SOVIET LIFE

SPECIAL ISSUE:
Education in the USSR

THE DEVELOPMENT
OF THE PERSONALITY:
Expert Views

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EDUCATION IN THE USSR

ОБРАЗОВАНИЕ В СССР

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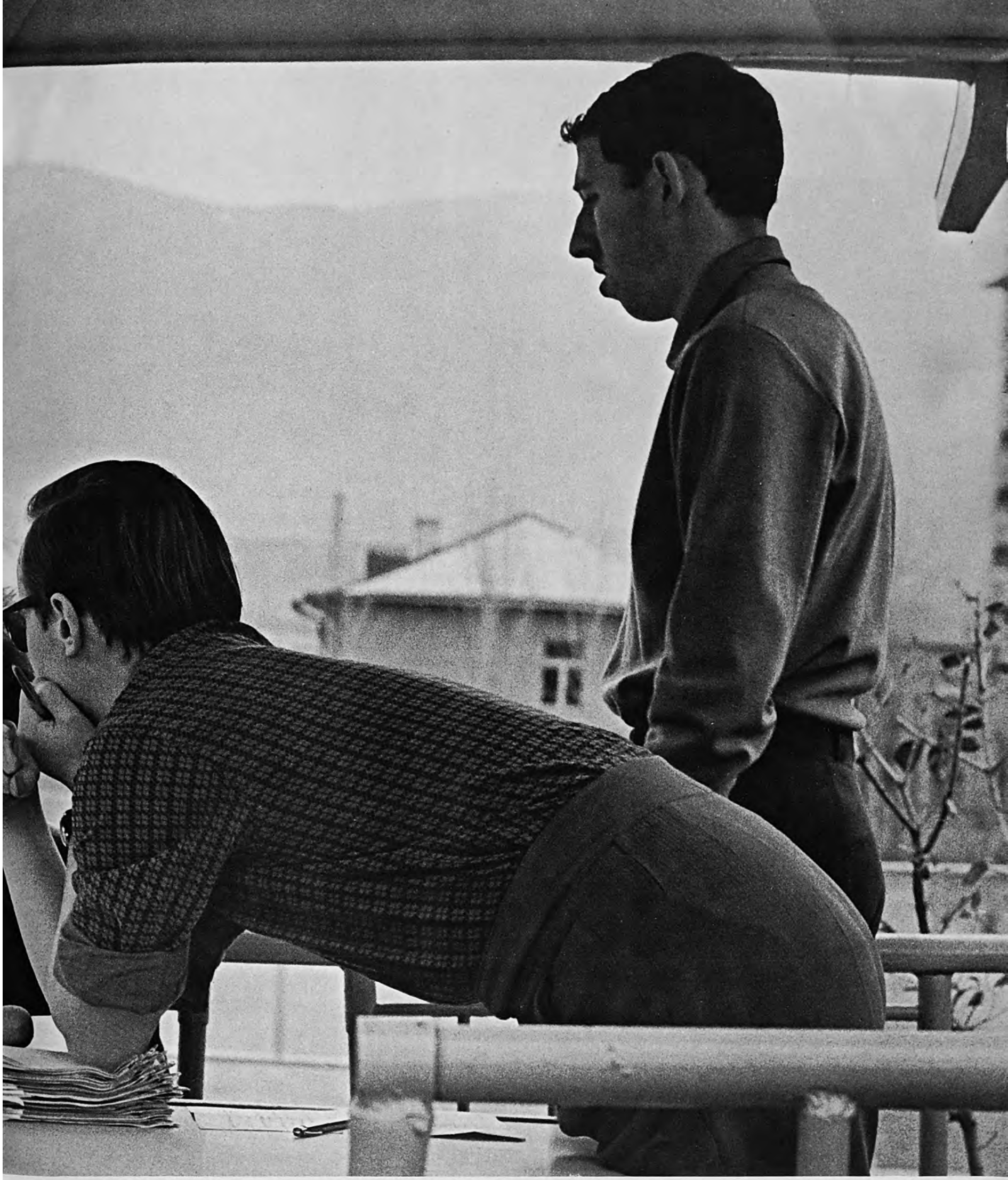
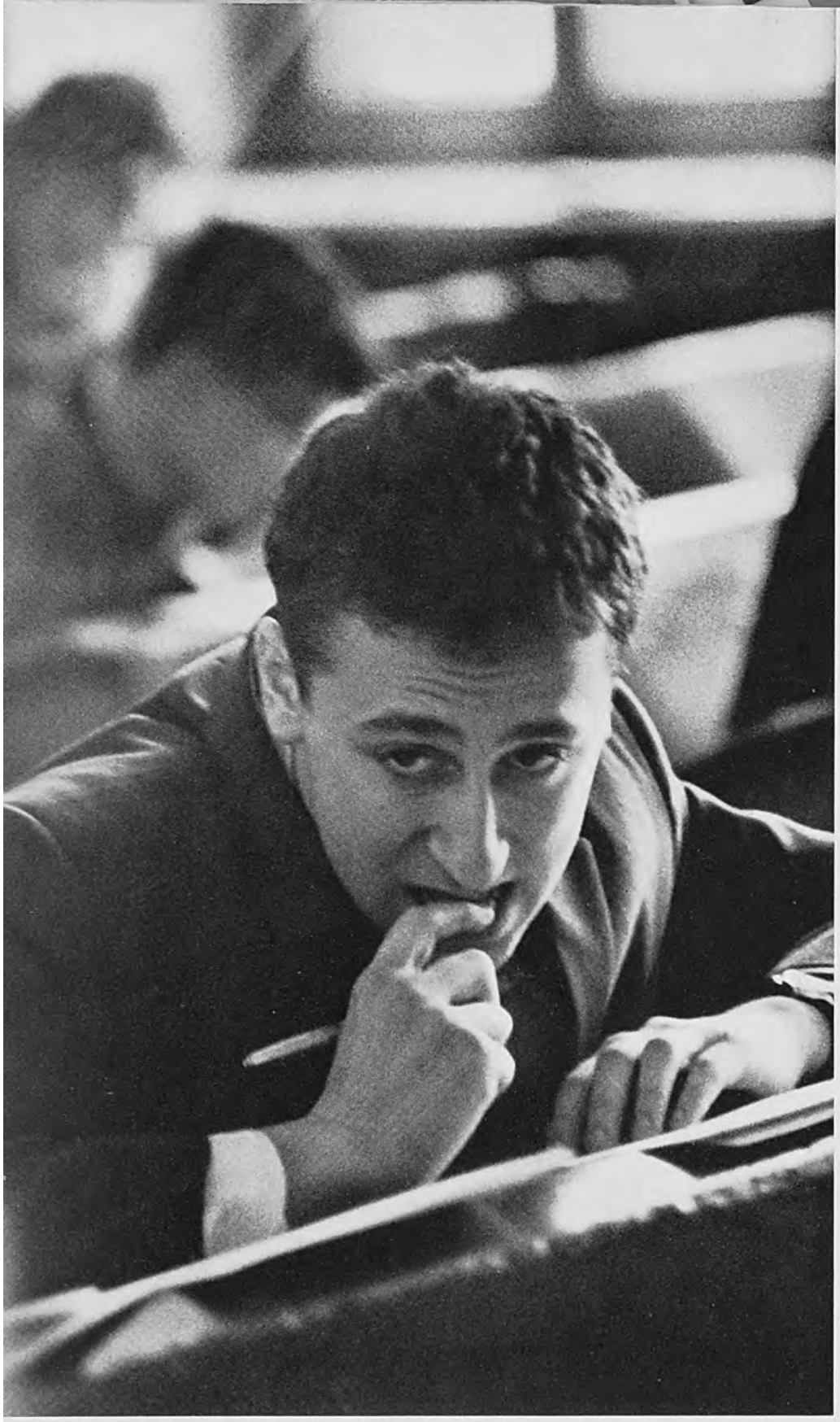
A panel of Olympiad judges. (Left to right): Mark Dubson, Moscow University student, and Mark Bashmakov, fellow at Leningrad University, who both teach at boarding schools for gifted math-physics students; Valeri Gusev and Yuri Ionin, students at Leningrad University working under Academician Dmitri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

SEARCHING FOR



A NEW EINSTEIN

PHOTOGRAPHS BY FRIEDRICH GRINBERG



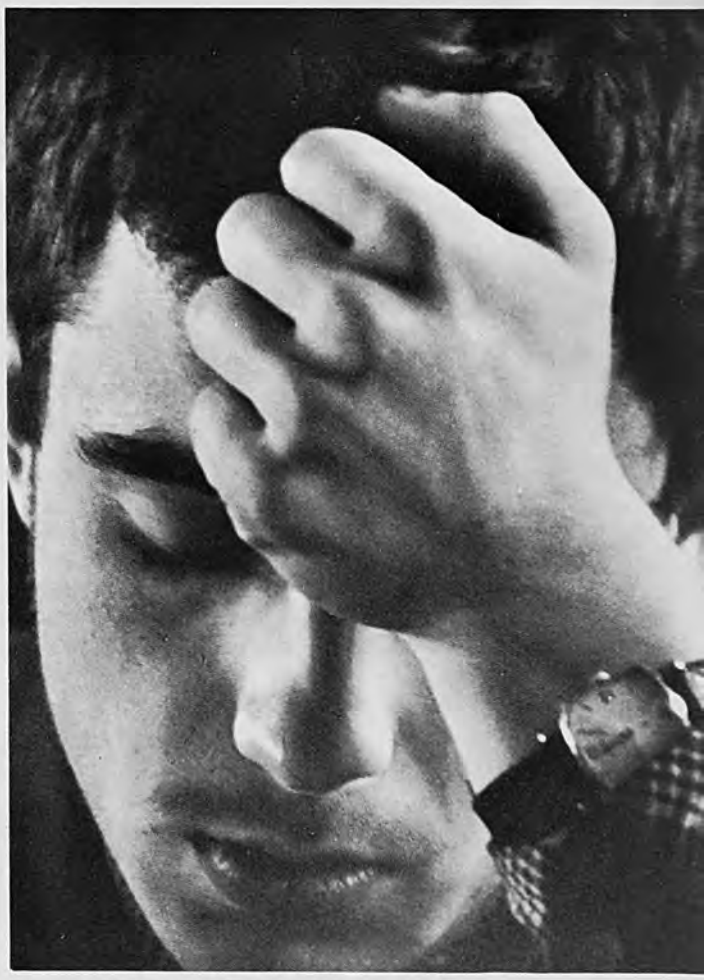
Judges Nikolai Borisov (with cigarette in photo to the right) and Andrei Yegorov, who are both members of research teams led by academicians, vote for the best mathematician among the country's tenth-grade students. The winner is Alexander Livschitz (in the photo to the left) of Leningrad School No.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

FORMULAE-INCOHERENT FOR THE UNINITIATED, . . .

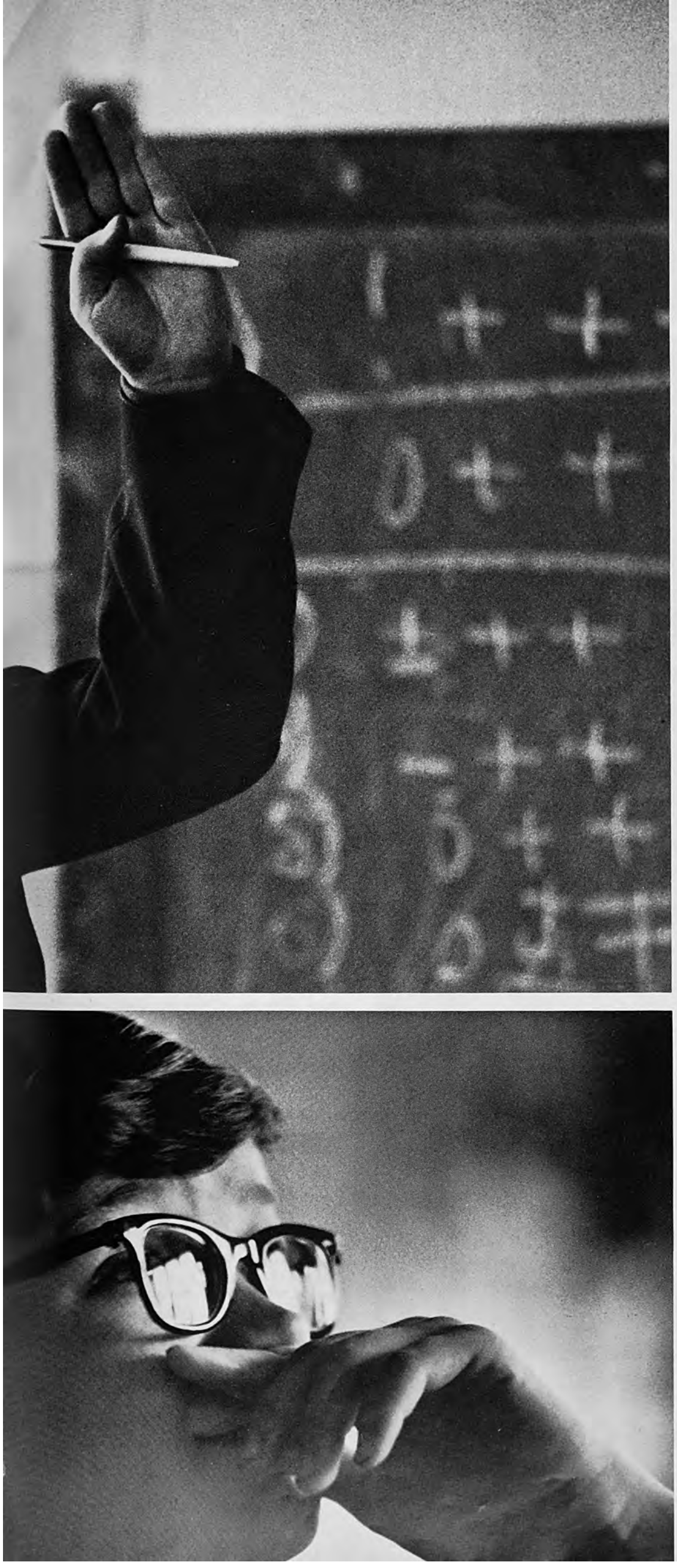
By Nina Kryukova

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.

EDUCATION

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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.

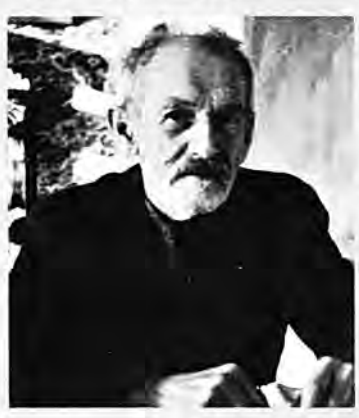
TWO CENTURIES OF TEACHERS

THE HOUSE OF RAMENSKYS

BY SIMON SOLOVEYCHIK
PHOTOGRAPHS BY GEORGI PETRUSOV

In 1904 Alexei Ramensky was appointed official trustee of the village school.

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



Nikolai, Alexei's brother, "inherited" the school from his father, Pakhom.

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, school master 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 fond of her lilacs. She is retiring after 40 years at the village


ŁUKOWA

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 peo-
le in the Soviet Union with a sec-
ndary (complete and incomplete) or
igher education. That same year
9,800,000 people were getting a
igher education, an incomplete
igher education, or a specialized sec-
ndary education. The comparable
igure for 1913 was 290,000.

There was a particularly sharp rise
n the educational level of the rural
opulation. In 1939 there were 82 in-
lustrial workers, 519 office workers,
nd 18 farmers with an incomplete
econdary education, complete secon-
lary education, or higher education
er 1,000 of these gainfully employed.
3y 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,
he reason the 23rd Congress of the
Communist Party made the transition
o universal ten-year secondary
chooling a primary objective of the
current five-year plan (1966-1970).
The transition began in the 1966-1967
chool year. About 80 per cent of
hose who completed the eight-year
chool that year went on to ten-year
r to specialized secondary schools.

Now special emphasis is being
laced on the development of higher
echnical schools and on training for
griculture, education and the health
ervices. During the current five-year
lan period seven million men and
women will be graduated from uni-
versities, colleges and specialized sec-
ndary schools, an increase of 65 per
ent over the previous five-year plan
eriod.

The Soviet school system has cer-
ain distinguishing characteristics. Its
ervices from kindergarten through
ollege are available to every citizen
vithout discrimination. Socialist de-
nocracy does not end there, however.
t permeates every facet of secondary
chool and college life—student or-
anizations, relations between stu-
lents and teachers, the whole educa-
ional process.

A second important characteristic
f our educational system is that it
s designed to bridge the gap between
nental and physical labor. At secon-
lary schools and schools of higher
ducation classroom study is com-
ined with work training.

A third characteristic is that Soviet
ducation is completely secular. Chil-
lren study the realities of the world
hey live in, this is what shapes their
vorld 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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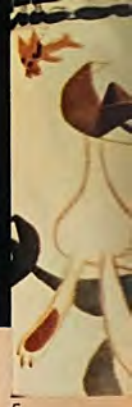

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PICTUR BOO ART

By May Miturich, Art

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

By Galina Silina

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.

Who's right, who's wrong? New teacher with an old problem and a classroomful watching her every move.

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 geared to that very purpose. Lectures in general psychology or principles of education by themselves do not develop teachers. We give our theoretical courses a practical orientation. We attach a great deal of importance to practice. After their second year students work as counselors at Young Pioneer Camps. In their third year they do guided practice teaching at schools. And in the fourth year they practice teaching for 12 to 18 week periods."

"What special problems are your faculty researchers working on?"

"The volume of knowledge accumulated is growing at an explosive rate, while the amount of time a man has to educate himself stays 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."

American physicist William Shockley was one of the distinguished guests at this year's Moscow University frolic.

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

Physics major Sasha Gusev as Archimedes, the father of his science, draws as big a crowd as a major league soccer game does.

Moscow University physics majors have worked up a very respectable reputation for their catchy tunes and usually irreverent lyrics.

This enterprising spectator got himself the closest thing to a ringside seat available to watch the Archimedes birthday pageant. He is in very learned company, the bust honors a famous physicist, Alexander Stoletov.

THE SECRET O

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.

TERNAL 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.

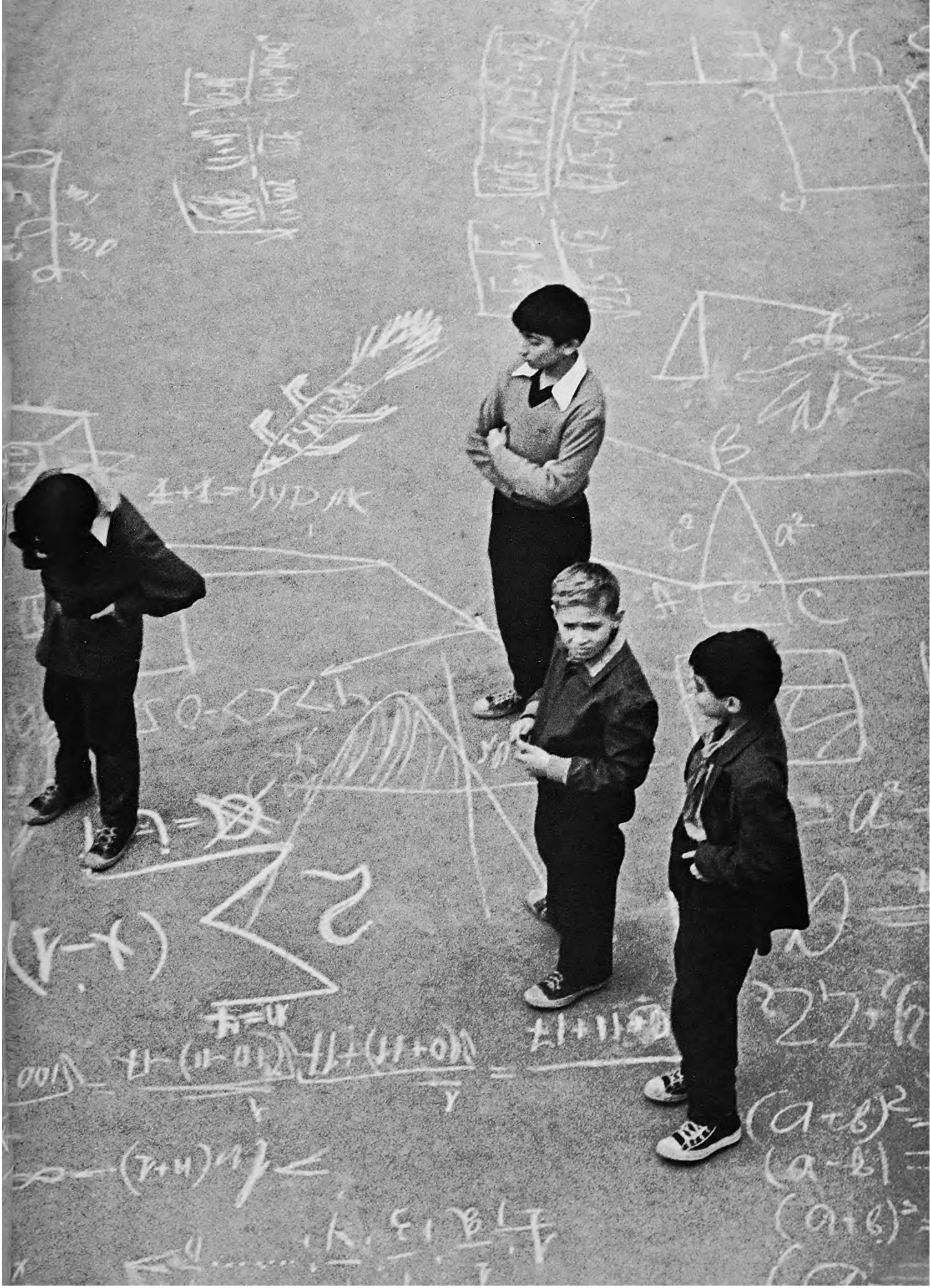
"Man knows what pleasures are," said Lobachevsky. "He seeks them out fastidiously and he refines them. But he also knows what it would be better not to know—he knows that he must die . . . Death is like an abyss that swallows everything, an abyss which cannot be filled; it is like an evil which can be 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 accomplish-ments the Russian people have made in education in th last 50 years. Your rate of growth seems to be on th increase. Especially outstanding is the fact that educatio is free to all, in all grades. I am happy that I attende your very fine exhibit.

Andrew Sofreen

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

Mr. & Mrs. Ralph Dorom

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

Michelle Vield

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

Sharol Alpert

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

Virginia O'Neil

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

Jean Erickso

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

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SOVIET LIFE

Illustrated Monthly

1706 Eighteenth St. N. W.
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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 that 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.

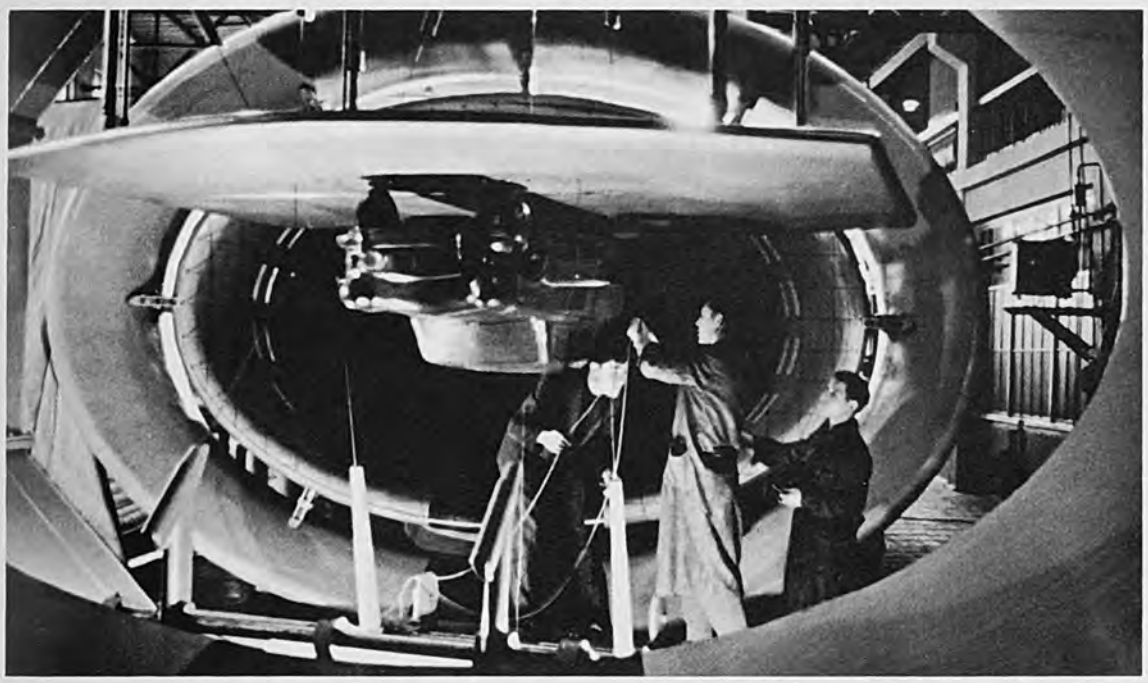
Economists in every country are concerned with the correlation between general educational level and national income growth. These seemingly different categories are closely related. The time required to acquire higher level skills, the increase in labor productivity, reduction of spoilage and the like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

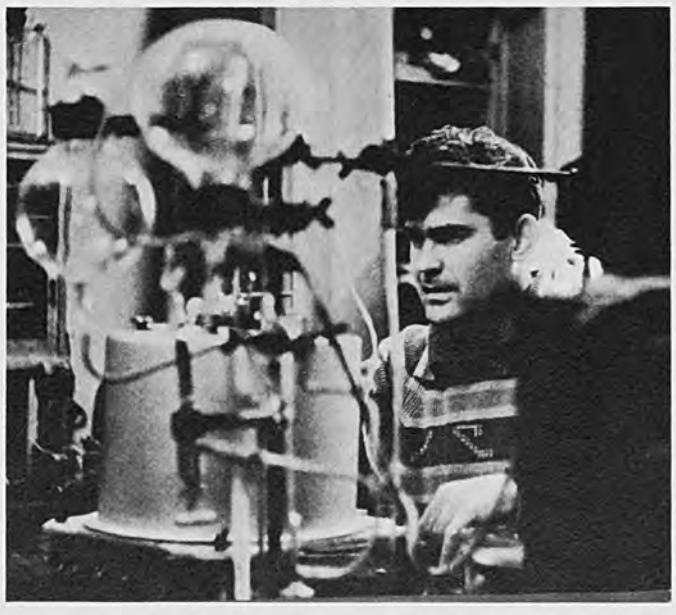
Courtesy of Znaniye—Sila

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."

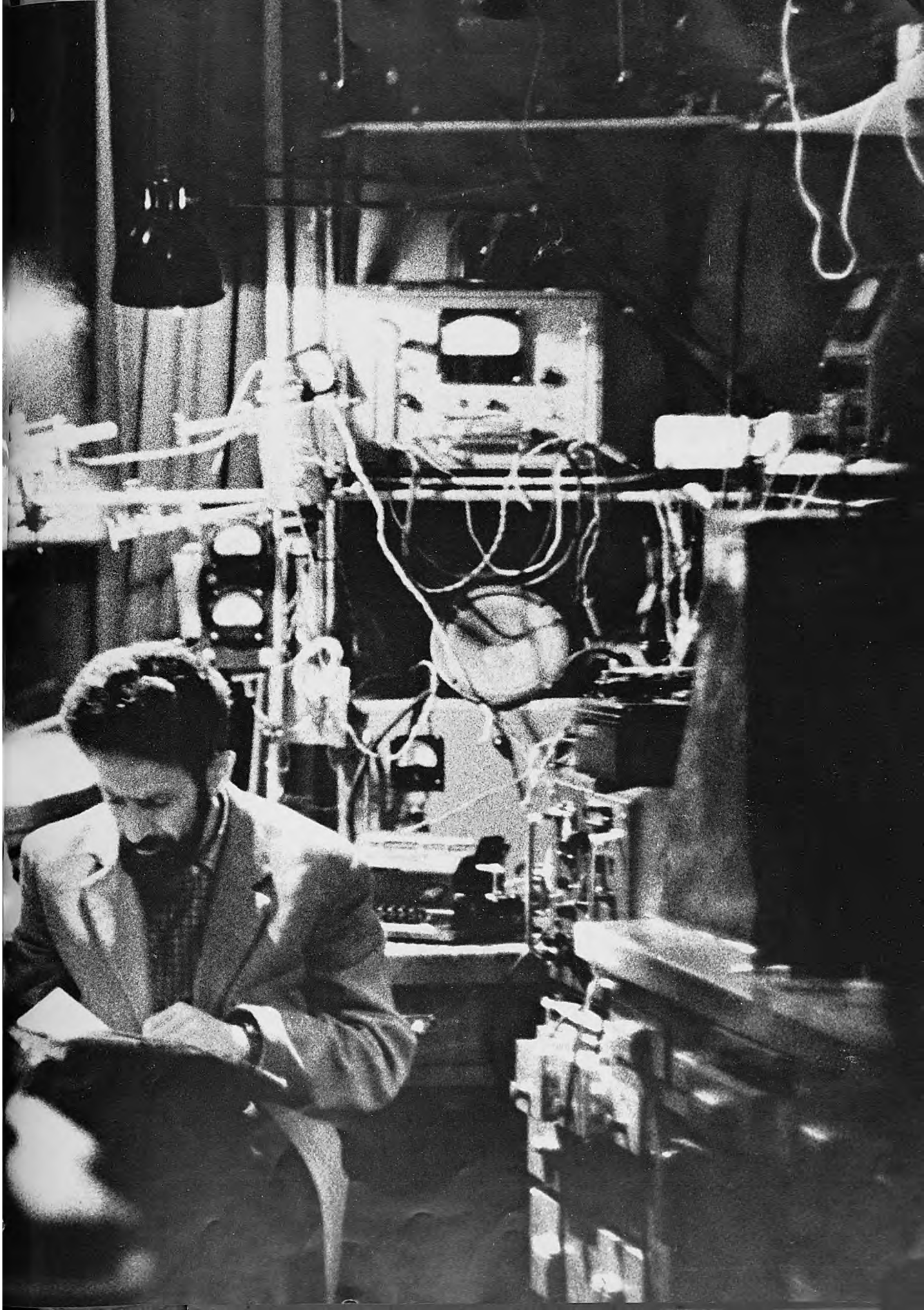
MENDELEYEV



RESEARCH METHOD

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

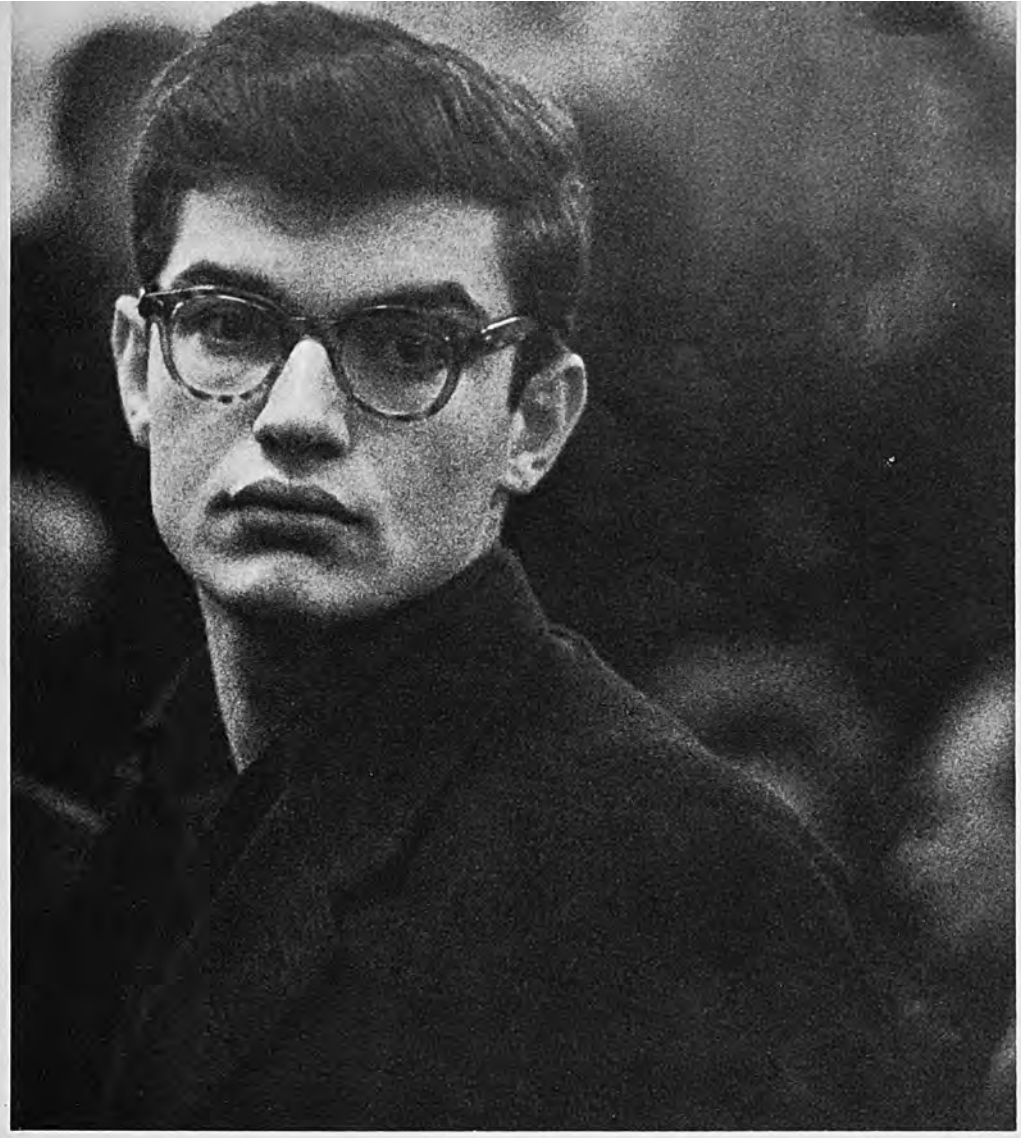
GOETHE



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

BY VLADIMIR GLOTSER

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.

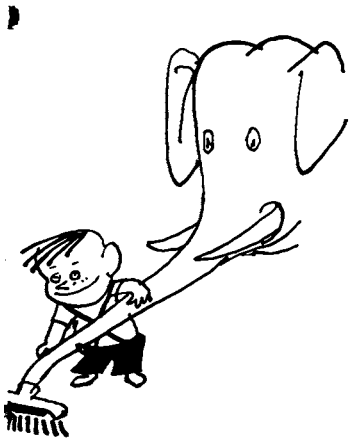
And truly, is it easy to invent when radio, the locomotive, TV and even the soda water slot-machine have already been invented for you? The old days were really a paradise for inventors and scientists: You lie down in a bath tub and discover the law of Archimedes; you walk through an orchard on the alert 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."

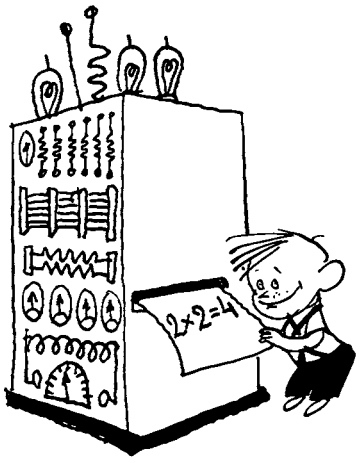
What qualifies the boys for patent certificates?



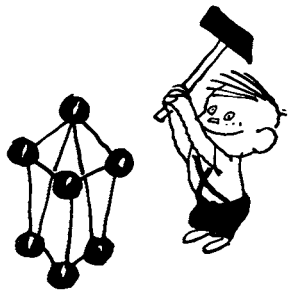
Two Alexeis, Khardikov and Zhyryakov from Magadan (Far East), have patented an automatic grain loader," The Magadanets." Ivan Bryantsev from Voronezh Region (Central Russia) has an idea for a machine to spread fertilizer. While he was in the dentist's chair, Anatoli Abramenko thought up an automatic washer for tubes based on the principle of the boring machine. Volodya Fedchenko 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.

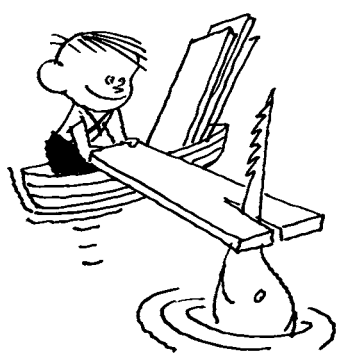


For centuries upon centuries people have watched butterflies in motion. But it took Sasha Bolozdyn from Artemovsk to watch with an imaginative eye and think up the idea of a "submarine butterfly" engine as a substitute for oars. Sasha's unusual and very original invention has been highly praised by shipbuilding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

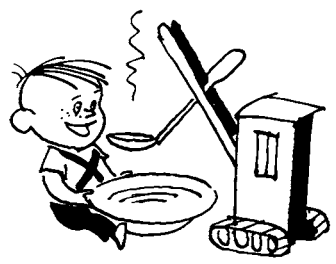


I asked the judges how many of these thousands of juvenile inventions are worth remembering: "Quite a number," answered engineer Kiril Chirikov. "Ideas like those suggested by Sasha Bolozdyn or Alexei Zvyagintsev are too good to forget. Or, this one from Gennadi Kolotka of the city of Thorez. His original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

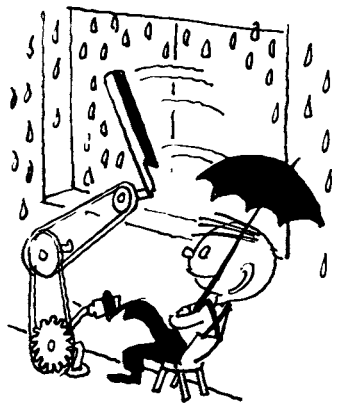
What projects stimulate the imagination of young inventors most? The truck, was the unanimous feeling. The children have sent in thousands of inventions for modernizing trucks. Next in order of favorites is the alarm clock. In third place are devices for improved aquariums.



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.

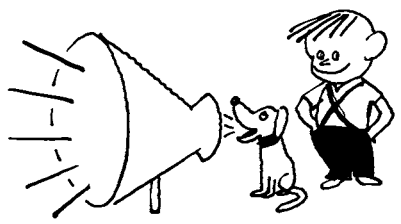


What the *Yunyi Tekhnik* is doing seems so full of promise that one is tempted to speculate. Suppose it were possible to trace the destinies of all the magazine's 20,000 correspondents.



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.

A Show at the House of Trade Unions.

Granddad Frost and Snow Maiden with the children.

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

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.

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.

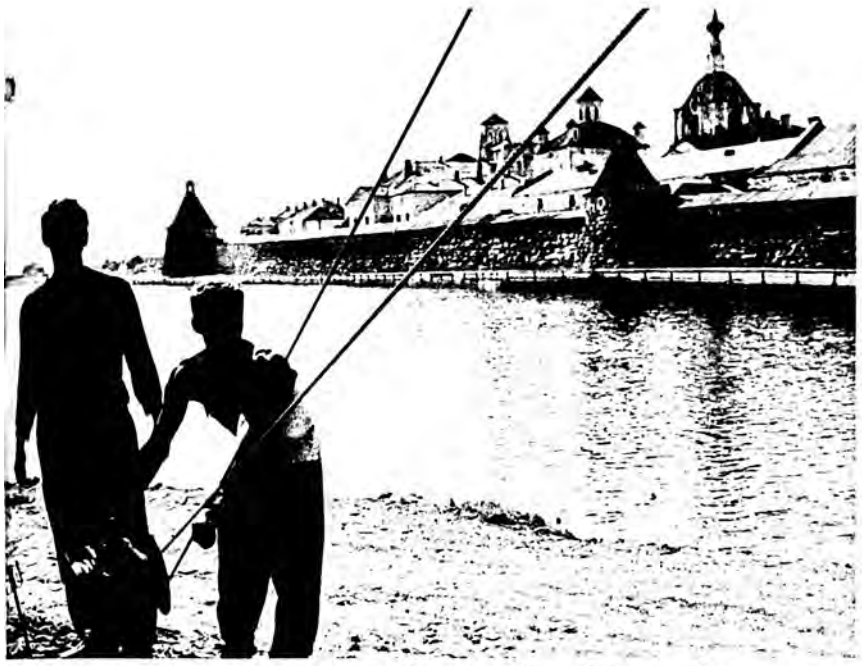
The monks had as many as 1,000 pilgrims working for them voluntarily, breeding cattle, fishing, mining salt, doing the hardest jobs. The monks imposed heavy penance for any infraction of their rules. The Solovetsky clergy had horrible prisons and dungeons they kept a dark secret. The czarist government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



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.

e quite different. But it is a little rious to think of Young Communist eague members restoring a monas-ry.

Actually, what our restoration mounts to, so far, is clearing the onastery of debris. We're carrying t refuse piled up there for centuries.

The local people gave us a hos-itable enough welcome but seem to e doubtful about our abilities. The uthorities are not at all sure Moscow ntellectuals know what work means. he fishermen and the workers stare us curiously, as though they have eir doubts too. Most of their visitors e vacationers. This is a heavenly ot for tourists.

ly 8

The weather is sunny, even hot. So e the nights, the famous "White ights." We stroll around practically night. In groups, and also in pairs. nd come to work sleepy but cheer-l.

I've been wondering why there are many physics students in our oup. Why is it that Moscow Uni-rsity physics students were the first es to volunteer to build houses, spitals and barns in the virgin lands Kazakhstan? And the same here? though we're not really building re. We're restoring historical and chitectural monuments. This is cul-ral virgin land.

I think it is because physicists and athematicians, even while they are dergraduates, deal so much with ientific abstractions. They may not the results of their work for years, t within a reasonable future. And ople feel the need to see the results their work more immediately. And you have physicists and mathema-ians spending their vacations doing nual work all over the country.

Here on the islands they are get-g obvious pleasure out of building wooden sidewalks traditional in North and fixing the roads. They see the results of their work right ay.

y 17

Our people are doing a wonderful . We are cleaning up the monas-y 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.

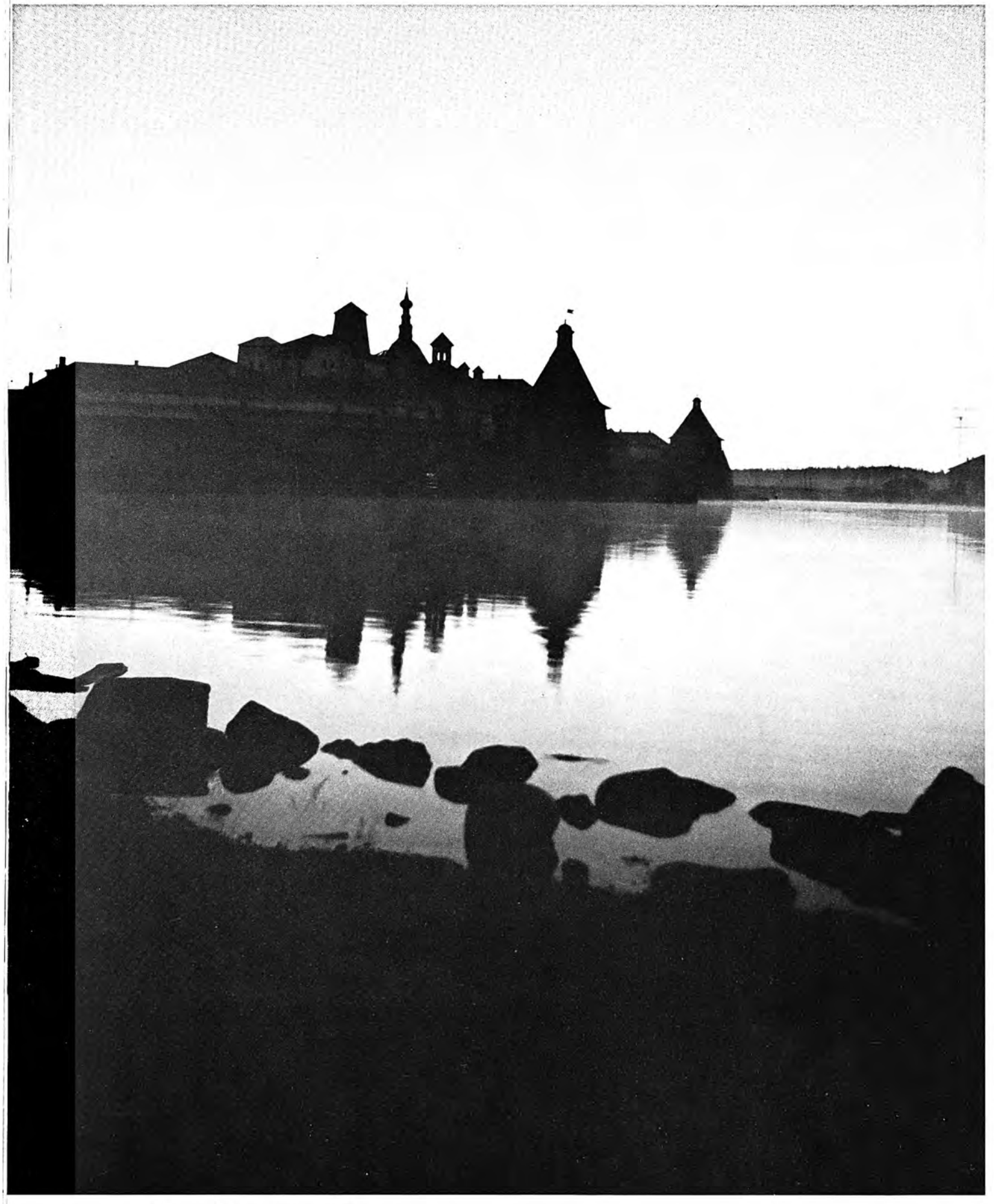
July 30

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 fi
a diary kept by Mos
University student Vsev
Tverdislov.

He led a group of stud
who spent their sum
vacation doing pick
shovel work in the Solo
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.

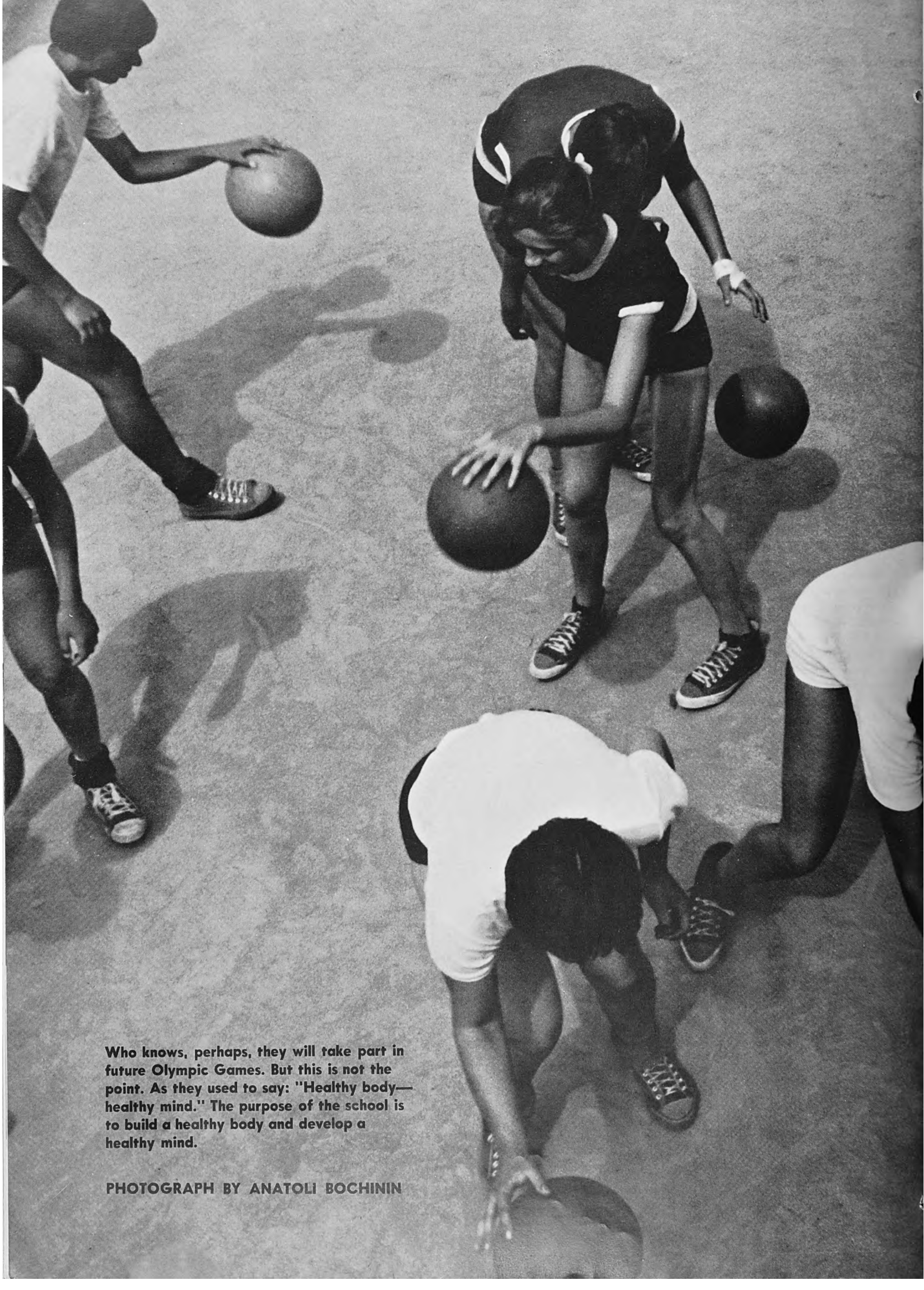
After 16 a boy should take up sports that have elements of single-handed combat—boxing, wrestling, sambo (Russian version of judo). For girls of this age, fencing is recommended.

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.