coup de grace* to medieval religion and politics."

The *Rheinische Zeitung* spoke for the German radical bourgeoisie. The authorities found its tone too revolutionary, and the paper was suppressed.

Marx returned to Trier and in 1843 married Jenny von Westphalen. At the ceremony one of Marx's friends said of Jenny, "She will go through every trial at your side."

And so she did. Patrician Jenny von Westphalen was a devoted wife to the end of their days.

"What this woman, with her sharp and critical mind, her political tact, her energy and passion, and her devotion to her comrades in the struggle, did for the movement in the space of 40 years—all this has not become public knowledge and has

Jenny, the wife of Karl Marx. Although born Baroness von Westphalen, she became the first woman Communist.

not been mentioned in the annals of the press. That is something each of us has had to find out for himself. But I am sure that the wives of the exiled Communards will often be reminded of her, and our people will often miss her bold and reasoned advice—bold without bravado and reasoned without the smallest concession in matters of honor."

It was in such terms that Engels, Marx's closest friend, eulogized Jenny on December 5, 1881, a few days after her death.

Question Everything

In 1843 the young doctor of philosophy audaciously attacked his own teacher, Friedrich Hegel, whom he himself had called a great man. His first important piece of research, *A Critique of the Hegelian Philosophy of Law,* said, among other things, that with "the miserable arrogance of the Prussian official," Hegel claimed that a monarch "is predestined to be the bearer of the monarchical dignity, thanks to his physical birth." If Hegel was right, then "the monarch's body would determine his dignity. His birth would determine the monarch's quality in the same way as it determines the quality of cattle. . . . Hegel has proved that a monarch must be born—something nobody doubts—but he has not proved that the fact of birth makes him a monarch."

Marx pledged, some time later, that his principle of research would be, "Subject everything to questioning." He remained faithful to that principle always and in everything, questioning the conclusions of the greatest authorities in the world of scholarship.

He devoted many years to a study of philosophy, years which led him to the following revolutionary and profoundly creative conclusion: "Philosophers have merely explained the world in various ways; the thing now is to change it."

He was a new Archimedes, searching for the fulcrum with which to turn the world over.

In 1845 his *The German Ideology* appeared. It formulated a new philosophical theory of the development of human society—historical materialism. The co-author was Friedrich Engels, whom he had met in 1842, a brilliant publicist and philosopher and one of the most erudite men of his time. From then on their two names were indissolubly linked.

The Manifesto

In 1847 Marx, then living in Belgium, was asked by the leaders of the underground League of the Just to work with them. He agreed since he thought that "a scholar has no right to sit locked up in his study like a rat which has got at the cheese."

With his active participation the society was reorganized as the Communist League, and he became one of its leaders. The slogan "All Men Are Brothers" was replaced by "Workingmen of All Countries, Unite." In 1848 the *Manifesto of the Communist Party* was published, the first program document of scientific communism. It was drawn up by Marx and Engels.

"All previous historical movements were movements of minorities, or in the interests of minorities. The proletarian movement is the self-conscious, independent movement of the immense majority, in the interest of the immense majority."

The Brussels police arrested Marx for revolutionary activity and socialist propagandizing. The first rumbling of the revolutionary storm came with the year 1848. The Republic was victorious in France, and a letter from the Provisional Government of the new Republic reached Marx in Brussels.

"Courageous and honest Marx: The French Republic is an asylum for all friends of liberty. You have been exiled by the tyrants. Free France reopens its doors to you."

Marx, however, returned home to Germany. With Engels, he began publication in Cologne of the *Neue Rheinische Zeitung,* which, in large measure, became the mouthpiece of the European revolutionary democrats.

In September 1848 the Prussian Government declared a state of emergency in Cologne, and Marx and Engels were twice brought to trial because of the influence their paper exerted. Both times they were acquitted by the jury.

Persecuted in all the capitals of Europe after the defeat of the revolution, Marx made London his home.

"I Am a Citizen of the World"

Benjamin Franklin once declared that his homeland was any country that was free; Thomas Paine responded that his homeland was any country which was not. Karl Marx said, "I am a citizen of the world, and I act wherever I find myself."

And act he did. The Communist League was banned, however, and he was subjected to a flood of slanderous attacks. Even some of his friends tried to blacken his name.

Marx repeated the proud words of Dante, "Go your own way, and let people say what they will." He spent all his time in the reading room of the British Museum, sharpening the weapon he was to use in future battles.

In 1852 he published *The Eighteenth Brumaire of Louis Bonaparte,* which analyzed the experience of the revolutionary movement of 1848-1849. "If ever hatred, contempt and an ardent love of liberty found expression in burning, destructive and elevated words, it was in *The Eighteenth Brumaire,* which blended the indignant severity of Tacitus, the scathing sallies of Juvenal and the sacred wrath of Dante." So Wilhelm Liebknecht, the German revolutionary, described this work.

Marx labored tirelessly, but his family was in dire want. Jenny made this entry in her diary for 1852: "At Easter, 1852, our poor little Franziska fell ill with severe bronchitis. For three days the poor child struggled against death and suffered much. Her small lifeless body rested in our little back room whilst we all went together into the front room and when night came we made up beds on the floor. The three surviving children lay with us and cried for the poor little angel who now rested so cold and lifeless in the next room. The poor child's death took place in a period of bitterest poverty. We had no money for the funeral. I went to a French fugitive who lives near us and who had visited us shortly before. He received me

with friendliness and sympathy and gave me two pounds and with that money the coffin in which my child could rest peacefully was paid for. It had no cradle when it was born and even the last little shell was denied it long enough."

For years—and those were not the worst years—Marx's only steady source of income was the one pound sterling he received every week for his articles in the *New York Tribune.* He owed his baker alone 20 pounds. His creditors threatened to take him to court.

He was then working on a book which was to have more influence in shaping the world than perhaps any book ever written. The money he got for it never covered the cost of the cigars he smoked while writing it.

This man, who owed his baker 20 pounds, was then writing *Capital.*

". . . To create something great, all the forces of the spirit must be brought to bear on a single point," Leo Tolstoy said. That was precisely what Marx was doing. Very few people realized what this titanic work cost him. In a letter to Siegfried Meyer, a German socialist, Marx wrote:

"Well then, you will ask, why didn't I answer you? Because I was constantly hovering on the edge of the grave and was compelled to use every moment of the time in which I was fit to work to finish my book, to which I have sacrificed my health, my happiness and my family. I hope that this explanation requires no further enlargement. I have to laugh at the so-called 'practical' men and their wisdom. If one had a hide like an ox, one could naturally turn one's back on the sufferings of humanity and look after one's own skin, but as it is, I should have considered myself very *unpractical* if I had died without completing my book, at least in manuscript form."

The International

The sixties saw a revival of democratic movements in Europe. Serfdom was abolished in Russia, and the North was victorious in the American Civil War.

At a big meeting held on September 28, 1864, in London, the International Workingmen's Association, the First International, was established. Marx drew up its program documents, *The Inaugural Address and Provisional Rules.*

The First International had sections in 17 countries on three continents. In 1867, Volume I of *Capital* appeared. The International grew and Karl Marx, its heart and soul, shaped its policies.

Expressing support for the Irish people's struggle against British rule, he wrote: "A nation that enslaves other nations forges its own chains."

When the Prussians stood at the gates of Paris in 1871, during the Franco-Prussian war, Marx, apprehensive, warned the workers of Paris not to rise up. The time was not ripe, he thought; the relation of forces was unfavorable to the revolution. But the intoxicating word liberty proved stronger than the arguments of reason, and the Paris Commune, the world's first proletarian republic, had a premature birth. The Central Council of the International sent greetings to the Commune, and Marx set about organizing the widest possible support by the workers of other countries.

After 72 days the Paris Commune fell. The first proletarian republic was drowned in the blood of the workers of Paris. A hundred thousand workers and artisans were killed by the counterrevolutionaries.

Marx responded with *The Civil War in France,* the most impassioned of all his writings. This is how he characterized the reactionary forces: "A glorious civilization, indeed; its great problem after the battle was over was how to get rid of the heaps of corpses it had made!

"Workingmen's Paris, with its Commune, will be forever celebrated as the glorious harbinger of a new society. Its martyrs are enshrined in the great heart of the working class. Its exterminators history has already nailed to that eternal pillory from which all the prayers of their priests will not avail to redeem them."

The Confession

Medieval sundials were often inscribed *Horam nisi serentam numero*—"It is only the sunny hours that I count."

There were sunny hours in Marx's life, those that he spent with his family. On one such evening Laura asked her father to answer a kind of family questionnaire. He did, and the replies are known as his Confession:

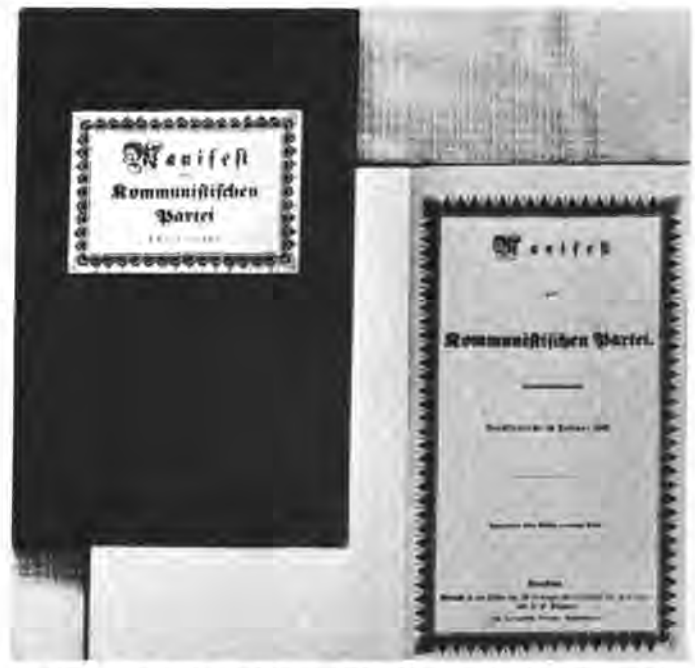
The quality you value most highly; in people—simplicity; in men—strength; in women—weakness
Your outstanding quality—singleness of purpose
Your idea of happiness—struggle
Your idea of unhappiness—subordination
The weakness you forgive most easily—gullibility
The weakness which disgusts you most—servility
Your favorite occupation—browsing in books
Your favorite poets—Shakespeare, Aeschylus and Goethe
Your favorite hero—Spartacus, Keppler
Your favorite maxim—nothing human is alien to me
Your favorite motto—subject everything to questioning.

Marx died in the early spring, when he seemed to be recovering from a serious illness. Feeling somewhat better, he asked to be carried to the armchair at his desk. Then he closed his eyes, never to open them again.

In a letter to Friedrich Sorge Friedrich Engels said: "All events which take place by natural necessity bring their own consolation, however dreadful they may be. So in this case. Medical skill might have been able to give him a few more years of vegetative existence, the life of a helpless being, dying —to the triumph of the doctor's art—not suddenly, but inch by inch. But our Marx could never have borne that. To have lived on with all his uncompleted works before him, tantalized by the desire to finish them and yet unable to do so, would have been a thousand times more bitter than the gentle death that overtook him. 'Death is not a misfortune for him who dies but for him who survives,' he used to say, quoting Epicurus. . . .

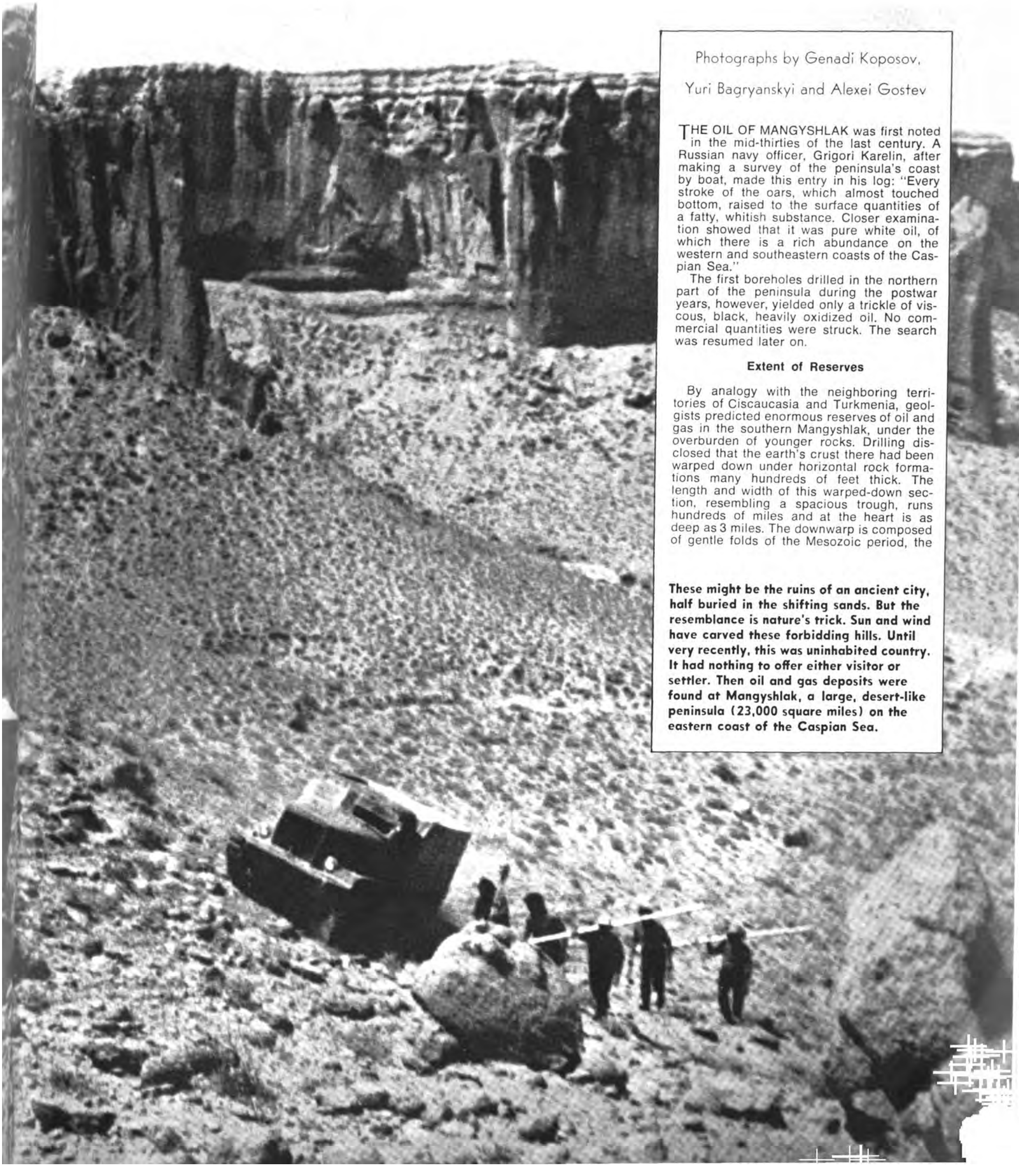
"Be that as it may, mankind is shorter by a head, and the greatest head of our time at that."

All the tombs at Highgate Cemetery are the same height. History, however, has erected a different monument to Marx—a new world.



Title page of the first edition of The Communist Manifesto. *The historic document was published in London in February, 1848.*

BLACK GOLD PENINSULA



Photographs by Genadi Koposov, Yuri Bagryanskyi and Alexei Gostev

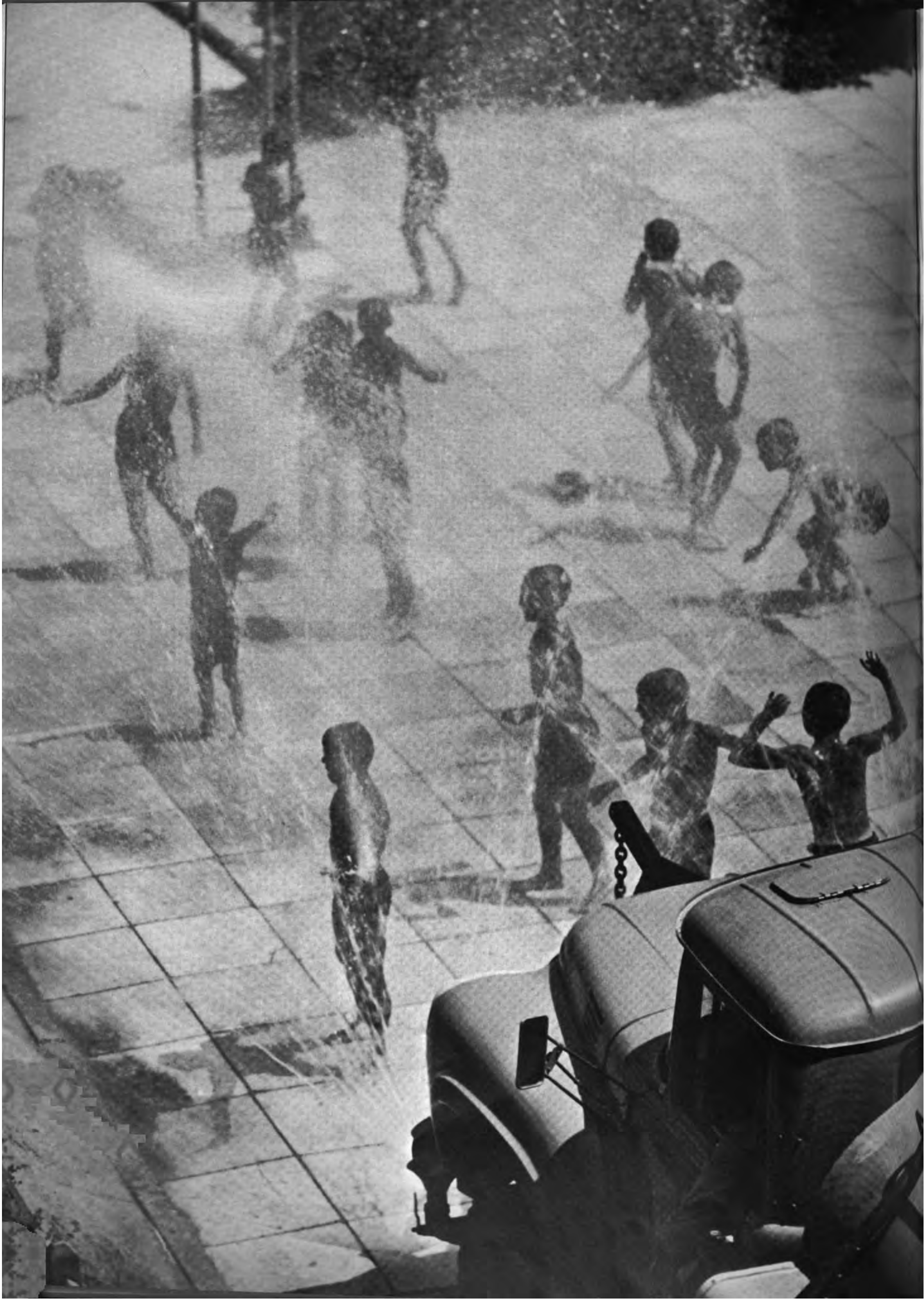
THE OIL OF MANGYSHLAK was first noted in the mid-thirties of the last century. A Russian navy officer, Grigori Karelin, after making a survey of the peninsula's coast by boat, made this entry in his log: "Every stroke of the oars, which almost touched bottom, raised to the surface quantities of a fatty, whitish substance. Closer examination showed that it was pure white oil, of which there is a rich abundance on the western and southeastern coasts of the Caspian Sea."

The first boreholes drilled in the northern part of the peninsula during the postwar years, however, yielded only a trickle of viscous, black, heavily oxidized oil. No commercial quantities were struck. The search was resumed later on.

Extent of Reserves

By analogy with the neighboring territories of Ciscaucasia and Turkmenia, geolgists predicted enormous reserves of oil and gas in the southern Mangyshlak, under the overburden of younger rocks. Drilling disclosed that the earth's crust there had been warped down under horizontal rock formations many hundreds of feet thick. The length and width of this warped-down section, resembling a spacious trough, runs hundreds of miles and at the heart is as deep as 3 miles. The downwarp is composed of gentle folds of the Mesozoic period, the

These might be the ruins of an ancient city, half buried in the shifting sands. But the resemblance is nature's trick. Sun and wind have carved these forbidding hills. Until very recently, this was uninhabited country. It had nothing to offer either visitor or settler. Then oil and gas deposits were found at Mangyshlak, a large, desert-like peninsula (23,000 square miles) on the eastern coast of the Caspian Sea.



WHERE WATER WAS RATIONED

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1 *A few years ago water was in very short supply in Shevchenko. It had to be shipped in tankers from the Caucasus across the sea. Now there is even enough for cooling showers.*

2 *This is a young town, as can be seen from the cranes, but it already has a population of 50,000 and expects to double that very soon.*

3 *You wouldn't think this was the only oasis on the fringe of an almost endless desert.*

same folds which are associated with multi-layered reserves of oil and gas in Ciscaucasia and certain territories of the Middle East.

On July 25, 1961, the first commercial oil was struck in southern Mangyshlak.

The oil fields of southern Mangyshlak are unique. The first explored areas alone, Zhetybai and Uzen, have 15 producing horizons! And the Uzen area also has about a dozen gas horizons above the oil. According to existing classification, each horizon represents a different deposit. These two prospected regions, therefore, have about 40 fields, with resources greater than the whole of the Baku producing area.

"Land of 1,000 Kishlaks"

In Kazakh, Mangyshlak means land of a thousand *kishlaks* (villages). But this is hyperbole. There have in fact been few, if any, settlements in this arid region. Only in the spring would individual nomad Kazakhs tent on the coastal sands for a short while. The only permanent populated locality in Mangyshlak was the settlement of Aktau, to which was exiled the great Ukrainian poet Taras Shevchenko. Aktau has now been renamed Shevchenko. In the last three to four years it has boomed into a modern town with a population of 50,000. The figure is expected to be 120,000 in a few more years.

The growth of the peninsula and its centers, however, is slowed down by a shortage of fresh water. There are no rivers or large underground springs in Mangyshlak. The big suppliers of fresh water for municipal and industrial needs are desalination units. The most powerful one in Shevchenko produces 1,300,000 gallons daily. Now under construction is an atomic reactor with a thermal capacity of 150,000 kilowatts. Its power will run a desalting plant that can supply 32,000,000 gallons of water daily.

Plans are to lay a water pipeline 150 miles long, at the bottom of the Caspian, on a beeline from the Volga to Mangyshlak, which will supply the deposits with 12 million gallons of water a year. The scale of the project speaks for itself.

Nautical and Land Miles

On Mangyshlak's second problem, transport and communication, a great deal has been done already.

A railway line runs across the steppes of Northwest Kazakhstan and the mountains of Mangyshlak. Its 500 miles link Mangyshlak's industrial centers with the country's railway traffic arteries. One railway line cannot supply all the transport needs of a new economic area. So the program calls for seaports with tanker-berthing facilities, oil and gas pipelines, highways and power transmission lines. Among the completed projects is a new port on the Caspian—Aktau—where oil berths are under construction. The first hundreds of miles of highways are finished. These concrete-foundation, asphalt-covered roads link Shevchenko with the operating fields. The first power-transmission line connects Shevchenko and Uza.

For the present, the bulk of the oil extracted is carried by rail and sea, but in time the basic transportation will be pipeline. Oil lines here are something of a problem. The oil of southern Mangyshlak contains a large mixture of paraffin, which solidifies easily. The conventional pipeline, therefore, cannot carry Mangyshlak oil even

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1 *You can't see the tire tracks in this baked earth. Every truck stops here for water. The next well is a hundred miles away.*

2 *People of many nationalities have come to this practically unexplored treasure island to tap its wealth. You will find men from Azerbaijan, Tataria, the Ukraine. Many of the local Kazakhs have learned new trades and become drillers and construction workers.*

3 *A caravan of tank trucks gets a hearty welcome at an isolated oil field. Water is worth its weight in gold and costs about that much when it has to be trucked in.*

4 *More and more derricks dot the horizon. Last year Mangyshlak fields yielded four million tons of oil; by 1970 it will be 60 million.*

PARCHED SURFACE HIDES OIL

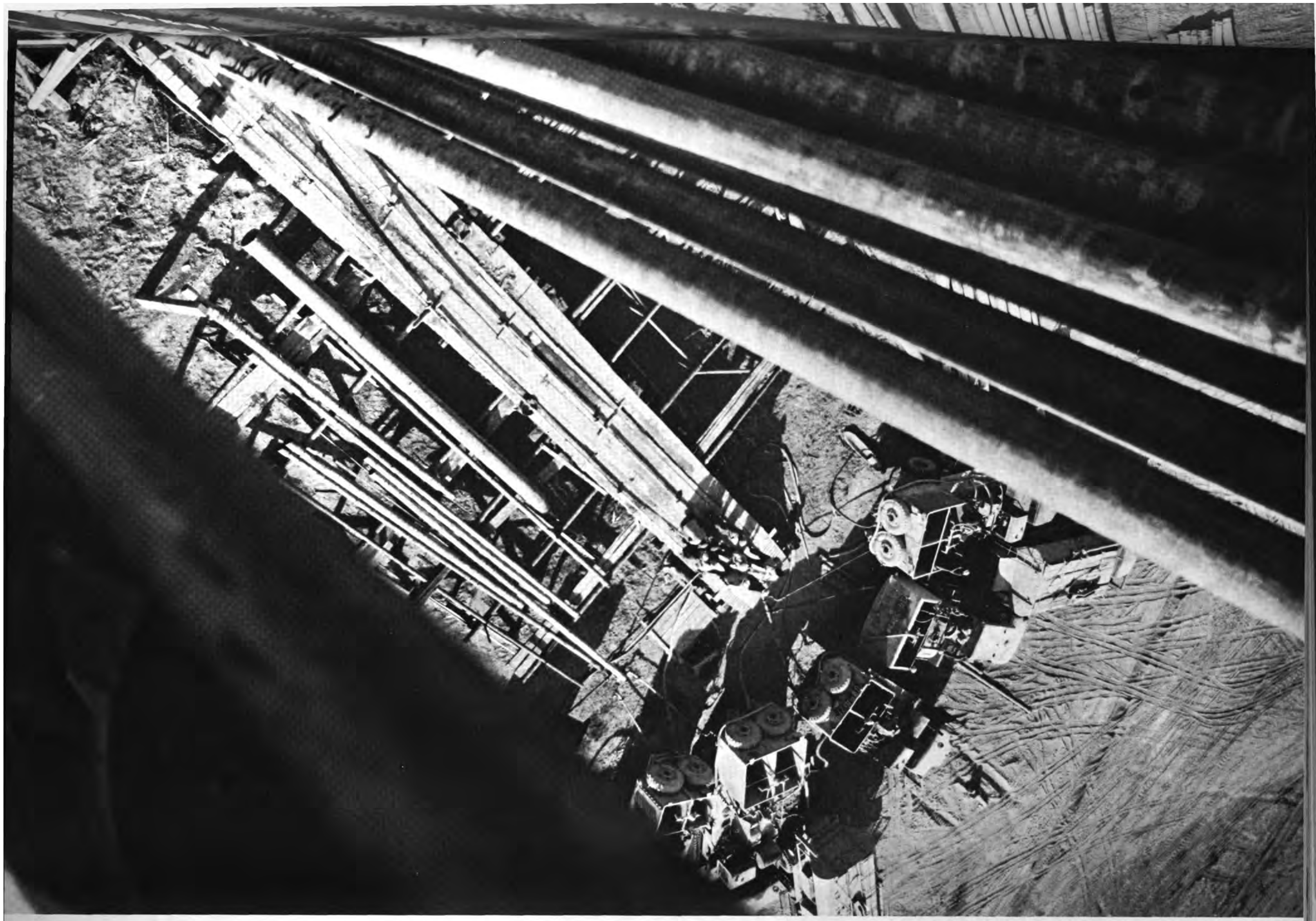
in the summer. In a trial operation of boreholes, lumps of congealed oil formed outside the derricks in the fall and winter.

Along the 90-mile length of the first Mangyshlak pipeline, 12 furnaces fired by local gas were built to heat the pipes. That did the job, but the method is primitive and costly for oil arteries of greater lengths, like the projected 650-mile line around the Caspian to Volgograd and farther, to the Donbas iron and steel mills.

Two fundamentally new solutions have been suggested. The first is to add to Mangyshlak oil a special agent which gives it the required fluidity. The second is heating, not along the way but at the fields. The idea is to heat the oil once to a high temperature, thereby breaking down completely and irreversibly the structure of the paraffin. Which solution will be accepted for the Mangyshlak-Lisichansk (Donbas) line remains to be seen, but one way or another the oil from Mangyshlak will be piped to the Lisichansk refinery.

By 1967, the peninsula's fields were producing four million tons of oil. By 1980 Mangyshlak will be yielding almost one-tenth of the national total, 60 million tons.

Lightweight and light-colored oil, the kind mentioned by officer Grigori Karelin, was recently struck by a deep exploratory well in one of the fields of southern Mangyshlak. The discovery of light oil deposits is something to note and a pleasant surprise. How many more surprises is the peninsula hiding?



YOUR QUESTIONS ON COMMUNISM

(Continued from page 11)

termined their destination, defined the struggle and mapped out the concrete ways to reach the goal.

The role played by a leader is often very complex and contradictory, reflecting his own character. Take Joseph Stalin, for example. On the one hand, he served the country well as the organizer of socialist construction, as the leader of the Communist Party and in the war against nazi Germany. On the other hand, Stalin, owing to certain personal characteristics—his mistrust of people, his arrogance, the cult he built around himself—did serious damage, particularly during the last period of his life. But even these distortions of socialist principle, as serious as they were, could not change the nature of the socialist system. The Communist Party ultimately exposed the personality cult and did everything it could to compensate for its tragic consequences. Here too the relatively limited character of the influence exerted by a leader on historical processes is obvious.

Now let us go on to such an important historical event as the War for American Independence. Engels, analyzing the fighting qualities of the rebels, pointed out that though they did not march like soldiers, they were excellent marksmen.

The war was won, he believed, by the country's workers and farmers. Those historians who belittle the important part played by the people in the war for independence are quite wrong. The facts of history testify that, although the leaders played an undeniably important role, the decisive contribution to victory was made by the American people. This nationwide democratic participation made it a just war of liberation. Which is why Marx thought it so Important, why he said that the war for independence sounded a warning bell to Europe's bourgeoisie. Lenin in his "Letter to the American Workers," written on August 20, 1918, described it as one of the truly liberating and revolutionary wars.

Marx and Engels had high praise for the progressive role of George Washington and Thomas Jefferson. Marx describes them as "the fathers of the revolution." He cites the fact that after the first partition of his country, the Polish leader Tadeusz Kosciuszko crossed the Atlantic and fought side by side with Washington to defend the newly formed American republic.[1] Marx also makes reference to the memoirs of Jefferson, "one of the founders of the American republic who had twice been its president." The memoirs criticize slavery, which, Marx goes on to say, "will lead to a most terrible

[1] Karl Marx, *Collected Works*, Russian edition, Vol. XIX, Moscow, p. 247.

(Continued on page 36)

WHAT TURNS TH

THE CENTURY since Karl Marx wrote *Capital*, on which he spent 40 years, has not shaken his fundamental economic conclusions and predictions. History and economic organization have developed along the lines he foresaw, evidence that Marxism has more than transitory significance.

Marx's basic teaching was his economic theory, although philosophers, sociologists and historians note that he left his indelible mark on their fields as well. Judging by his own words, Marx did not intend to move into economics. His earliest writings dealt with philosophy, and subsequently he studied law. While he was editor of the *Rheinische Zeitung*, the complaints of peasants whose use of forest land was being blocked by the landlords came to his notice. This purely practical problem led him, step by step, to an interest in the entire system of economic relations and then to working out an economic theory of his own.

What is the mainspring of history? This was the first question he had to answer. After a study of the history of various peoples and countries, he arrived at the conclusion that despite their many different histories, all peoples, by and large, pass through the same sociohistorical formations: primitive society, the slave system, feudalism, capitalism. The cyclical pattern of these stages was too repetitious to be chance or coincidence.

Marx's study of the economic conditions of human existence gave him the answer: the need for food, clothing and shelter is the real mainspring of history. These basic requirements motivate human activity.

Although these requirements are much the same as they have been for thousands of years (in the sense that today, as 5,000 years ago, man has to eat, drink, clothe himself, have a roof over his head), their specific content and, even more important, the ways in which they are satisfied have changed fundamentally. Man of today, who lives in an apartment with all conveniences and travels in cars and planes, is as far ahead of his ancestor of 20,000 years ago as modern machines and tools are ahead of the primitive ax or hoe.

Marx formulated the following conclusion: Epochs differ from one another not in *what* they produce but in *how* they produce, that is, in their productive forces and corresponding social relations.

Analyzing human progress, he concluded that the productive forces—men, with their habits, and the implements, machines and raw material they use—play the main revolutionizing part in history. Significantly, we divide history into the stone, bronze and iron ages, the ages of steam, electricity and thermonuclear energy.

The productive forces are only one aspect of social production, however. Men have always worked side by side—in those distant times when they banded together to hunt mammoths and in the present age of space exploration and scientific and technological revolution. The relations that arise in the process of production—between slave and slaveowner, between serf and feudal lord, between factory worker and employer—men's relations of production, as Marx named them, form the basis for social living. These relations change more slowly than the productive forces, which develop spontaneously and continuously. When the productive forces develop to a point at which men's relations of production and the corresponding political structure act as a brake on the continued development of the productive forces, a change in the production relations takes place, as a rule through revolution.

For example, slavery deprived the bulk of the working population of an incentive to increase labor productivity and hampered further improvement of the tools and instruments of production. In the long run this led to the collapse of the slave system.

The conversion of slaves into peasants entitled to a part of what they produced stimulated a further development of the productive forces. The feudal relations of production existed for about a thousand years. They were swept off the scene by the industrial revolution in England when they began to obstruct the growth of the productive forces. Similarly, capitalist production relations were blasted away in Russia in 1917.

Economists before Marx maintained that the essence of capitalist exploitation (Adam Smith, David Ricardo and other classical political economists did not deny the existence of exploitation) was that the employer robbed the worker by not giving him the means he needed to reproduce his labor power. This interpretation gave the problem an ethical slant. All that had to be done to end exploitation, it seemed, was to explain to the capitalists how unfair they were.

Marx approached the question from a different angle altogether. He started from the assumption that the capitalist paid the worker enough to reproduce his labor power. This was not actually the case, but Marx assumed that the worker received, in the form of wages, a sum sufficient to reproduce the labor power he expended and to maintain his family, that is, to reproduce future workers. So that apparently there was no injustice, from the ethical point of view, in the relations between employer and worker. The capitalist hired the worker and compensated him for the value of his labor power.

Was the worker being exploited?

Classical political economy and all pre-Marxian socialist theories said there was no exploitation in those circumstances. Marx proved there was, because labor power is a commodity with the exceptional ability to create more value than is needed to reproduce it.

Part of his working time the worker spends working for his wages, and the rest of the time he creates a surplus product, surplus

WHEELS OF HISTORY?

BY PROFESSOR ALEXANDER BIRMAN
Doctor of Science (Economics)

value, for the capitalist. Of course, the worker cannot be paid the full value of the product he creates; if he were, there could be no investment to expand production and no progress. But in addition to replacing the money he invests to expand and improve production, the private proprietor takes a large part of the profit. Marx and Marxists call this exploitation. They maintain that only when the surplus product is placed at the disposal of the whole of society—and this is possible only after nationalization of the means of production—will exploitation end. As long as the means of production are privately owned, working people will be exploited.

Furthermore, Marx established that as the technical equipment of factories improves (or, as he put it, the organic composition of capital grows), the rate of profit tends to drop. To counter this trend, the capitalists are compelled to intensify exploitation.

Marx demonstrated this to be the main contradiction of the capitalist mode of production: that while production becomes more and more social (as not only individual factories and companies but whole complexes, industries and countries are drawn into production), appropriation of its benefits continues to remain private and capitalist. From this follows the related contradiction: The volume of goods manufactured keeps growing and the purchasing power of the working masses keeps falling as their share of the national income steadily drops. These contradictions manifest themselves in crises of overproduction, declines in economic activity and the growth of a permanent reserve army of the unemployed. Attempts by the state to regulate its capitalist economy are ineffectual. It cannot legislate away competition and anarchy in production; it cannot plan economic development on a national scale, since production continues to be based on capitalist ownership and the exploitation of wage labor.

This contradiction between the colossal development of modern capitalism's productive forces and the fettering relations of private ownership of the means of production keeps intensifying the struggle between the antagonistic classes, the working people and the proprietors, a struggle which grows into a social revolution. Marx demonstrated that this historical process is natural and inevitable.

How does Marx's economic teaching relate to the Soviet economy today?

To begin with, let us review the general principles of distribution of the social product and the national income.

Some 80 years ago, when the German Social Democratic Party drafted its first program, the basic demand put forward by Ferdinand Lassalle and his associates was that the worker should get the full value of the product of his labor. In other words, if a worker produced goods to the value of, say, 10,000 marks in the course of a year, then his wages should be that much. They thought their demand was very revolutionary and ruled out any possibility of exploitation, and on a superficial examination it looks that way. In his *Critique of the Gotha Program* Marx showed that Lassalle was all wrong.

To begin with, Marx explained, all the material outlays, such as raw materials, machinery, fuel, depreciation of buildings and structures had to be deducted from the value of the product. If all these material expenditures were not replaced, society would find its warehouses empty by the beginning of the next year and would not be able to resume production.

Next, funds have to be built up to meet the collective requirements of society, for administration, education, public health, the promotion of science and art and the like. Funds also have to be provided to care for those who are not yet, or no longer, capable of working—children, disabled persons, pensioners. Insurance funds are needed in the event of such natural calamities as crop failures. A part of the social product must be used for new construction, to develop new regions and natural resources, otherwise society will stagnate. Only after all that, wrote Marx, could society distribute the remainder of the social product, giving each working person a portion corresponding to the quantity and quality of the work he has done for society. Later, in the stage of communism, when society is able to meet all the needs of its members, the basic principle of distribution will be: "From each according to his ability, to each according to his needs."

The socialist principles of distribution and use of the social product have been basic to Soviet economic planning for the past 50 years. Soviet economists are now concentrating on the effort to find the optimum relation between these various uses of the social product at each stage of the country's development.

During the early Soviet years, when industrialization was a life and death matter, a large part of the social product had to be used for new construction and for creating new industrial centers. Steel mills, engineering plants, railways and power stations were built; mineral deposits were developed. The historical situation made this high rate of accumulation a necessity; it was not something anyone here wanted to do. The other side of the picture (and this was clear from the very beginning) was a drop in the level of consumption, and a decline in the material incentive of working people to increase production.

One of the main goals of the present economic reform is to find the best ratio between the share of the social product that goes for current consumption and the share channeled to new construction. At the same time we must find the best forms of payment for work: how much of the payment should be in the form of wages and how much in the form of bonuses from profits, that is, directly dependent on the efficiency of management at each individual enterprise.

Marx pointed out that the socialist mode of production would be planned, that without the commercial secrecy, the competition and the other concomitants of private ownership of the means of production it would be possible to do away with the anarchic social development of capitalism. The half-century experience of Soviet society in economic planning confirms that. Soviet economists today are of the unanimous opinion that scientific economic planning by the state is fundamental, that it must be improved in every way, and they are searching hard for ways to improve it. The intention is not to replace one system of indices by another but to make wide use of such economic categories as price, profit, credit, finance and bonuses to improve planning and management methods. These categories are being used increasingly as indirect economic levers in preference to direct (administrative) instructions from state agencies.

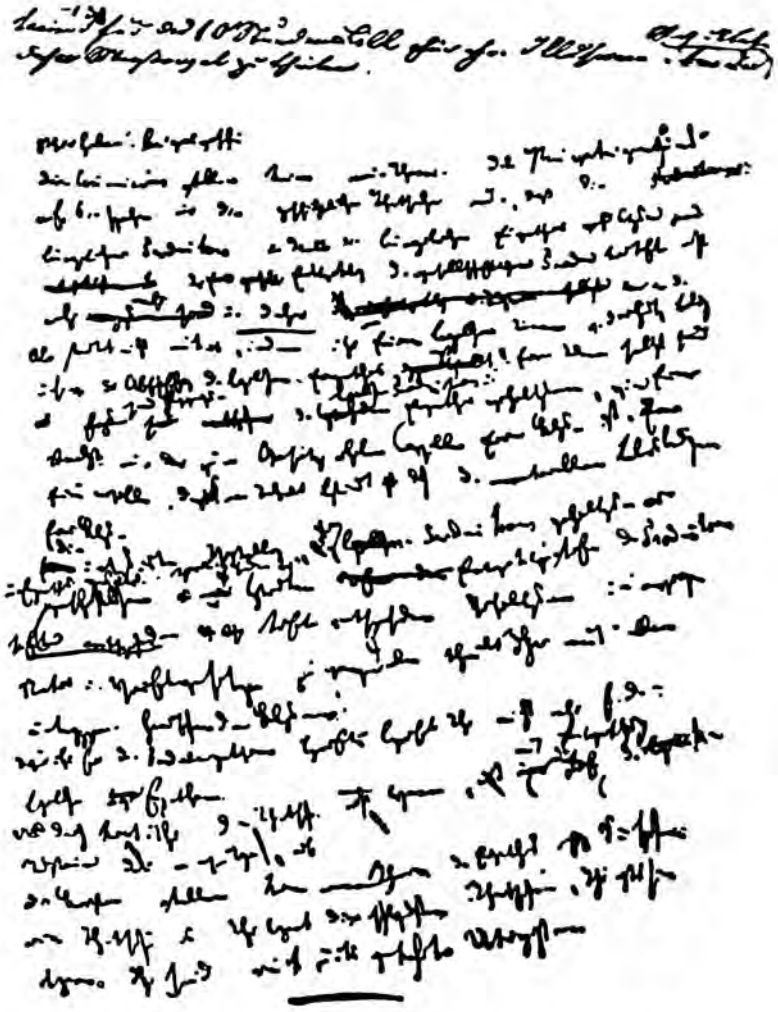
It would be naïve to imagine that under socialism the above-mentioned economic categories are unregulated, as they are for the most part under capitalism. The experience of half a century has shown that socialization of the means of production makes it possible to use all these categories as levers to strengthen centralized planning.

Finally, Marx constantly emphasized the importance of material incentives as a motive force for social progress. In his polemics with Proudhon and other anarchists he ridiculed their bombastic talk of being guided by ideas of justice and other lofty motives. Marx said that most people were guided by their own interests (he used the word "interests" in its large sense).

Our current economic reform is guided by those ideas of Marx as well. The task now is to build a system of material incentives for workers and groups of workers that interlocks the interests of the individual worker, the interests of his factory and the interests of society as a whole.

Marxism has not been static; it has developed in the past century. Like any true science, scientific Marxism has generalized new developments, has drawn conclusions from them and made predictions. A large contribution to Marxist thinking was made by Vladimir Lenin; much has come from the 50 years of experience in building socialism in the Soviet Union and the nearly 25 years of experience in building socialism in other countries. None of this creative development of Marxism, however, has undermined either its scientifically substantiated initial premises or its general historical conclusions. Like the deep roots that feed new branches of a tree, the fundamentals of Marxism live on. Marxism, Lenin said, is omnipotent because it is true. That applies as much today as it did in his time.

MANUSCRIPT COLLECTION NO. 1



Facsimile of the manuscript introduction to The Communist Manifesto. *Marx had a minute handwriting and wrote rapidly, leaving out vowels. Engels was the only contemporary who could decipher his manuscripts.*

BY ALEXEI ILYIN

HISTORY DEALT KINDLY, in the end, with the manuscripts left by Karl Marx; they were almost lost once. In his will, Engels asked that his body be "cremated and the ashes lowered into the sea," and that all the manuscripts "in my possession and at my disposal at the time of my death" be turned over to August Bebel and Edward Bernstein, of the German Social Democratic Party. Bernstein was among those who soon after repudiated his teachers. It was partly his fault that hundreds of their manuscripts remained unpublished for decades.

When, 38 years after Engels' death, the Nazis came to power in Germany and books blazed on the fascist bonfires, more than two railway cars of archives of the German Social Democratic Party, including the manuscripts of Marx and Engels, were secretly moved from Germany. Losses occurred en route. According to the West German *Süddeutsche Zeitung,* a relative of one of the men who hid the archives and sent them abroad stole eight dossiers with Marx's manuscripts and notebooks. Separate sheets from the stolen manuscripts appear at international auctions from time to time and are sold at record prices. The rest of the archives, which the newspaper values at 80 million marks, was sold to the Dutch "for the ridiculous sum of 72,000 gulden." Representatives of the Social Democratic Party, says the newspaper, refused to sell the archives to the Soviet Union for a much higher price.

Nevertheless, none of the material stolen from the Berlin archives was lost to the world. Photocopies had been made in the twenties of all the papers of Marx and Engels in the Berlin

Some of the Marx manuscripts were in this condition and worse, the pages crumbling, all but undecipherable. It took decades of patient research, in some cases, to prepare a manuscript for publication.

and other archives and sent to Moscow; this was on Lenin's initiative. In a letter written in February 1921 he asked David Ryazanov, director of the Marx-Engels Institute in Moscow, to try to buy the manuscripts or photocopies from the leaders of the German Social Democrats. Despite the hard straits of the young Soviet Republic, money was allocated for the purpose.

A photocopy workshop was set up in Frankfurt am Main, and hundreds of thousands of the manuscript sheets left by Marx and Engels were photostated, a new process at the time. In addition, through its correspondents in dozens of countries, the Marx-Engels Institute (now the Institute of Marxism-Leninism) acquired and copied manuscripts written by Marx and Engels and other papers dealing with the international revolutionary movement. The institute was helped, and is still being helped, by Communist and Socialist parties abroad to fill out this unique collection of papers by and about the founders of Marxism and on popular movements since the French Revolution.

The collection is housed in a building opposite the Moscow City Soviet (the city hall), which was the residence of the governor of Moscow in czarist times. The four-story building was erected in 1927, 10 years after the Revolution. The newspapers called it a "gigantic edifice in the American style."

About the new archives building, People's Commissar of Education Anatoli Lunacharsky said at the tenth anniversary celebrations that year:

"Here we have the order, cleanliness and efficiency needed to store an enormous quantity of material systematically so it will be easily available for reference. We Marxists and all Soviet citizens approach the institute archives with a faster heartbeat."

In today's Moscow the archives building no longer looks enormous, of course, but its austere lines still embellish the center of Moscow. The collection has multiplied many times over since 1927, and so has the section where the manuscripts of Marx and Engels are stored. Much has been added in recent years, the personal papers of the children and grandchildren of Marx's daughter Jenny Longuet, among other things.

Very few people are allowed to enter the "steel rooms" where the papers of Collection No. 1 (the manuscripts of Marx and Engels) and Collection No. 2 (Lenin's manuscripts) are kept, and then only rarely. Permission is given when a researcher working from photocopies has to verify an undecipherable word or to determine the date of a document, matters which require that he examine the document itself. Admission to the "steel rooms" is restricted because frequent visits would alter the constant temperature of 61 to 62 degrees F. and the 60 to 70 per cent humidity needed to preserve the manuscripts.

Consequently, as a SOVIET LIFE correspondent, I was allowed to enter only the rooms where the photocopy negatives and the first copies of photographic reproductions are stored. Iraida Mironova, chief custodian of the archives, showed me the folders in which the manuscripts are kept. Each sheet of manuscript or first photocopy has a separate folder, sometimes double or even triple folders. Each page is covered with a sheet of tissue paper. The custodian also showed me some of the work the restorers are doing. They use a variety of methods to rejuvenate, restore and preserve the manuscripts.

Of far greater interest, though, is the work being done to prepare for publication writings by Marx and Engels that have never before appeared in print.

I was introduced to Nina Nepomnyaschaya, a woman in her early seventies and an authority on Marx manuscripts. She has been on the staff here more than 40 years and has deciphered lines that even Marx's daughters could not. Marx had a minute handwriting and wrote rapidly, leaving out vowels. His manuscripts were a sealed book to everyone but Engels. Engels tried to teach Kautsky and Bernstein to read the manuscripts, but they never mastered the art.

Nina Nepomnyaschaya can decipher Marx's writing perfectly. She can even read lines Marx himself crossed out from the parts of the letters showing above the line. For that you must not only be familiar with the handwriting but must also know the subject, spirit and logic of the manuscript you are deciphering.

Vladimir Brushlinsky—polyglot, philosopher and economist—is another expert on Marx manuscripts. He was the first to prepare for publication many manuscripts that lay in the archives of the German Social Democratic movement for decades before they were discovered by Soviet workers when photocopies were being made. This was in the twenties and thirties, when such basic works as the two-volume *The German Ideology* (the longest after *Capital)* by Marx and Engels, and Engels' *The Dialectics of Nature* were first published.

During the thirties and forties the Soviet Union issued 29 volumes of the first edition of the *Collected Works of Marx and Engels.* In preparing the collected works some places in the manuscripts were deciphered incorrectly or reconstructed with errors. A second edition now totals 39 volumes (1967). *The Dialectics of Nature,* edited by Brushlinsky, will soon be out with a much more exact text than any previous edition.

Brushlinsky, in collaboration with Ilya Preis, also prepared Volume IV of *Capital* for publication. After Marx's death Engels prepared Volumes II and III of *Capital* for the press, spending more than 10 years on the job. He did not have time to prepare Volume IV. The text of Volume IV is in 23 notebooks, not arranged consecutively and interspersed with other material. In the notebooks, along with the edited text of Volume IV, Marx included fragments of future works and extracts from his reading. Karl Kautsky published part of the Volume IV manuscript early in the century, but he abridged it greatly, did not arrange some sections consecutively, and made mistakes in deciphering the text. Brushlinsky and Preis worked for a quarter of a century on Volume IV. It was completed in 1961, almost 100 years after Volume I first appeared. After Volume IV was published in Russian, translation into other languages was begun. *Capital* has now come full circle. The first three volumes reached Russia from Germany; the last volume was translated into German from Russian.

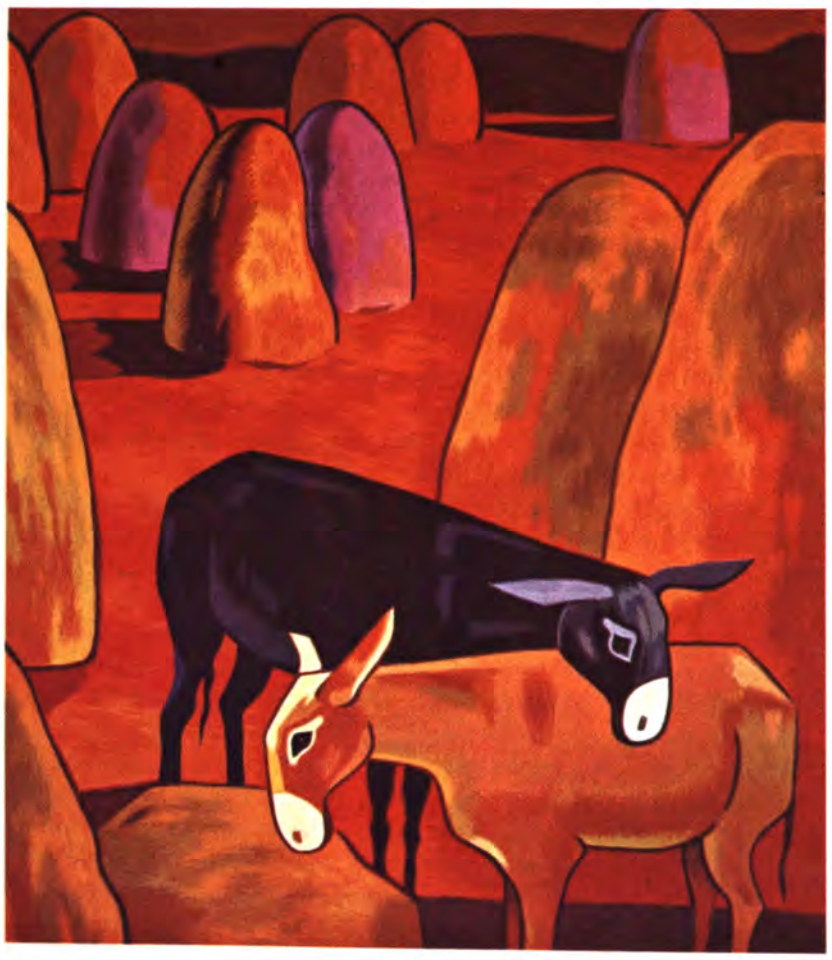
The institute is preparing new, hitherto unpublished works by Marx for the press—his *Mathematical Notebooks, Notebooks on Poland* and *Economic Manuscripts of 1857-1859.*

In the second edition of the *Collected Works* more than 1,000 articles and letters by Marx and Engels appear in print for the first time. Despite that, much of their writing has not yet seen the light of day. Collection No. 1 promises a great deal more of interest.

Repository No. 1, for the papers of Karl Marx and Friedrich Engels. The manuscripts are kept in an air-conditioned room. Access is permitted only when a researcher cannot make do with photocopies.

Flowers of Love.
Tempera.
Fyodor Primachenko (born 1930).
Collective farmer. The Ukraine.

Orange Sea.
Oil.
Fyodor Alyokhin (born 1938).
Fisherman. Petropavlovsk Kamchatski.



Asses.
Tempera.
Koryun Nikogosyan (born 1940).
Pensioner. Yerevan, Armenia.

Fishing.
Oil.
Dmitri Tolcheyev (born 1938).
Collective farmer. Lipetsk Region.

By Alexander Baigushev, Art Critic

Autumn in Kakhetia.
Oil.
Djemal Khutsishvili (born 1938).
Worker. Georgia.

ALIAS AN ARTIST

Alias An Artist

PSYCHOLOGISTS agree that people use only a fraction of their creative talents. Lack of interest is only a partial explanation. More important are such factors as low educational levels and a lack of free time.

The fact that the ancient Greeks had slaves working for them contributed enormously to the great civilization they built. Freed from everyday cares, a part of the population could give all its time to philosophy, writing and the arts. Subsequent social systems did not change much in this respect: For the most part, culture remained inaccessible to the great mass of people. Socialism is the first system to remedy this historical injustice. Equal opportunities are open to every person, including artistic opportunities.

If You Are a Professional

First, of course, you must want to express yourself through art, and second, there must be schools available to awaken latent talent.

Anyone with ability can enroll in any of the numerous specialized art schools. Instruction in art and music is available everywhere, including the villages. Children begin classes in art and music that are held after school and then go on to special schools, art colleges or music conservatories. There is no expense for parents since all schooling is free.

There are unions of writers, artists, composers, film workers, actors and architects for professionals in these fields.

But suppose a person is not particularly talented or is not interested in becoming a professional painter, musician or actor?

Statistics Favor Amateurs

The ideal situation would be to work a few hours a week and spend the rest of the week on what we call now a leisure-time artistic interest. This ideal is possible, however, only if there is an exceptionally high level of economic production, a level we have not as yet reached. How then are we to solve this problem of shaping the well-rounded individual?

We are trying to solve it by an expanded program of evening cultural education and amateur circles. At the same time we are setting up more and more professional repertory theaters and philharmonic orchestras. Two-day weekends and evenings add up to considerable free time if you want to paint or act, make music or write poetry. The important thing is that there should be no obstacle to prevent you from using your leisure time creatively.

The financial obstacle to artistic achievement does not exist in the Soviet Union. To illustrate what I mean, here is an example. The cost of movie, concert and theater tickets is very cheap: The price of a movie ticket for a child is 10 kopecks while adult tickets are priced at 20-35 kopecks each. Theater tickets cost 40-60 kopecks for children and 1.00-2.50 rubles* for adults. Admission to a museum or art show is either free or 10-30 kopecks. Instruction at dramatic art and in music classes is free.

The time obstacle, the need to travel long distances for cultural recreation, is also no problem. Practically every district in the country has a recreation center with music, dance, art and drama clubs. Amateur dramatic companies play an important part in the cultural life of districts without professional theaters. While the 500 or so professional companies play to an annual audience of more than 100 million, the thousand amateur companies draw an equally large audience.

Books and magazines borrowed from the 400,000 libraries have tripled since 1950. People's Universities of Culture sprang up all over the country when college professors and prominent artists and writers agreed to give public lecture courses on the university level in the evenings. So many attended that the number of People's Universities of Culture grew to 17,000 in less than three years. Today some three million adults enroll annually.

Behind those figures stand people to whom culture has become a vital need, an essential part of their lives. But the need for culture and art is only the first step to a higher need, the creative urge. Consumers of art gradually become creative artists. For example, there are now 10 million amateurs in the performing arts and even more amateur

*There are 100 kopecks in one ruble which equals $1.10.

White Grouse at Lake Konch.
Oil.
Yevgeni Sudakov (born 1933).
House painter. Petrozavodsk, Karelian Republic.

The Sculptor Saak Saakyan.
Oil.
Andranik Petrosyan (born 1925).
Zootechnician. Yerevan, Armenia.

Apple Boughs.
Gouache.
Anna Tyapkina (born 1918).
Housewife. East Siberia.

INGRES' VIOLIN

By Tatyana Belskaya
Art Critic

INGRES, the French painter, played the violin, and so, a hobby is sometimes called "Ingres' violin." There are millions of people in our country with an "Ingres' violin" of their own. The number of amateur artists keeps multiplying. The world seems to be full of talented people!

Last year we celebrated the fiftieth year of Soviet power. For the jubilee an All-Union Amateur Art Festival, including both performing and fine arts, was arranged and went on for almost two years. It was held in stages: on a school, club, palace of culture level; then on a village, city, or regional level; and finally on a union republic level. The best works selected by a jury at the union republic festivals were shown in Moscow from August to October 1967. The festival was concluded with two major events—the final concert in which amateur artists' groups from 15 union republics took part and an art exhibition.

Thousands of people participated. In the fine arts shows alone some 50,000 amateurs exhibited. The union republics sent more than 11,000 display items to Moscow. The jury chose 5,523 works by 3,213 artists and craftsmen for the all-union exhibition. But there is more than quantity in this mass enthusiasm for creativity. Evident, also, is a new qualitative element—a resurgent interest in the art tradition of each of the republics and a reciprocal enrichment of the national cultures. This new quality was responsible, in large measure, for the success of the exhibition. In the course of six weeks it was visited by more than 100,000 people.

It also determined the display arrangements. Instead of the usual division into sections of paintings, graphics, sculpture and applied art, each republic grouped its own works. The closeness of the color of the paintings to the color pat-

(Continued on page 34)

Dam Formed by Explosives.
Tempera.
Georgi Pokrovsky (born 1901).
Major-General, Professor. Moscow.

Letter from her Son.
Oil.
Khashim Akiyev (born 1940).
Student. Checheno-Ingush Republic.

painters. Professional painters follow their work closely and find original styles and fresh natural approaches. Nearly every recreation center has a fine arts studio where amateurs get guidance from experienced professionals.

Getting to Know Yourself

Art is an excellent way of getting to know yourself. It is a window through which the world may be discovered through heightened use of the senses. Art gives you an insight into the people around you, as well as a closer look at your own attitudes.

Standardization is necessary if you are making home refrigerators, but, by its very nature, no work of original art can be like another. The reflection of life to be found in every true work of art has an emotional impact on us. It is a reflection of life created by an individual.

By encouraging art, our society helps to raise the general cultural level and with it greater self-expression of the individual.

The very act of getting acquainted with a work of art has an element of creativity. During the process, each person supplements, amplifies and relates the work of art to his own capabilities, his knowledge of life and art forms, his education, and finally, to his mood at that particular moment. Ideally, the person looking at a painting is always a co-artist, and the person listening to a musical work is a composer. Balzac said, "To understand means to become equal."

When Maya Plisetskaya and Svyatoslav Richter say they owe the flowering of their talent to their audience, they are expressing an understanding of the nature of art.

Flattering though it is to be "co-author," a person wants to see what he himself can do, not necessarily with the aim of ultimately becoming a professional but to experience more fully the joy of creative self-expression. Professional artists realize that and willingly help amateurs.

"Our professionals do a great deal to promote amateur art, in particular, amateur theater groups," People's Artist of the USSR Mikhail Tsaryov, Chairman of the All-Russia Theater Society, said in an article in **Trud**, the central trade union newspaper. "We professional artists welcome the opportunity. Art helps to form the well-rounded personality for whom creativity is a necessity. As for reaching wide audiences, amateur companies have larger possibilities than professional theaters. There are many amateur companies, and their productions reach the most isolated districts."

Mikhail Tsaryov does not limit himself to inspirational messages. While the famous Moscow Maly Theater, of which he is a leading actor, was on vacation, Tsaryov toured many parts of the country. He acted in amateur productions. His conclusion: "I saw enough successes to convince me that serious, professional acting is possible on the amateur stage."

Nikolai Romadin, well-known Russian landscape painter, told me that amateur standards are high in the fine arts too.

"I would not hesitate," he said, "to recommend many workers, engineers and collective farmers for membership in the Union of Artists. They are real masters."

"Then why don't you?" I asked.

"I did recommend some, but most of them look on painting as a hobby. They have their own trades and professions. Take, for example, amateur artist and spaceman Alexei Leonov or Academician Pyotr Kapitsa. That eminent physicist has taught many young artists who are now well known."

I interviewed Mikhail Grobman, 27, who had just become a member of the Union of Artists of the USSR.

"What did the amateur studio give you?"

"It gave me a taste for art. I began to paint for fun, for my own enjoyment. In the studio at the recreation center I saw some work by the French artist Lurçat. Soon I found I was spending less and less time going to parties, and painting more and more. I could hardly believe it when some of my paintings were selected for shows of works by young artists in Moscow and Czechoslovakia. Artists advised me to become a professional. I don't know yet how things will go."

"Don't you find that people who go in for amateur art have little time left for other joys of life? You put in a full day's work and you spend your evenings at the studio."

"The studio is my hobby, after all, and surely nobody regrets time spent on a hobby."

The Composer Komitas.
Oil.
Agavard Arutunyan (born 1943).
Club Manager. Armenia.

Collective Farm Harvest Festival.
Oil.
Yadviga Nalivaikene (born 1897).
Pensioner. Lithuania.

View of Nestia.
Oil.
Sergei Chitidze (born 1904).
Pensioner. Georgia.

INGRES' VIOLIN

(Continued from page 32)

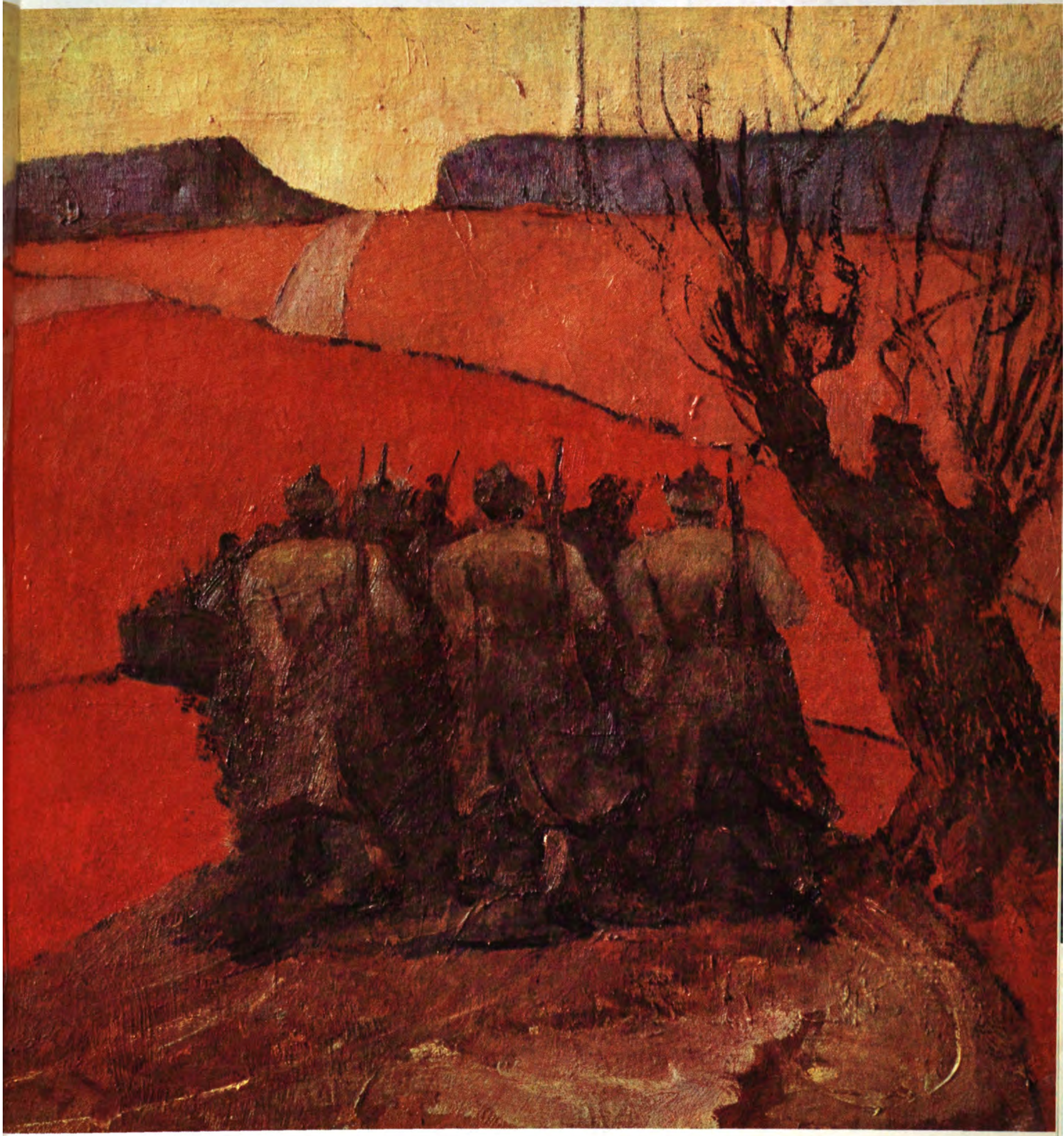
terns of the applied art, for example, gave the Georgian Exposition an exceptionally unified appearance. The severe splendor of the combinations of dark blue, auburn red, dull green and black was beautifully reflected in the pictures from the hand-woven fabrics, ceramics and ornamental crochet work. And all of the exhibits were complemented by the dim luster of the bronze and brass in the decorated, hand-chased panels and in the soft tones of the natural wood carvings.

There was also a unity of composition throughout and a distinctive epic style in the traditional Georgian applied art as well as the painting, sculpture and drawing. This kinship of the composition and color patterns of the paintings and of the items of applied art is a characteristic of Soviet amateur art. The paintings, sculpture and graphics were influenced by Soviet professional art as well as by the folk frescoes and wood carvings, the woven fabrics, the chased work and the embroidery. Incidentally, those artists whose works are influenced by folk art are doing something which even professional artists find interesting: They are trying to incorporate in easel painting the tradition and character of their national folk art.

This folk quality in amateur art is expressed not only in scenes of life in their republics, towns or villages but even in such larger themes as the Revolution, the Civil War and the Second World War. Soviet amateur art is a genuine chronicle of the life of the people. At times it is more gripping than professional art because of its down-to-earth quality, its spontaneity, its honesty and its sharp observation. It is poetic at the same time—poetry inspired by the epic.

In earlier amateur art shows a great many of the works were imitative; they had a superficial professional gloss. With this show we can see how much the creative level of the amateurs has grown. They want to achieve more than professional finish; limited to that, they could never grow beyond the imitation stage. What they are striving for is original artistic expression.

On the March.
Oil.
Roman Popov (born 1931).
Office worker. Chelyabinsk, Ural.



YOUR QUESTIONS ON COMMUNISM

(Continued from page 26)

conflict in the Southern states of the North American Republic."[1]

Washington and Jefferson made their contribution as organizers of the struggle for independence. Washington, for instance, the Commander in Chief of the American Army and the first President of the United States, showed his genius for command in the field and on the home front. His military and moral attributes played no small part in winning the war. But the strength of Washington and other leaders lay mainly in the support of the people. The leaders could play so great a part because they were in step with the movement of history. And the staunchness of the people was evident in the fact that Washington was able to transform untrained and undisciplined men into a well-organized army.

Without such support the talent of a leader is ineffectual. On the other hand, those who represent the interests of the people are usually the successful leaders. Witness, for example, the appeal of Jefferson's Declaration of Independence. It was a document for its times, a document proclaiming the sovereignty of the people, their right to revolution. It proclaimed the equality of all people before the law, their inalienable right to life, liberty and the pursuit of happiness.

THE SCIENTIFIC METHOD IS TO SELECT AND ANALYZE THE FACTS. THE SCIENTIST MUST INVESTIGATE EVERY FACT, WHETHER IT SUPPORTS OR REFUTES HIS HYPOTHESIS. IF THE LATTER IS TRUE, HE MUST SCRAP HIS OLD HYPOTHESIS FOR A NEW ONE. WHY DID NOT MARX AND HIS FOLLOWERS HOLD TO THIS PRINCIPLE?

Theory is the generalization of practice, and facts drawn from life or practice provide the point of departure for theoretical conclusions. Facts are indeed the air the scientist breathes. Even a casual look through the writings of the founders of Marxism is sufficient to show that the scientific method is precisely what they used.

Capital is a veritable Mt. Everest of statistics. In all of Marx's writings you find evidence that he drew extensively from the

[1] Karl Marx, *Collected Works*, Vol. IV, pp. 304, 305.

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LODESTAR OF SCIENCE

An Interview with Academician Nikolai Semenov, Nobel Prize Winner

Q. In the last century science was an ivory tower "recluse" far removed from the daily lives of most people. Today it is vigorously invading the lives of each of us. Hundreds of millions view the surface of the moon on TV and follow, through the newspapers, the beating of a transplanted human heart. What part do you think science plays in human progress?

A. Everything man has achieved in the material sphere, from the discovery of fire to the utilization of atomic energy, derives from his magnificent determination to find out what the world around him is like. That is what lies at the foundation of science. The ultimate aim of science, from the social point of view, is to improve production, create new technologies and raise productivity. There is unity between the theoretical and practical aspects of science. All discoveries that contribute significantly to our understanding of the world, and hence to scientific progress, have impact on production too.

Among the landmarks of science in the first half of the nineteenth century was the discovery of the laws of electricity and magnetism. In the second half of the century the existence of electromagnetic waves was demonstrated in a scientist's study. Neither discovery was believed, at the beginning, to have any practical importance. Heinrich Hertz, the man who discovered electromagnetic waves, rashly declared that there would be no practical application for his discoveries. Yet these discoveries have led to big technical advances.

Hertz's findings were the forerunners of the great scientific discoveries of the twentieth century, discoveries which, as Lenin put it, led to a revolution in the natural sciences. Physicists invaded the invisible world of the inner structure of matter, a world once thought inaccessible to research.

Electrons, the atoms of electricity, were discovered and so were light quantum and the internal structure of atoms and nuclei. It was found that other laws operated in this suddenly discovered world. Important theoretical deductions were drawn. The principle of relativity and the relationship between mass and energy were formulated. The new field of quantum mechanics emerged.

Previously discovered laws of mechanics were retained for gross bodies, but they proved to be merely a limiting case for the more general laws dominant in the microworld. All these great scientific discoveries, which at the beginning seemed abstract and far removed from practical needs, created completely new spheres of production in the course of time. They intruded into human life, changing the world about us.

Radio, television, radar, electronics, atomic energy, lasers, masers and superconductivity are only a few examples of scientific triumphs. Mathematical logic, the most abstract sphere of mathematics, in combination with electronics produced computing machines whose importance to all aspects of man's mental and productive life will be fully appreciated only later.

All this has been accomplished by science, the "recluse." Abstractions in science must not be considered a negative phenomenon. Science cannot develop without abstractions, in the same way that it cannot develop without experiment. The researcher must get away from people at times to concentrate on the subject of his investigations. Hunting for the secrets of nature, like ordinary hunting, requires silence.

What has really changed is that scientists now give thought to ways in which their discoveries can be translated into technical hardware. Periods of quiet alternate with periods of turbulent activity. Together with the engineers the scientists apply their discoveries and create new technical and industrial values. This sharply reduces the interval between a scientific discovery and its application.

Q. What is the scientist's view of life? Since the time of the Greeks, philosophers (in ancient times all scientists

Academician Nikolai Semenov in 1960 at Oxford University, where he was awarded an honorary degree.

were called philosophers) have been divided into two hostile tribes, the materialists and the idealists. What role do you think his view of life plays in a man's scientific work?

A. In the natural sciences we test our hypotheses and assumptions through experiment. A theory that is confirmed experimentally—the highest criterion in the scientist's work—becomes the truth. Experiment confirms that the world does exist independently of our consciousness. For that reason a consistent idealist cannot be a true naturalist. He does not recognize the objective significance of experimentation, since to him the results of an experiment are merely the result of imagination.

The logic of scientific research forces even an inconsistent idealist, if he is a true scientist, to become a spontaneous materialist and forget his idealistic views during the period of his scientific activity. But this produces ambivalent feelings and doubts which put a brake on scientific creativity.

Q. With regard to the scientific laws that govern a philosophical understanding of the surrounding world, what do you think of the dialectical method of cognition proposed by Karl Marx?

A. The dialectical method is a universal set of tools, so far as there can be a universal creation of human reason. As a method it offers full scope for scientific creativity. It sets no limits on insight, which the scientist often needs as much as the poet. The categorical approach to nature is, in substance and spirit, incompatible with dialectics. Dialectics reflects the diversity and contradictory essence of reality and is enriched by each new discovery that changes our conception of the world.

Marx held that the substance of dialectical movement was the struggle between two mutually contradictory sides and their merging into a new category. "He who sets himself the task of eliminating the bad side immediately puts an end to dialectical movement by that alone," said Marx. Take, for example, the theory of the dual wave particle nature of light. How many supporters there were of the undulatory theory of light explanation! But quite a few others argued that light was a stream of particles. Breaking down either argument led to an impasse. Only through their dialectical commingling was the phenomenon of light explained.

Because of its intrinsic spirit of antagonism, the dialectical method is always progressive. It differs from formal logic, which, if followed, would make it impossible to discover anything essentially new in natural science that did not arise logically from previous knowledge. At the beginning of the century Ernest Rutherford offered a model of an atom in the form of a nucleus around which electrons rotate like planets around the sun. This planetary model of an atom ran contrary to the accepted laws of electrodynamics and mechanics, and to dare to put forward such a model Rutherford had to transcend formal logic. Overcoming this contradiction led, as we know, to the creation by Niels Bohr of the theory of the atom and, ultimately, to the creation of quantum mechanics.

When Friedrich Engels said that the borderline areas of science are the most promising, and when Lenin said that the electron is inexhaustible, these proved to be examples of scientific prevision that greatly anticipated the future. They were made on the basis of the dialectical method. Dialectics is a principle, a law of thinking without which scientific progress is impossible.

Q. How do you explain the fact that the social sciences are not developing as rapidly as the natural sciences; that they have been so much less successful in solving problems?

A. Albert Einstein was once asked the same question. "Evidently because the social sciences are more complicated," he said.

There are many reasons, including the fact that social laws are so closely bound up with human relations. They arouse far stronger human passions than the laws of the microworld or the movement of planets. And the forces they call forth are often antagonistic.

Then, too, experimentation is one of the reasons why the natural sciences are developing with such giant strides. Experimentation in the social sciences is much more complicated. The scientist cannot turn people into guinea pigs. Workers in the natural sciences often complain they must wait for months for the results of experiments; sociologists have to wait for decades. Marx created his theory in the last century but did not live long enough to see the results. It is not difficult for the experimenter in the laboratory to control a chemical reaction. Controlling a social reaction is much more involved. In a chemical reaction we may lose a certain number of reagents without affecting the results. In a social experiment the losses may be critical.

Today we must make every effort to see that the economic and sociological laws of social development (the principles on which the national economy and the state are run), are based on increasingly more exact information; that these laws are expressed more and more strictly and precisely, so that they approximate mathematical formulas.

The processing of the growing volume of information and the drawing of theoretical deductions from this information play a decisive role here. These deductions help to create the most favorable conditions through which progressive economic and social laws and trends can manifest themselves. The existence and development of comput-

ers already make this tremendous job possible.

Q. I should like to have your reaction to a social phenomenon that is very typical of our time—the growth in the social significance of the younger generation. Young people today refuse to wait until they are mature adults before playing their social role. They want to play it while they are still young. Incidentally, many of our readers are college students. The same "rejuvenation" process is taking place in science. What traits, do you think, should the young scientist have?

A. The real scientist, particularly if he is young, will be a romantic. The true scientist is irresistibly impelled to science. It is a genuine passion, and that is always romantic. This passion makes the weak man strong, the weak-willed man active and industrious.

It is like the passionate striving of the sculptor to perceive in a block of marble the new and beautiful forms that he brings out, as it were, with his chisel. In this passion for scientific research there is something of the primitive passion of the hunter following his game from barely discernible tracks.

There is nothing more dangerous for a scientist than blind faith in his feelings, than letting his reason lose control of his feelings. This is the straight road to scientific bigotry.

To deny the experiments and theoretical deductions of all preceding science, or any of its parts, is a sign of pseudo-scientific generalization. What is new in science is never a simple denial of the old but merely an essential change and generalization of the old, applied to new conditions.

If this were not so, if a new theory completely wiped out the old laws, science would never have gone forward; any fantastic theory would be possible in practice. There would be every justification for the scientist's imagination and emotions to go on a rampage. Fortunately, that is not the case.

The hardest and most important thing for a scientist to be is a strict, impartial critic and judge of his own hypotheses, experiments and deductions. The scientist's intuition and imagination must be constantly controlled by reason. What is more, the true scientist must be more than impartial; he must be the most prejudiced critic of what he holds dearest—the world to which he has devoted days and nights of labor and inspiration. He must be, if you like, his own enemy. Here lies his tragedy and his greatness.

The scientist must be especially prejudiced when it comes to experiment, the supreme judge of all scientific hypotheses and theories. He must put his assumptions to the test, carefully rejecting possible sources of error. He must invent the most demanding experiments to test the most vulnerable spots, the kind of experiments that will give him a straight answer: Is the theory correct or must he discard it? In modern physics, as well as in chemistry and biology, one negative can destroy a hundred affirmatives.

How difficult that is! How much our feelings react against doing such a crucial experiment. When everything is ready and we have only to turn the switch, it is like the instant that divides life from death.

When you fight for justice, equality and fraternity you have to fight as long as you are alive, even though you meet with grave difficulties. Otherwise, you will be a renegade. But when you do an experiment, it is the other way round. You will not be worthy of the name scientist if, after your first setback (a completely negative experiment), you do not give up your idea; if you close your eyes to the hard facts and continue fighting for your hypothesis. That is how it is in science.

YOUR QUESTIONS ON COMMUNISM

(Continued from page 36)

most diverse social and economic fields. Contemporary economists and sociologists often asked him for statistical help, advice and references.

Marxism obliges one to look at the truth squarely, to build one's conclusions and theories only on a foundation of facts. Lenin starts one of his sociological studies with a criticism of those who limit themselves to the "general phrase" and give no facts to shore up their generalization. "Proceeding from these considerations," he wrote, "we have decided to start off with statistics, though fully aware of the deep antipathy some readers entertain for statistics."

Any scientist dealing with empirical or statistical data knows that in the process of analysis there emerge working hypotheses demanding proof. The Marxist-minded investigator, for whom practice is the sole and supreme gauge of truth, is especially demanding in this respect. Only hypotheses tested in practice are considered proved and become theory. Hypotheses that cannot stand the acid test of practice are ruthlessly discarded. Every scientist, at one time or another, has to discard a hypothesis which the facts have proved untenable.

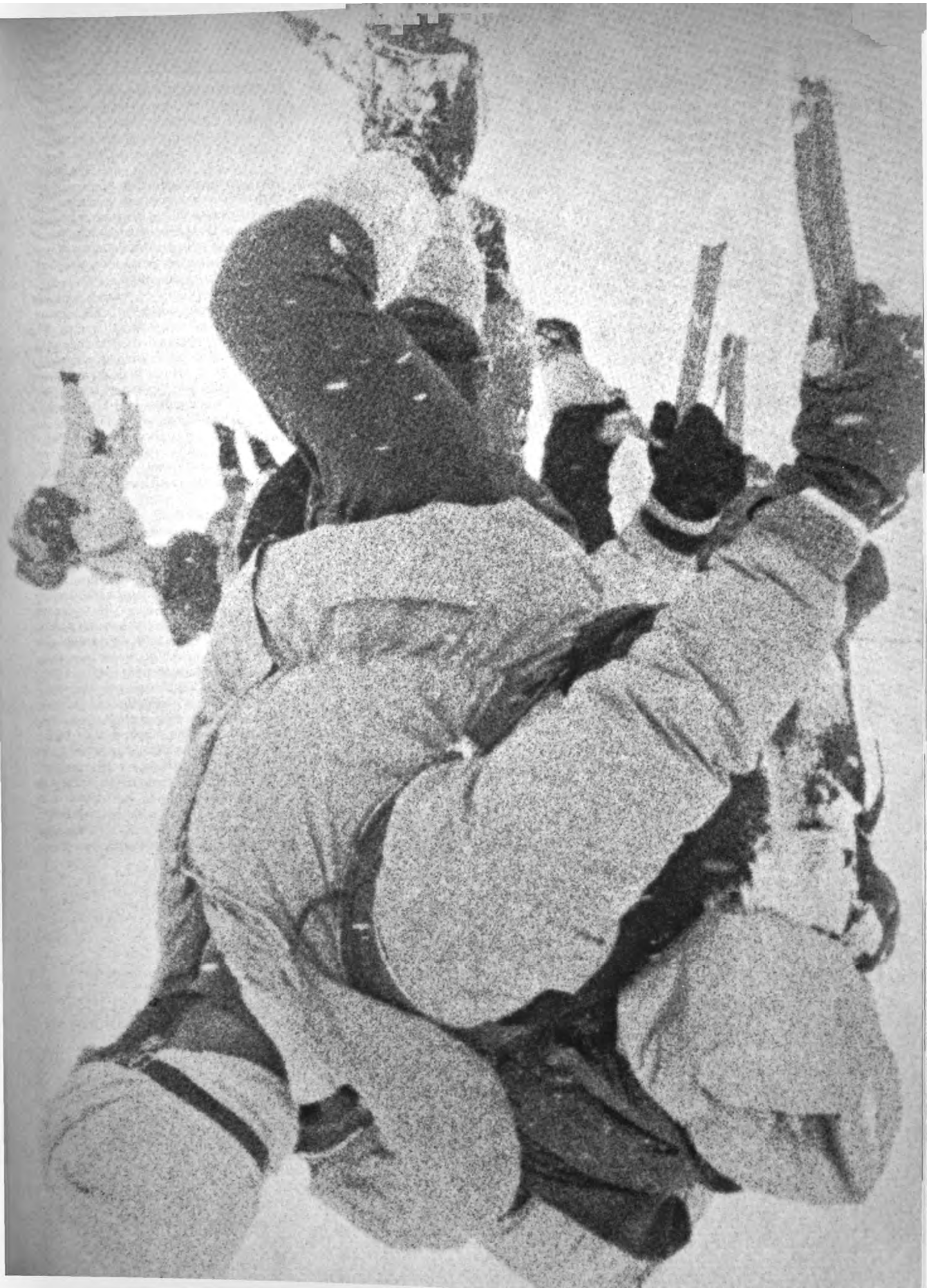
Here we must discriminate between hypothesis and theory. A theory is something that has been tested by practice. That is why a theory is usually long-lasting, changing much less frequently than a hypothesis. To this day Newton's theory remains true for the mechanics of low velocities; in fact, it is axiomatic within certain limits.

The same holds true for Marxism. While the hypothesis emerging in the process of study undergoes modification, the theory, confirmed by social progress, becomes a truth proved in practice. One example is the theory that the transition from one class-antagonistic formation to another is made through social revolution.

However, no one knows better than the Marxist himself that the laws of social development differ from those governing the development of nature. Social laws are not as long lasting since they operate under definite conditions. When the conditions change, the theoretical conclusions change too. They must be adapted to the new conditions, to the current practice. Marxism is the enemy of all dogmatism.

All of Lenin's theoretical work was a development of Marxism to conform to the changes that had occurred since the times of Marx and Engels. Lenin, for instance, enriched the Marxist theory of the dictatorship of the proletariat with his own teaching on the alliance between the working class and the peasantry and on the role of the Communist Party. On the state form the dictatorship of the proletariat would take,

(Continued on page 50)



Edward Kravchuk is probably one of the very few professional photographers to day who has scaled a 23,000-foot peak.

CLIMBING on the ROOF of the WORLD

BY ARIY POLYAKOV
Master of Sports (Alpinism)

PHOTOGRAPHS BY EDWARD KRAVCHUK

Atop Lenin Peak the alpinist placed a bust of Lenin and flew the flags of the nine countries in this international climb.

LEGION ATTACKS A PEAK

THE PAMIRS are the roof of the world, a land of ancient legends, impassable sky-high mountain paths and roaring mountain streams. Now this country in the southern part of the Soviet Union is becoming a mecca for mountain climbers. Four of the Pamirs' summits are almost as difficult to climb as Everest and some of the other tall peaks of the Himalayas.

The storming of every one of these 23,000-foot peaks—Lenin Peak (23,404 feet), Yevgenia Korzhenevskaya Peak (23,344 feet), Pobeda Peak (24,400 feet) and finally Communism Peak (24,624 feet), the country's highest—has its own history of victims and victors. The ascent of all four peaks gives one the right to the Soviet Union's honorary award for alpinists—the Snow Leopard Badge. The alpinist clubs of the country jealously guard the short list of people who have climbed these peaks. Thus far only four Soviet climbers have scaled all four Pamir summits.

One is Kirill Kuzmin, 50. Besides being an experienced alpinist, he is a hydraulic engineer and was one of the advisers for the plan to build the Aswan Dam in the United Arab Repubic. Kuzmin has to his credit 10 ascents of the 23,000-foot peaks, apparently a world record. The second is his fellow alpinist and comrade, 40-year-old Leningrader Konstantin Kletsko, who makes climbing a daily occupation. Kletsko is a chimney sweep, a rare trade these days. The third, Moscow engineer Valentin Bazhukov, is somewhat older than Kletsko. The fourth is Yevgeni Ivanov, a veteran of mountain climbing expeditions. This strong and tireless man took part in daring guerrilla raids which harassed the rear of the nazi army during World War II. He marked his fiftieth birthday in 1961, when he scaled one of the 23,000-foot peaks in the Pamirs.

Last August the number of aspirants for the Snow Leopard Badge multipied several fold. In a short span of three weeks Lenin Peak alone was climbed by an unprecedented 301, with 23 women among them. This happened during the second international competition of alpinists for the fiftieth anniversary of the October Revolution.

The small village of Daraut is now familiar to sportsmen from many countries: It was there that the main base camp was situated. From this point (it is not marked even on maps of the Pamirs) if you draw straight lines to two summits —Lenin Peak and Communism Peak— and a line between these peaks, you will get almost a rectilinear polygon. Daraut, in the very beautiful Alai Valley leading to the foot of Lenin Peak, is not far from the summits—about 44 miles. When the equipment for the expeditions was carried by horse, it took three to four days of hard going to cover the distance. But a helicopter delivered me in half an hour to the base camp at an altitude of 9,842 feet. Expeditions to the Pamirs with helicopters, instead of slow-going caravans, are costly. They are subsidized, as are all of the country's camps for mountain climbers, mostly by the sports societies of the trade unions.

A base camp was set up on a stony plateau at the foot of Lenin Peak in the Pamir range. The equipment was brought in by helicopter. The alpinists acclimatized themselves and made a number of trial climbs. Intermediate camps were set up along the route. Then came the attack. In three weeks 301 climbers scaled the peak. They all came down safe and sound.

Scientists seem to like this dangerous sport. Gennadi Myakishev is a theoretical physicist.

Vladimir Bezlyudny, Master of Sports, reports to headquarters from the 20,000-foot camp.

Emilio Frisia, leader of the Italian group, exchanges ideas on the climb with his colleagues.

Fluttering on tall flagpoles at the camp were the flags of the nine countries participating: Austria, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Italy, Poland, the Soviet Union and Yugoslavia. An atmosphere of noisy merriment prevailed. The mountain climbers had managed to clear a small field, and when it was not too hot, "international" soccer matches were played. The fact that the altitude of the stadium was a little greater than Mexico City's did not subdue the zeal of the players. The competition participants (the youngest was 19) thought that soccer at such an altitude, in a rarefied atmosphere, was the best kind of acclimatization and training for an ascent. However, there were also people fairly well on in years among the soccer players. Giovanni Opiio, 61, a lift specialist, was having a heated discussion about something with Vano Galustov, a man his age, a building worker from the Tajik town of Nurek. These two were the deans of this international clan of mountain climbers. As far as I know, nobody that age has yet climbed the 23,000-foot peaks.

The competition participants were getting their equipment ready, choosing foodstuffs and mapping out routes. Most of them preferred to reach the peak by going over Lipkin Rock, named after this odd misadventure. Some 30 years ago several small planes were sent to help the first mountain climbers. When packs for the alpinists were being dropped, one of the planes was thrown against the cliffs by an air current. At the last moment pilot Mikhail Lipkin managed to straighten out the plane and land it on a snow-covered slope. Since then the wreckage of the plane has served as an orientation point in that chaos of glaciers and cliffs.

Looking from the base camp through a field glass, one could see tiny figures moving in a line along the crest of the range toward a promontory just below the peak. This most difficult section of the route has been dubbed "comma" by mountain climbers. So far everything was going all right. But in the Pamirs you never know what the next minute will bring.

At an altitude of 22,309 feet one of the climbers, Ratmir Volkov, was stricken

A sharp tug at the rope and some of the climbers dropped flat on their faces. A member of the party, Aram Geoletsyan of Yerevan, Armenia, had slipped through the blanket of snow into a deep crack in the ice. No casualties this time. He had dropped 60 feet to a shelf of ice from which he was pulled up by his comrades.

At this altitude every step is an effort. There is not enough oxygen; your head seems to be splitting, your throat is parched. You feel sluggish, legs are impossibly heavy. At each step you take a hasty gulp of frosty air and push your feet forward once again. And the peak looks no nearer than it did hours ago. Boris Yefimov, in this photo, had five hours of this slow torture. He is a Master of Sports and, incidentally, a scientist.

with mountain disease. He lay unconscious. Injections and heart massage did not help. There was no time to lose. Dr. Vyacheslav Romanov, in command of the group, decided to get the dying man back to the base camp fast. In such cases mountain climbers say: "You have to lose altitude," the quicker the better. It took 15 hours to carry Volkov down over cliffs and across crevices. Those who carried him paid no attention to their own fatigue and bruises. At an altitude of 16,404 feet he came to.

During the ascent of another group the weather suddenly turned bad, and the peak was shrouded in dense clouds. Nothing could be seen through the field glasses. At the base camp wet snow fell on the tents, and gusts of hurricane force tore at them.

I could imagine what was happening up there, in that hell of swirling snow where you couldn't see your comrade when he was standing next to you. "The tent, which was supposed to shelter us, was torn away by the storm," I was told later by Encho Petkov, a Bulgarian climber. "We couldn't spend the night on a bare mountain range without a tent, at a temperature of minus 25.6 degrees F. and at an altitude of almost 23,000 feet. We would have died. Our only chance was to cut ourselves a shelter in the ice. After each blow of the pick, I felt giddy. I had to catch my breath for quite a time before I could strike another. Using every ounce of energy, we cut into the ice like moles. I knew that I was fighting not only for my life but for the lives of my comrades. The cave we made was used as a shelter by the members of another group who were also in trouble."

In the morning the storm ended as unexpectedly as it had begun. Even though they were breathing heavily and were very fatigued, the climbers decided to keep going. The last few feet just under the peak were particularly bad, they reported. Every step was agony. There was not enough oxygen; their heads were splitting from sharp pain, their throats parched with thirst. They felt sluggish. Their legs were as heavy as lead. They took quick gulps of frosty air before taking each slow and painful step.

So it went for almost five hours.

Suddenly the mountain climbers saw above them a very steep slope. The man in front of the group raised his arms as if to say, "This is the peak."

On the afternoon of August 13 about 60 climbers reached Lenin Peak. There, at an altitude of more than 23,000 feet, a unique ceremony took place. The climbers installed a bust of Lenin and a memorial obelisk to commemorate the fiftieth anniversary of the Socialist Revolution. According to tradition, the flags of the countries taking part in this international climb were hoisted on the summit. Movie and still cameras were pulled out of snow suits, and cold and unbending fingers pressed the shutter release buttons. There was also a big movie camera brought by a professional cameraman who took part in the expedition. Unfortunately the cameraman himself could not reach the summit—he did not have the strength to cover the last 300 feet. One of the alpinists operated the big camera and took panoramic pictures of the snows of the mammoth Pamir Mountains and of the tired but happy people standing above the clouds.

One of the last intermediate camps on the way to the summit. Here the climbers rested before they started on the last, and most difficult, lap of the route. They called this stretch the "comma."

From the base camp through field glasses you saw tiny figures moving in a line along the crest of the range toward a promontory just below the peak. At long last the obstacle was surmounted. Suddenly there was the summit. The man in front raised his arms to announce that welcome fact. Here there was much handshaking and mutual congratulations, a short rest and then the trek down.

THREE PROBLEMS

Some Social Aspects of Scientific and Technical Progress

By EDWARD ARAB-OGLY
Doctor of Philosophy

THE SPANISH PHILOSOPHER José Ortega y Gasset made this distinction between the alternating evolutionary and revolutionary epochs into which he divided history: "During the first type of epoch, changes occur in the world; during the second type of epoch, the world itself changes."

There is no question but that twentieth-century man is going through the most revolutionary epoch of history. It is vitally important that we forecast its social effects. In previous epochs deep-seated social reforms and transformations usually took place over the life spans of several generations. Today many such reforms take place within the average life span of a single generation. In contrast with the past, the same generation will both benefit and suffer from its own inventions. For example, in urban populations afflicted by smog, there are still people around who remember the first horseless carriage.

The economic and social ramifications of the scientific and technical revolution we are living through are so wide and deep that philosophers, sociologists and economists have had to rethink accepted concepts. Accordingly, there is mounting interest in Marxism even among Western scholars. Sidney Hook calls this resurgent interest "the second coming of Marx."

Western sociologists and political economists find themselves in a quandary when trying to explain the character of the scientific and technical revolution and its social effects. The revolution, having started within an advanced capitalist society, can no longer—this is becoming increasingly obvious—be contained within the framework of capitalism. Its further evolution will make it a decisive factor in extricating society from the economic, social, ideological and political relations now dominant in the West. It is no longer possible to operate on the premise that these relations are here to stay, as bourgeois ideologists usually do.

The reason for the current interest in Marxism is not because it provides cut-and-dried recipes for analyzing the scientific and technical revolution and predicting its social effects. It goes without saying that Marx dished up no recipes. What is being re-examined is the set of methods, the principles he applied. Characteristic of Marx and his theory is a historical approach to social processes. Marx regarded each and every system of social relationships as transient. And this permits us to go beyond capitalism, to see the scientific and technical revolution as part of the process of social evolution.

The Marxist analysis of the effects of this revolution may seem paradoxical from the empirical, positivistic point of view. But it is the only true analysis. Let us take the three closely interconnected problems this revolution presents: employment, labor productivity and leisure time.

Employment

The general belief is that the scientific and technical revolution, with its associated growth of labor productivity, tends to curtail manpower demands. Is this really so?

Not quite, we learn. If we assume that, as a result of automation, growing labor productivity inevitably brings a manpower surplus, we are entitled to conclude that the reverse is also true, that the more work needed to produce a unit of product, the higher the employment rate should be. In other words, if we shifted over to more primitive implements and technologies, the demand for manpower would grow correspondingly.

But the whole of mankind's economic history demonstrates the opposite. Indeed, a hundred years ago in Britain, for instance, though labor productivity was only a fraction of what it is today, industry was in no desperate need for additional manpower. Quite the contrary, tens of thousands of jobless had to look for work across the ocean while Britain could employ only eight million people all told.

In whatever country we might choose, we would find the same thing true; the more primitive the technologies and implements of production, the less manpower is industry able to absorb. Thus empirical, presumably "cast iron logic" yields to the objective logic of history.

In a private enterprise, private property society it is impossible to end unemployment by means of technical progress alone. In the West we see numerous instances of working class and trade union action against automation and technological innovation, because they cut employment. But the social system is to blame and not the scientific and technical revolution. In the process of automation and technical reconditioning, the interests of the working class often clash with those of the big corporations. For their own selfish ends the corporations may put a brake on the structural modification of the economy and that, in turn, will retard the growth of employment or even cut employment.

That the scientific and technical revolution by itself does not create unemployment is confirmed by the practice of the socialist countries. They encourage technical progress by every means possible, and still they have full employment. Change the social pattern, abolish private ownership, create new production relations and you change the social character of the scientific and technical revolution. Scientific achievements then become, as Lenin said, the property of the entire people.

Those who think automation cuts employment forget the dynamics of an economy. They see it statically, as the mechanical sum total of operating industries and enterprises. Marx warned against such a formal approach. The very pattern of the economy depends to a decisive degree, if not entirely, on the level of labor productivity.

What would happen to the economy of a modern, highly developed industrial country were its labor productivity to drop, for the sake of argument, by half?

Common sense tells us that in this hypothetical case the economy would be able to absorb twice the manpower it did before. Two workers to every one previously employed would be needed to manufacture the same volume of goods. The outlay of labor per unit and hence the cost per unit would double. The different branches of the economy, depending on their relative importance to the country, would react differently.

In the first place, our hypothetical case would need twice the manpower to produce the required amount of food and agricultural raw

materials for industry. The costs of farm production would double, and that would have to be compensated for somewhere else. Whatever we did, eventually the demand for other commodities would fall off to that same degree. Moreover, the cost of these other commodities would double.

As the upshot of all this, the production of other commodities would either be curtailed or, even more then that, stopped altogether for lack of a mass paying demand. Whole industries would go out of business.

Ultimately a reduction in labor productivity would not increase but decrease employment: it would cause mass unemployment. The more advanced industries, like electronics and jet aircraft, could not keep going. The economy would retrogress.

Early in the last century, the ideologists of the petty bourgeoisie, a class the industrial revolution had shunted into a backwater, predicted that the machine would push man out of production. Political economist Jean Charles Leonard de Sismondi observed that, as the logical outcome of this process, one could expect that the British king would some day find himself ruling machines instead of men.

Marx battered down these views, and history has shown him right. The machine accounts for the fact that there are three times as many people employed in Britain today as in Sismondi's time.

To sum up, automation will create mass unemployment only if the structural pattern of the economy never changes. And that, of course, is out of the question.

Labor Productivity

What generates that constantly growing labor productivity of industry which we see as part of the scientific and technical revolution? Science, which itself becomes a productive force, education and administration. For convenience' sake, call these spheres of activity the tertiary fields, to distinguish them from the secondary fields (industry), and from the primary fields (agriculture).

Marx foresaw that science and knowledge would develop into a direct, productive force. He spoke time and again, from his early writings to *Capital,* of the paramount importance of science for economic progress and of the future development of science.

Today this is commonly accepted. Society is headed for a state of affairs in which material wealth and the cumulative labor productivity will depend on the level of science.

Many Western sociologists and economists associate the scientific and technical revolution and growing labor productivity primarily, if not exclusively, with changed techniques and technologies, with the introduction of new machinery. As they see it, machinery, especially computers and cybernetic devices, tend to obscure the human being, to crowd him out of production, to relegate him to the background and to force him to surrender his productive functions.

But the reason the scientific and technical revolution has multiplied labor productivity so many times over is the human being. Marx held that whatever the social system, the human being would always be the main productive force no matter how his functions changed in the system of production. Moreover, as science develops, the role of the human being, far from diminishing, takes on immeasurably greater stature; the human being is the carrier of the living knowledge society has accumulated, that active component of labor which animates the knowledge materialized in the machine.

According to Marx the machine, however perfect, is never anything but the materialized sum total of human knowledge. Hence, any analysis of the scientific and technical revolution and its effects that discounts the human being is unscientific and futile.

Leisure

Now for the third problem, leisure or free time, which Marxists also view differently than bourgeois sociologists.

Before the scientific and technical revolution, society was not concerned with what the working man did with his free time. The situation is different now. Certain aspects of leisure are of great interest to the capitalist businessmen, let alone the capitalist sociologist and economist. However, the attitude they take to free time is lopsided, a "consumer" attitude. The sociologist, for instance, sees the problem only in relation to what is called "the civilization of leisure." In other words, he wonders how to fill people's time, so that they do not turn to "anti-social" activity. And the businessman is interested in free time, as a rule, only as a possible market for goods and services devised for entertainment. Thus, both approach the problem from the angle of nonproductive forms of human activity.

According to Marx, though, free time will be largely devoted to that varied human activity which generates greater labor productivity in industry.

The point is this. The machine, as one aspect of the productive forces, is produced and reproduced directly in industry, that is to say, during working hours; the other aspect, and more important one, the man, who has the knowledge, is "produced" primarily during free time. In conditions of the scientific and technical revolution, an industry which gets nothing from its workers' free time would eke out a marginal existence; its workers would be substandard producers.

In the perspective of the scientific and technical revolution, the time a human being spends directly on his job and his leisure time spent to develop himself change places, as it were, in terms of importance to society. In the future, Marx observed, free time and not working time will be the yardstick for the wealth of society. Taking issue with the utopian views of Charles Fourier, Marx contended that work would never become a game, and that free time would never be reduced merely to recreation and entertainment.

Less working time, Marx observed, means more free time, the time the individual uses for his own development, which, in turn, develops into the greatest of productive forces.

However, we must realize that these tempting prospects held out for personality development by the scientific and technical revolution lie beyond the limitations of capitalism. There are, of course, wealthy philanthropists who donate money for cultural or scientific centers which bring together tens of thousands of people. But if we are to be concerned with the comprehensive and harmonious development of hundreds of millions, it is obvious that this stupendous job can only be done by that new society which has proclaimed "the development of the individual as the aim of history," as Marx put it, and which can mobilize all its resources to that end.

The Ideal

Some bourgeois sociologists and economists take ancient Greece, with machine in the place of slave, as their ideal of a future society. But, as we have seen, this ideal excludes the human being from production, a concept which is fundamentally wrong.

We have a totally different ideal. We hold that the scientific and technical revolution can never result and will never result in transforming all of society into a leisure aristocratic class of the ancient or capitalistic type. That is a pipe dream. A society without workers engaged in productive labor is out of the question. The worker cannot be excluded from the production process, even if we have the most perfect system of machines. All we can hope to achieve is to make the worker a free associated producer.

This is how we see society evolving, not along capitalist lines, but toward socialism and communism. In this genuinely new society, material abundance for all will go hand in hand with full spiritual freedom for all.

How soon humanity will make the transition to this freedom can, of course, be argued. But it is obvious enough that the scientific and technical revolution, which makes both material abundance and spiritual development a reality, accelerates the transition.

THE BITER BIT

A mommy field mouse went out for a stroll with her family.

She held the youngest mouse by the paw. The eldest picked flowers, and the middle one rolled a hoop.

Suddenly they saw a huge snake hanging from a tree. Its eyes glittered, and its mouth was wide open. It would surely swallow one of them up!

The snake had no use for the little mice—they were too small. Since it was a big snake, it wanted to eat the biggest one. And so it aimed at Mommy Mouse.

She decided to play a trick on it, so she began running around the tree, with the snake chasing after her.

Finally the snake pushed its head in the wrong hole and tied itself in a knot. Mommy Mouse now ran up closer. The snake pulled harder to catch her, and tied itself in an even tighter knot.

By now Mommy Mouse saw that she was safe and called her children. Baby mouse had the courage to say:

"It's the one that bites that gets caught!"

THE ANT AND THE DONKEY

One day the donkey met an ant up in the mountains.

"Hullo, ant!" he said. "What are you doing up here?"

"Oh, the grass in the valley is too tall for me," said the ant. "I can hardly move through it!"

"That's fine for me!" thought the donkey, and he scampered down to the valley, but the grass wasn't high at all.

He trotted back indignantly to the ant. "What did you send me down there for?" he asked. "You said the grass was tall."

"Well, so it is," said the ant. "It's even taller than I am!"

JUMBO'S TEA PARTY

Jumbo the elephant had been roaming the forest all day and was feeling rather tired.

"I could do with a cup of tea," he said to himself. So he collected some firewood, made a fire, filled his kettle, and waited for it to boil.

As he sat on a tree stump, along came a hare. "What are you doing, Jumbo?" he asked.

"Making tea," said Jumbo. "Sit down and join me."

The two of them sat waiting for the kettle to boil, and as they waited, a squirrel came scampering down a tree to see what was happening. He was invited to sit down and wait, too.

Soon the party had grown to five, for a bear cub and a hedgehog came as well.

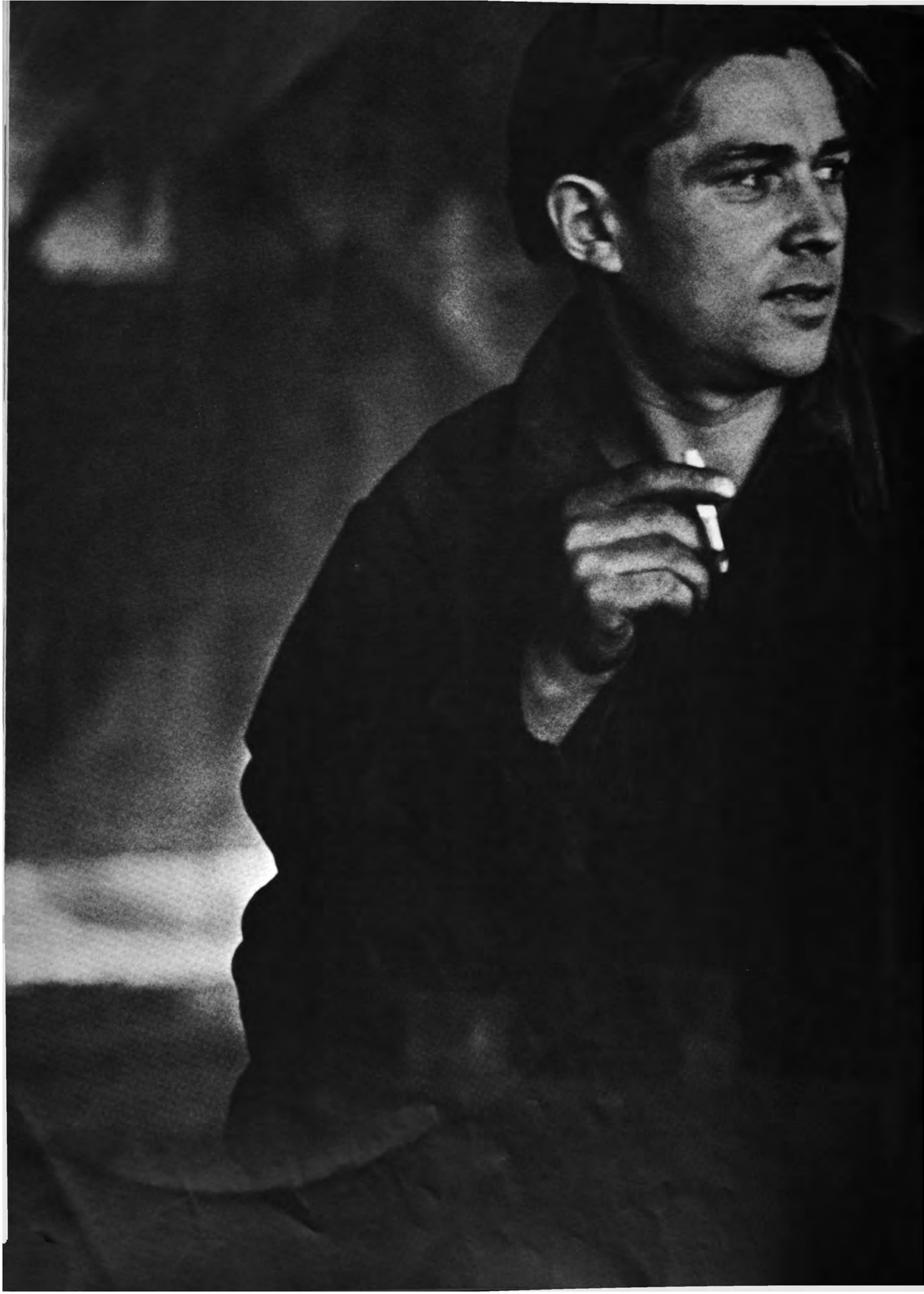
Suddenly the little hedgehog noticed: "Jumbo has only one cup!"

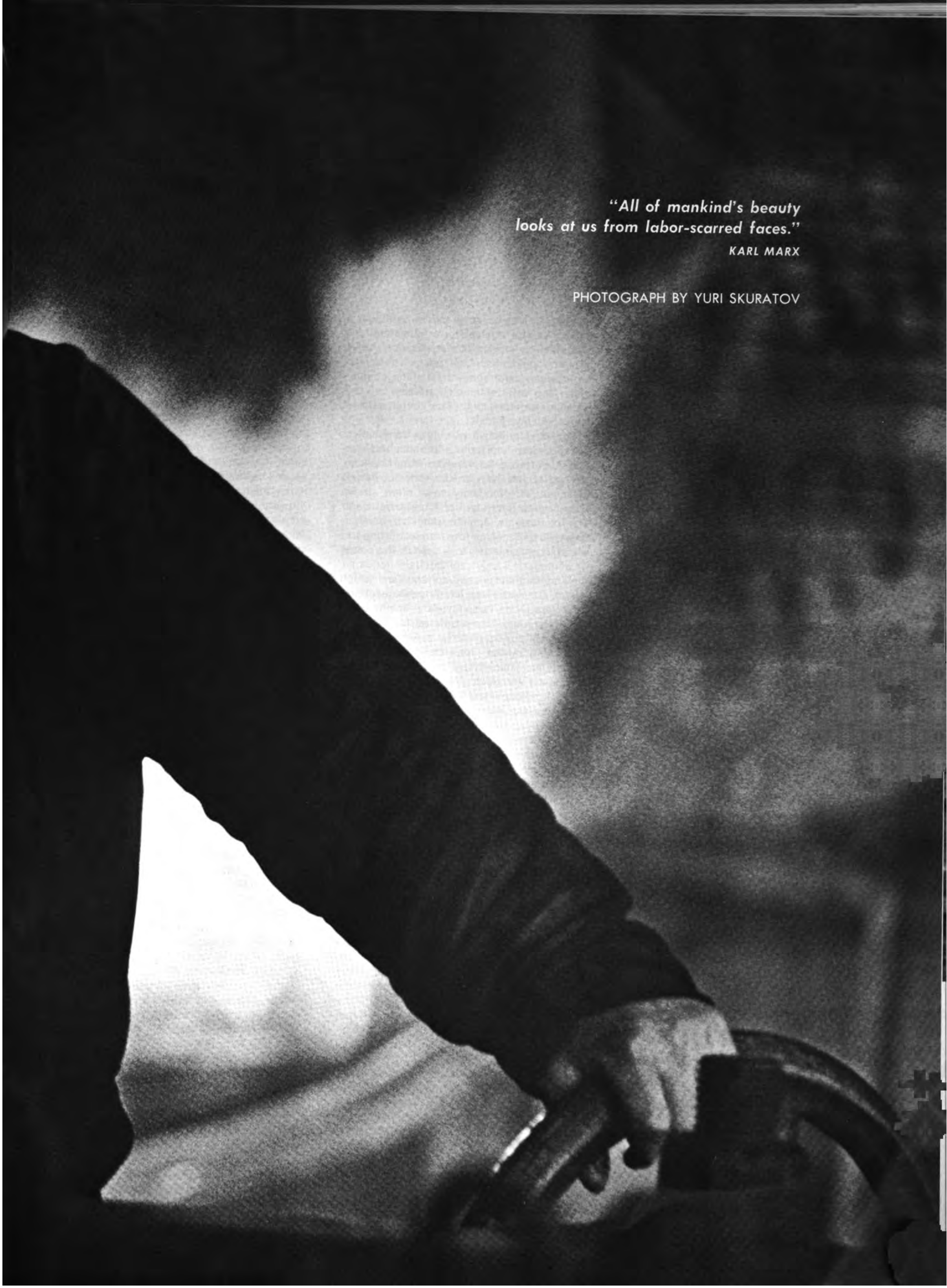
The others began to hunt for cups, but in vain. Tidy picnickers don't leave cups lying around.

"Never mind," said Jumbo. "Where there's a will there's a way." And he picked up four bits of timber the woodcutters had left, and gouged out the pith with his tusks.

Soon he had four fine wooden mugs.

"What a lovely party," said the guests as they sipped their tea, "and all thanks to clever Jumbo!"





"All of mankind's beauty looks at us from labor-scarred faces."

KARL MARX

PHOTOGRAPH BY YURI SKURATOV

YOUR QUESTIONS ON COMMUNISM

(Continued from page 39)

he had the living practice of the Russian liberation movement to draw on when the Soviets became the representative bodies of the workers and peasants.

WHEN AND HOW WILL THE STATE WITHER AWAY IN THE USSR?

Since the time of Plato theories have been advanced attempting to explain the political phenomenon of the state. Most of these theories assume that the state is an inherent characteristic of a developed human society. Hence, the conclusion that it is "eternal." This is the point of view prevalent in present-day Western sociology.

Marxism has a different conception of the state. It sees it (political institutions in general) as a transitional phenomenon, the product of definite social conditions. There was a time when there was no state, and at some future stage of historical development it will no longer be necessary and will cease to exist.

Science has gathered enough evidence to show that primitive societies had no knowledge of political power. There was no special group of people whose function it was to administer the affairs of society. Society and its institutions (the army, police, a administration apparatus, etc.) appeared only where and when society began to divide into unequal classes. The state appeared as an instrument by means of which the economically dominant groups kept themselves in power and kept the majority, those on the lower range of the social ladder, subservient.

A classic example is ancient Athens. History textbooks still talk admiringly of Athenian democracy but "forget" at times that the Athenian city-state was a democracy only for its free citizens, for slave owners. For the slaves, and there were many more of those than free citizens, the state was a dictatorship of the ruling minority. That is true of any state in a society where classes have opposing interests.

The progress of civilization, which, as Hegel pointed out, is progress toward freedom, affects all aspects of society. The slave becomes transformed into a serf, and a serf into a wage worker. The class makeup of the state, its functions and methods of administration, change accordingly. Despite these changes the state—and this includes the most democratic state—remains a political implement in the hands of the

(Continued on page 58)

"IGNORANCE NEVER

MARXISM HAS a precious tradition of struggle against false interpretations, including every kind of vulgarization. "Drill-ground communism" is one of the most widespread distortions of scientific communism. The anti-Communists ascribe to communism attributes that Marx fought against irreconcilably.

Scientific criticism of vulgar communism attracts more and more adherents to Marxism. Even those far removed from Marxism, distrustful and even hostile to it but having a sense of objectivity, are often drawn closer when they learn of the Marxist tradition of struggle against primitive communism. Hostility yields to surprise, surprise to interest, and interest to a search for points of contact.

What is that pseudo communism which Karl Marx and Friedrich Engels described as "crude," "primitive," "instinctive," "equalitarian," "unconsidered," "ascetic," and "drill-ground"? It is a world outlook dominated by the "idea of a certain minimum," "a definite and limited measure." This leads the ideologist to impose his own narrow philosophical outlook on the world as universal law and to assume that the low ceiling of his personal concepts is the sky above. Then he attaches the most brilliant suns to this sky, and has his own gods ascend, since the ascent is neither steep nor distant.

The Aim and the Means

A negation of the value of the individual—this is the alpha and omega of the ideology of primitive communism. This is its credo, its end and its means, its ideal and the road to that ideal.

In this pseudo scientific concept there is, in essence, no contradiction between goal and means. On the contrary, they correspond completely, since primitive and restricted goals call for the use of primitive means. A goal which calls for false means is not a true goal. The Jesuit motto of the end justifying the means conceals the fact that, in actuality, the means also determine the goal, uncover it and unmask its really negative essence.

The negation of the individual, so characteristic of pseudo communist theory, encourages equalitarianism and militant ignorance. Its adherents preach hostility for knowledge and interpret the democratic demand for equality as a leveling down of all. As they understand it, communism is a kind of secular religion which must replace religion as such. The truth, as they interpret it, is present only in a command which calls for blind acceptance and obedience. Democracy is the organization of vociferous approval of these commands.

Marx gave an exhaustive social and psychological characterization of the leaders of pseudo communism. They can neither develop their own individuality nor understand the value of its development for others. Their ignorance of the conditions necessary for social change and the difficulties entailed, as well as the narrowness of their own ideas, make them impatient. The acceleration in the rate of social change they anticipate is purely subjective; it has no basis in fact. They have illusions of an immediate conversion of the old relationships into new ones through a kind of somersault. What emerges is a shortsighted policy of great leaps, cultural revolutions and various blows, which, in fact, hold up and sometimes even throw back the cause of socialist construction.

All this is evident. We need not labor to prove that pseudo communism has nothing in common with scientific communism. What is essential is a scientific clarification of its origins and a scientific definition of the methods of struggle against it. Marxist criticism ought not to moralize, but that, of course, does not preclude a moral appraisal in a scientific analysis of social phenomena. On the contrary, it is the objective and strictly scientific nature of Marxist criticism which makes such an appraisal precise and irrefutable.

It is not enough to say that primitive communism negates the value of the individual. That negation itself has to be scientifically explained. It was not fortuitous that, when enumerating the basic characteristics of pseudo communism of this kind, Marx concluded with these words: "That such abolition of private ownership does not in any way mean its genuine absorption is to be seen in an abstract denial of the entire world of culture and civilization, in a return to the unnatural simplicity of a poor man who has no needs and who, far from rising above the level of private property, has not even risen to that level."

Causes

What, basically speaking, makes for an ideology of "crude communism"? The social and economic backwardness of a given society or country and a corresponding backwardness in the political consciousness of large sections of the masses; the absence or the numerical weakness of an industrial proletariat; undeveloped democratic institu-

"HELPED ANYBODY"

A symposium dedicated to the memory of Antonio Gramsci (1891-1937), the Italian Marxist, was held in Moscow recently. Considered were theoretical and practical problems of contemporary Marxism. The following is a speech, abridged, by Yuri Karyakin, Master of Science (Philosophy).

tions; the numerical dominance of the petty bourgeoisie and, finally, isolation from the rest of the world. These are the general objective preconditions necessary for the emergence and spread of the ideas of "crude communism."

The narrow outlook merely indicates a narrow social existence. The meanness of actual life is covered up by a social consciousness which is no less wretched. A false world engenders a tendency toward the restoration of a false world outlook, which itself is nothing more than the consciousness of self and contemplation of inner thoughts by a man who, before he has found himself, has lost himself again. This world outlook can give only an illusory happiness, not real happiness. It can only convert a real hell into an imaginery paradise; that is to say, it merely calls hell paradise. This trend will find expression in a rigidly religious type of phraseology and create a variety of inquisitorial apparatus designed to preserve the purity of this phraseology.

The characteristics of "crude communism," as enumerated above, are simply part of the "birthmarks" of the old society that Marx spoke of in referring to the difficulties of the transitional period from capitalism to socialism—the economic, political, moral and intellectual difficulties which are overcome in the course of socialist revolution.

The dominance or even the temporary manifestation of these characteristics is not something that is predetermined. But their appearance in one form or another, on one scale or another, during a certain transitional period and under specific conditions, is inevitable. The determination of this fact and, more important, of the ways to eliminate these characteristics is one of the most important discoveries of Marxism-Leninism.

The Stand Marx Took

Marx fought a continual battle against pseudo communism. Here are two skirmishes in that life-long battle.

In March 1846 Marx broke with the German theorist Wilhelm Weitling who preached an equalitarian communism. In his polemic with Weitling Marx said: "To appeal to the working man without a strictly scientific idea and a positive doctrine is equivalent to an empty and dishonest pretense at preaching, in which, on the one hand, an inspired prophet is called for, and, on the other, only asses, who listen to him with gaping mouths."

Weitling could find nothing better than to call scientific communism an "armchair theory," to which Marx wrathfully retorted, "Ignorance never helped anybody."

During the sixties and the seventies of the last century, when Marxism had penetrated into the working class movement, the Russian anarchists Mikhail Bakunin and Sergei Nechayev were busy spreading their own pitiful ideas. Criticizing Bakunin's just published *Main Foundations of the Future Social System* which lauded "crude communism," Marx wrote in 1873: "What an excellent model of drill-ground communism, under which citizens must produce more and more for society and consume less and less, and where a rigid regulation of all personal relationships rules."

Since Marx's time there has been a continuous expansion of the liberation movement of the working class and all working people. Ever new segments, often politically undeveloped, of working people and petty bourgeoisie, headed by immature leaders, join the movement. Marx and Lenin warned that the answer is not to blame the underdeveloped masses for one's political shortsightedness, but for the ideologists and the politicians of the liberation movements to give the masses a correct understanding of communism. The masses have to be elevated to scientific knowledge, to a clear realization of their fundamental interests. One must not descend to the level of the prejudices harbored by undeveloped sections of people. The "unconsidered communism" of the masses entering the struggle must become more considered; "instinctive communism" must be transformed into conscious communism; the idea of a certain minimum must be developed into the concept of a maximum of material and spiritual production, that maximum without which there can be no genuine communism.

The awareness by the socialist revolution of its "own content" (*Marx*), that is to say, the realization of its content by those who carry out the revolutions—both the masses and their leaders, the working class and its party in the first place—this is not a single passing action but a lengthy and complex process, which takes place in people's minds parallel with the change they make in their social existence as a result of mass revolutionary practice.

For genuine Communists to be successful in the struggle against "unconsidered communism," they must understand that there are objective reasons for working people to be attracted to elements of simplified communism. They are not drawn out of thin air. Taken by themselves, these elements represent a justified protest, even if limited and often primitive, of the masses against inequity and social injustice. Also, these elements are a necessary and important transition stage without which the lowest strata of society can never set themselves in motion.

However, the acknowledgment of these objective roots of a pseudo communist consciousness is no reason to justify them. On the contrary, these objective roots should induce genuine Communists to fight even more vigorously against primitive views. There is always the danger that such views may lead to conclusions and to actions which are diametrically opposed to the aspirations of the masses.

History's Aim

Socialist democracy is the only guarantee against the tendency toward primitive communism. Referring to the pseudo communists of the seventies, Marx wrote: "Against all intrigues there is only one means which, however, possesses crushing force. That means is absolute publicity." Lenin also called for "more confidence in the independent judgment of the entire mass of Party workers."

The Communist Manifesto gives the following definition of communism: ". . . an association, in which the free development of each is the condition for the free development of all." In *Capital* Marx showed that the all-round development of each individual is the aim of history.

The free development of every man as a condition for the free development of all—this principle has fundamental bearing on everything that links people together. Economics, politics, culture, morality—all links are summed up in that principle. Political economy is linked to ethics, politics to philosophy, law to psychology and pedagogy, and art to science. Today this principle already calls for fuller and more comprehensive application—in the relations between the citizens of a socialist society as a whole, within its various collectives and especially among Communists, between the Communist Parties and the socialist peoples—in a word, everywhere. The measure to which this principle is realized is the measure of scientific communism in practice, the measure to which all the arguments advanced by its opponents and all the prejudices against it are refuted; the measure and confirmation of all the hopes it inspires.

THOUSAND ARTISTS EXHIBIT

The giant Fiftieth Anniversary show at the Moscow Central Exhibition Galleries (still best known by its old name, the Manège) has many strong points, not the least of which is the sheer physical force of so much concentrated artistic effort. But perhaps the most beguiling work is to be found in the section devoted to contemporary art in the various national republics, especially those of the Caucasus and the Baltic.

More than one thousand painters, sculptors and graphic artists from all fifteen Soviet republics are exhibited. New works by such long-recognized masters as Martiros Saryan, Pavel Korin, Alexander Deineka, hang side by side with those of the younger talents. This housing of so many different approaches to art under one roof also makes it possible to judge the jury, so to speak. For once, space is not at a premium, and many groups poorly represented previously are out in force this time. If anything, the show is really too large, at least for one visit, particularly a rapid one.

Differences in styles, and perhaps even more, the changes that a school or a single painter goes through are of course what makes such comprehensive exhibitions, especially a series of them, exciting.

The roots of national identity in Soviet art appear in widely different epochs. The range is from ancient times, when the culture of such nations as Georgia and Armenia began, to the medieval art of Russia, the Ukraine, the Baltic peoples, and the chronologically parallel history of the Uzbek and other Asian cultures, to a mere 50 years ago or less when such peoples as the Turkmens and Kirghiz first began to paint pictures. Some have by now developed a full-blown national art; others are feeling about, seeking "their" style and have not yet taken a definite stand or particular direction.

These developments and changes are evident in the work of all the republics exhibiting at the show, but new tendencies are perhaps more insistent in sculpture than in the other arts. Some styles of sculpture, popular a few seasons back, are on the wane. I am thinking of the conventionalized figures, sometimes elongated, sometimes exaggeratedly chunky, that often seemed to convey mere theatrical gesture rather than the deeply felt but tersely stated emotion of our day. The personality that was lacking in that sort of work is now coming through, perhaps not very strongly as yet, but with humor, even whimsey. Material—wood, fireclay, metal, welded or cast, as well as the more usual stone and bronze—is coming into its own, much of the work having gained in expressiveness from the groping in a new medium. The older sculptors, Sergei Konenkov, Yekaterina Belashova and others are not doing this new exploration but show works that testify impressively to the development of their individual styles.

Apsheron Women *by Tair Salakhov, Azerbaijan.*

Many new and unfamiliar names are cropping up in painting and graphics. I don't know whether the younger generation has a monopoly on poetic feeling, though this is very much in evidence, or whether it is their restless wandering in search of a deeper expression through differences in form but here at this show they have a decided edge on originality of form. However, a few of the masters we have seen every year over the years have a more solid impact, without the gimmicks of youth.

Take the freshness and grace of Boris Domashnikov, a Siberian painter of the middle generation, whose rather conventional, realistic style is so completely illuminated from the inside as not to need much in the way of external adornment. His is a landscape style of great warmth, and a canvas of his in a group show will almost invariably command the wall on which it hangs. As a colorist, some find him quite the equal of the more flamboyant Martiros Saryan, the "grand old man" of Armenian painting. There are, of course, a great many other attractive paintings in the Russian section, but I wanted this time to deal particularly with the art of the other nations, which has literally blossomed out of late.

Again it is a matter of change. Those artists who once stressed the traditional, even archaic folk quality of a woodcut—I have in mind a number of Estonian and Lithuanian print makers—have developed a very distinctive style of their own, separate from any other group and not at all "folksy." Yet while it is entirely present day in content and form, this is not the "modern" art of a few years back, with its cold and elongated symbolic figures that seemed de rigueur at the time for artists having a "contemporary" style.

V. Tolli, an Estonian engraver who has appeared in a number of international shows abroad and is known for the very individual quality of her child studies, is represented by a haunting series of lake landscapes.

Moldavia, which established a distinct cultural identity some years ago, has produced a group of painters whose broad, flat, deceptively matter-of-fact manner is more often monumental than not. The lushness of the landscapes, with their light green rolling hills, contributes to the lighthearted gaiety of a good many of the works. A dancing rhythm and a love for color do the rest. Wood and copper, separately and combined, are the materials for reliefs and rather flatly sculptured small figures. These are not always human, or even animate; I shall remember **Alma Mater,** a sort of branching tree-of-life design in a red wood that is as graciously friendly as it is decorative.

The Azerbaijan section, with at least three strong painters like Tair Salakhov, Mikhail Abdullayev and Tugul Narimanbekov, has come a long way from the primitives of the 30s. But it still retains some of that flavor mixed with a modern feeling for motion.

The group of engravers and painters from Kazakhstan are no longer so self-consciously "oriental" in style, but have gained a new mystery, a smoldering quality that is very attractive. The drawings of Yevgeni Sidorkin are more emotional than previously, which is welcome, but then they have always been a pleasure.

And now, saving the best for the last, you have only to walk into the area devoted to Georgian and Armenian art to feel a glow of excitement and satisfaction. A flock of human urges and emotions—curiosity, playfulness, passion and compassion—envelops you and does not let you go until you reach the exit, after which they inhabit the mind's eye for a long time. The subjects of the painting and sculpture range from grape harvests to famous scientists to fairy tales, to the Revolution and the emancipation of women. What remains with you is the memory of works filled with vitality fluid motion, sunshine, gaiety and generosity.

PHOTO SHOW: 1917-1967

Another big show dedicated to the Fiftieth Anniversary of the October Revolution celebrations closed recently in Moscow to go on tour. The Photographers Exhibition is in three parts and takes in the whole 50 years of the Soviet state. The first section is devoted to national heroes, leaders of men and of the times. The quality of the photography is so fine that you are almost physically confronted by the subjects. This series ends with the entire "family" of Soviet cosmonauts.

If Section One tells the history of the times from the vantage point of today, Section Two is history itself. Taken from the news archives of TASS, **Pravda** and other sources, the immediacy of the photographs, many of them 40 to 50 years old, is striking. Here is the mighty storm that was the Revolution, the Civil War that followed, and the whole vast legacy the czars left behind—hunger, want and desolation, all in human form.

Ragged, homeless children roamed the streets and the country in gangs, presenting a tragic problem that was not easily solved. We see them the way they looked. And men leaving for the front, wives and mothers weeping in farewell.

Peasants armed with rifles to defend their fields, after the war was over . . . Famine relief in the areas worst hit . . . Street meetings of workers . . . **Subbotniks**—volunteer work sessions . . . Soldiers, 1918 (no uniforms, ragged caps, bast shoes) . . . A line of happy Red Cavalry men on horseback after a victory (circa 1920) . . . And so on, through the events of the 1920s and 1930s, into World War II. There are almost no nazi atrocities pictures, the tone is highly restrained—and viewers go out weeping.

The third section is no longer strictly chronological, nor is it, like the first two, entirely documentary. We have here a cross section of contemporary life: work, play, love, beauty, danger, achievement. This part of the show, while lively and interesting as a whole, does not generate the same terrific tension. Some photographs have obviously been done with a view to external effect; others are the products of a playful camera, with a consequent scattering of attention.

RUSSIANS TAKE SHAKESPEARE NEAT

The Royal Shakespeare Theatre's visit to Moscow and Leningrad was, as before, sold out in advance. The two plays presented by Paul Scofield were **Macbeth,** in which he played the lead, and **All's Well That Ends Well.** Mr. Scofield is well known to Soviet audiences from his

The Topmost Station *by Anatoli Poliakov.*

appearances as Hamlet (1956), Lear (1964) and Thomas More in the film **A Man for All Seasons** for which he won the "best actor" award at last year's Moscow Film Festival.

The proportion of people in the audience understanding English and Shakespeare oriented must have been high, for many made no use of the competent earphone translation.

IT'S HARD TO TELL THE TRUTH

Your Contemporary is a film about a man of our times. Produced by Mosfilm Studios, it is directed by Yuli Raizman (awarded the Lenin Prize last year), screenplay by Yuli Raizman and Yevgeni Gabrilovich.

The story (previewed earlier in this column under the title **A Time of Trouble and Hope**) concerns the motives of a man who tries to change the course of events which he himself initiated because he is sure that course is no longer the right one. His decision is so difficult that only one other man, and even he gives up in the end, understands it. So the two of them arrive in Moscow with the object of stopping construction work on a giant chemical plant in Siberia, and face the prospect of losing their jobs in the process. After many fruitless days spent calling on one organization after another, trying to explain what seems so obvious, they realize that to fight the opposition is more than foolhardy—too much is involved on a national scale. And still the hero, alone at the end of the film, continues the fight.

The play, the acting, casting, direction and camera work all blend with apparent simplicity, but anyone present on the set at the time of filming would have seen a different picture. This is the kind of art that doesn't show on the surface. There is no fancy camera work, no tricks of timing or character, or rather, none that can be detected. Actually, the camera is pretty crafty, without descending to "lying," as Raizman disdainfully calls a cinematic insult to the intelligence. The degree of rapport between him and his cameraman Nahum Ardashnikov is amazing, half a word, as the Russians say, often sufficing to convey meaning to either one. As to timing, two of the key sequences in the film, at least to those not up on Einstein's theory, seem parallel in time, and in any case, completely natural. In reality, one sequence, showing the endless official visits of the hero and his assistant, is spread over many days, while the other is a few minutes of intense conversation between two youngsters in love.

Igor Vladimirov in the film Your Contemporary.

Raizman's work with the actors is frequently inspired and always tactful, no mean achievement, for his own acting ability is considerable. One little twist observed by some who are familiar with his methods is that whenever there seems to be undue concern over some minute difficulty—and he can fuss like an old woman over a wrinkle in somebody's shirt—this is the time to expect a sudden announcement: He has thought up a major new "wrinkle" of plot or interpretation!

And finally, the casting. As one of the most important of preliminaries, it occupies a key place in any director's mind. And Raizman once again does the unexpected. Most of the actors in this far from low budget film are either practically unknown or nonprofessionals. Incidentally, the American reporters in the final press conference scene are played by bona fide American newsmen in Moscow on assignment for their respective papers and magazines.

POPS AND DOWNS WITH GHIULI

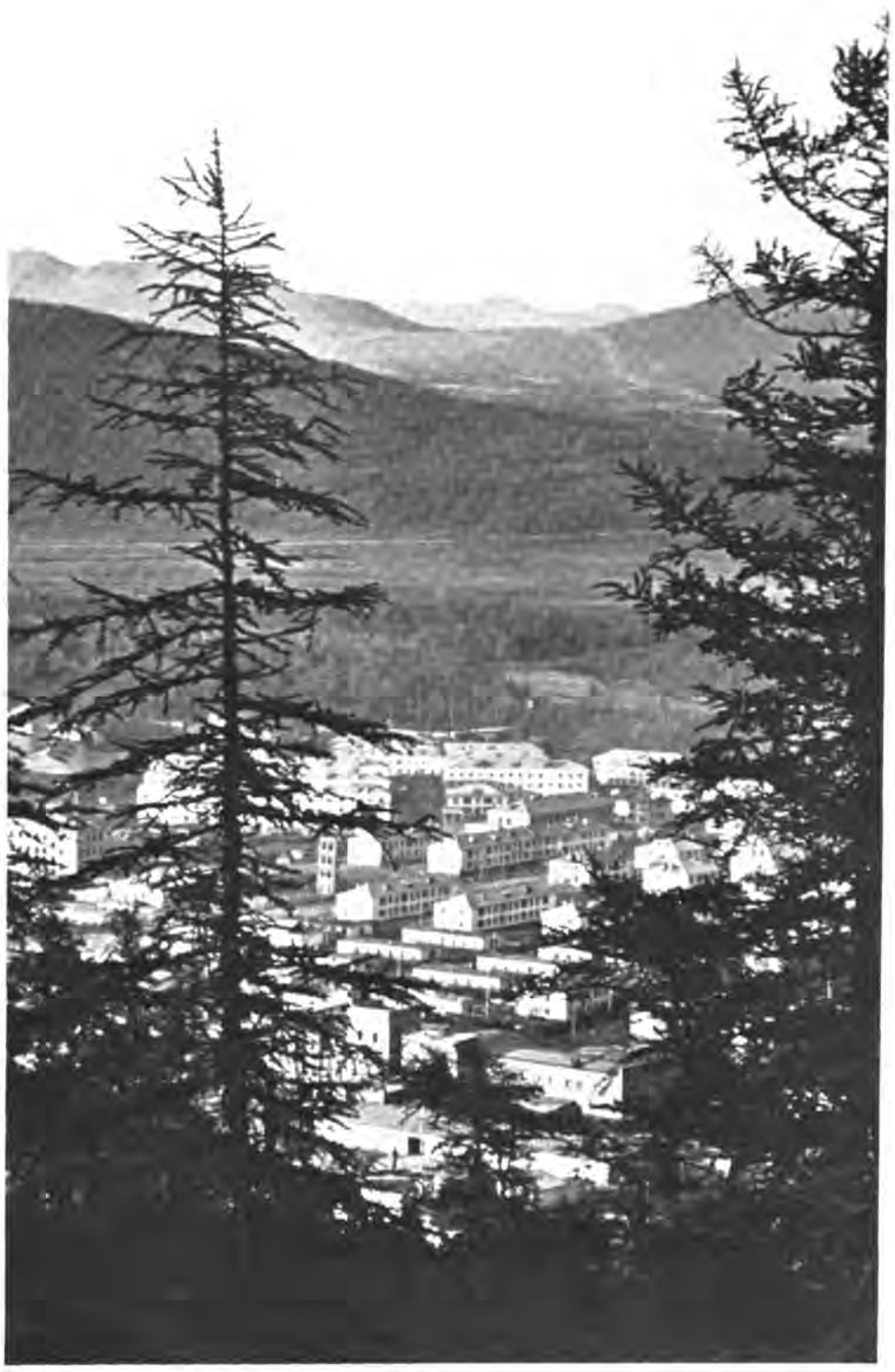
On the lighter side is Ghiuli Chokheli—pop singer with a difference. Tbilisi (Georgia) born and bred, this girl who has 'em wowed is small and dark, with brown eyes that can carry any message she wants them to—impassioned, compelling, or as soft and feminine as all get out. But intense or relaxed, this little bundle packs a punch.

She did not start out to be more sophisticated than most of her singing contemporaries. Back in her teens, she was just another starry-eyed youngster taking piano at the music school of the Tbilisi Conservatory (and sneaking in some coloratura practice when she thought no one was listening). Well, she found she could play pretty well, but that voice of hers simply floored them. Deeper, smoother and more flexible than when she used to be afraid someone might hear her, it became her instrument much more than the piano had ever been. At least that's the way her friends tell it. Actually, it's been a long series of ups and downs, Ghiuli singing with one combo after another, a couple of bigger bands thrown in too, giving her all at every performance, but taking all she could musically, as well. By the time she met pianist and composer Boris Rychkov, she had nearly everything—except fame. With Rychkov's help and cooperation (still generously available) Ghiuli became one of the most individual singers in the country, and the rest was easy—if one was not afraid of work.

Ghiuli has a torch style of her own. She has the ability to put across the broadest of emotions, without vulgarity. She has introduced her audiences to a number of Caucasian composers and the public has taken to them. She likes drama in singing, but can be tender, and even play the flirt. Competing in the Seventh International Song Festival at Sopot, Poland, she sang a slow and sentimental Polish tune called "S O S" and won first prize. Yet her most persistent fans say she is a jazz singer pre-eminently. Why? Those who know her slightly find her very sure of herself, many of her judgments harsh rather than considered. Those who know her well admit she is not easy to get along with, but find her temperament a joy as well as a trial. And perhaps that temperament, difficult at home but essential onstage, is the best answer to the question "What is good jazz?" for imagination and a sense of rhythm still need a backing of passion to become good jazz.

Pop singer Ghiuli Chokheli.

ATOM GOES NORTH



The settlement Bilibino and the excavation for the atomic power plant are in a valley protected from the winds by the mountains. As distinguished from other settlements on Chukotka, Bilibino is situated in woodlands, which are rare in the tundra. This is a great advantage indeed.

THE CONSTRUCTION of a 48,000-kilowatt atomic power station was launched in the spring of 1966 on Chukotka, the peninsula which forms the extreme northeast portion of Siberia. This particular station—one of the two atomic stations to be built beyond the Arctic circle—will be situated in Bilibino. It has been found expedient to locate atomic stations there, because these places are poor in conventional fuels and the cost of transporting them is prohibitive. The Chukchi Peninsula has no explored coal or oil reserves of its own. Besides, it is connected with the heart of the country only by sea and air transport. The station in Bilibino is interesting not only because of the power it will supply, but also because of the experience it will provide in constructing such projects in the Arctic.

Like Alaska, the severe and virtually inaccessible Chukotka is rich in valuable natural resources, such as gold, tin and mercury, and mineral extraction is one of the main industries here. Since this requires a good power supply, the demand for fuel in the Chukchi Region is high. It is delivered to the ports of the Chukchi and Bering seas via the Arctic sea route. From there it is brought by truck to the mines. The motor transport service works round the clock, but poor roads and arctic weather frequently cause stoppages. Then the fuel has to be shipped in transport planes. But you can imagine that when this happens, each ton of coal or oil costs practically its weight in gold. Hopefully the atomic power station in Bilibino will help remedy the peninsula's fuel famine. Besides, under these conditions the cost of electric power generated by atomic stations is competitive with that of conventional stations.

The Bilibino station is scheduled to start working in 1970. To get to the bedrock, the builders are digging a 60-foot pit in the permafrost ground.

PHOTOGRAPHS BY
VLADIMIR VOLODKIN

Water is a perpetual problem. In the summer it plagues the construction men and drivers. In the winter it is always in short supply because the lakes and rivers in the tundra freeze down to the bottom. That is why the units of the Bilibino station will be air-cooled, not water-cooled. All the units will be installed under one roof, a boon for operating personnel in a zone where the heating season lasts for 270 days.

RESEARCHING THE FUTURE

Speculation on the future of human society is as old as the history of ideas. Until modern times the premises were either religious or utopian. Some of the guesses were brilliant, notably the utopias of Thomas More, Tommaso Campanella, Claude Henri Saint-Simon, Charles Francois Fourier. But strictly scientific forecasting of social development began only 120 years ago with the work of Karl Marx and Friedrich Engels. They created a new philosophical concept—dialectical and historical materialism.

It is pointless, Marx wrote, to construct an ideal pattern of a future society—the usual practice of the utopians—without a primary consideration of the relations of production. These relations determine the way people live, their thinking, their culture, their very idea of what constitutes an ideal society. Since the nature of a society changes as its productive forces develop, it was pointless to set down rules by which future generations should live. What was needed was to analyze the development of historical phenomena—of productive forces and, particularly, of the relations of production. What had to be done was to determine the laws of history, to trace the trends of development from past to present, to lay bare the provisional nature of social processes.

Now that socialism has become a reality in many countries, social forecasting is an essential element of national planning. An outstanding example is the Program of the Communist Party of the Soviet Union, a blueprint for the construction of communist society.

Scores of research groups specializing in various aspects of social forecasting have been set up in recent years in the Soviet Union. The USSR Academy of Sciences has sections for social and economic forecasting and so has the Soviet Sociological Association.

Last year, on the fiftieth anniversary of Soviet power, an international conference was held in Moscow to discuss the influence of Marxist ideas on the modern world. Among other topics, social, scientific and technical forecasting was touched upon. *Nedelya*, a weekly newspaper, published an interview with three conference participants, specialists in social forecasting—Fritz Baade (Federal Republic of Germany), author of *Competition by the Year 2000* and director of the Kiel Institute of the Economy of the Developing Countries; Robert Jung (Austria), author of *Brighter than a Thousand Suns* and director of the Futurology Institute of Vienna; and Igor Bestuzhev-Lada (USSR), author of *Outlines of the Future* and chairman of the Social Forecasting Research Institute of the Soviet Sociological Association.

Q. Will you say a few words about your latest work?
Baade: My *Strategy of World-Wide Struggle Against Hunger* has just come out. The book is the logical extension of my previous work, particularly *Competition by the Year 2000.* Many countries are still at a very low level of economic development; their people do not get enough to eat. It is the duty of the developed countries to help the developing ones with farm produce, fertilizer, farm machinery and, of course, advisers on crop and livestock farming.
Jung: My latest book is *The Big Machine.* It deals with the international cooperation of the scientists who built the accelerators in Dubna and Geneva. I am also editing a series of 20 books under the general title *Models of the Best Future*, begun in 1963. The book I am at present working on is called *Mankind Learns to Look into the Future.*
Bestuzhev-Lada: I have just started a new book titled *The Development of World Thinking on the Future of Man and His Earth.*

Q. What factors determine the present-day geography of starvation? Can living standards be raised in the developing countries?
Baade: By the year 2000 the earth's population will have grown from 3.5 to 6 or 7 billion. The food problem cannot be solved by birth control alone. The sure way is to double or triple the crop yield of every sown acre in the developing countries. That this is a realistic solution is borne out by the example of Mexico: It tripled its grain crop in 15 years. Western Europe took 150 years to do it.

Q. Apparently you do not share the opinion of some Western sociologists, who believe that man will destroy himself through overpopulation?
Baade: I don't agree with them at all. Moreover, I am absolutely certain that if we train the proper personnel, reduce the birth rate through birth control information and increase crop yields, the population explosion will not be a threat.
Bestuzhev-Lada: That's what I think, too. The food problem can be solved. But it seems to me that increasing the crop yield is not only a technical but a social problem. As long as you have neocolonialism and latifundia in Latin America and Asia, you can't expect much progress in the struggle against famine.
Jung: The problem Professor Baade and Dr. Bestuzhev-Lada are discussing is very interesting and relevant. I believe that it ties in with another, no less important, problem, the problem of war, thermonuclear war in particular. Myself, I became interested in social forecasting as a way of fighting the mounting war danger.

Q. Is that the only reason you decided to make social forecasting your specialty?
Jung: There were other reasons, of course. The very great and general interest in problems of the future is not a passing craze. The world is moving so fast that we simply must know where we land after every new leap.

Q. Social forecasting uses elements from many of the sciences, does it not?
Jung: Yes, we actually have to move into many fields because the problems that agitate people today are all multifaceted. When we talk of overpopulation, not only food is involved, but housing, clothes, recreation space, industrial growth. At the same time, we do not want the globe to become one huge factory. We have to preserve living nature. After all, we want man's environment to be pleasing, give him plenty of room, allow for versatility.
Baade: I agree with Dr. Jung. I only want to add that the problems of the future have become particularly urgent now that we see how closely related all these areas of life are.
Jung: Every mistake we make now has such terrible consequences for the future that we must make every effort to avoid them.
Bestuzhev-Lada: A great deal of attention is currently being paid to scientific, technological and economic forecasting. Very good but not enough. Dr. Jung and Professor Baade said here—and I agree with them—that we must have a larger view. We need social forecasting in the broadest sense of the word—scientific, technological, economic, socio-political, geographic, demographic, ethnic, anthro-

THREE SPECIALISTS IN SOCIAL FORECASTING INTERVIEWED

Robert Jung (Austria)

Fritz Baade (FRG)

Igor Bestuzhev-Lada (USSR)

pological and moral-psychological forecasting. We must foresee the consequences of the scientific and technological revolution now going on.

Q. Are any problems already evident as a result of the accelerating development of our world?

Jung: Of course. The growing number of cars, for example, is now a problem in the West and soon will be in your country. Our cities are beginning to have their traffic problems. The same applies to planes: To take off from a big international airport, planes have to line up and wait their turn. The radio wave bands are also crowded.

Q. Those unfamiliar with the work of futurologists would probably ask: How do they study the future?

Baade: We study trends; we have statistics—past and present—on the industry, agriculture, economics of various countries. Myself, I have been studying Turkey for the last 34 years, and it seems to me that I can trace certain strong trends with relation to its future. At our institute the problems of a particular country are tackled by scientists from that country. The link between researchers and subject makes for more reliable insight. Mathematical methods alone are not sufficient in our work.

Q. Don't you believe in the supremacy of mathematics?

Baade: I believe in the value of mathematics, not in the miracle of mathematics.

Jung: The method we use most in forecasting is extrapolation. But it has its limitations, and we are looking for new methods. A relatively new one is the normative method. We set ourselves a tough goal, what you might call a national goal, like landing on the Moon, for instance. Then we go back to our time, marking out the discoveries that have to be made to reach the goal. I mentioned the Moon just by way of example. The goal might be the construction of a new city or the problem of learning throughout a man's lifetime.

We are not concerned with deadlines here but with approach. That is the primary consideration. Where previously we were interested in how to use the advances of scientific and technological progress, the normative method is called upon to forecast what needs to be developed by science and technology to make the goal feasible.

Q. How is the goal selected?

Jung: It must be the subject of very broad discussion, not simply by a group of privileged experts, but by democratic institutions.

Q. What is the present state of social forecasting as a science?

Bestuzhev-Lada: It seems to me that we have reached a stage where we need a general theory that takes in all the methods we now use—modeling, polling, extrapolation. Thousands of researchers are working on such a theory in this country and abroad.

Jung: There are now about 20 methods of research into the future. We plan to set up an institute of comparative methodology to compare various research approaches. Social forecasting is now at about the same early stage of development as sociology was 30 to 40 years ago.

Bestuzhev-Lada: Many of the problems of social forecasting are interpreted differently in the Soviet Union and in the West, of course. We are guided by the Marxist method. But we must say that we have many points of contact with progressive Western scientists: for instance, the striving for peace and disarmament, the desire to rid the world of famine, poverty and disease. These points of contact serve as a good basis for creative scientific discussion.

Jung: I find it much more rewarding to discuss the problems of the future than to quarrel over past differences.

Q. How much interest is there in social forecasting? Does it have wide support?

Baade: The interest in forecasting the future is very great indeed. You can judge that from the fact that my book *Competition by the Year 2000* has been published in 16 languages.

Jung: Several hundred private and government institutions are studying the future. Among them are several big "think factories" in California that employ more than a thousand associates; small research groups in many European countries; city commissions

studying the long-range development of their cities; and, finally, government organizations like the French Committee of 1985.

Unfortunately, the organizations most active in forecasting the future are military ones.

Baade: What mankind needs is social forecasting for peace, not antisocial forecasting for war.

Bestuzhev-Lada: Scores of groups concerned with the theoretical problems of social forecasting have been set up in the Soviet Union in the last few months alone. Hundreds of others are doing applied research. The overall agencies responsible are the USSR Council of Ministers' State Committee for Science and Technology and the Presidium of the USSR Academy of Sciences.

Q. Is your view of the future pessimistic or optimistic?

Jung: The present world situation makes one rather pessimistic: The arms race continues, and we see no progress in efforts at international cooperation on some vital problems. Take the food situation, for instance. The latest FAO session in Rome indicated that, far from rising, the production of foodstuffs in the developing countries is decreasing. But this is only the superficial impression one gets from the newspapers. For a more realistic picture of the world we must take into account the operation of less obvious forces. We must consider the work being done to breed new crop species and new strains of cattle and to develop entirely new methods of food production. In the course of some 20 years this work may be a significant factor in the struggle against famine. We see that the protest of the masses of people against the arms race is growing. Moreover, we see that the number of politicians who are listening to the voice of this movement is growing in a number of countries.

I would not call myself an out-and-out optimist, perhaps a pessimistic optimist.

Baade: I agree with Dr. Jung, but I am more optimistic because I am sure that the peoples of all countries do not want war. I believe that the Soviet policy of peaceful coexistence is not only just, but sincere. I am sure that by the year 2000, when the population will have doubled and the food problem will be much more complicated, the world economic and social situation will compel other countries to adopt the policy of peaceful coexistence.

Bestuzhev-Lada: The possibilities of modern science are truly boundless. By the year 2000 we should be able to produce an abundance of everything. The problem is to realize the possibilities we have.

Q. What, in your opinion, are the most important problems of the future?

Baade: The big problem is peace. Disarmament will have beneficial socio-economic effects in all countries. This was noted in a resolution of the International Conference of Sociologists and Economists held in Kiel six years ago. It also recognized that the arms race cannot be an economic accelerator for the capitalist countries for very long.

Jung: It is vital that leaders of governments change their world outlook. We will not end famine and make education universal if the views of the people on top do not change. Joint work on global projects can help considerably in this connection. Now, for example, we are working on a project for an agro-industrial complex in a Middle East desert. It is being developed with consideration of the latest methods of water freshening and the most efficient methods of farming and needs the cooperation of only a few countries. Another project is the building of an international science town. A valuable project would be the publication of an international scientific newspaper to report progress in various spheres. In other words, there should be islands of peace, islands of constructive cooperation in the sea of the arms race. Such islands already exist: For instance, the Geneva Physical Laboratory, which I write about in my latest book. Although scientists of many countries work there, it has no room for the contradictions rending the modern world.

Bestuzhev-Lada: It seems to me that these islands of peace would become whole continents if we could make new gains in the struggle for democracy, peace and socialism.

Q. We are in the midst of a technological revolution which has attracted a large part of the world's creative forces to technological projects. Will this continue or will the creative potential eventually flow from industry to the humanities and arts?

Baade: We will need continuation of the technological revolution to meet the problems of the population explosion.

Jung: When we are pretty much through with the technological problems, we will pay more attention to spiritual matters. If the development has been upward the last hundred years, we foresee a certain slowdown of this climb in the near future. That is to be expected. The train, for instance, had a certain speed limit; once it reached this limit, the plane took over. Somewhere along the way, say in the year 2025, scientific and technical progress is likely to reach the saturation stage. And then a redeployment of intellectual forces should take place. Such a tendency is already evident in some countries. The biggest electronic company, Philips, is having unusual trouble holding on to its staff. Despite the high pay, many engineers will not work for Philips because it does not offer them enough opportunities for creative work. The big consideration now is not the pay, but the chance to do creative work. Modern particle accelerators are particularly interesting in this connection. People ask, "Why do we spend millions making these huge machines? They produce nothing but knowledge." But this is precisely what we shall be doing a good deal of in the not-so-distant future.

Bestuzhev-Lada: Even now the number of people employed in agriculture and even in industry is decreasing markedly in almost all the economically developed countries. Millions of people keep shifting over to the service industries, to science, education, health protection, cultural professions. The worker gets more and more leisure time. Leisure and the industry of leisure are becoming real problems for us.

Q. What is your idea of happiness—for the world and for the individual?

Baade: No more famine, poverty and war—that would be happiness for the whole world.

Jung: To be happy a person must create something. Those who use their initiative in their work are happy, and those who do only what they are told to do and what they have to do are not.

Bestuzhev-Lada: Service to mankind is the goal and the meaning of life. That constitutes happiness. Everything material in man's life—food, clothes, housing—constitutes only the conditions making socially creative work possible. To solve its great problems, the world must take the communist, the socially creative, way of development.

YOUR QUESTIONS ON COMMUNISM

(Continued from page 50)

ruling classes, a tool for preserving their social system.

In this respect the socialist state does not differ from the capitalist state. Under socialism as well, political power is used to protect and strengthen the dominant system of social relations. But here is where similarities end and differences begin.

In a socialist society there is no private ownership of the means of production and no division into antagonistic classes. This radically changes the nature of the socialist state. The center of gravity of its energies shifts from compulsion to economic, organizational activities.

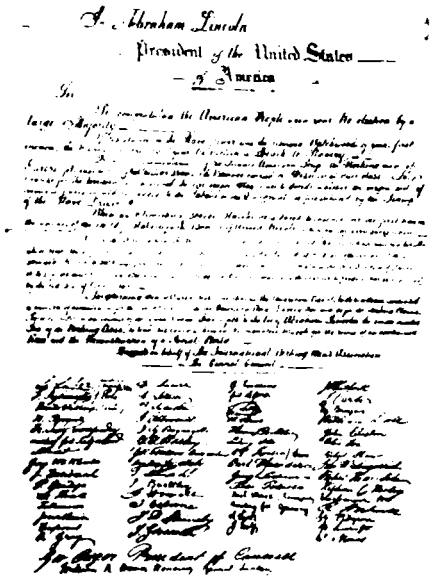
The state continues to function under socialism. It has to, because not all countries in the world are socialist. An acute struggle is going on between the social systems, and the state plays a major role in this struggle. Under socialism the state—and here we are dealing with internal problems—is also needed. Its function is to transform the old, capitalist society into a new socialist society. It becomes a tool, a political implement for the majority of society, *i.e.*, working people. The state organizes political, economic, social and cultural institutions that will insure the development of a classless socialist society.

The state in this new society can wither away only when (external factors aside) there is complete social homogeneity, when every person has the opportunity to learn to govern his society and the leisure time to take advantage of that opportunity. (That kind of free time is a large order; it implies exceedingly high labor productivity.) Only under such conditions is it possible to get along without a state.

The socialist state, then, implements its own withering away by gradually replacing state agencies with voluntary public bodies. How that replacement will proceed we can only outline now. It is obvious that such organs and institutions as the police, the courts and jails, will in time become superfluous and will be completely eliminated, while the agencies directing economic processes, education and public health will be perfected.

Experience indicates that the withering away of the state is a longer and more complicated process than it seemed to be in the first years after the Revolution. But sooner or later society will become stateless, evolving into an association of equal and self-disciplined individuals.

MARX AND LINCOLN



Facsimile of the first and last pages of the address of the International Workingmen's Association to Abraham Lincoln.

ON NOVEMBER 8, 1864, Abraham Lincoln was elected President of the United States for a second term. He received congratulatory messages from the democratic organizations of many countries. Among them was an address from the International Workingmen's Association, drawn up by Karl Marx for the association's Central Council.

In a letter to Engels, Marx referred to the address:

"It was again a matter of an Address, this time to Lincoln, and again I had to compose the stuff (which was much harder than a substantial work)—in order that the phraseology to which this sort of scribbling is restricted should at least be distinguished from vulgar democratic phraseology. . . ."

Marx read the text he had drawn up to a meeting of the Central Council on November 29:

To Abraham Lincoln,
President of the United States of America
Sir,

We congratulate the American people upon your re-election by a large majority. If resistance to the Slave Power was the reserved watchword of your first election, the triumphant war cry of your re-election is Death to Slavery.

From the commencement of the titanic American strife the workingmen of Europe felt instinctively that the star-spangled banner carried the destiny of their class. The contest of the territories which opened the dire epopee, was it not to decide whether the virgin soil of immense tracts should be wedded to the labor of the emigrant or prostituted by the tramp of the slave driver?

When an oligarchy of 300,000 slaveholders dared to inscribe for the first time in the annals of the world "slavery" on the banner of the armed revolt, when on the very spots where hardly a century ago the idea of one great democratic republic had first sprung up, whence the first Declaration of the Rights of Man was issued, and the first impulse given to the European revolution of the eighteenth century; when on those very spots counterrevolution, with systematic thoroughness, gloried in rescinding "the ideas entertained at the time of the formation of the old constitution," and maintained "slavery to be a beneficent institution," indeed, the only solution of the great problem of the "relation of capital to labor," and cynically proclaimed property in man "the cornerstone of the new edifice"—then the working classes of Europe understood at once, even before the fanatic partisanship of the upper classes for the Confederate gentry had given its dismal warning, that the slaveholders' rebellion was to sound the tocsin for a general holy crusade of property against labor, and that for the men of labor, with their hopes for the future, even their past conquests were at stake in that tremendous conflict on the other side of the Atlantic. Everywhere, therefore, they bore patiently the hardships imposed upon them by the cotton crisis, opposed enthusiastically the pro-slavery intervention—importunities of their betters—and, from most parts of Europe, contributed their quota of blood to the good cause.

While the workingmen, the true political power of the North, allowed slavery to defile their own republic, while before the Negro, mastered and sold without his concurrence, they boasted it the highest prerogative of the white-skinned laborer to sell himself and choose his own master, they were unable to attain the true freedom of labor, or to support their European brethren in their struggle for emancipation; but this barrier to progress has been swept off by the red sea of civil war.

The workingmen of Europe feel sure that, as the American War of Independence initiated a new era of ascendancy for the middle class, so the American antislavery war will do for the working classes. They consider it an earnest of the epoch to come that it fell to the lot of Abraham Lincoln, the single-minded son of the working class, to lead the country through the matchless struggle for the rescue of an enchained race and the reconstruction of a social world.

Signed, on behalf of the International Workingmen's Association, the Central Council—

Longmaid, Worley, Whitelock, Fox, Blackmore, Hartweil, Pidgeon, Lucraft, Weston, Dell, Nieass, Shaw, Lake, Buckley, Osborne, Howell, Carter, Wheeler, Stanisby, Morgan, Grossmith, Dick, Denoual, Jourdain, Morrissot, Leroux, Bordage, Bosquet, Talandier, Dupont, L. Wolff, Aldrovandi, Lama, Solustri, Nusperli, Eccarius, Wolff, Lessner, Pfänder, Lochner, Thaub, Bolliter, Rypczinski, Hansen, Schantzenback, Smales, Cornaline, Petersen, Otto, Bagnagatti, Setacci; George Odgers, President of Council; P. V. Lubez, Corresponding Secretary for France; Karl Marx, Corresponding Secretary for Germany; G. P. Fontana, Corresponding Secretary for Italy; J. E. Holtorp, Corresponding Secretary for Poland; H. F. Jung, Corresponding Secretary for Switzerland; William R. Cremer, Honorary General Secretary, 18, Greek Street, Soho.

Signed by Marx and the other members of the Central Council, this address was presented to Charles Francis Adams, the American Ambassador to Britain. The reply from the American legation was read at the Central Council meeting of January 31, 1865:

Legation of the United States

London, January 31 1865

Sir,

I am directed to inform you that the address of the Central Council of your association, which was duly transmitted through this legation to the President of the United States, has been received by him.

So far as the sentiments expressed by it are personal, they are accepted by him with a sincere and anxious desire that he may be able to prove himself not unworthy of the confidence which has been recently extended to him by his fellow-citizens and by so many of the friends of humanity and progress throughout the world.

The Government of the United States has a clear consciousness that its policy neither is nor could be reactionary, but at the same time it adheres to the course which it adopted at the beginning, of abstaining everywhere from propagandism and unlawful intervention. It strives to do equal and exact justice to all states and to all men, and it relies upon the beneficial results of that effort for support at home and for respect and good will throughout the world.

Nations do not exist for themselves alone, but to promote the welfare and happiness of mankind by benevolent intercourse and example. It is in this relation that the United States regard their cause in the present conflict with slavery-maintaining insurgents as the cause of human nature, and they derive new encouragement to persevere from the testimony of the workingmen of Europe that the national attitude is favored with their enlightened approval and earnest sympathies.

I have the honor to be, Sir, your obedient servant,

Charles Francis Adams

Mr. W. R. Cremer,
Honorary General Secretary
of the International Workingmen's Association,
London

The text of this letter was published in the London *Times* on February 6, 1865. It was more than a formal acknowledgment and was therefore different from Lincoln's replies to messages from other bodies. This pleased Marx because he held this "honest son of the working class" who had risen from woodcutter to President in high esteem. Marx considered the Emancipation Proclamation "the most important document of American history since the founding of the Union." It was this that led him to affirm, on October 7, 1862, less than a year after Lincoln's election for his first term, that "in the history of the United States and that of humanity, Lincoln will hold a place side by side with Washington."

When the news came of Lincoln's assasination on April 14, 1865, Marx called it a calamity for the American people. On behalf of the Central Council, he sent a message of condolence to Andrew Johnson, the new President.

". . . he was a man," Marx wrote, "neither to be browbeaten by adversity, nor intoxicated by success, inflexibly pressing on to his great goal, never compromising it by blind haste, slowly maturing his steps, never retracing them, carried away by no surge of popular favor, disheartened by no slackening of the popular pulse; tempering stern acts by the gleams of a kind heart, illuminating scenes dark with passion by the smile of humor, doing his titanc work as humbly and homely as heaven-born rulers do little things with the grandiloquence of pomp and state; in one word, one of the rare men who succeed in becoming great, without ceasing to be good. Such, indeed, was the modesty of this great and good man that the world only discovered him a hero after he had fallen a martyr."

WHY IN RUSSIA?

THE CZAR is the only thing Russian mentioned in the *Manifesto of the Communist Party*, written by Karl Marx and Friedrich Engels in 1847. The reference is to one of the powers of old Europe that "have entered into a holy alliance to exorcise" the spectre of communism. Marx, who was 29, and Engels who was 27, knew very little about Russia at the time. They regarded it as an international gendarme, a reactionary force.

That was true of the imperial Russian regime. But there was another Russia, the Russia of the people. Marx and Engels began to discover this Russia in the fifties, during the Crimean War. They both followed the war closely and wrote voluminously about it. Marx's analyses of military operations appeared in the *New York Tribune* and created a sensation in America. They were so knowledgeable and foresaw the course of events so clearly that they were thought to come from the pen of the well-known General Scott.

Marx and Engels believed that the men who had fought so heroically at Sevastopol would be furious at those who were to blame for Russia's defeat and would refuse to put up any longer with either serfdom or the bureaucracy.

A revolutionary situation did develop in Russia after the Crimean War. Marx and Engels welcomed it. "Russian history is proceeding very well. Now there are uprisings in the South there too," Engels wrote in October 1858. In January 1860 Marx assessed the peasant movement in Russia and the antislavery movement in America as "the biggest things happening in the world today."

The czarist government freed the peasants from serfdom, thereby delaying a popular revolution. But when it became clear that although the peasants had been given "freedom" the land remained in the hands of the big landowners, the fraud produced another wave of agitation. By the end of the seventies a revolutionary situation had again developed. Now Marx and Engels came to the conclusion that Russia was where the revolution would start. "This time Russia will be the first to break into a dance," Engels wrote in October 1875.

Vera Zasulich, a Narodnik, also worked with The Emancipation of Labor, the first Russian Marxist group. She wrote to Karl Marx: "You must know that your Capital *is very popular in Russia. . . ."*

By then both Marx and Engels had made a thorough study of Russia. They now had scores of acquaintances among Russian revolutionary émigrés. Marx corresponded with many people in Russia. Both he and Engels had learned the language. They were able to read in the original such difficult works as the Old Russian epic poem *The Lay of Igor's Host* and Saltykov-Shchedrin's satires, which required a detailed knowledge of Russian life. The economic literature in the Russian language in Marx's library could be measured in "cubic meters," as Engels put it.

In a letter written on September 27, 1877, to his friend Friedrich Sorge, who lived in the United States and was one of the organizers of the American branch of the First International, Marx said: "Russia, whose conditions I have studied from original *Russian* sources, unofficial and official (the latter, available to only a few people but gotten for me through friends in St. Petersburg), has long been on the threshold of an upheaval."

From Russia information about the beginning of a working-class movement, as well as peasant disturbances, reached Marx and Engels. Weak though the working-class movement still was, they foresaw the strength it would develop. That same year, 1877, Engels wrote: "Russia's internal and external conditions are exceptionally unique and are fraught with events of the greatest significance for the future of not only the Russian workers, but the workers of all Europe."

A year later: "If Russia breaks into a dance—and there is not long to wait—Germany will also prove to be sufficiently ripe for a revolution. (Letter from Engels to Becker, December 12, 1878.) Another year passed. There was no revolution in Russia, but the faith that there would be grew rather than diminished. In December 1879 Engels wrote to Becker: "Things are going magnificently in Russia. The revolution there seems to be imminent. When it comes, the hearts of the powers-that-be in the German Empire will sink into their boots. It will be the next turning point in world history."

And in 1882 Marx and Engels wrote in their preface to the second Russian edition of the *Manifesto of the Communist Party:* "Russia is an advance detachment of the revolutionary movement in Europe." In the same preface the authors foresaw the possibility that "the Russian revolution will be a signal for a proletarian revolution in the West."

Neither Marx nor Engels supposed, of course, that a proletarian revolution, a socialist revolution, would take place in the Russia of that period. What they hoped for, to begin with, was simply a democratic revolution like the French Revolution. "It will be 1789, after which will come 1793. Once a National Assembly gathers in St. Petersburg, the face of the whole of Europe will change," Engels wrote in 1878.

In a letter to Sorge Marx said, speaking about a Russian revolution: "By the favor of Mother Nature we shall live to see that day of triumph."

In a review of the letters of Marx to Sorge, done in 1907, Lenin remarked sadly, apropos of the letter from which the above lines were taken, that Marx was 59 at the time and Mother Nature did not, and could not very well, give him the chance to see the triumph of the Russian Revolution.

How did Lenin explain the mistakes Marx and Engels made in estimating when the Russian Revolution would take place? "Yes, Marx and Engels made many and frequent mistakes in determining the proximity of revolution," Lenin wrote. Further, he added: "But *such* errors—the errors of the giants of revolutionary thought, who sought to raise, and did raise, the proletariat of the whole world above the level of petty, commonplace and trivial tasks—are a thousand times more noble and magnificent and *historically more valuable and true* than the trite wisdom of official liberalism, which lauds, shouts, appeals and holds forth about the vanity of revolutionary vanities, the futility of the revolutionary struggle. . . ."[1]

No, Marx and Engels could not predict when the Russian Revolution would take place. The revolutionary situation in Russia in the seventies did not develop into an uprising. The upper strata, not yet completely corrupt, were able to suppress the revolutionary movement by arrests, trials, executions and exile, for the movement did not yet have a united political party or powerful support from the working class, which was still immature. But that the revolution would start in Russia, that Russia would be the first to "break into a dance," and that the revolution in Russia would be of great significance to Europe and the world—that Marx and Engels did foresee.

Marx died in 1883. Engels survived his great friend by 12 years. Throughout that time Engels kept his faith in the victory of a Russian revolution. Exactly six months before his death, soon after Nicholas II ascended the throne, Engels predicted that this czar would be the last. Writing on February 5, 1895, to Georgi Plekhanov, the "first Russian Marxist," Engels said: "If the Devil Revolution takes anyone by the collar, it will be Nicholas II." (The Devil Revolution is a paraphrase

Nikolai Utin, a leading member of the Russian section of the First International, wrote to Marx that the young people of Russia would now be able to study the great teaching from original sources."

of these familiar lines from *Faust:* "What a people! The Devil is in their midst and they do not suspect it. Take them right by the collar.") In a month Engels was writing: "In Russia little Nicholas is working for us by making the revolution absolutely inevitable."

Ten years later "Little Nicholas," who gave the order to shoot down unarmed workers when they came to his palace with a peaceful petition,

1 Vladimir Lenin, *Collected Works*, English Edition, Vol. XII (Moscow: Progress Publishers, 1962), pp. 377-378.

BY ILYA AGRANOVSKY

Lenin and members of the League of Struggle for the Emancipation of the Working Class at St. Petersburg in February 1897.

was being called "Nicholas the Bloody," and the first Russian Revolution, of 1905-1907, had broken out. It was put down, but Engels' prediction that "a revolution is absolutely inevitable in Russia" came true in 1917.

By 1917 Russia had the world's most revolutionary proletariat as well as a Marxist party that was the best prepared for revolutionary battle. That was the new factor which basically changed the situation as compared with the sixties and seventies of the nineteenth century.

How did it happen that Marxism, born in the West and with a parentage of German philosophy, English political economy and French socialism, became so widespread in comparatively backward Russia?

Marx himself was astonished to find his name so popular in "holy Russia" (his expression). He was pleasantly surprised that "the first foreign nation to translate *Capital* was Russia," and that the members of the Russian branch of the First International asked that he represent them in that international body. But gradually, after they became acquainted with Russian revolutionaries and began to correspond widely with Russa (the prominent Marxist theorist Georgi Plekhanov was one of Marx's Russian correspondents), Marx and Engels realized that their teaching had found very favorable soil.

The working class in Russia developed at a time when the bourgeoisie had already lost its revolutionary fervor, and the working class became the leader, the dominant force in the revolutionary movement. The Russian proletariat needed Marxism the way a human being needs air and very soon made that ideology its own. Lenin gave this explanation: "Russia achieved Marxism—the only correct revolutionary theory—through the *agony* she experienced in the course of half a century of unparalleled torment and sacrifice, of unparalleled revolutionary heroism, incredible energy, devoted searching, study, practical trial, disappointment, verification and comparison with European experience. Thanks to the political emigration caused by czarism, revolutionary Russia, in the second half of the nineteenth century, acquired a wealth of international links and excellent information on the forms and theories of the world revolutionary movement, such as no other country possessed." [2]

In Russia Marxism was the guiding star in the violent class struggle. Is it paradoxical that Russian workers should have carried pictures of foreign scholars Marx and Engels in strikes, demonstrations and revolutionary battles, or that these men should have inspired Soviet workers over the decades during which socialism was built? Not at all. With more than 100 nationalities living side by side, Russia is essentially an internationalist country, and the Russian working class could not have made a revolution in such a country if it had not been imbued with the idea of internationalism and inspired by the call of Marx and Engels: "Workingmen of all countries, unite!"

The entire course of history led Russia to an active understanding of Marxism. Russia was the weakest link in the chain of imperialism. Russia was the most complicated knot of imperialist contradictions. Lenin was the first to predict that a socialist revolution in that country was inevitable and it would cut the knot. Russia, which had come to Marxism through agony, was, as Lenin put it, "pregnant with revolution." When the birth took place in 1917, the child of the revolution, the young and still weak Soviet Republic, proved to be in the hands of a reliable nurse, the Marxist party Lenin had created.

2 Ibid., "*'Left-wing' Communism, An Infantile Disorder*", Vol. XXXI, pp. 25-26.

Tribune CORRESPONDENT

BY NINEL RUMYANTSEVA
Master of Science (History)

THE NEW YORK TRIBUNE said John Bright, the British nineteenth century laissez-faire statesman, was one of the finest and most popular papers in the world. "It was laid regularly every morning upon the table of every workingman of that city who chose to buy it at the sum of one penny," an indication of how superior he thought the American newspaper was to its British counterparts.

And indeed, the editors of the *Tribune* had every reason to boast at the end of 1855 that no paper in the world had a larger circulation. Its popularity was due primarily to the fact that it pressed strongly for restrictions on Negro slavery and backed the Abolitionists. That it cost only a penny helped along.

The editors were always on the hunt for writers and correspondents. One of them, Charles Anderson Dana, who was influenced by utopian socialism, was eager to have Karl Marx become the *Tribune's* London correspondent.

Dana had met Marx in 1848, at the height of the revolutionary upsurge, on a visit to Cologne, where Marx was publishing the *Neue Rheinische Zeitung*. The meeting left an indelible impression on the American newspaperman, and in the summer of 1850 he wrote to Marx:

"Since we met in Cologne the world has made many gyrations. . . . Though I have not had the good fortune to hear from you directly during this time, I have kept myself well informed of your whereabouts. . . . But really I cannot anticipate any immediate explosion of the great volcano. A good deal of agitation must perhaps just take place, and then the chaos out of which will be formed the new world. Is there no chance of our seeing you in America? I should like to repeat here the delightful evening we had at Deutz."

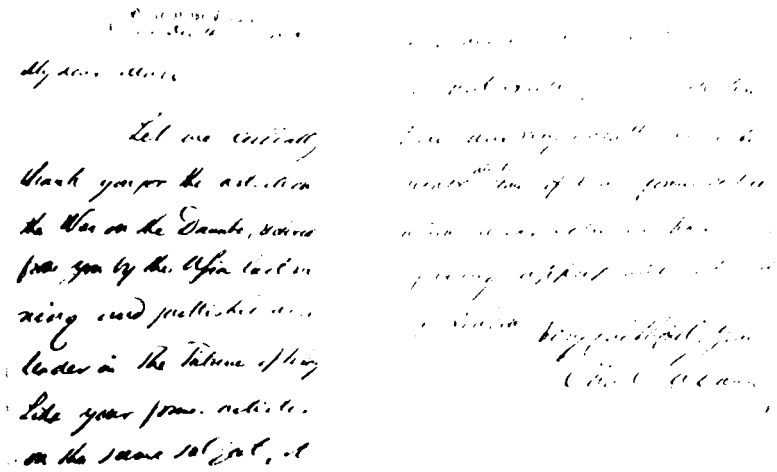
When the need arose for a well-informed European correspondent for the *Tribune*, Dana suggested Marx, who found the offer attractive. Following the defeat of the revolution of 1848-1849, the pages of the European press were closed to him, as were the doors of publishing houses. Another reason for accepting the offer was that he had no source of income and a wife and four children to support.

Marx could not immediately fit the assignment into his schedule so he asked his friend Engels to write a series of articles on the revolutionary events in Germany. Engels did and the series, under the general title of *Revolution and Counter-Revolution in Germany*, appeared in the *Tribune* over Marx's signature.

For many years, until the Marx-Engels correspondence was published, this arrangement was a secret between the two friends. On many a later occasion, Engels helped his friend by writing articles for the *Tribune*, always without a credit line.

Beginning with August 1852, and for the next ten years or so, Marx wrote the *Tribune* articles himself. He began with one entitled "The Elections—Tories and Whigs." For some months his articles traveled to Manchester and back to London before they were sent across the Atlantic. Since Marx did not have sufficient command of English, he wrote his articles in German and sent them on to Engels in Manchester to be translated. By January 1853, however, he had made such progress that he was able to write his articles in English.

Tribune CORRESPONDENT



A facsimile of Charles Dana's letter of December 16, 1853 to Karl Marx.

Marx did the most searching preparation for his *Tribune* articles. Before writing even a brief item, let alone a group of articles on a single theme, he would go through all the literature on the subject. He was a regular visitor to the Reading Room of the British Museum, where he scanned newspapers from many countries.

Charles Dana often wrote to tell him that his articles had been praised by readers and quoted or reprinted in full by other newspapers. His contributions were winning readers for the *Tribune*, and Dana asked that he do more.

"We will very willingly receive from you two articles each week at the rate of 10 dollars for each article," he wrote on November 20, 1855. "This will make the 200 guineas a year which you desire. Whether the articles are military or on other subjects must, of course, be left to your own judgment at the time."

The editors paid tribute to the depth of analysis and wealth of information in Marx's contributions, unusual qualities in the journalistic practice of the time. The gifts of the new correspondent were commented on editorially in the issue of April 7, 1853:

"Mr. Marx has very decided opinions of his own, with some of which we are far from agreeing, but those who do not read his letters neglect one of the most instructive sources of information on the great questions of current European politics."

The editors had so high a regard for Marx's articles that they were most reluctant to part with their correspondent during the difficult period that set in with the economic crisis of 1857, which hit the United States especially hard.

"The unexampled ruin now pervading the commercial system in this country," Dana wrote to Marx on October 13, 1857, "compels us all to retrenchment. I have accordingly written to stop every correspondent of ours in Europe except yourself and Bayard Taylor. . . . Let me beg you, for the present at least, not to write oftener than once a week at any rate, and to confine your articles to the most important topics, such as the Indian war and the commercial explosion."

The *Tribune* published more than 350 of his articles on a wide range of topics. As a European correspondent he dealt only incidentally with developments in the United States, but he could hardly bypass so important an event as the Civil War.

Marx saw the real cause of the war in the struggle between two social systems—the capitalist, which had developed in the North, and the system of slave-ownership in the South, which was retarding the capitalist development of the country as a whole. He proved that the struggle between the capitalist North and the slave-owning South had been the motive force in the history of the United States for half a century. In all, Marx wrote four articles on the American Civil War, which were published in the *Tribune*.

He stopped writing for the paper in March 1862.

WHEN THE USSR ENTERED WORLD CHESS

By ALEXANDER KOTOV

THE DECADE beginning with 1930 produced a galaxy of strong Soviet chess players. But, due to the war, they didn't have time to match their strength against leading foreign opposition.

After the war, a radio match was proposed between the USSR and the USA. Hardly anyone doubted that the Americans would win.

They had emerged triumphant in a number of Tournaments of Nations, and their ranks included such outstanding grandmasters as Reshevsky, Fine and Kashdan.

It was a great chess battle, in which the young Soviet side showed fine standards of both theoretical training and combat ability. The final score was 15½-4½ in favor of the Soviet challengers.

The sensational setback suffered by the Americans led to our federation being invited to play a similar radio match with Britain.

The match took place in 1946 and ended in a 18-6 victory for the USSR.

Many of the USSR v USA games in the September 1945 radio match have been added to the chess treasury of the world.

Here is one of them, in which a young grandmaster, Vasili Smyslov, defeated Samuel Reshevsky, many times champion of the USA.

SLAV DEFENSE

White—Reshevsky	Black—Smyslov
1. P-Q4	P-Q4.
2. P-QB4	P-QB3
3. Kt-KB3	Kt-KB3
4. Kt-QB3	PxP

This is precisely the way Vasili Symslov plays this old opening. In subsequent years the talented Moscow grandmaster chalked up many victories in highly important games with the use of this opening system.

5. P-K3,	. . .

This was how they played many decades ago, whereas in our time it is preferred to prevent a Black Pawn advance on the Queen's Wing with a reply of 5. P-QR4.

5. . . .	P-QKt4
6. P-QR4	P-QKt5
7. Kt-QR2	P-K3
8. BxP	BK2
9. O-O	O-O
10. Q-K2	B-Kt2
11. R-Q1	P-QR4
12. B-Q2	. . .

White has to resort to a slow method of deployment of his pieces on the Queen's Wing. A vigorous Pawn sacrifice, 12. P-K4, is no good in view of a counter-blow. 12 . . . P-QB4! Following 12. P-K4, P-QB4. 13. PxP, Q-QB2. 14. P-K5, Kt-K5, Black has an active countergame in the middle.

12. . . .	Kt (QKt)-Q2
13. Kt-QB1	Q-QKt3
14. Kt-QKt3	P-QB4
15. B-K1	R(KB)-Q1
16. B-QKt5	. . .

This should be considered as a poor move. A cautious reply 16. R(QR)—Q-B1 would give White a stable position, whereas now Black switches over to counter-offensive operations.

16. . . .	B-Q4
17. Kt(QKt)-Q2	Q-QKt2
18. Kt-QB4	KtQKt3
19. Kt(QB)-K5	Kt-K5
20. PxP	KtxP(QB)
21. Kt-Q4! . . .	

The special significance of Smyslov's victory in this game is that his adversary is playing with great ingenuity and stubbornness. With his latest Knight move, the U.S. grandmaster sacrifices a Pawn in the hope of obtaining an active game after 21. . . . BxP. 22. P-KB3, B-KR6. 23. B-QB6.

Smyslov wisely declines the Pawn gift.

21. . . .	R(K)-QB1!
22. P-KB3	Kt-QKt6
23. KtxKt	BxKt
24. R-Q3	B-QB7
25. R-Q2	P-QKt6!

This pawn is destined to play a vital part in the forthcoming battle. A weak spot is also registered in the White camp, on which the adversary concentrates his blows. The target is the Pawn on QKt2.

26. B-KB2	B-QKt5
27. R-Q4	Kt-Q4
28. Kt-Q3 . . .	
	28. . . P-K4!

This is the beginning of a series of surprise blows giving Black a decisive advantage. Smyslov's tactical skill, which subsequently earned him many trophies, including the world crown, is manifested in the given game in all its brilliance.

29. KtxP	B-QB6!
30. Kt-QB4, . . .	

White has to surrender his Rook for a Bishop, because in the event of 30. PxB, KtxP(QB). 31. Q-Q2, KtxB. 32. PxKt, P-QKt7, he would find himself in a still worse fix.

30. . . .	BxR
31. PxB	Q-B2

Black still has to cash in on his advantage, but Smyslov copes with this task faultlessly.

32. B-KKt3	Q-QR2
33. Q-K5	Kt-QKt5
34. Kt-Q6	R-KB1
35. QK3	R(QR)-Q1
36. Q-QB3	Q-K2
37. R-K1	Q-KKt4
38. Q-K3	Q-KKt3
39. KtK4? . . .	

This only quickens the downfall of the White army. As so often happens with him, Reshevsky in the radio match suffers time trouble and makes a mistake. A strong continuation would be 39. Kt-QKt7! R-QR1. 40. B-Q6.

39. . . .	BxKt
40. QxB	Kt-QB7

Evidently White has overlooked this strong reply.

41. QxQ	P(KR)xQ
42. R-QB1	KtxP
43. B-QB7	R-Q4
44. B-QB4	R-QB1!
45. B-QR6	R-K1
46. K-KB1	Kt-QB7
47. K-KKt1	R-K8ch
48. RxR	KtxR

After this exchange, nobody doubts Symslov's victory. Although Reshevsky continued to resist up till the 71st move, he could not change the course of developments. Therefore I omit the last moves.

NEXT ISSUE

Mud streams originate on the slopes of mountain riverbeds formed of loose rock. The steeper the slope and the more rock debris, the greater the danger. A mud stream will carry boulders that weigh 500 tons and do incalculable damage to life and property. Highland towns and villages in all the continents have suffered from this natural disaster. The greater part of Alma-Ata, the capital of Kazakhstan, was destroyed in a few hours in 1921 by a gigantic mudflow, and in 1963 a stone-and-mud mass filled up a beautiful lake, the Issykkul, near this city with a half-million population. The highland Malaya Alma-Atinka River, that runs through the most heavily populated sections, is the principal source of danger. To protect the city a mud-interception dam was built upstream by a series of directional explosions that blasted out the huge blocks of granite which formed the river banks. A reservoir was created that can hold as much mud as flooded Alma-Ata in 1921. It will serve for 50 to one hundred years, until the bowl of the huge mud trap is filled to overflowing. Longer-range planning calls for network of low dams and general afforestation.

A group of Kiev parachute jumpers bail out at intervals of half a second. The last one has a film camera strapped to his helmet. Both skydivers and cameraman are in free fall. In the air they do a round dance, form a line, come together, break apart. Each movement is graceful and floating; only the clouds sliding by the picture frame remind you that they are falling at a speed of 150 and more miles an hour. Sergei Kiselev, engineer by profession, skydiver and cameraman by avocation, made this thrilling 10-minute film. He has more than 2,500 jumps to his credit, and this is his fourth skydiving film. Two earlier ones were awarded prizes at international film festivals. To shoot any film of this kind takes a photographer who knows his business, a stage manager who has a flair for very open-air scenes and high altitudes and actors with uncommon nerves. "But," explains one of the performers, "we weren't thinking of the danger and certainly of nothing as high-flown as heroism. Nothing of the kind. We were having a wonderful time horsing around. We even tried pulling the pants off one of the men in the air, doing a strip tease of a sort."

A thousand years ago Novgorod was a city-state governed by a citizen council. A story details the city's continuing restoration following the nazi destruction in World War II of most of its historical and modern buildings.

The Kremlin Armory is showing a breathtaking exhibit of Russian crown jewels and other adornments. A photo story also highlights modern jewelry. The diamonds in some are from a deposit recently found in Siberia.

A leading expert on foreign travel in the USSR describes the organization of sanatorium facilities, where foreigners also may stay at reasonable cost. An American doctor gives his impressions of the Soviet sanatorium system.

COMING SOON

Life on Main Street, Kiev.

What to do about a possible water shortage on the Earth.

MOTORBALL

WHO ARE THEY? Soccer players who are bored with running on their own two legs and who are now using motorcycles? Or, on the contrary, cyclists who've started up a friendly game of soccer-in-the-saddle?

Neither one! They are motor soccer players, a tribe who has decided to enrich one of the world's most popular games with the latest achievements of engineering. Motorized soccer is a game where absolutely everything must be done on motorcycle. It is played on a standard soccer field, and the players try to score through standard goalposts. The ball is much larger than the one used in soccer—it's 16 inches in diameter, but don't think that makes it any easier to play with.

Each team has five men: a goalie, one defense man and three forwards. The ball is propelled by means of foot, head or motorcycle. The

goalie can use his hands to make a save, but as other players, he is not allowed to lose contact with his cycle for a single moment. The rules do not allow opposing players to transgress the out-of-bounds zone in front of the goal.

Motorball is a young sport. It was first played in the Soviet Union in 1937 when Dmitri Popov, head of the motorcycle section of Moscow's Institute of Physical Culture, organized two student teams. Now this is an countrywide affair with championships in all 15 republics at city and town level.

Many experts say motorball is here to stay. There is no doubt that it has certain advantages over soccer. First, cycles go faster; second, it's technically superior; third, the boos of the fans are easily drowned out by the roar of the motors. At any rate motorball fans say that basketball, rugby, *lapta* (Russian kind of baseball) and volleyball will all become motorized.

The next step will be copterball .

Yuri Somov took this picture during a championship game between the all-star teams of Moscow and Leningrad.

The young settlement on the Chukchi Peninsula has not built any playgrounds for the kids yet. But they seem to enjoy playing and climbing on the construction sites just as well.

SOVIET LIFE

NOVGOROD THE GREAT—
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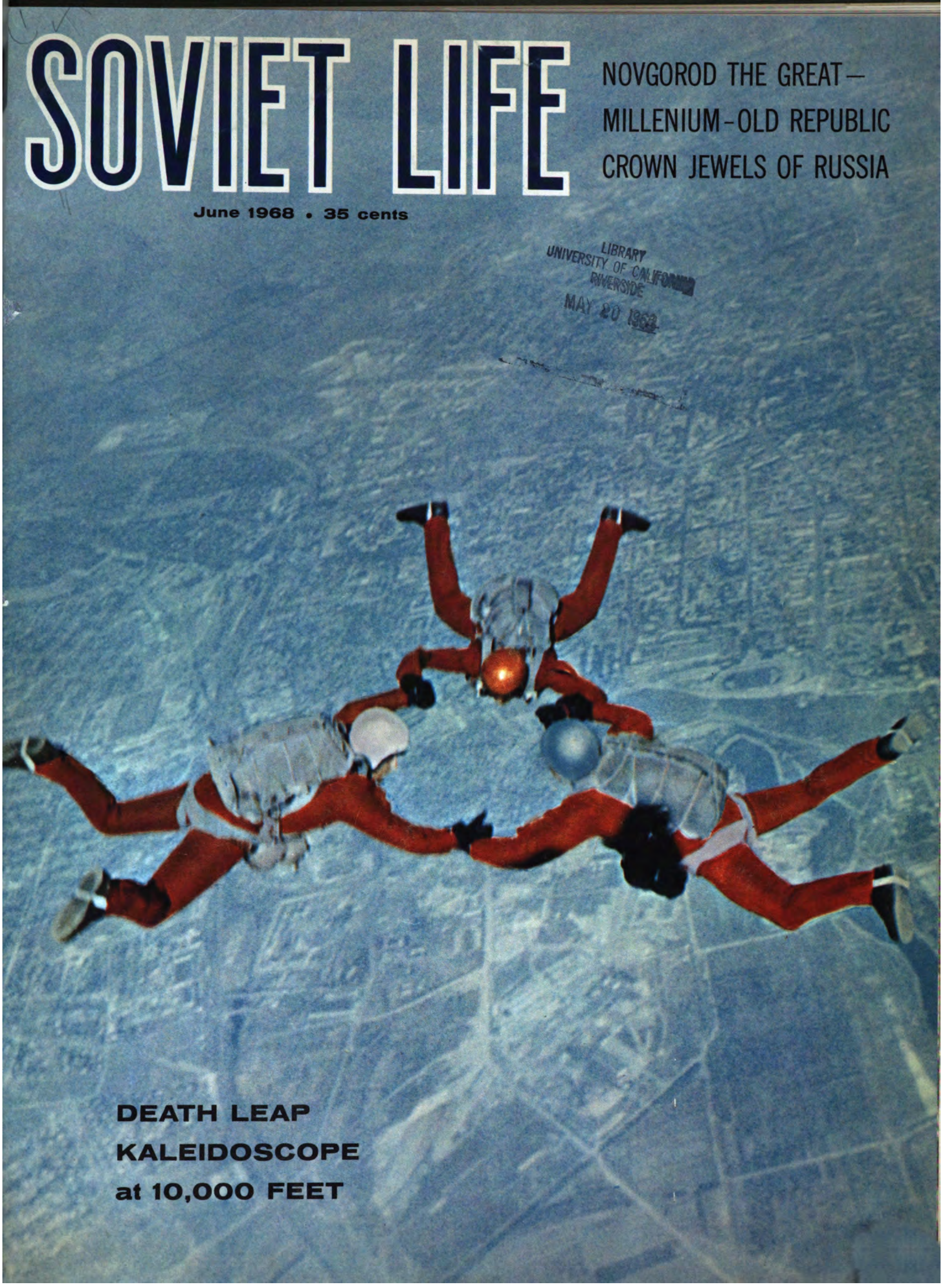
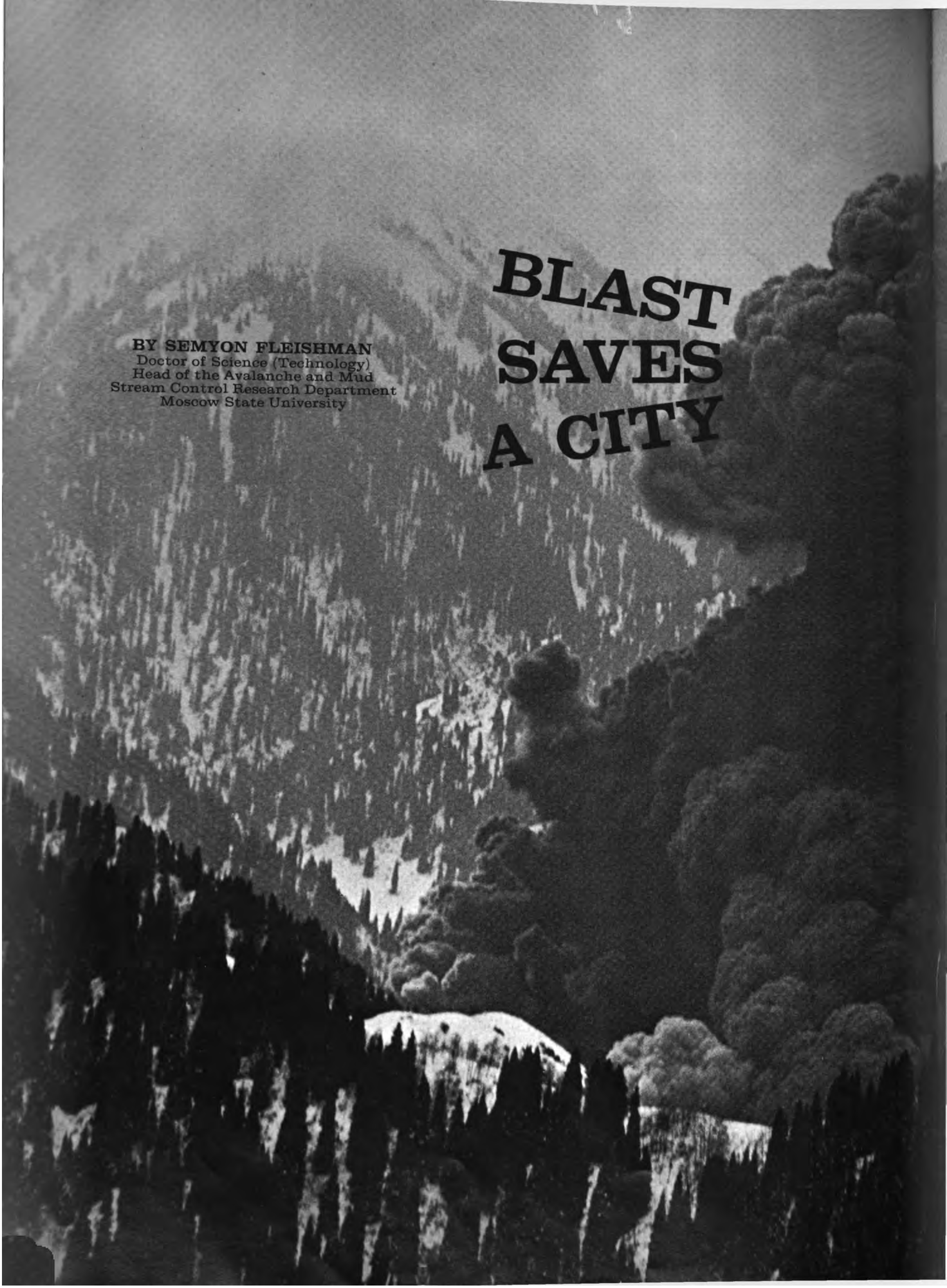


DEATH LEAP
KALEIDOSCOPE
at 10,000 FEET

BLAST SAVES A CITY

BY SEMYON FLEISHMAN
Doctor of Science (Technology)
Head of the Avalanche and Mud
Stream Control Research Department
Moscow State University



Alma-Ata, capital of Kazakhstan, has half a million people. Cutting through the city are two small but turbulent rivers, the source of disastrous mud-and-rock floods. A protective dam was built seven miles away by directional blasts. The explosions were registered by seismographs and filmed by automatic cameras, one 900 feet from the epicenter.

The stream looks innocent enough. But all of a sudden it may begin moving down the slope at 15 to 20 feet per second, carrying with it a flood of rock, mud and building-sized boulders.

A SLIGHT HAIL, followed by rain that lasted less than half an hour, began around five o'clock in the afternoon. Then a terrific roar, accompanied by cannonlike thunder, came from the depth of the gorge. At the same time streams of thin mud swelled the river. Then a massive flow of thick, fast-moving mud, mixed with stones and trees that had been swept away in the upper reaches of the gorge, rushed down the valley. The waves of mud followed each other in rapid succession at intervals of a few minutes and, overflowing the riverbanks, damaged or completely destroyed the buildings and orchards in the way."

This description of a mudflow—one of the worst of the natural disasters man is learning to control—was given by a Russian engineer who observed it somewhere in the Caucasus.

Such mudflows are called *sels,* an Arabic word meaning a fast mountain stream. They are a familiar calamity in mountain country —in the villages of the European Alps, in the highland towns and villages of Asia and America and also in the Soviet Union. The greater part of Alma-Ata, the capital of Kazakhstan, was destroyed by several hours of a gigantic mudflow in 1921. In 1946 a water-and-stone mudflow wrought havoc in the outskirts of Yerevan, the Armenian capital. A mud flood struck a locality close to Alma-Ata again in July 1963, when a stone-and-mud mass filled up beautiful and ancient Lake Issyk-Kul. Mudflows have often buried railroads and highways, canals, vineyards, tobacco plantations. In the Caucasus in 1967 mudflows did heavy damage to the Military-Georgian Road.

A mud stream will carry stones and boulders more than 500 tons in weight and 33 feet in diameter. There was enough space on the top of a three-story-high rock, carried by a mud stream to the foot of Mount Elbrus in the Caucasus, for several young pine trees to take root.

Water streams lack the lifting power to carry rocks of that size. Laboratory research, simulating the mud stream dynamics, demonstrated that the capacity of the flowing mud to move huge boulders is due to the great density and viscosity of the mud. The density of mud is 1.5-2.0 units, if we assume that of water to be 1.0 unit. But it is the viscosity that primarily accounts for the lifting capacity of mudflows. The presence of clay particles in the mud stream makes it a hundred and a thousand times more viscous than water. If the mudflow mass is made up of fertile clayey soil, its viscosity approaches that of dough. No wonder that pieces of huge debris float like raisins in such a sticky doughlike mass.

Mud streams flow in waves. Highland rivers make hairpin turns as they run down the valleys. As a result, mud blocks and jams are formed at each turn, at each narrowing and widening of the river. For a while it looks as if the mud flood is contained. But the mud bursts through the obstruction, and the new wave thus formed rushes ahead with greater vigor.

Can Mud Floods Be Forecast?

Mud streams originate on the banks and slopes of mountain river beds formed by loose rock. The steeper the slope and the more rock debris there is, the greater the chance for a mud stream to originate. The exact moment when a mud stream forms and starts moving down is unpredictable. But if a considerable amount of broken ground and fragmented rock has accumulated on a mountain slope, a mud stream can reasonably be expected as soon as these accumulations are well moistened. The lowland regions face imminent mud-stream danger in the rainy season, while in highlands the threat is greatest in the hot summer, when the glaciers begin to thaw.

However, mud streams do start quite unexpectedly. A mud stream swept the outskirts of Yerevan in 1946 after a light rain—the moisture had been slowly accumulating in the soil of the mountains surrounding the city. The memory was fading away in those parts—the previous mud flood had happened over 70 years before—when the disaster struck again.

Day in and day out the elements are busy doing the groundwork for mud floods. Wind plays the key role here; it weathers the solid rock, breaks it up, assisted by water, sun, frost, natural salts and acids and omnipresent bacteria.

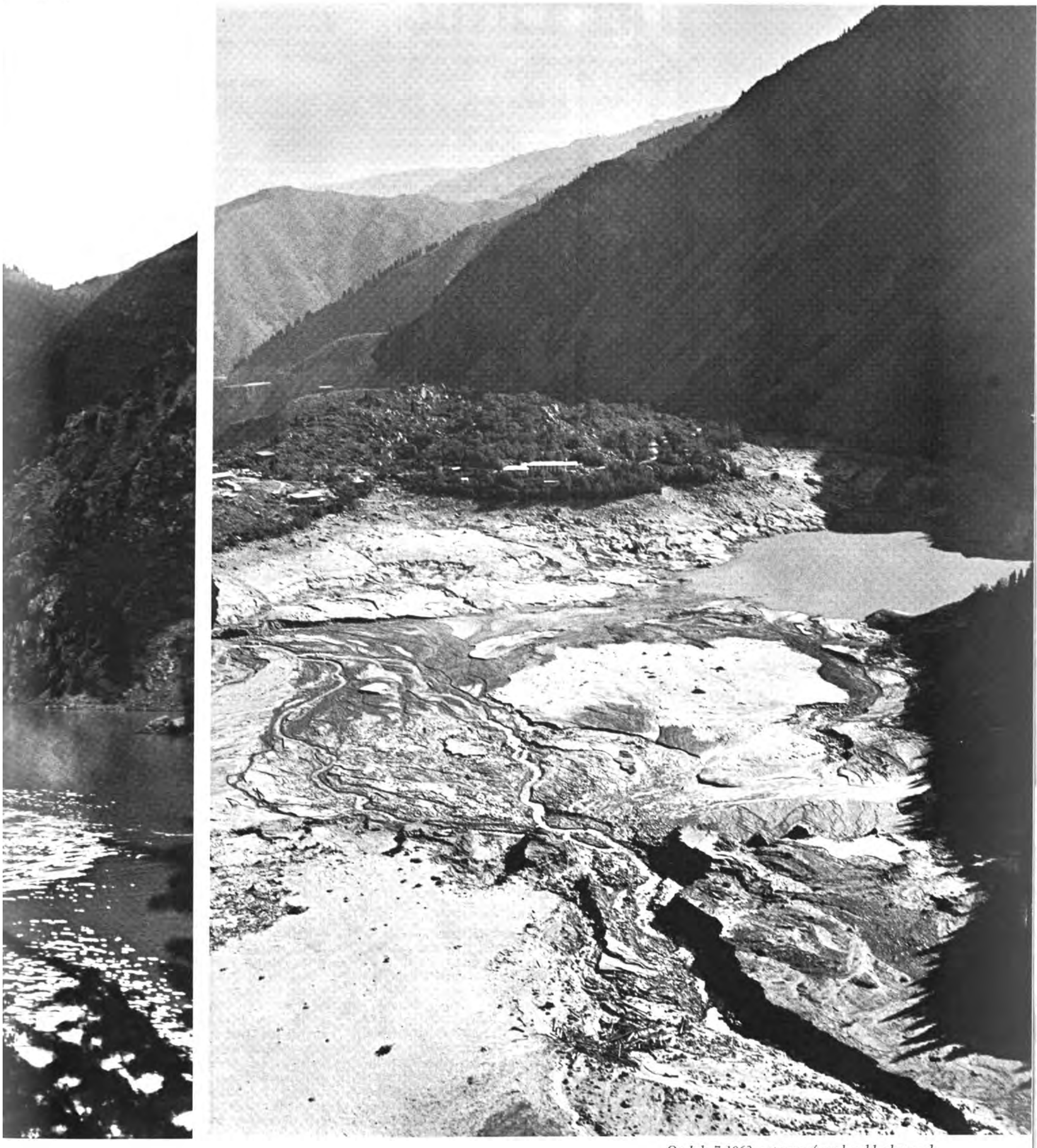
Vegetation is the only way to fight erosion and save the mountains. Slopes with a good plant cover easily stand up to cold, wind, rain and snow. The precipitation rolls off the vegetation; it cannot get into the crevices in the soil and enlarge them. That is why there is no mud stream danger where slopes are well forested, a fact that was established a long time ago.

Sometimes man himself saws off the limb of the tree he is sitting on. When large forest areas were cut for timber in the Alps and the Carpathian mountains, mud stream disasters were not long in coming. Previous to World War II the mountain slopes in the Lake Baikal area in Siberia were heavily forested, and no mud streams were reported. But wartime emergencies required large-scale timbering in the area, and mud streams followed. After the war not only was timbering completely stopped in the Baikal, but a forest reclamation program was instituted. As a result, the number of mud streams decreased and then disappeared completely.

The Danger Can Be Averted

There are several methods of mud-stream control. The first is forecasting. The detection of potential danger areas is relatively simple, but it is labor and time consuming. Mountain regions are surveyed for potential danger areas, and the data obtained is plotted on maps and described in detail. Precise maps of such areas in the Ukraine and Georgia (in the Caucasus) have already been made.

Lake Issyk-Kul fringed by green forest, was as beautiful as any of the much admired lakes in the Caucasus. Only 30 miles away from Alma-Ata, it was the center of Kazakhstan's health and vacation resort area and a favorite picnic spot.



On July 7, 1963, a stream of mud and broken rock rushed down the valley of a river falling into Lake Issyk-Kul. It moved downhill and pushed out the water in great waves. In an hour this is what happened to the once crystal-clear lake.

These structures not only protect the valleys from mud floods but change the topography in the area, making slopes less steep. Damming is a most effective guard against flooding by mud.

Forecasting mud-stream formation presents a greater challenge to science, however, because many factors produce the phenomenon. A knowledge of the mechanics of ground-formation processes and the laws of hydrodynamics is essential for such forecasting. Man-made terraces and mounds, forested to prevent slope erosion, and the construction of runoff ditches have proved to be practical means of mud-stream control. Terracing mountain slopes in Soviet Central Asia and the Crimea had done away with the danger there.

More complicated methods, however, are called for in many instances. Afforestation is not always the answer when towns, roads and electric power stations need immediate protection. In these cases mudflow protection dams, sediment-collecting dams, debris-discharge ducts and chutes are built.

The Soviet Union has a state-sponsored Mud Stream Danger Warning System, the first anywhere. In towns electrical devices have been installed in the expected paths of mud streams. The mud breaks the circuit, and a radio signal is automatically transmitted to the Mud Stream Control Center. Thus, before the floating mud reaches an inhabited area, the population may be evacuated.

A Mud Stream Control Committee of the Academy of Sciences coordinates all the research and control programs in the country.

A City Saved

We have already noted that Alma-Ata, with a population of 500,000, has suffered more than once from the devastating effects of mud-stream flooding. The mountainous Malaya Alma-Atinka River, running through the most heavily populated part of the city, was the danger zone. The 1921 mud stream flooded the city with 4.6 million cubic yards of mud and rock debris.

To protect Alma-Ata a mud interception dam was built upstream from the city. The body of the mud trap was formed by a series of directional explosions, calculated to blast out the huge granite blocks of the Malaya Alma-Atinka River shores.

On October 21, 1966, an explosive charge blasted several million cubic yards of rock into the river bed. On April 14, 1967, a similar explosion shattered the granite blocks on the left bank; 4,000 tons of explosives added over a million cubic yards of stone. The two blasts created a rock and earthen dam over 200 feet high and more than 60 feet wide at the top. Bulldozers built the dam up to a height of 354 feet and a volume of 4.7 million cubic yards. A mud reservoir that can hold over 8 million cubic yards of mud (twice as much as had flooded the city in 1921) has thus been created.

The two explosions had been carefully calculated not to endanger life or property in the city. The earth tremors were of less than four-point intensity and did no damage whatsoever, and the dust cloud formed by the explosion dissipated without polluting the air over the city.

The superstrength directional explosions, the first in the country, were of great theoretical and practical interest to seismologists and civil engineers. Thirty monitoring stations were set up within a radius of 186 miles from the epicenter. The 130 seismographs installed in these stations listened in to the blasts, and 12 movie cameras photographed them. One of the cameras, specially armored, was only 984 feet from the epicenter.

The Search Goes On

Some experts believe that high earthen dams are not the answer to mud floods. They favor "rigid" structures—metal or reinforced concrete dams—because they provide more reservoir volume. There they score a point over their opponents—the earthen dam always has a slight slope on the side facing the mountain, and that reduces the holding capacity of the mud trap it creates.

There are experts, however, who are opposed to concentrated trapping of runoff mud in single, superlarge reservoirs. They believe that such mud catchments provide only a short-lived protection for built-up areas and do not check the progress of mud-stream formation. Scores and hundreds of mud traps, 10 to 16 feet high, staggered along the valley, are, they feel, a better preventative method. The system presumes radical changes in the landscape—the downgrade of river beds becomes less steep, ruling out mudflow. In principle, this is the most drastic mud-flood control method we know. But mud streams are a real hazard to life, and often we cannot wait for hundreds of dams to change the sloping angle of the river beds and made mudflow impossible. That was the situation in Alma-Ata; each summer the mud-stream floods were a real threat. And it took only two explosions to end the threat!

Even dismissing the fact that important scientific questions were answered by the two directional explosions, the danger-to-life consideration alone justifies them.

The reservoir made by the dam will protect the city from 50 to a 100 years until the bowl of the gigantic mud trap is filled to overflowing. The long-range control program calls for a network of low dams and extensive afforestation. Building the dam up higher is also a decided possibility.

The original idea was to build a dam to protect the valley from the ever threatening Alma-Atinka River. But a conventional dam would have taken several years. Waiting was too dangerous.

So the engineers turned to directed blasts. In a few seconds the danger hanging over Alma-Ata was removed, and 90 million cubic feet of rock blocked the passage of future mud-rock streams.

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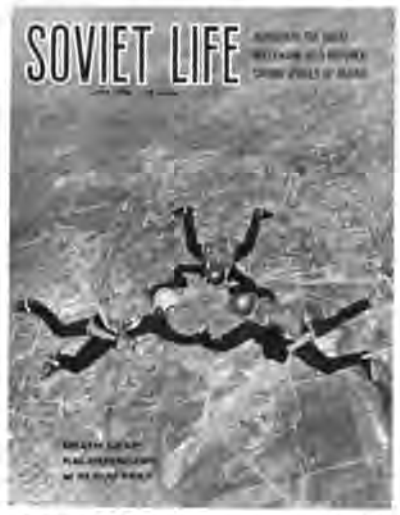

FRONT COVER: Sky divers in free fall. Falling at a speed of 150 or more miles an hour, they are photographed as they come together and break apart by a colleague who has a camera strapped to his helmet. *See story on page 60.*

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I AM A

BY VASILI AFONIN

The Communist Party of the Soviet Union (CPSU) has 13 million members, 54.1 per cent of them are workers and collective farmers.

This article is reprinted from A Word About the Party, *which was published in Moscow in 1967.*

I HAVE BEEN A COMMUNIST since 1932, which means that I have been in the party for 35 years, the better part of my life. I am often asked what a Communist is or should be, what the term "party character" means.

A Communist is first of all a human being with all the usual attributes. But he also has, or should have, special attributes that make up his party character. That special character of his, I believe, is created by his communist convictions, the socialist environment in which he lives and his civic participation.

I was lucky. I grew up in good times, in the twenties, at the dawn of the new society. Those were the good years for my generation because they gave us what we young people needed most—the chance to do big things, to build the country.

The first Communists I knew were railroadmen. Our railroad was a narrow-gauge line joining my small village of Shumosh to the old Russian town of Ryazan. But that little line meant so much to us!

There was a railroad repair depot in Shumosh, and the people who worked there drew us village boys and girls like a magnet. That small working-class group stood out among the villagers. They had a larger outlook on life, they knew more, their judgments were clear-cut and supported by facts, they reasoned things out. Still more important, they were united in their purpose.

We young people liked to talk to Alexei Martynov, the party secretary. He got on well with people. You could see that he respected and was interested in them. And people trusted him. This ability to find his way to the hearts of people, the ability to inspire them and get them moving, was a quality I was quick to note in the first Communist I got to know.

At first this trait of his seemed to me just an expression of his interest in people. That was so, of course. But later on I realized there was more to it. Martynov had a gift for convincing people. Convinced himself in the rightness of the party's ideas, he had no trouble convincing others.

At the time, in my early youth, I noted still another quality of the Communists: They were always active in community affairs.

I remember the time the Young Communist League members in the village had an issue. It was a small issue, but an issue nonetheless. We were taking a stand against a shameful old custom.

When a girl in Shumosh was married off, her dowry was displayed in public as it was carried to her husband's house. Hanging her trousseau on two poles, the groom's attendants paraded through the village street with the blushing bride in tow. A poor girl would be too ashamed to lift her eyes from the ground. The villagers lining the street would discuss aloud the merits or demerits of a shawl or a skirt or some other item.

The YCL'ers called a meeting and demanded that this degrading custom be stopped. The whole village came. It was no simple business doing away with an old custom. There were arguments, and some people even took offense. But the majority gave us their support.

To speak up for what he believes is right in spite of all the odds is, in my opinion, the most important quality of a Communist. Why do I say "in spite of all the odds"? Because in matters of principle you often have to oppose your comrades, people dear to you, and that is not easy.

Take the present. We want to rid our society of grabbers, idlers, dishonest people. Suppose the man you have to haul over the coals is no stranger, but a comrade with whom you have been working for many a year? It is hard to tell him the truth to his face.

There are situations when you yourself are threatened. Several years ago we had a new shop manager, an overbearing, rude and unfair man. He rode roughshod over everyone—his close associates, the whole shop, even the party organization. There were times he would get "manager's itch" and begin to boss us. When we Communists protested, he threatened to fire me.

COMMUNIST, WHY?

But I had the support of the other Communists, and so we "cured" our manager.

The Communist must be high principled at all times and in all matters. He must refuse to put up with self-deception—his own or his comrades'.

I have been writing for the press in my free time since I was 17 on matters important to me and, I hope, to others. The reason I mention my writing is that it has a direct connection with my party work. For me journalism is a form of community activity, a way to influence people, it is part of my obligation as a Communist.

When my father died, our family broke up. In 1932, already a party member, I left my village for Moscow and took a job as loader at the Electric Bulb Plant. I registered in the party organization and got down to work.

Some time later the party secretary invited me into his office and said:

"Newspaper offices are being opened in your Ryazan Region, and they need reporters. You've written for papers and probably like writing. How about working for one of the papers, Comrade Afonin?"

I thought it over and said Yes.

That was my first big party assignment. A year's work on a newspaper did a lot for me. It gave me a broader outlook and introduced me to many interesting people. I liked the job very much.

On returning to the factory, I went back to loading, but I was soon asked whether I wanted to learn how to drive a truck.

I found that driving suited me. I finished the course, got my license and a truck, and have been behind the wheel since. Those were fine days. I got married and had a son.

Then the war broke out.

Thousands of Communists enlisted during the very first hours of war. The readiness to fight and to sacrifice for what you believe in is also part of the Communist character. It is a conscious readiness to sacrifice that comes from an awareness of its necessity. Our party discipline is the discipline of understanding and voluntary cooperation, the reason it is so powerful a force. An enforced discipline or a discipline without consciousness is weak, just as weak as blind subordination.

During the war we went where the party sent us. We went, although the assignments were not always the ones we would have chosen. I, for instance, did not want to stay in the rear, but the party sent me to Siberia where factory equipment was being delivered from the western and central districts of our country.

We packed up fast, with the feeling that we were being uprooted. I was responsible for a column of 18 trucks headed for the East.

We worked in the rear all four years of the war, hardly ever climbing down from our trucks. We made long hauls and short, from factory to factory, trucked equipment, munitions, whatever was going to the front. The job took every bit of our time and energy.

Still, when I recall those days, the big burden was not the work but the responsibility I had to shoulder as a Communist.

There were many of us in the column, almost all with families. They had to be quartered and provided with the necessities. But my main job was to keep their spirits up, not to let people fall apart.

I was made party organizer just before the war and since then have been elected to that job from time to time. A party organizer's role is much more than a job or a post or whatever other word you want to use. The term "party organizer" has many meanings. It means a Communist who heads a group of other Communists, it could mean a political propagandist, but mostly it means a person to whom people can unburden themselves. Our permanent assignment is the hearts and minds of people.

Life makes great demands on Communists. We must always be models, for each one is more than an individual Communist. Each of us is the party.

It is when something goes wrong, when you are in trouble, that you feel what the party means to you. There are lifelines that run from you to the people, but they also run from the people to you. And if you happen to stumble, the lines will grow taut and keep you from falling.

When a Communist carries out a party decision, he reflects upon it, enriches it creatively, improves upon it, as it were. And this regardless of what he is by vocation—an engineer, an academician or a factory worker. The very concept of "worker," by the way, has changed. The worker of today is skilled, knowledgeable, a social builder. He has learned to think. That is probably why the decisions of the party coincide so closely with his own judgments.

I should like to cite a case from my own life, not to show myself in an interesting light, but to help you realize how much party work can do to enlarge one's understanding of life.

Prior to the Plenary Meeting of the Central Committee of the CPSU in 1963, I wrote a long letter to the Central Committee. During my years of work I had collected a certain amount of experience which I wanted to share with my party comrades. Also a number of urgent problems, which I hoped the Plenary Meeting would discuss, had ripened by that time.

When the virgin land project got started in the eastern part of the country, I went there at the head of a column of trucks to lend a hand with the harvesting. Again, as in the war, I was responsible for the column. There was plenty to do but not everything was done well. We had to load our trucks, for instance, by hand, with buckets; there were no loading machines. The trucks stood idle while the grain rotted on the threshing floors. I wrote to *Pravda* then, and my letter was discussed.

I also wrote to the Central Committee about a purely party problem. According to the Rules, a party secretary can be elected for only a two-year term. But this point of the Rules, although good democracy, actually interferes with party work. It takes a year for a man to get the hang of the job, it takes longer to get to know the collective and its problems. But just about when he knows enough to do a good job, his term of office is finished. That was the gist of my letter.

I was called to the Central Committee of the party and had a long talk with the people there. The party leaders were interested in the questions I had raised. I, a rank-and-file Communist, was invited to speak at the plenary meeting. But I got cold feet. I rarely take the floor even at our shop meetings. I refused the invitation. But I was asked to the plenary meeting as a guest, and on the very first day, sitting in the Kremlin Palace, I heard others discussing the very questions that bothered me. I was glad for that.

A great many letters like mine probably go to the Central Committee before each plenary meeting. What they do is generalize experience, mark out guidelines for action.

LABOR DISPUTE: DIRECTOR FIRED

By Vyacheslav Kostikov

TIKHON FEDYUSHIN, director of the local auto plant,was probably once the most popular man in Ulyanovsk-on-the-Volga.

The plant is the biggest in the city and employs several thousand workers. It makes heavy-duty trucks used in dozens of countries. For 12 years Fedyushin was plant director; he no longer is.

His Career

Fedyushin was born in Orel Region, Central Russia. In 1923, during the famine, he left the farm to attend a technical school in town. After graduating, he worked as a toolmaker at a plant in Tula, not far from Moscow. His ability was quickly noticed by the plant executives, and on the recommendation of both the trade union and management, he was accepted at the Tula Mechanical Engineering Institute. Five years of college life on a state maintenance scholarship followed.

There was a shortage of skilled executives, and after graduation Fedyushin had a skyrocketing career. In quick sequence he was appointed deputy shop superintendent, shop superintendent, chief technological expert, chief engineer of the Ulyanovsk auto engine plant, and finally director of the Ulyanovsk auto plant.

The Ministry of the Automobile Industry was pleased with his work. People there said about him: "That man knows his business. He got the plan fulfilled on schedule, increased production, and developed new models of heavy-duty trucks." There was talk of giving Fedyushin a responsible post at the ministry in Moscow. Then suddenly came the order: "Relieve him of his duties as director."

Why?

Who Fired the Director?

I went to the Ministry of the Automobile Industry and had a talk with personnel manager Yevgeni Shuikin.

"We were satisfied with his work," said Shuikin in answer to my question. "The plant was doing all right."

"Then what was the matter?"

"Fedyushin had lost the confidence of the workers and of the plant trade union committee. We had to fire him at the insistence of the Central Committee of the Engineering Workers Union. If you want a full explanation, ask the union."

"It began with letters from the plant's workers," I was told by Mikhail Pokrovsky, chief of the union's labor protection department. "The workers complained that the director of the plant forced them to work overtime and that he was slipshod about safety precautions. We warned him that if he didn't do something about the complaints, the union would take action."

However Fedyushin was sure the ministry would take his side if it came to a showdown. The ministry wanted the plan fulfilled, and he certainly fulfilled it. But at what cost? That question did not bother Fedyushin, but it definitely bothered the union. So that when Fedyushin issued an order temporarily adding an hour to the working day, the union's patience gave out. This was an obvious violation of the labor laws. The director had no right to lengthen the workday without the consent of the trade union committee.

In exceptional cases overtime work is allowed if the union raises no objection. Overtime pay, for the first two hours, has to be at least time and a half, and for anything beyond two hours, double time. Wages at the Ulyanovsk plant are high, and nobody especially wanted to work overtime. Besides, the director lengthened the workday not because he was forced to by circumstances beyond his control—some emergency situation, for instance—but because the work had not been organized efficiently. In other words, there was good reason for the dispute between the union and management. The workers demanded that the director cancel the order.

Union or Management?

The illegal order was immediately canceled, and the plant went back to a seven-hour day. However, for the director the dispute did not end so favorably. Usually a factory union committee informs the union organization higher up about any such disagreements. In this case the central committee of the union thought the director's violation of the law was very serious, that it was not simply a misunderstanding. They sent a special inquiry group to the plant to look things over.

The inquiry group learned that this was not the only time Fedyushin had disregarded the labor laws. On several occasions he had insisted that people work on Sundays and take equivalent time off the month following.

Fedyushin wrote an explanatory note in which he tried to justify his actions. He indicated that he had insisted on overtime work and changed days off for good reason. "There were difficulties with the production plan because of a labor shortage at the plant," he wrote. "I had to do something about it."

But his explanation satisfied nobody. When a plant grows but its manpower supply suddenly decreases for some reason or other, the problem has to be solved by mechanization and automation. And at the Ulyanovsk plant there was not much of a labor problem to begin with. The director wanted to keep up his good record for fulfilling plan quotas, and that was his only concern. Hence the violations of the labor laws. In addition, working conditions at the plant were not good, even though the annual collective agreements included a pledge by management to make improvements.

"Up there," in the ministry, people did not know about all those details, so the relations between the workers at the Ulyanovsk plant and management went from bad to worse.

Having double checked everything and asked the advice of the plant union committee, the union inquiry group recommended that the director be fired.

Was There Any Other Way?

The reader may ask: "I don't get it. Why the complications—investigating groups and the rest of it? Wouldn't it have been simpler to call a strike? Or are strikes banned by law?"

"No, they are not banned," you will be told by any trade unionist familiar with the Soviet labor laws. Nobody has deprived the workers of the right to strike.

Despite that, neither during the dispute in Ulyanovsk, nor in many other similar cases did the workers go on strike.

The explanation is not involved. The director, Tikhon Fedyushin in this case, is not the owner; he manages the plant for the state. The director, like any other specialist, is an employee of the state. He must obey the labor laws, and to make recalcitrant executives obey these laws, you do not have to stop production, lose wages and do the country a disservice.

That is why, though the dispute in Ulyanovsk was very sharp, the union leaders at the plant did not think of calling a strike. Nor did the workers raise the question. They had faith in the strength and prestige of their union.

Here is what one of the trade union functionaries at the plant told me:

"A strike, had we started one, would have been a show of our weakness, not of our strength. It would mean that we were weaker than the director and that nobody had to reckon with us."

"And what if the ministry had refused to fire the director?"

"The plant union committee would have filed a court complaint and applied to the All-Union Central Council of Trade Unions, which has direct contact with the government. However, things don't generally go that far."

If a dispute is not settled by talks between the union and management or ministry representatives, then the court acts as arbitrator. And for a court of law, the feelings and good intentions of management are not relevant. The court proceeds from the state Code of Labor Laws, which guarantees, among other things, the rights and powers of unions.

Director Leaves Plant

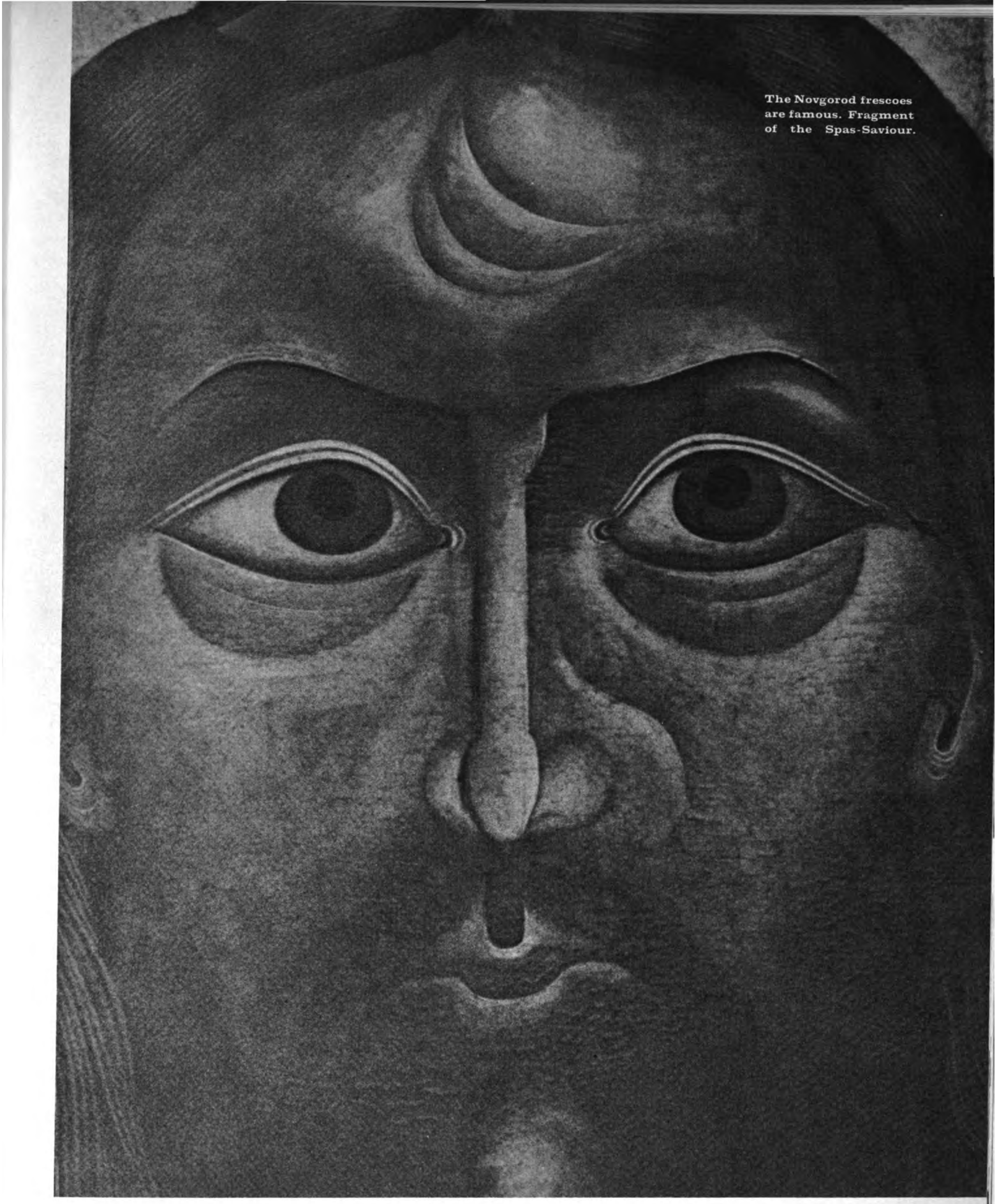
The dispute at the Ulyanovsk plant ended with the appointment of a new director. And of late there has not been a single complaint from the plant either to the Central Committee of the union or to the Ministry of the Automobile Industry, which also has its own labor protection department.

And what about Tikhon Fedyushin?

Naturally he did not want to leave the plant where he had worked so hard. He was offered a job as an engineer, but not in a managerial capacity. He could not take the idea of becoming a rank-and-file engineer. And that may have been just as well. The likelihood is that the relations of the former director and the other men would not have been too pleasant.

What he did was file an application for discharge.

Fedyushin still lives in Ulyanovsk, but he is working as an instructor in the local automotive engineering school.



The Novgorod frescoes are famous. Fragment of the Spas-Saviour.

LORD NOVGOROD THE GREAT

Millenium-Old Republic

St. Sophia's Cathedral is the symbol of Novgorod and its oldest and finest architectural monument. It was completed between 1045 and 1050 and looked even more impressive then, when small wooden houses encircled it. Even now it suggests why people called the city Lord Novgorod the Great.

This monument, commemorating the thousandth year of the Russian state, was unveiled in 1862. The Viking Prince Rurik took the town in 862. The sculptor was Mikhail Mikeshin, almost every Russian contributed at least one kopeck.

By Myuda Derevyankina

THE ONION-SHAPED DOMES of the Cathedral of St. Sophia are visible from any spot in Novgorod. "While St. Sophia stands, so will Novgorod," goes an old saying. St. Sophia has been standing for nine centuries. The city itself is more than 1,100 years old.

The foundations of Novgorod (Novgorod means new town) were laid on the banks of the Volkhov 11 centuries ago. An old chronicle relates that "Prince Volodimir built a town and called it Novgorod." But the ungrateful inhabitants soon found that rule by a prince had its drawbacks, and they formed a republic. Princes were no longer absolute monarchs. They were invited to rule and were dismissed by the *veche*, the popular assembly. By the twelfth century sometimes a prince was told: "Good-by. We don't need you. Our prince is God and St. Sophia."

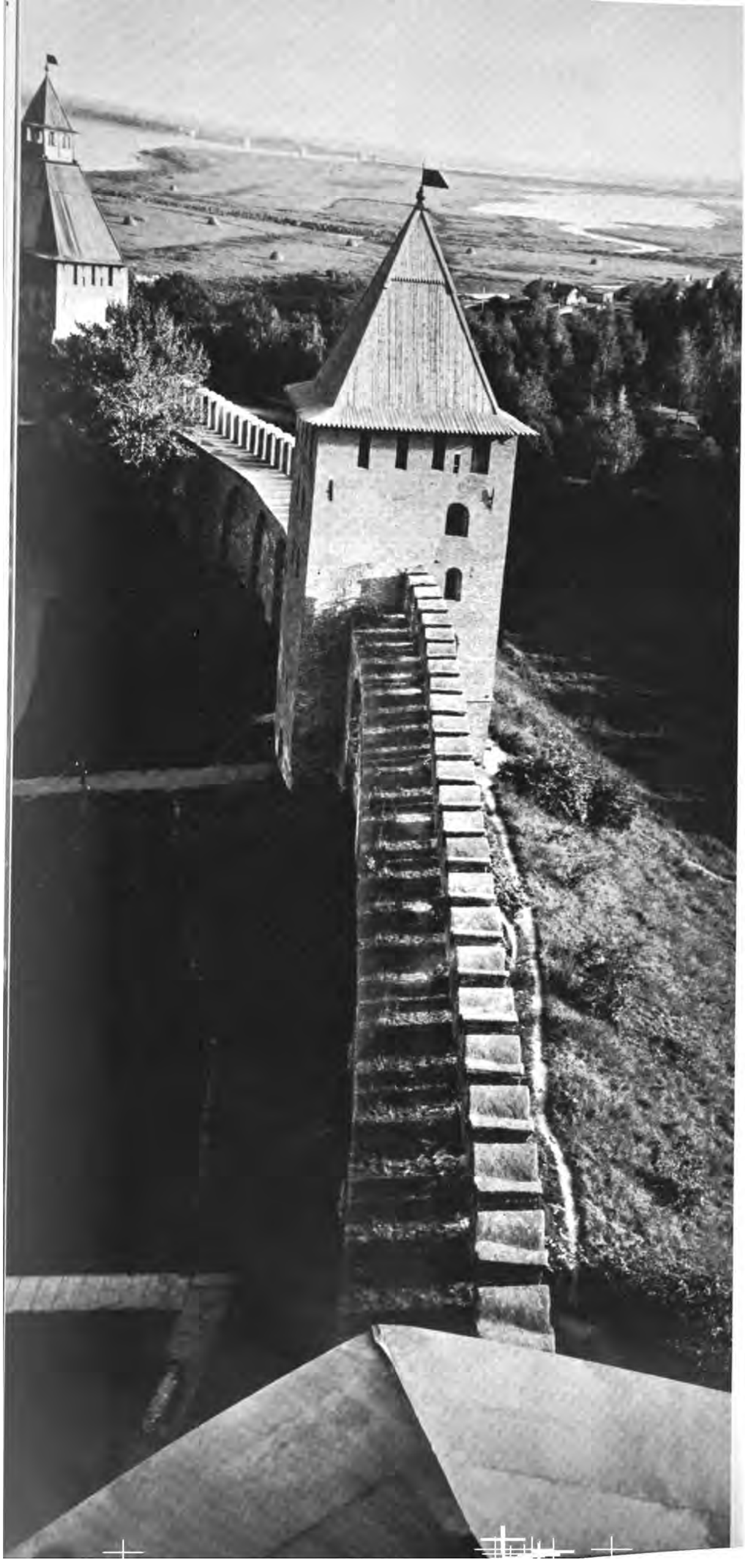
Popular rule in Novgorod was relative, of course. The real power in this republic lay in the hands of the boyars, merchants and clergy. Any list of the *tysyatski*, the elected leaders of the *veche*, is a precise duplicate of a list of the richest men in Novgorod of the time. They were not influential enough to abolish the *veche* but were wealthy enough to control it.

Situated on the flourishing trade routes from Northern Europe to Byzantium ("from the Varangians to the Greeks"), Novgorod had grown so strong and rich by the thirteenth century, that it was one of the great towns of the Middle Ages. In chronicles it was respectfully referred to as "Lord Novgorod the Great." In its heyday the city had a population of 100,000. This was when London's population was approximately 50,000. It was paved with wooden blocks (Paris was not paved until 300 years later) and had a wooden water main.

Novgorod was a town of soldiers, artisans and merchants who traded with Byzantium, Holland, the Hanseatic League, Scandinavia and dozens of other countries. The merchants exported the products of their craftsmen—honey, wax, hemp and furs—and imported spices, fabrics and luxury goods. Handicrafts were highly developed. There were more than 250 different crafts. The town was divided into wards named after the occupations of their inhabitants—potters', blacksmiths', tanners', carpenters' wards. The fame of Novgorod carpenters and builders spread far and wide. They were invited to build palaces and cathedrals in Moscow, Kiev and even Byzantium. Their buildings, no matter where, were in the Novgorod style, designed along simple, severe lines, their beauty lying in their strength. Novgorod churches were built to stand for centuries, and they did.

Millenium-Old Republic

The Veter (Wind) Bicycle Club gathers. There are several youth clubs in Novgorod, including a Mariners' Club, though there is no sea nearby. So the sea dogs brave the tempests of Lake Ilmen, which can be very rough in squally weather.



The kremlin was the residence of the Prince. Here the veche, the citizen's assembly, and the Council of the Nobles—the government of this feudal republic—met. The old kremlin walls were originally made of wood and were later replaced by brick masonry; they served as a fortress. Now they surround a museum and theaters.

The city had more than 300 churches, many of them still standing today.

The people of Novgorod were more fragile than their churches. They withstood the Tatar invasion of the thirteenth century, but when they were overrun by the Swedes early in the seventeenth, only 2,000 of the 100,000 inhabitants survived. Novgorod lost all its former grandeur. Two centuries earlier the republic had collapsed when Ivan the Terrible, the Moscow czar, made Novgorod part of his centralized Russian state. The citizens of Novgorod rose against his rule time and again, but the revolts were brutally suppressed, until the town lost the last vestige of its independence. The railroad delivered the final blow. It by-passed the town.

Novgorod faded into obscurity, became a quiet provincial town. A local census in 1913 showed that of the 20,000 inhabitants 4,000 were gentry, 4,000 were in the merchant class and the clergy, 10,000 were petty traders, 1,500 were peasants and 500 were artisans and unskilled workers. Not a particularly productive citizenry. Novgorod sent hemp and besoms to Moscow and brought back everything else, right down to pins. Now it was famous only for its many churches.

Novgorod came back into the limelight briefly in 1862, when Russia's one thousandth anniversary celebration recalled that it was, after all, the first Russian town, older than Moscow or Kiev. That year a monument by the gifted sculptor Mikhail Mikeshin, *Russia's One Thousand Years,* was erected in the town square. Officially, the monument represented the cap of Monomakh's, the symbol of czarist power. But the progressive-minded sculptor made it look more like the *veche* bell, symbol of Novgorod's ancient freedom. It weighed 100 tons. The 129 figures on the monument, Russia's great men, are divided into four groups: soldiers and heroes; statesmen; enlighteners of the people; writers and artists.

Soldiers and Heroes

In World War II Novgorod was occupied by the Nazis. They saw the Mikeshin monument as the symbol of Russia and cut it up for shipment to Germany. It was to be erected in Instenbruch alongside a monument called *Germany.* Russia at the feet of nazi Germany was the idea that Minister of Propaganda Goebbels had conceived. The idea was stillborn.

The city was liberated in a lightning stroke by the combined forces of the Soviet Army and the guerrillas.

The guerrillas were very strong in Novgorod. The ancient Russian land concealed them in its impassable forests, hid them from the enemy and fed them. A German officer, evidently with some feeling for history, wrote to Berlin: "The ground here is literally burning under our feet. Not a day passes without a subversive act by forest bandits. Although we set fire to a village on the slightest suspicion, burn it down together with its inhabitants, that does not help. One involuntarily recalls that Prince Alexander Nevsky of Novgorod won a victory over our forefathers."

The descendants of Alexander Nevsky again won a victory over the heirs of the knights of the Teutonic Order. But at what a price!

Obelisks standing in every street in the city and on all the roads leading into it mark

Hero of the Soviet Union Yakov Pavlov is a Novgoroder. Battle of Stalingrad communiqués mentioned Pavlov's house repeatedly. For 52 terrible days he held it against the Nazis.

the graves of soldiers, heroes known and unknown.

In a time of ordeal for the entire nation undistinguished people became unexpected heroes. The name of a reserved, soft-spoken bookkeeper in the collective farm village of Plyos near Novgorod—Yakov Pavlov—is in the history textbooks. Now a foreman at a factory in Novgorod, he is still a reserved man. But on Victory Day he tells schoolchildren about the building, now known as Pavlov House, which he and his platoon defended for 52 days during the Battle of Stalingrad. He tells the story simply. "We said we wouldn't retreat, and we didn't."

Everyone that Hero of the Soviet Union Pavlov meets on the streets of Novgorod gives him a respectful greeting. The city does not forget its heroes, the living or the dead. It remembers the words carved above the Eternal Flame beside the kremlin walls: "The foundation of life is the nation's courage, and its immortality is assured by its feats of heroism."

Legislator

Today Novgorod has a population of 110,000. Ten thousand are builders. But these are only the ones whose occupation is the building trades as such. Actually, everyone over 40 in Novgorod works at some trade related to building. When Novgorod was freed in 1944, only 44 of its 2,500 buildings were undamaged. The city was placed on the priority list. New buildings went up while the country was still at war. The first construction workers were demobilized soldiers. Stonemason Vasili Bednyagin was one of them.

Vasili comes from a long line of masons. His father, grandfather and great-grandfather all built houses in Novgorod. Their skill, handed down from father to son, was precise and unhurried, calling for a special kind of mortar and a special kind of masonry. But now there was no time for that. People returning to the city were living in the shells of buildings, in dugouts and army tents. Vasili's son Yakov became one of the best masons in town. Building was done in a hurry. When you ran out of new bricks, you sorted through the ruins for old ones. There was no lack of those. The whole city was nothing but rubble.

Newspapers of 1949 and 1950 carried pictures of Yakov with the caption: "Best builder in Novgorod." He became active in community affairs and was elected to the city council. In the evenings he and his friends taught groups of young people bricklaying, plastering and carpentry. He organized several youth teams to do volunteer building in the evenings, after their regular jobs. There were more than 40 such teams. The whole population of Novgorod helped to rebuild the city.

In 1957, at the age of 26, Yakov Bednyagin was elected to the Parliament of the Russian Federation.

"What kind of problems did you have to handle most often as a member?"

"Housing. In the past five years 15,000 families have moved into new apartments in Novgorod, approximately every second family. But we still have an acute housing shortage. The population is growing so fast we can't keep up with it. By 1980 the city is expected to have a population of more than 200,000. We are going to have to build a second Novgorod."

"What kind of apartment do you have yourself?"

"Typical for Novgorod, two rooms and a kitchen for a family of four—myself, my wife, a son and a daughter."

"What is the average rent?"

"Mine is seven rubles a month. The average rent is three to four per cent of income."

"Has the rent gone up or down in the past five years?"

"It has gone down twice. The first time was after we centralized boiler rooms, cutting our heating costs. The second time was when the new water supply system was finished, so that we now pay less for water."

"As a member of the Supreme Soviet, did you have anything to do with these reductions?"

"Of course."

"What do foreign tourists who visit Novgorod take special notice of in the city?"

"The clean streets, the neat layout and the combination of old and new architecture. And the number of new buildings going up."

Yakov Bednyagin has helped to put up every third building. One of the latest is a high school, which stands beside the church of St. Theodore Stratelites. The 700-year-old church and the new school go well together.

Enlighteners of the People

A good school is usually especially good in a particular field. Technology is what makes High School No. 8 special. More than 40 new factories in the city are desperately in need of skilled workers, and School No. 8 helps to meet this demand with its emphasis on vocational training. Teenagers at High School No. 8 are trained for jobs in transistor, radio and television factories. Principal Pyotr Volkov, who graduated as a physicist, believes that high school graduates face the world with more confidence when they know a trade.

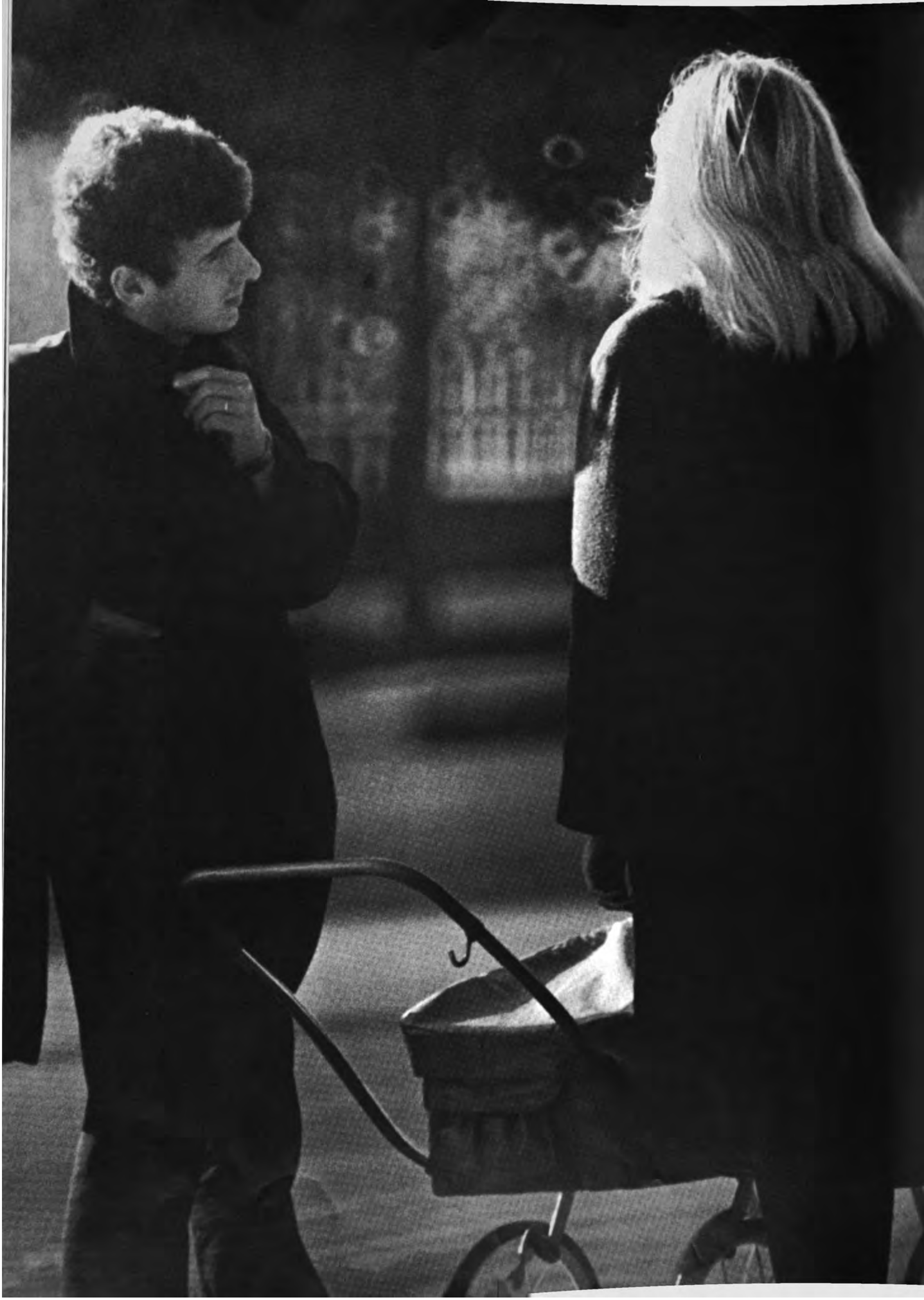
"Knowledge is the only capital yielding interest which you can collect with a clear conscience" is a favorite saying of his, and the whole school seconds it.

Volkov has two passions—programmed instruction and a high school education for everyone. School No. 8 has every ingenious machine that can be bought or made. Teachers use them at examinations. The students become used to complicated equipment and electric circuits.

"Mass Education as the Basis for the Harmonious Development of the Individual" is the title of the doctoral thesis the principal will soon be defending.

"Universal secondary education," Volkov says, "is to be introduced in the Soviet Union by 1970. It is important that we settle our controversial school problems by that time. Education must be mass scale; at the same time, it must be personalized. Our classroom system, I believe, is outmoded in some ways because it is oriented to the average student. The classroom system has its advantages, of course. Even slow learners are pulled up to the average level, and we do not lose a talent that is sometimes concealed under a layer of failures. But our best students often have to listen to what they already know. Teaching in the upper grades should, I believe, be on the college level."

Of Novgorod's 20,000 or so schoolchildren two-thirds will graduate from high



school. What will they do after they graduate?

"The majority of my last year's graduating class went on to college, 125 out of 167. The rest took jobs, a good many of them at the big new precision-instrument factory across the road from our school. This is where our students do their period of practical work during vocational training, and so they know their way around there. Beside the factory has a branch of the Leningr Polytechnic Institute. Seventy per cent the factory staff is studying by correspo ence at the institute. The statistics say ev third person in Novgorod is engaged some form of study."

Principal Volkov permitted himself a jok "We're trying to keep up with our ancesto They were educated people, you know. Th children of artisans and peasants, as well of boyars and merchants, were given elementary schooling. The birch bark scro of the twelfth and thirteenth centuries t were recently discovered confirm that. So of the scrolls are of particular interest teachers: For instance, the school n books of a boy named Onifim that v found in the area of the Novgorod kre in a building that you could call the firs school in Russia. It was built by P Yaroslav the Wise and was attende 300 children."

"How many do you have in your schoo

"One thousand three hundred."

"Do you know everyone?"

"No, of course not. I'm grateful that they all know me."

The students at his school think Principal Volkov is strict but smart. Because he is so intelligent, they forgive his strictness. If you can service a complicated piece of equipment, read the diagram of a radio set and solve tough chess problems, you command respect and enjoy prestige at High School No. 8.

Artists

A person with an easel is a common sight in this city of artists come from all over the country. But Novgorod's artists are in a class by themselves. They have a special job to do—restoration.

Novgorod's magnificent cathedrals stood the test of time, but they could not stand modern vandalism. The Nazis rained bombs down on St. Sophia. The Cathedral of the Saviour, Nereditsa, with its world-famous frescoes, was shelled with method and precision. The Nazis wanted to do more than destroy Novgorod; they wanted to wipe out the history of Russia. The total damage done to Novgorod and Novgorod Region is estimated at four billion rubles. But there is no way to estimate the damage done to Novgorod's priceless monuments. The Cathedral of St. George was used as a stable. An artillery observation post was located in the Cathedral of the Saviour of the Transfiguration, which Theophanes the Greek decorated. The Madonna fresco this great artist painted 800 years ago was riddled by nazi machine-guns.

Restoration started at the same time the first dwellings went up, while the war was still being fought. Since there was no money for restoration, artists and architects worked without pay. The people of Novgorod helped by clearing away rubble and searching for fragments of monuments. Sappers worked alongside the artists, for what was left of the cathedral walls had been mined.

The old frescoes were collected literally piece by piece. That was how some of the Nereditsa frescoes were restored. Later the cathedral itself was restored. Then came the turn of St. Sophia, the kremlin and the St. George Cathedral, the St. Theodore Strate-

Sociologists are generally agreed that people are marrying earlier and hence becoming parents sooner. Young Novgoroders bear the thesis out. Statistics say that the average inhabitant of this thousand-year-old city is getting younger.

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corner of the church itself. "It has 170 corners," he'll tell you.

The architectural monuments have more than simply risen from the ruins. They have shed superstructures added in later periods, emerging from the restoration process both younger and older, closer to the twelfth and thirteenth century originals.

"Only a few of our artists went in for restoration work before the war," says Grigori Stender. "Today there are a good many. The work calls for special knowledge and, even more important, a special kind of person."

The Novgorod Character

We can judge the character of the people who lived in the Novgorod of the Middle Ages from the chronicles they left (chronicles were the first Russian historical records), from the birch bark scrolls, a unique type of private correspondence, and from the architecture. "Strength was the ideal of the people of Novgorod," says Igor Grabar, artist and scholar, "and the beauty of their churches is the beauty of strength. They are not always elegant, but they have a magnificent strength." The men of Novgorod were strong, but they did not turn their strength to evil uses: Novgorod did not wage wars of aggression, but it always defended itself heroically. "He who comes to us with the sword will perish by the sword," said Alexander Nevsky, Prince of Novgorod, and his words have gone down in Russian history. So have the words of the Novgorod chronicler who wrote: "God has given us two gifts: peace on earth and toil on the land." The domes of their churches reminded the men of medieval Novgorod of the helmets of Russian warriors.

Present-day Novgorod is a town of many faces. Tourists visit the city for its medieval color, its 60 museums. Buyers know it as a radio and electronics center. You find Volkov multi-channel TV sets in homes all over the country. Novgorod radios are exported to France, Britain, the German Federal Republic, the Arab states, Latin America, Burma, Afghanistan and elsewhere, to 30 countries all told.

Industrial growth and new specialties have created a demand for skilled workers. In the last seven years the number of industrial workers has grown by 150 per cent. The 7,000 young people of Novgorod now attending technical high schools and colleges will augment the Novgorod labor force.

The average Novgoroder buys 800 rubles' worth of goods annually, sends and receives five letters and two telegrams, makes five out-of-town calls a year, and subscribes to two newspapers and one magazine. He buys about 10 books a year (not counting textbooks and pamphlets), visits a doctor nine times a year, sees a movie every 10 days and goes to a theater or a concert every 18 days.

What does he look like?

He is taller than his forefathers (the average height is 5 feet, 9 inches) and finds the old chain armor narrow across the shoulders. He is fairly young, around 27.

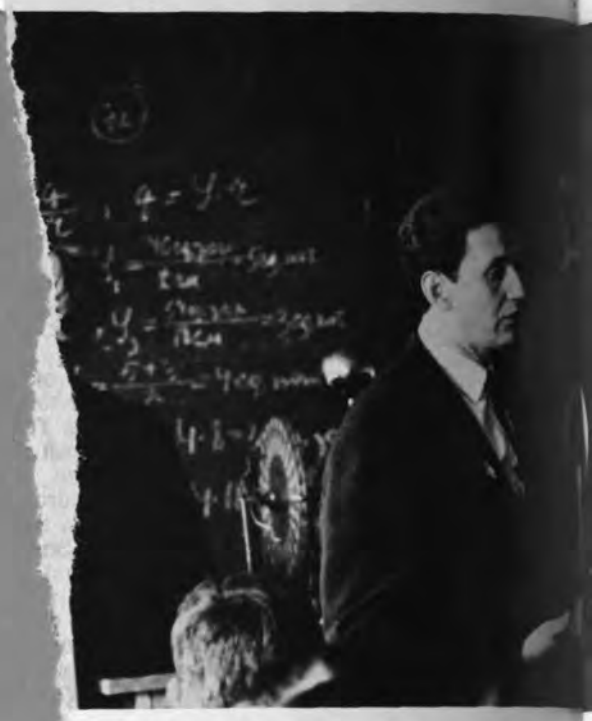
Novgorod people take life at a more leisurely pace than Moscovites, are not as high strung as Leningraders and not as boisterous as Odessans. They go about things quietly and thoroughly, with a touch of what you might call dignity.

Their museums and picture galleries are always filled with visitors. Poetry and painting clubs are popular. The local theaters and touring companies always play to full houses.

Novgoroders know what to do with their leisure. Roads lead out of the city straight to fields and forests. The Volkhov River and Lake Ilmen are a stone's throw from the center of town, bringing the fragrance of grass and water right into the city. On weekends Novgorod is deserted. Summer and winter, thousands set out for forests and lakes to sail, fish, hike and ski. And no matter how many tents and boats line the shore of the lake and the bank of the river, one finds a solitary spot where you can commune with nature.

After two days of absence Novgoroders are glad to get back to their city and to catch a glimpse of St. Sophia's golden cupolas. "While St. Sophia stands, so will Novgorod," they still say today.

The bells of St. Sophia. The 26-ton Festive Bell was cast in 1659. In the Great Patriotic War it was buried and the smaller bells hidden in the river so the Nazis would not get them.



(Left) North Russia had its distinctive wedding rites. Their friends revived the tradition for Yuri and Natalya Smirnov.

(Right) Vasili Nikiforev drives a dump truck. He owns a Moskvich *and likes taking visitors around to show them his town.*

(Far right) Painter and architect Grigori Stender with models of a Novgorod church he restored and the ruins he started with.

(Far left) Svetlana Dyomina is a student at the Pedagogical Institute. Novgorod also has a fine polytechnic institute.

(Left) Pyotr Volkov, principal of School No. 8, teaches physics. The majority of the school's graduates go on to college.

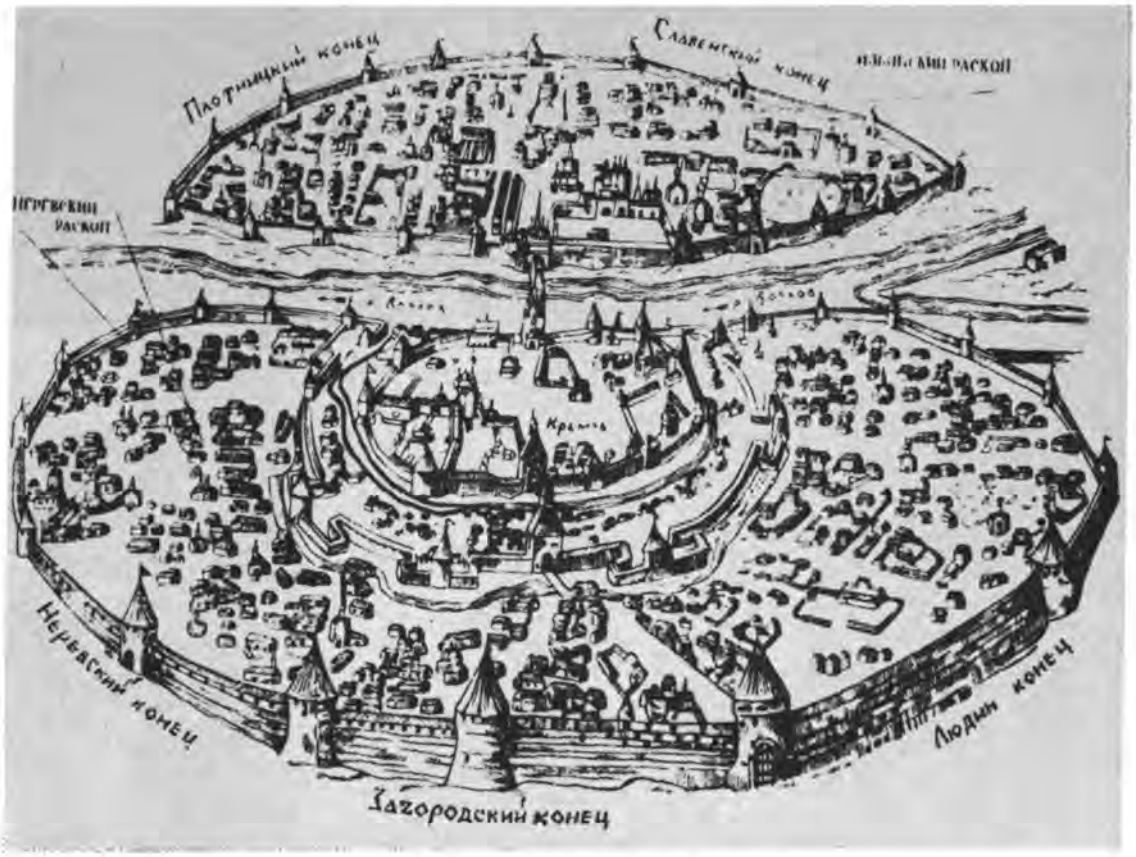
(Right) Vitali Dyomin is building a chemical plant, located in the woods outside Novgorod, to avoid polluting the city air.

(Far left) Like all Russian cities, Novgorod is school-minded. One out of every five inhabitants is studying full time.

(Left) One of the several and very popular youth cafés. They organize discussions on current topics and hold poetry readings.

(Right) Yakov Bednyagin is a building trades worker, member of the city council, deputy to the republic's Supreme Soviet.

WHO FOUNDED
NOVGORODS?



Medieval Novgorod was a walled city, bisected by the Volkhov.

ANCIENT Novgorod, long an archeologist's hunting ground, is still producing surprises.

For instance, at long last the mystery of who founded it has been cleared up.

A new book, *Novgorod Disclosed,* by the archeologist Pyotr Zasurtsev, proves conclusively that it was built in the middle of the ninth century by Slavs living around Lake Ilmen and not, as some have supposed, by the Varangians.

This confirms statements in old chronicles which record that the inhabitants of the city sometimes invited the Varangians from the north, led by Rurik, to take part in joint military campaigns.

It is clear, says Zasurtsev, that the Varangians traded with the Slavs, but excavations prove they did not live in Novgorod itself, but on a peninsula in the River Volkhov still called Rurikovo Gorodishche (Rurikstown).

Another surprise!

The city is known to have traded with Western Europe nearly a thousand years ago, but who would have expected to find English coins of King Canute and Ethelred the Unready there? Or a big fifteenth or sixteenth century lead seal with the English coat of arms?

Last year a student digging party from Moscow University turned up a lovely thirteenth century cameo of the Virgin and Child of a type never found there before.

This was first thought to be of glass, which seemed all wrong for the style. Then it was discovered that it wasn't glass at all, but a silica-stone-dust alloy of a type used for thirteenth century Italian cameos.

When Soviet archeologists first found birch bark texts at Novgorod 17 years ago, the discovery created quite a sensation although their ink had faded and most were completely illegible.

Last year Professor Artemi Artsikhovsky made a new discovery: bark texts not written but incised or impressed—and the bone or metal scribers with which they were "written."

Today we have nearly 450 such texts—household accounts, letters, poems, business deals, etc.—which throw a flood of new light on the Middle Ages. For instance, this letter written from one merchant to another, perhaps 900 years ago:

"To Spirok, Greetings. I have sold your tin, lead and rivets, so now I shall not have to go to Suzdal. I have bought 3 *pi* of tallow, so when you come again I can let you have four bezmens (about 9 lbs.—Editor) and two sheets (he calls them "towels"—Editor) of tin. You can pay me when it's convenient."

Courtesy of *Soviet Weekly*

Below: Birch bark texts, dated to fourteenth century. Above, also on birch bark, letters of the medieval alphabet, scratched on, probably by a child. And, perhaps, self-portraits?

TO THE BOLSHOI BALLET
From an American Admirer

Photographs by Robert Tallon

This letter from SOVIET LIFE reader Dwight L. Grell of 1127 Masselin Avenue, Los Angeles, California, tells its own and, we think, very interesting story.

To The Editor of SOVIET LIFE

Dear Editor,

I am enclosing a set of photographs that were taken during the October 15 to November 6, 1966, exhibition of my personal collection of autographed mementos of the Bolshoi Ballet. The collection was exhibited at the Regent Theater in Westwood, California, during the Regent's exclusive engagement of the marvelous film *Bolshoi Ballet '67*. . . .

I am only a common factory worker, but I love each member of the Bolshoi Ballet with all of my heart. Their dancing brings great joy to me. I hope that the news of this exhibit will make them happy.

I send my love to all of them and hope that this year will bring happiness and joy to each of them.

Sincerely yours,
Dwight L. Grell

About the Collection: This collection of autographed mementos of the Bolshoi Ballet had its beginnings May 30, 1959, at the stage door of the Shrine Auditorium in Los Angeles, California, when the great ballerina Maya Plisetskaya graciously paused for a moment and autographed a picture of herself in a magnificent leap as Zarema in Asafyev's ballet *The Fountain of Bakhchisarai*. I shall never forget that moment. . . .

With the return visits by the Bolshoi Ballet to Los Angeles in the years 1962-1963 and 1966, I had the great joy of adding the other mementos to the collection, which now totals about 35 pieces.

The collection also includes personally autographed slippers which nine of the artists danced in and most graciously gave to me after various performances. Also included are personal photographic gifts from three of the artists of the company.

The purpose of my exhibiting the collection was to share my joyous memories of the Bolshoi Ballet with the people of Los Angeles and in this small way, perhaps, bring the ballet closer to them.

The credit for this collection belongs not to me, but to the artists of the Bolshoi Ballet who so graciously and generously contributed to it. Their greatness as artists is matched only by their humility as people. Truly, without their warmth and friendliness and overwhelming graciousness, this collection could never have come into being.

I am hopeful that when the Bolshoi Ballet returns to America on another tour I may have the opportunity to exhibit this treasured and beloved collection in each theater in every city where they dance and in this way to share my joyous memories of the Bolshoi Ballet with all of the people of America.

I have a great dream of dreams which some day I hope shall come true. That dream—to see the Bolshoi Ballet perform on their own stage in their own magnificent Bolshoi Theater in Moscow.

I hope to add many more treasured mementos of the Bolshoi Ballet to this collection. . . . Any photographic material that you may have or could help me to obtain would be most greatly appreciated.

The artists included in the collection of autographed pictures are—Galina Ulanova, Maya Plisetskaya, Raissa Struchkova, Nina Timofeyeva, Yekaterina Maximova, Natalia Bessmertnova, Marina Kondratyeva, Nina Sorokina, Maya Samokhvalova, Natalia Ryzhenko, Marjorie Scott, Nikolai Fadeyechev, Vladimir Vasilyev, Mikhail Lavrovsky, Vladimir Levashev, Marius Liepa, Yaroslav Sekh, Shamil Yagudin, Vladimir Nikonov, Vladimir Tikhonov, Esfondiar Kashoni and last—but far from least—Asaf Messerer, uncle of Maya Plisetskaya.

Personal gifts of autographed slippers from the following artists are in the collection:

Maya Plisetskaya	June 26, 1966
Raissa Struchkova	October 28, 1963
Yekaterina Maximova	June 25, 1966
Natalia Bessmertnova	July 9, 1966
Maya Samokhvalova	June 25, 1966
Larisa Dmitrieva	July 11, 1966
Nikolai Fadeyechev	July 8, 1966
Vladimir Vasilyev	June 27, 1966
Vladimir Levashev	July 7, 1966

Maya Plisetskaya contributed her slippers after her performance in California in June 1966.

This gold canvas "Bolshoi Ballet" written in red across the bottom and contains the autographs of about 70 members of the company.

The glass display case contains the slippers of Bolshoi Ballet dancers, notes on the roles performed in them, and the artists' photographs.

SPARE PARTS FOR THE HUMAN ORGANISM?

By Alexei Veretennikov

DRIVER, REMEMBER: God did not create spare parts for human beings!" So reads a highway sign.

The technical revolution and the age of high speeds have increased accidents and cripplings. But a revolution is also taking place in medicine, and man wants miracles; he wants medicine to restare a lost hand or foot, to replace an irreparably damaged heart, to beautify a disfigured face.

Is this possible? Scientists working on transplants of organs and tissues are of different minds. The skeptics and the optimists differ in their forecasts, but there are hopeful results.

The history of transplantation goes back 30 centuries and is full of bold experiment, sensational success and tragic failure. A millennium before Christ Indian physicians made transplants of a patient's own skin to rebuild his nose. In the Middle Ages surgeons did transplant operations and risked prasecution by the law. In the middle of the nineteenth century the first attempts were made to transplant internal organs, in particular the testes. The effort was inspired by the Faustian dream of eternal youth—the surgeon trying to stand in for Mephistopheles.

Physicians have been most successful with a special kind of transplant—blood transfusion, which has saved tens of thousands of lives. Transplantation has become one of the most important areas of research. Working on it are scientists in various branches of biology and medicine—immunologists, surgeons, therapists, pharmacologists, biochemists, physiologists.

A transplantation center has been set up at the Moscow Institute of Clinical and Experimental Surgery headed by the Minister of Health, Academician Boris Petrovsky, a specialist in kidney transplants. In addition to the Moscow center there are over 100 other groups working on the problem. This is Academician Petrovsky's estimate of transplantation achievements of the last few years:

"It has been proved under experimental conditions that the combination of surgical skill and modern medical techniques could solve all transplantation problems were it not for the immune response. . . ."

Nature Sets Up a Barrier

The most common, both experimentally and clinically, is kidney transplantation. The anatomic structure and functions of this organ make it best suited for transplanting, for monitoring the behavior of the transplanted kidney and the reaction of the organism to the transplant. Experimental transplants of kidneys in animals have been done for years. According to the world kidney center, more than 1,000 kidney transplants have already been made. These operations are promising experiments, but are by no means a panacea. About a third of the patients live more than a year, and 11 have lived more than four years.

Several years ago an attempt was made to transplant a liver. The patient, with a liver transplanted from a corpse, lived 22 days. The first lung transplants have been made. A transplanted lung functioned for only 18 days, and in this case the physicians said: "Not yet."

Worth special mention is the transplantation of thyroid glands and the hypophysis to midgets; the patients grew 3-6 inches. Transplants of extremities have not yet been successful. Better results have been achieved

in transplanting bones and joints. And finally, there has been considerable clinical success with cornea transplantation.

Thus we see that surgical skill and medical techniques have been so perfected that even the most complex transplant operations could be successful. But nature has set up a formidable barrier—the immune response, also known as protein or tissue incompatibility. The organism, despite the fact that the transplanted organ has come to save it, rejects it. Immediately the transplant is done, a fierce and losing battle begins with the "stranger."

"It can be regarded as firmly established fact," says Academician Boris Petrovsky, "that any transplanted organ will inevitably be rejected within a week or two. Any measures taken to suppress the developing immunity will unquestionably retard the process of rejection. Herein lies one of the avenues of research."

What can be done to break through the immune response barrier? Several things: over-all irradiation of the recipient, local irradiation of the transplanted tissues, the introduction of special chemical substances to suppress the activity of the bone marrow and the lymphoid system.

But then we have new complications: irradiation, even controlled, is dangerous, and chemical substances are toxic. So medical science is looking for and finding other methods.

Suppression of Immunology

"The dog Malysh lived 40 days with a transplanted extremity." This report by researchers in the department of normal physiology at Tselinograd Medical Institute (Kazakhstan) evoked great interest.

Usually a transplanted foreign extremity will soon become necrotic. If it does take, it causes the general poisoning and death of the animal; the protein of one organism becomes a poison for another organism.

Malysh broke the record for longevity after a transplant.

The Tselinograd scientists used cortisone, a drug that reduces the immunological reactions of the organism. Cortisone is no novelty; it had been used before in kidney transplantations. This was the first time, however, that it was used in transplants of extremities.

Not all the properties of cortisone were beneficial. It suppressed the organism's resistance to foreign protein, but simultaneously suppressed its immunity to pathogenic bacteria. Moreover it had an adverse effect on the animal's heart and lungs.

So Malysh died. Nevertheless the physicians hope that with correct dosages and proper use of such drugs as azatioprin, prednisolone and actinomycin C, they will get prolonged acceptance of transplanted organs, while retaining their functions. The problem of obtaining less toxic drugs is not so much theoretical as experimental and technical.

The protein individuality of an organism is safeguarded by special blood cells, the lymphocytes. They are the ones that do not accept the transplanted tissues. Researchers have suggested suppressing the functions of the lymphocytes with anti-lymphocytic serums. The lymphocytes of the patient to undergo transplantation are introduced into the blood of a horse which, after a certain time, accumulates anti-lymphocytic substances. Subsequently this blood is purified, and the anti-lymphocytic serum obtained. Injected into the same patient, it will attack his lymphocytes. Busy fighting for their own survival, the lymphocytes will "overlook" the presence of the transplanted organ.

All this is oversimplified, of course, but if the anti-lymphocytic serums prove effective and become the "control levers" of the organism's protective forces, then surgeons will be able to transplant not only human organs, but those of animals. So says Professor Yuri Lopukhin, chief of the organ and tissue transplantation laboratory of the Second Moscow Medical Institute.

Some Soviet investigators believe it possible to suppress immunity by affecting the "control desk" of the incompatibility reaction, which is located in the hypothalamus of the brain. Stop the operation of the hypothalamus for a time and you will probably interrupt the production of antibodies in the cells—those are the bodies that serve the organism as weapons in destroying foreign proteins—and thus facilitate the acceptance of the transplanted organ.

A method of suppressing immunity has been suggested by Professor Yelizaveta Gurova (Tselinograd Medical Institute). Her experiments show that foreign tissue is more readily accepted if the recipient animal's endocrine glands are not permitted to function.

By attenuating the "hormone background" in an animal's organism, it is possible to suppress its protective mechanisms, since hormones have a decided effect on the control activity of the brain and, in particular, on the sympathetic nervous system.

Researchers have a sure-fire method of disrupting the production of hormones by removing the thyroid gland. The absence of the hormones of this gland disrupts the functioning of all the other endocrine glands, especially the hypophysis. The first experiments, while they did not unconditionally endorse this approach to the problem, did yield promising results in some cases. If a large number of experiments are favorable, the method can be recommended for clinical use, since physicians already have ways to temporarily suppress the activity of the thyroid gland and the sympathetic nervous system in a human organism.

Training Tissues

Now for experiments that have very little to offer, as yet, to practical medicine. The first such experiments were done by the Czech scientist Milan Hasek. He introduced a tissue extract of the future donor into an animal during the period of its embryonic development and found that in animals thus prepared, transplanted tissues were nearly always accepted. This is explained by the fact that immunity does not appear in an animal until some time after its birth. If the tissues of the future transplantation partners are "crossed" before then, the experiment may be successful.

Employing a similar method, Professor Anastas Lapchinsky of the Traumatology and Orthopedics Institute of the USSR Academy of Sciences transplanted a whole organ, a rear leg, from one dog to another. When the pup Bratik was only six days old, his blood was completely replaced by that of the dog Tsyganka. And when the pup was nine months old, Professor Lapchinsky transplanted a leg from the dog Tsyganka in place of the leg amputated from Bratik up to the middle of his thigh. Though the transplanted limb did not move, the experiment can be considered successful, because the dog survived.

The method is not practical for obvious reasons; there is no telling who will need a transplant and from whom the organs or tissues will come. From the point of view of practical medicine, a more promising idea is "training" organs and tissues to be transplanted by changing their antigenic properties in the required direction. Such a reorientation of an organ presupposes its prolonged existence outside the organism in artificial conditions.

'Deceived" Immunity

Geneticists are now discussing an idea, the point of which is not to break through the immunological barrier, not to destroy it, but to infiltrate unawares by making the transplanted tissues neutral, or as biologists say, tolerant, i.e., not responsive.

Some scientists believe that suppression of immunity is less promising than cunning "subterfuge." For no matter how the defensive forces are depressed, the organism will inevitably be hostile to the foreign protein of the transplanted organ. What is needed, therefore, is not the suppression of immunity, but an artificial shift in the chemistry of the organism's tissues, so the organism accepts them as its own. Is this possible? It has to be checked. At any rate, by prolonged isolated preservation of an organ with appropriate chemical substances passing through it, we can change the biological properties of the tissue depending on what substances are added to the solution circulating through the organ. Before we do that, however, we must study the physiological and biochemical properties of the organism that is to receive a new organ.

The theoretical implications are clear, but the experimental work is still in the infant stage. Researchers are only beginning to attempt changes in the physiological and biochemical properties of isolated organs and tissues during the preservation period. They have years of work ahead of them.

The Key to the Protein Barrier?

The existence of blood groups has led some investigators to look for an analogy in organ and tissue transplantation. Perhaps, they suggest, tissue incompatibility has become such a formidable barrier because we are not aware of compatibility groupings and are not making allowance for this factor in our experiments. If the organisms of the donors and those in need of a transplant have similar biochemical properties, the chances for the transplanted organ to take and function properly increase tremen-

dously. Various methods are suggested for determining biochemical similarity.

The essence of one idea Tselinograd scientists are working on is that similarity of organisms is determined by the type of higher nervous activity. This hypothesis is based on the fact that for each type of higher nervous activity, the organism has a corresponding chemistry of the blood and tissues. In each of these types the tissues contain different quantities of potassium, calcium and bromine. This has a direct bearing on transplantation.

Preservation Problems

The problem of protein incompatibility will be solved with time, and surgeons will be supplied with the theoretical explanations by the scientists. The next problem will be where to get the necessary "spare parts" for the organism—the arms, legs, organs and tissues. The first answer that comes to mind is cadavers. Parts of a dead person's body could still serve the living. But even if the "protein barrier" is overcome, there remain other serious obstacles. In the first place a number of purely ethical considerations exist.

It is the accepted rule in many countries that a cadaver must not be touched for two hours after death. This is not a purely formal ruling: there have been cases when a most convincing picture of death has proved erroneous—after a time, the "cadaver" suddenly came alive. But is it possible, after a two-hour wait, to revive the parts of a cadaver? How can we prolong the life of an isolated organ or a part of the body?

The well-known Soviet experimenter Vladimir Demikhov proposed the following procedure: A cadaver is delivered to a medical institution with the brain irrevocably damaged by an injury, but with the other organs viable; they can be revived. By maintaining artificial respiration and an ambient temperature of 99.5° F., given sufficient sterility and artificial nourishment, such a revived body—to all intents and purposes headless—could be kept alive for a long time. To the thigh vessels of such a live body viable organs from other cadavers are connected. It would be possible to connect to such a body, the body of a stillborn child, all of whose organs excepting the brain have been revived. Each connected organ would function and help maintain the vitality of the other organs. Such "self-service," says Demikhov, would allow a large number of organs to be connected. The connected child's body would grow, its hormones and metabolism rejuvenating the whole inner medium of the other organs. This would make it possible to have on hand young organs fit for transplanting. The urgency of this problem is borne out by the experiments in transplanting hearts in humans carried out by Capetown Professor Christian Barnard.

The Tselinograd researchers propose a more realistic method of preserving organs by passing through the vessels of the isolated organ a nutritive solution with the addition of hormones. In their experiments extremities were kept alive seven to eight hours after amputation.

Methods have been devised for storing blood, bone marrow and various tissues. Osteoplastic surgery has found ways to conserve bones. The bones are cooled or frozen at various temperatures from 39.2° F. to minus 320.8° F., dried with vacuum devices and preserved in liquid media or paraffin.

The Central Institute of Traumatology and Orthopedics in Moscow recently developed a completely new method for prolonged storing of tissues in a biologically active state and delivering them over any distance. The method requires no complex equipment or any definite temperature conditions; it is simple, cheap and available to any surgical institution. A storage vessel that has proved even better than refrigeration and vacuum equipment is a block of polyesther resin. The advantage is that the resin is bactericidal: bacteria placed inside it die. Experiments have shown that bone tissue kept in such a block remains biologically active for two years.

Despite the fact that the big problem in transplantation—the immune response—has not yet been solved, most leading Soviet scientists working in the field are optimistic. And with good reason.

In recent years several brilliant surgical experiments have been performed. A dog with a transplanted heart has now been living for over a year in one laboratory. Interesting observations have been made in the transplantation of hearts from deceased people to monkeys. And, finally, a simple but phenomenal operation: the transplantation of a brain! A brain transplanted to a dog lived for three days, functioning normally and retaining all the biocurrents inherent to this species of animal!

EINSTEIN POPULAR IN THE USSR

ALTHOUGH THERE were few traces of smoke in the skies over war-torn, austerity-racked Petrograd in the spring of 1921—most factories standing idle for lack of fuel—Soviet Einsteiniana began with the publication of a thin, 25-page booklet of poor yellow paper, a translation of one of his lectures. Ever since, increasing numbers of scientists, engineers, students and curious laymen in all the Soviet republics have been interested in the work of this greatest physicist of the twentieth century, a fact borne out by growing editions of books by and about him. Thus **The Evolution of Physics**, which Einstein wrote in collaboration with the distinguished Polish scientist Leopold Infeld, went through four editions in a total printing of 200,000 copies. A second edition of Einstein's biography by Professor Boris Kuznetsov, the well-known historian of physics (the first edition of 25,000 copies sold out immediately after publication in 1962) came out in 1967.

Since 1962 the Institute of the History of the Natural Sciences and Engineering of the USSR Academy of Sciences has been publishing collections of articles by and about Einstein. Such collections are now published annually.

A four-volume edition of 300 of his papers is to be published in the **Natural Sciences Classics** series. The editor is the eminent Soviet physicist Igor Tamm.

Physics today is on the threshold of revolutionary discoveries. They require as prerequisite the mastery of such earlier discoveries as the theory of relativity and the quantum theory, both of which are inseparably bound up with Einstein.

Many of his writings still have current significance, for instance, his articles developing the basic principles of laser action. Academician Alexander Prokhorov, who won a Nobel Prize for his discoveries in this field, called these writings "the foundation of quantum electronics."

Several Soviet physicists, among them Yakov Frenkel, Vladimir Fok, Yuri Krutkov and Sergei Vavilov—who incidentally were all personally acquainted with Einstein—have written monographs dealing with the theory of relativity.

Way back in 1922 Soviet physicist Alexander Fridman published an article, "Concerning the Curvature of Space," which is considered the first application of Einstein's theory to cosmological problems. Fridman deduced from Einstein's equations the theory of the expanding universe, corroborated experimentally five years later. This signal achievement was recognized by Einstein himself, although not immediately. In recent years other contributions to the theory of relativity were made by Soviet physicists, among them Academician Yakov Zeldovich, Corresponding Member of the Academy of Sciences Yevgeni Livshits and Professors Yakov Smorodinsky, Vladimir Sudakov and Isaac Khalatnikov.

QUERIES FROM READERS

QUESTION: How has the Soviet share changed in gross world industrial production? (John Ortiz, New York)
ANSWER: We currently account for a fifth of world output; the 1917 figure was less than three per cent. In gross industrial production, we are second in the world after the USA.

QUESTION: What do you get out of space exploration? Are you recouping at least material expenses? (John Ortiz)
ANSWER: "Expenses of space exploration," says Alexander Petrov, Director of the Institute of Space Exploration,"are far in excess of revenue. However, we do get returns in the way of much improved weather forecasting and from commercially operated Molnia-1 television and communication satellites. Space flights also help us solve problems in many of the terrestrial sciences. These are only the beginnings of benefits, however. Eventually they will help us construct a theory of the evolution of the Earth's climate, forecast the weather for many years ahead, predict dry or wet years, and make it possible for us to influence the climate. Further, space engineering enables us to re-explore the Earth and to explore other planets which we know are storehouses of natural treasures. Scientists think space engineering will make for more rational research in high-energy physics. Aircraft designers are thinking in terms of passenger rocket planes that will make a Moscow to New York run in one hour, and they think such flying machines will be money saving."

QUESTION: What part do inland waterways play in the USSR? (Donald Chapman, Milwaukee)
ANSWER: A very large part since we have 90,000 miles of inland waterways. Here and there we have places where rivers are still the only means of access. In the Soviet period more than 10,000 miles of manmade waterways have been built, including the White Sea-Baltic Canal, the Lenin Volga-Don Canal, and the Kara Kum Canal. In 1964 the Volga-Baltic waterway, a system of canals and reservoirs, opened to make Moscow a port of call for five seas: the Baltic, White, Caspian, Black and Azov. Last year 286.4 million metric tons of cargo were carried, or twice as much as by sea. Nine out of every ten boats range between 4,000 and 5,000 tons and are motorships, diesel, electric ships and tankers launched in the past 10 to 15 years. On shallow rivers drawing only one to two feet we use glider motorships and hovercraft.

QUESTION: Is the Soviet Union a member of any international health organizations? (Hugh Cooper, Richmond, Virginia)
ANSWER: Yes, it is a member of several European and more than 10 world health organizations, among them WHO; the International Unions against Tuberculosis, against Cancer, and for Public Health Education; the International Societies of Surgery, of the History of Medicine and of Internal Medicine; the Association of Doctors for the Study of Living Standards and Public Health; the International League against Rheumatism; the Federation of Obstetrics and Gynecology Societies; the International Pediatric Association; the Federation of Neurological Societies; the Blood Transfusion Society and the Hematology Society.

QUESTION: Why is there no unemployment in your country? (unsigned)
ANSWER: In the first ten years after the Revolution we did have unemployment. We did not close the employment agencies until 1928. Planned economic development ended unemployment by the close of 1930. Since all our plans call for economic development and expansion, the demand for manpower has been greater than the supply for 40 years now. That is indicated by the want-ads carried in the newspapers, over the radio and on billboards.

QUESTION: Do you have gambling dives, casinos and the like? (Michael Beveridge, Los Angeles, California)
ANSWER: No, nothing of the sort, not even soccer pools, but we do have pari-mutuels at our racetracks.

QUESTION: Are sales of TVs and refrigerators going up in the USSR? (S. C. Smarsh, Westchester, Illinois)
ANSWER: Yes, markedly so. Between 1960 and 1966 sales of TV sets went up from 1.5 to 4 million, refrigerators from 500,000 to 2 million, washing machines from 900,000 to 3.5 million and vacuum cleaners from 400,000 to 700,000. Sales of clocks and watches, pianos, motorscooters and a number of other durables are also increasing.

QUESTION: What kinds of timber does the USSR produce and to which countries does it export this timber? (Jack Motts, Boston, Massachusetts)
ANSWER: "The USSR," says Vasili Rubtsov, Chairman of the State Forestries Committee, "grows upwards of 400 million cubic meters annually, exporting most of it as round timber, sawn lumber, plywood, pulp, pressboard and other chemically processed timber products, mainly to Britain, Norway, Finland, Japan, Turkey, Iran, Czechoslovakia, Poland, the German Democratic Republic and Hungary."

QUESTION: Have you published any translations of American authors? (Willy Nice, Denver, Colorado)
ANSWER: We have published books by 297 American writers in 52 Soviet languages in a total printing of 134.5 million copies. Some of the translations are in the languages of Soviet nationalities that had no written alphabets of their own only 50 years ago. The most popular American writers are Jack London and Mark Twain. London's books have been published in translation 758 times in 32 languages in a total printing of 28 million copies. Mark Twain has been published 315 times in 28 languages in a total printing of 16.5 million copies. Next come Theodore Dreiser, 176 times, in a total printing of 12 million copies; James Fenimore Cooper, 98 times, 6.3 million copies; O. Henry, 137 times, 5 million copies; Upton Sinclair, 250 times, 4.2 million copies; Sinclair Lewis, 52 times, 4.1 million copies; Bret Harte, 54 times, 3.7 million copies; Ernest Hemingway, 63 times, 2.7 million copies; William Saroyan, 17 times, 900,000 copies; John Steinbeck, 31 times, 340,000 copies; J. D. Salinger, 9 times, 450,000 copies. Translations of Harriet Beecher Stowe, Albert Maltz and Mitchell Wilson have been published in total printings of upwards of two million copies. Translations of Longfellow have come out 22 times in a total printing of 750,000 copies.

QUESTION: Tell me about the international ties of Soviet sportsmen. (Louis Clark, Minneapolis, Minnesota)
ANSWER: We participate in official competitions, Olympic and student games, world and European championships, joint rallies and seminars to exchange sports information. We are affiliated with international sports federations and other sports organizations. Every year more than 10,000 of our sportsmen compete abroad and nearly the same number of foreign competitors come here. We would guess that Soviet sportsmen average two international competitions a day and one world or European championship or cup tournament a week. The USSR has 100 representatives on 16 international sports federations, of whom 22 are vice presidents and 35 members of the executive. Soviet sports organizations are in contact with their counterparts in nearly all the countries of Europe, Africa, Asia and America. More than a thousand Soviet sportsmen are coaching young athletes in the developing countries of Africa and Asia.

QUESTION: What wines are made in the Soviet Union? (Claude Lyons, Atlanta, Georgia)
ANSWER: Best known are our champagnes, Armenian brandies, Crimean muscats, Ukrainian cordials, Georgian and Moldavian dry wines, Tajik sweet wines and Uzbek madeira. We make more than 600 different wines. At annual international winetasting competitions, Soviet wines have been awarded 462 gold and 470 silver medals. Most of the gold medals went to Crimean muscats, brandies and champagnes.

QUESTION: Has virgin land reclamation in the Soviet East been justified? (Harry Smith, New Orleans, Louisiana)
ANSWER: On the whole, yes. Discounting dry years, the virgin lands furnish between 25 and 30 million metric tons of grain annually. Many state farms, communities and industrial establishments have been built there. However, because of erosion part of the reclaimed virgin territories are no longer tilled; they are used for state farm livestock grazing.

QUESTION: Is it possible to buy Soviet planes or helicopters? (Carol Morton, New York)
ANSWER: Yes. The Soviet Aviaexport Corp. does business with 35 countries. In particular demand are the IL-18, TU-124, AN-24, AN-2M aircraft, and the MI-4 and MI-6 helicopters. The latest, large IL-62 and TU-134 jet liners and V-8 and V-10 Flying Crane helicopters are also sold.

AROUND the COUNTRY

OCEAN-GOING ROBOT

The Oceanography Institute is testing a deepwater robot equipped with television cameras. The robot looks like a ponderous steel crab. It is not as nimble, but its claws are superior to those of live crabs—they simulate human hands. The eyes are film and television cameras. The robot is linked to its human masters by a television cable that can withstand enormous loads and is not ruptured by its own weight. Preparations are now under way for immersion to record depths. The robot can do 22 operations; for example, it turns boxes with cameras underwater and shifts stones on the bottom. Eventually it will learn to pick up things as small as a needle from the sea bottom. The results of the tests are being awaited by geologists and oilmen.

RESCUER OF 217

Agnia Khablova, a Leningrad woman, holds the infrequently awarded Florence Nightingale medal of the International Red Cross. It is bestowed upon nurses and volunteer Red Cross assistants who distinguish themselves by great self-sacrifice. In World War II Agnia Khablova, at the risk of her life, carried 217 wounded men from the battlefield.

NEW CAR MODEL

At the end of last year the Moscow Automobile Plant started to manufacture the first series of ZIL-114 luxury cars. They feature a V-eight, 290-horsepower engine, automatic gear shift, and transistor ignition. The new model, very reliable, does 112 miles an hour.

FISH SOLVE POWER PROBLEM

Aquarium cars brought 1,600 Ctenopharynodons, otherwise known as white amurs, from the Northern Caucasus to Moldavia. They were shipped in to clean up the reservoir supplying water to the local power station. Weeds clogged the reservoir pipes and interfered with the operation of the power station. Many earlier methods of fighting the fast-growing underwater jungle has been tried: reed cutters, dredges, chemicals, all expensive and not very helpful. The fish are doing a prime job; these weeds seem to be their favorite dish.

AIR FRANCE FLIES AN IL-62

Since May a Soviet IL-62 liner rented by Air France has been making routine flights between Moscow and Paris. The super-comfort liner seats 168 passengers. It is piloted by Soviet airmen, and passengers are served by a mixed crew of Aeroflot and Air France stewardesses.

FLOWERS IN PORCELAIN

Some 130 years ago the prized secret of the St. Petersburg porcelain factory — reproducing flowers—was lost. Last year the workers of the Lomonosov Factory in Leningrad found it again: they developed a new method of reproducing the beauty of live flowers in porcelain. The photograph will give you an idea of their skill.

RARE TROPHY

A scientific expedition delivered to the Oceanography Institute of the USSR Academy of Sciences the shell of a gigantic mollusk. The biggest of the species, it could weigh as much as several hundred pounds.

ELECTRONIC DIAGNOSTICIAN

An electronic diagnostician invented only a year ago is already in general use by surgeons, geologists and archeologists. Geologists use it to determine whether a mineral contains particles of valuable metals that cannot be detected visually. The specimen is brought near the instrument, a button is pressed, and a laser beam probes the particles. At the same time a camera is triggered to photograph the spectrum. Archeologists like the instrument's simplicity and accuracy; they use it to find out the age of ancient buildings. Physicians use it to locate tumors. Previously they determined the extent of a tumor by making numerous histological sections and examining them under a microscope. All they need do now is touch the tissue with the optical electrode during an operation to know the exact location of the tumor.

NEW VERSION OF ARMENIAN EPIC

The Yerevan Institute of Archeology and Ethnography collected almost 1,000 items of Armenian folklore in the course of one year. The most interesting find was a new version of the Armenian epic *David of Sasun*, as told by 86-year-old Parandzem Arutyunyan.

WHERE LENIN WAS EXILED

The hundredth anniversary of the birth of Lenin will be celebrated in 1970. For the occasion Moscow architects are planning to reconstruct the Siberian village of Shushenskoye, where Lenin was exiled by the czarist government. The house he lived in will be reconstructed, as well as part of the village.

NEW SOUNDPROOFING IDEA

The 30-story Radio House to be erected in central Moscow will be 328 feet tall, and the antenna will reach still higher. The authors of the project have an original solution for the soundproofing problem. The building is designed like a nest of *matryoshka* dolls. The heart of the building, on a separate foundation, will house the equipment rooms and studios. It will be isolated on all sides from street noises by a shield—the section of building housing the editorial offices. The two parts of the building will not come into contact anywhere; one will be inside the other and separated from it by an air gap, across which will be laid air-conditioning piping and cables. Bridges, constructed to resemble the flexible crossings between railrood cars, will provide access between the buildings.

RESEARCHING CRYSTALS

The crystals laboratory of the Physics and Astronomy Institute of the Estonian Academy of Sciences headed by young doctor of science Cheslav Lushchik is investigating the effect on crystals of light, X-rays and nuclear radiation. Several years ago Lushchik and his colleagues discovered the phenomenon of photon multiplication in crystals. The discovery was the end product of research begun by Academician Sergei Vavilov, now deceased, to create efficient transformers of light.

MOSCOW ARTISTS SHOW IN PARIS

The Fifth Biennial International Art Exhibition was held last year in Paris. Taking part were artists from 60 countries. All trends in modern art were represented. The USSR displayed work by young artists who have attracted attention in recent years. The international jury awarded an honorary prize to one of them, Moscow painter Victor Popkov. A graduate of the Surikov State Art Institute, he won popularity very quickly. His three pictures *Two*, *Midday*, *Scaffold Bridge*—captivated viewers with their poetry and understatement. Shown here is *Midday*.

SENSITIVE ANTENNA

It weighs all of 1500 tons! Despite its size, or rather, because of it, the antenna installed in the Distant Space Communication Center will register the energy of a match burning at a distance greater than that from the Earth to the Moon.

THE KNACK OF WINNING

This happened 35 years ago. A Moscow - Yaroslavl - Moscow automobile race was organized to celebrate the opening of the Yaroslavl Tire Factory. The leading car was the center of interest, but not only because it was leading. On the fenders sat two men with ropes in their hands. Only after their car had crossed the finish line did they explain. En route their steering gear had failed. Instead of pulling out of the race, they tied ropes to the wheels. They not only finished the race but came in first.

ENGINE DRIVERS ADVISER

The driver of an electric train can now do without an assistant. He has been replaced by a logical automatic adviser developed at the Electronics and Computing Techniques Institute of the Latvian Academy of Sciences. Unlike the automatic driver—an intricate computer intended for specially designed trains — the new unit can be installed in any electric train. This does not relegate the human driver to mere instrument watching. He gets advice from the equipment, but he must make his own decisions depending on the existing circumstances. This takes care of what psychologists call fatigue from idleness, a condition often suffered by people working with automatic equipment.

ATTRACTIVE NEW MARKET

From above it looks like an enormous daisy, with the petals supported by steel guys. The structure will be the covered market place of the city of Ulyanovsk. It has space for 500 meat, milk and vegetable stalls. Farmers will be able to drive into the market and sell their merchandise right off the trucks. In addition to the stands, the complex will have stores for dry goods and food and a restaurant.

UNIQUE ALLOYS

A laboratory of the Moscow Metallurgical Institute has developed a special alloy of palladium and tungsten, thereby multiplying the life of thermal measuring instruments 20 times. The same laboratory has developed a heat resistant alloy of niobium that can take a tension of 11 kilograms per square millimeter for a 100 hours at a temperature of 184°F. The alloy substitutes for the much rarer and more expensive tantalum.

VERY HIGH-SPEED PHOTOGRAPHY

A factory in the Ukraine has developed a series of instruments called Time Magnifiers designed for photographing high-speed processes. The latest models have shooting speeds of up to 10 million frames per second. One second of film shot with this instrument and projected at the usual speed (24 frames per second) would take about two days to run. The same factory is preparing to start mass production of an electron microscope designed for laboratory study and technological monitoring of the production of radio components. The photographs show a Time Magnifier and an electron microscope.

MOUNTAIN RIVER TAMED

Near the Caspian Sea is the mountain republic of Dagestan. Scores of turbulent streams rush down from the high mountains to the sea. But the largest river is the Sulak. For ages the mountaineers have tried to tame this wild river, to use it for irrigation. But the Sulak carried away all the primitive structures. Now, however, the river turns the generator turbines of two hydroelectric stations. Construction recently began on a third station, Chirkei, a 1,000,000-kilowatt station. The river will be barred by a dam 755 feet high and 1,148 feet long. The dam will be unusual—a double-curvature arc—and will create a reservoir near Chirkei village with a volume of more than one and a half billion cubic feet! The river was blocked by a directed blast that dumped 75,000 tons of rock into the bed.

FORECASTING UNDERGROUND WEATHER

Since the Tashkent earthquake of May 1966, Uzbek scientists have been paying very special attention to the state of subterranean weather. New seismic stations are going into operation, double the number in 1966. The new stations are studying the subterranean climate of the Kyzyl-Kum Desert. Seismic activity in the desert was not investigated before; there was no need for it. But desert deposits of gold, gas, oil and bauxite have been found. The studies will help builders locate the most earthquake resistant areas for industrial centers.

PALEONTOLOGICAL FINDS

In the valley of the Far Eastern Suchan River Soviet scientists found bones of the bison, the prehistoric rhinoceros, the mammoth and the wild horse. These finds give Siberian scientist Nikolai Ovodov reason to believe that the climate in the Soviet Far East was more inclement 15 to 20,000 years ago than has been believed.

LIFE IN THE ARCTIC WASTES

The research ship *Tunets* returned to Murmansk after rounding the islands of West Spitsbergen and Barents. Weather conditions were bad. The first underwater photographs taken north of Spitsbergen showed that the bottom of the Arctic Ocean is by no means a lifeless waste. In the cold depths grow whole thickets of marine lillies, plant-like animals. And on the shore of West Spitsbergen the expedition came on a musk ox. According to some scientists, the animal is a contemporary of the mammoth.

FIGHT WITH A BLACK BIRD

Turkmenian Tore Durdiyev was fishing off the reed-covered bank of the Amu Darya River one Sunday. In the thickets he saw an enormous black bird devouring the remains of a ram. The bird pushed at him with a scream, and Tore just managed to throw his raincoat over its head. Holding the bird down with an oar, he got its beak into a canvas mitten. When he brought his trophy to town, zoologists identified it as a black vulture. Heavy with food, the bird had not been able to take off and attack the man from the air.

CHEAPEST COAL IN THE COUNTRY

Geologists have discovered enormous deposits of coal in the Kemerovo Region of Siberia. Work at the Gornoshorsk deposit followed this initial discovery. The coal is mined by the opencast method with excavators. The average thickness of the seams is 66 feet. Gornoshorsk coal is the cheapest in the USSR.

THE PEOPLE BACKSTAGE

The audience does not see them, although they take part in every performance. They are scenery painters and make-up artists trained by the Moscow Theatrical Art Technical School. It takes considerable skill to create a moonlit night or to transform a beautiful young actress into an old woman.

THREE-HALL MOVIE THEATER

In shape and capacity this is the first theater of its kind in the USSR. It is to be built in one of the squares of the capital. The building is reminiscent of a ship. It will have two halls seating 4,000 each for wide-screen films and a smaller hall seating 300 for newsreels and documentaries.

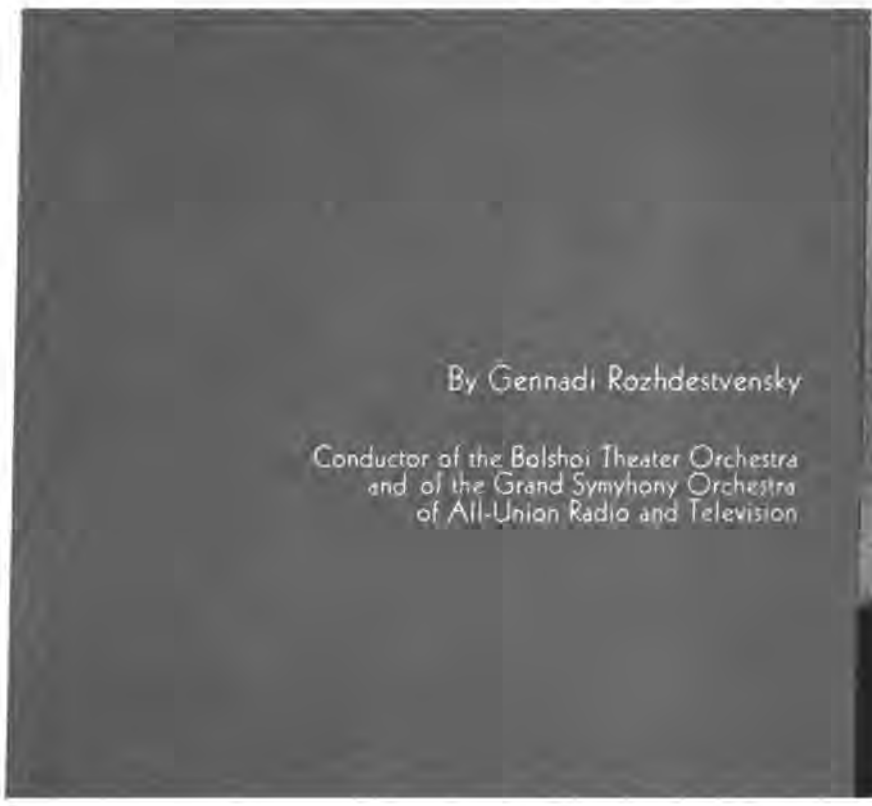
WHOSE MEMORY IS BETTER?

Do fish have memories? How long do fish and other vertebrae remember? Georgian Academician Beritashvili, a physiologist, researched these questions. He found that fish have the shortest memory. Lizards and turtles can retain impressions of consumed food for several minutes, birds for two or three days. Cats and dogs have far better memories than other animals. Where is the image memory of animals stored? By removing various parts of the animal brain Academician Beritashvili established that memory is stored in the frontal areas.

AROUND the COUNTRY

WHEN I am asked what an orchestra conductor is, I try to make light of the question with a "Who knows?" There are so many different occupations in the world, from the very newest—the cosmonaut—to the very oldest—the potter. The orchestra conductor is somewhere on this chaotic list, a man whose function it is to invert the structure of a composer's opus, a man who subordinates his own will to secure a concerted harmony, whose creativity is determined by the degree to which he blends the separate elements of a musical system (orchestra, listeners, the hall, the work being performed and a dozen other components).

Some conductors, musicians and critics are of the opinion that if a symphony conductor directs no operas, he is not a full-fledged conductor. That is not true. I can name a dozen conductors of world renown who have never directed operas. Nobody denies that opera conducting matures your understanding, enlarges your ideas of musical performance, and



disposes you to a more subtle interpretation of scores. But, as far as I know, one of our best Soviet conductors, Yevgeni Mravinsky, has never touched an opera, and yet it is hard to find a talent for conducting to equal his, both in breadth of culture and in the ability to reach to the core of the composer's meaning.

The conductor always follows his orchestra, as well as the mood—the reaction—of the audience, the movement and visual associations the work may suggest. But sometimes there is no audience, as in my case as conductor of the Grand Symphony Orchestra of Radio and Television. During recordings or broadcasts, the radio and television conductor does not have the constant barometer of the audience behind him in the concert hall. He is surrounded only by microphones and television cameras with impassive operators. Since he never knows which of the lenses is focused on his facial expression and gestures, he not only has to watch the orchestra but keep himself in check.

To my mind, concert performances of opera are the hardest of all. There the conductor is not only the binding link between orchestra and singers, who conventionally sing the roles of the opera heroes without any "dramatic" and "decorative" toning, but also the interpreter, director, choirmaster, producer and even sound engineer (as a rule all concert performances are broadcast over TV). I staged Maurice Ravel's *L'Enfant et les sortilèges* and *L'Heure espagnole*, Béla Bartók's *Bluebeard's Castle* and Sergei Prokofiev's *The Gambler*. These are not easy operas to do on the concert stage, and I was really delighted that they were so well received.

True, there are "easy" and "difficult" operas, ballets and symphonies. That depends largely on the conductor's preference for one or another composer. Each conductor has his favorite composer. But that does not mean the conductor can be dubbed, say, "strong" with regard to Shostakovich and "weak" with regard to Rachmaninoff. Every artist uses two methods of cognition: observation and experimentation. For me, personally, these two components are most closely interwoven when I interpret Sergei Prokofiev. In the course of my work, I have conducted opera, ballet and symphony orchestras at hundreds of performances, concerts and radio recording sessions. That is statistics and is measurable. But how much, concretely, a conductor gives of himself to the opus of his favorite composer is not anything you can measure. So that when critics write that in the première performance of Prokofiev's Fourth Symphony I was free of all conductors' clichés, and "built up monumental musical images tersely and precisely," I cannot help smiling. I do not accept such rash appraisals. Since I know the score by heart, I realize how difficult it is to understand the music, even purely technically, from a first hearing. From the viewpoint of a conductor, the greatness of Prokofiev lies in the fact that one understands a work of his fully only after a tenth rendition, at the very earliest. I feel starved when I have not conducted Prokofiev's music for a long time. It is my meat, and I want everyone to enjoy it.

Though I am fond of the moderns—Shostakovich, Shchedrin, Berg, Britten and Stravinsky—the conglomeration of polyphonic and harmonic rhythms in their works requires great flexibility and on occasion makes life difficult for the conductor. I sometimes think I would be a completely happy man if I were an antiquarian rummaging in an ossified heritage. I should like to revive the unjustly forgotten great works of Mozart and Monteverdi. I have no problem choosing between new and old classical music: I love all good music.

I worked with great enthusiasm to transcribe Bizet's music for the opera *Carmen* when Rodion Shchedrin wanted to do a ballet version. In the opera the singer's voice is louder, purer and more effective than in any other genre. That is why this ideal opera score needed transcription. Though opera and ballet are very much fraternal forms of art, each is governed by its own laws. While the composer's job was primarily to work carefully with the musical images of the immortal opera, whose choreographic qualities he resolved with a new type of orchestra—string and percussion groups—I, as conductor, had to create a new musical fabric without distorting Bizet's music.

Once during a tour of Britain, we performed in London's Albert Hall. As each work on the program was played, the emotional tension of the audience mounted. We had already given Shostakovich, Tchaikovsky, Mahler, Haydn and Prokofiev, and it seemed as though the climax had been reached, and yet something was missing. The audience seemed to want a super rendition of a frequently performed piece in the musical repertoire. I chose Scriabin's *Prometheus*, playing it with the composer's behest in mind: "Light must fill the hall, it must pervade the entire atmosphere. . . ." I believe we achieved that, although Scriabin was talking about color effects. But if, after the concert, anybody had asked me how we achieved it, I would have found it impossible to supply a ready prescription. People who want such prescriptions forget that the orchestra—each individual player—must meet the conductor's technical demands. They are the soloists, for they bring the people music, images, moods, pleasure. All of them—violinists, French horn players, oboists and even the man who strikes a bell only once—make up the ensemble to which, if you please, the conductor himself is often subordinated. Naturally the orchestra prizes the conductor's musical acumen, for his job is to use the gifts of his 100 clever and very professional musicians. Then an inseparable creative tie is established between them, and Scriabin's *Prometheus* can be performed with the fire of which the composer dreamed.

Once, after a concert of Sergei Prokofiev's works, Svyatoslav Richter said:

"What a wonderful day it was!" (The concert had been held in the daytime, in the

Grand Hall of the Moscow Conservatory). "The whole hall was lighted by sunshine; thousands of colors surrounded me, just like in Scriabin's music. I wanted to play so much, compose, create."

Of course, when he spoke of color and light, Richter did not mean an electronic machine programmed for certain color effects. What he had in mind was the creation of a new musical fabric born in the process of performance, in the process of improvisation. And the conductor is, above all, an improviser.

But the other side of the picture is that conductors are so intent on improvisation that the inexperienced conductor often deludes himself. On tour there is very little time left for rehearsals, and then he suddenly finds out that improvisation is a risky business. One must carefully consider the orchestra's abilities and one's own. A good sports commentator will tell you that "a soccer match might be dull, but my reporting has to be interesting." In such cases the commentator always score by heart. He must make a Brittenish promenade through the orchestra, "play" the flute, the oboe, the violin, the viola, the French horn and the trombone, to feel and subordinate the entire orchestra to his will.

Unfortunately, few young conductors are performers as well. They prefer to "lead" the orchestra.

Speaking of the work of many talented conductors, their fine ideas and purely individual interpretations of these ideas, one must not forget that we use completely rational methods, albeit each in his own way.

The big differences among conductors must be sought not so much in the art of conducting itself as in the all-round creative evolution of the personality. I had occasion to witness the diversity of Leonard Bernstein's talent. Lovers of symphonic music in the Soviet Union remember his performances in 1959. From the newspapers we now learn that he has been awarded the unique title of Conductor Laureate. After finishing his 10-year

The statement that there are no bad orchestras but only bad conductors is completely groundless. If an orchestra is like an Augean stable, no Hercules, even if he is a Toscanini, can clear it of musical garbage.

Unfortunately, many music lovers do not know or wish to know that. The damning part of it is that the press, with whose assistance the public's opinion of a conductor's skill is "prepared," sometimes analyzes our work with insufficient discrimination.

I remember the time, during the tour of the BBC Symphony Orchestra in Moscow and Leningrad, a correspondent asked me what I thought of Sir John Barbirolli and his orchestra. I told him I considered diversity of program, ease of performance, true musical discipline, and light, nonblaring brass his greatest contributions.

A lot has been said about Barbirolli. He was and will continue to be a great master, a representative of an older generation of conductors passing on to the young his sense of

THE WAY A CONDUCTOR SEES IT

has a tried and tested trick in his bag. The conductor has nothing but the score, the orchestra and his emotions.

Before mounting the podium, the conductor must learn to communicate with the musicians in his orchestra and himself obey the invisible harmonic law the orchestra follows. This is especially true if he is on tour and has not worked with that orchestra before.

We know that conductors have sometimes had to lead orchestras and play an instrument simultaneously. I, too, have had to be conductor and soloist at the same time. That, it seems to me, should give the musicians a fillip, serve as a kind of springy trampoline. George Szell is a fine pianist and a no less remarkable conductor. While on tour in Moscow, Lorin Maazel managed to find time to play the violin. Eugene Ormandy is a violinist-conductor who captivated Soviet audiences in 1958 with his temperament, restraint and fine technique. David Oistrakh, the renowned violinist, has also appeared as a conductor.

I list the names of the masters to illustrate still another difficulty in the conductor's thorny path. A real artist is great by reason of his ability, unlike the artisan, to see more than his own reflection in the environment around him.

A conductor needs to do more than learn a contract, he will not return to the post of musical director of the splendid New York Philharmonic Orchestra. On the one hand, that is sad news, for it will not be easy to find a worthy successor. On the other hand, the world of music will be enriched with new Bernstein scores, beginning with musical comedies and ending with serious symphonies. He will spend more time on tour and thus pass on his rich conducting experience.

Does that mean that he must be turned into an undisputed authority and his creative system made a cult? Certainly not. That can only sicken a man whose name will remain forever in the annals of music. There are no final authorities in art.

They say that when Arturo Toscanini conducted Wagner, he had a Verdi score on the music stand in front of him.

"I know I am criticized for being too exacting and cruel, but nobody knows how much I fear the orchestra players." That was said by Toscanini, who knew every score by heart, down to the smallest detail, who achieved perfection by dint of untold numbers of rehearsals, a phenomenal memory and great intellectuality.

Artistic emotions, their vivid expressions, depend not simply on the conductor's talent, but on a combination of many components.

the beauties of romantic music. Of course, I could have said that the *staccatissimo* was not even, that the *subito forte* and *subito piano* were not vivid, that I suspected phrase errors by the French horn or cello. But it is not only musicians who read the press. Their number is too few. The press is read by millions of listeners, and they are not always interested in the solvents and colors a painter uses on his canvas. They are interested in the finished product—music, fresco, ballet, film, opera. The press should educate, guide the great masses of people, people who become accustomed to listening to a complex work of art without expending the least effort.

There have been attempts to make conducting scientific. Psychologists and cyberneticists have tried to program all the gestures and movements of the best conductors. To me these attempts are worthless. There are great conductors whose gestures are very sparing, but they elicit a power and rhythm that shake the conductor's stand. This kind of conducting is not for those who go to concerts so they can say, "Oh, he's not much better than last season's conductor." I am suspicious of this kind of visual analysis. I am suspicious of visual rhythm because I conduct music. What I try to do is weave line, form and color into a musical fabric.

Catherine the Great's Grand Imperial Crown has 4,936 diamonds, with a total weight of 2,858 carats.

CROWN JEWELS

By K. Telyatnikov

ON DISPLAY in the Armory Museum of the Kremlin in Moscow is a unique collection of precious stones created by Mother Nature and crafted by master jewelers.

There are diamonds sparkling with all the colors of the rainbow; magically lighted emeralds, rubies, sapphires: all of them reflecting the pale, rich glimmer of the gold and platinum nuggets displayed. You cannot take your eyes away from the play of colors of the jewelry—whole bouquets of gems, exquisite diadems, buckles, earrings, bracelets and aigrettes.

Early in the eighteenth century Peter I decreed all the treasures of the Russian czars state property. When the First World War broke out, the crown jewels were moved from St. Petersburg to Moscow and deposited in the Armory Museum. Immediately after the Revolution, Anatoli Lunacharsky, then People's Commissar of Public Education, declared all the historical treasures and monuments in the Kremlin the property of the republic and the people. In April 1922 a commission of experts was appointed to study the crown treasures. The commission, made up of distinguished historians, jewelers and art specialists, was headed by Academician Alexander Fersman, the mineralogist and geochemist. That same year the Diamond Fund was formed by a decree of the Council of People's Commissars signed by Lenin.

This was a time when the country's economy was in ruins and starvation was everywhere. Foreign interventionist forces and the Civil War had paralyzed industry and transport. Before a socialist society could be built, the economy had to be reconstructed. But industrial output was negligible, and the young Soviet Republic could not get foreign loans.

One of the most important problems was to get the railways working. In 1924 the Soviet Government wanted to buy locomotives for the Trans-Siberian railroad from U.S. manufacturers. The prices asked were fantastic. The republic had no foreign currency, and the locomotives were offered in exchange for some of the treasures in the Diamond Fund. But the Bolsheviks refused to trade irreplaceable works of art for locomotives. Eventually enough foreign currency was accumulated.

One of the most interesting items in the Armory display is the Grand Imperial Crown, made by I. Posier for the coronation of Catherine II in 1762. This master jeweler of Swiss origin had lived in Russia since childhood. The gold crown is set with 4,936 diamonds weighing 2,858 carats. A huge ruby spinel weighing 398.7 carats lights up the diamonds like a purple flame. The crown is valued at 104 million gold rubles.

Indescribably beautiful are the clusters of precious stones used as corsages. One bouquet of diamond narcissuses has gold pistils. Set on miniature springs, they quiver and scintillate as the light changes. The famous Big Bouquet is made of diamond flowers waving on emerald stalks as if caressed by a gentle breeze. A bud in this bouquet, fashioned by the jeweler from a pale lilac diamond, is a great rarity.

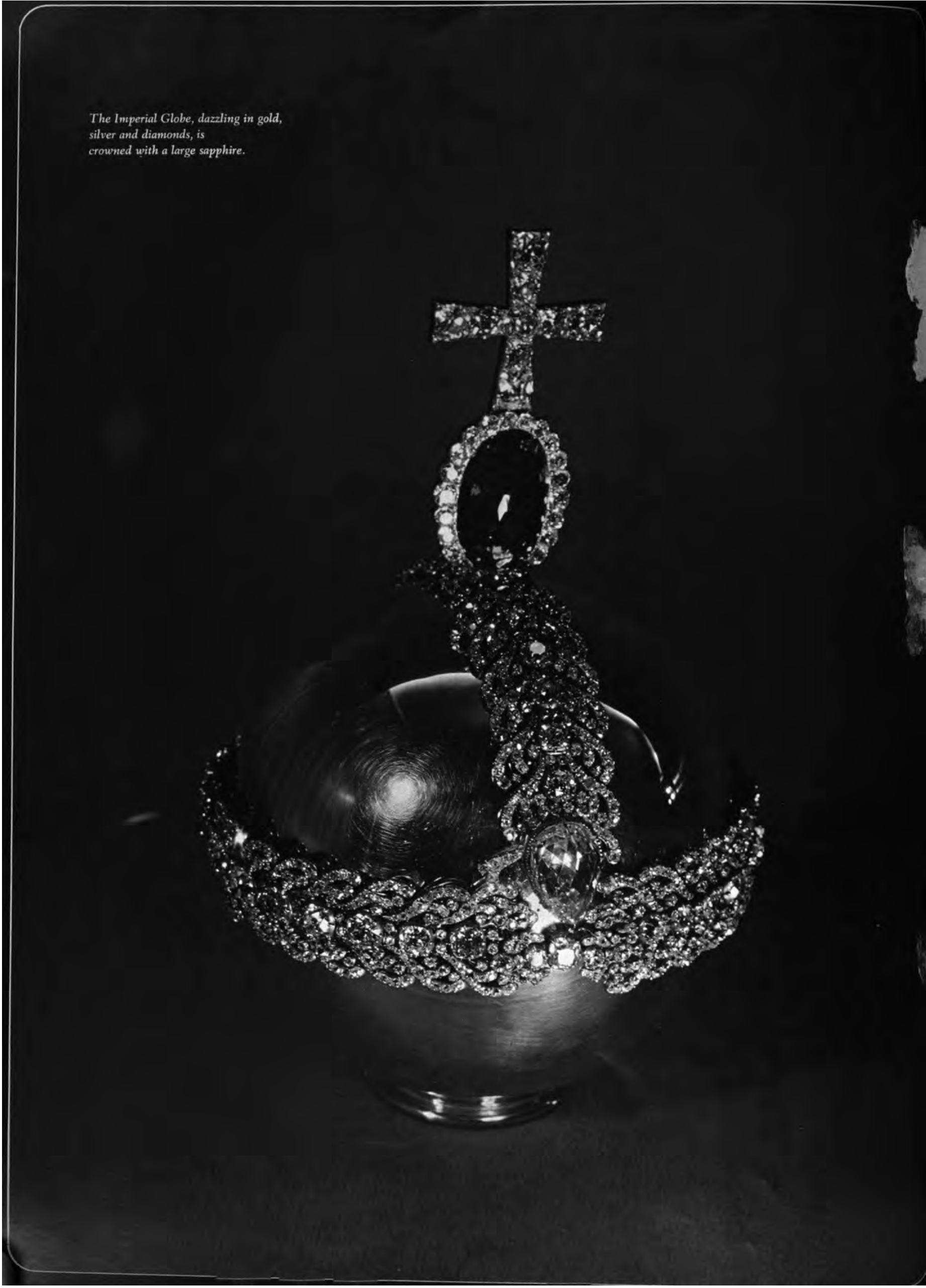
The Shah diamond draws onlookers not only for its beauty and perfection of shape, but for its unusual history. This transparent yellowish stone weighs 88.7 carats and is priced at 20 million gold rubles. Three inscriptions engraved on the facets tell the stone's romantic story. It was found in India some five centuries ago and became the property of one of the princes of Ahmednagar. After many wars, it fell into the hands of the Great Moguls. In 1655 the famous traveler Tavernier saw the stone hanging as a talisman on Aurangzeb's throne. In the eighteenth century the diamond was owned by Shah Nadir of Persia. On January 30, 1829, Alexander Griboyedov, Russian diplomat and writer, was killed by a hired assassin in Teheran. Shortly thereafter the Shah's son came to St. Petersburg and presented Emperor Nicholas I with the diamond (one of the most precious possessions of the Persian court) to "atone for the guilt."

Perhaps the most interesting diamond in the display is the Orlov. This stone, of remarkable purity and carved in the shape of a tall Chinese rose, weighs 199.6 carats. The story goes that it was discovered in legendary Golconda in the seventeenth century and became the eye of a pagan idol. Subsequently it was purchased from a Persian warrior by Armenian merchant Safras and sold for 400,000 gold rubles to Count Grigori Orlov, the favorite of Catherine II. He gave it to the Empress. In 1774 an anonymous jeweller used it to crown her 26-inch sceptre.

More recently, in Soviet times, the Diamond Fund was replenished with new gems. One of these, a flat-faceted octahedron with a greenish glow, weighs 44.6 carats and is valued at 90 million gold rubles. The stone was found in distant Yakutia by Nikolai Korablev, an excavator operator. Exhibited alongside it is Rabotnitsa, a diamond from the same deposits weighing 41 carats. The biggest diamond in Yakutia was found quite recently by Maria Konenkina, worker in a sorting mill. The 106-carat stone was named Maria in her honor.

The gold and platinum nuggets make a rich display. One huge rock of gold, called Big Triangle, weighs 80 pounds. Even more interesting is a miniature gold head of Mephistopheles weighing 20.2 grams. Everybody thought it was the production of a jeweler until a commission of experts ruled that it was the work of the greatest craftsman of them all—Mother Nature.

The Imperial Globe, dazzling in gold, silver and diamonds, is crowned with a large sapphire.

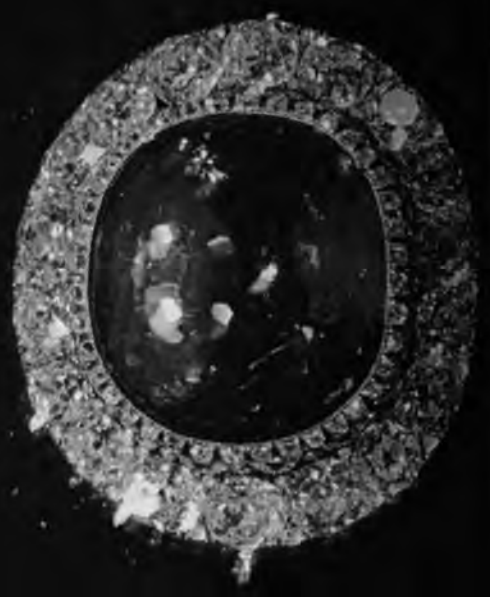


The main feature of the gold and silver Imperial Scepter is the 199.62-carat Orlov diamond.

Gold and silver brooch with 136.25-carat center emerald enframed in smaller emeralds and diamonds.

Breast decoration, in enamel, with a miniature of Peter I

Ceylonese sapphire brooch with a frame of Brazilian diamonds.



A gold and silver diadem lavishly decorated with many large diamonds.

The Big Bouquet, an outstanding work of jewelers of the eighteenth century.

The 88.7-carat Shah diamond.

Miniature, Order of St. Catherine.

Lace with tassels: gold, silver, diamonds and pearls.

Gold bracelet with a 25-carat diamond, emeralds and other precious stones.

From left to right: 44.62-carat Gornyak (Miner) diamond, flat-faceted octahedron, greenish; 37.71-carat Vilyuiski, flat-faceted octahedron, second water; 21.12-carat Pokoryonny Vilyui (Conquered Vilyui), flat-faceted octahedron, colorless.

JEWELS AND DI

IN OLD RUSSIA diamonds signified personal wealth; today they are a symbol of the country's industrial potential. The aircraft, automobile and engineering industries need diamonds; so do geologists.

Once we mined diamonds only in the Urals. Output was negligible, nowhere near the demand. And diamonds were hard to buy on the world market. So began a twofold project—the hunt for new deposits of natural diamonds and the manufacture of synthetic ones.

One day in 1954 the sensational news broke that diamond pipes had been discovered on the banks of the Daldyn River in Northeastern Siberia. Foreign scientists found it hard to believe: The diamond had always been a tropical "fruit"—the geographical location of all previously discovered diamond deposits confirmed that. It was a fluke, they said; Russian geologists had just been lucky.

The discovery was no fluke though. The belief that Siberia had diamond placer deposits was based upon sound theory. No book on Soviet diamonds is complete without a mention of Vladimir Trofimov, the man who suggested where diamonds should be looked for. He says:

"What is unprecedented is that, in contrast to all large world pipes, our diamonds were not found by accident. We in the Soviet Union worked out our own special method of diamond prospecting, which helped us run down one kimbelite pipe after another. Luck has nothing to do with it."

Only recently the new method helped prospectors track down diamond mines in Kazakhstan too. Geologists first found pyropes, which invariably indicate the presence of diamonds, then they found the diamonds. They hope eventually to discover primary deposits in Kazakhstan.

Natural diamonds originate in molten rock seeking to erupt from the vents of volcanoes. On the way out, the molten rock, heavily saturated with gaseous carbon, runs into a solid stone wall. The high pressures and temperatures thus created form diamonds.

To obtain synthetic diamonds these conditions had to be reproduced artificially. Pressures of scores of thousands of atmospheres and temperatures above 5000° F. were called for. In the same way that spacecraft need superboosters to make their ascent, so must superhigh pressures be created by special equipment. This equipment was designed and produced.

A little more than a decade ago all this was one big wilderness blanketed with snow. Today Mirny is one of the large centers of the Soviet Union's fast-growing diamond-mining industry. This is Mirny's ore-dressing plant.

The diamond Maria is a 105.98-carat crystal with a lemon-yellow color.

MOND TOOLS

The next task was to develop structural materials able to withstand such pressures. Very high pressures cause ordinary materials to undergo a treacherous change of properties. Thus, a pressure of several thousand atmospheres suddenly transforms a massive steel container into something very much like a sieve, the glycerine inside starting to ooze out like sweat. Under a pressure of 9,000 atmospheres hydrogen explodes through a steel tank as if it were a burlap sack. In short, matter rebels, unwilling to obey man.

Gradually this problem was also resolved. Structural materials were developed to withstand pressures dozens of times greater than those mentioned. Scientists found that steel and other materials could become more plastic and stronger under allover pressure, that this made the walls of a container firmer, denser and more waterproof.

But, as we noted earlier, to get diamonds our equipment also had to withstand the high temperatures at which metal becomes pliable and melts. Eventually this problem was solved too.

Work to synthesize diamond was started almost simultaneously with the search for natural diamonds. The equipment is housed in armored vaults, much like the strongrooms of banks, and may be entered only through heavily barred steel doors. So you see, diamonds are not only stored, but also made in strongrooms. The machines inside resemble the armored turrets of a battleship. They are connected to motors by broad copper bars relaying strong current. These turrets are actually large pressure chambers. Each of them yields as many sparklers as an average diamond field on a lucky day.

This is how it is done. The chamber is loaded, the steel doors barred and the big electric motors switched on to rotate the compressor. Everything else is remote controlled. Manganite wires signal the growing pressure. The temperature rises. Behind the thick wall of stressed metal is played out the great mystery of diamond genesis. It does not take long. Then the chamber is unloaded, the "cake" broken up, and we see sparkling in the black velvety cleavage like stars at night clusters of diamonds, whose uneven edges seem to reflect the drama attending their birth. They are very hard, able to scratch the hardest of natural diamonds. In tests tools edged with such diamonds demonstrated a wear-resistance factor 40 per cent higher than tools with natural diamonds.

The alchemists of this twentieth century have created artificial diamonds with physical and chemical properties to meet different industrial needs. Tools edged with these diamonds are able to do countless times the amount of work done by ordinary tools. For instance, a diamond cutter travels close to 2,000 miles between sharpenings; the best hard alloys do only 20 miles and fast-cutting steel only five. This hardness property is having a particularly significant effect on present-day assembly lines and in automated plants. To replace one cutter you might have to stop the entire line, and in the case of frequent replacements, the line would be idling more than half the time. This means that complete automation is out of the question without diamonds.

Also, we need them to drill for treasures hidden in the earth.

It was established recently that radioactive radiation gives some types of diamonds valuable semiconductor and photoelectric properties. Diamond semiconductors will do good service in aggressive corrosive media under tremendous mechanical stresses, in other words in cases where semiconductors made of other materials cannot be used.

The first batch of artificial industrial diamonds was produced in the Ukraine six years ago. Today we find on Kiev's main street a shop called Almaz, the Russian for diamond, which does a roaring trade not only in diamond cutters, abrasive wheels and bits, but also in such items as nail files, which, incidentally, range in price from just 70 kopecks to one and a half rubles—all the produce of the local pilot plant of synthetic and hard materials and tools.

This shop has an electronic device for counting customers, and last year the monthly average was between 25,000 and 30,000. Many, of course, come out of curiosity. But plenty buy or ask for advice because the shop's main function is to popularize the use of synthetic diamonds. Detailed advice is available on all aspects of diamond tool use, the consulting expert even demonstrating on a machine tool various methods for treating the hardest materials.

As we said, many come to buy. Thus, people from an engineering plant acquired a 445-ruble grinder whose working edge is studded with 356 carats, enough to sharpen 10,000 hard-alloy cutters. Tubes of diamond paste were sold to buyers for an auto-repair shop for grinding valves and to a barber who needed the stuff to hone his razors.

Though scientists in various countries have been synthesizing diamonds, no one was able for a long time to obtain large polycrystals. All attempts to synthesize the so-called ballas diamond, a spherical type with a radiant structure that is very seldom found in its natural form, were abortive too. Now such rare types have been developed at the USSR Academy of Sciences Institute of High Pressure Physics. They are spherical complex formations 6 to 6.5 millimeters in diameter, with a surface of small but well-cut crystals.

A few years ago the USSR accounted for a negligible proportion of the several tons of diamonds mined in the world annually. Today, thanks to geologists and physicists, the demand for industrial diamonds has in the main been met. The job now is to get the engineer to use the diamond as readily as, say, a slide rule. Industrial diamonds are no longer precious gems. They do service as ordinary tools, and without them one cannot make dependable, long-lasting parts and precision instruments, build nuclear power plants, or launch vehicles into space.

Mining diamonds with a dredge in the Irelyakh River. This is Yakutia in the summer, when the waters flood big areas of the valley. In winter the landscape changes beyond recognition; the shallows freeze down to the bottom.

By Bruno Pontecorvo

Member of the USSR Academy of Sciences

THE NEUTRINO—AN

FOR SOME TIME past there have been increasingly frequent references, both in the press and in scientific journals, to an enigmatic elementary particle with the rather strange name neutrino. What is it like, this particle, what part does it play in the physics of elementary particles and in the Universe?

The neutrino is a factor in the so-called beta-decay of atomic nuclei and in other transformations of elementary particles. It is present whenever energy appears to be lost. One might say the neutrino was "invented" theoretically, because the properties of this elusive particle were originally postulated to account for the missing energy.

The neutrino would readily pass through, say, a cast-iron slab millions of times as thick as the distance from the Earth to the Sun! To put it differently, a million billion neutrinos would have to go through solid material one kilometer thick for one neutrino to produce any effect.

For all its elusiveness, the neutrino was finally discovered experimentally, and now it has a place of its own in the family of elementary particles. A free neutrino was observed in the United States, using a high-power uranium reactor.

Neutrino Charge?

Unlike elementary particles generally, the neutrino interacts very weakly with others. This accounts for its fantastic penetrability. All particles are subject to weak interactions, but they are also subject to other, much stronger, interactions. That is why their penetrability is limited to an equivalent of several tens of centimeters of cast iron. The neutrino is unique for this weak interaction and is the "purest" of the elementary particles in that sense.

The high-power uranium reactor, the source of the antineutrino, has provided us with one more important characteristic of the neutrino, namely that it carries the so-called neutrino charge. But how can a neutral particle carry a charge? It can, if it is not "completely" neutral. So we have these questions to answer, "Is the neutrino truly neutral?" "Does it differ from the antineutrino?" Experiments in reactors have shown that the neutrino and the antineutrino *are* different particles. The neutrino is not truly neutral; it carries a charge, not an electrical one, but a so-called neutrino charge.

The antineutrino is a particle which is emitted in the beta-decay of nuclei along with an electron (when a neutron turns into a proton). But there is another mechanism known as the plus beta-decay—when the proton inside a nucleus spontaneously turns into a neutron, a positron and an "elusive" particle. This particle we call the neutrino.

Neutrino Charge—Its Character

Apparently the neutrino is polarized. Moreover, the neutrino and the antineutrino are polarized in opposite senses.

The neutrino spins counterclockwise, and the antineutrino clockwise, as viewed in the direction of its travel. This was postulated in the theory of a longitudinal neutrino advanced by A. Salam of Pakistan, Lev Landau of the USSR, and T. D. Lee and C. N. Yang of the United States, who insisted that the neutrino must be fully polarized. Their theory also postulates that the neutrino must have zero rest mass. In other words, as follows from the theory of relativity, its velocity is always equal to that of light.

Today all of these postulates have been proved experimentally. Among other things it has been shown that the neutrino spins counterclockwise (if viewed in the direction of its travel). It is known that the neutrino and the antineutrino display a high degree of polarization. It has not been proved, however, whether or not the elusive particles are fully polarized, as is postulated by the theory of a longitudinal neutrino, or that their rest mass is zero.

Thus, one may conclude that the neutrino and the antineutrino are different from each other and that they spin in opposite directions, the neutrino resembling a left-handed screw and the antineutrino a right-handed screw. But this suggests a logical question: Is this all there is to the neutrino charge? In other words, is the difference in spin the only difference between the neutrino and the antineutrino?

Neutrino studies are making rapid progress, especially with the advent, in our country and elsewhere, of a new division of the physics of elementary particles—the physics of the high-energy neutrino.

Energy and Interactions

The neutrinos ejected by the radioactive nuclei in uranium reactors have an energy of the same order of magnitude as the characteristic nuclear energy, that is, several million electron-volts. This energy is a million times greater than the energy of the electrons in the atom. But now that we have machines accelerating particles to tens of billions of electron-volts, reactors are looked upon as sources of low-energy neutrinos.

The physics of high-energy neutrinos deals mainly with pion neutrinos, that is, the neutrinos produced by the pion-decay.

How can one produce a beam of pion neutrinos?

Visualize a modern accelerator producing protons with an energy of billions of electron-volts (such as the proton synchrotron at the Joint Nuclear Research Institute in Dubna in the Soviet Union or the accelerator at the Brookhaven National Laboratory in the United States). On hitting a target (an aluminum plate a few centimeters thick), the protons produce pions. The pions disintegrate "on the move" (the mean path to decay in a vacuum for pions is a few tens of meters). Their disintegration is accompanied by the production of neutrinos.

It is the beams of these pion neutrinos that are presently being used in the world's biggest laboratories. Experiments are being done on a fantastic scale. The accelerators they use have magnets weighing tens of thousands of tons, and the neutrino detector itself tips the scales at tens of tons.

The current quantitative theory of weak interactions recently formulated by Feynman and Gell-Mann around ideas suggested by Fermi, Lee, Yang, Landau and Salam is universal. In other words, the behavior of all other particles in weak interactions is, basically, the same as that of the neutrino. By this theory, the physical processes associated with weak interactions in the low-energy region can be calculated with reasonable accuracy. However, fundamental difficulties arise in the case of high energies. As follows from the theory itself, the interaction of the neutrino gains strength as the energy of the neutrino increases. If this increase were to continue with increasing energy, then at the fantastically high energy of 300 billion electron-volts we would run into an absurdity. The strength of the interaction must therefore cease increasing short of 300 Bev. But this immediately poses other questions:

Will the increase cease near 300 Bev or at a markedly lower energy? In other words, will the weak interaction become a strong one at very high energies or not?

What is the mechanism by which the interaction ceases to gain strength?

These are unanswered as yet. The simplest answer theoretically (but not necessarily the correct one) is that the interactions of the four particles (the neutron, proton, electron and neutrino in the beta-decay) are of a secondary character and that they may be due to a hypothetical particle responsible for weak interactions. Many laboratories are now trying to detect this particle with beams of the high-energy neutrino. The results to date have been negative.

In the light of their work on the physics of weak interactions at high energies, Academician Moisei Markov of the Soviet Union and other investigators have postulated the existence of two types of neutrino.

Two Types of Neutrino

According to them, the neutrino involved in various reactions with the electron (the electron neutrino) differs from the neutrino involved in reactions with the muon (the muon neutrino). An experiment has shown that the muon neutrino produced by an accelerator can bring about a reaction with the emission of electrons. It was done by a team of American physicists that included Lederman, Schwartz and Steinberger, and was a highlight of the International Conference on High-Energy Physics at Geneva the summer of 1962. From the experiment it follows that the muon neutrino and the electron neutrino are different particles.

A similar experiment done at Geneva by a team under Professor Gilberto Bernardini, with the participation of the Soviet physicist Victor Kaftanov, gave the same result: The electron neutrino and the muon neutrino are different particles. Physicists are trying to elucidate what the existence of two types of neutrino means to the theory of weak interaction.

Worth mention is another unsolved problem of the physics of the neutrino: Do electrons scatter, that is, deflect, the neutrino with a probability comparable with the probability of all other processes involved in weak interaction? The theory of the neutrino answers this question in the affirmative. However, it has not yet been sufficiently proved experimentally. This is why it is important to detect neutrino-electron scattering in an experiment. And that experiment will be done in the near future despite all the difficulties involved. For the problem

is vital not only to the physics of elementary particles, but to astrophysics as well.

Neutrinos and Stars

Indeed, it has been shown in recent years that this phenomenon may lead to the discovery of a new mechanism by which the stars lose much of their energy, one related to the ejection of neutrino-antineutrino pairs. This mechanism must be at work in those stages of the evolution of the stars when their temperature and density are very high. Moreover, the neutrino brightness of some stars may be much greater than their light brightness. We do not know, however, whether such a mechanism exists in fact.

In any case, the close links between the microworld and the cosmos show up in the physics of the neutrino more clearly than anywhere else. A new science, neutrino astrophysics, has been developed to describe the many events in which the neutrino plays the leading part.

Neutrino astrophysics has two aspects. On the one hand, the neutrino plays a part in some of the events occurring inside the stars. Therefore, astrophysics as a theoretical science should take into account the effect that the elusive particle has on the dynamics of the interstellar processes. It is not unlikely that the neutrino will figure prominently in cosmogony.

On the other hand, the neutrinos emitted by the stars or coming from outer space in general can be caught on the Earth, thereby revealing valuable information about the Universe. Future physicists and astrophysicists, working together, may sometime in the future devise equipment to measure the intensity and energy of the neutrinos and antineutrinos coming from the various celestial bodies or outer space, thereby giving investigators an additional powerful tool for solving astrophysical problems. Electromagnetic waves come only from the surface of the celestial bodies, but the neutrino will provide an insight deep into the stars since it passes easily through the Sun!

Of course, much of what has been said above, although feasible in principle, is far from practical realization. Yet some of the problems will be solved in the near future. Let us consider them. First comes the Sun.

From the Depth of the Sun

Although the production of neutrinos in the stars is still to be clarified, we have already learned something about the process. We have, theoretically at least, calculated the stream of neutrinos from the Sun. The figure is 10^{10} to 10^{11} neutrinos per second per square centimeter of the Earth's surface area. The energy transfer to the Earth by the neutrinos from the Sun is enormous. It accounts for several per cent of the total solar radiation.

With equal certainty we may say that the Sun ejects neutrinos and not antineutrinos. The conclusion is based on the type of reactions that can take place in the stars. We know that the Sun and other stars liberate their energy through hydrogen and carbon cycles in which hydrogen turns to helium. In the conversion, neutrinos account for about 5 per cent of the Sun's energy.

Theoretically, it is of paramount importance to know which nuclear reactions take place in the central part of the Sun. The necessary clues can be supplied by the neutrino.

The point is that neutrinos are produced in a variety of reactions, either directly or indirectly, and their energy depends on the process by which they are produced. The last point is very important because as we have seen, the probability of interaction and, consequently, the probability of catching neutrinos depends largely on their energy. The number of neutrinos differing in energy recorded on the Earth will give us an idea of the reactions taking place in the depths of the Sun.

Also, we have only a very rough approximation of the total number of neutrinos emitted by the Sun. A very important problem for experimental neutrino astrophysics, therefore, is to determine this number with sufficient accuracy.

How can it be done?

As we said above, thousands of millions of neutrinos impinge upon every square centimeter of the Earth's surface every second, an enormous number. And it is possible to catch some of them, for all the mammoth difficulties involved. Help here comes from the interaction between the neutrino and the nucleus of chlorine 37. The target for the neutrino may be thousands of tons of carbon tetrachloride, a cheap and common material.

With present-day experimental facilities, we can catch neutrinos with an energy of one or two Mev if the neutrino flux is not less than 10 billion particles per second per square centimeter. Neutrinos with an energy of about 10 Mev can be trapped if their flux is only 10 million per second per square centimeter.

It may be noted that the carbon tetrachloride method, chemical in character, has been the only one used for solar neutrinos for years. Recently other techniques have been suggested, in which the events accompanying the interaction of solar neutrinos with matter are detected by electronic means, such as massive scintillation and Cherenkov counters and huge spark chambers. Plans are afoot to do new experiments (and the old experiment with carbon tetrachloride has not yet been completed) based on the assumption that the solar neutrino spectrum contains a low-intensity component (accounting for one-thousandth of the total number of neutrinos) with an energy of over 10 Mev. According to the present-day concepts of thermonuclear reactions in the Sun, these energetic neutrinos might be produced by the beta decay of beryllium-8. But only experiment can prove, or disprove, that. In any case, there is no doubt that experimental neutrino astrophysics will be making its contributions to studies of the Sun.

Message from an Antiworld

And now let fantasy carry us to the realm of things not so real. Here are some possible projects for neutrino astrophysics, at least in theory. Practical realization here is very remote.

After investigators detect neutrino fluxes from the Sun, the next step will be to measure neutrino fluxes from deep space (we have already seen how important this is) and from the individual galaxies. This will call for an increase of more than a million times in the sensitivity of existing methods of detection. Without going into detail on the instrumentation, the possibilities this offers to neutrino astrophysics are obvious. And the offer contains a solution to the problem of antiworlds built entirely from antiparticles.

Can observations from the Earth tell us whether such worlds exist? Suppose we detect a celestial body and want to know whether it is built from matter or antimatter. Observations of light and electromagnetic waves in general cannot answer this question. The light emitted by, say, the hydrogen atom is identical with that radiated by the antihydrogen atom. For photons are truly neutral particles; they carry no charge and do not differ from their antiparticles.

And what about neutrino radiation? We have seen that the Sun emits neutrinos and not antineutrinos. The same applies to any star whose energy comes principally from the thermonuclear reactions by which hydrogen turns to helium.

Now suppose there is an anti-Sun in which the internal processes are similar to those in the Sun. It follows that energy there will come from antihydrogen turning into antihelium. In light emission, such an anti-Sun will be indistinguishable from our Sun, yet it will emit antineutrinos and not neutrinos. This is where neutrino astronomy stands to learn a great deal.

True, a warning should be sounded against excessive optimism as regards these problems. The extremely low intensity of neutrinos and antineutrinos is not the only difficulty. The greatest handicap is the fact that we do not know how to build an efficient neutrino telescope.

Neutrino lenses are nonexistent. Furthermore, to identify neutrino radiation with a particular celestial body, one has to measure the angular distribution of the particles produced by the interaction with the neutrino. However, for neutrinos with an energy of one or two Mev or less, this angular distribution is only barely affected by the direction of the incident beam of neutrinos. The difficulty is so formidable that there is no telling whether the problem will ever be solved. Still, even the remote possibility of a solution is intriguing.

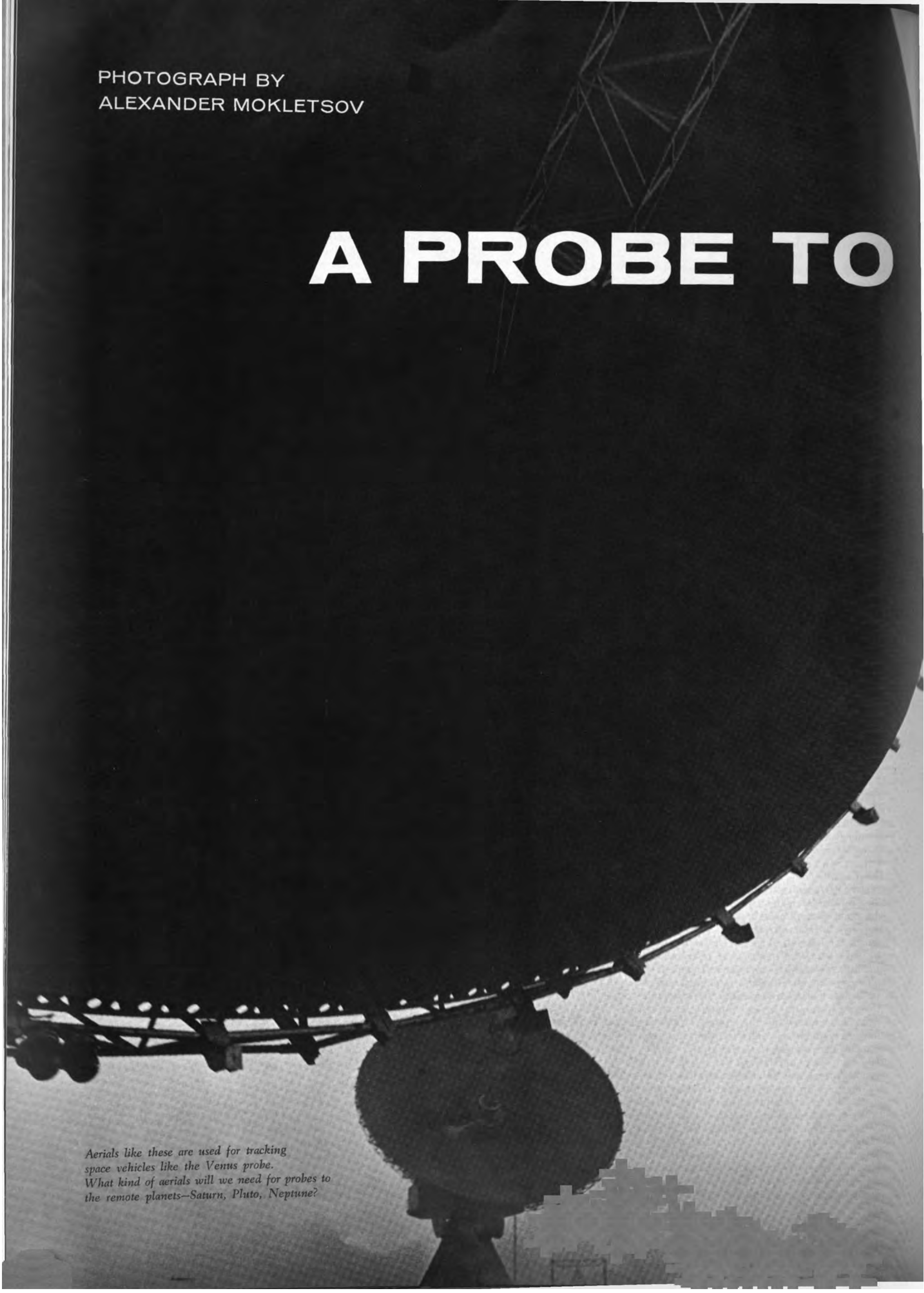
It appears much easier to build a neutrino telescope for energies in excess of several billion electron-volts. The charged products of the neutrino interaction retain the direction of the oncoming neutrinos, and this makes a telescope for the elusive particles fairly feasible. Such a telescope might be a detector placed at a considerable depth in the ground to catch the muons produced by the neutrino-nuclear interactions.

As visualized by Academician Markov, such an underground detector could pick up the muons produced by the neutrinos coming from the Earth's lower hemisphere, that is, through the Earth's body! This is possible, because the free path length of the neutrino is incomparably greater than the Earth's diameter.

It may be noted that such experiments have already yielded the first qualitative results. They are being carried on by two underground laboratories located in abandoned gold mine shafts, one in India and the other in South Africa, at a depth of several miles.

PHOTOGRAPH BY
ALEXANDER MOKLETSOV

A PROBE TO



Aerials like these are used for tracking space vehicles like the Venus probe. What kind of aerials will we need for probes to the remote planets—Saturn, Pluto, Neptune?

NEPTUNE?

BY YURI MARININ
NOVOSTI PRESS AGENCY SCIENTIFIC COMMENTATOR

WE ARE JUST BEGINNING to explore the Earth's nearest neighbors—Mars and Venus. If it takes a space probe several months to reach one of our neighbors, how long will it take to reach a distant planet of the Solar System—Jupiter, Saturn, Uranus, Neptune or Pluto?

It will take a good many years, about 30, to get to Neptune, the farthest planet but one. Can't the trip be made in less time? Yes, but then the trajectory of the space probe must run close to the intermediate planets—Jupiter, Saturn and Uranus, in order to use their gravitational fields for acceleration. With a boost from these planets, the trip to Neptune can be made in nine years instead of 30. Of course, nine years is still a long stretch, but 30 is longer. Unfortunately, the intermediate planets are not always on hand to assist. In the next 20 years there will be only one favorable period. To take advantage of it, a Neptune-bound probe must be launched from the Earth exactly on October 7, 1978. No other day will serve for the trajectory of the probe to be near enough the three planets to be accelerated by their gravitational forces.

Let us suppose that the launching takes place on that most favorable day. Will that solve all the problems? Far from it, alas. A flight to a distant planet is much more complicated than a flight to Mars or Venus.

A higher velocity must be imparted to the probe. For that we need a more powerful carrier rocket or a special propulsion unit with a supply of fuel in the probe itself. This second alternative is less likely, adding the weight of a propulsion unit and fuel to the probe would be undesirable.

Not only must the carrier rocket be more powerful than those used today for launching interplanetary probes, it must also have a better control system. The trajectory deviation tolerance is minimal. Of course, the probe will have a correcting device, but there is a limit to its possibilities; it cannot correct every deviation. This is an especially critical factor, because the probe's fuel supply will be limited, weight being a serious consideration.

Unfavorable flight conditions present another difficulty. The probe will have to break through a belt of asteroids between Mars and Jupiter. It will also be flying away from the Sun which introduces the problem of power supply. Until now, all interplanetary probes have been using solar batteries. A very economical arrangement! The probes of today travel rather close to the Sun. A probe flying to Venus is hotter than one flying to Mars, but the difference is not considerable. A probe launched to Jupiter is quite a different matter. The Sun is far away, and solar batteries will not be able to supply the power required. What is the solution? There are two possibilities.

The first is to increase the surface of the solar batteries. It must be larger for a Jupiter-bound probe than for one headed to Mars, and still larger for flights to Saturn. But there are limits to the size and weight of the batteries.

The second solution is to use a power installation that is independent of the Sun. Modern chemical batteries? Hardly. Tons of batteries will be needed for years of flight. Neither will fuel elements do. Tons of fuel will be required to feed them. What then? The atom, of course. Radioisotopic or reactor power plant! Relatively small amounts of nuclear fuel will last for years. The sensitive instruments must be shielded from ionizing radiation, but this problem is being solved even at the present stage of development.

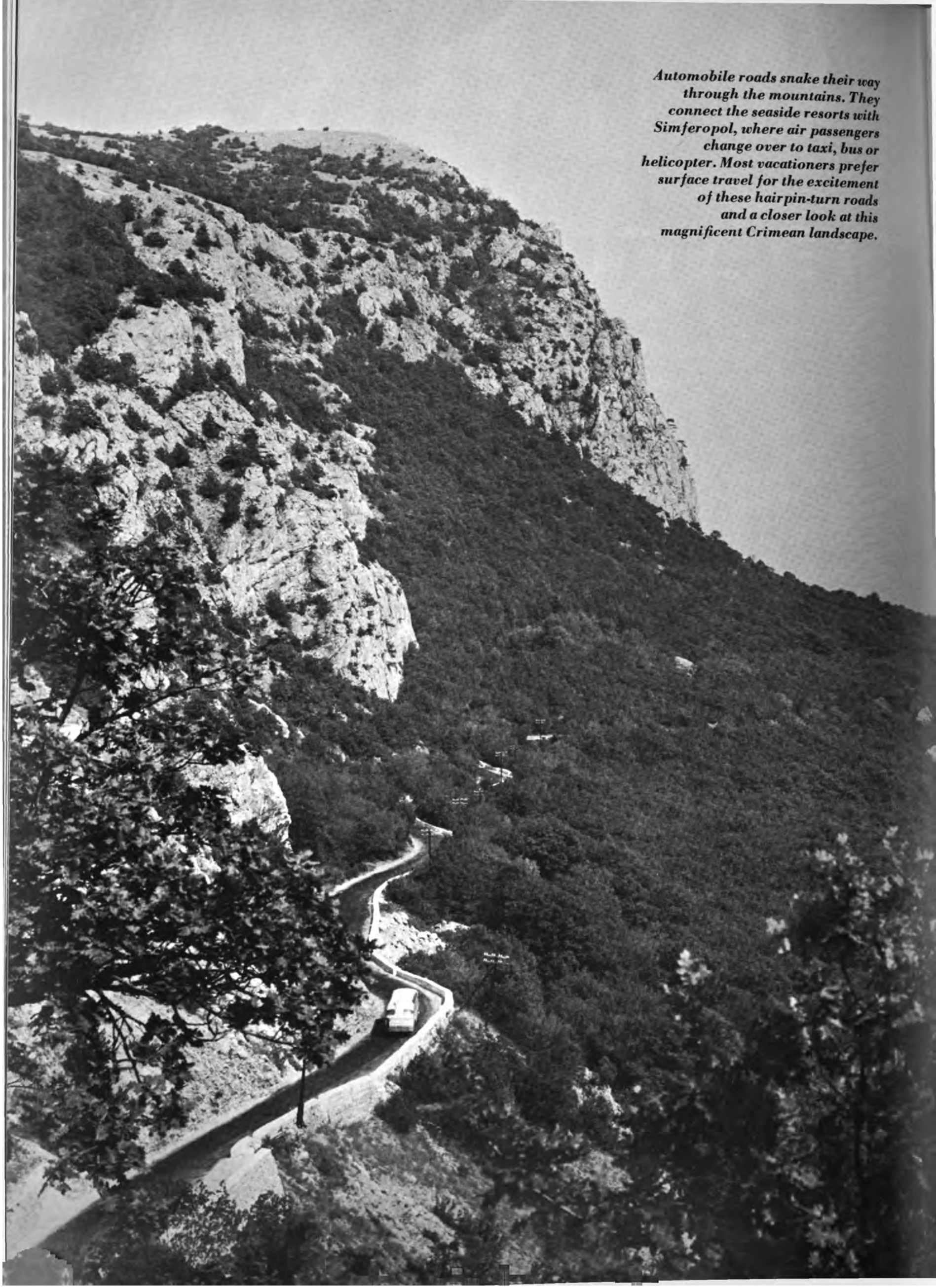
The other problems of flight to the remote planets of the Solar System have to do with duration and distance. Problem number one in this cycle is reliability. All the mechanisms must operate without a hitch month after month, for years on end. There will be no one aboard to repair them. A damaged part can ruin the entire experiment. Is it possible in principle to produce space probes with such reliable equipment? Experiments have proved that it is. So there is hope that by the critical day, October 7, 1978, the probe will be reliably enough equipped to reach Neptune by flying round the intermediate planets. In space literature this kind of conjectured trip is called the "Grand Tour."

A space probe works as long as it communicates with Earth, as long as it sends home information about interplanetary space, the planets and the operation of its own instruments and mechanisms. As soon as communication fails the probe is lost. How do we communicate across billions of miles? With powerful transmitters on board the probe and supersensitive receivers on Earth. Lasers are promising. A laser light ray can convey much more information than radio transmitters. The photographs we have of Mars were transmitted from a distance of more than 120 million miles at a rate of 8.33 binary units per second. The transmission of a single photograph took eight hours. With lasers the speed of transmission will increase many times over.

However, the Earth's atmosphere is a formidable barrier for a laser beam. But there are ways of getting round that. The information transmitted from the space probe by means of a laser is received by a satellite circuiting the Earth above the atmosphere, not by a station on Earth itself. The information is then relayed from the satellite to the Earth through conventional radio channels, since to certain radio wave frequencies the atmosphere is no obstacle. The communication system must also be able to transmit commands to the probe. Even in a completely automated probe, commands from Earth will be needed for a long time to come. For this purpose powerful Earth-based transmitters and sensitive probe receivers will be required.

The probe must be oriented in space. Its instruments must "look" at the planets, and its aerials must be directed at the Earth. To develop a lightweight system of orientation which will operate efficiently is no easy problem either. At this juncture there is no predicting how it will be solved; perhaps, by the use of engines, flywheels, magnetic and gravitational setups, of combinations thereof, or by some new, yet unknown, method.

The problems are legion. Some of them we cannot even anticipate. There is no doubt, however, that they will all be solved, and that the twentieth century will see man exploring the faraway planets with space probes.



Automobile roads snake their way through the mountains. They connect the seaside resorts with Simferopol, where air passengers change over to taxi, bus or helicopter. Most vacationers prefer surface travel for the excitement of these hairpin-turn roads and a closer look at this magnificent Crimean landscape.

SOVIET SPAS FOR FOREIGN TOURISTS

PHOTOGRAPHS BY BORIS KAUFMAN AND FRED GRINBERG

Even a non-swimmer looks good on one of these.

Last September the Second International Symposium on Medical Treatment and Physiotherapy in Spas was held in the Soviet Union. It was attended by 80 specialists in the field from 12 countries, including the United States. The Soviet delegates reported on the spa facilities of the USSR.

A growing number of foreigners, Americans included, have been taking treatment at Soviet spas. Our correspondent asked Vladimir Ankudinov, Chief of the Foreign Tourism Department of the USSR Council of Ministers, about facilities and costs.

Question: Would you tell us something about the facilities offered to patients at Soviet health resorts?

Answer: Our health resort system is, perhaps, the most diversified in the world. We have 15 research institutes studying spa climate and physiotherapy. The Central Scientific Research Institute for Spa Treatment and Physiotherapy is one of the world's largest institutions of its kind.

Our people in the field have located, investigated and described some 4,000 medicinal springs of different chemical composition and temperature, 700 medicinal muds and 450 of the most beneficial climatic areas.

We have some 4,000 sanatoriums for adults and children. Our rest homes and resort hotels accommodate more than eight million people a year.

We welcome foreign guests and patients at our world-famous resorts: Mineralnyie Vody, Pyatigorsk, Kislovodsk, Zheleznovodsk and Yessentuki in the Northern Caucasus; Sochi-Matsesta on the Black Sea coast of the Caucasus; Tskhaltubo and Borzhomi in the heart of the Caucasus; Yalta in the Crimea; and Sestroretsk on the coast of the Baltic Sea.

The most popular is Sochi-Matsesta, which caters to about a quarter of a million Soviet and foreign patients a year. The local mineral springs, the sun and the sea are remedies for disorders of the cardiovascular and nervous system, and for rheumatic, gynecological, skin and other ailments. Statistical evidence collected over many years shows that 97 per cent

SPAS, PINES, AND WINES

The palace architecture is a carry-over from the days when the mansions of dispossessed nobles were used for resorts.

Many Black Sea resort hotels were built by industrial plants. Donets Miners' Hotel.

Hundreds of Soviet and foreign patients take the Matsesta sulphur baths every day.

Point Pitsunda's relict pines and sand beaches draw thousands of vacationers. Many people had to find accommodations away from the point until seven of these multistory hotels were built.

of the patients suffering from serious diseases are cured or much relieved by treatment at the Matsesta springs.

Mineralnyie Vody in the Northern Caucasus has 77 springs with 12 different types of water for the relief of diseases of the limbs, nervous system, heart, blood vessels and digestive organs. Metabolic disorders and gynecological ailments are also treated at Mineralnyie Vody. Hundreds of thousands of patients can testify to the almost miraculous effect of the Narzan water at Kislovodsk, which means "Hero's Drink."

Yalta on the Black Sea is often referred to as the "Pearl of the Crimea." The major medicinal offering of Yalta is the beautifully mild climate of the southern coast of the Crimea. Yalta gets as much sunshine (in terms of cloudless days) as some of the best Italian resorts.

In the last few years Sestroretsk, a northern resort in a picturesque forest on the Baltic coast, has attracted many visitors.

Question: As a rule tourists are attracted by the combination of medicinal springs and beautiful landscape. The resorts you mentioned meet this requirement, I know. But would you tell us which of the spas has the greatest medicinal value?

Answer: The springs of Tskhaltubo are outstanding for two reasons. First, the patients get thermal nitrogen spring treatment in baths with running water, which adds to the healing effect. Second, the waters of Tskhaltubo do not need to be heated. Their temperature is approximately 96° F.

Question: What other attractions, besides cure, do Soviet resorts offer visitors?

Answer: Besides treatment, our health resorts offer the visitor recreation and entertainment. Theater companies and Soviet and foreign variety troupes tour the resort areas the year round. Plenty of interesting modern restaurants, cafés and bars keep open late. There are stadiums, aquatic sports stations and the like for the sports-minded. Guests may rest assured they will have a good time.

Question: I am sure our readers would like to know about the new resorts that will be opening this season.

Answer: First of all, I would like to say that our health resorts are open the year round. An early, warm spring, moderate summer and pleasant fall provide excellent climatic therapy from April to November. The winters in these areas are very mild. Slight frosts coupled with fresh, clean mountain air make winter the best time of year to treat certain disorders of the respiratory, vascular and nervous systems.

For the past several years we have been building hotels, motels and camping sites at resort areas and elsewhere. I think American visitors will share my enthusiasm for the multistory Kamelia Hotel in Sochi, which will be completed this year.

Our big resort news is Pitsunda, on the Black Sea coast of the Caucasus. At nearby Gagra, another resort, a small river falls into the sea. In the course of thousands of years deposits of mountain silt and stone have accumulated on the sea bottom and formed a peninsula which projects far out to sea. Pitsunda gets its name from the Georgian word *pitchvi*, which means pine. The whole peninsula is overgrown with a thick relic pine forest. In prehistoric times these trees were common. Now they are to be found only in Pitsunda. The new resort's big attractions are the pine woods with their salubrious air, fine beaches and calm sea in a well-protected harbor.

Pitsunda has seven 15-story hotels, mostly completed, with the very latest facilities. They will accommodate 3,000 guests in single and double rooms with spectacular views.

In addition to the hotel buildings there is a combined movie and concert hall with 900 seats, a restaurant for 700, café for 1,300, an open-air movie and an open-air warm water pool for winter swimming.

I have every reason to believe that our guests from the United States who decide to vacation at Pitsunda will come away satisfied.

Question: How much are accommodations at Soviet health resorts?

Answer: Our charges for spa accommodations and treatment are probably the most reasonable in the world. The charge for a stay of from 20 to 26 days ranges from 211 dollars per person (in American money) for a double room to 411 dollars for a single room. This covers room, food prescribed by the doctor (dietetic, if necessary) and medical treatment (baths, medicinal springs, drugs and care by medical personnel).

Package tours are available for a complete course of treatment: 20 days at Tskhaltubo and 26 days at the other resorts.

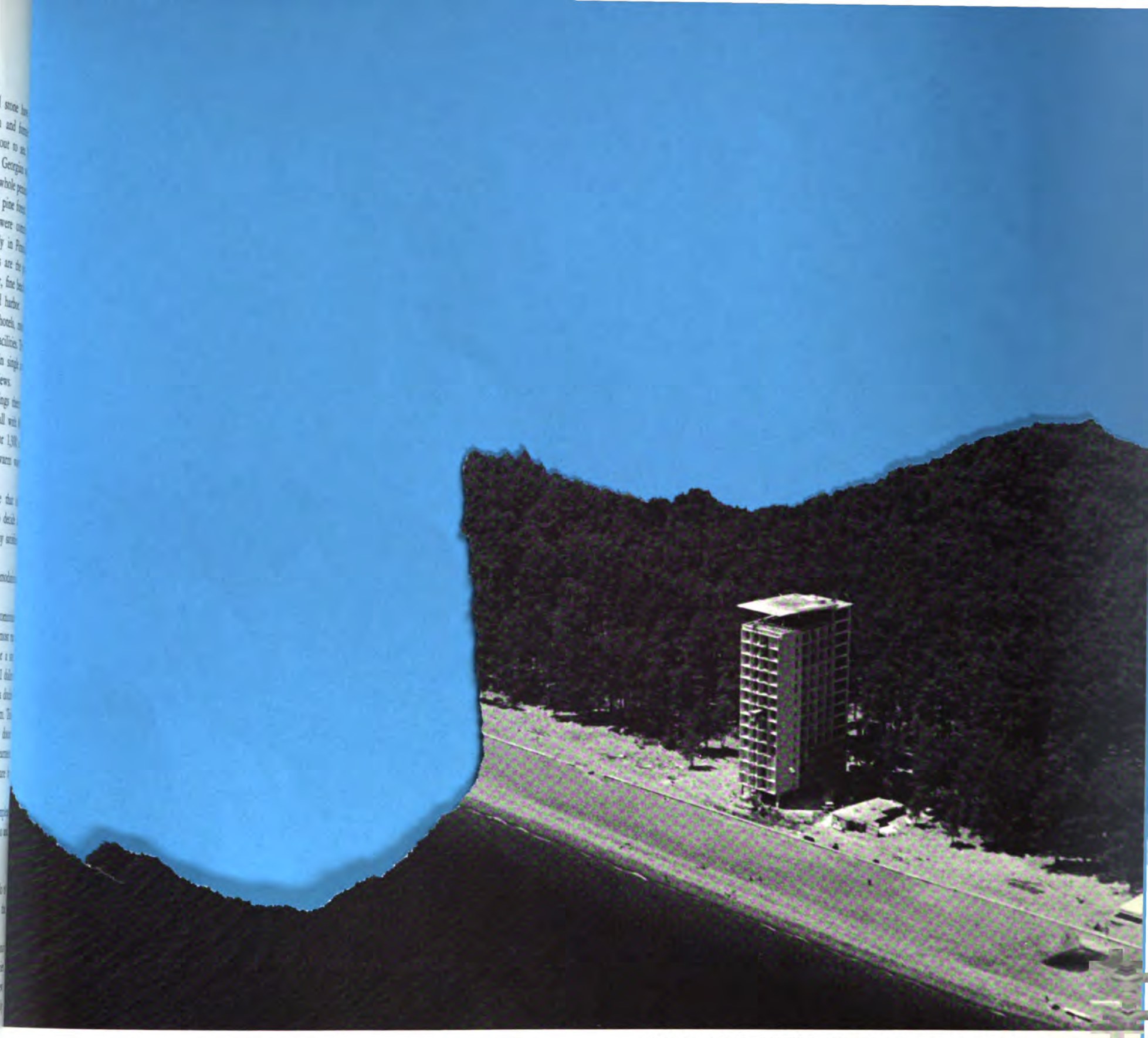
Question: What should an American do to arrange a trip to a Soviet spa? What are the formalities?

Answer: We have arrangements with about a hundred American travel agencies. The Soviet Intourist Office, 355 Lexington Avenue, New York, N.Y. 10017, will be pleased to supply all the necessary information.

There are no special formalities. After buying a tour, you apply to the Soviet Embassy for a visa, which is issued within a week. Those who wish to take treatment should bring the diagnosis and recommendations of their own physician. However, a diagnosis can also be made on arrival in the USSR. A thorough medical checkup by a panel of doctors costs 15 dollars.

Question: What message would you like to convey to American tourists through our magazine?

Answer: To be well traveled today, you must have seen the Soviet Union. There is a great deal for tourists to see—specimens of old Russian architecture, the spaceship *Vostok*, the mosques of Samarkand and Bukhara, newly built towns and cities, the incomparable Bolshoi Ballet, the mammoth power stations on the great Russian rivers, and lots more. Our doors are wide open to everyone who wants to meet our people and see how we live.



PHOTOGRAPH BY VASILI PESKOV

THE ASCENSION OF MAN from his pr
itive stage to his present status was
imperceptibly slow process influenced by n
extraneous factors. First, he had to learn ho
protect himself from the hardships create
the elements and other environmental i
and to achieve some degree of indepen
permitting him to live in relative comfor
ter millenniums of hardship and depri
agriculture and husbandry permitted
settle and abandon the nomadic life. The
peutic value of such natural resources
ant climate and various kinds of water,
in taste and temperature from the
water sources, were in time recogn
adopted as welcome means of allev
sufferings caused by a variety of ailm
traumas. This slow development came
only relatively recently. New ways and
offered by rapidly expanding scientif
edge swept the past away like a hurric
turies of progress were condensed
decades. Still, human nature remaine

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unchanged in a world so different from that known only a short while ago. The transitional period accumulated a host of new problems not always compatible with intricate physiological mechanisms.

Urbanization and the great and incessant technological progress of this century freed men from many necessary and tedious activities, but at the same time created an unhealthy environment charged with potential dangers. Loss of the acuity of human senses—mainly vision, hearing and smell—as consequences of modern ways of habitation, incessant irritating noises, malodors and exposure to artificial light are signs of regression or maladaptation.

The effects of the changing way of life—confinement to indoors, lack of exercise, overeating, pollution of air and water, the two most vital elements—hamper and seriously interfere with normal functions of the body. In spite of the great progress of medical science these unchecked morbigenous agents envelope steadily larger and larger masses of the world popula-

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notable exceptions there
on the European continent hundr
ly managed resorts catering to the whims of th
guests, but not to their health needs.

As a participant in an International Symposium on Spa and Physical Therapy, I was privileged to visit last September a number of health resorts in the Soviet Union. The experience gathered in those places was certainly worth the effort. On a round trip by air and motor car of nearly 4,000 miles we visited the leading Caucasian installations. In these distant places where West meets East we encountered not only friendliness, hospitality and helpful cooperation, but also excellent accommodations, attractive food, superior medical services free to all patients and visitors, and an established therapeutic routine based on full utilization of the geographical location, altitude and other factors employed in the form of hydrotherapy and actinotherapy.

The Caucasian mountains, among the highest in Europe, form an impressive and stimulating background with their snow covered peaks and provide a supply of fresh, clean, cool air and light breezes which make the nights pleasant and comfortable: a natural air conditioning.

Even more impressive than the inland resorts with their extensive facilities for treatment of chronic gastrointestinal, cardiovascular, rheumatic and respiratory ailments are the places along the Eastern shores of the Black Sea. Well protected from the east and the north by the mountains but open toward the south and west, they enjoy an excellent climate all year round with only a short period of cold days during the winter months. Beautiful parks with an uncounted variety of rare trees and subtropical vegetation surround the sanatoriums and hotels, leaving enough space for the tens of thousands of bathers and sun worshippers.

In this chain of enchanting places one excels with its prominence, its natural beauty and its modern accommodations. In the era of jets Sochi, this pearl of the Black Sea Riviera, can be easily reached from all European capitals. The tired and exhausted will find here everything needed for restoration of health at most reasonable prices, more than compensating for the cost of the flight. Guides and translators are provided without any additional charge by the versatile and effective travel agency Intourist.

As in any other form of therapy only proper selection of resorts specializing in treatment of a particular ailment can assure full rehabilitation. Restored health and pleasant memories are the usual rewards of a successful sojourn and a well-planned therapeutic regimen in such locations.

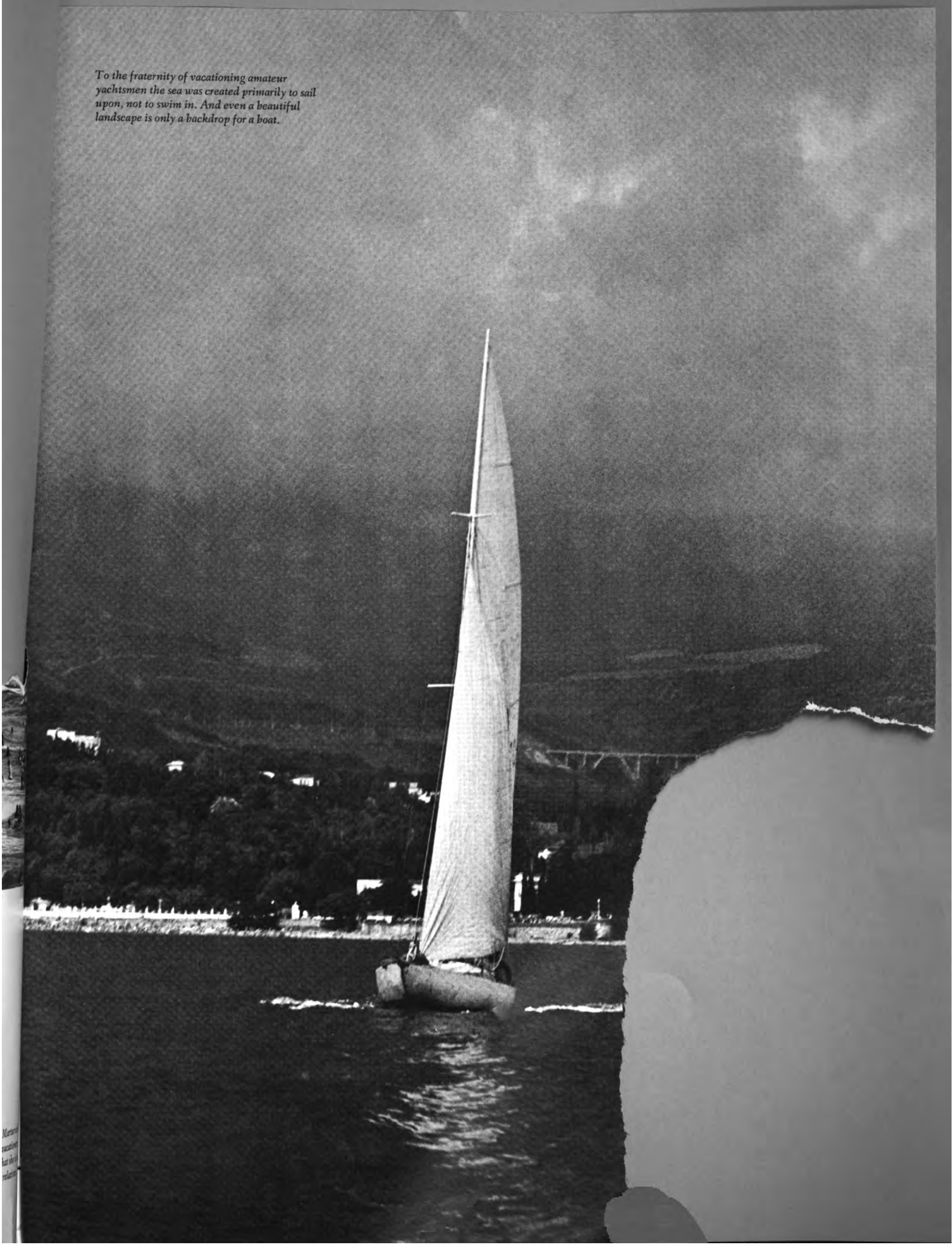
The accompanying pictures of the landscape, the historical sites and health facilities are only a small selection of the places we visited on our trip.

This all-lady's game is b
played at Sputnik
international youth c
It attracts vacationers f
dozens of coun
including the United St

"Rush hour" on the beach at
Y
year-rou

Engineer Alla Martsevich is an unmethodical vacationer, which means that she is staying with friends or relatives.

To the fraternity of vacationing amateur yachtsmen the sea was created primarily to sail upon, not to swim in. And even a beautiful landscape is only a backdrop for a boat.



By Natalia Chulaki.

Irina Arkhipova is an opera singer in the grand style. Her opulent mezzo-soprano is unmatched for drama, but she has something else not many performers have today—temperament.

Her performance as the Princess of Eboli in Verdi's **Don Carlos** is justly considered one of her best. The excitement of her sheer tonal quality in the "O Don Fatale" is hard to describe, and her full, brilliant high B (a feat for a mezzo with such a powerful low register) packs a thrill that is unforgettable.

In another favorite role, **Carmen,** she is spontaneous and free. But unlike so many other Carmens who strive to portray unbridled passion on the stage, Irina's interpretation is not that of a vulgar and violent tigress, but of a woman, true to herself, who cannot hide her feelings. Arkhipova is at her best performing with a Don José like Zurab Anjaparidze, who combines a virile and expressive voice with a commanding presence and quick emotional response. Back in 1960 she sang in Rome with Mario del Monaco, who grouped her rendition of **Carmen** with the performances of Gianni Pedorzini and Risë Stevens—the greatest in the world. In Rome she sang in Italian. "But back home at the Bolshoi," she remembers, "I sang in Russian, and Mario in Italian; our timing and emotional rapport were more nearly perfect than at any other time!" Singing with him was one of the most rewarding experiences she has ever had. "He is a great tenor and a great artist!"

Of the Russian classical repertoire her best-known roles are Marina Mnishek in Moussorgsky's **Boris Godunov** and Martha in his **Khovanshchina,** Lubasha in **The Czar's Bride** by Rimsky-Korsakov, the shepherd Lehl in Tchaikovsky's **Maiden,** a play by A. Ostrovsky. **War and Peace** is a good example of her work in contemporary Soviet music.

She has made fewer recordings than we would like, but is now making up for lost time. Incidentally, the Brahms **Alto Rhapsody** she recorded in France with Igor Markevich won the Grand Prix in Paris. Her Soviet records demonstrate her great versatility, ranging from Cherubini to Prokofiev. A new stereophonic version of the Tchaikovsky opera, **The Queen of Spades,** with Arkhipova as Pauline, was recently released.

With Arkhipova a Tchaikovsky song does not call for unrestrained romantic emoting which is almost expected whenever Tchaikovsky is sung or played today. Her style is cooler, more lyrical. Yet when singing Moussorgsky's works —and she is obviously in love with his **Songs and Dances of Death**—she feels she can do away with all restraint.

Her Moscow recital this season was devoted entirely to songs and arias by Soviet composers, running the full gamut of emotional color, from the subtle poetry of the **Smoke of My Country Songs** by Georgi Sviridov to the tense drama of Nilovna's monologue from Tikhon Khrennikov's opera **The Mother.**

In 1966, between acts of the opera **The Czar's Bride,** Irina Arkhipova won the coveted title of People's Artist of the USSR! Standing in the wings and listening to the congratulations of her fellow artists at the Bolshoi, she was so moved and excited that she barely managed to finish the opera—and lost her voice entirely for three days afterwards.

Her two American concert tours, in 1964 and 1966, included New York's Carnegie Hall and took her to cities all over the United States. She traveled east, west and middle west, collecting kudos as she went. Best of all, she liked the college towns, finding the audiences extremely musical.

FILM NEWS

Seven Notes in the Silence—seven thoughts about music and dancing and sociology. The film, made in Leningrad by Vitali Aksyonov and Mark Rozovsky, consists of seven short stories written for the movies, but shot without movie actors. The genuine musicians filmed are more than adequate actors in these dramatic and thought-provoking, touching, and very entertaining excursions into the real world of music. What are the men who made this film trying to prove? That Beethoven is better than jazz? Or that any music is better than any other music? I think perhaps the rather harsh contrasts in the film, the emotional tumbles the viewer must take before he can adjust to each new style of storytelling, provide at least part of the answer. We need all kinds, and still more of them! But a very strong, subtle thread running through the entire film is quality—quality of sound, no matter of what persuasion.

Far from being a generalized essay on music appreciation, the film, or at least four of the seven stories, delves into the special techniques and unique personalities involved in the creation of music. Real life is here, too, without much in the way of extra twists.

The story of the church bell ringers of Rostov is exciting; the frugging teenagers in Sochi is low comedy, at times satire. Both have sociological repercussions.

A calm, businesslike visit to a rehearsal of the Leningrad Radio Symphony Orchestra—their seventy-sixth rehearsal of the Shostakovich **Seventh Symphony** conducted by Karl Eliasberg—is followed by a much more agitated look at jazzman Herman Lukyanov and his horn. Both subjects are obviously inspired, both evoke an almost religious awe.

Then there is Yli Kim, amateur troubadour and schoolteacher from Kamchatka. These poet-musicians have a whole movement of their own today. It all started in the last few years, from the campfire songs of hikers to student jam sessions with a difference—poetry!—and now the guitar-strumming troubadour with his very appreciative and fast-growing audience. The songs, generally loosely constructed and nearly always composed and performed by the same person, gain in popularity as they progress from a small gathering to somebody's tape recorder, to a larger gathering, perhaps with a stage, and from there often to radio and television as well as to theaters. These people are not hippies: They are not trying to drop out of society or to disaffiliate from real-life situations. They merely have the gift of seeing and saying things better than you or I, so we go to hear them say it!

This is an admirable film, not without its weak points and definitely offbeat, but with something very attractive running all the way through. It may be sincerity.

The Sverdlovsk Film Studio in Siberia has completed a documentary about the Moiseyev dancers, graphically showing the day by day expenditure of talent and work and the brilliant results. There is no narrator, only the voices of the performers, Igor Moiseyev's directions and the music.

INTERPRETER OF REALITY

In 1948 a young Armenian boy born in Cairo came to the USSR with his parents. Settling with them in Yerevan, he finished school, and his overwhelming interest in art brought him to the Institute of Arts and Theater of that city.

Arto Chakmakchian became a sculptor, one of the most interesting in Armenia today. What he does is indisputably modern, but it has the timelessness of very ancient art. Abstractly it is beautiful, but it is far from abstract in essence. Proportions do not look possible, but their impact is all the more real for that. Laws seem to be broken only to be enforced on a higher level. Chakmakchian's work always appears monumental, whether it is one-foot high or as tall as a house. Is this the play of proportion again? Or a monumental disdain for detail, for everything narrowly concrete or temporary?

His treatment of themes as generalized as love, grief and maternity is acutely personal. A sculptured bust, while unmistakably representative, seems more an inside view by the artist who reinterprets outward features, giving us a face seen in the light of his own private vision.

Such is his expressive view of the Armenian

Arto Chakmakchian's sculpture HIROSHIMA which he presented to the Japanese people.

composer Arno Babajanyan, of Sogomon Comitas, the founder of modern Armenian music, and of the sculptor's mother. Perhaps his main theme is suffering. Look at his monument to Hiroshima. And **Egern,** commemorating the great slaughter of the Armenians in Turkey: three fingers rising out of the earth and a crosspiece. The symbol formed is impossible to view unmoved.

And Chakmakchian is still in his thirties. This is only a beginning.

THEATER RAMBLE

Red Riding Hood, the Charles Perrault classic, has been known to Russian toddlers for at least a century. As Little Red Cap she has enjoyed the empathy of generations of wide-eyed listeners—I don't suppose anyone ever read the story to himself! It is periodically retold, using every medium available. And the latest is opera! Yevgeni Shvarts and composer Mikhail Raukhverger have produced this newest version of the old favorite. Spurning any sort of baby talk in music or lyrics, their production is theatrically up to date, without the gimmicks often considered necessary in modern plays for adults. It is rich in character and humor. Red Cap is independent but affectionate; Fox, Bear and Rabbit are expertly drawn and very human. Those grownups, incidentally, who find themselves wondering how these extra animals got into the story are soon convinced (by the rest of the audience) that they really do belong! The Wolf, a pirate if there ever was one, is a child's delight, a true villain after one's own heart.

Shvarts and Raukhverger never talk down to their audience, but the plot is crystal clear. Also it is amazing how sophisticated the younger children's taste for modern music is.

This production began its run at the Children's Music Theater in Moscow this season, and will soon be seen by youngsters in other parts of the country as well. Music for children is a wide open field here with a number of well-known composers writing (full or part-time) for stage, screen, television, or just plain songs. Interest in the more ambitious forms has led to the opening of special children's music theaters, paralleling the drama theaters for the young.

* * *

The Novosibirsk Opera and Ballet Theater is one of the top permanent ballet companies in the country. And considering that several of its sister companies are well over a 100 years old, this is indeed one of the youngest. Founded two days after V-E Day, on May 9, 1945, the troupe has grown impressively and developed a definite style of its own. Oleg Vinogradov, its young choreographer, is known for his productions of **Romeo and Juliet,** (very different from the original Lavrovsky ballet that Ulanova made famous) **Cinderella** and **Asele.** Balletomanes in Moscow, following a flying visit by the company, found his work fresh and talented, the dancers spirited.

At home this season the Novosibirsk Opera and Ballet Theater premiered the Khachaturian ballet **Spartacus.** It was the company's one hundred and first production.

Instead of waiting for summer, the traditional season for theatrical tours, the entire opera troupe of the Buryat Theater of Opera and Ballet recently took off—at 40° below zero—to perform at the opening of a new culture palace in Angarsk, nearly 200 miles away across Lake Baikal.

Based at Ulan-Ude, capital of the Buryat Mongolian Autonomous Republic, the company sometimes travels long distances to remote points to acquaint people with their classical repertoire as well as more recent works. The western tour of the singing half of the company followed on the heels of an eastern tour by the dancing half: The ballet had just made an expedition 400 miles away to the Chita Region. The joint repertoire includes **Swan Lake, Angara the Beautiful, La Traviata** and other classics and moderns.

Two theaters in Alma-Ata, Kazakhstan, are presenting new productions this season. The staging of William Saroyan's **The Slaughter of the Innocents** (in Russian) by the Lermontov Drama Theater marks the Soviet premiere of the play. The other novelty is the Auezov Theater's production of **Far from My Native Land** by K. Muhamejanov (in Kazakh).

SWEET COLLECTION

The sweetest little collection in the world! No, it's not jazz records or baby dolls. It's, well, gingerbread men. And women. In fact, everything a nice pastry-shop family might need to set up housekeeping. The owner of the collection, an architect named Nikolai Vinogradov, started it before the Revolution more or less on a bet. He and his friends scoured every bakery and bathhouse (!) in Moscow, picking up all sorts of fanciful figures, and, every time any of them went on a trip to the provinces, a visit to the local bazaar or fairgrounds would produce an unusual specimen or two. It should be noted that Russian gingerbread (prianiki) is a hard biscuit. It keeps up appearances long after it is too dry to eat.

In the 1920s, hard times hit the nation, and with the general scarcity of bread, the collection of prianiki lay forgotten—there was nothing to add. NEP, the New Economic Policy, brought the gingerbread back, this time in new "proletarian" models.

But the heyday of the bakery gingerbread man was past. Factories took over, using the same spicy ingredients but without the element of human imagination in the shape.

One of the oldest prianiki is a mint-flavored variety from Tver. It was made in 1913 and represents a bridal couple. But the stamping board used as a mold for it was probably all of 200 years old, for the bride is wearing a gown of at least that vintage while the groom holds a three-cornered hat that goes back to the reign of the Emperor Paul!

The design of other prianiki gives a fair, if sugary, notion of everyday life in the old times, with lots of horses and roosters, smart gentlemen and dressed-up peasant women. Ukrainian prianiki depict Ukrainian customs, Russian those of Russia, the great variety of subjects and shapes reflecting the pleasant side of life.

SOVIET NEWSPAPERS, reporting a bill passed by the Supreme Soviet, will usually note: The vote was unanimous. Judging by the letters readers send to SOVIET LIFE, the comment evokes this question: Surely Soviet legislators have differences of opinion?

They have.

"Chairman: 'Those in favor of the draft of Article Four as it stands?'

"Thirteen votes.

" 'Those who favor a different system of water allocations at the national and republic levels?'

"Eleven votes.

" 'Since there are different points of view, the proposal was made and adopted that the subcommittee continue the discussion, study new materials and work out a proper solution.' "

This is an excerpt from the transcript of a meeting of the Legislative Proposals Subcommittee assigned to draft a water resources bill. The transcript indicates that nearly every item of the bill was debated. The bill has not yet been discussed by the Supreme Soviet, but when it is, it may very well be passed unanimously. But how do the members of the Supreme Soviet resolve different viewpoints and, as the chairman put it, find a "proper solution"?

Uzbek representatives: Ildor Burnashev (center), Nikolai Kosenko (right).

THE VOTE WAS UNANIMOUS?

Philip Kukhonov, Deputy Chairman of the Byelorussian Council of Ministers.

Mansions Looking Like Embassies

Apart from the 80 buildings in Moscow that house foreign embassies, there are 14 mansions that have very much the look of embassies and, indeed, display national flags on every festive occasion. These are the legations of the union republics. Each of them represents the Council of Ministers of its own republic at the USSR Council of Ministers. Only one of the 15 republics, the Russian Federation, has no legation because its government is itself situated in Moscow.

There is a great surge of activity at every legation when the Supreme Soviet has a plan for economic development under consideration. Three or four weeks before the session opens, each of the republics sends its own representatives to meet with the USSR State Planning Committee, the Ministry of Finance and other top-level government bodies. These economists, planners and experts on finance, together with the republic's permanent representatives in Moscow, argue for their republic's recommendations, plans and budgets, which may

differ radically from the draft plan developed in Moscow.

A session of the Supreme Soviet lasts only a few days, but its work never stops. Its Presidium and 20 standing committees are active between sessions, and so are the individual members in their respective electoral districts. A session merely culminates a long process of discussion.

The Supreme Soviet deputies sitting on committees come to Moscow long before the session begins. It is these committees of the two chambers of the Supreme Soviet (the Soviet of the Union and the Soviet of Nationalities) that consider the details of legislation later submitted to the Supreme Soviet.

Of the 1,517 deputies to the Supreme Soviet, 700 are members of standing committees. The Plan and Budget Committee of the Soviet of the Union and the equivalent committee of the Soviet of Nationalities are the largest, each with 51 members.

Several weeks before the session opens to discuss the draft plan and budget worked out by the responsible government agencies, all 102 members of both Plan and Budget Committees hold a joint meeting. The other committees: Industry, Transport and Communications; Trade and Service; Agriculture; Public Health and Social Insurance—ten in all—do likewise.

The committees split into working groups of five or six members, plus experts and secretaries, to consider specific aspects of

By Ilya Agranovsky

the plan and the budget. Six groups (three for each chamber) try to resolve differences between the planning agencies of the central government and those of the republics. Usually the central government and the republics come to terms, but if some differences remain, they are tackled by the Plan and Budget Committee. First separate groups study various aspects of the matter and then the full committee has a hearing.

In Search of a Common Denominator

I spent two days in the Grand Kremlin Palace. On the doors of many rooms were signs reading: Debate. I sat in on three of the six groups. The meetings started at 10 A.M. and continued well on into the night. Their intensity varied a good deal, depending on the moderator's style and each speaker's temperament.

The group that considered the claims of Azerbaijan, Georgia, Armenia, the Ukraine and Moldavia was moderated by Stanislav Pilotovich of Byelorussia. The members were Solchek Toka, a writer and a party official from Tuva; Ivan Shokh, a locomotive driver from the Ukraine; and Toichi Kochubayev, a collective farm chairman from Kirghizia. The group considered the differences painstakingly and point by point. The meetings went on for several days. One group of the Plan and Budget and Heavy Industry Committees of the Soviet of the Union heard the reports of 10 ministries. Representatives of other ministries and departments, including the USSR State Planning Committee and tne State Bank, reported to other groups; there were 30 representatives in both chambers.

As the claims of the Azerbaijan Republic were being considered, I jotted down the comments made on one point.

Mikhail Alakhverdov, Chairman of the State Planning Committee of Azerbaijan:

"The USSR Ministry of Finance has allocated too little money for evening schools for young collective farmers. We have been told that for a school to stay open, each grade must have at least 25 pupils."

A representative of the USSR Ministry of Finance:

"Yes, this is the general rule."

Alakhverdov:

"The general rule! I wish you'd go to a village in Azerbaijan. In the mountains there it takes you two days on the best horse to get to the next village. We can't have *one* school for *several* villages. We must have *one* school for *each* village. Villages are small, and so we don't have 25 seventh-graders or 25 eighth-graders in one village."

The Ministry of Finance:

"It's far too expensive to set up a school in each mountain village with only 10 to 15 pupils in each grade."

Moderator:

"Additional expense is unavoidable, I'm afraid. We in Moscow must make allowances for conditions elsewhere. In Moscow you take a subway and get to a school in a couple of minutes. Subways don't run in the mountains. The republic wants 540,000 more rubles for evening schools for collective farmers. Quite a sum. But I can't see any way out. Every young man in a mountain village must have the chance to study. (To the representative of the Ministry of Finance): Would you reconsider?"

Ministry of Finance:

"No. We have no way of checking here how many pupils there are in each grade."

Moderator:

"Sorry, but I think you'll have to trust the republic's authorities in these matters. I move that Azerbaijan's request be granted."

The motion was carried. Everything considered, Azerbaijan did well at the meeting. Perhaps it was because all its claims were justified. The republic asked for and received more preschool institutions than the number specified by the State Planning Committee, to the value of 815,000 rubles. Altogether, another 2,820,000 rubles was earmarked for Azerbaijan.

On the other hand, Moldavia's request for larger allocations to build public service facilities was turned down. The moderator asked whether the republic had used up all of last year's funds. No, it had not.

"Put the funds already earmarked to good use and we'll give you more next year," the group decided.

Budgetary problems sometimes have to be dovetailed with industrial matters. Mikhail Makhinya, Vice Chairman of the State Planning Committee of the Ukraine, believes that the USSR State Planning Committee has overestimated the Ukraine's output of gas by two billion cubic meters. To meet the plan figure, additional investments will be required to buy more equipment. Otherwise present operating equipment will be overloaded and break down. The committee called up experts who confirmed the Ukraine's argument. Committeemen Ivan Shokh and Toichi Kochubayev are not specialists in the field, but they have backgrounds in economic and organizational activities and their opinion tipped the balance in favor of the Ukraine. The USSR State Planning Committee did not earmark funds for additional equipment, and the recommendation was that the Committee either chop off the two billion meters or allocate funds for equipment.

Ministry of Finance Likes to Say "No"

Another group was moderated by Ivan Kebin of Estonia. Here the Chairmen of the State Planning Committees of the Central Asian Republics and Kazakhstan were defending their claims. First of all Uzbekistan's request for funds to meet Tashkent's needs was met. The earthquake-struck city was of general concern. Turkmenia asked for money to build a canal to supply Krasnovodsk, a city in the middle of a desert, with sufficient water. Krasnovodsk now gets its water by pipeline, but the city is expanding rapidly and water is short. The Chairman of the USSR State Planning Committee at first shrugged it off: "We can't solve all the problems of the desert in one year." He was seconded by a Ministry of Finance expert who seemed to find it much easier to say No than Yes. However, the group recommended that the State Planning Committee and the USSR Ministry of Finance reconsider Turkmenia's request.

Brisk building is in progress in Kazakhstan, new cities keep mushrooming, and the republic wants more money for highways. Allocations should be triple last year's. However, the state treasury is not limitless, and finally Ilya Kim, Minister of Finance of Kazakhstan, had to accept the decision: Not enough reserve funds.

While one group had adjusted the claims of three republics, another group, moderated by Anton Kochinyan of Armenia, had barely managed to discuss the claims of one: Byelorussia. The republic's claims were ambitious, but apparently justified, and after a six-hour session, Fyodor Kokhanov, Chairman of the State Planning Committee of Byelorussia, shook hands with the moderator. Nearly all requests were met—3.9 million additional rubles earmarked!

All the recommendations were then reviewed at separate plenary meetings of the Plan and Budget Committees and jointly with other standing committees representing the various sectors of the economy. The recommendations were again debated, but the emphasis now was on the search for funds for the additional allocations.

The committeemen are expected to find new sources of revenue. They recommended that the funds allocated to the republics be increased by 120 million rubles. Now they have to suggest where these 120 million rubles can be raised to balance the budget.

Not all claims were fully satisfied. But I have the impression that no one can say that his request was turned down without a valid reason, without considering all the pros and cons. In no case have the interests of one republic been sacrificed for the sake of another.

MUCH ADO ABOUT NOTHING

It all began after school, when Sergei started chuckling and looking inside his satchel.

"What's in there?" asked Lyuba, the monitor. "It's a secret!" replied Sergei.

"You must tell us!" said Lyuba loudly. So Sergei grabbed his satchel and moved toward the door.

"Sergei! Where are you off to?" asked Lyuba.

"I'm going home! I've got something very important to do."

Then Vitya Sorokin got hold of the mop and pushed it through the door handle. Sergei was pulled back into his seat, but he broke away, jumped up on to the desk and waving his satchel, yelled: "What right have you!"

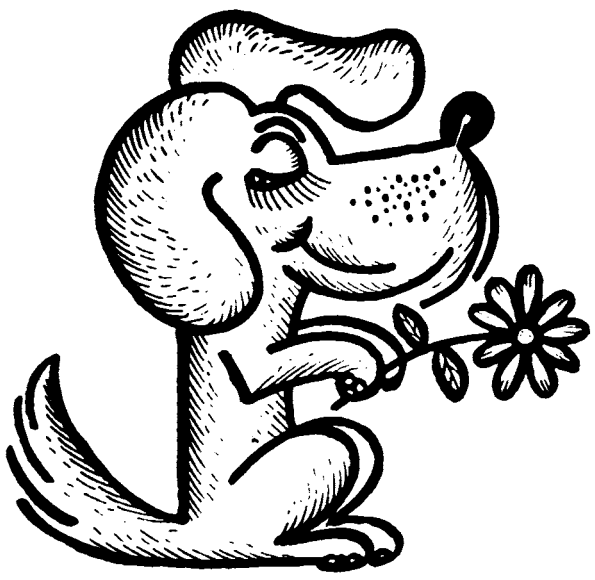
"That's true, you know, you haven't any right!" Sasha and Lyosha yelled.

Vitya also jumped up on to a desk: "You're wrong! We do have the right!"

Everyone started shouting and stamping their feet. They were still arguing when Sergei and his satchel slipped out of the room. . . .

That's the end, really, except, perhaps I ought to tell you what Sergei had in his satchel. I know he wouldn't mind.

He had nothing.



THE BIGGEST DOG

In our yard we had the most pigeon-toed, snub-nosed, good-natured and jolly pup. It was called Milka.

Milka grew very fast. One day a broad collar was fastened around her neck, and she was taken out on a leash. As soon as Milka appeared in the yard people said: "Here comes 'The Biggest-Dog-in-Our-Street.'"

Milka obviously knew she was being talked about. You could see that from the proud way she stalked down the street. It pleased her that the other dogs kept themselves at a respectful distance. If a dog showed no sense of proper modesty, she would bark at the offender.

"That's 'The Biggest-Dog-in-Our-Street' barking," people said.

Sometimes Milka barked at anything she thought unusual, like a truck with a long, high, shiny body, or a double-decked bus. They would always rush away as fast as they could.

She might have been called "The-Biggest-Dog-in-Our-Street-That-Doesn't-Make-Way" but for the following incident.

One morning, nothing out of the ordinary, Milka had just been led out of the yard when she suddenly stopped and froze to the ground in terror.

"Silly!" said her master. "That's only a horse."

How could she know there were such things as horses in town? Milka had never seen one before.

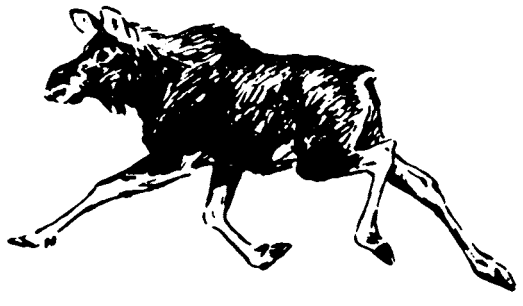
She had seen plenty of wheels, but horse-hoofs clopping down the road—never! No wonder "The-Biggest-Dog-in-Our-Street" took fright at "The-Biggest-Feet-Ever."

Just then Komarik, a tiny dog on spindly legs, came yapping out of the house next door.

Komarik did more than yap. He ran ahead of "The-Biggest-Feet-Ever" of what Milka thought was "The-Greatest-Hugest-Dog-in-the-World," and made as if he were going to bite it.

Now, whenever Milka is brought out, she looks about cautiously, and whenever she encounters Komarik, she makes way for him. People noticed that and began to call her "The Biggest-Dog-in-Our-Street-That-Makes-Way-for-Smaller-Dogs,"—which is far better than if she had been called "The-Dog-That-Doesn't-Make-Way-for-Anybody." Because that would be the same as saying: "The Biggest Bully-of-a-Dog-in-Our-Street."

TOO OBLIGING



Elk was tired of wandering about the forest and decided to rest. He lay down for a nap in a glade, saying to Hare:

"Please do me a favor, old friend, and wake me in thirty minutes, will you?"

Hare was simply overcome. To think that Elk had asked a favor of him!

"Certainly, certainly," he promised. "Go to sleep and don't worry about it."

Elk stretched his legs and closed his eyes.

"Shall I make you a mat of hay?" suggested Hare. He brought up an armful of hay and began to poke it under Elk.

"Thanks, it's not necessary," said Elk, half asleep.

"Oh, but it is!" cried Hare. "It's so much softer sleeping on hay!"

"Oh, all right. I'm terribly sleepy . . ."

"Would you like me to bring you a drink? There's a brook nearby. I'll be back in a jiffy!"

"No, please . . . I'm too sleepy . . ."

"Sleep then. I'll tell you a fairy tale, if you like. You'll fall asleep quicker that way," said the obliging Hare.

"No thanks, I can fall asleep without any bedtime stories."

"Are you sure your horns are not in the way?"

Elk jumped up, heaved a sigh and trotted away.

"Here, where are you going?" called Hare. Your thirty minutes aren't up!"

SAVARKA

Vladimir Stepanenko

SAVARKA

HIS FATHER walked round the reindeer herd, taking count. Savarka followed him across the tundra. His father took one step to Savarka's two. A tall, black-eared, laika dog with a big white spot on her chest ran ahead of them. His father held a *tynzei;* Savarka also twirled a leather lasso.

"Ten!" the father said and turned to the boy.

"Ten!" the boy repeated after him. He bent his little finger. He was too small to go to school; he couldn't count without his fingers.

The herder was wearing a wide, loose *malitsa* and high, rubber boots. He had a large, ivory-handled knife stuck in a belt ornamented with copper buttons and 15 yellow wolf fangs strung on a tough cord of deer leather. That signified he had killed 15 wolves who had gone after the collective farm's herd.

Savarka was also wearing a *malitsa,* the hood thrown back on his shoulders. His embroidered *tobokas* were held tight under his knees with leather straps. He had a knife at his belt and one wolf fang on a string of deer leather. The fang showed he had met the test: last winter he had chased a wolf away with his *khorei,* then his father shot the wolf.

"How many deer do we have?"

"I don't know." The boy looked at his bent finger and held out his hand.

"Five times ten makes 50. Five times 50 makes 250 deer. Understand?" His father smiled and looked at him. "You have met the sun eight times after the long nights. Time you went to school, Savarka!"

"I don't want to," Savarka objected. "You said I'm a good herder. You said I'm a good *yasovei."*

"That's true. But you must go to school!"

"Are you tired of me? Don't I help you enough? Do you want me to go to school to eat pike there?"

"I named you Savarka. That's a good name. But if you don't study, the hunters and herders will call you Vevarka. And that's a bad name. I studied, too. I can write with a pencil, and I have a pen with ink. I read books!"

In a huff Savarka turned and tramped off to Lake Yambo-to.

Snowcapped hills showed blue in the distance. The red rocks were overgrown with gray lichen. The dream grass and the wind grass burrowed in the crevices.

The boy knew his father could not be argued out of a decision. What he had to do was wait. Father would forget about school; he would not send him to school!

He spotted a deer's horn white in the grass. He lifted his head; his *tynzei* whistled through the air, and the loop caught the top of the horn.

The lake opened to view all at once, like a big bowl. Fluffy clouds floated above it. An upturned, snowcapped mountain lay in the lake. A rivulet gurgled between the stones. Savarka found his fishing rod and examined the hook carefully. You can't catch a smart grayling with a bare hook! With his sharp knife Savarka cut a tuft of hair off his head. He hid the hook inside the black tuft and wound a string he took out of his pocket around it, singing as he worked.

If goose makes long dives
Then it will rain very soon.

He looked the bait over as he walked to the shore. The line whistled, and the tuft of hair dropped on the water. He raised his hand. The bait bobbed on the water. A big grayling streaked out of the depths. Savarka held the rod with all his strength. The line snapped taut.

The fish pulled the line to the depths. The boy let the fish go round and round.

"I've got you!" he shouted and pulled the grayling out onto the rocks.

It had been a long time since he had made such a good catch. He pulled out one fish after another until his hand ached. He took a short rest.

Then he decided to go down to the river. There was talma in the deep river hollows. The stream widened after each turn. It roared formidably, stones rolling across the bottom. Savarka reached one of the hollows and hid behind a large boulder. He stuck a grayling's eye on his hook and tossed out the line. The current caught up the hook and pulled it between the stones and into the eddies.

A team of reindeer showed up. "They've been running all morning," the boy thought. "Not a single rest. No pity for the poor animals!"

The *yasovei* touched the bull to cross the river.

"Hey!" shouted Savarka and waved his hand. "No road here! Go upstream! There's a pit here!"

But the *yasovei* did not see the boy or hear his warning. The deer raced to the water. "Hey!" shouted the *yasovei* to encourage them, his long *khorei* whistling over their backs. The handsome gray bull splashed in and went under, head and all. He came up snorting. Savarka tossed out his *tynzei,* and the loop caught the bull's horns. The boy pulled the rope frantically.

"Hey! Hyt!" he shouted.

In the sledge was a woman in a red kerchief.

"Hey! Hyt!"

The sledge was sinking, but the gray bull jumped out on the bank. The outrunners followed him and pulled the sledge out of the raging water.

The *yasovei* stopped the team, came up to Savarka and held out his hand. Water dripped from his *malitsa.*

"Is your *choom* far? I'm carrying the teacher. We must get dry before going on."

"The river crossing is up there, above the rocks. There is a pit here," said Savarka, looking at the Russian woman out of the corner of his eye.

The teacher hopped on one leg as she poured the water out of her *tobokas.*

"What's your name?" she asked.

Savarka did not answer. He was winding up his *tynzei* with special care.

The *yasovei* raced the team to the *choom.*

No use rushing now. They had spoiled his fishing; he wouldn't catch a talma now! He went up to the lake to collect his graylings.

When he came into the *choom,* the guests were sitting around the low table, drinking tea. The teacher and the *yasovei* had changed. The teacher was wearing his mother's blue kerchief.

"Have tea with us," father said.

"I have candy for him!" said the teacher, smiling. "Your son saved us!"

Mirne and Oksya grinned at Savarka. They ran out of the *choom* and shouted together:

"Savarka caught a lot of fish! Both of us can't lift it!"

"So you're a fisherman too," the teacher said. She pushed a big candy with three bears on the wrapper toward Savarka. "Will you tell me your name now?"

"He chased off a wolf," said the *yasovei* pointing to the fang at Savarka's belt.

"You'll tell me some day how you did that, won't you? I'm your teacher. I brought you presents—paints." The teacher held out a round piece of cardboard with wafers of all colors glued on it: watercolors. "And color pencils for your sisters to use. I'll sign you on for the first grade. You'll study at our boarding school. Do you want to study?"

"I don't want to eat pike. I don't want to study," blurted out Savarka and pushed away the candy with the three bears.

"His name is Savarka," said Mirne and Oksya in unison.

"His name is Vevarka," said father. "That's his name."

Savarka threw the paints away in the grass and forgot about the teacher. He had no time for that kind of nonsense.

Mirne and Oksya were lying on deer skins in the *choom.* They were coloring picture books with the pencils.

The boy sighed dismally and shook his head. His sisters must know that a wolverine had killed a calf the day before, and that he was to blame for it. He had been watching the herd for his father.

He was ashamed of himself. He was a poor herdsman and he would be just as poor a hunter until he got even with the wolverine. There was no snow yet. In snow he could track the animal down in no time.

The dog began barking. Savarka ran out and made for the herd. The deer were grazing not far from the *choom.*

He came back, shamefaced. He sat down in front of the fire with his legs under him and his head bent, to hide his eyes from his father.

"There was no point rushing out," his father said. "No Nenets can outrun a wolverine. Write. The teacher told you to."

Savarka twisted resentfully. It was a good thing father didn't say what he was thinking right in front of Mirne and Oksya—that he didn't say: "You're a poor herder! You're a

poor hunter, Vevarka!" The boy looked at his sisters over his shoulder. Let them draw. Let them draw. Let them break and sharpen their pencils. He wouldn't touch his paints.

After a plentiful meat dinner, his father took a nap. Mirne and Oksya ran out to play. They held deer's horns on their heads and chased each other. They snorted like deer, too.

"Catch us, Savarka!" they shouted.

Little Oksya ran up to her brother, screamed and rushed away.

"Catch me, Savarka!"

But he had no time to play with his sisters. He had to think of his revenge on the red wolverine. Suddenly his face brightened. He almost smiled. He ran back into the *choom.* Mirne and Oksya threw the horns away and waited for him. They thought he had invented a new game.

Savarka came out with a big bone. Mirne ran up.

"Who's going to get the marrow?"

"I'm not breaking this bone for you," he said.

"Greedy, greedy!" they shouted.

Savarka took the bone to Tarya. The girls stole after him, looking at each other and wondering what he was going to do. The black-eared laika dog with the big white spot on the chest was tied to the sledge. She jumped up and licked the boy's face with her hot tongue. Mirne and Oksya looked at each other again and laughed. They had never seen a herder feed his dog.

"Dear Tarya!" Savarka petted the dog. "Good Tarya!"

With the handle of his knife he broke the bone open and picked out the yellow marrow.

"Eat, Tarya!"

The dog swallowed the titbit; Mirne and Oksya licked their lips.

"Greedy, greedy Vevarka!" they shouted.

Savarka untied Tarya. The dog jumped around him, sniffing and dashing up and back.

The boy fetched a big wolf trap from the sledge. He shouldered the trap, looked around and strode soberly off to Lake Yambo-to. Tarya ran ahead, scaring up flocks of birds.

Savarka watched the dog closely. If the laika came on the animal's tracks, she would give voice.

The tundra changed as they went on. Marshy hummocks alternated with patches of green grass. The meadows were splashed with the red cups of polar poppies, with partridge grass and yellow golds.

Savarka got tired carrying the heavy trap and sat down to rest. He picked up some poppies and looked them over. Flowers had never before interested him. He had never even thought to ask how they grew, and how they came to the tundra. He rubbed the flowers between his fingers. His fingers did not get painted, and that surprised him. When he sharpened pencils for the girls, the red, blue and green got on his fingers.

"Where do the paints come from?" he wondered. Red comes from the stone quarry, he was told. That discovery surprised him, too.

Tarya burst into a sharp bark. Savarka jumped to his feet, snatched up the trap and ran after the dog. It was hard to run with the trap, but he held on to it. Tarya disappeared into the grass and came out again, barking harder. The boy looked round. He adjusted the *tobokas* on his legs. The snow-capped hill on the shore of Lake Yambo-to was behind him now. It was from there the wolverine had come. Good for Tarya!

The dog ran to the shore of a small lake that was fenced in on all sides with rushes, like a prickly round brush. On the moist earth near the edge, Savarka saw a chain of tracks—a fox. He could tell the animal had been trotting along because the hind paws made the same track as the front ones.

The boy followed the dog. He read the tracks easily. Here the fox stopped to dig and caught a field mouse. Here he took fright and shifted to a fast run. He must have heard Tarya barking.

The rushes ended. Another small lake glittered a way off; the two lakes were linked by a stream. Rising high above the marshes was a swan's nest made of twigs and moss.

White swans and their broods were gliding on the lake. They fed, dipping their long, flexible necks in the water. "Tarya spoiled it for the fox. He was after swans!" the boy thought. "It's a good thing too!" He stood admiring the birds for a while and then moved quietly away.

Savarka had faith in Tarya. The dog had not taken him so far just for nothing. They would find the red wolverine.

He saw the head of a big pike on a pile of stones. The wolverine had eaten the pike and left the head. Tarya ran around the boy and sniffed at the stones.

"Ili, Tarya! Ili!"

But the dog was working hard without being told. She stopped, then returned to the tracks, checking on something. A minute later she found another pike's head and growled.

Now Savarka was sure Tarya had come on the wolverine's tracks. He took out a fishing line with a hook and stepped down gingerly to the water. His shadow fell on the surface, and a school of fish rushed off in all directions to disappear in deep water. "You're a poor hunter, Savarka!" he scolded himself. He sat down on a stone, his face turned to the sun, his eyes shut. Then he opened his eyes and saw white clouds in the sky. They looked like flying swans, a big flock of flying swans. They circled, settled on the lake and glided along noiselessly, paddling with their red feet.

He jerked the line. The bait flew out and dropped on the water. But no grayling rose to it.

He waited patiently. The bait got wet and sank. He began to jerk the line faster. Suddenly it was almost torn out of his hands. The line cut into his fingers, but he did not let go.

The big fish thrashed about frantically. By the time he pulled the big-toothed pike out of the water, Savarka was all worn out.

The fish was longer than Savarka. Its flat head was covered with weeds, and there were green bands down its body. He cut the fish up and threw pieces around on the stones to lure the wolverine. He left the half of the pike with the head for the wolf trap.

Savarka had seen his father setting a trap. He tried to force up the saw-edged brackets, pulling with all his might. Beads of sweat stood out on his forehead.

Tarya ran up. She lapped up some of the lake water and then lay down on a warm stone, watching the boy work.

Savarka pulled and pulled, but the trap was stronger. He had to think up something. He stood on the bracket and pulled on it.

It opened a chink. He pulled harder. It opened wider. He laughed. The bracket slipped from his hand. He jumped away as the trap sprung. Another second and his leg would have been in it. He didn't cry only because he knew that real hunters and herders never cried.

When he looked at the lake again the swans were gone, and the water was black. The sun was gone and low, dark clouds clustered around the snow-covered mountain near Lake Yambo-to.

A drop of rain struck his face. He raised his head. The rain came with a rush. Fountains of water danced on the surface of the lake.

He pulled the hood over his head. He was glad it was raining. The wolverine would crawl out of her hole, looking for food and would try the pike. Tomorrow he would bring a smaller trap, one he could handle.

In the morning there was nothing to remind him of the rain of the day before. The sun had not stayed beyond the neighboring mountains, where it had gone for the night it was shining brightly.

Savarka prepared for the hunt, while Tarya jumped happily round him.

"You don't catch otter with a trap in summer," said father as he got his pipe going. "You give them pike. You put out some talma with red caviar. That's something you should know, Savarka. Why are you taking a small trap? That's only good for weasel!"

Savarka glared at the black-eared dog. It was Tarya's fault. He wouldn't take the dog along next time. He would go after the red wolverine alone.

He was so angry that he left the *choom* without breakfast. In the grass he saw the cardboard with paints, the teacher's present. The rain had smeared the paints over the cardboard.

He sat down on a hummock and passed his finger over the red wafer. It was the same color as a polar poppy. He tried another wafer, and his finger darkened up like a stormy sky.

He didn't like rainy days. He dipped his finger into water, and it became blue like a sunlit sky.

He ran his finger over all the wafers, one after another. There were all the colors he knew: the green grass, the red hills, the blue sky.

Here was the color of the wolverine: the head black—Savarka dipped his finger into the paint again—and a bright band on the chest, and a stripe on the back. That was the color.

He would hold the skin of the wolverine just as he was holding the cardboard with paints. That's how it would be. He looked at his painted fingers, laughed, and put the cardboard into his pocket.

ALEXANDER TVARDOVSKY
(1910-)

Alexander Tvardovsky is one of the most interesting and provocative of our poets. In form—their rhyme and style—his poems are in the calm classical tradition. But their content is anything but calm; they are passionate, polemic and upcompromising. They demonstrate the poet's affinity for the new generation of Soviet writers who have brought into our literature the intrepid energy of youth and its polemic enthusiasm.

Tvardovsky grew up in the family of a Smolensk peasant. He studied at the village school and contributed poems to the regional newspaper. He was helped in many ways by Mikhail Isakovsky, a well-known song writer from the same part of the country and an old friend. Tvardovsky became famous with the publication of his Strana Moravia (The Land of Moravia) *(1934-1936). The poem showed an intimate knowledge of village life, a glowing imagination and a happy use of local color.*

After graduating from the Moscow Institute of History, Philosophy and Literature, Tvardovsky contributed to the army press. During the Great Patriotic War he wrote his famous book about a soldier, the poem Vasili Tyorkin. *The title character became the literary hero of the front. A fine soldier, a good buddy, always there with a joke, Tyorkin was so real that he had his prototypes in almost every company.*

Besides Tyorkin, Tvardovsky wrote a number of other fine wartime poems. The best

ЗА ДАЛЬЮ ДАЛЬ

(ОТРЫВОК)

К концу дороги

Сто раз тебе моё спасибо,
Судьба, что изо всех дорог
Мне подсказала верный выбор
Дороги этой на восток.

И транссибирской магистралью,
Кратчайшим, может быть, путём,
Связала с нашей главной далью
Мой трудный день и лёгкий дом.

Судьба, понятно, не причина,
Но эта даль всего верней
Сибирь с Москвой сличать учила,
Москву с Сибирью наших дней.

И эти два большие слова,
Чей смысл поистине велик,
На гребне возраста иного,
На рубеже эпохи новой
Я как бы наново постиг.

Сибирь. Москва. Два эти слова
Звучали именем страны,
В значенье дикости суровой
Для мира чуждого равны.

Теперь и в том надменном мире
Все те ж слова — Сибирь —
Москва,
Да на ином уже помине
Пошла разучивать молва.

Добро! Но мы не позабыли
Какою притчей той молвы
Мы столько лет на свете были
И как нас чествовали вы.

Почти полвека на бумаге
Строчили вы, добра полны,
О том, что босы мы и наги,
И неумелы и темны.

Что не осилить нам разрухи,
Не утеплить своей зимы.
Что родом тюхи да матюхи,
Да простаки, да ваньки мы.

AFTER FARNESS—A FARNESS

(excerpt)

Nearing the road's end

A hundred thanks to you,
Fate, for helping me, of all the roads,
To choose the only right one,
This one leading eastward.

And through the Trans-Siberian mainline,
Perhaps in the shortest way,
Tied into our main Farness
My hard day and easy home.

Fate, understand, is no reason,
But this Farness best of all
Taught how Siberia and Moscow dovetail,
Moscow with Siberia of our day.

And these two big words,
Of truly great meaning,
Now, on the crest of older years,
On the boundary line of a new age
I fully comprehend, as if for the first time.

Siberia. Moscow. Two words
That sounded the name of a country,
The stern wildness of their meaning
One and the same to a foreign world.

Now that same haughty world
Hears those words—Siberia-
Moscow,
On rumor's tongue
But sounded in a different fashion.

Fine and good! Yet we have not forgotten
What a parable of that rumor
We were for so many years
And were dragged in the mud.

For nearly half a century on paper
You wrote, gushing with kindness,
That we were barefoot and naked,
Unskilled, ignorant.

That we'd never overcome ruin,
Never warm our winters,
That from the cradle we are muzhiks,
Ivans, simpletons.

И на бумаге и в эфире
Вещали вы, что нам едва ль
Удастся выучить в Сибири
Своих медведей
Делать сталь.

Что в нашей бедности безбрежной –
Не смех ли курам наш почин,
Когда в новинку скрип тележный,
Не то что музыка машин.

И что у нас безвестно слово
Наук, доступных вам давно.
Что нам опричь сосны еловой
Постичь иного не дано.
Что мы — Сибирь...
А мы тем часом
Свою в виду держали даль.
И прогремела грозным гласом
В годину битвы наша сталь.

Она, рождённая в Сибири,
Несла на собственной волне,
Как миру весть о жданном мире,
Победу нашу в той войне.

И каждой каплей нашей крови,
Так щедро пролитой на ней,
И каждым вздохом скорби
вдовьей
И горя наших матерей, —
Жестокой памяти страницей –
На том безжалостном торгу –
Она оплачена сторицей,
И мы у мира не в долгу...

Я начал песнь моей дороги
С того, как душу мне томил
Бессоньем сдавленной тревоги
Огромный наш немирный мир.

И тем обязан не Москве ли
И не Сибири ли опять
Весь белый свет, что в самом
деле
Полегче стало в нём дышать;
Что неусыпной той угрозы
В нём поубавились права.

Да, это верные слова,
Что под оливы и берёзы
Желанный мир несёт Москва...

(according to the author himself) is "I Was Killed at Rzhev," a requiem for the men who died.

The biggest (and the best) of Tvardovsky's postwar poems Space Beyond Space, *which won him the Lenin Prize in 1961. The poem is a sort of travelogue in which sketches of life alternate with philosophical reflections. It is a concentration of his poetic talents: his deceptively straightforward tone; rich humor, folkloric imagery, an easy language which is almost colloquial and a rhythm which is so light-handed and spontaneous that you have the impression the poet is improvising. have the impression the poet is improvising.*

Tvardovsky is also the editor of Novy Mir (New World), *our most popular literary magazine.*

In the press and over the air
You predicted that we hardly
Would be able to teach in Siberia
Our Russian bears
To make steel.

That considering our abject poverty
We just didn't have the initiative;
The creaking of wagon wheels is news to us,
Not to speak of the hum of machinery.

That the language of science to us is strange
While you mastered it long ago.
That besides pine trees
We can comprehend nothing.
That we are Siberia . . .
Yet meanwhile we
Kept our farness in sight.
And with a terrifying roar sounded
Our steel in the years of battle.

That steel, born in Siberia,
Carried on its wave
Like news of long-waited peace to the world,
News of our victory in that war.

By every drop of our blood,
So generously shed,
Like the every sob of
widows' grief
And sorrow of our mothers,
By the page of cruel memory
Written at that merciless auction
It is all paid for in full,
And we owe the world nothing . . .

I began this ballad of the road
By saying how my soul was tormented
Oppressed by sleepless worries
By our huge unquiet world.

Is it, then, not thanks to Moscow
And, too, to Siberia,
That the whole wide world,
in fact,
Finds it easier to breathe;
That the power of that perpetual danger
Has been contained

Yes, these words are true.
That to the olive trees and the birches
Moscow brings cherished peace . . .

NEXT ISSUE

An armchair tour along Kreshchatik, the main street of Kiev, the capital of the Ukrainian Republic. The city has a venerable history; it was the seat of the Kiev Rus state a thousand years ago. Located on the scenic Dnieper River and abounding in parks and gardens, it is one of the loveliest of Soviet cities. Kreshchatik was almost completely leveled by the Nazis, the buildings gutted, and only one tree left standing along the whole length of the street. The street was rebuilt from the ground up. Kiev's mayor gives his impressions of the old Kreshchatik and the new. Another article set in the Ukraine takes you to the Sorochintsi Fair that Gogol immortalized in his story.

The fresh water resources of our planet are dwindling. In a not too distant and threatening future will we be doling out this precious fluid? A leading expert on the staff of a hydraulic design institute, a nuclear engineer and a journalist discuss the question and appraise the research being done in the Soviet Union, the United States and other countries. Can we divert to densely populated areas the waters of rivers that now discharge uselessly into the Arctic Ocean? Can we make use of the millions of barrels of fresh water, suitable for drinking and irrigation, now buried under the desert sands? Can we use nuclear energy to make the vast stores of sea water potable?

An intriguing article by the man who may have been the prototype for a major character in Hemingway's novel of the Spanish Civil War; he describes a meeting with the writer and others in *For Whom the Bell Tolls.*

A mysterious celestial object exploded in mid-air over the Siberian Taiga some 60 years ago. Ever since, the Tungus Wonder has been explained by any number of hypotheses, each one more fantastic than the next.

About the perilous stagecoach travels of a young Russian diplomat and painter through 1812 America. His impressions in pen and brush of the Capital, Niagara Falls, steamboats, Indians and many other novel sights.

COMING SOON

About the Caucasian Svans, a people who live closest of all to the stars.

POETRY AND SOCIAL PROGRESS

By NIKOLAI ANASTASYEV
Literary Critic

THE FAMOUS RUSSIAN poet Vladimir Mayakovsky did not know English. Nevertheless, when the well-known author, critic and translator, Kornei Chukovsky, read him his translation of a poem by Walt Whitman, the poet at once spotted an inaccuracy. Here is how Chukovsky recalls it. "I started reading him my translation of 'This Compost,' which I had just finished. 'Interesting,' he remarked, without much enthusiasm. 'Only I'd say that you've added some sweetening. For instance, you've used the word "body." I'm sure it should have been "flesh."'

"And, truly, the word 'flesh' was used in the original."

I will not touch my flesh to the earth
as to other flesh to renew me.

This points to the inner bond between the poetry of Mayakovsky and Whitman.

Both were inclined to large-scale generalizations. "Walt Whitman, a kosmos, of Manhattan the son," declared the writer in *Leaves of Grass*. And Mayakovsky blithely invited the sun home to tea (in the poem "The Strange Adventure of Vladimir Mayakovsky at a Summer Home").

For all that, both were profoundly poets of the earth, harsh, even coarse at times. "The scent of these armpits aroma finer than prayer," wrote Whitman, and Mayakovsky seemed to echo with: "In squares where tuberculosis spits, among whores, hooligans, syphilis."

Both make nature animate, feeling kin to it: *Earth, my likeness . . .* (Whitman), *Earth! Let me kiss your thinning pate . . .* (Mayakovsky)

Such parallels can be drawn ad infinitum. But what do they signify? A freak of nature? Chance? Why is it that in two such dissimilar countries—unlike both historically and in terms of cultural tradition—there appeared two great poets so similar in thought, temperament and imagery perception of the world? It seems almost unbelievable, if we were to judge Whitman's and Mayakovsky's work solely by comparing individual images and lines or were to measure poetic progress by the free verse of Whitman, with its barely perceptible rhythms, and by Mayakovsky's poetical "stairs." However, if we examine their poetry from another point of view, if we test it with life, with the social conflicts of their times, then the similarity of the two poets will no longer surprise us.

Picture of the Age in Poetic Images

Vladimir Mayakovsky's advent in the world of poetry was boisterous, almost scandalous. In the yellow blouse he wore at literary soirees and, more important, in the novel and unexpected images of his verse and its dissonant rhythms and rhymes, he was projecting a picture of the well-fed and self-satisfied petty bourgeois. The young poet immediately felt that their world was hostile to the elemental unconstraint of his verse.

You all may trample the heart poetic
In dirty galoshes and without;
The crowd will riot, the crowd will jostle,
The hundred-headed louse let its feelers out.

The pre-Revolutionary works of Mayakovsky were full of foreboding of great changes, the poet vehemently rejected the past and prepared for the future as for a confessional. In his first large poem "The Cloud in Trousers" (1915) Mayakovsky wrote:

Where weak human sight loses resolution,
By hungry mobs led and drawn,
In the crown of thorns of revolutions
The year nineteen-sixteen will dawn.

He was only one year off—the Revolution came in 1917. An unexampled leap forward in history, new people building a new society, that is what determined the poetry of Mayakovsky, its rhythms and images. "Time is humming like a telegraph wire," he wrote in "Very Good!" as though the million-volt energy of the Revolution, sweeping away all barriers, had flowed straight into the poet's lines.

The same energy had charged the lines of Walt Whitman's poem "Beat! Beat! Drums!":

Beat! beat! drums!—blow! bugles! blow!
Through the windows—through the doors—burst like a ruthless force,
Into the solemn church, and scatter the congregation,
Into the school where the scholar is studying;
Leave not the bridegroom quiet—no happiness must he have now with his bride,
Nor the peaceful farmer any peace, plowing his field or gathering his grain,
So fierce you whirr and pound you drums—so shrill you bugles blow.

The poem was written in 1861, a memorable year for America. The Civil War had begun. And just as Mayakovsky's poetry was nourished by the energy of the Russian Revolution, so was Whitman's verse born of the revolutionary events in American history.

I do not intend to compare the poetical systems of Mayakovsky and Whitman. Their work has many things in common and, of course, a great many more differences. But I would like to follow the connection between artistic and social progress.

There is much talk nowadays of vanguard poetic art, with the term "vanguard" often given a limited meaning, confined to the formal elements of poetry, the search for unusual rhymes, chaotic meter and stanza patterns. It would be absurd to deny the significance of experimentation with form, something many great poets have done.

What I have in mind is genuine vanguard art which, while experimenting with new forms, is primarily submitting life to test and searching out its laws. In this sense both Whitman and Mayakovsky are great vanguard poets.

Without going into a detailed analysis of their verse, I would like to consider one quality that not only these two poets, but, I believe, all real artists, no matter what country they lived in or what language they wrote in had in common—an exceptional involvement in everything that was going on around them.

Seven years after the October Revolution, Lenin died; Lincoln was assassinated shortly after the Civil War ended. What can be more painful than the death of the living symbol of a revolution? And this pain the national poets of Russia and America felt profoundly.

This is how Mayakovsky began his poem "Vladimir Ilyich Lenin":

It's time—
I begin
of Lenin my tale.
Not because
no grief
I more feel.
Time
because
this heartfelt grief
has become a pain most real.

And Whitman's poem dedicated to the memory of Abraham Lincoln begins:

When lilacs last in the dooryard bloom'd,
And the great star early droop'd in the western sky In the night,
I mourn'd, and yet shall mourn with ever-returning spring.

Ever-returning spring, trinity sure to me you bring,
Lilac blooming perennial and drooping star in the west,
And thought of him I love.

There is not much point in comparing the American Civil War and the October Revolution. They are much too dissimilar

not only in their significance but also in their socioeconomic, political and ideological aspects. Nevertheless both the Civil War and the October Revolution played a special role in the history of our countries. However, a certain connection between social and poetical progress can be found even in less significant events.

Life, the Source of Creative Powers

According to American critics, the USA is now going through a poetic Renaissance. A new generation of poets has succeeded such great poets of the 1912-1924 period as Edwin Arlington Robinson, Robert Frost, Carl Sandburg, Edgar Lee Masters, Vachel Lindsay. Is this poetical revival which began in America in 1956-1957 and is still underway pure accident? Hardly. The new poetry trend in America is an inevitable result of changes in the arts generally. And poetry, perhaps the most labile of the literary forms, has been the first to respond to these changes. Allen Ginsberg's "Howl" interrupted the placid and measured flow of the so-called university, or classical, writing of such poets as Allan Tate, Richard Wilbur, Robert Penn Warren. The new American poetry defiantly swept away the traditions of the recent past: this was poetry of the streets, impetuous, coarse, with no rules and no limitations. At first glance, the poetry of Ginsberg (I cite him because I think he is most representative of the new poetry) repels for its seeming lack of the poetical. This poetry exhorts primarily by its biological rather than artistic construction, by its alternating inhalations and exhalations. But if we attempt to explain this absence of poetical, we become aware of significant social feeling.

This is a protest against a machine civilization which smothers spiritual ideals, it expresses profound sympathy for man lost among the skyscrapers, overwhelmed by the "sphinx of cement and aluminum." That is why the apocalyptical frenzy of the images in "Howl" is suddenly blended with the lyrical intonations of "Sunflower Sutra."

In general, while I am aware of all the individual singularities of Ginsberg's talent, I would say that his poetry is in the traditions of Whitman, with its mighty images, thunderous volume, chaotic rhythms and dissonances, which reflect the rhythms of life that are not subject to literary standards. In some way that at first seems strange, Allen Ginsberg has much in common with a Russian poet, one who began to publish at almost the same time, Andrei Voznesensky. Their similarity is not so much in purely literary elements as in the feeling of their verse, their poetic freedom, their unrestrained thought and expression. And again, while Ginsberg's verse is a striking example of America's Renaissance, Andrei Voznesensky is one of the most interesting of the young Soviet poets to appear in the last decade.

Neither is this poetry, with all its merits and imperfections accidental. It reflects the changes in our social life initiated by the Twentieth Congress of the Communist Party held in 1956. Speaking in the most general terms, these changes boil down to an intensified attention to individual man, to the human personality. Solemn, often impersonal poetry was succeeded by what I would call confessional poetry: the poet profoundly and at times even mercilessly examines his own soul and confesses his doubts, sorrows and joys to his contemporaries. Sometimes the confessional is conducted in intimate, conversational tones with the reader, as in the poems of Bella Akhmadulina, who began writing after 1956. But in Voznesensky's poetry —and that is why it seems the most consonant with the times—the confessional takes on a heraldic, outspoken quality. In the contradictions and conflicts taking place in his own soul, the poet sees the conflicts of the age in brief. Andrei Voznesensky joins battle with indifference, philistinism, bigotry, the worship of things and machines.

O predatory things of the age!
You have vetoed the human soul.
. . . My soul, my harassed beast,
You rush through the city ways,
Like a pup with a bit of leash,
You whine like a beast at bay.

This is an excerpt from a poem called "An Aside in the Form of a Beatnik Monologue." These lines seem to echo the moods of Ginsberg, Ferlinghetti and other modern American poets. But where the poetry of Voznesensky differs from Ginsberg's is in its triumphant optimism. And this too probably reflects not only the difference in literary individualities, but the different social tendencies of the two countries.

The power of Voznesensky's is not in negation but in the affirmation of the living, the vivid, the brave, the contradictory. In the poem "Fire in the Architectural Institute" he writes:

Farewell, you time of outskirts!
Life's slag—for each its turn.
Life burns us all to ashes.
To live—it means to burn.

. . . All's burned to the foundation.
Sighers sitting in a row.
All's over?
It's beginning!
To the movies let us go!

These similarities: Whitman-Ginsberg and Mayakovsky-Voznesensky are highly symptomatic, I believe. One can see in them not only a similarity between the poets but also between the times. And once again these similarities confirm the fact that invariably the vital source of creativity is life.

AERIAL PHARMACOLOGISTS

By Henrietta Alova

IN FAIRNESS it must be said that the bear is not the only lover of sweet and aromatic honey. With the same motivation that bears have, mice, lizards, snails and various insects regularly invade beehives. Unlike the bear, however, this small fry has to pay dearly for the weakness—they are stung to death by winged warriors and remain in the hive forever after.

How do the bees tolerate the decaying corpses? We know that their dwellings are always strikingly clean.

The fact is that nothing decomposes in the hive. Apart from honey and wax, bees produce a resinous substance—propolis—which has surprising properties, one of them to kill bacteria. Looters immured in the propolis cannot spread infection.

In Kazan, the capital of Tataria, researchers in the veterinary institute did some interesting experiments. They sealed bits of meat of varying degrees of freshness in propolis and regulated the temperature thermostatically. In seven to ten days the meat was completely free of microflora. In experiments conducted at room temperature, the process required three to four weeks.

A reasonable conjecture is that our forefathers were familiar with the resinous substance bees produce and used it to embalm their dead.

Propolis is a complex compound. The material collected by bees from plants is mixed with wax. Mechanical admixtures also occur. As much as 15 per cent of the conglomerate consists of essential oils. A spectrum analysis of propolis reveals the presence of iron, calcium, aluminum, magnesium, silicon and in smaller proportions copper, manganese, zinc and cobalt. Propolis also contains tanning agents and secretions from the digestive glands of the bees themselves. Almost all its components are dissolvable in alcohol.

Propolis has a specific smell, a bitter taste and melts between 176°F. to 219.2°F.

The bees use propolis as their basic building material, although it is likely they use it for other purposes too, as a disinfectant, for instance. Primarily propolis is depended upon to stop up chinks in the hive, reduce its entrance and fasten frames—to give the cells of the newly built honeycomb the proper size and symmetry.

A further word on the antimicrobial effects of propolis: Even the wax isolated from bee glue (a familiar term for propolis) has higher bacterial properties than beeswax in general.

Bees are first-rate pharmacologists. The medicinal properties of honey and wax have been known for a long time, but these substances, as well as propolis, were used only in folk medicine. Kazan veterinary scientists have now developed propolis-based medicinal preparations—a paste from natural propolis for external application, a milk emulsion (propolis milk), a water-alcohol emulsion, an extract of propolis in vaseline oil and a propolis butter for internal use.

The Kazan veterinarians have been using a propolis ointment since 1955 to treat fresh and infected wounds and certain diseases of cattle and other domestic animals. Propolis drugs for internal application have been helpful in the treatment of some intestinal and lung diseases. Propolis also has anesthetic properties.

Up to now it has been used only on animals, but years of study have made it possible to recommend propolis preparations for humans. Surgeons, skin specialists, dentists and phthisiologists like this combination of antimicrobial, pain-alleviating and antiinflammatory properties.

PEOPLE ABOVE THE CLOUDS

SKY DIVERS MAKE FILM

By Andrei Batashov

Our free-fall speed is 75 miles an hour, but at contact our speeds in relation to each other should not be more than a few inches a minute.

A half-second interval means that two jumpers will be 150 feet apart. To insure the interval we jump through the door instead of the hatch.

Lev Zalysin is poised for the jump. From here on in his movements must be practically automatic. He has no time for any second guessing.

THE FILM LASTS only ten minutes. It is remarkable for its artistic integrity. Music fills the theater; the sky divers are in free-fall. They play jazz music, fence with swords, dance, form a line, come together and break apart. Each movement is graceful and floating, and only the clouds sliding by in the background remind you that a free-fall drop averages 125 miles an hour.

Sergei Kiselev, Honored Master of Parachute Jumping of the USSR and several times national champion and holder of world records, shot the film.

Kiselev is 36 years old, a graduate of the Radio Engineering Department of the Sverdlovsk Polytechnic Institute, has over 2,500 jumps to his credit. He took his training in Sverdlovsk and Moscow amateur air clubs.

A camera bug, he began shooting pictures on his first jumps, first with a still and later with a movie camera.

People Above the Clouds is his fourth film. He won the prize of the Olympic Committee of Italy at the International Sports Film Festival at Cortina d'Ampezzo, and his third film, *We—Amateur Sky Divers* won the Gold Wing prize at the contest of aerospace films in Vichy, France.

Lev Zalysykh, Alfred Bikmurzin, Vladimir Chizin, Yuri Popov, Victor Vodyanin and Irene Solovyeva—six Moscow engineers and masters of skydiving, helped with both films. Their average age is 27, and each has a proud record of about a thousand jumps.

Irene Solovyeva is married to Sergei Kiselev. She is a four-time USSR champion.

"We wanted to show in our *People Above the Clouds,*" Kiselev told me, "that up there in the sky, performing under most unusual and difficult conditions, man can be master of the situation. That's why we included some show elements in the film.

"Somebody got the idea of a sky band: Popov at the trumpet, Bikmurzin at the clarinet, Chizin at the drum and Vodyanin at the trombone.

"We obtained the instruments at a rental shop, but we didn't specify what we wanted them for. We had to return them in good condition, otherwise it would have been a pretty expensive idea.

"Then we decided to shoot a kissing scene in the air," Sergei smiles. "The boys were to present Irene with bouquets of flowers and kiss her. The scene didn't come off; I don't know why. Kissing in the air is no problem at all—it's even easier than on the ground. But, to tell the truth, I wasn't too sorry that the sequence was unsuccessful.

A second later and he is headed for the ground. His control must be perfect. One miscalculated movement and he will be falling way off course.

Closing the ring. If we jump from 8,000 feet we have only 40 seconds: ten to close in and five to break loose before opening parachutes.

"We wanted the viewers to share what we ourselves felt while group jumping, and everything we did during the free-fall was to help that along. High on the mountain top a climber gets the same feeling. What is it? Exhilaration? Yes, it's that! Triumph? That too! A feeling of really being alive? Also. But something else, too. Feelings you can't put into words.

"Some sky divers say that when you bail out you hear a whistling sound. Whistle, indeed! It's a roar! A mighty, vibrating roar. But usually sky divers hear nothing. Your sense of hearing is turned off during the fall; there's no use for it. What you have is the thought 'God, what a terrific roar!' flashing across your mind every so often.

"The sky divers bail out almost simultaneously—a half second interval between the first and the last jump separates them by 164 feet. The cameraman must catch up with them and select a point of vantage from where he can do his shooting."

"We leave the plane at an altitude of 8,200 feet," Bikmurzin takes up the story. "The free-fall drop lasts 40 seconds. It takes 10 seconds to make the link-up and from five to 10 seconds to break the link before opening the parachutes. The drop speed is 112-124 miles an hour. When you bail out at an altitude of 8,000-10,000 feet, your shooting time is no more than 20-30 seconds. The film was made up of such strips. Kiselev shot 70 jumps, and we used 30 of them for the film. We knew the end of the previous jump and tried to do the next one so as to give the film continuity. Kiselev fastened the camera to his head."

"The free-fall cameraman has to know his business and have steel nerves besides," I interject.

"That's a fact. He has no altimeter, no stop watch. Team members have to signal when they are going to stop performing and disburse. . . . We must all break 100-160 feet away from each other. Kiselev usually stays in the center.

"It is safe to open a parachute at 2,500-3,000 feet. If the main parachute fails, it must be unhooked and the auxiliary opened.

"As soon as a sky diver pulls the ripcord, he looks up to see whether the canopy has opened. The cameraman, however, can't see the canopy of his parachute. And if the main parachute fails, disaster is almost certain.

No better place for a confidential chat than at altitudes of 10 to 21 thousand feet. But you have to talk fast—your maximum is 25 seconds.

"But your sense of touch becomes extra sharp. Your face and hands feel the vibrating flow of the air on which your body rests. Touch and sight are the radars of the sky diver.

"A link-up is the most exciting part of a group jump. When we head toward each other the speed runs up to 75 miles an hour, but at the moment of linking, it should be no more than a few inches a second. A single jerky motion and off you go, flying away head over heels from the rest of the team.

"This explains why any movement you make, even the slightest, has to be automatic—there is no time to think. You must understand, almost through telepathy, what the other members of the team are going to do.

"Why the head?" I asked.

"The answer is simple enough," says Yuri Popov. "Falling through the air, the sky diver steers his body mostly with his arms, so they must be kept free. Besides, when operated manually, vibrations jolt the camera. If the camera is strapped to your chest, you can only shoot what's under you; there is no horizon, no sights above for you to take in. Sergei, I must add, literally got it in the neck, shooting the film. The camera weighs about 22 pounds, and he had to pull four, five and even eight G's, shooting us during the drop."

The camera is fastened to his helmet resulting in a multitude of protuberances. Even if he does manage to strip off the main parachute, the canopy of the auxiliary piece will probably be caught on a projection.

"Besides, the opening shock of the auxiliary parachute is so great that it is not easy to take, even without a camera fastened to your head."

"You certainly have to have real teamwork," I said admiringly.

"Of course, but don't get the idea we were thinking what heroes we were and what a dangerous project this was. Far from it—no such heroics. We did a lot of horseplay up there. We even managed to pull a pair of pants off one of the men. We laughed our heads off up there."

This is the job they all hate—packing up their parachutes.

"Do you have any hobbies besides sky-diving?" I asked Kiselev.

"Yes, indeed. My next favorite hobby is cooking. I've even worked up a few specialties of the house—*pilau à la Uzbek*, goose roasted with prunes and a leg of mutton, stewed in its own juice.

"Cooking *pilau* is a time-consuming affair—you can make five parachute jumps while it stews. But it's worth it—the way the boys join round the table to get their share of the *pilau* is something to see.

"I also go in for skin diving and water skiing. What I'd like to do next is make a film on paralunging (a sport combining parachuting and skin diving with an aqualung). Nothing to beat that, the two free elements—air and water. The parachute and the aqualung are opening up fantastic possibilities for lovers of sport and photography."

This is our aerial ring dance. We also fence en route to earth and play jazz instruments. Our antics have a serious side: to demonstrate control.

LETTERS TO THE EDITOR

We thank all our readers who sent letters of condolence on the tragic death of the Heroes of the Soviet Union Yuri A. Gagarin and Vladimir S. Seregin.

Dear Sir:

With great sorrow we all learn of the death of the Columbus of the Cosmonauts, Yuri Gagarin, first space citizen of the universe.

But the death of this famed pioneer of the coming interplanetary age ended only his mortal being. Immortality of deed never ends. He cannot die, having risen from obscurity to earn the applause of all his fellow men, any more than the country which brought him into existence can perish. His people gave Yuri Gagarin his opportunity. And that opportunity blazed the trail for all mankind into the infinity of the cosmos.

He cannot die who forever will give inspiration to the young of his own time and for generations into the eternity of time.

He cannot die who accomplished what can be done only once—a first. And he cannot die who in spirit will keep company with everyone who blasts off into the void to continue the discoveries which Gagarin began.

And so the world pays homage to a great hero who belongs to us all—a hero whose body reposes in his country's capital, but whose memory will remain alive in the hearts of his people as they pass through the ages; the memory of a hero who shall never be dead.

R. R. de Rougomont
Chicago, Illinois

Dear Friends:

With all my heart do I join the Soviet people and their

friends in their grief over the loss of Yuri Gagarin, whose memory shall live forever in history.

Helena Volinsky
Annandale, Virginia

Dear Sir:

I wish to extend my deepest regrets on the tragedy of Yuri Gagarin's death to his family.

As an ordinary citizen of the USA, is it possible for you to extend my feelings in the language of the Soviet Union?

My deepest appreciation.

Sincerely,
Michael Minkoff
Manistique, Michigan

Dear Sir:

I'm shocked after hearing of the death of cosmonaut Yuri Gagarin in a plane crash in Moscow recently.

I wish to make to you a suggestion. When Kennedy was shot, you made a folder of all the letters mentioning his death. Your folder had a photo of the late president, and under this photo you put in black the words "In Memory" with a black square around the photo.

My sugestion to you is why not do this same thing, having Gagarin's photo on the cover of the folder with what people have said about Gagarin enclosed as a tribute to Yuri Gagarin, the first cosmonaut.

Billy Davis
Nashville, Tennessee

The July issue of SOVIET LIFE will honor the memory of Yuri A. Gagarin and Vladimir S. Seregin with special articles and pictures.

The quiet Volkhov waters have the still calm
of the Novgorod churches of the middle ages.