PUBLIC EDUCATION IN USSR

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Here, Mikhail Prokofyev describes how general education was organized in the USSR, the problems it faced, and what the Soviet Government has done for education in fifty years.

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НАРОДНОЕ ОБРАЗОВАНИЕ В СССР
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Foreword

Anyone interested in the development of Soviet industry and agriculture naturally associates achievements in these spheres with the state of public education in the country.

Interest in the Soviet education system was heightened when a citizen of this country, where half a century before the economic level had been unbelievably low and literacy and culture a privilege of the few, blazed a trail into outer space.

This booklet describes how we began and what we have achieved in the educational field.

The Soviet system of education, like the entire society, develops as current and long-term problems are being solved, along with the progress of science, technology and culture.

Lack of space prevented the author from dealing fully with all problems concerning education. For instance, specialized secondary schooling, which for the newly independent states is of exceptional importance, deserves special mention.

In this respect the Soviet Union has considerable experience. Young people may enter specialized secondary schools as soon as they finish an eight-year school or after they have worked for a few years in a factory or office. These schools have 3-4 year evening and correspondence departments for those who continue their jobs.

Specialized schools which grew out of the general polytechnical schools provide a shorter term of study.

Those who finish them are ready to enrol in day, evening or correspondence departments of colleges or universities.

The Soviet Union readily shares its experience with other countries. In their turn, Soviet secondary and higher school teachers are glad to avail themselves of the teaching knowledge mankind has accumulated.

In the Soviet Union the traditions of progressive democratic education freed from social, racial and religious prejudice, are fused in one system of training and bringing up the younger generation.

Now, throughout the USSR, a vast union of fifteen sovereign republics, people have equal opportunities for receiving education.

Education for All

The level of literacy, the number of schools and pupils is a basic indicator of the state of public education and the people's general cultural level. Pre-revolutionary Russia was a backward country in this respect. The 1897 census showed that among people of over 9 years of age only 28.4 per cent could read and write.

On the outskirts of the Russian Empire inhabited by non-Russians the situation was particularly bad. Among the Central Asian peoples

—Uzbeks, Tajiks, Kirghiz and Turkmens—no more than 2 or 3 per cent of the people were literate. Many of the peoples had no written language of their own.

This immense empire with a population of nearly 150 million had, according to the 1911 census, only 150 thousand teachers, 60 thousand of whom were instructors in the divine law, i.e. priests. The total school enrolment was some 8 million.

Long before the October Revolution the working masses guided by the Communist Party were demanding radical educational reforms —free compulsory schooling, more schools, more opportunities for vocational training, etc. But the tsar's government ignored these just demands. Children of small shopkeepers, cooks and servants were not admitted to the Gymnasiums.

"God be praised!" the tsar exclaimed when he learned that almost all peasants recruited into the army could not read.

Tsarist administrators estimated, the magazine **Vestnik Vospitaniya** (Education Gazette) wrote in 1906, that it would take at least 180 years to eradicate illiteracy among Russia's male population and 300 years, among the women. The time required to end illiteracy in the country's peripheral areas was measured in thousands of years.

But following the Revolution of October 1917 began an era of truly popular education. A few days after the Soviet Government was formed in November 1917, it set out its principles on public education: it should be universal, free and compulsory for children of both

sexes; material provision should be made for teachers, etc.

Despite the economic hardships caused by the Civil War and foreign intervention, the young Soviet republic did a great deal to advance public education. Many new schools and teachers' courses were opened, literacy classes for adults were started all over the country, and numerous libraries, workers' clubs and reading rooms became centres of cultural activities.

On December 26, 1919 the Council of People's Commissars on Lenin's initiative issued a decree obliging the entire population from the age of 8 to 50 to learn to read and write in their own or the Russian language. Tens of thousands of teachers, students, pupils and office employees joined in the literacy drive. The Young Communist League was especially active. Everywhere YCL members campaigned for an end to illiteracy, helped build schools and worked as teachers.

Literacy classes conducted usually in the evenings were opened at schools, workers' clubs, at every factory, in every village. Lessons were given to groups of from 3 to 30 people, very often to only one pupil. This was a real nation-wide crusade against illiteracy.

In 1930 universal and compulsory four-year schooling was introduced for all children aged eight years and over; and seven-year compulsory schooling for those living in industrial cities and districts and workers' settlements.

Large-scale construction of schools began, many teachers' training courses were opened and text-book publishing was stepped up. From

1930 the number of children enrolled at schools grew by 3-3.5 million a year. In 1932, 7.6 million adults attended literacy classes and 6.5 million went to schools for the semi-literate. Literacy rose from 67 per cent in 1930 to 90 per cent in 1939. In subsequent years the number of people who could read and write steadily increased until illiteracy was completely eradicated.

When the Second World War broke out the Soviet Union had more students and schoolchildren than any other country. Enrolment in Soviet general schools was 20 per cent greater than in Britain, Germany, France and Italy combined.

The war and the nazi occupation inflicted immense damage to Soviet public education. In occupied areas the nazis burned down, wrecked and plundered 82 thousand schools attended by 15 million pupils, and destroyed 334 institutions of higher learning, hundreds of museums, thousands of libraries and clubs.

But throughout the war Soviet schools remained open. Unflagging assistance was given by the Government. Important measures were taken to implement universal and compulsory education. In the 1944-45 academic year the school age was lowered from 8 to 7 years, bringing many more pupils into the first form. War-ravaged schools were quickly rebuilt and supplied with equipment and teaching aids, and construction of new schools was begun on a large scale.

At the beginning of the 1960-61 academic year nearly 37 million pupils were attending general schools. Today the country's 210,000

schools have an enrolment of 49 million pupils (figures for each union republic are given in Appendix 1).

Among the targets of the current five-year plan (1966-70) is the introduction of universal secondary education and expansion of specialized training.

The question of universal secondary education was raised in the Soviet Union before the Second World War. It was planned to introduce it first in cities and major industrial centres, then all over the country. However, the war prevented the plans from being implemented.

How is universal secondary education being introduced in the Soviet Union? Sixty-three per cent of young people who have completed the eight-year course go on to study in senior forms. Their numbers will rise steadily in the years to come, so many more schools will have to be built.

More young men and women will enter schools which provide general secondary education as well as vocational training. Among these are specialized secondary schools known as technicums and certain vocational training schools.

The combination of general and specialized secondary schools and vocational schools is an efficient method of providing universal secondary education.

Basic Principles

The progressive democratic principles underlying the Soviet education system are:

State-supported education system. Since all schools and other educational institutions are set up, maintained and guided by the state, a uniform level of training, efficient planning, material security, a single curriculum and continuity are ensured. The state system of education precludes disorganization, dependence on private or public charity and the use of schooling for commercial or other purposes which would interfere with its immediate function.

Equal opportunities for all peoples. People of all the nationalities inhabiting the USSR have equal rights in entering educational establishments, and are entitled to receive an education in their native language. Alphabets have been elaborated for peoples who had no written language of their own before the October Revolution.

Equality of sexes. Boys and girls, young men and women study together in all Soviet schools and colleges. School-leavers of both sexes have the same opportunities, and girls are admitted to schools of higher learning on the same basis as boys. Male and female teachers draw the same salaries for the same work, and no difference is made in granting them pensions, seniority allowances, etc.

Unified school system. In place of the many different types of schools in old Russia, serving different social groups, all citizens in the USSR get the same general education. We have no "dead-end" schools which rule out further education. There is complete continuity between all links and stages of the public education system (see Appendix 2).

School and other educational and training

institutions are completely separated from the church. In the USSR the church is separated from the state and the school from the church. Education is based on genuine freedom of conscience and a truly scientific, materialist outlook.

Broad contacts between school and public. Every school has a parents' committee elected at the beginning of the academic year. Educational questions are widely discussed by the Soviet public. The trade unions, Young Communist. League and other public organizations actively participate in the work of schools and other educational institutions.

Traditions and New Experience

In pre-revolutionary Russia schooling developed in the complex conditions of political struggle. In spite of the tsarist government's policy, teachers influenced by the revolutionary-democratic ideology of V. G. Belinski, A. I. Herzen and N. G. Chernyshevski joined forces with other progressive people to advance Russian education. There came into being Sunday classes and the higher courses for women which played an important part in the history of women's education, in training intellectuals from among workers, in developing the revolutionary-liberation movement.

Within the bourgeois society a new progressive culture emerged. The works and ideas of outstanding people of that time—Leo Tolstoi, N. I. Pirogov, D. I. Mendeleev, K. D. Ushin-

ski and others—are in many respects still significant. But those were only tiny shoots of the new in the vast wilds of backwardness.

Vladimir Lenin's works and speeches were immensely important in laying down the basic principles for educating the rising generation. He developed the ideas of Marx and Engels in keeping with the conditions of imperialism and proletarian revolution. In his speech at the first all-Russia education congress held in Moscow in August 1918, Lenin formulated principles of the class character of the school and the ideological essence of education, the role of the school in the social life of the Soviet state. Communists, Soviet people, Lenin stressed, openly state that "school outside of life, outside of politics, is a lie and hypocrisy."

In his speech at the 3rd Congress of the Young Communist League, known as "The Tasks of the Youth Leagues," Lenin told what and how Soviet youth should study, how to educate themselves as active and conscientious builders of the new society. It was necessary, he said, first of all, to take in the entire scientific knowledge produced by mankind. This should not be just a process of learning but a critical appraisal of the cultural heritage. Learning should be different in the new school. He warned especially against "sloganeering," memorizing ready-made conclusions without analysing the facts or thoroughly digesting the material. The socialist state needs well-educated people with firm convictions and views, and the school should mould these views on the basis of scientific knowledge. We need knowledge in order to build a new life.

The old schools gave pupils book knowledge divorced from practice. Lenin said it was necessary every day in every village and town for young people to solve together, in a practical way, problems encountered in their work no matter how small or simple they may be.

Lenin took up many questions concerning schooling at a party conference on public education in December 1920-January 1921. Some at this conference advocated ending school training with the seventh form, the higher forms being a survival of the bourgeois system of education. Others suggested cutting off the last two years of secondary schooling, thus reducing the age of completing general and polytechnical schooling from 17 to 15 years. In his article "On the Work of the Commissariat of Public Education" Lenin warned against premature specialization and suggested that in all vocational schools besides the technical and political subjects more time be given to general subjects.

Lenin's ideas on training methods laid a basis for the development of Soviet education and teaching. Instead of cramming and drilling, instead of acquiring knowledge which cannot be put to practical use Soviet schools are called upon to employ teaching methods that give young people a communist outlook, and this is only possible when knowledge is considered as a guide to practical work.

In pre-revolutionary Russia the schools did not teach students how to apply in practice or expand a certain amount of knowledge they acquired at school. It is indicative that a subject

under constant discussion in the pedagogical literature of the day was: what was more important in schooling—to provide a certain amount of knowledge or teach how to obtain knowledge regardless of volume.

From the viewpoint of Soviet pedagogy this contraposition is untenable, since one cannot exist without the other. Pupils should know historical facts if they are to be well-educated.

Lenin emphasized the role of the teacher in bringing up the rising generation. He wrote in his "Pages from a Diary": "Our schoolteacher should be raised to a standard he has never achieved, and cannot achieve, in bourgeois society... We must strive for this state of affairs by working steadily, methodically and persistently to raise the teacher to a higher cultural level, to train him thoroughly for his really high calling and—most important of all—to improve his position materially."

Vladimir Lenin's wife, Nadezhda Krupskaya, with her vast theoretical and practical knowledge of teaching made a major contribution to the cause of education. One of her books was "Public Education and Democracy." An active worker of the People's Commissariat of Education of the Russian Federative Republic and chairman of the pedagogical section of the State Scientific Council, Krupskaya directed all educational, training and scientific institutions in the republic. In 1931 she was elected an honorary member of the USSR Academy of Sciences and in 1936 awarded the title of Doctor of Pedagogical Sciences.

Nadezhda Krupskaya believed that school

pupils should participate in productive work, have a first-hand knowledge of modern engineering facilities and methods. This could be achieved with the help of every power station, every sewing machine, every farm implement, every shop or factory. It is essential to know how machines work. We require not narrow specialists but people capable of tackling any job. Krupskaya stressed that technical knowledge was not a separate subject in itself, but should be reflected in all school subjects—physics, chemistry, natural and social sciences. But she warned against interpreting it wrongly as an attempt to gain many skills but mastery of none.

Mikhail Kalinin, Chairman of the Presidium of the USSR Supreme Soviet, was an enthusiastic propagandist of Soviet educational methods. In his numerous speeches before teachers and young people he stressed that socialist society required well-educated people capable of operating modern equipment and promoting sciences; in them should be inculcated communist integrity, patriotism, honesty, courage, a collective spirit and industriousness.

Many valuable ideas about Soviet schools and teaching can be found in the works of Anatoli Lunacharski, the first People's Commissar for Public Education. "The pedagogical process", he wrote, "is also a work process, therefore one must know in which direction he is going and what he wants to make out of his material. If a goldsmith makes a mess of his work, the gold can be molten down. If precious stones are spoiled they are rejected; but in our eyes even the largest diamond is no more va-

luable than a newly born man. Spoiling a man is either a monstrous crime or immense, though unwitting, guilt. . ."

Anton Makarenko, author of a "Pedagogical Poem" and outstanding teacher, did much for Soviet education.

"You are a marvel and a giant of a man, just one of those Russia needs," Maxim Gorky wrote to him.

The training of the new man was Makarenko's main topic. He himself was a new type of writer who came to literature, as he said, from the pedagogical front. In his view Soviet children should be educated in the collective for their future life and work in that collective.

In the eight years that he was in charge of the children's colony named after Gorky Makarenko built a disciplined and inspired collective bound together by close ties of friendship. In one of his books he wrote: "Give man as much respect as possible and demand the utmost of him." He demanded from his pupils energy, purposefulness, social activity and respect for the collective and its interests.

Stages of Education

Kindergartens. First attempts at socialized pre-school education were made by Robert Owen, the great British Utopian socialist whose experiment was highly valued by Friedrich Engels. From its very inception the Soviet state made pre-school education part of a single system of education.

The network of pre-school institutions has grown enormously. In 1920 two hundred and fifty thousand children went to kindergartens and creches; in 1959 the figure had risen to 2,700,000. About nine million children attend pre-school institutions today.

Kindergartens are a great boon to Soviet women who account for three-quarters of the country's doctors and teachers, nearly half the students and one-third of the engineers and scientists.

Kindergarten accommodation places no strain on the family budget, since the state covers all maintenance expenses, the parents having to pay only part of the cost of the child's food.

State-run pre-school care is very beneficial to the children themselves. Today very few young children are left unattended or have to be minded by their brothers or sisters. Trained teachers and doctors watch over the children's health and seek to promote their all-round physical and intellectual development.

Soviet experience shows that children in kindergartens develop well and acquire the habits of collective living. Socialized education does not lessen the children's attachment and love for their parents; rather it tends to make this love deeper.

Kindergartens accept children from the ages of three to seven years. Most kindergartens operate for 9-12 hours daily.

The headmistress of a kindergarten must be a trained teacher, with at least five-year experience and special medical training. Teachers must have a secondary education and additional training as educators.

Children of kindergartens are usually divided into three groups: junior—3-5 years of age, middle—5-6 years and senior—6-7 years.

Their physical training includes health-building and development of agility. They are taught hygienic habits. The requirements of hygiene are considered when buildings are equipped and furnished. The children's diet and regimen are worked out scientifically, as are measures to prevent and treat disease.

The kindergarten child is taught to feed himself unassisted, to wash and dress himself, to keep his things clean and orderly, make his bed and take care of his toys. Most of the children acquire these important behaviour habits.

For 3-4 hours every day the children engage in sports and active constructive play. The teachers help them to develop their abilities and initiative and to learn the value of friendship and group activity. They learn correct speach, counting, drawing, building with blocks, singing and rhythmic movements and in general get to know the world around them. They begin to want to go to school and learn to do not only what is interesting but also what is necessary.

Eight-year school. This is the official title for incomplete secondary general schooling and it gives the pupils the fundamentals of general and polytechnical knowledge, instils in them industriousness and readiness to undertake socially useful activity. Here pupils aged 7 to 15-16 years are also taught a sense of moral responsibility and given esthetic and physical training. Eight-year schooling was first intro-

duced in 1958, and made compulsory in 1963 instead of the seven-year schooling.

Eight-year schooling consists of two stages: primary—forms 1-4, and secondary—forms 5-8.

Schooling in forms 1-4 is elementary, one teacher giving instruction in all subjects for 24 lessons a week. The teachers' councils of some schools allot two teachers to two primary forms, each taking part of the subjects; for example, all Russian language lessons are taught by one teacher and arithmetic and other subjects by the other. General preference, however, is for the one-teacher system, with the exception of music, singing, drawing and sport where special instructors are considered necessary.

The basic subject in the primary school is the native language, and in areas with a non-Russian population, the native language and Russian. Language takes up nearly half of the total teaching time.

Other subjects include mathematics (one lesson a day), drawing and music (one lesson a week of each), physical culture and manual work (two lessons a week of each). Fourth-formers also take natural science and history (two lessons a week of each).

Primary schooling develops cognitive abilities, teaching the pupils how to learn. The other important factor is moral training. Anton Makarenko believed that the fundamental traits of a child's behaviour are formed by the age of five. The mistake of missing the moment when personality is moulded takes great effort and much time to rectify in later years.

This is particularly true of teaching the

child the need to work. Every child entering school should know that he must study in order to be able to work for everyone's benefit, that all socially useful work is honourable, that work has given people all they need, and that shirking work is shameful. This applies to all work, including study.

The primary school curricula recommend first of all various kinds of duties the children must perform—tidying the classroom, hygiene duty, watering the pot plants in the classroom, and, beginning with the 3rd and 4th forms, duty in the canteen and refreshments room, work in the school garden, improvement of courtyards and streets, help to aged pensioners and their families, etc. In rural areas they also collect medicinal herbs, mushrooms, berries, seeds, etc.

The primary school teaches appreciation of nature and good books, music and the pictorial arts, it fosters elementary behaviour habits (neatness and tidiness, politeness, correct behaviour in the street and in public).

In the **5th-8th forms** a systematic study is undertaken of the foundations of the natural and social sciences, polytechnical education is commenced, elements of a materialist outlook are taught while instruction in manual labour, physical culture and the arts is continued.

The curriculum includes the native language, Russian and literature, physics, mathematics, chemistry, biology, history, geography, a foreign language, drawing and draftsmanship, singing, manual work and physical culture.

Comprehensive education of the younger generation is one of the main aims of the curri-

culum of the Soviet eight-year school which includes the natural and exact sciences and the humanities. In the 5th to the 8th forms, 1,565 hours are allotted to the former two and 1,535 hours to the latter. Most subjects studied in forms 5-8 are important components of the curriculum of complete secondary education (10 years). For instance, eight-formers complete the study of the Russian and native language, ancient and medieval history, physical geography, geography of the continents and major states, geography of the USSR, botany, zoology, anatomy and physiology of man, drawing, singing and music; the complete secondary education curriculum for mathematics, foreign languages, literature and other subjects, is fulfilled to a great extent in forms 5-8. This ensures unity and continuity of eight-year and complete secondary education.

The study of the humanities in the 8-year school (the native, Russian and foreign languages, literature, history, political geography) gives pupils a knowledge of other peoples, moulds social consciousness and prepares them for taking an active part in various forms of state and social life.

History which is rightly called "mankind's memory" is studied thoroughly in Soviet schools and not only as a record of the past. The course in history illustrates the development of the historical process, the decisive role played by the popular masses, reveals the laws regulating the change of socio-economic formations, inculcates respect for everything created by the labour and struggle of many generations, evokes noble aspirations.

Lessons in literature which begin, like history, in the 5th form are of great educational value. In the 7th and 8th forms works of literature are taken up chronologically, from the 19th century to our day. At literature lessons and in their home assignments the pupils do various kinds of written work (writing outlines, renderings and compositions, describing the characters of literary heroes).

Pupils in the 5th to 8th forms learn the concepts and principles of physics (such as force, work, power, acceleration, and tension of the electric field), become aquainted with the physical laws, express them in mathematical formulae and solve simple problems. As a rule they become familiar with the design and operation of many instruments. Information about substances and the basic concepts of the atomic-molecular theory are successfully studied at chemistry lessons in the 7th and 8th forms.

The aim of mathematics lessons is to acquire and consolidate fundamentals of knowledge, develop logical thinking, concise and clear speech, to apply knowledge in practice, to make measurements, calculations and drawings, to model, to work with calculating instruments and tables, to solve problems which may be connected with related subjects—physics, chemistry and draftsmanship.

Besides periods devoted to manual skills and learning about the use of machines after classes polytechnical training includes instruction in the fundamentals of industrial and agricultural production and in the use of instruments and tools at lessons.

The curricula for mathematics, physics, che-

mistry, biology, geography and other subjects include practice in the school workshops where the pupils learn how to apply their knowledge.

On completing the eight-year school, pupils sit for examinations and receive certificates entitling them to take a job or continue studying in a general school, in evening secondary schools for young workers and farmers, in various vocational or specialized secondary schools.

Complete secondary school (10 years) provides students with knowledge, habits in learning and skills necessary to begin higher education. The curriculum includes literature, history, social science, economic geography, a foreign language, mathematics, physics, chemistry, astronomy, biology, draftsmanship and physical culture.

In the senior forms the importance of acquiring scientific knowledge grows, and there is more emphasis on its practical application.

Programmes, Curricula, Text-Books

In the early years of Soviet education, teachers made special efforts to bridge the gap between the subjects taught and practical life. Of interest are the curricula of the People's Commissariat of Public Education for the 1920-21 academic year which allotted nearly five times as much teaching time to natural sciences as had the pre-revolutionary Gymnasiums,

over twice as much as in the Realschulen. Considerable time was devoted to esthetic and physical education.

Extensive research is carried out in the USSR to improve curricula, programmes and text-books. The best teachers, scientists, methodologists, doctors and other specialists, research and training institutes, the USSR Academy of Sciences and the USSR Academy of Pedagogical Sciences assist in this work.

In 1966 recommendations were drawn up for new curricula and programmes aimed at making education meet more fully the requirements of scientific, technical and cultural progress, ensuring continuity in the study of the fundamentals of sciences, achieving a more rational distribution of study material over the years and preventing unnecessary strain on the students. The new curricula and programmes are to be introduced in secondary school not later than 1970-71. At present a standard curriculum has been adopted and is being introduced at all levels of school education (see Appendix 3). Its main feature is reduced compulsory tuition, the average number of daily lessons being four in primary schools and five in senior forms, more time being given to optional studies.

An additional 2-3 hours a week are allowed in the national schools of the union republics and autonomous republics of the Russian Federation where both the native language and Russian are taught, as well as the literature, history and geography of the republic.

In the 9th and 10th forms pupils may choose what form of manual work they want to

do. Optional studies are a flexible form of schooling which makes fuller use of the latest scientific, engineering and cultural achievements taking into account local conditions. Such amendments as are necessary are made without altering the basic curricula, programmes and text-books of secondary schools. Optional studies, which the pupils undertake, according to their inclinations and abilities, increase their knowledge and teach them to use their own initiative to gain information. This form of tuition is an important means of encouraging interest in science and practical activity, and prepares the pupil for self-education on leaving school.

The greatest change in the new standard curriculum is the reduction of the primary course from four to three years because in most cases children coming to school have already learned how to read and count at home or at a kindergarten.

The standard curriculum preserves the natural sciences-humanities ratio traditional in Soviet schools, with the humanities taking up 40 per cent of the tuition time.

Soviet schools devote special attention to the general cultural level of pupils, emphasis being placed on literary Russian, and in national schools, the native and Russian languages. The other humanities include history, social science and economic geography of the USSR and foreign countries.

The share of natural science and the mathematical subjects has been somewhat increased (to 36.6 per cent of total tuition time as against 30 per cent in the 1959 curriculum).

Although less time is given to pictorial art, music and physical culture, this is compensated for by more time spent in different school clubs or circles, as they are called, and at extramural institutions, such as Young Pioneer Houses, children's sports schools, tourist bases, music schools, etc. of which there are more than 12,000.

The content and nature of manual and technical training are based on current requirements and the future development of school education.

Manual training is elementary in the 1st to the 8th forms. The children obtain simple technical, agricultural and household skills. In the 9th and 10th forms the study is deeper, with scientific and technical practice sessions conducted in the school workshops and laboratories of nearby industrial enterprises.

Syllabuses for different subjects have been brought in line with scientific advances. Leading concepts have been emphasized in each subject, reflecting new trends in science in a way pupils can comprehend. In mathematics, for instance, the gap between arithmetic and algebra has been reduced and a functional approach has been emphasized in teaching.

The physics course includes the theory of molecular and atomic structure of matter, the molecular-kinetic and electron theories. In chemistry more emphasis is placed on the study of the periodic table of elements and chemical bonds. In the organic chemistry course greater use is made of the concept of molecules' spatial structure and the electron nature of chemical bonds.

Radical changes have been made in the biology course. The molecular fundamentals of genetics and selection are explained, the modern theory of the structure and function of the cell is introduced as well as the basic elements of Darwin's theory of evolution.

These changes made it necessary to revise text-books so they would conform to the new curricula. Groups of authors were formed led by Academicians A. Kolmogorov, I. Kikoin, M. Nechkina, V. Khvostov and others. Whole collectives of teachers, methodologists and scholars are on commissions working on text-books. As well, the USSR Academy of Pedagogical Sciences has conducted a series of theoretical and experimental studies and elaborated requirements for text-books in general and also for individual subjects.

Emphasis was placed on raising ideological and scientific levels, strengthening the ties between theory and practice, and encouraging the students' initiative.

Teaching aids, text-books and instructions are being prepared both for students and teachers. In 1966 literature on teaching accounted for 13.5 per cent of all titles published and 27 per cent of the total number of copies. The number of text-book titles published in that year was 9,821, with a total print of 346.4 million copies.

Pedagogical Science

Each subject taught in school is an interpretation of the fundamentals of a branch of

knowledge, be it mathematics, physics, biology, geography, history or literature. To keep abreast of the latest scientific discoveries and ideas teachers must periodicaly make a selection of material from the vast store of scientific information available.

In the USSR the content of school subjects is not limited to a didactically processed set of scientific facts, concepts and theories. The methods employed by various sciences to reveal the laws of nature and society are also included in school subjects to assist students to a better understanding of what they are being taught.

The natural and social sciences have reached great heights, the volume of available information having grown immeasurably, as a result of varied and highly effective methods of research. Scientific advances, especially those in mathematics, physics, chemistry and biology, are widely employed in many branches of technology resulting in its rapid progress and an increase in labour productivity.

The USSR Ministry of Public Education, the USSR Academy of Sciences and the USSR Academy of Pedagogical Sciences are doing comprehensive work to improve secondary education in this respect. New material is regularly selected for each subject. Another way of raising the level of teaching is the structural rebuilding of the stages of schooling.

The first, primary stage, has been reduced from four to three forms, raising the pace of school education. Additions are made to the mathematics and Russian language programmes. Fundamentals of natural science are

now included in the 2nd and 3rd form syllabuses. This has been done to raise the general level of primary education.

The second, middle stage, has been expanded to include the 4th to 8th forms. By this means the volume of information can be increased without changing the tempo of schooling, certain topics can be shifted from the upper forms' programmes and new facts and ideas added in a form comprehensible to the middle group of pupils. To this end much new material, theoretical theses and scientific methods have been included which enrich the students' knowledge, develop their intellect and outlook, help them apply their knowledge in practice both at school and at work upon leaving it.

Priority is given to mathematical subjects in view of their great educational value. In the new programme for the 4th and 5th forms mathematics is represented by arithmetic with elements of algebra and geometry. Included in the section "arithmetic" are the concepts of plurality elements. These are explained with the help of various concrete examples and appropriate exercises.

Systematic algebra and geometry courses begin in the 6th form. Thus the three stages of secondary education are forms 4 and 5, 6-8 and 9, 10. The shifting of the foundations of algebra and geometry to the 4th and 5th forms and their correlation with arithmetic greatly enhance the level of knowledge acquired. It grows further in the middle forms and rises sharply in the 9th and 10th forms where the pupils begin to study finite processes characteristic of higher mathematics. One of the

topics here—"Algebra and Elements of Analysis"—includes the derivative, the integral and the fundamentals of the theory of probability as well as information on electronic computers.

The physics course has likewise been augmented with new scientific data. The key theory of modern physics is the theory of the structure of matter. Physics considers matter in two forms—substance and field—to study which it is essential to be familiar with the modern theory of atomic structure, elements of statistics, quantum mechanics and the basic points of the theory of relativity.

The pivotal questions of the physics course are:

6th form—molecular structure of substances; movement and forces; pressure of liquids and gases; work and power, the concept of energy.

7th form—thermal phenomena; heat transfer and work; changing aggregate states of matter; thermal engines; electricity; structure of the atom; intensity of current, tension, resistance; work and power of electric current; electromagnetic phenomena.

8th form—mechanics; foundations of kinematics; variable motion; Newton's laws of motion, their application; forces in nature; addition of forces; work and energy.

9th form—molecular physics; fundamentals of the kinetic theory of gases; internal energy of ideal gas; properties of vapours; properties of solids and liquids; fundamentals of electrodynamics; electric fields; direct current; electromagnetic field; electromagnetic induction;

production, transmission and utilization of electricity.

10th form—oscillations and waves; mechanical oscillations and waves; alternating current; electromagnetic oscillations and waves; optics; light waves, geometrical optics; radiation and spectra; action of light; light quanta; fundamentals of the theory of relativity; physics of the atomic nucleus; atomic nucleus; elementary particles; nuclear energy.

The chemistry course in the secondary school unites the fundamentals of inorganic and organic chemistry. An emphasis on theory raises its level. The theoretical foundations of chemistry are explained more deeply at an earlier stage. The molecular-atomic theory is introduced at the beginning of the course and serves as the basis for understanding chemical phenomena, reactions and calculations. One year earlier than they used to before pupils begin to learn the periodic law and periodic system of elements as well as the electrolytic dissociation theory. Deeper study is carried out on the structure of matter. All this gives the chemistry course in the 7th and 8th forms the character of general chemistry, while in the senior forms pupils have a chance to study the electron theory.

A deeper study is made of heteropolar and homopolar bonds, donor-acceptor and hydrogen bonds. Material on the energy of chemical processes is supplemented by the concept of the energy effect of reactions and its quantitative expression. This enables the student to characterize the durability of compounds (with substances consisting of two elements as ex-

amples) and show that chemical processes are governed by the conservation of energy laws.

7th form—elementary chemical concepts of oxygen, oxides, combustion, hydrogen, acids, salts, water, solutions.

8th form—basic classes of inorganic compounds; calculation of chemical formulae and equations; Mendeleev's periodic law and periodic system of elements; structure of matter; halogens; oxygen sub-group.

9th form—electrolytic dissociation theory; nitrogen and phosphorus; carbon and silicon; metals.

10th form—introduction to organic chemistry; theory of mechanical structure of organic compounds; basic classes of organic compounds.

In the school biology course the general trend is determined by the latest advances in cytology, genetics and selection. In structure this course differs from the physics and chemistry courses since it consists of four different subjects—botany, zoology, human physiology and general biology. Botany, zoology and human physiology are augmented by new elements of cytology, ecology, biocenology, genetics and the theory of evolution. In the course of studying botany, zoology and human physiology, pupils gradually accumulate knowledge about the cell as an elementary living system forming the basis of the structure, life and growth of organisms, about the cell's structure and its chemical components, about its proteins which perform fermenting, transporting and motive functions and which are the basic building material of the cell's nucleus, cytoplasm and organs. The general biology course

supplies detailed information on the structure and functions of the desoxyribonucleic acid which forms the material particles of chromosomes—the genes, the carriers of hereditary function. The second nucleic acid, ribonucleic, is also studied, as well as the role of both in the synthesis of protein.

Since all functions of the cell are accompanied by expenditure of energy, pupils learn about energy exchange in cells, adenosine triphosphoric acid, this universal energy substance, its chemical composition and structure as well as synthesis and decomposition in the process of energy exchange.

Rich in material, the biology course gives pupils systematized knowledge about the basic laws of living nature.

The profound upheavals in the world demand that the youth receive an all-round ideological and political training. This is done in school when studying all subjects, primarily the humanities.

The new history programmes reflect basic teaching requirement—that the entire course be interpreted as one process, governed by laws, with comprehensive explanations of facts, cause and effect, and the events and historical characters adequately described.

Included in the new literature programme is a carefully selected and comprehensive list of the works of 19th century Russian classical writers and Soviet authors and outstanding masterpieces of world literature. These are compulsory titles for study in class and at home. In some cases the teacher and pupils in senior forms are given the right to choose one

or several works out of the compulsory list. A number of books are given for compulsory reading in connection with the appropriate topic. These are not discussed in detail in class, but the students work on them independently following the teacher's instructions.

A new Russian language programme has also been drawn up. Its systematic course now begins in the 4th, not 5th, form on the basis of approximately the same material as before. The programme includes material on phonetics, lexicology, word formation, grammar, oral and written practice, elements of style and some general information about the language.

The raising of the level of teaching foreign languages was done in two directions. In the first place, the makers of the new programmes supply not only a list of grammatical phenomena but also structures, or typical phrases, to illustrate them. This helps form habits of speech. Secondly, the qualitative and quantitative indicators of the ability to speak, understand spoken speech, read and write have been reconsidered in accordance with the latest psychological and methodological studies.

School and Life

The Soviet school prepares pupils both to continue their education and to work. These two principles should be in organic unity since training for work and for continuing education complement each other and furnish conditions

for the harmonious development of the personality.

The new school programmes for all the natural sciences and the humanities pay a great deal of attention to the practical application of different subjects. More time is allotted to independent experimentation, excursions and practical work.

The physics programme increases the time for laboratory work from 12 to 20 per cent in the eight-year school, and to 15 per cent in the senior forms. It also provides for excursions to various production enterprises.

The chemistry programme acquaints pupils with the basic branches and general production principles and the main trends in this field. The manufacture of sulphuric acid, ammonia and mineral fertilizers serves to illustrate production processes.

Chemistry's importance to the national economy is demonstrated through the example of metallurgy, production of building materials and chemicals for use in agriculture. The organic chemistry course deals with the processing and production of organic products (oil, natural gas etc). Here, too, more time is devoted to laboratory and practical work. The students should learn to handle common reagents, conduct simple analyses which may prove useful in an agrochemical or an industrial laboratory.

The pupils learn to use a microscope, make simple preparations, work with determining agents, analyse seeds for germination, dockage, etc., conduct experiments with plants and animals and write up the results of their experiments.

In mathematics, pupils learn to handle instruments for measuring lengths and angles, make simple approximate calculations, use calculation tables, the slide rule, graphs and diagrams and learn something about computer work. Draftsmanship introduces elements of design and preparation of basic technical documents. Similar manual and technical skills and habits are acquired in studying other general subjects.

These measures provide the basis for preparing pupils for practical work, while specific technological skill is obtained during labour training which is divided into three stages—1st to 3rd forms, 4th to 8th forms and 9th to 10th forms.

In keeping with the children's abilities and strength labour training in the 1st to 8th forms is elementary and includes working wood, metal and other materials with simple tools and devices; in rural schools simple farm work is added. As a rule this training takes place in classes, school workshops and on garden plots.

The aim of labour training in the 9th and 10th forms is to acquaint children in detail with the modern methods of industrial and agricultural production. It takes the form of practical sessions conducted in school workshops and laboratories and at nearby factories and farms. The pupils themselves may choose what is to be done at these sessions which must total not less than 140 hours a year.

Diligence and neatness, readiness to work for the common good, persistence and independence are emphasized during all lessons.

Practical work is a form of socially useful work. During these lessons pupils manufacture teaching aids, implements and devices for school workshops and laboratories, toys for kindergartens, etc. It is the duty of headmasters and teachers to help students' organizations and see to it that the scope and nature of their practical work do not affect their academic studies.

The programme for practical work provides for excursions to industrial enterprises, film shows on production subjects and laboratory work.

But vocational training is given only in schools having adequate material facilities (e. g. schools attached to major factories, collective and state farms which provide the necessary equipment, tools, materials, instructors and work places). Pupils are taught the specialities they choose, use being made of the latest achievements in applied mathematics, machine building and instrument making, power engineering, radio engineering, construction, chemical technology, plant growing, stock raising, mechanization and automation, etc.

If pupils wish, all or part of optional lessons and time allotted for extra-mural activities may be used to master the speciality they choose.

Three Aspects of Education

The Soviet school strives to combine ethical, esthetic and physical education, to cultivate in

every child patriotism as well as internationalism, integrity and honesty.

Of great significance here is work well done by the pupils. Even the doing of their set tasks, to say nothing of socially useful work, gives the child a feeling of satisfaction, an opportunity to show his initiative and win the approval of his comrades and teachers.

The best schools try to organize this work so that it is done well and the results made known to all the pupils, who are encouraged to follow the good example.

Esthetic education can take different forms in the course of study, work and artistic activity. Nature, the arts, work, scientific cognition, in fact, the entire school develops the children's emotions and tastes, urges them to make esthetics part of everyday life.

Since they involve all the children, the lessons in class are of special importance. In the junior forms these are reading, oral practice and the foundations of natural science. Knowledge coloured by esthetic feeling develops various abilities, in particular, associative thinking which is so essential for future success in different fields of science, technology and the arts.

The history teacher in the 5th and 6th forms, for example, has great opportunities in this respect. When speaking of a country, he tells his pupils of its natural conditions, people, work and leisure traditions, art and day-to-day life; this establishes sound esthetic criteria in the pupil's mind.

The geography teacher deals with interesting and varied material from the esthetic

viewpoint. When teaching his pupils the laws of nature, of the plant and animal kingdom he urges them to make their own observations when they are away from the classroom.

In teaching different subjects are often linked, as if helping each other. For example, music is essential for sports lessons, while history, geography, natural science and foreign languages are learned much easier with the help of pictorial art, music and literature. Many teachers of physics and mathematics make use of elements of the imitative arts.

In doing so the teacher, as a rule, seeks to produce the image of a certain phenomenon or fact, to employ the element of emotion and visualization. Soviet teaching has accumulated extensive experience in this field.

Students benefit greatly from literature, music and art, especially literature, because of its specific features. The art of recitation is a useful means of cultivating the pupils' emotions, tastes and ideals.

Music lessons are also important. With the help of radio, films and television, music has become an indispensable part of school life. The children develop their musical abilities, interests and tastes, they learn to perceive and correctly assess musical works. Choral singing is the simplest form of musical activity for children.

After-school activities take different forms —amateur art circles, exhibitions, lectures, concerts, art festivals, etc.

Amateur art circles (music, choreographic, drama, pictorial arts, declamation, etc.) cater for the more specific interests of the pupils in

various arts, encouraging the development of individual aptitudes and inclinations. The forms of such activity naturally depend on the pupils, their age as well as general and artistic development.

Older children favour circles where technique is acquired, such as sound recording, photography, film making.

Special attention is given to establishing habits of behaviour, the methods varying with the age. In junior forms play predominates. Children pay calls, greet their companions, learn table manners, and how to behave in the street, etc. With the students of senior forms the emphasis is laid on awareness of a person's duties to society.

To help pupils learn what is in good taste many schools invite dress designers and interior decorators to show them what is beautiful and what is ugly.

We all know that nature is a source of man's emotions, of his creative activity; love of nature is inseparable from our moral image. This explains the importance and popularity of tourism.

Physical education for the young is an issue of state importance in the Soviet Union and an indispensable part of the general educational scheme. Sport is compulsory for all healthy children, its form being varied—gymnastics, track and field, volley-ball, basket-ball, skiing, swimming, etc. Play is an important part of the sports programme.

Physical culture is naturally linked with esthetic education. During sports training the instructor points to the pupils' carriage, gait, co-

ordination of movements, plasticity, gracefulness.

Physical training in school is so organized that all pupils are eventually able to pass the standard norm of the sports complex "Ready to Work for and Defend the USSR." Sport is not limited to lessons in the syllabus. Every school has what is known as "sports sections" for gymnastics, skating, skiing, swimming, etc. Those who go in for these sports usually receive sports ratings, the highest being "USSR Master of Sports."

Very popular are various sports competitions and festivals as well as school, city, republican and all-Union games. The Tenth All-Union School Games in 1967 attracted more than 20 million young sportsmen, over five thousand reaching the finals in the 19 events. Of them 187 were Masters of Sports, 429 Candidate Masters of Sports and 1,632 holders of the first sports rating. Two hundred and forty-two republican and 19 all-Union youth records were established during the games.

The Soviet Government pays special attention to the development of physical culture in schools. In the last two years our schools have built (with pupils participating) over 2,500 sports grounds, 3,770 soccer fields and 11,000 volley-ball and basket-ball grounds. Four hundred and sixty-six new sports schools have been opened, the total now being 2,772.

Various health-building measures are also being taken. In 1967, for instance, more than 10 million children and adolescents spent their holidays in health-building camps, sanatoriums and tourist bases.

There are 33 railway lines run by youngsters in the Soviet Union; the young folk have at their disposal several river steamers and special motor roads.

Twenty-five newspapers and 35 magazines are published for Soviet children in 19 languages of the Soviet Union. The "Pioneria" newsreel is released each month, feature and documentary films are made for children, while radio and television have regular programmes for schoolchildren.

Young Pioneer Houses and Palaces, young technicians' and naturalists' stations, libraries, stadiums and parks, books, newspapers and magazines—all this extends school education and upbringing far beyond the compulsory syllabuses, contributing to the process of shaping one's personality before one begins to work or goes to higher school.

Family and Society

The Soviet Government makes every provision for children to grow up healthy, well provided for and happy, to get adequate knowledge and proper upbringing.

No doubt the family is the key factor in bringing up the child. The parents are obliged to support their children until they become of age, to take care of their health and education, to prepare them for socially useful activity, to shape and guide their behaviour in keeping with the esthetic principles of socialist society.

The state gives parents extensive assistance.

It gives each child an opportunity to study, admits children to creaches and kindergartens if their parents cannot attend to them all through the day, helps big families financially. The state builds children's medical institutions, stadiums, Young Pioneer Palaces, theatres and cinemas for children; it trains teachers and instructors and assists parents in gaining the necessary teaching knowledge.

The socialized forms of educating children as practised in the Soviet Union, such as kindergartens, schools, Young Pioneer Palaces and Houses and similar institutions offer no opposition to the family but act as its assistants.

The Soviet state provides free education for its citizens at all levels, from primary school through university.

General schools have special funds to assist the children of parents on low incomes; students at vocational schools are fully supported by the state, while students at higher and specialized secondary schools receive monthly allowances.

In recent years boarding schools have been opened. Until 1956 such institutions (orphanages and children's colonies) were only for children who needed special care: because their parents were ill or one parent was absent, or for some other reason they were provided for by the state until the age of 18. The orphanages and colonies gave shelter and education to many homeless children after the Civil War and foreign intervention (1918-21) and after the Second World War.

The Suvorov and Nakhimov military schools are closed secondary educational establishments

for the sons of army and navy men and former partisans. They are fully supported by the state, wear army or navy uniforms and receive a secondary education as well as the special training required for entering officers' schools.

Special schools are also set up for handicapped children (schools for blind children or children with poor vision, deaf and dumb, hard of hearing, mentally retarded children, etc.). As a rule these are boarding schools fully maintained by the state.

In recent years boarding schools have been widely introduced. Children stay at school for the whole week and come home for week-ends and holidays. In the so-called prolonged-day schools the pupils remain from 8 a. m. till 6 p.m. They do their home-work at school.

Children at boarding schools are provided with food, clothing, footwear and textbooks, the parents contributing part of the maintenance cost depending on their earnings and the state covering the rest; parents on low incomes are either exampt from payment or pay 6-10 roubles a month. Prolonged-day schools provide free meals.

Having children in boarding schools or prolonged-day schools facilitates the most rational organization of the educational process, with the best possible alternation of study, work, sport and recreation, as well as constant medical supervision. Various extra-mural activities are organized to suit the children's interests and aptitudes.

These schools are very popular, and more are built every year. In 1958 boarding schools

had an enrolment of only 180,000; in 1968 the figure will top the 4 million mark, if we include prolonged-day schools. It is planned to build sufficient boarding schools for every family who wishes to send their children there.

Evening and correspondence schools for young workers and farmers are also the concern of the Soviet Government. During the past five years one and a half million people received eight-year education and two million secondary education without leaving their jobs. This system is constantly being improved. For examlpe, adults with primary education may take up an intensified course of studies, completing the eight-year course in two and a half or three years instead of four. Similar three-year schools and classes have been set up inside general evening schools where skilled workers and foremen receive secondary education while improving their qualification.

Students attending evening and correspondence classes enjoy certain privileges. They have an extra day off each week at half their average wages, and the school time-table is made to suit their working hours.

The number of evening and correspondence students trebled in the last 9 years to reach almost the 5 million mark in the 1967-68 academic year.

The growing government expenditure on education is vivid proof of the state's great concern for the younger generation. The 1967 per capita budgetary appropriation for education was nearly 50 roubles as against 80 kopecks in 1913. Further progress in public education planned by the Soviet Communist Party pro-

gamme for 1970-80 will require a considerable increase in public spending for this purpose, and the Soviet Government is prepared to supply the necessary funds.

Two and a Half Million

Teachers' training in pre-revolutionary Russia was in most respects inadequate. For primary schools those considered best qualified were graduates from teachers' seminaries, but they accounted for only 10 per cent of all teachers. Teachers for higher primary schools and their equivalents were trained in teachers' institutes where level of instruction was even below secondary education.

Instructors in Gymnasiums, Realschulen and other secondary schools were graduates from universities or higher teachers' training courses for women. The whole of Russia, then, had 11 universities and two women's higher teachers' training courses. Universities gave no specialized training to their students, and their graduates, as a rule, had little enthusiasm for teaching.

In Soviet times training of highly qualified teachers was put on a broad basis, and today 92.5 per cent of primary school teachers have completed either a secondary teachers' schools or a pedagogical college. Eighty-two per cent of instructors in the 5th to 8th forms have higher or incomplete higher education. Most teachers of the 9th to 10th forms are college or university graduates.

The 208 Soviet teachers' training colleges have an enrolment of nearly one million. Another 481,500 teachers and other instructors improve their qualification at correspondence and evening departments at teachers' colleges. About 300,000 students attend secondary pedagogical schools. In addition, each year a good portion of university graduates are sent to work at schools as teachers.

Teachers' training colleges give their students a comprehensive theoretical background in pedagogy, psychology, methodology of teaching a particular subject in school. That is being done in conjunction with extensive and thorough practical training.

With the modern rate of progress in social life, science, technology and culture no amount of knowledge is sufficient to last for a specialist's whole life. This is especially true of the teaching profession, and accordingly the Soviet education system offers extensive refresher facilities. The education authorities encourage teachers to join correspondence and evening courses, offering for this purpose extra leave, payment of travelling expenses and release from extra duties at school. In fact teachers account for nearly three-quarters of attendance at correspondence and evening departments of pedagogical colleges.

Each administrative region, territory and autonomous republic has a special teachers' refresher college and every union republic, a central refresher institute of its own. These help teachers organize their refresher studies in the best way and popularize the experience of the best instructors.

Once every five years all teachers attend a refresher course where lectures are read on topical pedagogical and methodological problems and the major social and cultural developments. In between courses teachers are able to assess their problems and apply the recommendations heard.

Extensive pedagogical and methodological literature is published, as well as numerous specialized magazines issued at republican and all-Union level, and the **Teachers' Newspaper** is printed in Moscow.

Pedagogical societies set up in all union republics do a great deal to encourage creative work. They organize "pedagogical readings" on a republican and all-Union scale, district and city conferences, schools of advanced experience and meetings to exchange experience. In 1968 more than 2,500 reports were submitted from all regions, territories, autonomous and union republics to the "pedagogical readings" organized by the USSR Academy of Pedagogical Sciences.

Teaching is regarded as a responsible and honoured profession in the Soviet Union. Over 235,000 teachers have been awarded medals and orders, and some 19,000 of the best have won the title "Merited Teacher of the Republic."

Teachers are appointed to high government and public posts. Tens of thousands of them are deputies of the USSR Supreme Soviet, Supreme Soviets of union and autonomous republics and local Soviets of Working People's Deputies. Today the Soviet Union has two and a half million teachers.

International Relations

The Soviet Union maintains relations with many foreign countries and international organizations. Soviet specialists work as experts and interpreters in UNESCO and other UN agencies; delegations of scientists, educationalists, students and experts are constantly exchanged to study, among other things, various problems of public education. Soviet specialists regularly attend international conferences and symposiums. Exhibitions devoted to various problems of public education, children's art and crafts and pedagogical and methodical literature are organized.

For several years Soviet instructors have been working in foreign schools of higher education. This academic year 1967-68 Soviet teachers are giving instruction in mathematics, physics, biology, chemistry, Russian and pedagogy in many countries. In particular, Russian language teachers are working in Cambodia, the Congo (Brazzaville), Mali and Senegal.

The Soviet Union has built in Magadishu and presented to the Somali Republic a fully equipped boarding school. Twenty of its twenty-six teachers are Soviet. In 1966 the USSR built, equipped and presented as a gift to the Yemeni Republic three schools where Soviet teachers also work.

Soviet experts have been working in many countries under the UNESCO programmes. For example, a Soviet team has gone to India to help improve the teaching of natural sciences

in secondary schools. Other Soviet education experts work in Tanzania, Nepal and Sierra-Leone.

Every year higher and secondary school teachers come to the Soviet Union to read lectures and acquaint themselves with the Soviet system of education. In 1967, 87 such delegations and groups visited the country.

Russian language refresher courses are held regularly in the Soviet Union for teachers from the German Democratic Republic, Poland, Hungary, Czechoslovakia, Yugoslavia, Britain, France, Finland and other countries. Our guests attend lectures on Soviet literature, culture and public education delivered by leading professors from Moscow, Leningrad and other cities. During this course much attention is given to oral practice. To this end the foreign guests are taken on excursions around the Soviet Union, they go to see new housing projects in Moscow, Leningrad, Volgograd and other cities, collective and state farms, factories, exhibitions, notably the USSR Exhibition of Economic Achievements in Moscow, theatres and museums.

Soviet delegations visit many countries on all continents, where their members read lectures and give reports on Soviet education, render practical assistance in reorganizing school education. In the socialist countries they act as consultants at refresher courses for Russian language teachers.

One form of international relations is sending teachers and students of foreign languages to the German Democratic Republic, Britain

and France to improve their knowledge. Teachers' colleges of many countries exchange literature and experience. Visits are paid on a reciprocal basis to study methods of teaching a specific subject, the activity of various departments and different forms of work with students, to deliver lectures or attend conferences.

In 1966, standard exhibitions on public education were sent from the Soviet Union to 20 countries, among them India, Pakistan, Senegal, Uganda, Somali, and Ceylon. In 1967 the USSR Ministry of Public Education arranged three large expositions in the German Democratic Republic, the United States and Chile.

Soviet people rejoice in the achievements of many countries in eliminating illiteracy, this shameful survival of the past; they are willing to share their experience in public education.

Soviet educationalists' international ties promoted by common interest in many general and specific pedagogical problems will strengthen as time passes.

Conclusion

At each historical period the structure of public education has reflected the specific features of political, economic and cultural development of the given country. However, it would be insufficient simply to describe the activity of the various types of educational institutions. Most important are the overall results, since even the best institutions will not pro-

vide a truly public education unless they are operated with a singleness of purpose on the basis of broad democratic principles.

Within a very short historical period the Soviet state built almost anew a system of preschool education, it remodelled all types of schools—primary, secondary and higher—which give students both general and polytechnical training. From the higher educational institutions came an intelligentsia of a new, Soviet type.

Education gives a definite colouring, content and guidance to a man's entire life, permeating his character and way of thinking. Soviet general schools provide an opportunity to uncover and develop children's individual aptitudes and abilities.

The American author Theodore Dreiser who visited the Soviet Union in 1932 said that in his view the system of educating children in the Soviet Union was among the best and, given time, would create a new man.

In the words of Anton Makarenko education in the Soviet Union is gradually changing from "the erudition of a life consumer to a weapon of a life builder."

After his visit to the Soviet Union Rabindranath Tagore wrote that in that country he had felt a profound movement of human thought. Nowhere else had he seen such widespread education. The famous author pointed out that while in other countries the fruits of education were reaped only by those who received it, in the Soviet Union education of all was in the education of one. Insufficient education of one was felt by all. With the help of

universal education Soviet people sought to succeed in the nation-wide building of a collective brain. They were acting on a global scale, so they needed a big brain and a real education, also on a large scale.

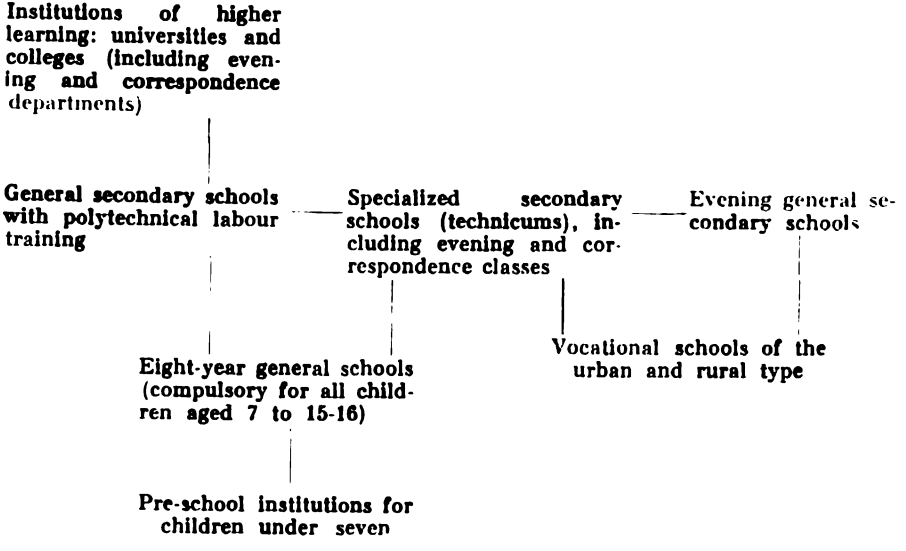
The Indian sage was right. By the time he is seventeen a Soviet boy has acquired a broad education which later opens before him all the roads leading to the career of his choice. It is no exaggeration to say that the entire Soviet Union is studying and working, thinking and remaking life in order to improve the material and intellectual level of everyone, no matter where he lives or works.

Appendix 1

Enrolment at general schools in the Union Republics (thousand pupils)

	1914-15	1940-41	1966-67	Times as many as in: 1914-15	Times as many as in: 1940-41
USSR total	9,656	35,552	48,168	4.9	1.3
Russian Federation	5,684	20,633	26,186	4.9	1.2
Ukrainian SSR	2,607	6,830	8,468	3.2	1.2
Byelorussian SSR	489	1,737	1,769	3.6	1.0
Uzbek SSR	18	1,325	2,592	144.0	1.9
Kazakh SSR	105	1,158	2,865	27.3	2.4
Georgian SSR	157	767	928	6.0	1.2
Azerbaijan SSR	73	695	1,199	16.4	1.7
Lithuanian SSR	118	380	562	4.7	1.4
Moldavian SSR	92	440	763	8.2	1.7
Latvian SSR	172	242	343	1.9	1.4
Kirghiz SSR	7	334	657	93.8	1.9
Tajik SSR	0.4	315	613	1,532.5	1.9
Armenian SSR	35	333	553	16.2	1.6
Turkmenian SSR	7	252	455	65	1.8
Estonian SSR	92	121	215	2.3	1.7

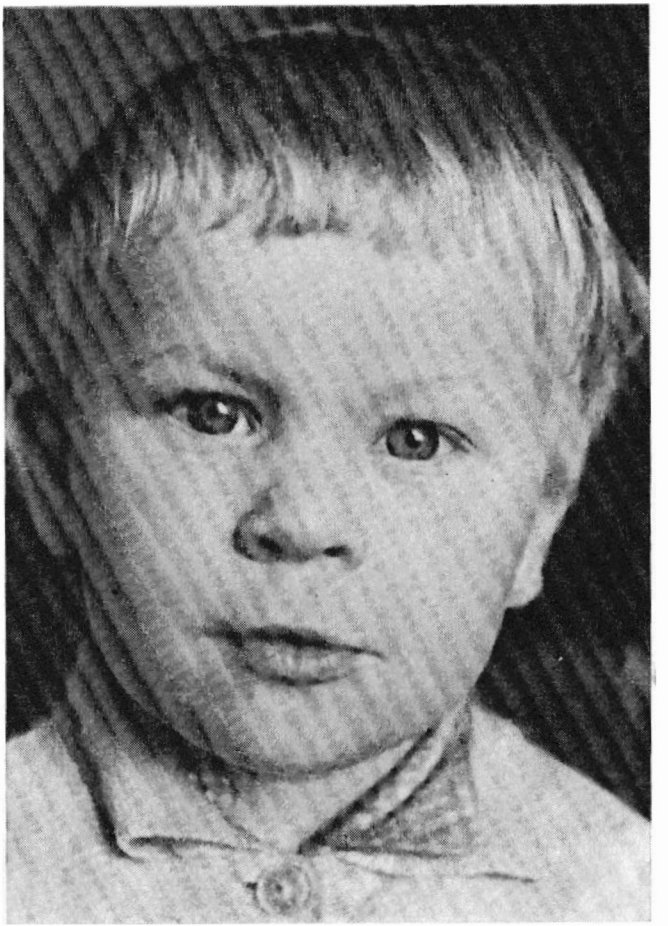
Diagram of Soviet educational institutions



Standard school curriculum

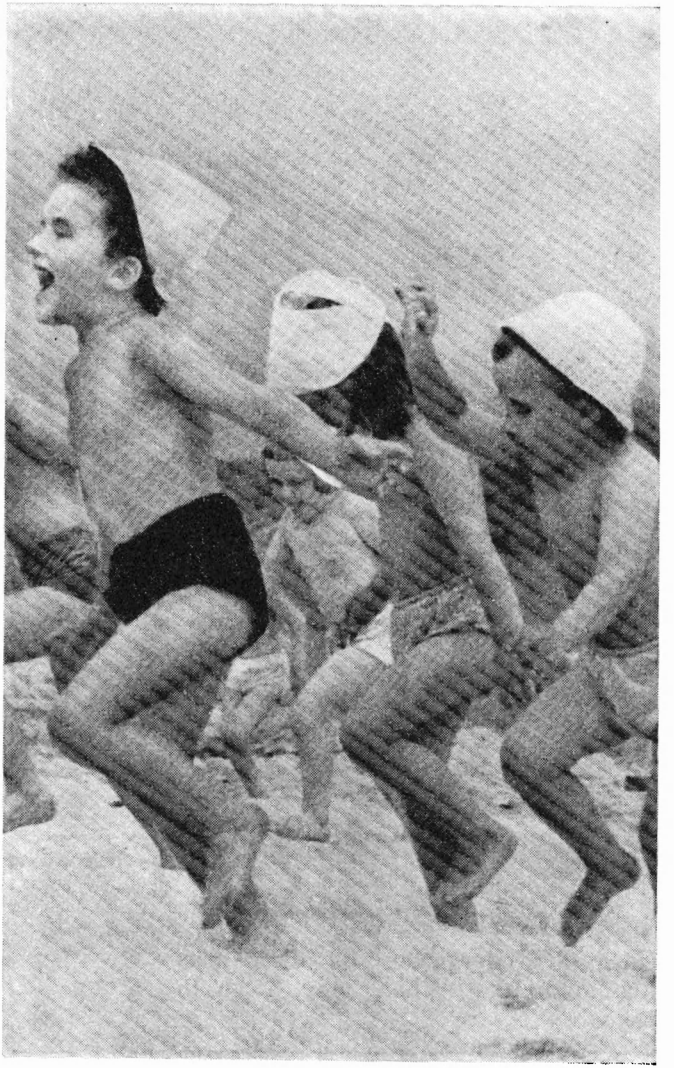
Appendix 3

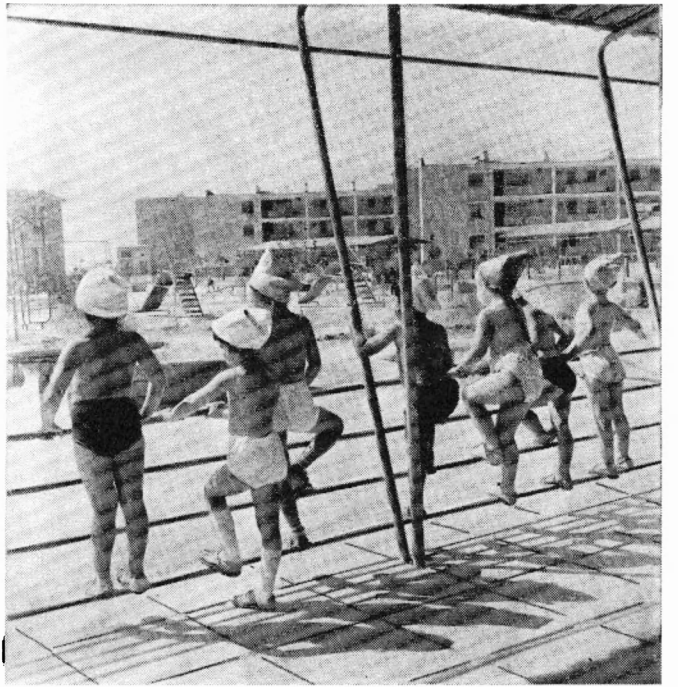
Subject	Number of hours per form										Total hours per week	
	1	2	3	4	5	6	7	8	9	10	1967-68	1958
1. Russian language	12	10	10	6	6	3	3	2	2/0	—	53	57
2. Literature	—	—	—	2	2	2	2	3	4	3	18	19
3. Mathematics	6	6	6	6	6	6	6	6	5	5	58	59
4. History	—	—	—	2	2	2	2	3	4	3	18	20
5. Social science	—	—	—	—	—	—	—	—	—	2	2	2
6. Natural science	—	2	2	2	—	—	—	—	—	—	6	2
7. Geography	—	—	—	—	2	3	2	2	2	—	11	12
8. Biology	—	—	—	—	2	2	2	2	0/2	2	11	11
9. Physics	—	—	—	—	—	2	2	3	4	5	16	17
10. Astronomy	—	—	—	—	—	—	—	—	—	1	1	1
11. Draftsmanship	—	—	—	—	—	1	1	1	—	—	3	4



Now in kindergarten he often asks his mummy: "When may I go to school?"

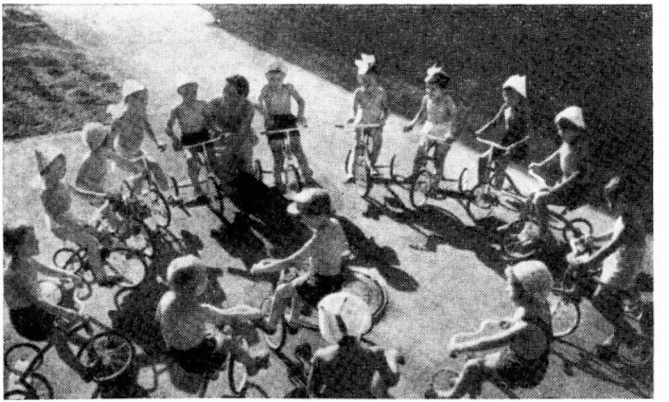
Subject	Number of hours per form										Total hours per week	
	1	2	3	4	5	6	7	8	9	10	1967/68	1958
12. Foreign language	—	—	—	—	4	3	3	2	2	2	16	20
13. Chemistry	—	—	—	—	—	—	2	2	3	3	10	11
14. Pictorial art	1	1	1	1	1	1	—	—	—	—	6	7
15. Singing and music	1	1	1	1	1	1	1	—	—	—	7	8
16. Physical culture	2	2	2	2	2	2	2	2	2	2	20	22
17. Manual work	2	2	2	2	2	2	2	2	2	2	20	58
Total of compulsory lessons	24	24	24	24	30	30	30	30	30	30	276	330
Optional lessons	—	—	—	—	—	—	2	4	6	6	—	—
Grand total	24	24	24	24	30	30	32	34	36	36	—	—





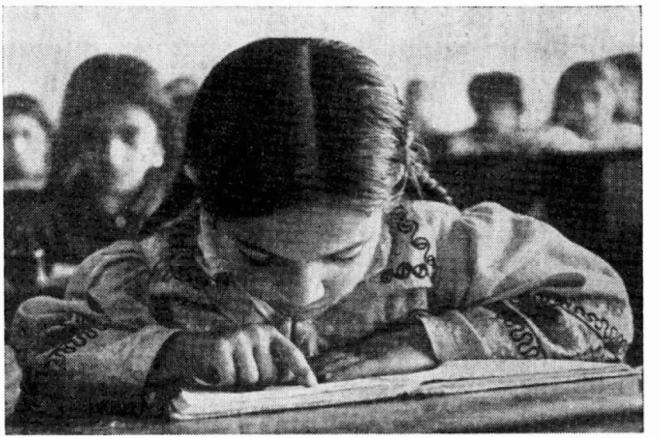
Their kindergarten in Shevchenko, in the Kazakh Republic, is called "Firefly"

A sandy beach on the River Dnieper



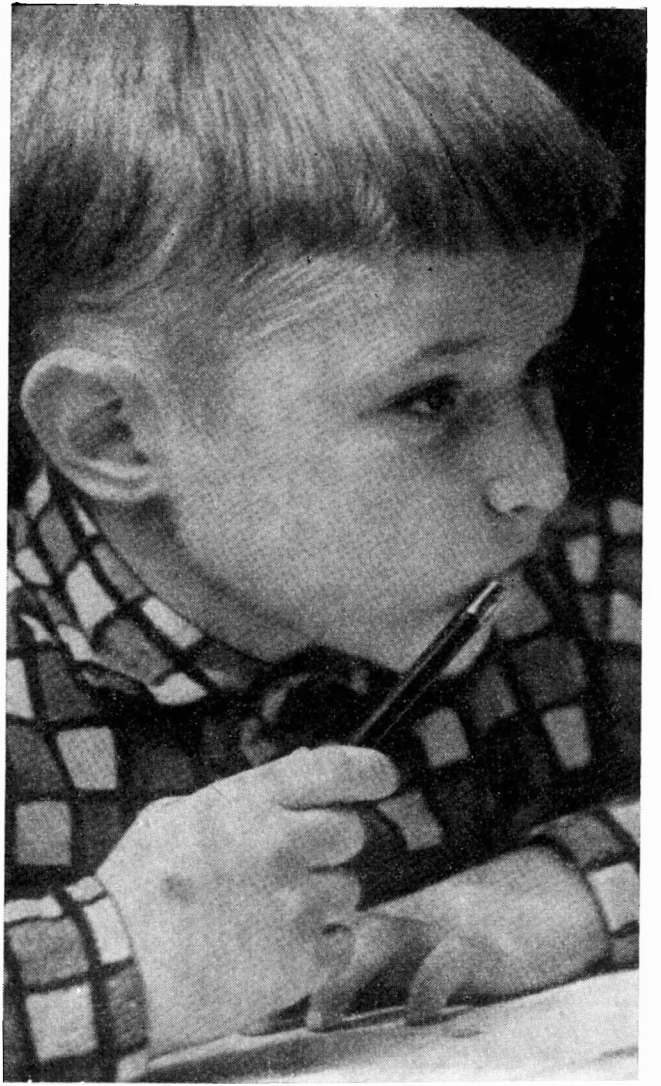
Budding cyclists (Novosibirsk Region)

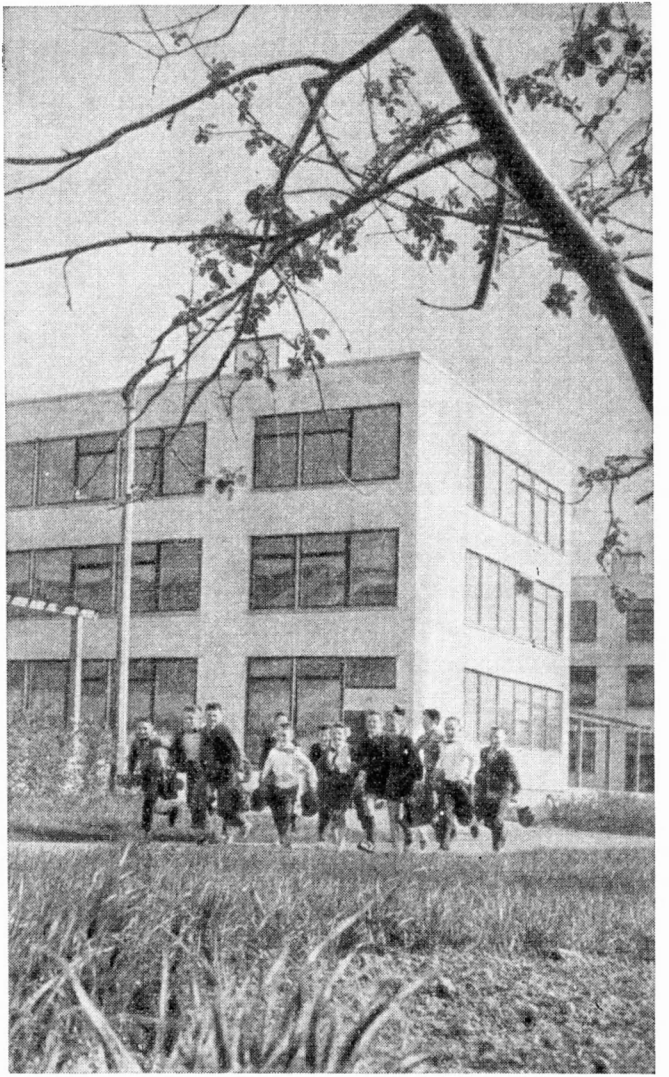
Out in the woods (Moscow Region)



A school in a fishing village. (Latvian Republic)

Learning the ABC in a collective farm school (Tadjik Republic)

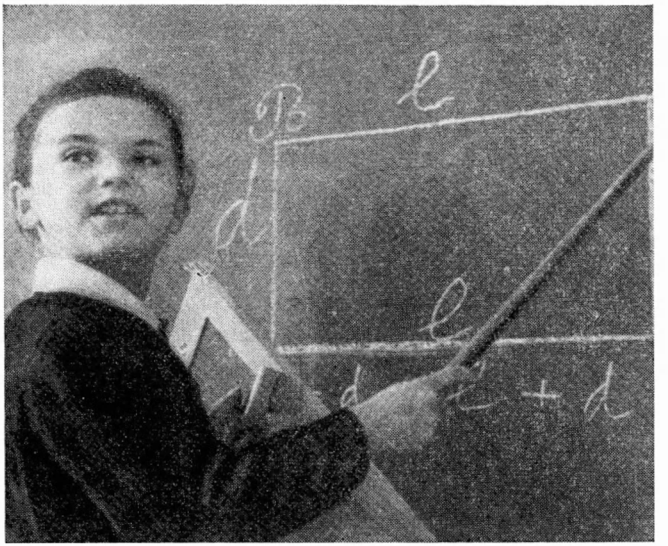




A **state farm** school

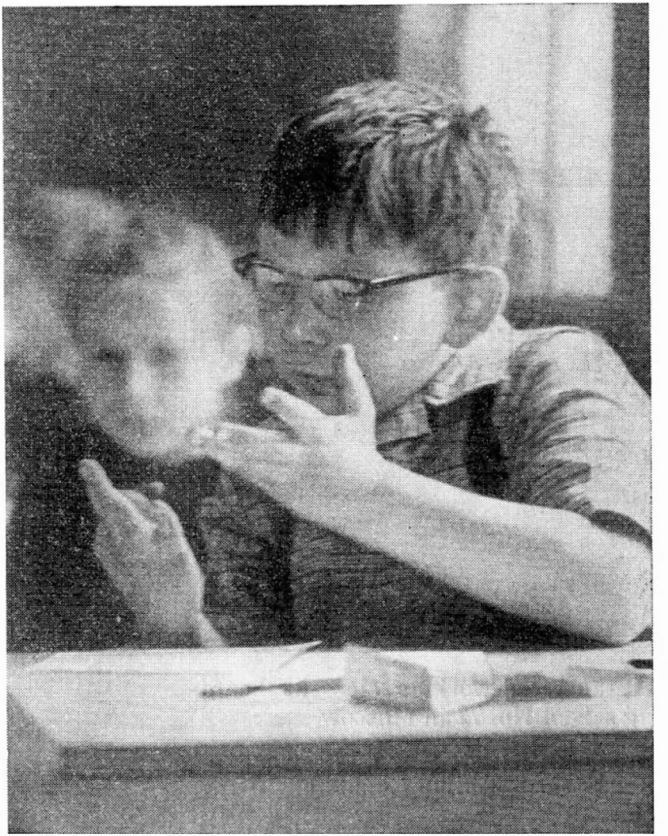
A Spanish lesson

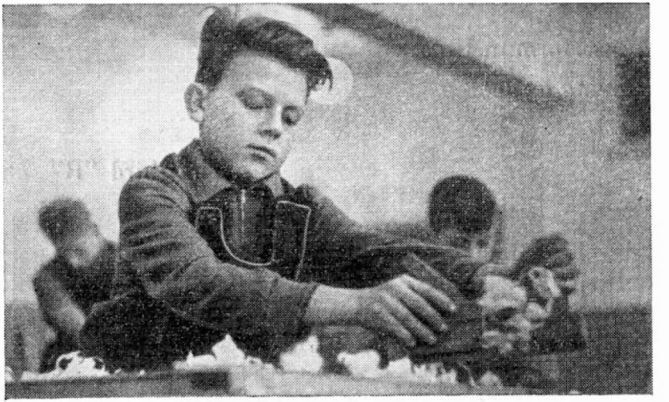
A school in Moscow

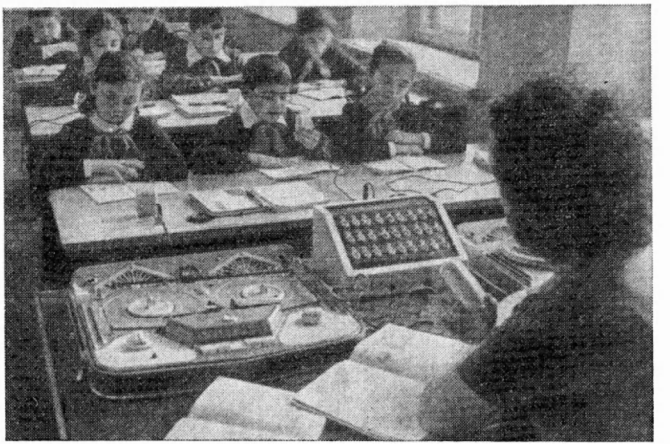


A first form in Riga
Proving a theorem

The third "R"





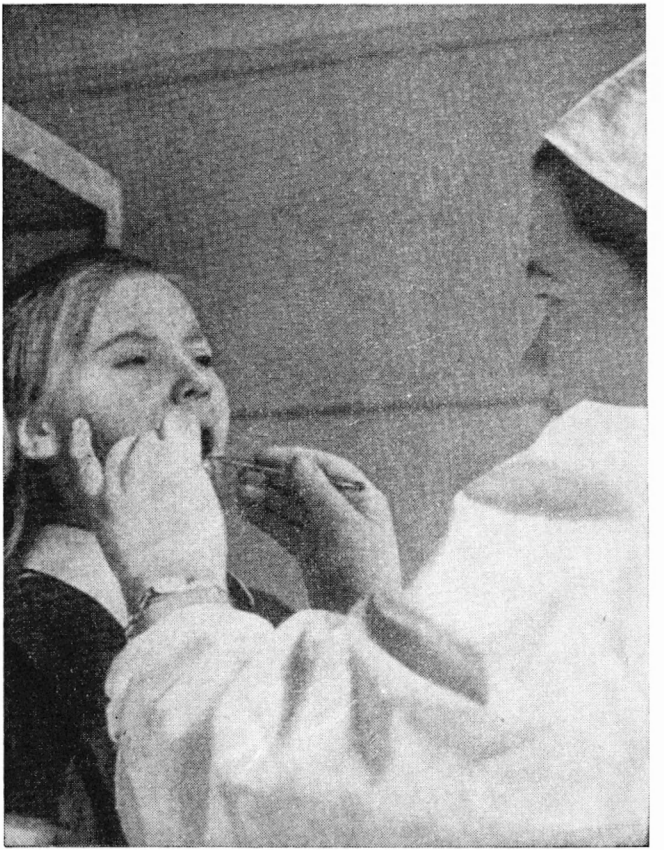


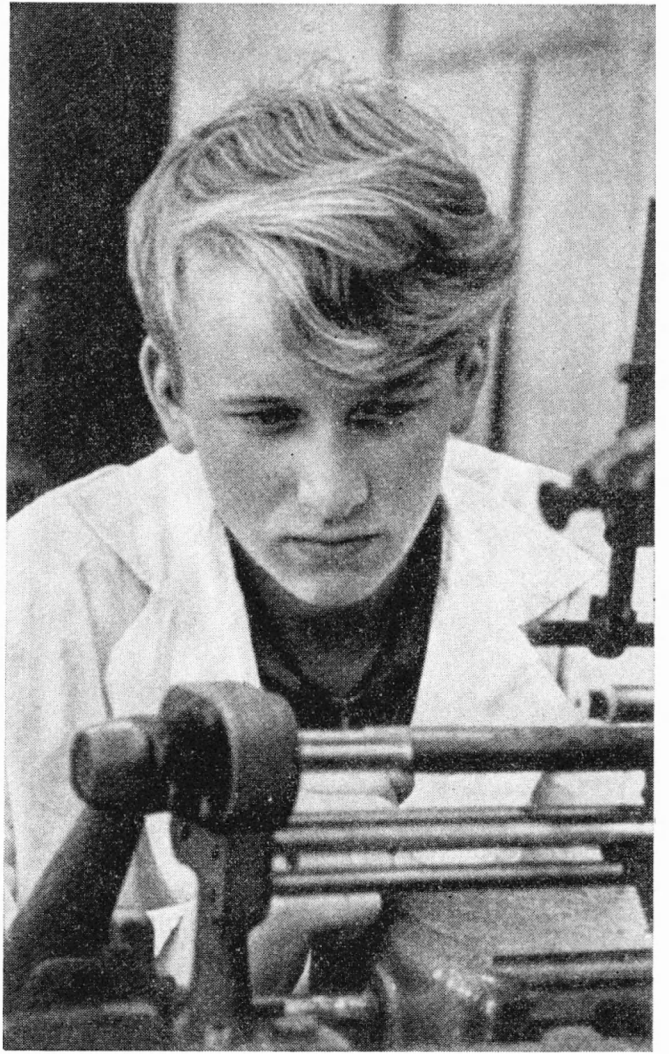
At the wood-working class at boarding school No. 72 in Moscow

An English lesson in a school at Sumgait, Azerbaijan Republic

At a school workshop

School health check-up





Young sports fans rooting as excitedly as grown-ups

Sasha Tokarev from Tiumen in Siberia was rated the best goalie during a national school ice hockey tournament

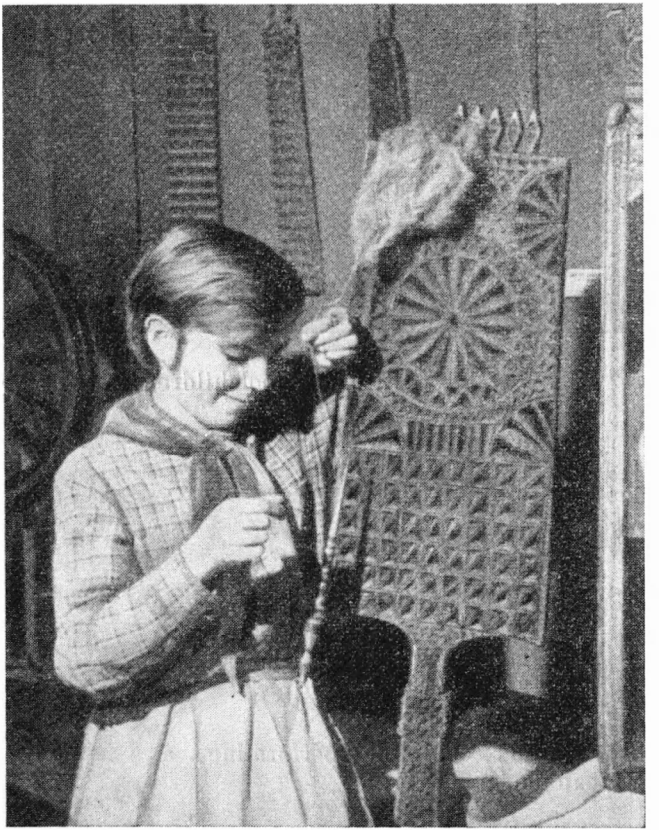
British schoolchildren in Moscow

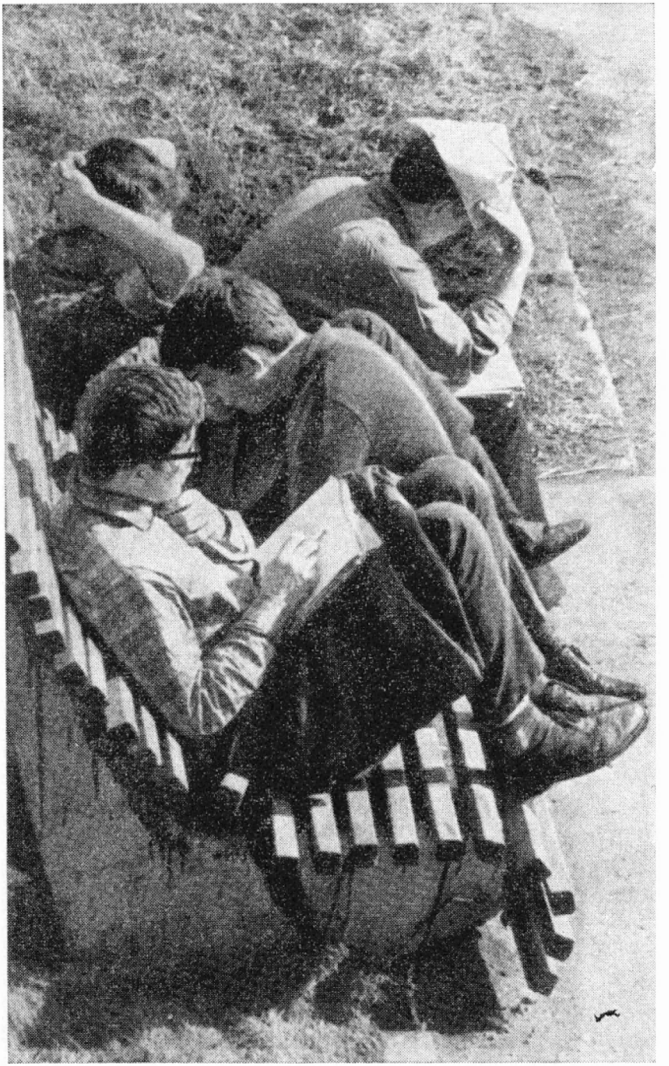
A Russian dance performed by the children's dance ensemble of the Drivers' Club in Moscow

The same ensemble performing a Cuban dance

A maintenance check

A handicrafts museum at school No. 201 in Moscow. Nadia Mikhalkina using an ancient loom

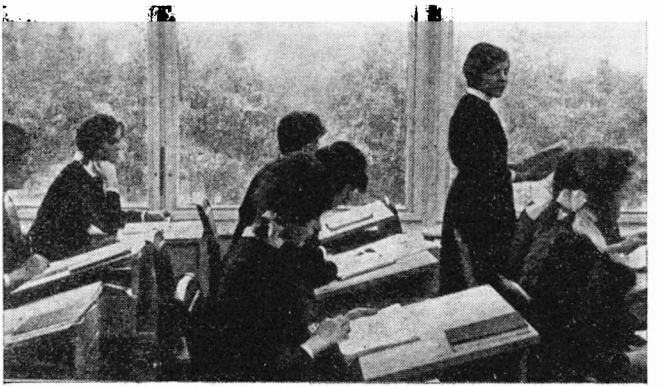


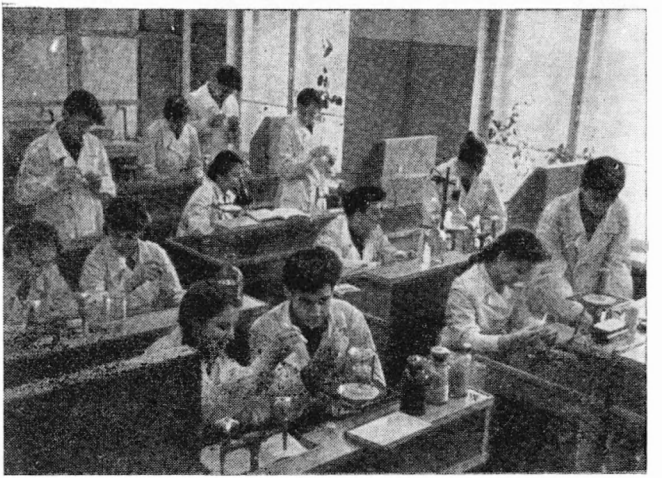


A tough problem

In class

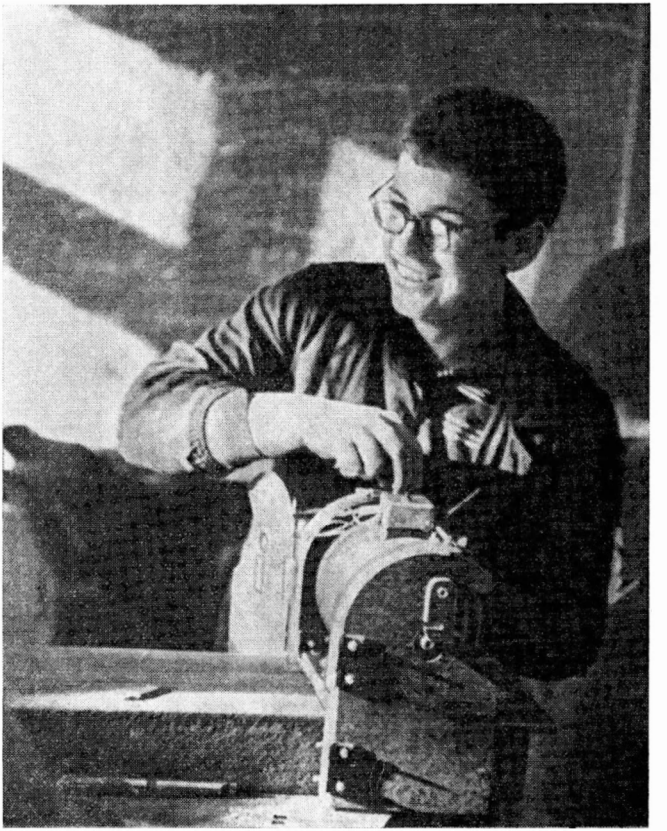
A chemistry lesson

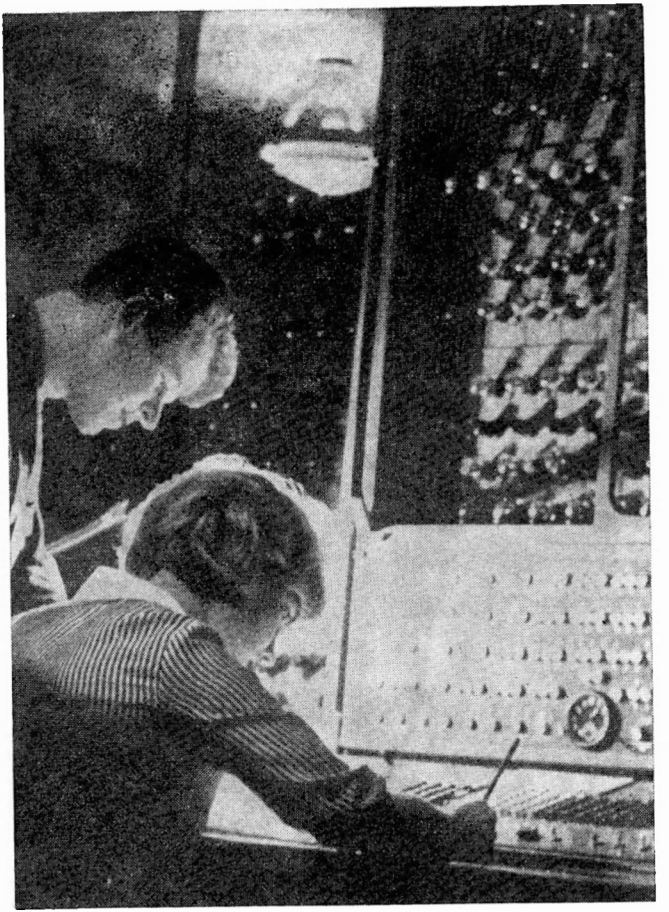




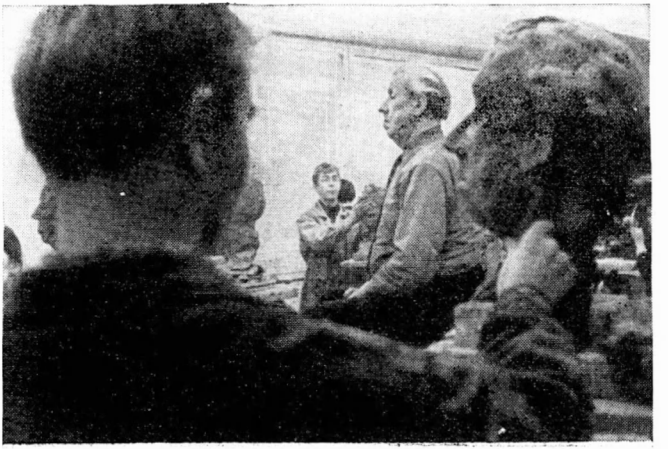
Domestic sciences class at a Moscow boarding school

Skilful hands at work

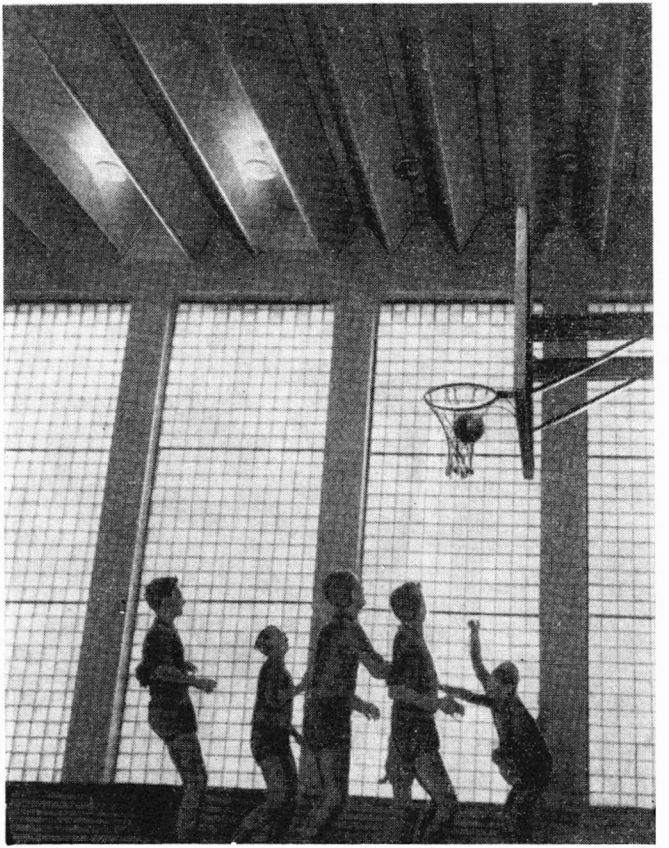




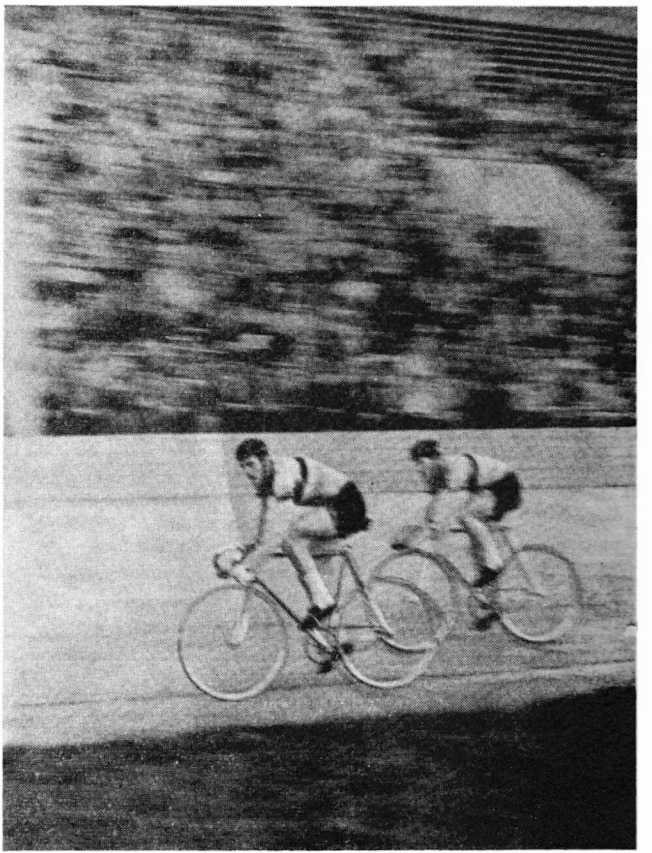
Estonian pupils at the controls of a computer

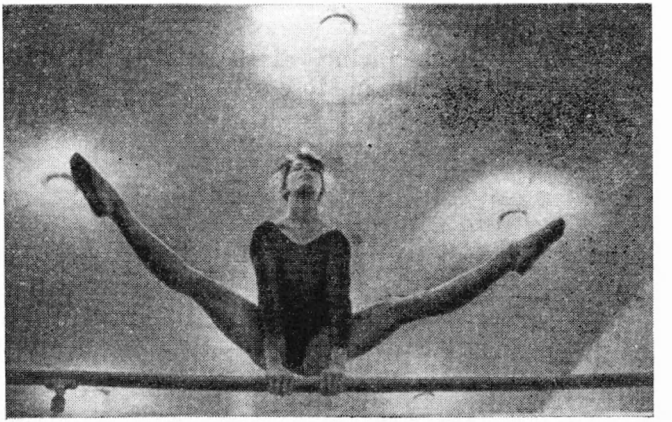


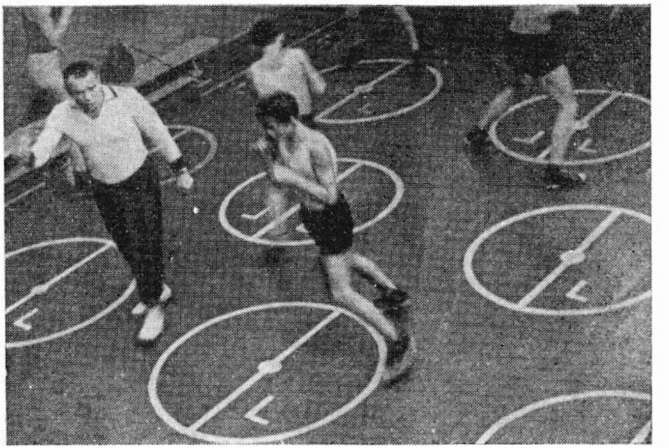
In a school gymnasium



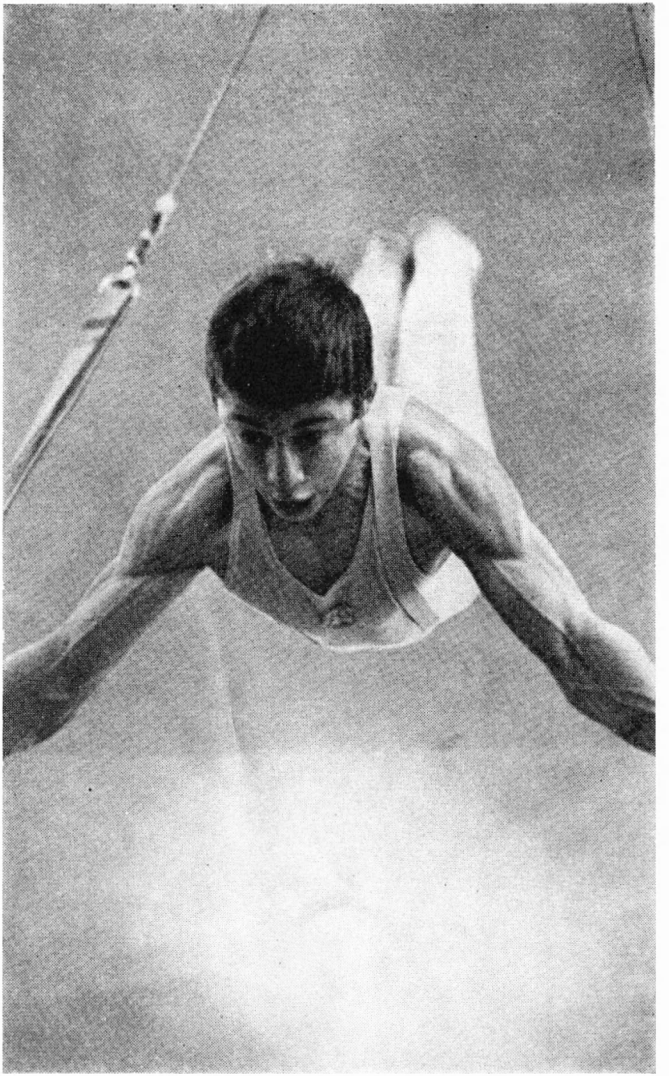
Cycle racing at the Young Pioneer Stadium in Moscow

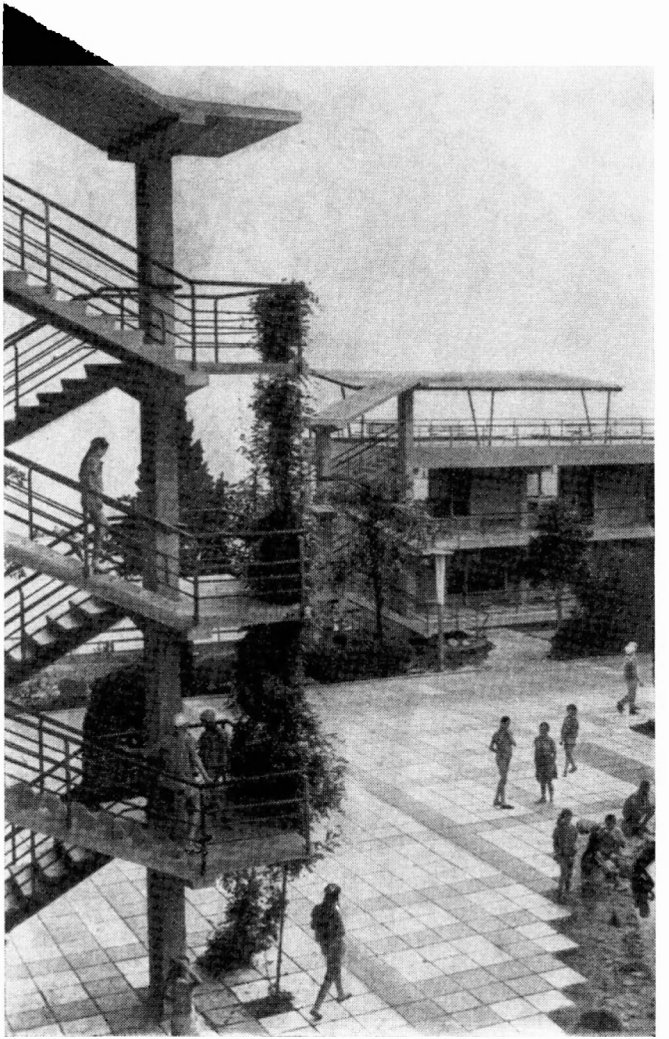






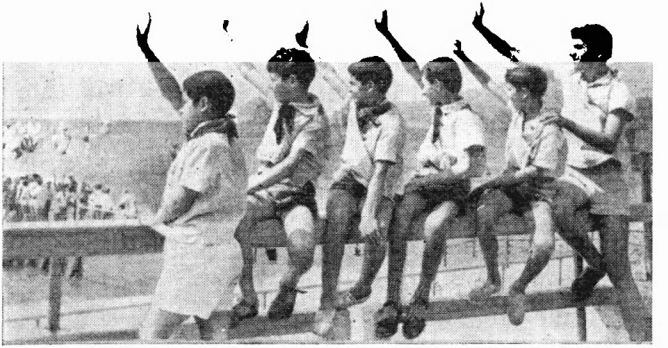
At a sports school





At the **Artek** international children's camp in the Crimea

Sun bathing at a young pioneer camp near Leningrad



Young Cypriots at **Artek**

In the **Cosmos** young pioneer camp in the Caucasus

Reading letters from German friends

At a lecture at the Novosibirsk University physics and mathematics school