

USSR

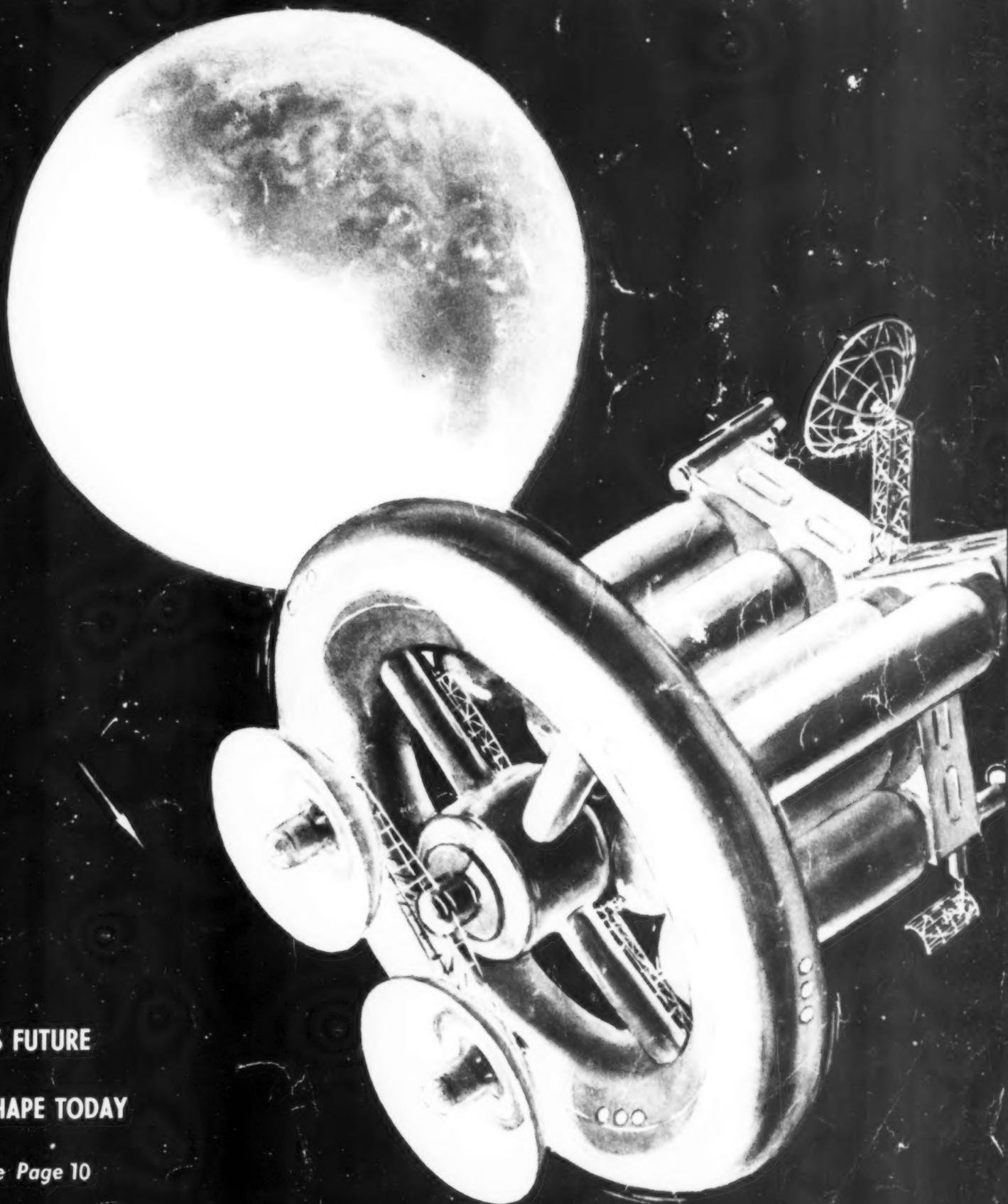
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LENIN

— See Page 1

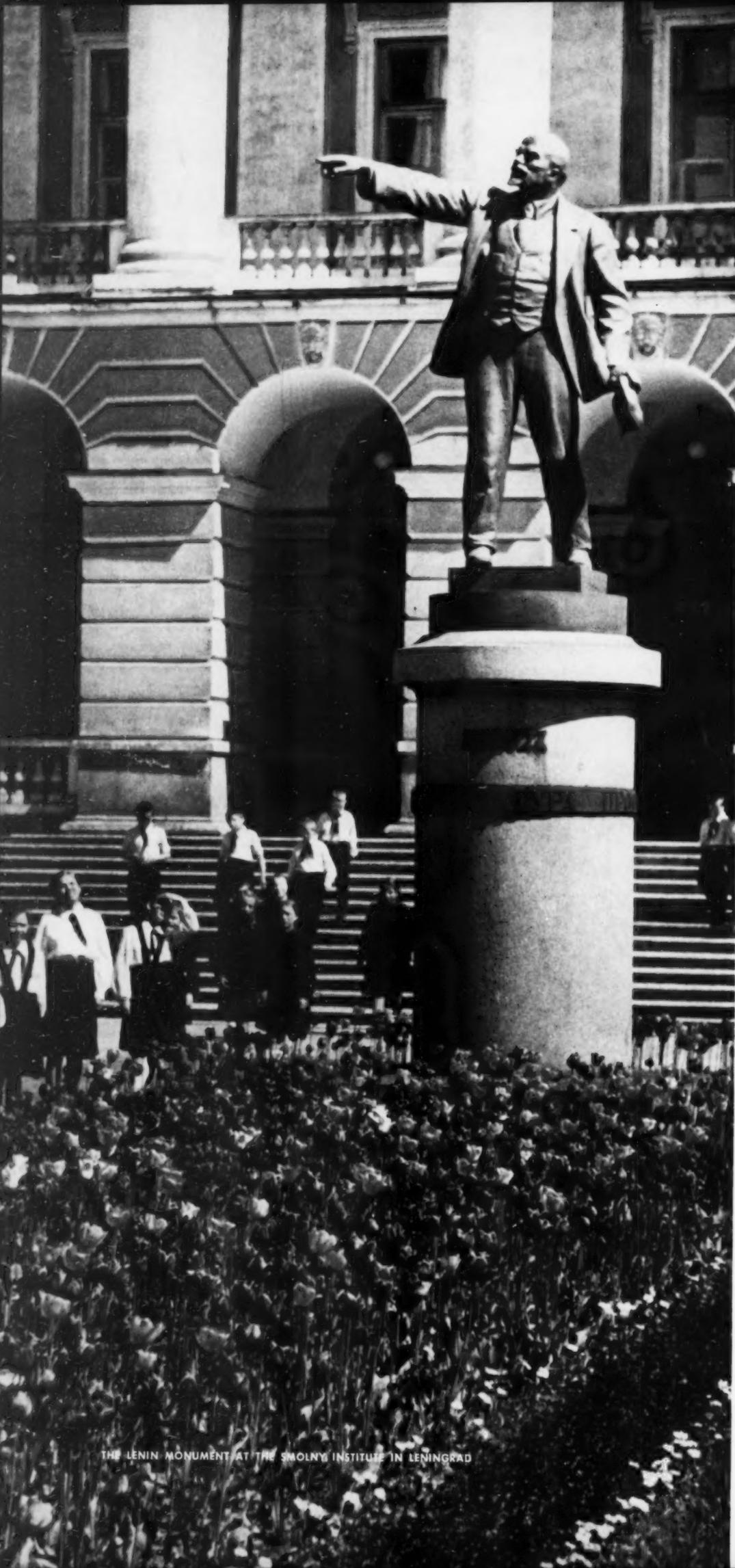
No. 4 (19)—20 Cents



MAN'S FUTURE

TAKES SHAPE TODAY

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THE LENIN MONUMENT AT THE SMOLNY INSTITUTE IN LENINGRAD

USSR

ILLUSTRATED MONTHLY

1706 Eighteenth Street, N.W.
Washington 9, D. C.
ADams 2-3426

The magazine *U S S R* is published by reciprocal agreement between the governments of the United States and the Soviet Union. The agreement provides for the publication and circulation of the magazine *U S S R* in the United States and the magazine *Amerika* in the Soviet Union.

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Subscription Rate:	
6 Months	\$1.00
1 Year	1.80
2 Years	3.00

Published by the Embassy of the Union of Soviet Socialist Republics in the USA.

Second Class mail privileges authorized at Washington, D.C., with additional entries at Milwaukee, Wis., and Chicago, Ill.

Printed by The Cuneo Press, Inc.





VLADIMIR ILYICH LENIN IN HIS KREMLIN OFFICE (1919)

V. I. LENIN

VLADIMIR ILYICH ULYANOV (LENIN) was born April 22, 1870, in the old Russian town of Simbirsk, now Ulyanovsk, on the Volga River. His father was a prominent figure in the educational field. His mother, a gentle, considerate and well-educated woman, was the daughter of a physician. The Ulyanov children grew up in an atmosphere of respect for work, devotion to learning and love of humanity.

In 1887, following his graduation from high school with a gold medal, young Lenin entered Kazan University, taking up the study of law. Soon, however, he was arrested for participation in the students' revolutionary movement, expelled from the university and exiled to Kokushkino, a forsaken village, where he was kept under police surveillance.

In October 1888 Lenin was permitted to return to Kazan but he was not readmitted to the university. He proceeded to acquire his education by himself, studying the works of the great thinkers of Russia and the West. After considerable effort he won permission to take examinations covering the full law course, which he did in the spring and fall of 1891 at the University of Petersburg, now Leningrad.

During this time Lenin had joined the revolutionary movement. He took part in the activities of the underground groups where the members studied the works of Karl Marx and Friedrich Engels, founders of scientific socialism, and discussed the problems confronting society.

Early in 1892 Lenin began the practice of law, appearing as defense attorney for various clients, mostly poor peasants or workers, in the courts of Samara, now the city of Kuibyshev. But much of his time was spent speaking to underground groups of workers and students, explaining and upholding Marxist views on how society was to be changed. Lenin was then only 22, but he already amazed those about him with the depth and clarity of his thinking.

In August 1893 Lenin moved to Petersburg, then the capital of the country and its cultural and industrial center. He began to lead the busy life of a revolutionary, teaching Marxism to workers' study circles and writing a number of scientific works and articles dealing with pressing social problems. By the fall of 1895 Lenin had united all the workers' revolutionary groups of Petersburg into a single organization—the

League of Struggle for the Emancipation of the Working Class—which headed the movement of the capital city's workers for the defense of their interests, their economic and political rights. The example set in Petersburg was soon followed by workers' revolutionary circles throughout the country.

This activity, however, brought about Lenin's arrest once more later that year and he continued his work from jail, writing his comrades letters of advice and leaflets explaining the reasons for the misfortunes of the working class. He also continued his research into the economic development of Russia, writing several pamphlets on forbidden political subjects. To get his material through the prison censorship, Lenin wrote with milk as his ink between the lines of quite innocent-looking volumes. He kept his milk in "inkwells" made of bread he could easily swallow if a guard appeared. "Today I ate six inkwells," he once jokingly informed his friends.

After more than 14 months in prison, Lenin was sentenced to three years' exile in the Eastern Siberian village of Shushenskoye. From that distant spot, almost 400 miles from the nearest railroad, he closely followed the latest Russian and foreign literature on philosophy, economics, history and law sent him by his relatives. While in exile he wrote 30-odd works, among them the book *The Development of Capitalism in Russia*, as the result of his many years of study of the country's economy. In Shushenskoye he married Nadezhda Krupskaya, a young teacher whose acquaintance he had made in Petersburg.

On returning from exile in 1900, Lenin undertook the establishment of a revolutionary Marxist labor party. The czarist authorities strictly prohibited any democratic movement and were especially zealous in persecuting any group with a labor or Marxist tinge. A secret police report in 1900 made this characterization of the young revolutionary: "There is no one bigger than Lenin in the revolutionary movement today," and the authorities ordered him kept out of the capital, the industrial centers and university towns. But Lenin, preparing the ground for setting up the party, went everywhere it was necessary to be, establishing contact with the main revolutionary organizations of the country.

Continued on next page



VLADIMIR LENIN WHEN HE WAS FOUR

V. I. LENIN *Continued*

While carrying on extensive organizational work, he simultaneously continued to develop the theory of the revolutionary movement and published a number of books. It was in these years, incidentally, that he started signing some of his works "Lenin."

In the summer of 1903 a Marxist congress held in London with Lenin in attendance laid the basis for the formation of the revolutionary Marxist party of the Russian working class that is known today as the Communist Party of the Soviet Union. Lenin's adherents at this congress were elected to the leading bodies by a majority vote and after that were called Bolsheviks, from the Russian word *bolshinstvo*, meaning majority.

During the first Russian Revolution in 1905, Lenin returned to Russia and, in open disregard of police persecution, threw himself into revolutionary activity. He often published articles in newspapers and spoke at workers' meetings and to Party audiences.

Following the defeat of the 1905 uprising, the Central Committee of the Party decided that Lenin should go abroad and late in December 1907 he moved to Berne, Switzerland.

But Lenin would not be diverted. All told, he spent 20 years in various czarist jails, banishment and exile abroad without abandoning his life struggle for the freedom and happiness of the working people. Wherever he chanced to be, his comrades and followers came to him for advice. He regularly corresponded with friends, and many Party conferences and congresses took place under his leadership.

During the First World War, which found Lenin in Switzerland, he came out vigorously against the conflict which he branded as unjust and imperialist on both sides.

The war's burden hit the masses of the people hardest, aggravated the contradictions in Russia's life more than ever, and toward the end of February 1917 the czarist autocracy fell under the onslaught of the Russian people.

Hurdling the many obstacles in his path, Lenin returned to his native land and arrived in the capital on April 3, 1917, to be met by an enthusiastic welcome from thousands of workers, soldiers and sailors. Addressing the people in the railroad station square, he called upon them to struggle on for the victory of the socialist revolution.

During the early hours of October 25 (November 7 in the new calendar) 1917, revolutionary workers and soldiers led by Lenin and his comrades overthrew the reactionary Provisional Government and on the same day the Second All-Russian Congress of Soviets, repre-

sented the vast majority of the population, announced that all power had passed to the Soviets of Workers', Peasants' and Soldiers' Deputies. The Congress elected Lenin head of the Soviet Government—Chairman of the Council of People's Commissars.

The October Revolution, which started in the national capital, was quickly victorious throughout the country. Enjoying the confidence of the millions of workers, peasants and intellectuals, Lenin directed the establishment of the young state of the working class.

Immediately associated with Lenin's name are the abolition of land ownership by big landholders, the control of production by the workers and later the nationalization of the banks, railroads and large-scale industry. Lenin advanced and put through the idea of an integrated state economic plan, the first of its kind in the world. He was the author of the policy of equality and sovereignty of all Russia's multi-languaged peoples and their right to self-determination, and under his guidance this policy was carried out. Decrees signed by Lenin abolished all forms of discrimination and oppression, among them national and religious restrictions, laws stipulating the inequality of women, setting class limitations and so forth.

Lenin initiated the principal actions of the Soviet Government that marked the beginning of a new historical era.

Lenin took into account the practical experience of the workers, the initiative of the masses which bloomed under Soviet power. As a result of his thorough study of the historical lessons of the Revolution, he combined in his governmental activity a boundless belief in the creative forces of the people along with a sound scientific basis.

Immediately after the October Revolution of 1917 Lenin advanced the task of Russia's economic development for improving the general welfare. The civil war and foreign intervention that followed the Revolution hindered it, but even during the most difficult times Lenin kept working out his program. In the winter of 1920 the Eighth All-Russian Congress of Soviets approved the electrification program drawn up by a group of scientists under Lenin's direct guidance, providing for the building of 30 large electric power stations. The implementation of that plan, a colossal one for the time, was the first step toward the fundamental transformation of the country's economy, then ranking among the world's most backward.

It is characteristic that even in the first months of the new state, with the ravages of war still unrepaired, Lenin gave much attention to the cultural advancement of the people. He personally concerned himself

THE ULYANOV FAMILY GROUP (1879)





VLADIMIR LENIN WHEN HE WAS EIGHTH GRADE STUDENT

with providing each of the 50,000 free libraries and reading rooms set up by the new government with all needed textbooks, classical world literature and books of contemporary science and engineering.

The Soviet Government from its very inception proclaimed peace to the peoples and extended the hand of friendship and cooperation to all nations. Lenin was a staunch champion of peace and upheld the principle of peaceful coexistence of countries with different social and economic systems. He underscored the Soviet Union's desire for peace and economic relations with all countries. He repeatedly pointed to the need for normal and mutually advantageous cooperation between the Soviet Union and the United States.

During the most difficult years of the civil war and foreign intervention, Lenin was an optimist. He did not just believe, he knew that the Soviet people, to use his own expression, were erecting the bright edifice of a socialist society. His work in the early years of Soviet power traced the outlines of that edifice and worked out scientifically a program for the industrialization of the country and for the transformation of its agriculture through voluntary cooperation of the peasants in production along with a program for raising the people's cultural standard.

Hated by enemies of the people throughout his life, Lenin was twice the target of terrorists. On August 30, 1918, returning home from a Moscow factory meeting, he was shot and severely wounded. Although he pulled through, his health was seriously impaired.

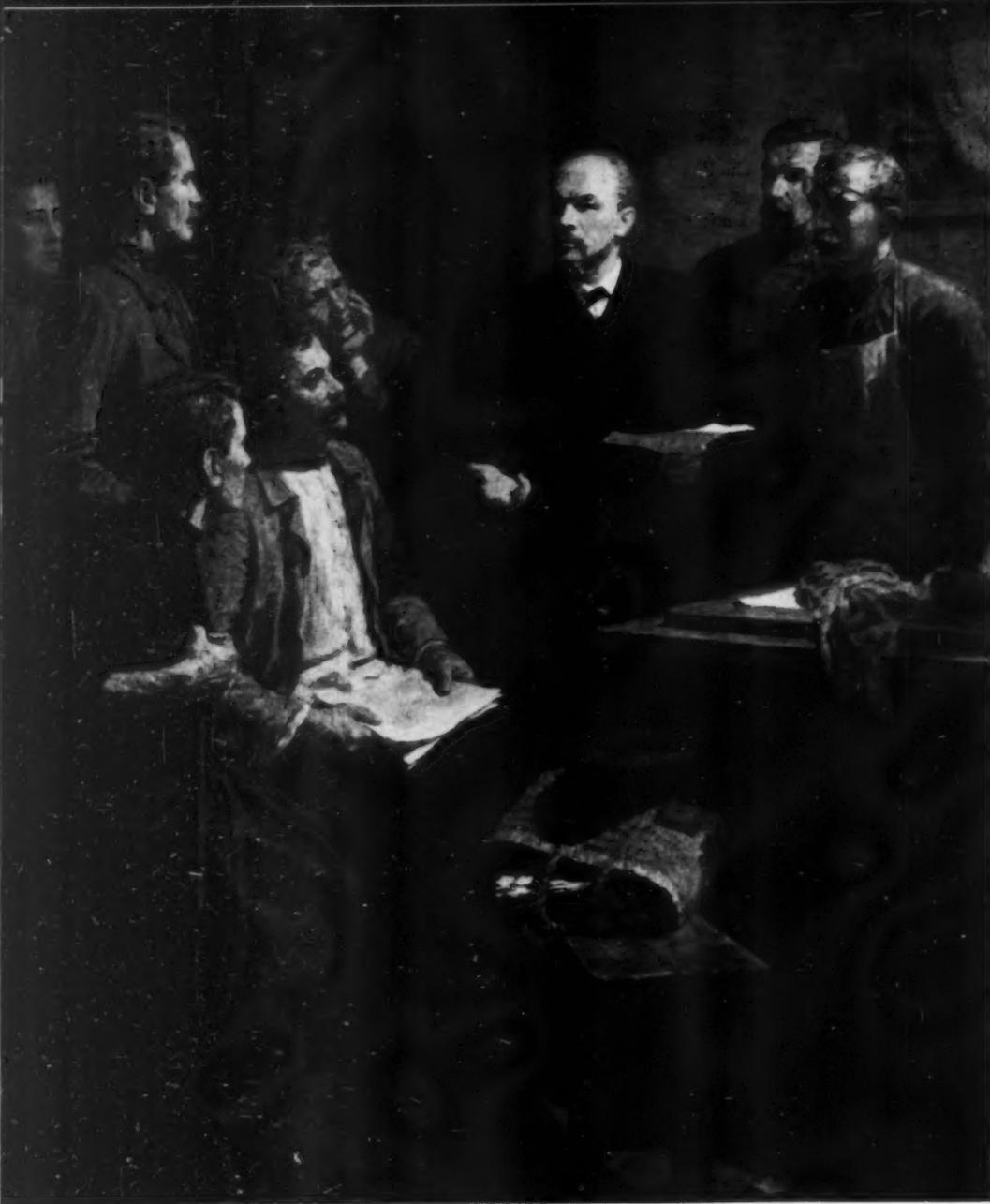
Lenin was not destined to reap the fruits of his labors to the full or see his cherished dreams become reality. He looked after everyone but himself. The endless strain, coupled with the effects of his wounds, prematurely drained his strength, and after a protracted illness Lenin died on January 21, 1924.

Thousands attended the funeral, and workers all over the world declared a five-minute work stoppage for the hour of the funeral.

More than three decades have passed since then, and the further time marches on, the more fully and profoundly is revealed the greatness of Lenin and the brilliant power of his genius. The Soviet state he founded has long since cast aside its heritage of poverty and backwardness and has become a mighty and rich industrial power possessing a flourishing agriculture and an advanced culture and science. ■

LENIN AND HIS WIFE NADEZHDA KRUPSKAYA WITH TWO YOUNG FRIENDS





READING A REVOLUTIONARY LEAFLET

Remembering Lenin

LENIN AND THE FISHERMAN



LENIN

Returns from Exile

By Anna Ulyanova-Elizarova

MY BROTHER Vladimir was due back from exile in Siberia in February of 1900. We were looking forward to the day as though it were a holiday, all of us, especially Mother. We had not seen him for three years. But we could not persuade ourselves that he would really be freed, that his term might not have been extended because of some mishap. A conflict with the local authorities or the ill-will of some petty official could mean a longer sentence.

Nor did Vladimir himself feel any certainty about his release, although he lived quietly and carefully avoided breaking any one of the rules. The closer the day of his freedom, the more disquiet he felt.

We lived then on the outskirts of Moscow, in Bakhmetyevskaya Street, near the Kamer-Kolezhsky Val. We all ran out to the street when we saw the cab pulling up. The first thing Mother said—she was the first one who could speak—was, "How could you write that you put on some weight? You're so thin!"

"I had put on some weight," Vladimir said, "but I lost most of it the last few weeks before I left."

Nadezhda Krupskaya, Vladimir's wife, told us later that he had lost weight because he had worried about whether he would actually be released at the end of his term.

The moment the first greetings were over Vladimir asked, "Has Yuly returned? Did he send a letter or a telegram?"

Yuly Tserderbaum—he was better known by his pen name, Martov—had been exiled to Turukhansk, Siberia, at the same time, for the same reason, and with the same sentence.

His extreme concern was something of a surprise to me. Before his exile, Vladimir had not been as close to Martov, who had joined the revolutionary circle later than some of the other members, as he had been to Krzhizhanovsky or Starkov, for example.

His anxiety about news from Martov was explained for me in talks we had subsequently. He looked on Martov as his closest comrade for future work, especially for beginning an all-Russia newspaper. He admired Yuly's revolutionary spirit and could not rest until he received word that Yuly was on his way from Turukhansk. ■



TOILING AT THE SUBBOTNIK

TALKING WITH WORKERS' DEPUTIES IN THE KREMLIN



J. Bowdler

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LENIN

and the *Subbotnik**

By Alexandra Sysoyeva

I MET Lenin for the first time when I came to work as housemaid for the family. When he was wounded in 1918 and went to the village of Gorki, near Moscow, to recover, I went along to look after him. We spent three weeks in Gorki and then came back to Moscow.

I remember the subbotnik on May Day in 1920. Vladimir Ilyich told me he wanted to go to it and help in the work. We had supper earlier than usual so he could go to bed earlier.

During supper his wife, Nadezhda Krupskaya, and his sister, Maria Ulyanova, made fun of Lenin's wanting to go to work during the subbotnik. They thought he really didn't mean it. They said he had enough to do in his own office if he wanted to work on May Day. But he said plainly that he wanted to go to the subbotnik like everybody else and help clear the square of rubbish. It was all littered up with logs, pieces of iron and big stones.

I remember how I got breakfast ready for seven that morning and went to call Vladimir Ilyich. He was already up and said, "Yes, yes, I am up. I'm coming."

He had a quick breakfast and then hurried out to the square. They told me later that he didn't go there straight, but took a round-about way so he wouldn't be noticed.

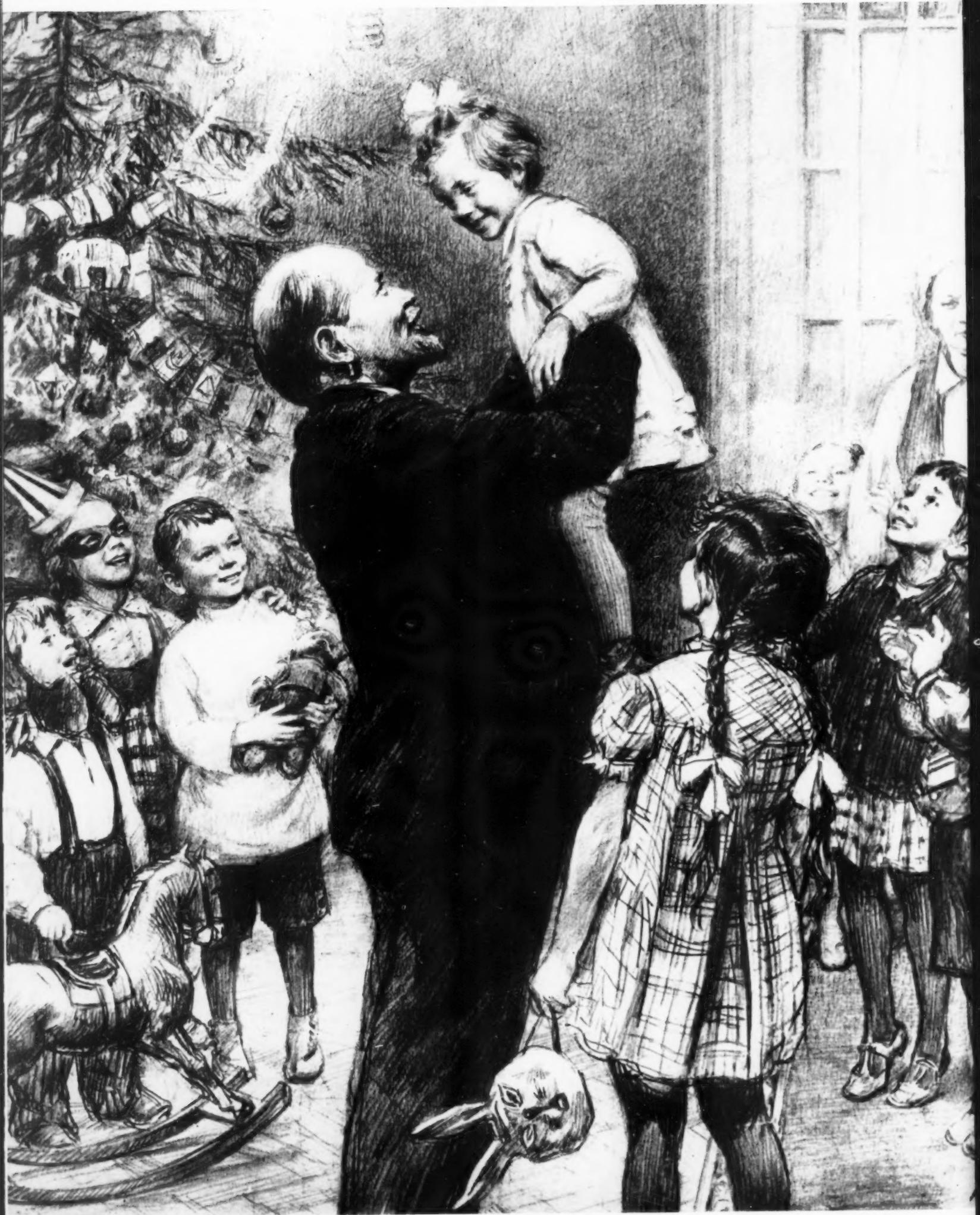
When Lenin was recognized, the other people there were worried about his doing such hard work. They wanted him to stop. But he wouldn't listen to them and went right on working.

I was curious to see the subbotnik, so I went there and saw Vladimir Ilyich helping to haul the logs away. Four persons took one of the big logs on their shoulders and carried it to a spot where they were stacked up.

Vladimir Ilyich worked from 8 that morning until noon. When he came home he was drenched with perspiration and one of his shoe soles was torn off.

Nadezhda Krupskaya looked at it and laughed. "We can't let you do that kind of heavy work. Where would we get enough shoes for you?" ■

*The word *subbotnik* is derived from *subbota* (Saturday in Russian) and means volunteer community work done on a holiday.—Ed.



AT A NEW YEAR'S PARTY FOR CHILDREN







CHILDREN WERE FAVORITES OF LENIN

LENIN *and the Children*

By Victor Ulyanov

IN THE WINTER of 1921, my aunt Anna Elizarova and I came from the countryside to Moscow. We lived in Manezhnaya Street and Vladimir Ilyich, my uncle, was a frequent guest.

I remember the first time I met him. I was timid as a child and when I saw a stranger come into the house I ran to hide under the sofa, my customary refuge.

I knew a good many folk songs, and Vladimir Ilyich asked me to sing them. At first I refused, and then, relenting, I sang a few lines from under the sofa. When Vladimir Ilyich laughed heartily in approval, I was encouraged to crawl out. He put me on his knee, and then, quite bold, I sang my entire repertory for him.

In 1922 we spent the summer in the village of Gorki. Vladimir Ilyich used to take me berry-picking. During one of our picnics the other people there tried to persuade me to give the berries I had picked to Uncle Vladimir but I said no, and ate them all. Vladimir Ilyich was more generous. He gave me a handful of his.

I liked him, as any small boy would, because he was always so kind. I remember the time he was sick and living at Gorki. We were having supper there once, and there was a bottle of lemonade on the table. I was not permitted to have any, for what reason I no longer remember. Vladimir Ilyich pushed the bottle toward me without saying a word.

Another time, together with some other children I was modeling boats out of sand along one of the park walks. That was in 1923,

when Lenin was quite ill and was taken out for air in a wheel chair. We knew he was wheeled along that walk and were sure that the wheel chair would roll our boats flat. But it didn't, for some reason.

Then we modeled our boats across the whole width of the walk. But this time, too, they remained undamaged. We couldn't understand how the wheel chair got by until we learned, some time later, that Vladimir Ilyich thought it might disturb our game. So he had his chair wheeled to by-pass that particular walk.

Those days I loved to drop in to see Uncle Vladimir in his room. I think he enjoyed my visits too. Sometimes when I came in, he would be sitting at the window, and with Nadezhda Krupskaya's help be teaching himself to write with his left hand. He would stop when I came in and look at me, I remember, with his slow, kind smile.

In December 1923 a New Year tree was set up for the children of the family. Children of the farmers living in the neighborhood and others whose parents worked in the local state farm and vacation resort came as guests to the New Year party.

It was a gay and happy party for both children and grownups. Lenin must have enjoyed our company—he spent almost the whole evening with the children and stayed through until after all the presents were handed out.

It's a picture I will never forget—Vladimir Ilyich sitting there and smiling at the noisy lot of us—children whom he loved so much and for whom he had done so much. That was the last time I saw him. ■



CHESS WAS ALWAYS LENIN'S NUMBER ONE GAME



WRITER MAXIM GORKY WAS A CLOSE FRIEND

LENIN

Loved Music

By Dmitri Ulyanov

MOTHER was always pleased with my brother Vladimir's aptitude for music. When he was eight he played children's piano pieces or four-hand pieces with grownups quite easily. But in spite of that he gave up the piano when he went to school.

It was not because music stood in the way of his studies. Vladimir was a gifted student and he had no difficulty with school work at all. More likely, he stopped playing the piano because in those days it was not looked upon as the kind of thing boys did. But all the rest of his life Lenin had a profound love and a keen appreciation and understanding of music.

In the winter of 1888 we both went to the opera in the city of Kazan. I have a vivid recollection of the evening we spent. We had seats high up in the gallery. I still remember our walk home. Everybody was asleep by the time we got back. As we sat eating our bread and milk supper, Vladimir was still under the spell of the music we had heard and kept humming the arias he liked best.

Our mother loved the piano. She played and sang many of the old songs. She was especially fond of the opera *Askold's Grave*, and often played selections from it, reading from a worn and faded score. We all enjoyed her singing and playing. Vladimir often hummed passages from *Askold's Grave*.

He also liked singing with Olga, our sister. She was younger than Vladimir, but they were very close during childhood and youth, not only brother and sister but close friends and companions. Olga was as advanced for her age in her reading and thinking as Vladimir. At eighteen she was able to speak fluent German, French, English and Swedish. I can vouch for the accuracy of the comment people made about her all the time—that the only time she did not work was when she was asleep. Vladimir respected and admired her talents and her will to work. She died in May 1891, of typhoid fever.

They used to sing duets—Yazykov's *Swimmer*, Dargomyzhsky's *Our Sea Is a Desert*, and *The Wedding*. There was a lyric song by Heine that Vladimir liked to sing. It had the line, "I am expiring, my darling . . ." which had to be taken on a very high note. After the line, Vladimir would chuckle and say, "I've really expired. I really have."

I can hardly remember a time when there was a sad note in Vladimir's singing. It was always bouyant, cheerful, confident. These lines from his favorite aria in *Faust* "Almighty God, God of Love" seemed to reflect his spirit. Perhaps that is why he liked them so much.

"In the life-and-death battle,

I swear to be in the forefront."

Whenever I hear Gounod's music I am reminded of those far-off days when Vladimir sang those lines from Valentine's aria.

It was the summer of 1889 when I heard the *Internationale* for the first time. It was then almost unknown in Russia. We were in Alakayevka, a hamlet in the Samara region. Olga played it on the piano and followed with the *Marseillaise*. I begged her to play it again.

Then Vladimir walked into the room unexpectedly. It was morning, the time of day he was usually busy studying. He wanted to hear it again, too. First he and Olga played the melody on the piano and then we sang the words quietly in French. ■

LENIN

on the Arts

ART, Lenin said frequently, must be understandable to the people. An art so esoteric that it becomes the property of only a few hundreds or a few thousands in a population of millions, he thought insignificant. Art must move the emotion, the mind and will of people, it must educate them, it must be big enough and inspiring enough so that it can become the beloved property of all the people.

Lenin's personal likes and dislikes were sharp and clear-cut. He liked the classical works and realism in literature, painting and the theater. From art he demanded truth. He was as impatient with the artist and sculptor who prettified reality as he was with the petty emphasis upon detail of naturalism or the formal distortions of the abstractionist.

He thought it "nonsense, plain nonsense" to idolize the new for the sake of its newness. He said bluntly, "As far as I am concerned I have the courage to admit that I am a 'barbarian.' I am unable to look upon the works of expressionists, futurists, cubists and other 'ists' as a supreme manifestation of artistic genius. I don't understand them. And the sight of their works gives me no pleasure whatsoever."

In literature, he said, he preferred Pushkin. But he stressed that this was his own personal preference. What was characteristic of Lenin's likes and dislikes in art was that he was extremely careful never to impose them upon others as esthetic concepts.

Lenin loved music—all kinds of music—from street songs to concert music. In her memoirs, Krupskaya, his wife, tells how much he enjoyed the songs of Montegus while living in Paris. Montegus was a café singer, a great favorite in the workers' districts. He improvised songs, often sentimental but always full of spirit, about events of the day.

Lenin often hummed one of Montegus' songs, "I salute you, soldiers of the 17th regiment," about a regiment that had refused to fire on striking workers. There was an Alsatian popular song he also liked, one he had picked up in his travels in Europe. It was about the French in Alsace-Lorraine who were forced to live under German rule when the region was ceded to Germany after the Franco-Prussian War.

Music was one of his ways of relaxing from cares of state. He often went to hear the singer Chaliapin, the pianist Romanovsky, the Stradivarius Quartet, and symphonic concerts conducted by Koussevitzky.

One evening, visiting friends in Moscow, he heard Issay Dobrowen playing Beethoven's *Appassionata*. He was moved to comment, "I know of nothing more wonderful than the *Appassionata*. I would like to listen to it every day. It is marvelous, superhuman music. I always think with pride—perhaps it is naive of me—what marvelous things human beings can do!"

He was a wide and omnivorous reader. When he was deported by the czarist government to Siberia, he spent much time in reading Pushkin, Lermontov and Nekrasov, they were his bedside books. There too he read Goethe's *Faust* and Heine's poems in German.

He was not unduly concerned with style. He liked Chernyshevsky's novel *What Is To Be Done?* for its social insight in spite of its rather poor style and characterization. He admired Chernyshevsky as a man and revolutionary who had suffered 24 years of Siberian exile for his principles. In his Siberian album Lenin pasted two pictures of the



LISTENING TO BEETHOVEN'S APPASSIONATA

author, together with pictures of Emile Zola, Herten and Pisarev.

Jack London's *Love of Life* was one of his favorite short stories. The unconquerable will of the starving man, who refuses to give way though trailed by a timber wolf and who finally wins to safety, appealed to Lenin.

He was fond of the story of protest against oppression and of striving for a better world. He liked the vigorous realism of the Belgian poet Emile Verhaeren and the stirring verses Victor Hugo wrote in exile in spite of their naive and rather bombastic phrasing.

Lenin knew Russian literature well and admired particularly the writers who portrayed the reality of their times.

No end of volumes have been written about Tolstoy, but for real penetration there is nothing to match two small collections of articles on the great writer written by Lenin and Maxim Gorky, whom Lenin admired as friend and writer.

Lenin's articles on *Leo Tolstoy as the Mirror of the Russian Revolution*; *Tolstoy and the Modern Labor Movement*; *Tolstoy and the Proletarian Struggle*; *Tolstoy and His Epoch* represent a thorough critical analysis of Tolstoy's writings and teachings.

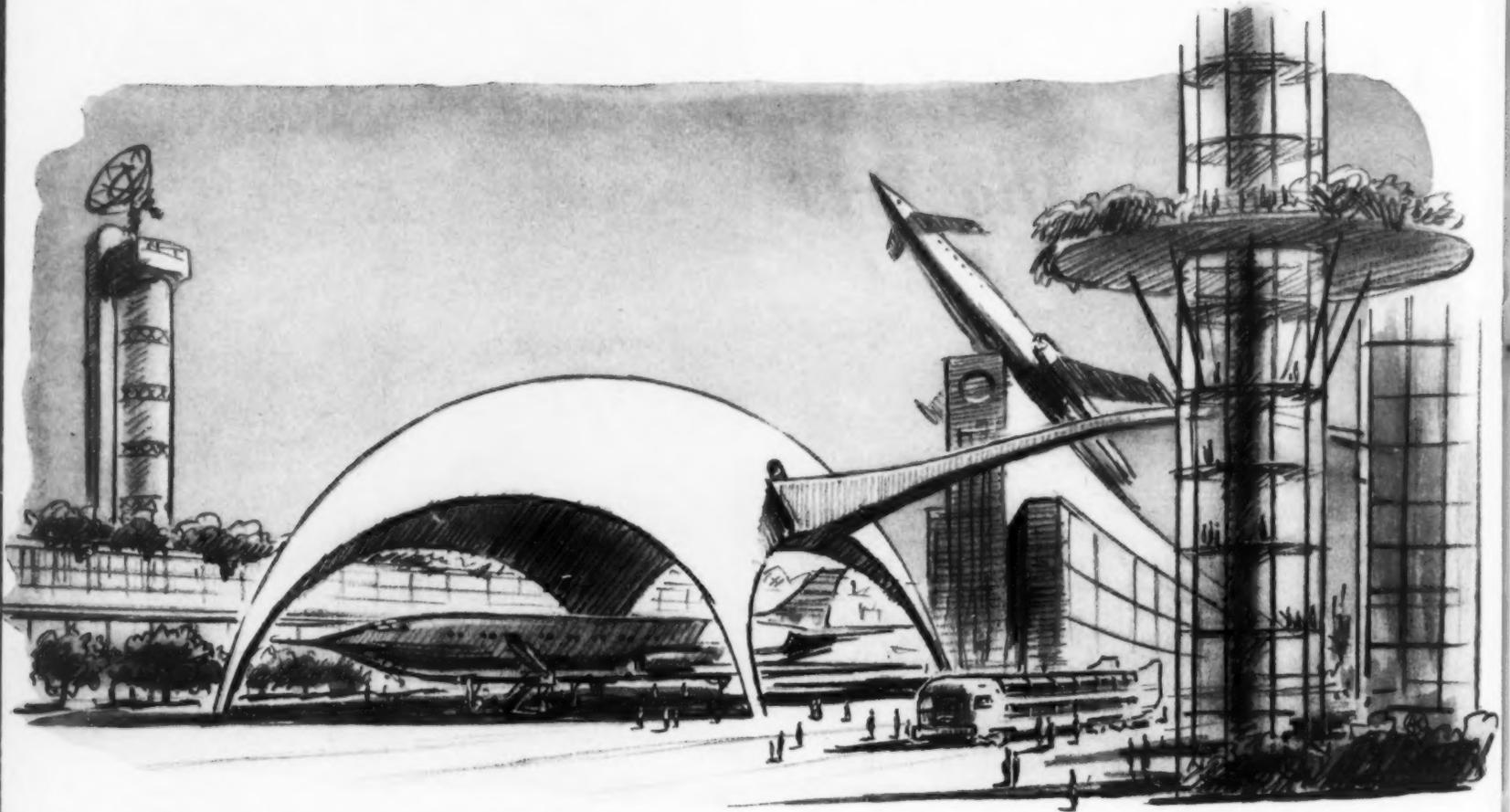
Although Lenin categorically rejected Tolstoyism as a way of life, he thought "it contained a good many critical elements which could be used as valuable material to enlighten the masses." He looked on Tolstoy as an author of genius, the greatest writer of his time.

As head of the Soviet government, even during the period of great hardship brought on by civil war and foreign intervention, Lenin did everything he could to foster an art that would serve the people. The treasury of old art in museums and libraries was carefully safeguarded against those bellicose "leftists" who thought everything old was necessarily reactionary, "burdens inherited from the past," as they called them.

This kind of infantile thinking Lenin fought vigorously. "We must safeguard what is beautiful," he said, "keep it as a model, work our way from it, even if it is 'old.' Why should we reject what is truly beautiful, and refuse to use it as a starting point for our further advance, merely on the grounds that it is 'old?'"

After the Soviet system was established, one decree after another was signed by Lenin to provide a favorable climate for creative work in all areas of art—painting, writing, music, the theater, the ballet. It was an art freed from material dependence on private interests and the tastes and whims of wealth and patronage—a people's art. ■

THE FUTURE IS



The City of Tomorrow

By Academician Pyotr Rebinder

CREATIVE work in science must peer into the future. Call it fantasy if you will, or call it the creative faculty to project our present knowledge into an imagined tomorrow, it is nevertheless the substance out of which the real future is being woven in the research laboratories today.

What will the shape of our future cities be like? Need we, for example, always build

dwellings with heavy walls, so costly to erect but absolutely necessary now in countries with cold climate? Those of us who have been working in the new science of physico-chemical mechanics answer no.

The houses we see for tomorrow are thin-walled, graceful structures, easy to build, made of materials easy to transport, simple and inexpensive to heat and to cool. They will look different, even strange, to our eyes accustomed to brick and stone. Future houses will be largely transparent, seemingly fragile, but in spite of their lightness, remarkably strong and lasting.

New materials being invented and fabricated in our laboratories today will build these cities. Unusual cities they will be, bold and daring in design, built for function and beauty both, with light and air and space in abundance. We can visualize this building material. It is easy to mold, process, stamp; it assumes any shape desired; it sets easily and quickly.

Progress in physico-chemical mechanics will also produce such future technologies as pressure-processing of solid materials—hot pressing and stamping, for instance, adapted both to the mechanical and chemical properties of the material and the environment in which it is to be used.

Sectional parts of buildings, and of machines, too, will be manufactured, and from these sections the complete structure will be

put together in much the same way that an Erector Set model is made.

Such new merging sciences as physical chemistry and the newer physico-chemical mechanics have uncovered new data and new methods and, therefore, new prospects.

Physical chemistry, in conjunction with chemical synthesis, has produced many of the materials that nature does. But it has gone beyond that; it has created new materials that never before existed—a long and growing catalog of products, from artificial fur and silk to the hardest solids yet made.

The new science developed out of the merger of physics, chemistry and biology has produced in its relatively short span of work such curative agents as artificial vitamins, hormones and other drugs that cure once incurable diseases.

The science of physico-chemical mechanics developed on the borderline between molecular physics on the one side and the physics of solids, physical and colloidal chemistry and the mechanics of materials on the other, out of the combined efforts of large groups of scientists in these varied fields. Through synthesis of substances it is working to produce new building materials, alloys and plastics that will be strong, durable and easily molded.

These will be the new materials for the future—for building houses, factories, machines and instruments. And they are in process of creation today. ■



THE LAST PEDESTRIAN

S BEING MADE TODAY

Tomorrow's Medicine

By Professor Irina Lagunova

TOMORROW'S MEDICINE will have been altered from a science of healing to a science of prevention, one which will have destroyed all sources of disease and left for the physician only the problem of keeping his patients healthy. With the universal health protection and free medical service of every kind now provided for every Soviet citizen, this future is by no means fanciful.

The use of radiant energy and high frequency radiation has already made it possible to destroy various harmful bacteria, on a limited scale it is true. The installations of the future will be powerful enough to sterilize air and earth. Atomic radiations and powerful radio waves with bacteria-destroying properties will be generated to rid us of the organisms which breed infectious diseases.

And what of diseases that set in because of disfunction of one or another organ or tissue? Here, too, radiant energy is being used to heal.

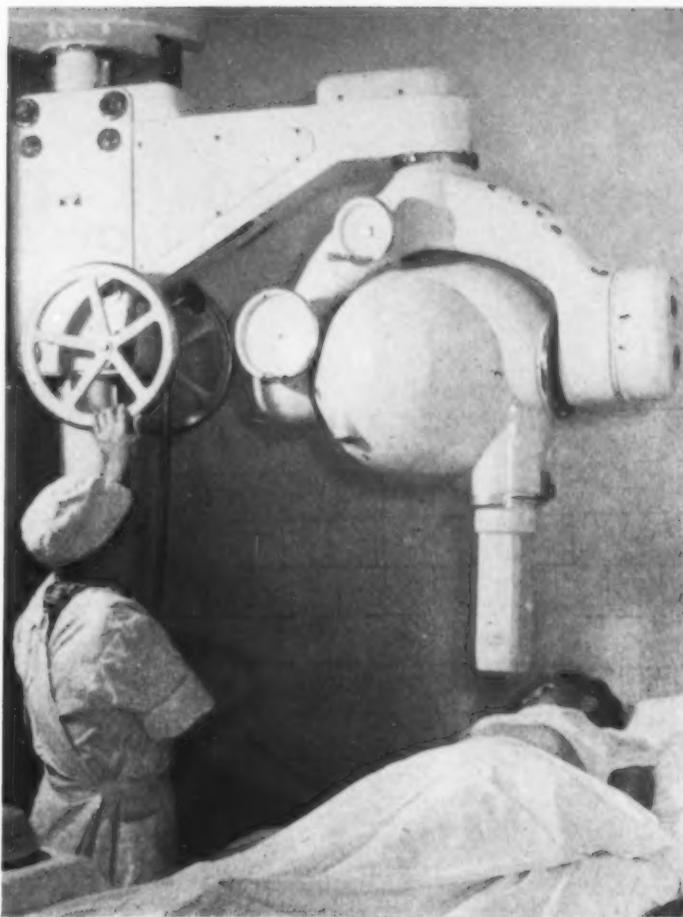
In 90 per cent of the cases, cancer of the skin, tongue or lip is completely curable if diagnosed and treated in its early stage. Timely diagnosis and treatment with radiant energy has led to complete cure in most of the cases of so widespread a women's disease as cancer of the uterus. It was a very short time ago that patients suffering from cancer of the esophagus or the lungs were considered hopeless. Today their lives are prolonged by external radiation of the diseased tissue, together with internal injection of radioactive gold.

Radioactive isotopes have made it possible for medicine to diagnose a number of diseases. By measuring the speed and quantity of radioactive iodine absorbed by the thyroid gland with instruments we now have, we are able to make a positive diagnosis of the conditions and functional peculiarities of the gland.

Different glands and organs of the body select and absorb different kinds and varying amounts of isotopes at different rates. It is therefore altogether possible to find the specific isotope that would be selectively absorbed by each important gland.

This is an exciting prospect indeed. It forecasts complete control by the physician of the activity of every major gland of the body. By varying the isotope supply to a gland and combining that with simul-

THIS GEORGIAN IS ONE OF 30,000 SOVIET CITIZENS OVER 100 YEARS OLD.



RADIATION APPARATUS IS NOW STANDARD EQUIPMENT IN SOVIET HOSPITALS.

taneous treatment it is possible to make the gland function just as it should.

It should be possible not only to restore normal activity of separate organs by securing proper gland functioning, but to alter the total personality through this method—to influence a person's capacity for work, his growth, even his appearance.

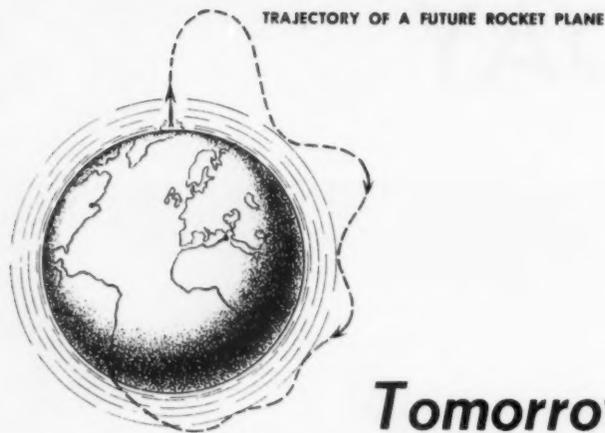
Just as chemists will in time fathom the secret of how protein—living matter—is created, so medical research will as surely uncover the mysteries of the complicated organism that is the human body.

Methods developed by physics and electronics have been invaluable in pushing forward the horizons of medicine. Soviet medical researchers have been successfully using tracer atoms to study some of the highly complex activities which go on in the living organism. Physicians now commonly use radium or cobalt guns for healing. They use the special light intensifiers devised by physicists that make it possible to increase image brightness hundreds of times over. It is probable that some such television technique as the one astronomers are beginning to use to intensify the image brightness of the lunar surface may be adapted to bring out imperceptible details on roentgenograms.

Medical science is using robot models of vital human organs that respond to stimuli of various kinds to study the causes of diseases and methods of healing them. And this with promising success.

Successful experimental work is being done in surgical amputation and regrafting of extremities—with the outlook for the future of disclosing the secret of replacing diseased tissue and organs with healthy ones. Experimental medicine in the Soviet Union has succeeded in reviving the human organism after clinical death has set in. It has been able to restore to elderly people lost hair color, memory, capacity to work, hope for longevity.

Today's experimental research is tomorrow's healing, and the day after tomorrow's eradication of killing and incapacitating disease. ■



THE FUTURE IS
BEING MADE TODAY

Tomorrow's Rocket Plane

By Vasili Alexandrov, Master of Technical Sciences

THE AIRLINER of tomorrow will shoot like a rocket into outer space, returning to earth it will land like the usual plane of today.

On take-off it will rise upward at high speed to reach the rarefied upper layers of the atmosphere as quickly as possible. After the ship has worked up to a speed of 7,500-9,000 miles an hour, the pilot will stop the rocket engines and the plane will continue its flight by force of inertia, as a projectile does. It will describe a great elliptic curve on its descent into the dense layers of the atmosphere. There its wings will create the necessary lift and it will begin to glide.

By using air for support and its own enormous reserve of speed, the ship will once again rise into the upper layers of the atmosphere,

describe another curve like the first, and once again drop to the denser atmospheric layers. So it will move in this series of ballistic curves until it expends its entire reserve of kinetic energy.

Its path of flight will resemble the one made by a pebble skipped along a smooth pond. Once up, it will fly for many thousands of miles without any expenditure of fuel.

To keep the plane from bursting into flame when it strikes the dense layers of air, it will be necessary to reduce speed sharply and quickly. This will be done by rapidly increasing the area of friction. Try to picture an eagle flying to the ground. It folds its wings and drops toward the earth like a rock. But when it comes close to the ground the wings spread to full length and the eagle lands without striking. The rocket plane will have to "unfold" its wings in much the same way, at a height of perhaps 50 to 60 miles, and thus by increasing its friction area, reduce its supersonic speed and land safely.

Our rapidly developing rocket technique makes the creation of such planes possible. But to build a plane that operates as a rocket on take-off and as a glider on landing is a highly complex task. This is actually the last stage in the development from the plane we know to the interplanetary ship. It must be designed to fly at speeds approximating 10,000 miles an hour, to slow down to normal landing speed, to alter the area of its wings—these are exacting requirements.

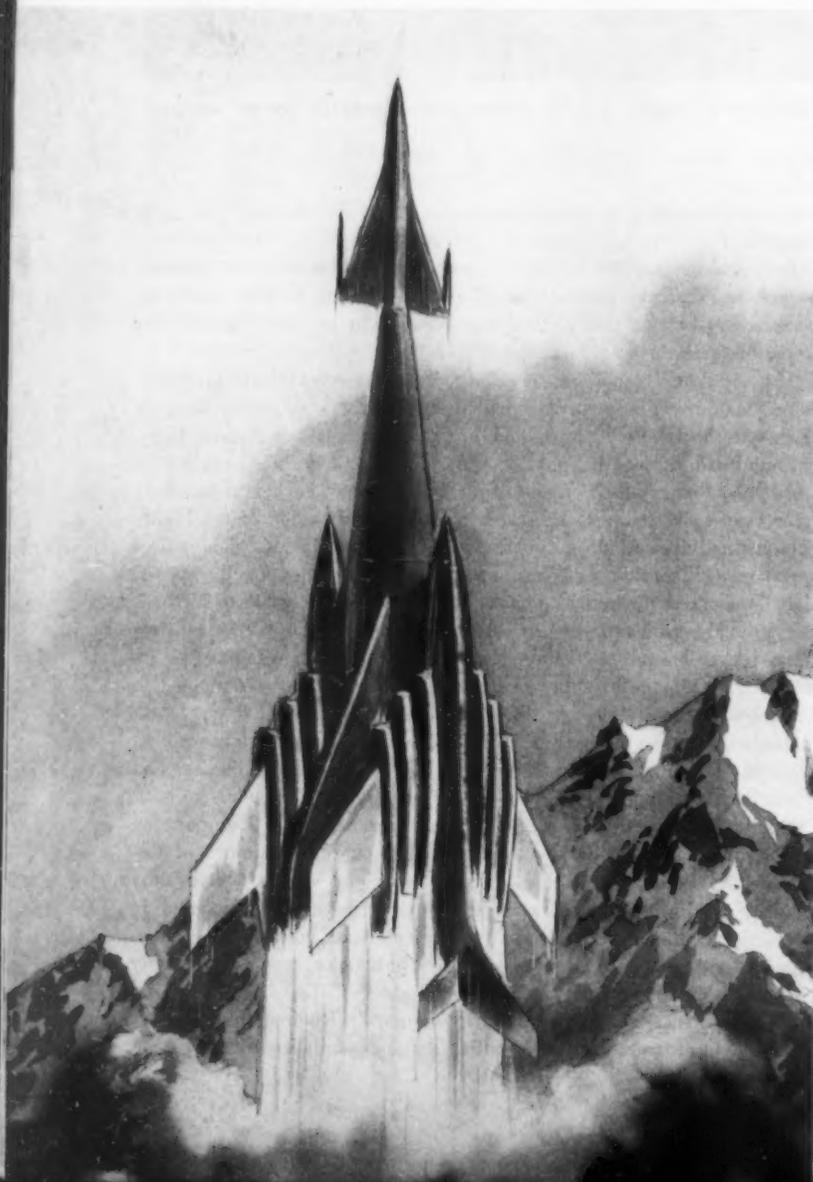
The draught force of the rocket plane engines must reach a minimum of 50 tons. The total draught force of the present-day intercontinental ballistic rocket engine is very likely considerably greater. Thus the country which builds the best intercontinental ballistic rockets and produces new high-calorific fuels will be the first to build this new ship.

One of the most difficult problems the rocket plane designer faces is to devise means for controlling the ship. It is incomparably more difficult to change the direction of flight of a rocket ship than an airplane. When an airplane changes direction of its flight, it momentarily rests upon air, but the rocket ship will be flying at the boundaries of the atmosphere and even beyond, where conditions approximate a vacuum. At heights upward of 125 miles, air support is practically non-existent.

One method of changing flight direction may be to use additional rocket engines placed at an angle to the direction of flight. The traction force exerted by these engines will alter the path of movement in the direction required.

Another of the yet unsolved problems is to compensate for the strain of the tremendous acceleration that crew and passengers will have to undergo. In the flight upward travelers will have to adjust to a five-fold overstrain. In the downward movement along the ballistic curve, passengers will be in free flight and weightless. We do not yet know nearly enough about the effects of prolonged weightlessness on the human body nor the time that must be allowed for the pilot to adjust himself to changing gravity conditions.

There are other problems still unsolved, but the solutions will be forthcoming, as they were in process of developing the powerful intercontinental rockets and in launching the first artificial satellites. This is a next step forward in the same direction—these airliners of tomorrow that will be flying, very likely within our own future, at heights of 600 miles and at speeds of 10,000 miles an hour. ■



WE LONG AGO abandoned the idea which at one time obsessed inventors of creating the perpetual motion machine that would need no fuel, no replacements, and that would operate without outside agencies.

Our present ideas as regards the machine, although not so ambitious, are as revolutionary in their effects and implications as the perpetual engine—the possibility, and a real one it is, of mechanizing and automating all labor operations that are now performed or controlled and supervised by people. More than that, we want to entrust to machines much of what we call mental labor in addition to physical.

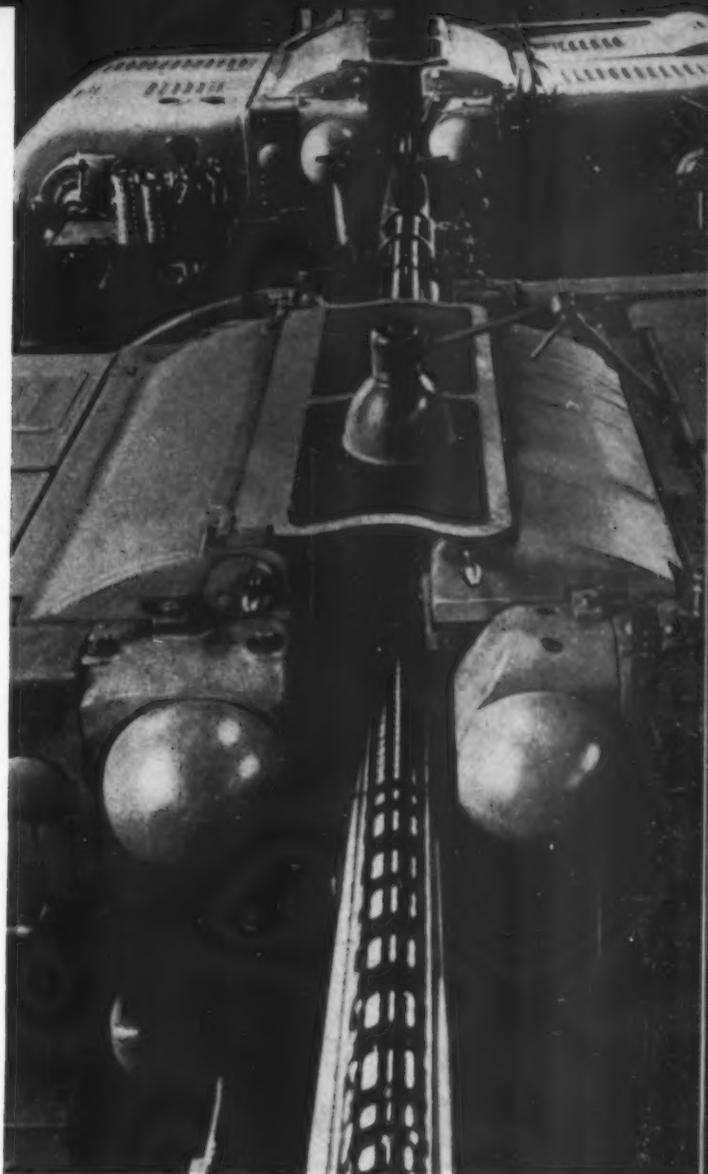
The complete automation of the future is not only in blueprint, its development is already in process and has been for some time.

Consider the very important machine-tool industry. From the use of hand-controlled universal machine tools, Soviet factories have successively moved to automatic and semi-automatic universal machine tools, then to automatic and semi-automatic specialized machine tools, then to machine-tool trains, and finally to automatic production lines made up of machine-tool trains with program control.

The very latest trend is the creation of universal machine tools with program control. The machining process in which these tools are used is set up in the form of a program through various tracking systems and mechanical devices. The tracking system checks and controls the accuracy with which the machine tool follows the program through. The precision of performance of these tools is very high, with a tolerance as small as .0039 of an inch.



AUTOMATIC LINE IN A BEARING PLANT ▶



Tomorrow's Machine Will Do Man's Physical Labor

By Professor Grigori Shaumyan

Latest advances in electronics in the Soviet Union have made it possible to build various self-controlling and self-checking machines that select their own plan of operation after an assignment is fed in. These machines can also correct errors they may make.

Electronic devices have been created that can be set to reproduce the best human control of a machine tool and function independently of an operator. A case in point is the machining of crankshaft pins on a lathe. A skilled turner operates the machine while the electronic device "memorizes" the process. When the turner leaves, the device takes over and runs the machine from "memory."

But even program control of universal machine tools, which operate as a rule with a single cutter, will not provide the complete automation and the great labor productivity that we envisage for the future. What is forecast are concentrated automatic systems made up of hundreds of separate machines with thousands of cutting tools operating simultaneously. The continuity and quality of op-

eration will be controlled not by maintenance personnel, as is true today, but by automatic devices and installations.

Complete automation controlled electronically will handle the most complicated technological processes without the need for human interference. It will do the observing and correcting, it will change the cutting tools, it will set up work units, it will select optimum working conditions. It will, in short, do all the work now done by numberless setters, mechanics, electricians and other maintenance personnel.

With electronics, machine-building plants can be more flexible, adapted to perform the widest and most varied kind of intricate operations. Electronics provides the "yes" answer to the great question—are we likely to be able to create machines that will completely replace the physical labor of man in producing the commodities he needs, and so free him for creative work? Nor is the possibility too remote for the creation of machines that will do a large part of a man's

mental labor as well. Science has been making fast progress in designing and building electronic and magnetic "memories."

But even the most distant future cannot envision the machine that will do creative thinking. That is man's sole and peculiar property and privilege. Automation will free him for this singular function. ■



HOMEWORK ROBOT

THE FUTURE IS
BEING MADE TODAY

The Oceans Explored

By Lev Zenkevich,

Corresponding Member, USSR Academy of Sciences

IT WAS ONLY nine years ago that this great marine continent of 2½ million square miles which we call the ocean floor, four miles below the surface, was thought to be an empty lifeless abyss. Then the Soviet scientific expedition on the vessel *Vityaz* in 1949-1952 and the Danish expedition on the *Galatea* in 1951-1952 explored these lower-most depths and found them teeming with life.

From the floor of the Pacific Ocean the *Vityaz* biologists brought up species of unknown marine animal life. These pogonophorae, as they are called, were found to be related to the vertebrate animals.

In the Arctic Ocean, Soviet scientists discovered the great submerged mountain range which stretches from the coast of the Soviet Union to the shores of Greenland. They were able, as a result, to reconstruct the geologic development of the Arctic and to revise the earth history of the region in conformity with the new data.

These are among the more recent scientific explorations of the great water masses which take up two-thirds of the earth's surface and which have so profound a bearing on our daily lives—our weather, our food, our transportation.

This is only preliminary exploration for a future which will give man the knowledge to extract the vast riches that the oceans and seas can provide. In a future not too far distant we can envisage a vast and well-ordered marine economy, with minerals extracted from the ocean floor, energy from its waters, food from its rich stores of plant and animal life.

The sea is the mother of life, its inhabitants to be counted in multitudes, endlessly fertile, maturing early and reproducing early. Our biggest land animal, the elephant, takes 35 to 40 years to mature; that elephant of the sea, the whale, grows to maturity and bears young within two or three years after birth.

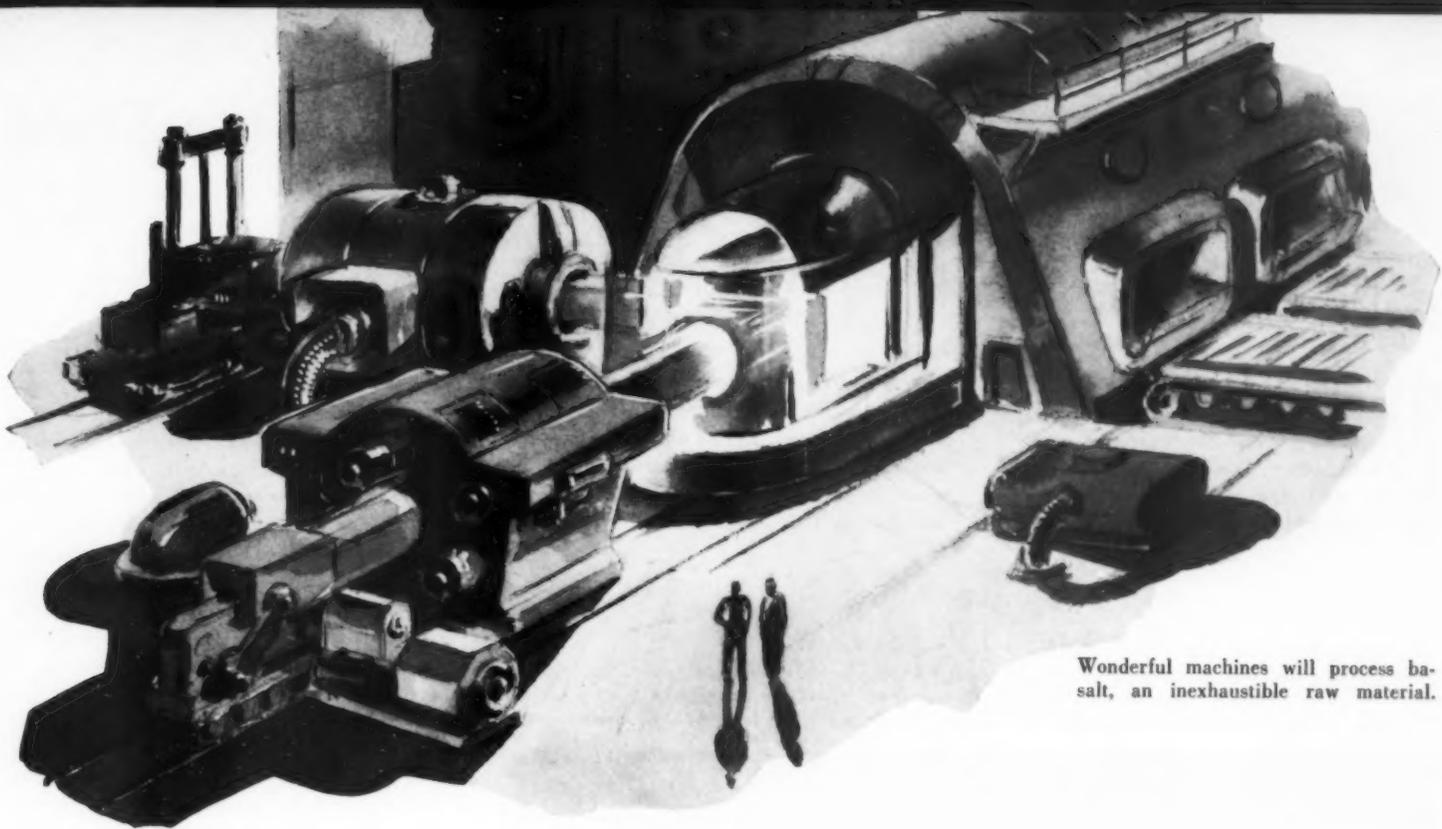
The sea is infinitely richer than the land in food, nutritive substances and vitamins—an ideal environment for both plant and animal life, with its temperatures favorable and little changing, and nutrition ever present in the encompassing water. Sea plants build up high vitamin concentrations, the like of which land plants cannot even approximate. Plankton, the minute marine plant and animal life that swarms in the upper layers of the sea, is especially rich in vitamins. In the ocean there are organisms, making up the major mass of our planet's vegetation, which produce fifty generations in the course of a single year!

This endlessly swarming mass of plankton can—and will probably, in the future we speak of—be scooped out of the sea to be converted into fodder for animals and perhaps, too, into food for people. It will almost certainly be used for technical and medical purposes.

No one has yet bothered to make exact calculations, but world reserves of seaweed, to consider only this one marine plant, must run into billions of tons. Only a fraction of a per cent is being used at the present time.

Some varieties of seaweed are placed in steam boilers to prevent scale formation. Seaweed is the ingredient for a paste used in very fine grinding in certain industrial processes. Agar-agar, used as a culture medium, comes from red algae. Sea kale goes into food. In farms near coastal waters, a certain type of brown algae is used as fertilizer.

Submarine agronomy is a new science that the future will bring, as it will another, to be called, perhaps, submarine genetics, their purpose to organize and classify the knowledge we are beginning to amass of this little-known part of our planet. ■



Wonderful machines will process basalt, an inexhaustible raw material.

In the Depths of the Earth

By Academician Dmitri Shcherbakov

WE HEAR more and more talk of the time when our earth will have exhausted its mineral wealth. This is a favorite theme for science-fiction writers—the planet's storehouse of iron, aluminum, titanium has been all used up, earth scientists travel to the moon and to Mars to prospect for new ore resources.

Now we scientists are all for fantasy, but we prefer the variety that comes down to earth occasionally, and the facts of life are that under the thin crust of the globe we live on is hidden an inexhaustible storehouse of ores, those we use now and new ones that we will be using in the future.

One unlimited source of mineral raw material is basalt, that dark gray-to-black rock found underfoot, no matter what part of the earth one walks on. It is a mixture of some 40 per cent silicon, 15 per cent aluminum, 7 per cent calcium, 6 per cent iron, 5 per cent magnesium, 2 per cent titanium, and also

various rare metals. All these elements can be extracted and refined to provide metals in almost infinite quantities, once a cheap enough source of power is available.

A plentiful mineral future is foreshadowed in preliminary but successful experimentation done in the Soviet Union, remelting basalt and casting parts from it. Such parts are much in demand already as substitutes for rare and valuable metals, alloys and ceramics. Basalt is also a high-quality building material.

Or consider the earth's vast deposits of nephelite, a silicate of sodium, potassium and aluminum which occurs in various igneous rocks. A short while back the idea of extracting aluminum from nephelite was thought to be a project for the distant future. But a method in operation today worked out by Soviet scientists and engineers yields not only aluminum but potash and soda, which are in short supply, fine cement, and even the rare element

gallium, as by-products. Production of aluminum in the Soviet Union no longer depends upon a limited store of bauxite.

But basalt and nephelite taken together make up only the thinnest crust of our globe. Imagine the earth as a gigantic basketball; the basaltic layer is only the thin rubber worn clear through in several places. What about the inside of this 7,926-mile diameter ball? We have seen, and that only dimly, no farther than 3 or 4 miles inside it.

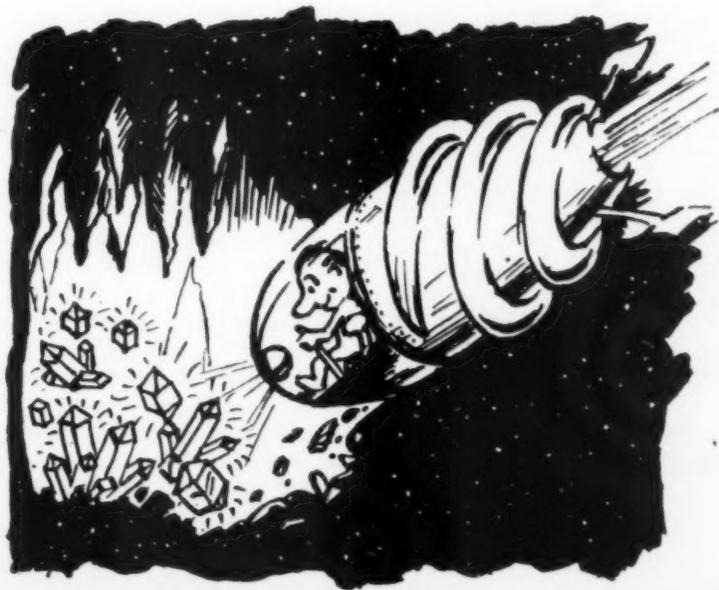
Only now are we beginning to go a bit deeper. The turbodrill that is replacing the rotary drill takes both the bit and the motor underground. But it must still be attached to the surface for its power supply. In the foreseeable future, however, we shall be taking the energy source underground, too.

The time will come when the subterranean machine, working on atomic fuel independent of the surface, will penetrate deep into the bowels of the earth, breaking up and melting rock as it burrows in search of ore deposits.

And it is not only ores that the earth stores. In the subterranean depths are colossal reserves of heat. For example, when the Bezymyanny Volcano on Kamchatka erupted in March 1956, the quantity of energy liberated would have taken the world's largest power plant, the Kuibyshev Hydroelectric Station, 3,500 years to generate.

So far, this internal heat coming through to the surface in geysers and hot springs has been used in the Soviet Union only for heating purposes in a few cities. But on Kamchatka, test boring is already under way to get this underground superheated stream to turn turbines.

The sources in our earth are indeed infinite. They only wait to be explored and used for the good of man. ■



THE FUTURE IS
BEING MADE TODAY

Flight to the Stars

By Victor Kaznevsky, Design Engineer

HISTORIES of the future will describe our century as the one in which flying ships first ventured beyond the terrestrial atmosphere into outer space. The plane we are familiar with now will be replaced by the cosmic ship which will fly at speeds varying

anywhere from 40 thousand to 60 thousand miles an hour.

In appearance it will be unlike our present-day planes and rockets. There will be no value in streamlining since friction will be minimal in the highly rarefied atmosphere

through which the cosmic ship must pass. The interplanetary ship will resemble a group of attached globes and cylinders. The cabins will be more spacious than those on our planes since astronauts will have to live in the ship for long periods. The flight to Mars, for instance, will take approximately a year.

The ship will be built of light, durable alloys which do not lose their properties under extremely low and extremely high temperatures. It will use both electric and solar energy and will be equipped with radio, radar and automatic control apparatus to ensure flight on an exact given trajectory.

Cosmic ships will very likely be launched from an artificial satellite rather than directly from earth. This will have a number of advantages.

First, the pull of gravity on the artificial earth satellite will be less than that on earth. The acceleration which a cosmic ship needs to develop to move into free flight will be comparatively low when starting from the satellite. Then again, since interplanetary ships will most probably be equipped with nuclear or radiant power engines, there is the ever-present danger of radioactivity if they are launched from earth.

Once a cosmic station is set up and moves in an orbit around the earth as a satellite, the parts of the interplanetary ship will be flown to it and the ship will be assembled at the station.

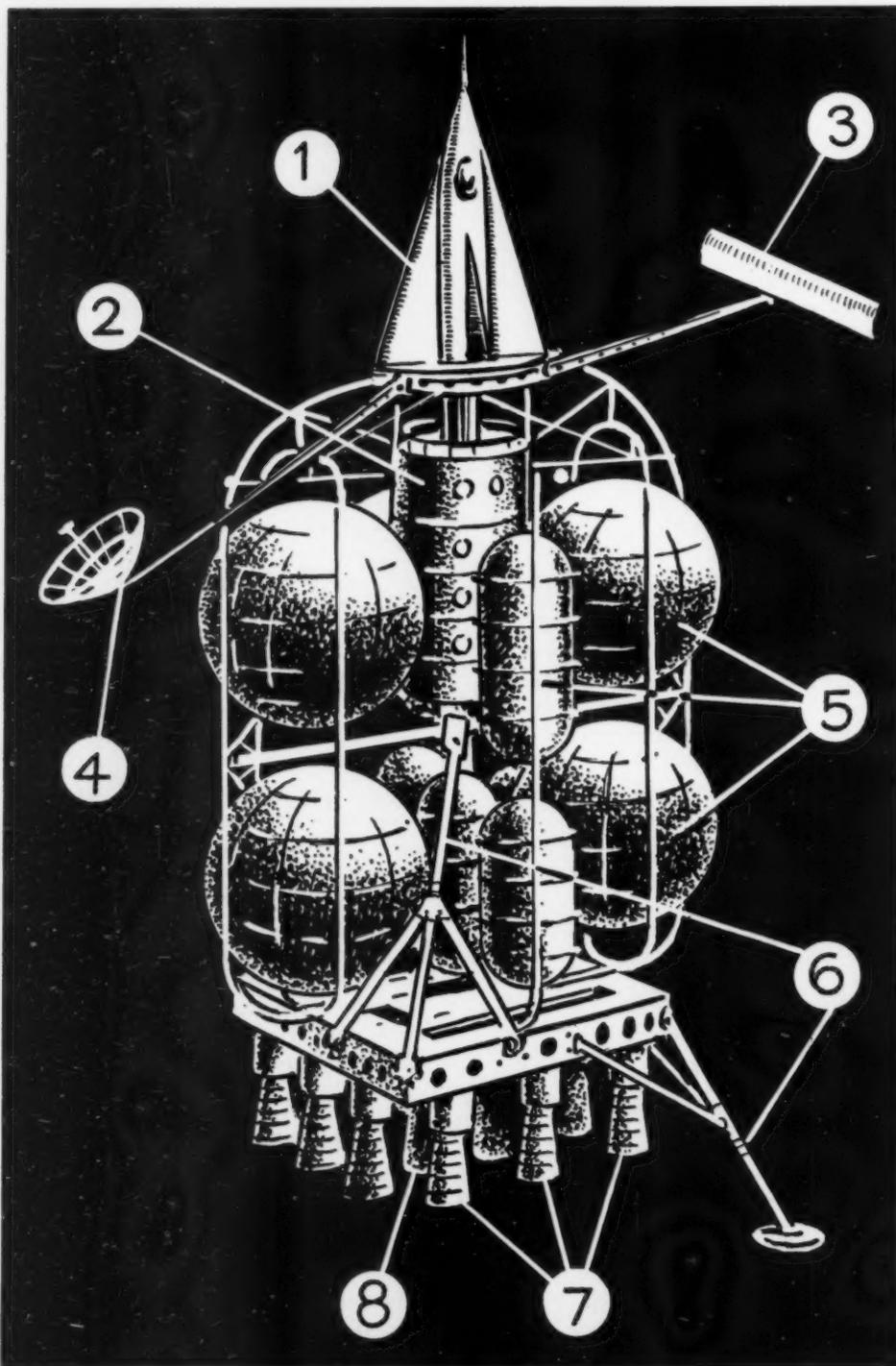
Ready to fly, the cosmic ship will be launched out of the orbit of the station toward the planet it is headed for. As it approaches the planet, the ship will reduce its speed and travel around the planet as a satellite. A small landing "rocket boat" will detach itself from the ship and land the astronauts on the planet.

The speed of five miles a second that the first artificial satellites reached would be high enough to make a trip to the moon or Mars feasible. Rocket technique is developing so rapidly that there is every reason to believe that in a matter of years cosmic flights to our nearest planets will be on the order of the day.

But beyond our solar system lie still more distant worlds. And the dream of scientists that man will some day set foot on Tau-Kita or in the star system of Sirius A may well be the reality of the future. For a rocket in which the nuclear fuel is transformed into electromagnetic rays can develop a velocity of somewhere up to 186,000 miles per second, the speed of light, and at this speed the planets of 42 stellar systems can be reached in a flight lasting several years.

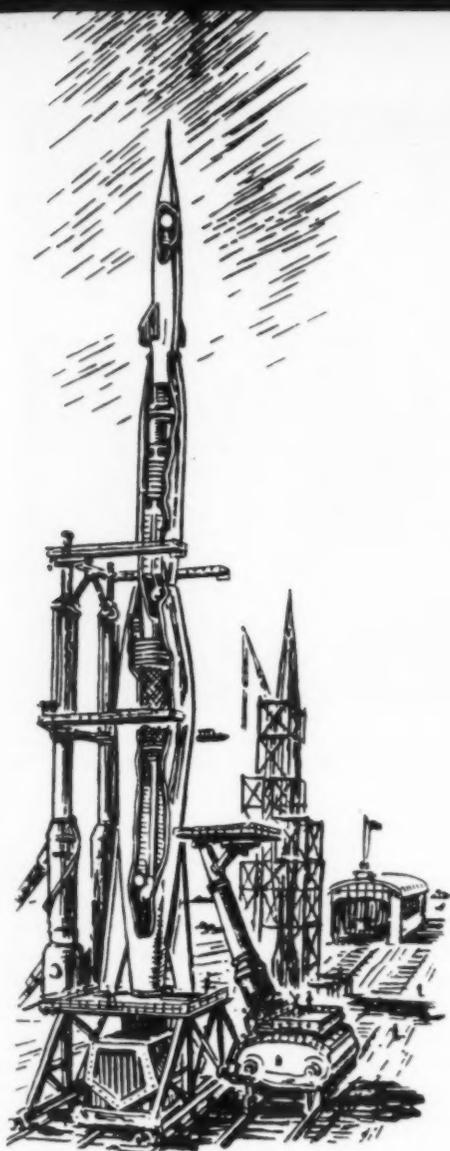
It may very well be that within a matter of decades our neighboring planets will no longer be offering a challenge. The distant stars will be our goal. ■

A cosmic ship may look like this: 1—launching rocket, 2—quarters for crew and passengers, 3—solar mirror, 4—radar, 5—fuel tanks, 6—landing gear, 7—mobile jet propulsion ducts, 8—stationary propulsion ducts. Cosmic ships would likely be launched not from the earth, but from orbiting space stations.



SPUTNIKS and SPACE SHIPS

Breaking Through the Biological Barrier



An artist's cross-section showing a Soviet three-stage rocket with a sputnik at the top.

THE LAUNCHING of the first earth satellites was a great triumph of man over nature. Man had broken through the physical barrier into cosmic space. He had overcome the force of gravity and the resistance of the atmosphere.

But there still remained the biological barrier. Could a living organism stay alive once beyond the earth's atmosphere? The answer was provided by Sputnik II and Laika's heartbeats, heard by radio stations around the world. A dog, a living, breathing organism, had traveled in cosmic space.

Just as Sputnik I was predicated on the early research of Konstantin Tsiolkovsky on the dynamics of rockets and jet propulsion, so the dog-carrying satellite was predicated on years of experimental study of animal reactions by Soviet scientists in flights 60 to 120 miles above the earth's surface. Here is a picture of one of these flights.

Five minutes before sunrise a silver-gray cigar-shaped rocket zooms up to the stratosphere. In the forward part of the rocket is a non-hermetically sealed compartment with catapulting trolleys. Attached to the trolleys are oxygen supply tanks, a parachuting system and apparatus for recording reactions of the animal in flight.

At an altitude of 50 to 55 miles, the trolley is catapulted. Then the parachute opens and the animal drops to earth, the descent taking approximately an hour.

The Physiology of Cosmic Flight

From the biological standpoint, flying in these upper layers of the earth's atmosphere has much in common with flight in outer space. In either case a living organism is exposed to cosmic radiation, weightlessness and, in some cases, the virtual absence of atmospheric pressure and molecular oxygen.

Some of these effects can be produced artificially and studied under laboratory conditions, others during these short rocket flights. Air-

flight medicine, even before Sputnik II was launched, had done more than merely collect data on these effects. It had fabricated such devices as hermetically sealed chambers and space suits for protection.

But the biological effects of weightlessness, of primary cosmic radiation, and of corpuscular and ultraviolet radiation of the sun could be adequately tested only in flights of long duration in the upper layers of the atmosphere. One of the principal functions of Sputnik II was to provide data for the study of these problems in preparation for future manned flights.

The first cosmic flyer was a warm-blooded animal. A dog was a natural choice, since the normal physiology of that animal has been thoroughly studied. Future satellites may carry anthropoid apes, rodents, mollusks and insects to provide data for other studies—genetic effects, for example.

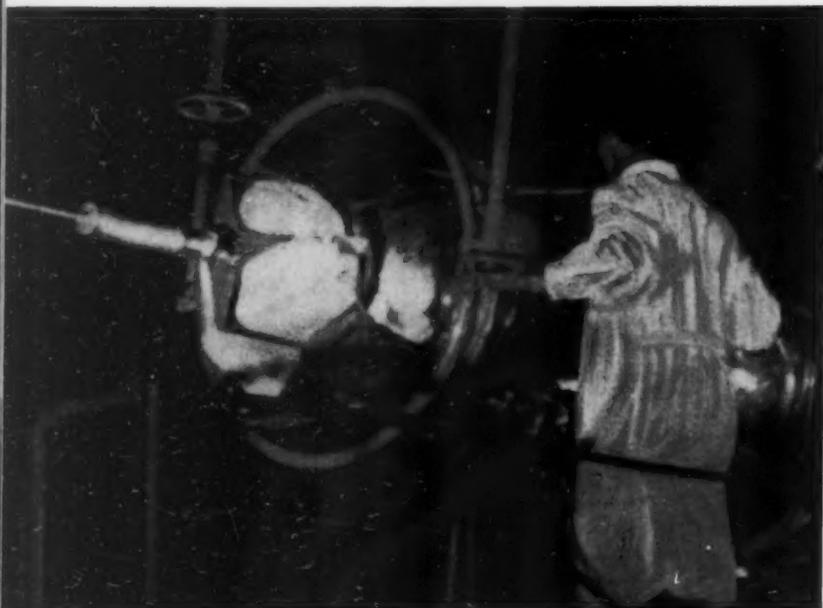
Laika, the traveler on Sputnik II, was a small dog weighing about thirteen pounds. She had a phlegmatic disposition, indicated by the fact that she never got into scuffles with other dogs in the laboratory. Data telemetered from the satellite indicates that the animal remained calm and undisturbed during the progress of the flight.

The physiological data obtained in the flight is still being carefully studied, but certain conclusions can already be drawn. We know that the animal was not harmed by the acceleration nor by gravity-free conditions. This is the first data ever to be obtained on the effect of weightlessness upon an organism over a long period, and it provides reason to believe that man also can operate in gravity-free conditions.

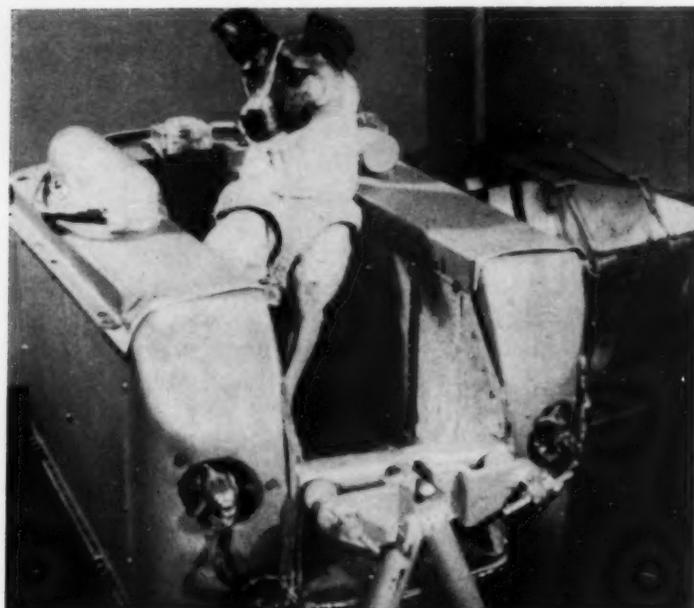
Overcoming Hazards of Space

Animals and human beings can travel in outer space only in hermetically sealed chambers which duplicate the earth's air composition and pressure. To provide against the possibility of a meteorite striking

Continued on next page



This still from the documentary film *First Soviet Earth Satellites* shows the scientific equipment in the forward section of Sputnik II.



History-making Laika in her compartment ready for installation in Sputnik II. The dog's reactions radioed from outer space gave science new data.

SPUTNIKS and SPACE SHIPS

Continued

the ship and piercing the chamber, with a resulting drop in pressure which would be fatal, the astronaut must wear a space suit.

Both hermetically sealed chamber and space suit were provided for Laika and operated satisfactorily.

The problem of maintaining a required temperature in the animal's chamber was especially critical. That problem, the dog's experience proved, was also satisfactorily solved in Sputnik II.

Intensity of ultraviolet rays in the upper atmosphere and beyond is so great as to be fatal to living cells. But this is no difficult problem to solve, since most materials, including ordinary glass, block off this part of the solar spectrum.

Solar radiation also contains X-rays and cosmic rays, which are more difficult to guard against. The cosmic rays, or cosmic particles as they should more properly be called, are most destructive when they penetrate the tissue of an organism. They destroy the cells, producing effects much like those caused by gamma radiation in nuclear reactions.

Protection against radiation is a considerable problem, and data from Sputnik II instruments of the radiant effects of outer space provides invaluable material for further study.

Another space phenomenon which the artificial satellites have provided data about is the danger from meteorites.

It is estimated that some 8 billion meteorites enter the earth's atmosphere every 24 hours. They travel at immense speed—20 to 30 miles a second. Because of friction of the air they burn away in the upper strata of the atmosphere, and we see them as falling stars.

Meteorites do not, as a rule, fall much below 40 to 100 miles above the earth's surface. However, the higher a satellite travels, the more likely it is to strike a meteorite. It is important, if we are to design ships for space travel, to establish how much this likelihood depends upon the height at which the ship travels, time of year, and other factors of this nature.

Experience with present satellites seems to demonstrate that the probability of collision with a meteoric particle is quite small—perhaps no more probable than the average man's being hurt in an automobile accident. Perhaps less so.

How Much Speed Can the Body Endure?

To propel a satellite into its orbit, a speed of some 25,000 feet a second has to be imparted to it. This involves a high acceleration over a long period.

The effects of acceleration or overstress on both animal and man have been intensively studied in recent years, since modern high-speed planes are subjected to considerable accelerations.

If the acceleration is exerted upward from feet to head, it will cause a redistribution of the whole mass of the blood. There will be more blood than normally in the lower extremities and not enough in the upper part of the body. If the acceleration is great enough, it will cause loss of consciousness.

Speed which is uniformly maintained, however, has no effect at all upon the living organism. We are certainly not disturbed in the least by the earth's motion in its orbit at an average speed of 18½ miles a second. It is quite obvious that man can safely stand any uniform speed.

But at a certain speed of movement a point is reached where man's sense organs can convey to the brain only transient and incomplete information. Manned space flights will therefore have to be controlled chiefly from land stations with the help of electronic computers.

Weightlessness and Acceleration

Interesting results have been obtained in recent years in experiments on the effect of zero gravity on human beings. In several specially programmed flights, sixteen men were subjected to weightlessness for periods of 30 to 45 seconds.

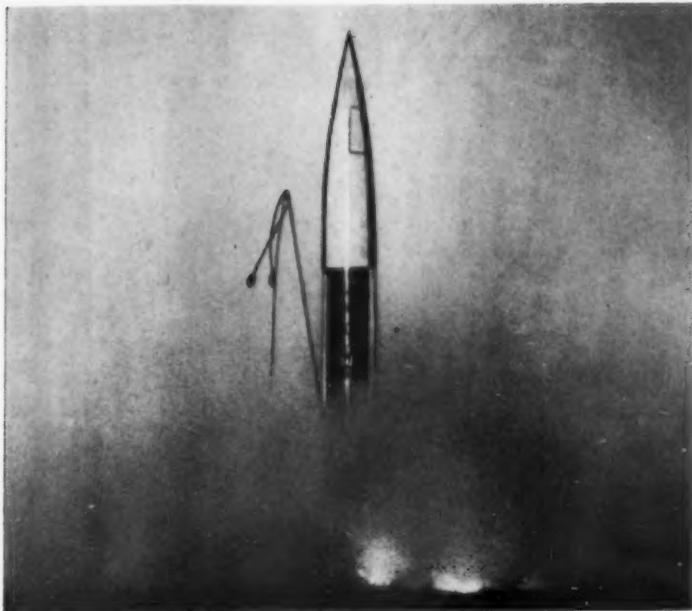
Eight men said they had felt fine, with no adverse effects whatsoever. As a matter of fact, one of them, the scientist who led the study, said that the zero gravity state was very relaxing. Five men, on the other hand, experienced illusory sensations. They had the feeling that they were in a state of free fall or that they were flying upside down. And one indicated he felt much as though he were air sick.

After repeated experiences of weightlessness in flight, the human being seems to make the necessary adjustment. He develops reasonably good orientation in space and is able to coordinate his movements without difficulty.

In conditions of rapid acceleration, both the amounts of oxygen inhaled and carbon dioxide exhaled sharply increase. In a gravity-free state, a decrease may be expected once the organism has made the adjustment. More specific data is, of course, vital for human space flight to ensure proper oxygen supply and to decide on the capacity of air-conditioning apparatus.

Weightlessness affects not only breathing, but also blood pressure and circulation, body temperature and other physiological functions. But studies of these effects have covered only periods of seconds.

The effects of a gravity-free state of some considerable duration are undoubtedly quite different and will be clarified as the information



Intensive scientific research and test firings of rockets like the one shown here preceded the launching of the first Soviet earth satellites.

derived from the Laika Sputnik is studied further. In particular, this study will give science more data to help decide to what extent centrifugal forces must be created on a man-carrying satellite to provide accustomed gravity conditions.

Altitude and Survival

The higher a satellite's apogee—the point in its orbit farthest removed from the earth—the longer it survives. But this creates the problem of supporting life inside it so that height will have no bearing on survival of its passengers.

As a matter of fact, our atmosphere begins to lose its life-giving properties very rapidly at relatively low altitudes. At 5 or 6 miles above sea level the effects of insufficient barometric pressure for living things become very noticeable.

Up to an altitude of 22 to 23 miles, heavy particles of cosmic radiation are absorbed; above that height protection must be provided for organisms against cosmic radiation. Still further up, at altitudes of 26 to 27 miles, begins the region which, in terms of the ultraviolet part of the solar spectrum, is equivalent to interplanetary space.

Approximately 80 miles above the earth's surface, the intensity of cosmic particles begins to increase. But the region in which a satellite can survive for a long time is considerably higher than even this outside limit.

Space Age

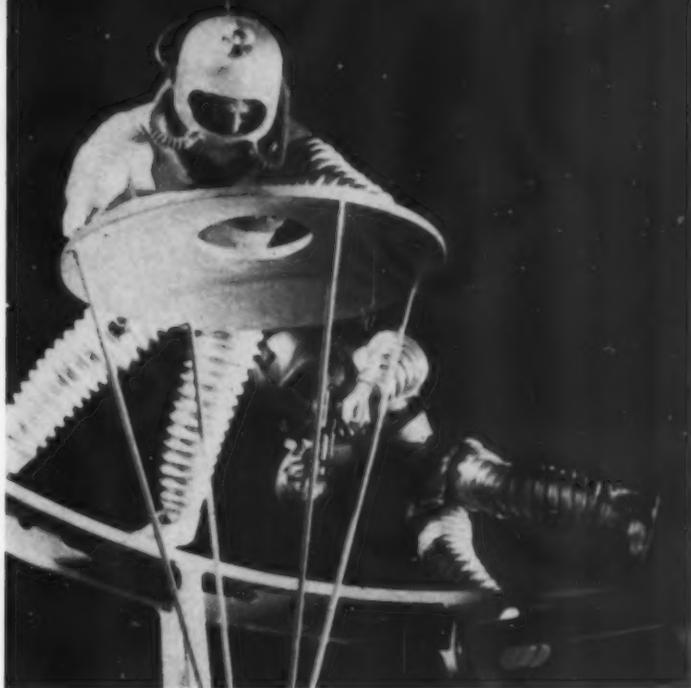
A flight to the moon? Soviet scientists predict it with certainty. The space ship will, perhaps, be a much bigger, although younger brother of the first sputnik.

When the first ship lands on the moon, one or more of its predecessors will have previously been shot out of the sphere of the earth's gravitational pull, to fly in an orbit around the moon, transmitting telemetric data and perhaps television photographs of the moon's surface to the earth.

This moon flight, says science, is not a matter of a distant future. The first earth satellites were given an orbital speed of some 5 miles a second. To send a space ship to the moon requires the speed of only about 2 miles a second more—somewhere in the neighborhood of 7 miles a second.

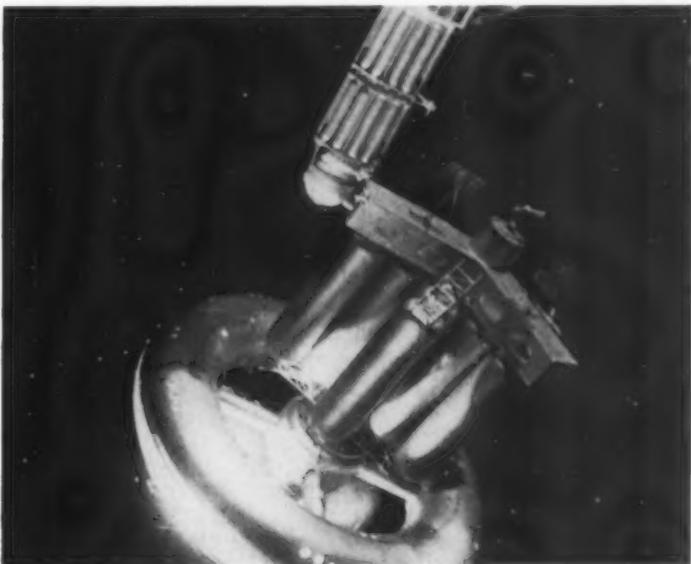
Shot from the earth at that speed, the space ship will travel in a drawn-out ellipse. It will enter the sphere of gravitation of the moon, and, after a few evolutions, will land on its surface.

The projected trip, as worked out by Soviet scientists, will take no more than five days. It can be done in less time. Given an impetus greater than 7 miles a second, the moon ship can make the flight in



Astronauts in this still from the science fiction film *Road to the Stars* assemble a space station from which to take off to the moon or to Mars.

The space station pictured here is not fantasy, but a scientifically possible engineering feat since the launching of the artificial satellites.



24 hours. This faster trip and its route has also been worked out in some detail.

Soviet scientists are working on an even bolder, more ambitious project—a flight to Mars. One of the plans envisages space stations on which as many as ten ships, each weighing 1,700 tons, are assembled and prepared for the flight.

Once shot out of the orbit of the space station, they will move toward Mars without expenditure of fuel. The trip will take 256 days. To return, the ship will have to wait on Mars or on an artificial satellite circling the planet until the relative positions of the earth and Mars are favorable for the return flight. The waiting period will equal 440 terrestrial days. The whole trip will thus take 952 days—nearly three years.

This voyage is projected within the next few decades.

The Space Age dates from October 4, 1957, with the launching of Sputnik I. Its progress will be accelerated by Sputnik II, by "Explorer," by other satellites, both Soviet and American.

Next on the order of the day are unmanned space ships, controlled by electronic devices. The theory has been worked out in detail. The ship and its instruments will follow inevitably. Then will come manned flight to the moon—or to Mars.



This Ukrainian cow shown at USSR Agricultural Exhibition in Moscow produces more than 8,800 quarts of milk annually.

More MEAT, MILK and BUTTER

Progress of USSR program

to surpass USA per capita production

By Nikolai Stepanov

THE SOVIET UNION's constant drive to increase the standard of living by providing more and better foodstuffs received new stimulus when the country proposed to surpass the per capita production of the United States in meat, milk and butter within the next few years.

The proposal was originally conceived by the farmers in a number of Soviet villages and quickly gained nationwide support. It won the ready encouragement of government authorities and the leaders of the Communist Party. The initiative of the farmers stirred

millions of people into the movement for a sharp increase in livestock farming.

The United States was singled out because of its world leadership in the field of production of these foodstuffs, and the movement became a sort of competition that aroused the deepest interest of the people. In any race or contest the participants do better if they have a visual competitor or goal.

But it was not for the mere sake of competition. Back of the competition in which the Soviet people will strive to show the potentials of their system is a parallel and equal desire

to produce more food to meet the constantly rising demand.

All sections of the population immediately realized the benefits that would flow from the attainment of the goal set. They all quickly saw the advantages accruing to townspeople and farmers. With the enthusiastic support of the Government and the Party there has been a tremendous increase in the various branches of livestock production.

Initial Results Encouraging

Milk production in the Soviet Union in 1957 amounted to 54.7 million tons compared with 49.1 million tons in 1956 and it now approximates 95 per cent of the U. S. production.

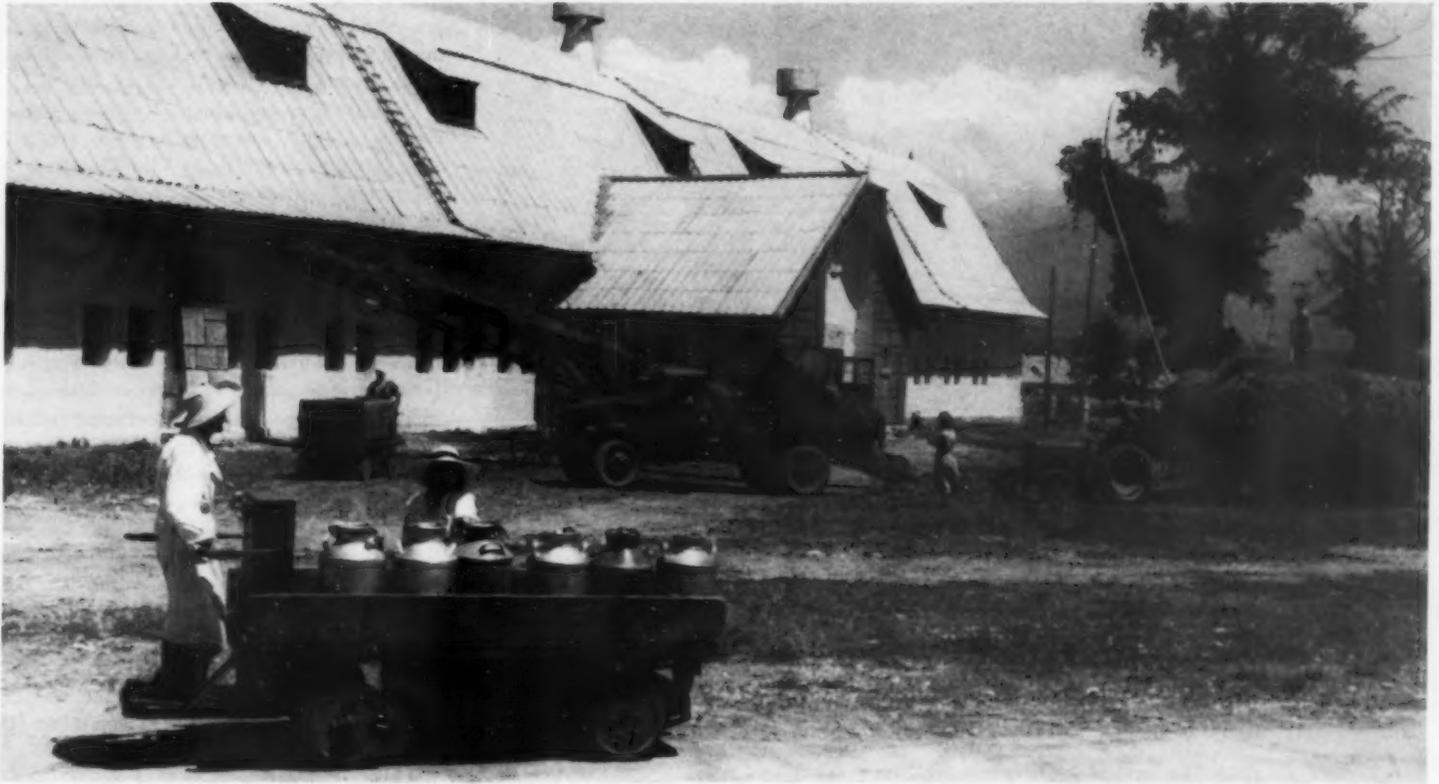
This increase in milk quite naturally meant more butter, particularly when the fat content of the milk increased, as it did on most of the collective and state farms. Thus butter production in creameries in the Soviet Union last year was approximately that of the United States, and by adding home-churned butter, the total was somewhat ahead of the United States.

In the third item involved in the campaign, meat, the gains were not as marked because it requires a greater "running start," but good headway was made here as well. There was an especially significant boost in pork production, but neither the lovers of beefsteak nor poultry had room for complaint.

Almost one million more head of cattle were sent through the packing houses en route to dinner tables in 1957 than in the previous year. Another important factor was that the average weight of the steer or cow increased sufficiently to permit the holding back of a larger number of young animals for breeding purposes.

When this American farmers' delegation came on a visit two years ago, the Soviet Union was just realizing the first gains from its expansion of animal husbandry to meet greatly increased consumer demand.





THOUSANDS OF LIVESTOCK FARMS WERE MODERNIZED TO BOOST SUPPLIES OF MEAT, MILK AND BUTTER AS FARMERS SET OUT TO SURPASS AMERICAN PER CAPITA OUTPUT.

Foodstuff Sales Boom

Running parallel with the increase in production was the gain in the consumption. Sales in the state and cooperative trade network in 1957 compared with 1956 shows that the volume of meat, sausage and meat products advanced 19 per cent, butter 10 per cent, milk and dairy products 27 per cent, eggs 20 per cent.

The demand for consumer goods is increasing year by year in both the urban and rural sections of the population. This is due to the fact that prices and taxes are lower; that wages, salaries and pensions have been increased; and that the real incomes of both farm and city consumer have become greater.

Take the situation of the farmers whose income in cash per household in 1957 was 6 per cent above that of the previous year and 2.4 times that of 1952. For factory and office workers the figures show a 7 per cent boost in real income for 1957 over 1956.

One of the constant characteristics of the Soviet Union's economy has been the fact that the purchasing power of the consuming public and its demand for goods has increased at a rate in excess of the country's swiftly increasing production.

This feature of Soviet economy provides the country with the fundamental and compelling drive that is constantly forcing greater expansion of production.

A Two-Way Course

The Soviet people are working toward their goal of more foodstuffs along two interconnected lines. The first is an increase in the scope of livestock farming, and the second is a sharp improvement in livestock productivity.

The reclamation of virgin lands in Kazakhstan, Siberia and other eastern regions was a real stimulus to the increase in livestock farming and its over-all progress. Grain produced in these regions has enabled the Ukraine, the Kuban, Central Russia and the Baltic Republics to set aside greater stores of grain feed for livestock use. The Kuban, for instance, traditionally concentrated its agricultural endeavors on raising grain; today it is becoming a colossal producer of milk and meat.

Livestock raising is also being developed in the newly opened virgin lands where condi-

tions are especially favorable for breeding beef and dairy cattle and thick-fleeced sheep.

The country's herds of dairy and beef cattle increased by 5.3 million head during 1957; the number of cows by 2.4 million; pigs by 3.5 million and sheep by 12 million. All in all, the total gain in livestock amounted to 20.8 million head, or twice the average annual increase scored during the previous four years.

Alongside the increase in the size of herds has come improvement in the quality of the stock and their higher productivity.

Continued on next page

One of the farms that helped raise the country's total milk production to nearly that of the United States. Soviet butter output already exceeds American production. Next is per capita goal.





Veterinary laboratories on collective and state farms like this one, help research centers in developing pedigreed farm animals. In the past 25 years, some 36 new breeds of livestock have thus been created.

More MEAT, MILK and BUTTER *Continued*

Increased flocks of poultry combined with improved maintenance help boost meat production.



For some time after the war, the annual milk yield in the country varied between 950 to 1,160 quarts per cow. In 1957 the average annual milk yield per cow was raised to 1,900 quarts on collective farms and 2,800 quarts on state farms.

However, milk production potential is far from being exhausted. This is evident when comparing the average figures of other countries where milk production is higher. In the Soviet Union, too, many farms that could not be counted as show places or models maintained for visitors have milk yields greatly in excess of the average. Milk production records that run between 3,100 to 4,200 quarts per cow annually are not uncommon at collective farms.

Factors Influencing the Rise

Back of the rapid increase in productivity of Soviet animal husbandry are a number of influencing factors. First there is the all-round assistance of the Government that is manifest in three major categories:

1. It supplies collective and state farms with the latest machinery and modern equipment for livestock farming.
2. It supports and encourages the nationwide program of training more and more college specialists in animal husbandry.
3. The state pedigreed stock nurseries are conducting intensive work in breed improvement and in developing new breeds of livestock that are supplied to the collective and state farms.

Another factor is the improvement in feeding methods and particularly the extensive use of corn for livestock. Although 1957 was a difficult year for Soviet agriculture since some

large territories were hit by drought, the crop proved large enough to meet the country's demands and still provide feed for its increasing herds of stock.

Under the generally favorable growing conditions of 1953, for example, collective and state farms prepared about 32 million tons of silage for livestock. In 1957 they prepared 90 million tons, or an average of 15,000 pounds per cow. Stocks of concentrated and coarse feed were also greater than ever before.

Much credit must go to the skill and devoted labor of millions of ordinary people engaged in work with livestock. An overwhelming majority of these people took special courses in villages under college-trained experts and received better knowledge in the fundamentals of modern animal husbandry.

One more factor to be included is the broader education of the young people taking over the beginning jobs on all farms. Instead of coming to agriculture with a seven-year general schooling, today's farm youth more and more frequently comes with a minimum of ten years.

Incomes Rising Fast

Greater incentives provided for livestock people also had a most stimulating effect on the over-all results, and the incomes of the farmers grew faster than did their herds of stock. This was accomplished through a whole series of interconnected events.

A few years ago the Government increased wholesale prices paid by the state purchasing organizations for livestock and associated products as well as other produce bought from collective farms. At the same time the application of the newer machinery and improved care reduced the production costs, while the quantities of produce increased.

On the collective farms of Smolensk Region, for instance, pork production increased 160 per cent in 1957 while incomes from pig raising rose by more than 300 per cent—from 36.5 million rubles to 150 million. The Radishchev collective farm of this region had seemed to be unable to recover from the ravages of the war until it started concentrating on livestock production. In a four-year period this farm attained an eightfold increase in animal husbandry production and its annual cash income alone soared from 160,000 to 5,485,000 rubles.

The sale of animal husbandry produce by the collective farms of the country to the state purchasing organizations gives a comprehensive picture of the increase in farm income. In 1957 these sales were approximately 9 billion rubles more than the previous year.

Although the Government paid higher wholesale prices for livestock and other animal husbandry items, there was no increase whatever in retail prices charged the consumer of these products at the stores and markets. As a matter of fact, retail prices for some dairy and meat products were reduced in 1957.

The Goal Ahead

The past year was the first of our competition with the United States in the per capita production of meat and dairy products. The

drive is being continued and broadened with the results carefully watched by every citizen.

Characteristically enough, the best livestock farmers are already looking ahead for new laurels and some additional world records worth matching and exceeding. Milkmaids of Ryazan Region, for example, have resolved to bring their milk yields up this year to the standards reached by Holland—the world's champion in milk production.

Collective and state farms of the Soviet Union are determined to attain sharp increases in meat production in 1958. They aim to do this primarily through continuing to concentrate on increasing the pork supplies while at the same time furthering the output of beef, mutton and poultry.

While increasing production, our farmers are also turning out better quality and reducing production costs. That pattern will be continued and it is a combination that can only mean setting the stage for future reductions in retail prices of these prime necessities which will result in higher standard of living for all the people.

Throughout the drive there has been an exchange of experience and a sharing of knowledge between agricultural specialists and practical workers handling the day-to-day tasks. What is learned in the pastures and milk sheds, on the feed lots and in the pig pens is immediately made available to every-

one concerned, and the findings of the researcher are just as readily put into practice.

Exchange of Experience

The farmers and specialists know that there is much they can learn from other countries and much that they, in turn, can pass on to them. They have already put to good use some of the experiences gained in the exchange of farm and scientific delegations, and they are ready to share their own knowledge with all who are interested.

In this connection the agreement between the Soviet Union and the United States on exchanges in the cultural, technical and educational fields signed last January has three pertinent sections.

The first provides for the exchange of delegations of agricultural specialists, including animal husbandrymen and veterinarians. The second provides for the exchange of scientists to lecture and share experiences in biology, selection, pedigreed stockbreeding and other agricultural fields. The third provides for the exchange of films on stockbreeding, mechanization of agriculture, construction and utilization of irrigation and drainage systems, protection of plants from pests and blights and the fight against erosion.

It is expected that these exchanges will prove mutually beneficial. ■



Suckling pigs win careful attention. Pork is a major factor in matching American meat output.

SOVIET MUTTON OUTPUT EXCEEDS THAT OF THE UNITED STATES BY MORE THAN TWO AND A HALF TIMES. HIGHER OUTPUT OF ALL KINDS OF MEAT INCREASES FARM INCOMES.





USSR MINISTER OF TRADE DMITRI PAVLOV (CENTER) MEETS WORKERS OF MOSCOW'S GUM DEPARTMENT STORE, WHICH SERVES THE NEEDS OF 250,000 CUSTOMERS DAILY.

Consumer Goods and Prices

By Dmitri Pavlov, USSR Minister of Trade

THE SOVIET CONSUMER is eating better, dressing better and living better than he ever did before. Retail trade is brisk in town and country, and turnover is rapid.

Shops and markets have never sold so much milk, meat, butter, clothing and footwear as they do today. Sales of meat and meat products, always a good index of purchasing power, run to 15,000 tons daily; sale of butter to 3,000 tons; sugar to 15,000 tons; sweets as high as 8,000 tons.

Sale of wool cloth has increased from 2.6 billion rubles in prewar year 1940 to 13 billion in 1957, and silk fabrics from 2 billion to 19.5 billion.

Household appliances—kitchen stoves, refrigerators, space heaters, washing machines, TV sets—show a quick turnover, too. Before the war the Soviet Union did not manufacture household refrigerators, washing machines and vacuum cleaners. Now they are turned out by the hundred thousands for a ready and waiting market. Sales of radios and television sets run far above prewar figures.

The expected annual increment in retail sales used to be 4 to 6 per cent, or slightly more. But in 1956 the increase was 9 per cent, and last year it jumped to 14 per cent, to reach a high of 600 billion rubles.

Supply and Demand

But demand for many articles still outruns supply. This is true for such items as furniture, footwear, musical instruments and building materials. In part, the shortage in these and some other goods can be explained by such instances as these:

Three or four years ago, the annual retail sales of leather footwear averaged only 231 million pair. Shops were overstocked and were pushing hard to dispose of shoes. In 1957 there was a big buying

splurge for footwear, sales jumped to an average of 310 million pair and stores began to run short. The big jump came largely from sales in rural areas. Collective farms were prospering and farmers had more money to spend.

The picture for furniture follows somewhat the same pattern. In 1953 shops had an oversupply of stock and sales totaled only 3.2 billion rubles. Last year furniture sales jumped to 6 billion rubles and furniture-makers have not yet caught up with the increased demand.

Here the reason for the jump is new construction. In 1957 alone housing completions equaled approximately 1,371,000 apartments in urban areas plus some 700,000 houses in rural localities. Thus the establishment of more than two million new homes stimulated the demand for new furniture.

The picture varies in details for one or another commodity, but what the details all add up to is more consumer demand that comes from greater consumer purchasing power. This demand is being met by increasing production of foodstuffs and manufactured goods.

The planned economy of the Soviet Union is at a point today where consumer goods production can be sharply increased on the basis of progress achieved in heavy industry.

The planned increase for gross industrial output in the current year is 7.6 per cent. At the same time the planned increase for meat and dairy products is 14 per cent, for sugar 18 per cent, and for farm products generally 17 per cent.

Farm products that have heretofore gone to meet industrial needs are also being funneled off for consumer uses in a larger measure. Alcohol and spirits made for industrial use from grain and potatoes can to some degree be replaced by synthetic alcohols. This alone will add 800,000 tons, if we calculate in terms of grain, to the country's stock of consumer food this year.

All factories are stepping up production of consumer items. In Gorky, a city on the Volga River, to cite one example, furniture production is to be quadrupled over last year's figure.

The quantity of locally manufactured goods has increased to the point where it makes up a large proportion of the stock on hand in retail stores. In the Central Asian Republics of Uzbekistan and Kazakhstan, goods manufactured locally account for more than 45 per cent of retail sales. It was only a few years ago that the great proportion, some 80 per cent, of consumer items had to be shipped in from regions thousands of miles away.

The country as a whole offers a stable and ever expanding market for imported goods including raw materials, manufactured products and foodstuffs. Such items as staple fibers, rayon yarn, woolen cloth, silk fabrics, rice, fruit, tea, coffee, cocoa beans and spices are coming from abroad in large amounts.

Price Cuts

About 65 per cent of the retail stores in the country, particularly those located in cities and towns, are state-owned. The rest are consumer cooperatives and collective farm markets.

Since the vast majority of goods are produced by state-owned industries, the volume and the variety of consumer items is determined by an over-all national plan, as is the distribution of goods, numbers of retail establishments and the size of their inventories.

Prices are also planned in the Soviet Union. There is no such thing as price speculation or runaway pricing, either in state-owned or cooperative stores. Retail prices for many items are fixed locally, but prices for such mass consumed items as textiles, footwear, baked goods, sugar and a whole range of other goods are established centrally, with consideration given to specific local conditions.

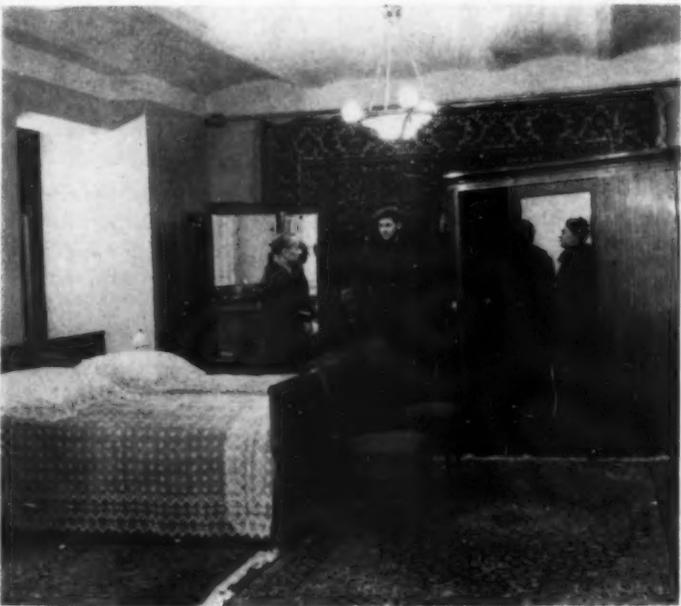
It is according to plan also that prices for many commodities, especially staples, have been systematically cut. Ten years ago average retail prices were 2 to 3 times higher than they are now.

Prices for bread, meat and butter have been cut considerably. In 1956 the government reduced prices for children's clothing, staple fabrics, aluminum kitchen utensils and radio equipment. In 1957 prices were cut for canned fish and vegetables, pork, lard, poultry and other products. Early this year prices were reduced for such mass demand items as radio and TV sets.

Prices and, as a matter of fact, the over-all functioning of stores in any city, town or village are supervised by the city, town or village council, with volunteer public assistance.

The stores are also subject to trade union supervision. Soviet trade unions have powers much broader than mere worker-manager relations. The unions together with the government authorities decide what kind

Bedroom suite in GUM department store. Furniture sales in the Soviet Union were 6 billion rubles last year as compared with 3.2 billion in 1953.



Gaily packaged perfumes and cosmetic items in a Moscow shop. Increased lines of luxury goods find an ever-eager market throughout the country.

of shops should be built and where. The unions check on the efficiency of the stores and the quality of service given the public.

This all helps to improve the retail trade network, to cut down on overhead—which comes to about 6 per cent of the turnover—and to guarantee prompt and courteous service from the store personnel.

Consumer Cooperatives

Consumer cooperatives and collective farm markets together account for some 35 per cent of the country's retail trade. There are 20,000 consumer cooperative societies and they own 270,000 retail establishments, located for the most part in rural areas. Their work is closely tied in with the agricultural cooperatives—the collective farms.

The consumer coops are big trading organizations with large resources. In the countryside they are the major suppliers of manufactured goods. They also buy agricultural products from collective farms and from individual collective farmers for retail sale and in some cases act as commission agents for a low fee.

The collective farms themselves and their members also sell their products directly to the city consumer at collective farm markets. Prices at these markets are not fixed, but they are naturally influenced by the established prices set for the state-owned stores.

The government helps both the consumer cooperative stores and the collective farm markets to enlarge their trade and services. More than 9,000 collective farm markets have been built at government expense in towns and cities. The farms have their own warehouses, refrigerating rooms, trucks and other equipment.

All told, collective farm trade accounts for only 7 per cent of the country's total retail trade. But in cities located in the heart of the farm country, the role of the collective farm market is a large and essential one. In Saratov, collective farm markets account for 30 per cent of total food sales; in Stalinabad, Tashkent and Yerevan, for 36 per cent; in Tbilisi and Odessa, for more than 40 per cent.

All the country's retail establishments, whether state-owned store, cooperative shop or collective market, have one and the same function—to supply the consumer with more and better goods at the lowest possible prices. ■



MANAGERS OF GORKY'S FOOD STORES. THEY BEAR THE RESPONSIBILITY OF SUPPLYING WHOLESOME AND TASTY FOOD TO AN INDUSTRIAL CENTER WITH SOME 900,000 PEOPLE.

KEEPING A CITY

By Yakov Usherenko

RUSSIANS, like people anywhere who do a good day's work, are hearty eaters. It takes thousands of people to supply wholesome and tasty food to a city like Gorky, for example.

Gorky is one of the Soviet Union's larger industrial centers, some 250 miles east of Moscow. It has a population of 876,000—a considerable number of very healthy appetites with a wide range of various tastes to satisfy daily.

Many billions of rubles have gone into building up a modern food industry in Gorky, with additions almost constant. In the last few years a number of large bakeries,

a macaroni factory, a sausage factory and a winery have been opened in the city. Nearing completion are a meat packing plant, which will be one of the largest in the country, and a brewery.

While the City Sleeps

Before the city awakens in the morning, hundreds of trucks are already carrying milk, meat, fish, baked goods and dozens of other products from the suburban state farms, food processing plants and the central refrigerated warehouses to local shops.

Here is a truck with the traditional sausage

boy painted on its side. It stops outside the big food department store on Mayakovsky Street and out come aluminum cases piled high with frankfurters, ham rolls, smoked sausage.

The sausage factory the truck belongs to processes 50 to 55 tons of 43 different kinds of meats daily and is constantly figuring out new varieties of cooked, smoked and semi-smoked meats to satisfy every epicurean taste.

The city's nine bakeries make 83 kinds of bread, rolls, buns and assorted baked goods, but Gorky's bakers are busy contriving new varieties to catch up with Moscow—the capital turns out 90 different kinds.



EATING OUT IS COMPARATIVELY INEXPENSIVE AND A GOOD WAY TO SPEND A WEEK-END EVENING WITH FRIENDS.



Regular restaurant diners make themselves quite at home in the relaxing atmosphere.



No shopping expedition is complete without a purchase in the confectionery department.



The food chain stores stock a wide variety of canned goods as well as fresh foods.

WELL FED

National and Local Food Chains

Two nationwide chains of state-owned food department stores called Gastronom and Bakaleyeva serve Gorky and other major Soviet cities. In addition, there are local state-owned stores, plus specialty food shops handling only meats or fish, baked goods or milk and dairy products, baby foods or vegetables and fruits, wines and liquors or cigarettes and tobacco. During the summer milk, fruits and vegetables are also sold from sidewalk stalls and from specially equipped trailers.

Gorky has sixteen markets where collective farmers bring their surplus meat, milk,

fowl, eggs, vegetables, fruits and everything else farmers usually sell in town. One of the main attractions at these markets are the home-made delicacies featuring salted cucumbers, sauerkraut, pickled mushrooms and the like. All meat and milk products must pass sanitary inspection before they are put on sale.

Dining Out Is Popular

At the top of the list of "where to eat" are the restaurants, some of which feature musical entertainment. All serve wines and liquors with meals. Next come the cafeterias, where

Continued on page 29



Suburban state farm hothouses supply Gorky residents with vegetables the year round.



Just one of Gorky's nine sausage factories produces 43 different types to tempt the appetites of epicures.

KEEPING A CITY WELL-FED *Continued*

When it comes to choosing fish, the customers know they can rely on Sergei Stepanov's advice, which is based on almost 30 years of experience.



patrons can choose between self-service and table service.

Dining halls, third on the list, are by far the most numerous. Practically every factory, school and office has its own dining room serving well-prepared and tasty meals. Their food, while ranking with the cafeterias' in quality, is lower in price.

Snack bars can be found everywhere and serve cold sandwiches and hot drinks or beer. Additionally there are restaurants and stores dealing in dietetic products and in ready-to-cook meat pies, stews and other dishes to ease the task of the working housewife.

Teodor Karpei, an official of the City Retail Trade Administration, estimates the daily food sale of Gorky's shops and markets to run to 206,800 pounds of meat and fish, 495,000 pounds of milk and dairy products, 61,600 pounds of butter and fats, 264,000 pounds of sugar and confectioneries, 88,000 pounds of cereals.

There have been changes in food tastes in the last years that can be attributed to the steadily rising standard of living. Sale of meat and meat products and of oils and fats show a steady and decided rise, to cite an example.

Gorky people like milk products, to judge by sales. Last year state retail shops sold 171 million pounds of milk, buttermilk, yoghurt, sour cream, cottage cheese and scores of other cheeses. Add to this figure 28 million pounds sold at the collective farm markets and an undetermined amount of milk consumed by hundreds of families who live in the suburban

districts and keep their own cows. In the past two years sale of milk and dairy products has jumped two and one-half times.

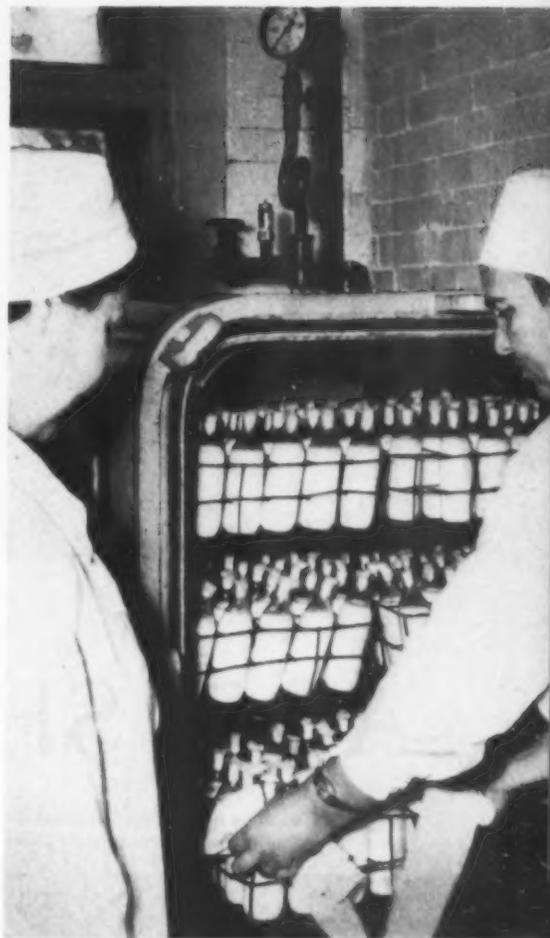
Home Grown and Imported

Gorky food plants and the collective farms in the city environs do not produce nearly enough food for the city's hearty appetite. So food in quantity is brought in from other areas.

The city stores are supplied with beef from the Ukraine, mutton from Kazakhstan and Kirghizia, butter from the Vologda region and Siberia, fish and herring from Astrakhan and Murmansk and grapes from the Caucasus. In addition to those made at the city's three confectionery factories, sweets and pastries are shipped in from Moscow, Leningrad and Kiev. Citrus fruits, coffee and cocoa are imported from abroad.

The city stores get their stock from the Ministry of Trade which signs annual contracts with the various food industries throughout the country. The very large shops and stores make their own contracts with food industries and the City Retail Trade Administration buys foodstuffs from farms.

With the exception of the very rare delicacies, Gorky shops sell almost everything in the way of food. Their sales have almost doubled in the past six years. The higher purchasing power has come from higher wages and several cuts in retail prices in the past few years. Gorky citizens can afford hearty eating. ■



Sterilized infants' formula sold in special stores proves a big help to working mothers.

GORKY'S FAMILIES ARE WELL SERVED BY THE CITY'S PUBLIC CATERING CHAINS, BUT THE LIGHTER EVENING MEAL IS GENERALLY PREPARED AND EATEN AT HOME.



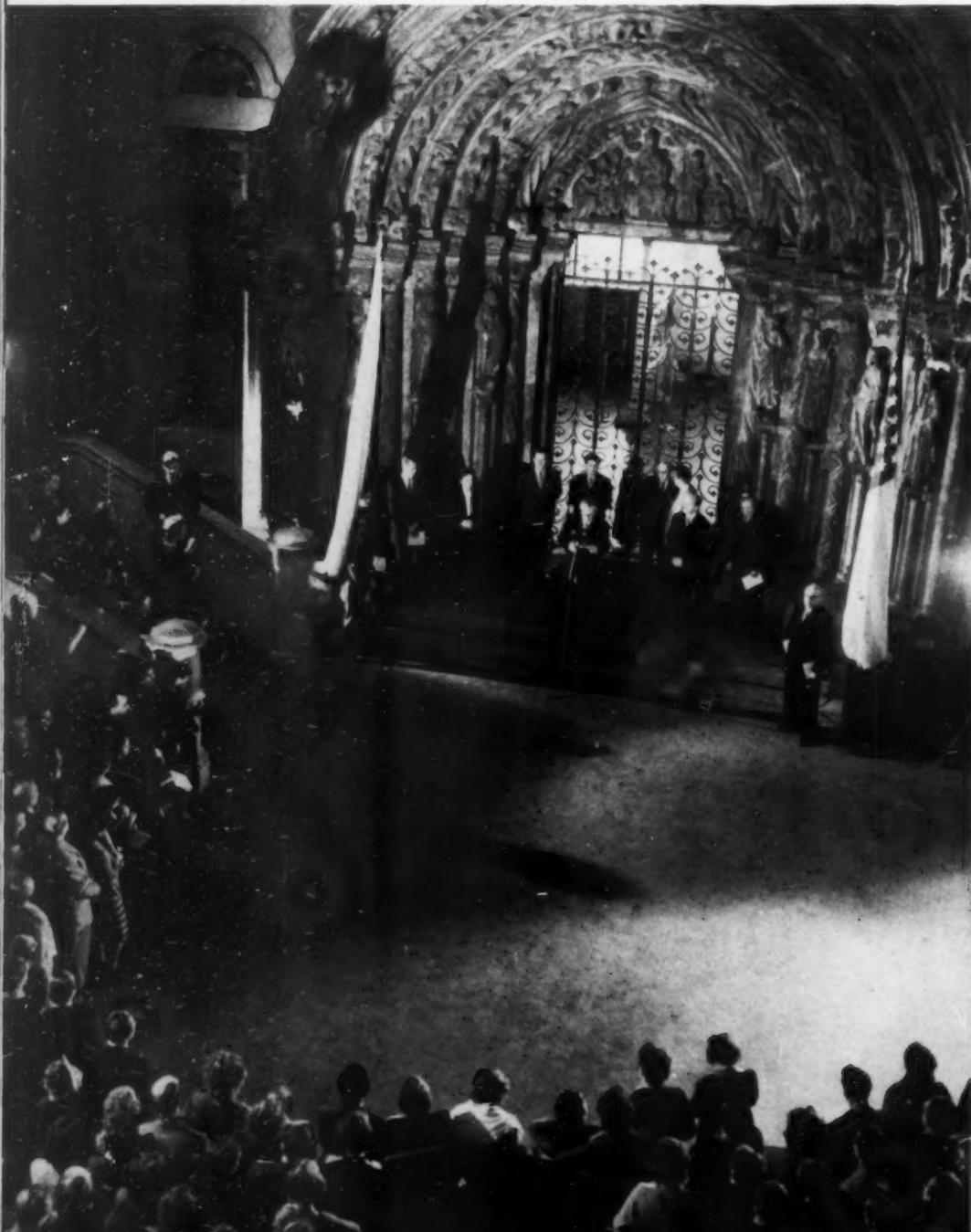


The Kent exhibition was received enthusiastically by the press. "His paintings convey a sense of vastness and wide horizons," commented one critic.

The Rockwell Kent

ART SHOW

Scene at the opening of Rockwell Kent exhibition in Moscow. It was held in Pushkin Art Museum, whose director, Alexander Zamoshkin appears at microphone. Major art critics, the press and public attended.



By Alexander Zamoshkin

Corresponding Member
USSR Academy of Arts,

Director
Pushkin Art Museum

MAXIM GORKY addressed Mikhail Prishvin, a very prominent Soviet writer, with the following words: "Your feeling of friendship for man proceeds with such logical simplicity from your love of nature."

I would like to apply these words to Rockwell Kent, the American artist and writer, the basis of whose creative work is the unity of man and nature.

An artist and traveler, he contributed to the landscapes of Maine, Alaska and Greenland his own sense of beauty, as his own human gift to the earth. He created that typical Rockwellkentic epic and monumental landscape which opened people's eyes to the stern majesty of the nature of the North.

He was preceded by Winslow Homer, an American realist painter who generously endowed his native land with beauty. Rockwell Kent inherited and developed the principles of Homer's creative work.

It is an accepted fact that no matter what problems are raised by an artist, no matter what aspects of reality he desires to depict, nature and man can live in works of art only when they are illuminated with the rays of man's soul and warmed by the fire of his emotions.

The Rockwell Kent art show in the Soviet Union makes it possible to become acquainted with the art of a major artist in all



Nearly 2,000 visitors poured into the art show daily and twice that number on Sundays. Press comment: "Man is the invariable hero of his works."



Many of the visitors wrote in the exhibit's guest register. Among those who expressed their appreciation were both layman and professional folk.

its scope and diversity. The artist's best works are imbued with humanism, faith in man, in his indestructible spiritual power. And Rockwell Kent understands nature as a school of courage.

In a number of his works we see the combination of deep realism with romanticism. Here he has much in common with his famed compatriot, Jack London. Our art lovers are attracted by such canvases as *Toilers of the Sea* and *Greenlanders*, in which the artist renders the stern, majestic beauty of poetic nature, creates harmony of intensive and mighty colors and transmits the heroic labor of strong and hardy people capable of waging battle with nature.

In his work Rockwell Kent is a friend of man. The visitors to the exhibition cannot remain indifferent to such poems in paint as *The North* and *Fjord Kangerdlugsuak in Winter*. These pictures are charming for the beauty of the mountain peaks and are distinguished for their monumental generalized forms and for their bluish-silvery cold and severe tonality.

Scanning the drawings, engravings, lithographs and the masterly illustrations to Boccaccio, Shakespeare, Chaucer, Pushkin, Melville and to his own books the visitor draws the conclusion that all of them represent the artist's quest for new ways to express the theme of life's optimism. Submitting to the images created by the writer, the artist awlays finds his own visual embodiment for them. In this way he does not proceed from formal prerequisites but from the substance and character of the image.

Imbued with freedom-loving spirit and life-asserting optimism, Rockwell Kent's work is astonishing for its combination of courage and gentleness, for the faith and wisdom which true art finds in a deep knowledge and understanding of life.

"It is related that when Zeuxis heard that the artist Agator was very proud of his ease and speed in drawing pictures, he said 'As far as I am concerned, I draw them long and for long,'" wrote Plutarch. I think that these words are the best description of Rockwell Kent's work. ■

American Artists' Exhibition Welcomed in Soviet Union

THE EXHIBITION of the works of Rockwell Kent in the Pushkin Art Museum in Moscow was enthusiastically received by the Soviet Union's public, press and critics. There were 55 canvases and 120 drawings and paintings in the exhibit, which attracted an average of 2,000 visitors on weekdays and double that number on holidays.

Some of the comments follow:

Literaturnaya Gazeta's review, after detailing Kent's travels and love of nature, wrote that "his travels, however, were not in search of the exotic. The artist conceives nature primarily as a school of courage. And he believes in the strength of man who must be the victor . . ."

"Kent's art is closely connected with the best traditions of American realism, the realism of Mark Twain, Walt Whitman, the eminent American artist, Winslow Homer . . ."

The youth newspaper, *Komsomolskaya Pravda*, found that "Kent's pictures are divided into a number of cycles, according to the place in which he created them, but all the landscapes have one common feature: Kent seeks to reveal the epic traits in nature, to show the original, wild beauty of these desert regions, practically untouched by man.

"At the same time, man is present in all the painter's landscapes. He is the invariable hero of Kent's works, persistent, active and strong, he is in harmony with the nature with which he lives and which he is conquering . . ."

Another opinion, carried by the newspaper *Sovietskaya Kultura*, said: "Kent's works attract one by their careful finish of details, by the author's warm interest in the object which he depicts. At the same time they are distinguished by the romantic elation with which

the painter tells the spectator what he has seen.

"The same applies to Kent's illustrations to Herman Melville's *Moby Dick*, so astutely and superbly understood by the painter . . ."

Visitors to the exhibition frequently left notations in the museum's guest register commenting on their impressions of Rockwell Kent's work.

Here are a few of them:

"Well done, Kent!"

—Y. Krylova, office worker.

"One does not often see such beautiful simplicity!"

—Zimina, zoologist.

"Rockwell Kent conveys an exceptionally vivid and multifaceted picture of the life and nature of Greenland."

—G. Agrendt, senior scientific worker of the Arctic Institute.

"Of course, Kent possesses definite mastery. But frequently his soul cannot master his disobedient, 'free and easy' hand which forges ahead of all emotions."

—M. Ovoretz, writer.

"R. Kent displeases those whose views have become stiff."

—Kozlov, pensioner.

"A big thank you from man to Kent!"

—A. Semyonov, fitter.

"A wonderful exhibition of the powers of Man and Nature. The canvases of R. K. present the serenity of northern landscapes, which he understands better than any which we have known. Even the barren and grim rocks live and speak of our amazing world!"

"Dear Mr. Kent! We wish you could have been here and felt the pleasure we derived from your paintings."

—Students A. Saburov and L. Zudin. ■

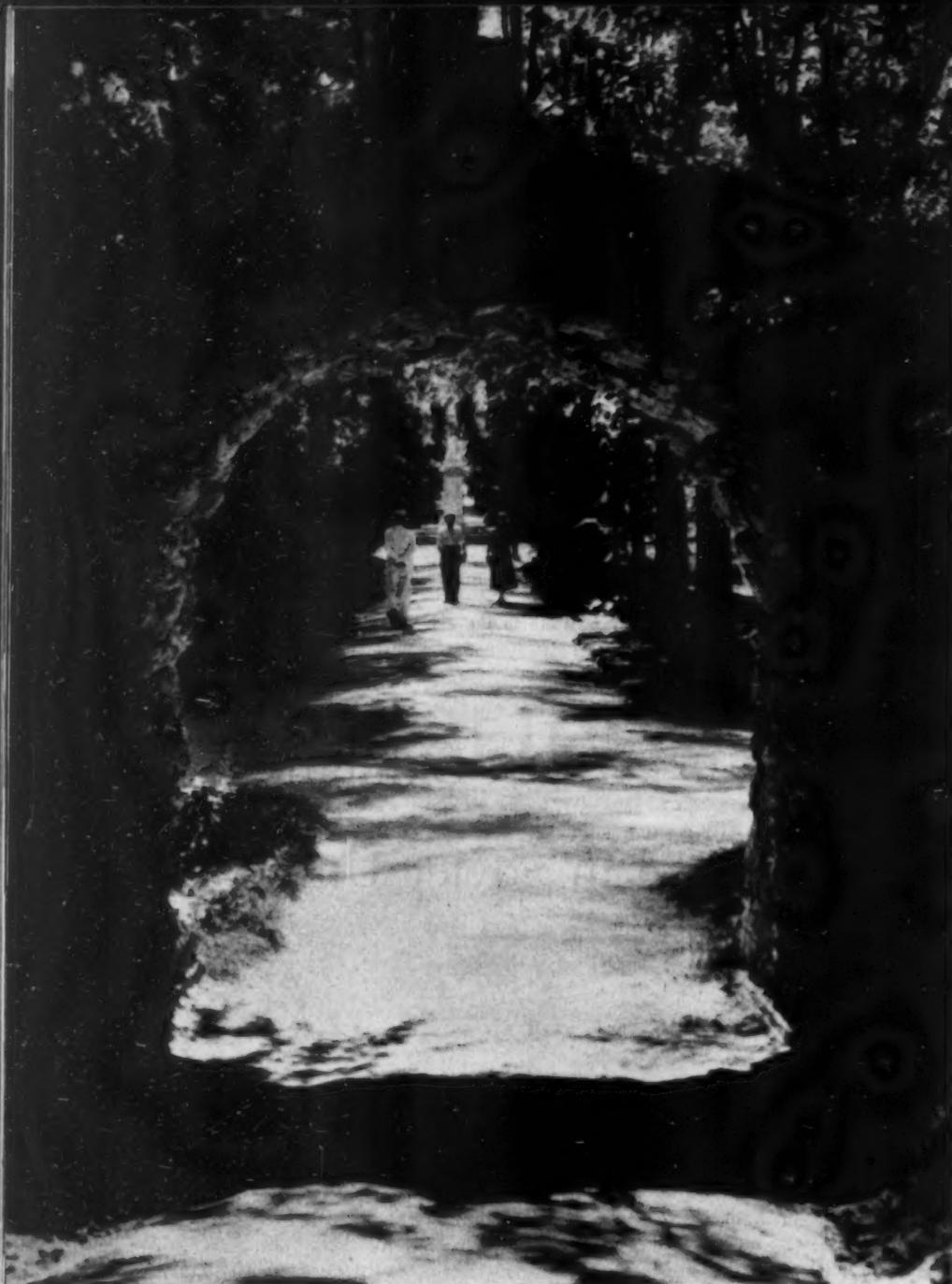
CLASSIC M

of A

ARKHANGELSKOYE Estate, a monument of Russian culture of the 18th and 19th centuries, is twelve miles from Moscow. This is a palace and park ensemble—the creation of several generations of architects, sculptors, painters and serf craftsmen.

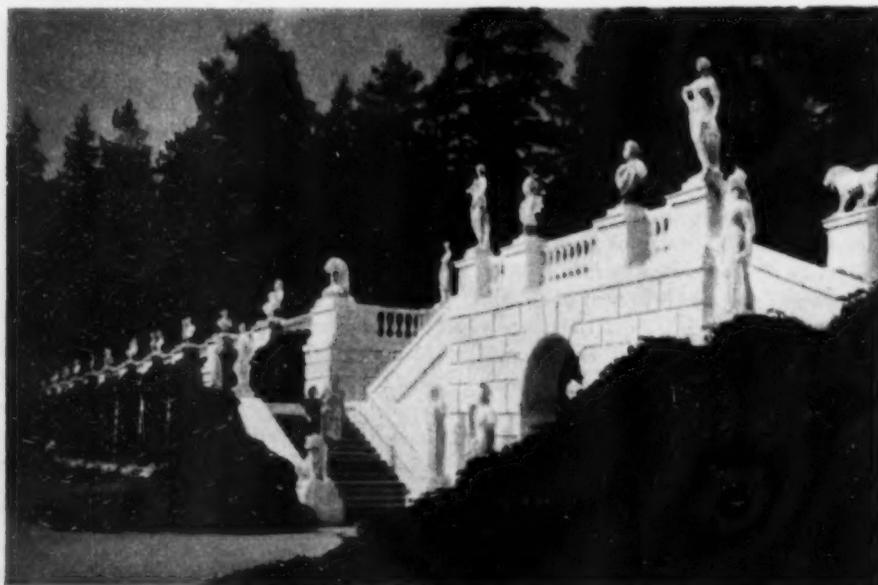
The earliest mention of Arkhangelskoye is made in 16th century chronicles as belonging to wealthy noble families. In 1703 the estate became the property of the Princes Golitsyn and in 1810 it was bought by Prince Yusupov. After the Socialist Revolution of 1917 the estate was nationalized and turned into a museum.

The center of Arkhangelskoye is the palace built by unknown Russian architects after the



THIS ARCH BUILT OF UNFINISHED STONE TO RESEMBLE AN ANTIQUE RUIN IS AN EXIT FROM THE PARK.

TWO STAIRWAYS LINED WITH SCULPTURES LEAD FROM THE PARK'S LOWER TERRACE TO THE PARTERRE.



VIEW FROM THE PALACE ON THE PARK'S TERRACES AND PARTERRE



SIC MONUMENT

of Architecture and Art

design of the Frenchman Chevalier de Gern. Along with the 350-acre park and other major parts of the ensemble, it was completed at the close of the 18th century. After the War of 1812 the palace and park structures were restored under the guidance of distinguished Moscow architects and local serf masters.

The palace's furniture, bronzes, cut-glass and china, handicrafted by serfs owned by the Yusupov family, represent a unique collection of applied art. The collection of paintings and sculpture includes ancient originals and the works of outstanding West European artists from the 16th through the 19th centuries. The library has some 30,000 volumes and a fine collection of prints and engravings.

The park is laid out in the French or "formal" style, with strict geometrical design. The stairways of two artificial earth terraces descend to a vast parterre overlooking the old bed of the Moscow River. The steps, the boundary of the parterre and the park lanes are lined with classical sculptures and historical memorials. The park grounds are dotted with arches and arbors.

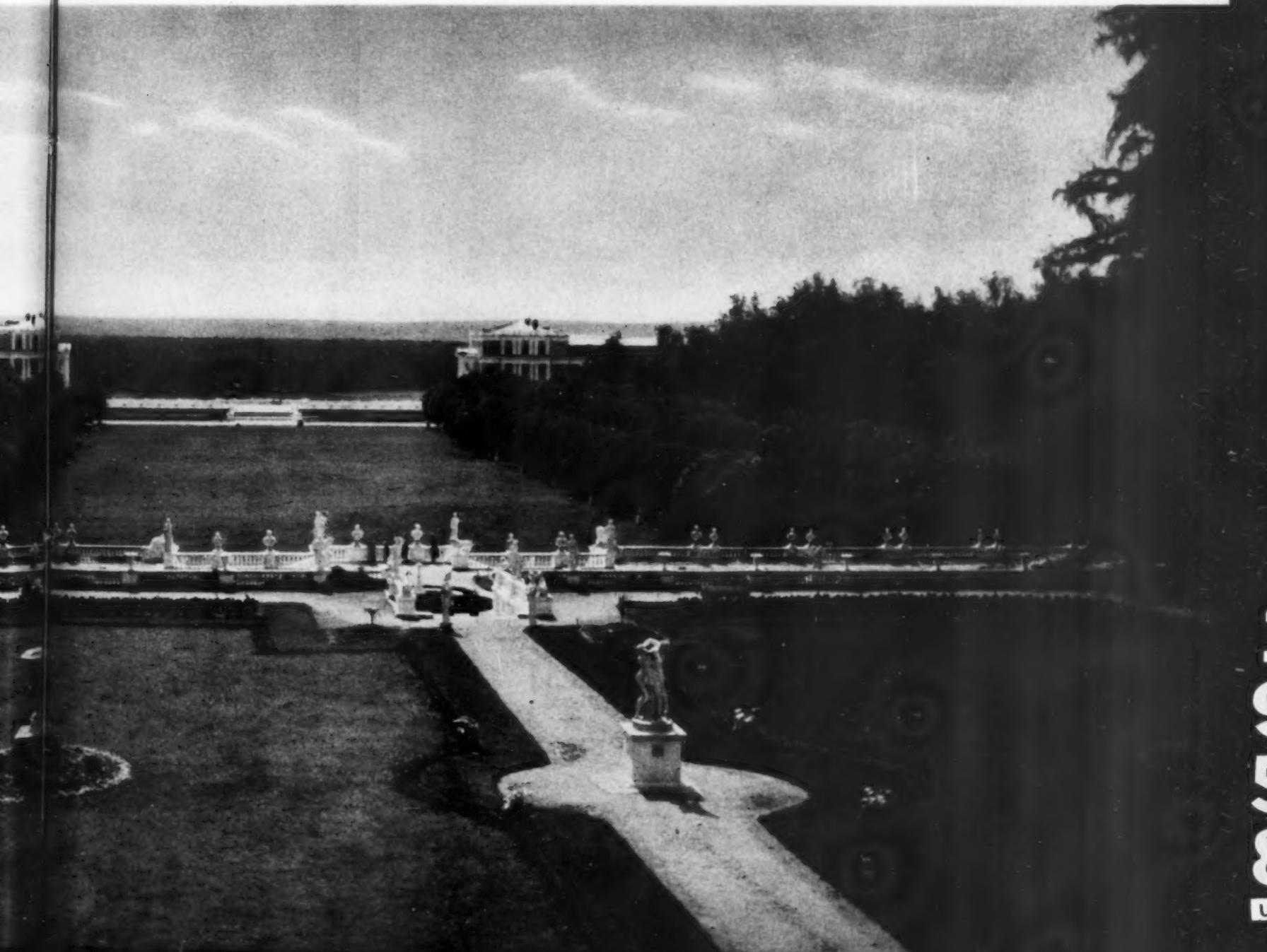
On top of the steep bank two new buildings were constructed in Soviet times to accommodate vacationers. They are classical in design to blend with the original buildings of the ensemble. Vacationers are also housed in the wings of the old palace, while the main section has become a museum.



The southern facade of Arkhangelskoye palace. The outer lines of its oval corner hall correspond to those of the arbors in the park.

More pictures on following pages

AND PART OVERLOOKING THE MOSCOW RIVER VALLEY. THE TWO BUILDINGS IN THE BACKGROUND, ERECTED IN SOVIET TIMES, ARE OF CLASSIC DESIGN AND BLEND WITH THE OTHER STRUCTURES.



CLASSIC

Venetian Hall. Among the masterpieces of West European art are the works of Tiepolo, eighteenth century painter.

MONUMENT

OF ARCHITECTURE AND ART *Continued*

Antique Hall. The collection of French masters includes *The Abduction of Daughters of Leucippus* by Marie Mongez.



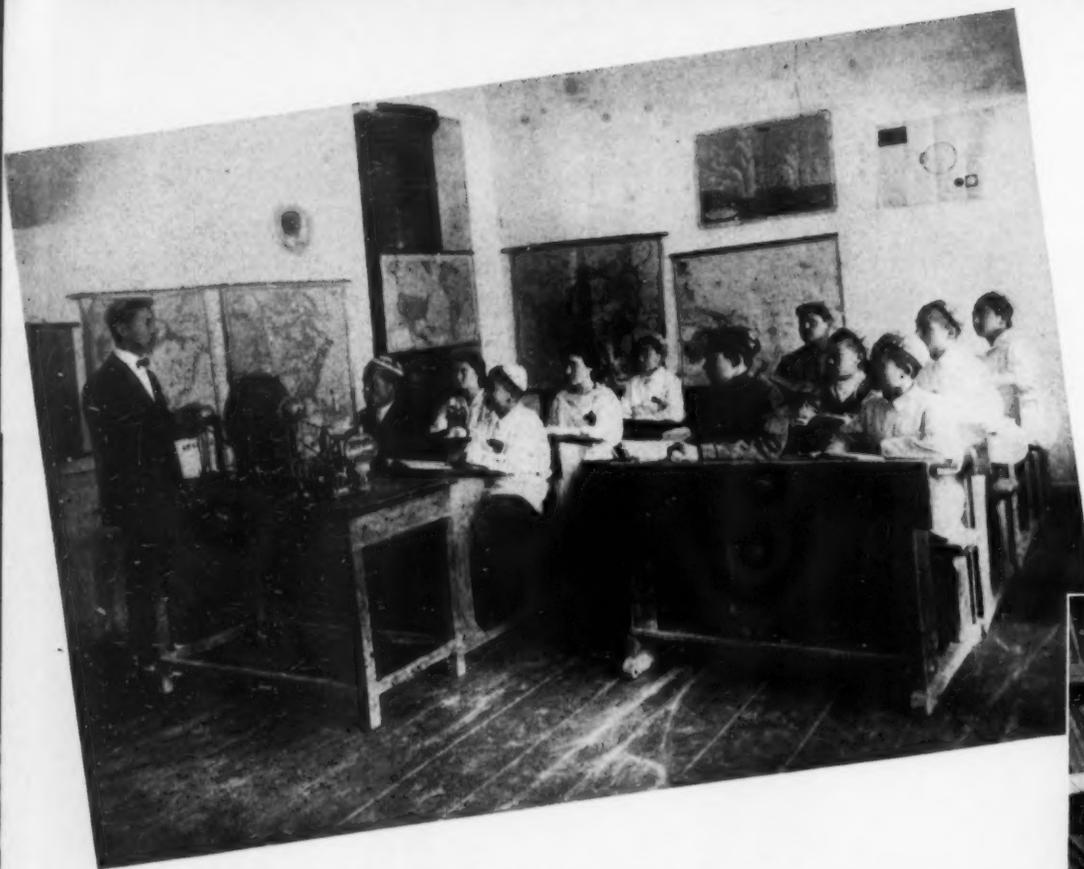


◀ Octagonal Room. The decorations give it the semblance of an aviary. On the walnut table are birdcage and aquarium.

Dining Hall. The palace contains a collection of Chinese porcelain as well as porcelain made by local serf-handicraftsmen. ▶

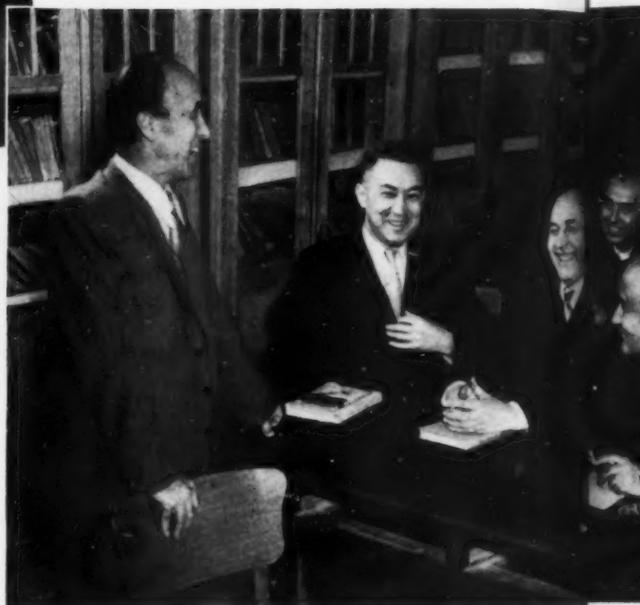
Tea set manufactured at the Arkhangelskoye porcelain factory which operated early in the nineteenth century. The designs were hand copied from palace paintings or book plates.





The photo above shows the 1923 class of the first Soviet school in the Uzbek town of Kokand. The picture at the right was taken at the class reunion 35 years later. The lives of the pupils tell the story of changes in Uzbekistan, a formerly undeveloped area whose population was 98 per cent illiterate.

CLASS R



By Georgi Dimov

AN old time-worn photograph with the legend "1923. Kokand. Class in the first Uzbek Soviet school. A physics lesson."

Kokand is a town in Uzbekistan, and Uzbekistan is in the heart of Soviet Central Asia, bordering south on Afghanistan.

It was in the early twenties that Uzbekistan began to stir out of the slough of poverty, superstition and ignorance inherited from the old regime. Uzbek women had just begun to throw off the horsehair veil, ugly symbol of their virtual slavery. In 1923 the first Soviet school was opened in this country where 98 per cent of the people were illiterate.

It could hardly be called luxurious, this one-room school. But the country had barely emerged from the rack and ruin of the Civil War that followed the Socialist Revolution of 1917. The big iron stove set in the alcove in this old photograph did not heat because the fire box on the other side of the wall had been blown up, and part of the building with it.

Notice the darkened patch on the wall alongside. That may very likely have been drilled by case-shot fired by bandits who in those days swooped down frequently from the hills upon Kokand, Ferghana and other towns

and villages of the young Uzbek Soviet Republic.

Into this small classroom were jammed eight double desks and a rickety table for the teacher. The physics demonstration apparatus—imposing word for these few simple instruments—was moved to the floor when the other subjects were taught—arithmetic, music, physical training, the native language and Russian.

But for these first young students, children of illiterate craftsmen and poor villagers, this was riches, an endless new world of learning that the Socialist Revolution had opened for them.

Thirty-five Years Later

What happened with these boys and girls during the past thirty-five years? I learned their stories at their recent class reunion. Taken together they tell the story of the Uzbek people as a whole.

This is a story of new towns built alongside the old; of modern hydroelectric stations to provide power to cities and villages, and to irrigate the desert; of thirty-six colleges and universities in a region where the college-

trained Uzbek had been a rarity; of Asian women become teachers, doctors, scientists, industrial managers, agricultural specialists, government officials.

Look at the boy in the dark coat and skull cap at the extreme left. The skull cap, usually with decorative embroidery, is still traditional headgear in Uzbekistan. He is Tisha Zakhidov, now a Doctor of Science and professor of biology at the university in the capital city of Tashkent.

The boy alongside him is Fattakh Rakhmanov. He is now a rural teacher in the village of Kiyat. His brother, Malik (second from the right), is a writer, translator and editor at the Uzbek Publishing House.

The youngest boy in that class—he is sitting alone at the rear of the room—is the very well known hydraulic engineer, Fakhritdin Shamsutdinov, who held the post of Minister of Irrigation for the republic.

The two girls are both teachers. Zainab Mirsalimova teaches in a village school near Andizhan and Mokhrui Buranbayeva in Tashkent.

Two of the students in the picture have died since. Sharif Rizayev was a journalist and Yulchi Tashpulatov was the first Uzbek

S REUNION



to be appointed professor at the Tashkent Engineering Institute.

The boy with the flower in his left hand is Rakhim Atadzhanov. He is an assistant professor at the Tashkent Teacher Training Institute. Abdulkhak Bekkuzin is an engineer at the Nuclear Physics Institute and Ulug Tur-sunov lectures on physics and mathematics at the University of Samarkand.

Educating a Whole People

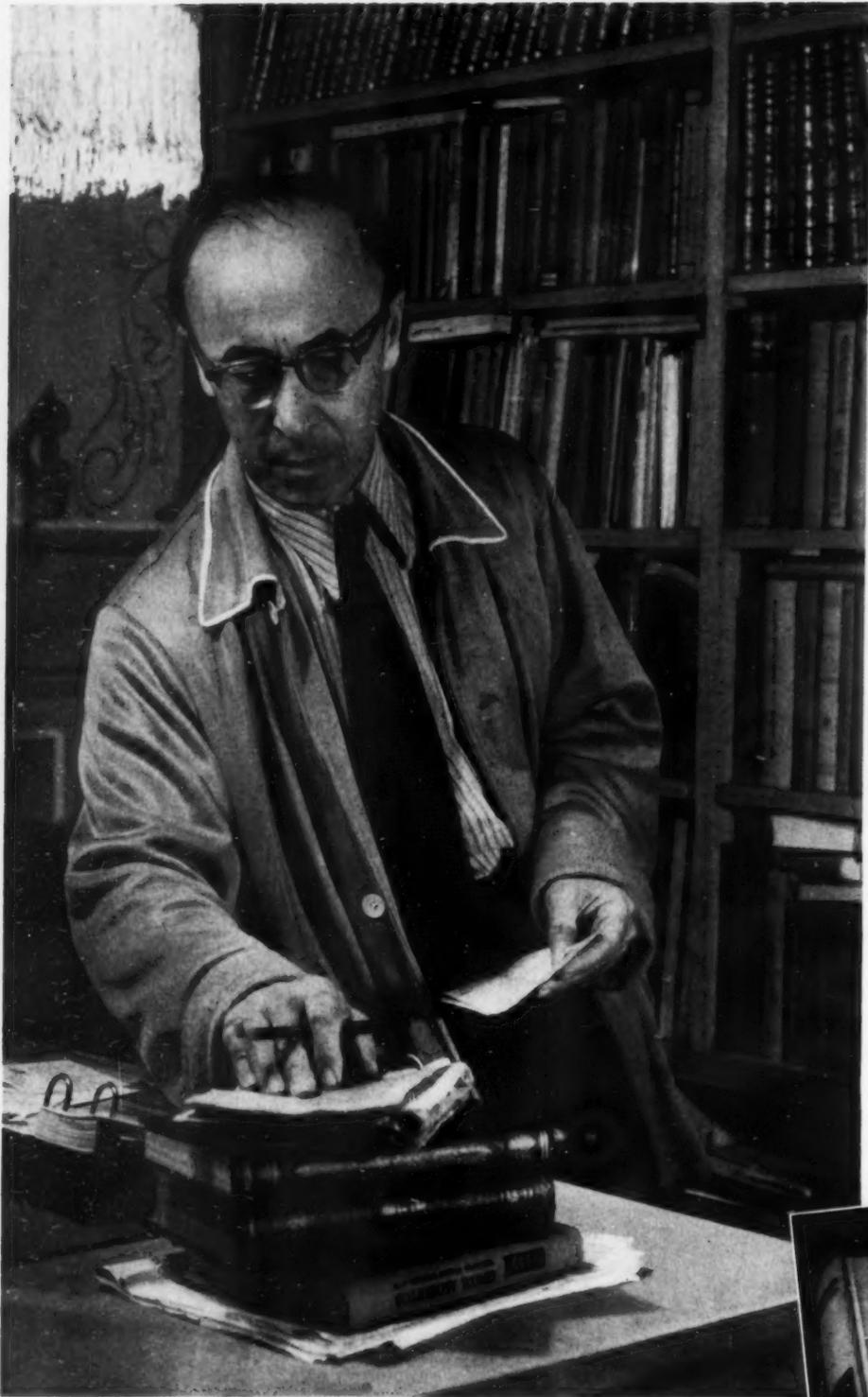
And the teacher? Tashmukhamed Kary-Niyazov is an eminent mathematician, a member of the Uzbek Academy of Sciences and honored nationally for his work in the field of education. He was one of the early organizers of the republic's school system.

In his scholarly *Essays on the History of Culture in Soviet Uzbekistan* Kary-Niyazov writes: "The first schools were set up under very great handicaps. There were no teachers, no suitable classrooms, no teaching materials. We had to meet all sorts of provocation from the old officials and from antagonistic religious leaders and teachers in the old religious schools. There were plenty of parents

Continued on page 39



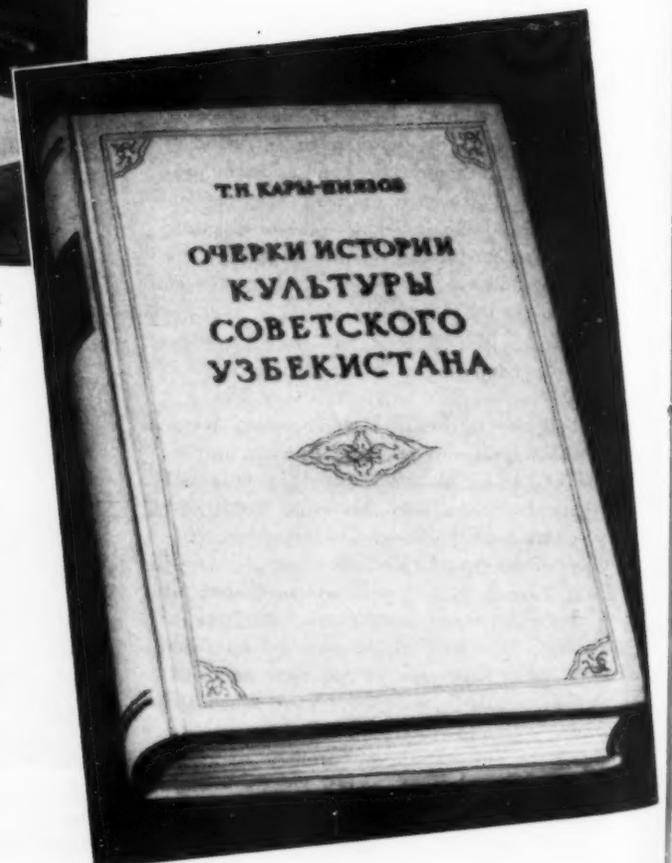
A get-together at the home of their old teacher, Tashmukhamed Kary-Niyazov, now an eminent mathematician and a member of the Uzbek Academy of Sciences. At the class reunion his former pupils of the Kokand School exchanged impressions about their present work in economy, science and education.



Tashmukhamed Kary-Niyazov, beside his work in mathematics, is a historian. His book (at the right) traces the social and cultural development of the Uzbek people from antiquity to modern times, stressing the growth of science and education during the past three decades.



Kadyr Abdullayev (right) is one of the old students who have made light industry their specialty. He is an expert in the knitgoods field.



CLASS REUNION *Continued*



Rakhim Atadzhonov (center, in light suit), an instructor at the Tashkent Teacher Training Institute, is shown with a group of his students.



Nuritdin Aliev (left) is a hydraulic engineer. He is demonstrating the automatic flow regulator he designed at an experimental irrigation station.



Malik Rakhmanov (second from left) checks a layout at a Tashkent print shop. He is an editor and translator for the Uzbek Publishing House.

harassed and attacked because they sent their children to the new public schools, children beaten because they wanted to go to school.

"There were so few Uzbek educators that we were largely dependent for guidance and experience upon Russian educators. We owe much to the selfless work of men like Alexander Yakhontov and Alexander Sutyagin. Yakhontov had a real passion for learning that he instilled into those of us who worked with him. He taught us more than mathematics. There was his sincerity, his patience and kindness that we learned from, perhaps even more. I still remember the talks we had with him after class, when he could tell us about the great men of science and the history of their discoveries.

"Alexander Sutyagin had a wide and thorough background in educational psychology. We learned a great deal from his understanding approach to classroom work. These Russian teachers taught themselves and in the process trained our Uzbek teachers.

"At the same time some of the local people who were well educated were enlisted to teach in these new schools. Among them were people like Dadamat-Domulla, who subsequently was honored with an award for education; Sadridin Khodzha and Aishakhan Kary-Niyazova, who became outstanding teachers; the poet Khamza Khakim-Zade Niyazi, who was also founder of the Uzbek theater.

"They were more than schools, these first efforts; they quickly took on the character

of centers out of which a culture was growing and developing. They were centers of education for a whole people eager and ready to learn."

Every Field of Work and Study

The original dozen or so secondary schools of that early period have grown into 5,800 schools. Universal seven-year schooling is compulsory, with general ten-year schooling already on the way. Today the republic's schools have 1,300,000 students enrolled.

In the early days, every graduate was a person of consequence, there were so few of them. Like the students in the old 1923 photograph of the Kokand class, they have been making their contributions to the republic's development in their chosen fields.

Akhmaddzhura Kayumov is one of the Kokand school graduates. He went into silkworm breeding and has made a name in that field. Mirsoli Gafurov comes from an old line of peasants. After he graduated he went to the Moscow Agricultural Academy and came back to Uzbekistan to work as an agronomist in the cotton fields.

Makhbuba Dadamukhamedova, after training at a technical school, went into the textile industry. Kadyr Abdullayev became an engineer. Now he is a specialist in the field of knitgoods.

Others of the early graduates have risen to high places in government. Kasym Rakhimov

went to an agricultural school, worked as an agronomist, and is now Permanent Representative of the Uzbek Republic's Council of Ministers to the Council of Ministers of the Soviet Union.

Two of his classmates, Nuritdin Aliev and Zakir Ashirmatov, became hydraulic engineers. There are few major irrigation projects in Uzbekistan with which Ashirmatov has not been associated. He was one of the builders of the Katta-Kurgan reservoir and the North Tashkent Canal, and is now working on the big project to irrigate the Hungry Steppe, an immense region of arid land which is slowly being made richly productive. Nuritdin Aliev is director of an irrigation research and design institute.

Not all of the 1923 graduates of the Kokand School could come to the reunion. Some were in distant parts of the country, some were doing scientific work abroad, three were in Moscow on projects they could not leave, still others were in the mountains of Central Asia, where new mining developments and power stations were being built.

But those who came to exchange stories and to sit at the school desks in the Kokand school to have their reunion picture taken were men and women who had come more than the chronological 35 years from their youth to middle age. They had spanned the centuries from feudal Asia with its superstition and poverty to twentieth century enlightenment and socialism. ■



THE DONBAS MINER, SELF-CONFIDENT AND HIGHLY ESTEEMED BY HIS COUNTRYMEN, ENJOYS TOP WAGES AND OTHER BENEFITS BEFITTING HIS HAZARDOUS PROFESSION.

THE DONBAS AND THOSE WHO MINE ITS COAL



DECISIONS OF WORKERS' CONFERENCES CONCERNING PRODUCTION PROBLEMS OR MINE CONDITIONS AND SOCIAL WELFARE OF THE MINERS ARE GUIDES FOR MANAGEMENT.

EXPRESS trains and long lines of freight cars speeding south of Kharkov in the Ukraine en route to the Black Sea coast rumble through a vast mining region, the Donets Coal Basin, called Donbas for short.

Situated in two republics, the Ukraine and the Russian Federation, the Donbas is the oldest coal field in the country. Its miners helped open new areas in Siberia and Central Asia, in the North and the Far East. They provided the training that was needed to supply the young fields with experienced workers.

In the past three decades geologists have learned considerably more about the richness of the Donbas' underground inventory. Now its reserves of coal are believed inexhaustible, and plans call for the construction of pits for digging two and one-half times as much coal as was mined in the Basin in 1954.

In just one new district, known as the Western Donbas, enough area has been prospected for the sinking of about 120 mines. This new field stretches about 30 miles east and more than 200 miles west of the old boundaries of the Basin.

At the same time, in the center of the Basin prospecting and tapping of deep-lying seams is under way. Until recent years most of the coal was mined in a range of depth between 900 and 1,600 feet. New and rich seams were found 3,200 to 4,300 feet from the surface.

A modern mine in the Donbas is a veritable underground factory where coal is cut and transported almost entirely by machines. The old machines are being continuously modernized and new machines to lighten the labor of miners are being designed and built at research

institutes and laboratories of the coal industry. It was in the Donbas that the coal mining combine bearing its name was first conceived. It now has various models for the most varied types of coal seams.

In 1957 the Donbas produced 163 million tons of coal, or about one third of the country's total. Donbas coal is of excellent coking quality and feeds the iron and steel industry of the Ukraine. It is also used as raw material for the Ukrainian chemical industry and serves as a major source of fuel supply for the power plants in the South European part of the Soviet Union. With all this, the Donbas still has enough capacity to provide coal for the railways of the entire Ukraine and the adjoining parts of the Russian Federation and Byelorussia, and to meet other requirements of these areas.

Each day sees thousands of miners enter the Donbas' pits. They have a 34-hour work week and one-month yearly vacation with full pay. The miners are among the country's best paid workers; they receive increased pensions and other benefits accruing to their hazardous profession.

The state budget allocates ever increasing sums to expand housing and municipal construction in mining communities and to provide more and better medical, cultural and recreational facilities for miners and their families. The cities and towns of the Donbas are becoming more and more beautiful with their new parks and boulevards abounding with trees and shrubbery. New blocks of modern houses, social and recreation centers, theaters, department stores, schools, colleges and athletic stadiums strike the eye as visitors pass through the Donbas.

More pictures on following pages

Donbas coal is of excellent coking quality and feeds the iron and steel works of the Ukraine. Its reserves are inexhaustible and it is also shipped elsewhere as raw material for the chemical industry and as fuel.



Stalino, Donbas capital, though a major coal, steel and engineering center, is proud of the greenery in its streets, parks and residential yards. Enforcement of strict smoke-curtaiment rules protects the health of citizens.





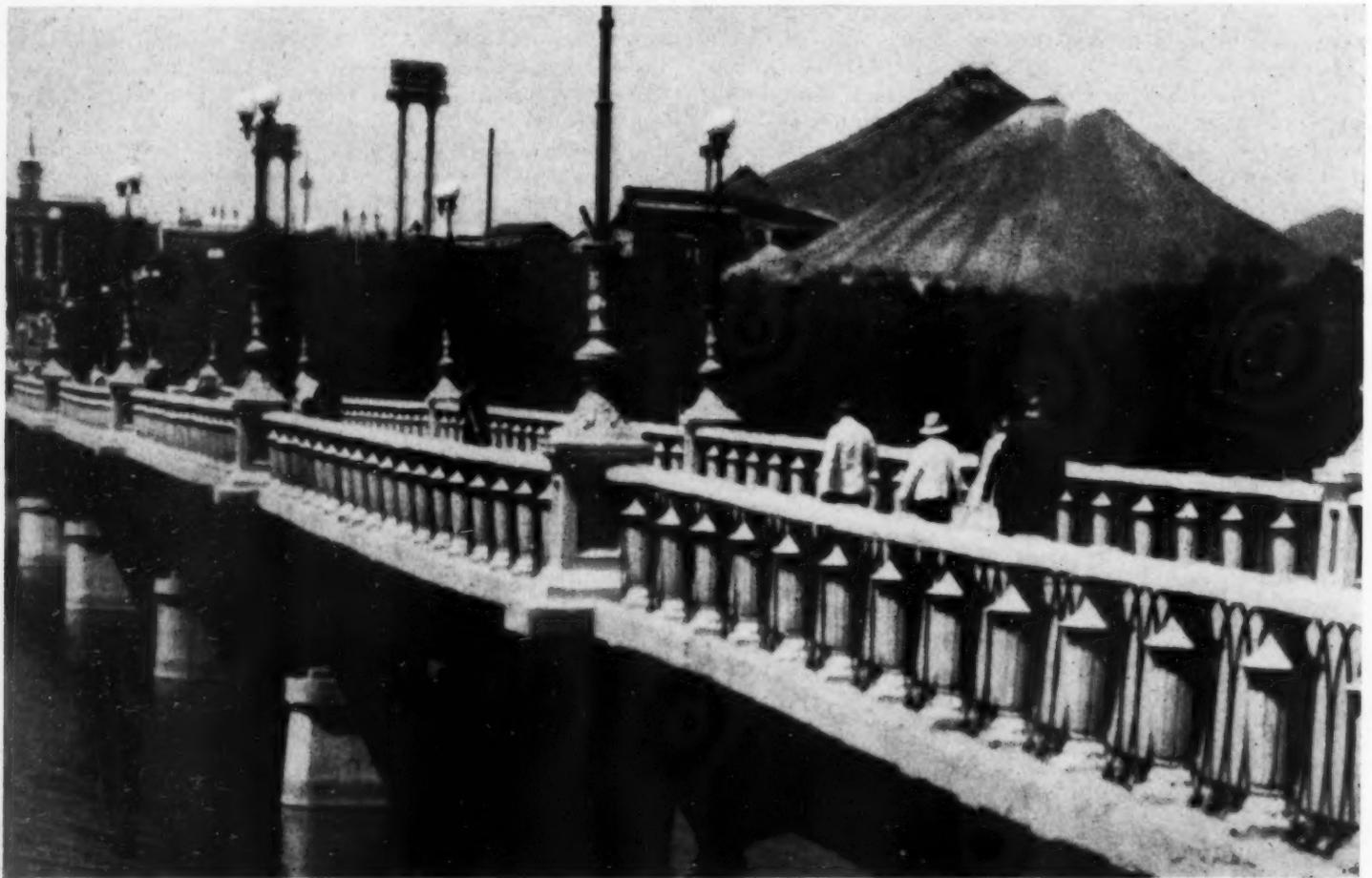
Industrial cities, towns and communities of the Donbas almost overlap in endless chains. Their residential areas are marked by carefully planned landscaping as in Kadiyevka, shown here.



This apartment house in Makeyevka is typical of municipally-owned projects where rents do not exceed 2 to 4 per cent of a month's income. Many miners live in their private homes.

THE DONBAS AND THOSE WHO MINE ITS COAL *Continued*

TOWNS OF THE DONBAS SIGNAL THEIR COAL MINING CHARACTER BY THE TOWERING PILES OF ROCK WASTE SEEN FOR MILES AWAY SILHOUETTED AGAINST THE SKYLINE.





Yuri Olenin is studying mine engineering at the Stalino Mining College. Both his father and his grandfather dug coal in the pits of the Donbas.



Students of the Makeyevka Mining School learn to operate machines used in the pits. Schooling is free and they receive a monthly state allowance.



MANY YOUNG MEN WIN DIPLOMAS IN EVENING CLASSES AND CORRESPONDENCE COURSES OF MINING SCHOOLS AND COLLEGES.



After a 34-hour week in the mine, Nikolai Mamai has plenty of time off for his hobby as a "do-it-yourself" home carpenter.

New coal mining machines are continuously introduced in the Donbas, resulting in free training programs at every mine.





THE DONBAS AND THOSE WHO MINE ITS COAL

Continued

Miners and their families drive to Sea of Azov beaches in less than 6 hours for annual vacations and week-ends. Their union gets them resort reservations free or at 70 per cent discount.

Parking lots are filled to capacity during the championship events at stadiums and the premieres of theatrical attractions. The constantly increasing incomes of the miners mean more automobiles on the highways of the Donbas.



Most of the river banks of the Donbas area are jammed with various industries, but eager anglers always manage to find secluded spots where fish bite readily.



Prenatal care, skilled doctors and well-equipped maternity hospitals assure every baby a good start in life. Complete medical service with an emphasis on preventive care is free throughout the whole country.



Kindergartens supervised by expert teachers provide full daytime care. Miners' children attend summer camps each year free of charge or at reduced rates.

The recreation centers maintained by the miners' trade union feature musical, theatrical and art groups for amateurs with free direction and instruction under professional teachers.



While many games are played and draw crowds of spectators during both the cold and warm months, none touches soccer for appeal. The Donbas miners' team, Shakhtyor, vies with the country's best.





GALYA OLENEVA IS THE MAILMAN FOR THE ENGLISH CLUB OF MOSCOW SCHOOL NO. 112. SHE MAKES SURE THAT PEN-PAL LETTERS ARE PROPERLY ADDRESSED AND POSTED.

Only English Spoken Here

ENGLISH CLUB IN A MOSCOW SCHOOL

By Adolph Pikov

THE ENGLISH CLUB on the fifth floor of Moscow School No. 112 is a busy spot after school hours. In one corner of the bright room posted with the club emblem a group of older boys and girls are adjusting a tape recorder, others are leafing through Russian-English dictionaries looking for the right word for a letter to an English or American pen pal, in another corner a vociferous quartet of young stamp collectors are making a trade and the bargaining runs hot and heavy.

I overhear this snatch of talk between two girls.

"I got a letter today from Jack in England and he wants to know if I'm a girl or a boy. Imagine that. After we've been corresponding for

almost half a year, he still doesn't know if Tamara is a boy's or a girl's name."

Her friend giggles, "Don't tell him. Keep him guessing." The two of them burst into a gale of laughter.

I am introduced to Alla Levitina, the honorary club president, a charming eighteen-year-old who takes me under her wing and shows me around.

"How did the club get started?" she repeats my question. "I don't really remember now. It just did. There were a lot of us who wanted to learn English. We were studying it in school and we wanted more prac-

tice in real conversation and real writing, not just writing school compositions."

"And then," adds Vladimir Andreyev, another club member—a senior, "many of us were trying to read books in the English original."

"And," added a younger member, "don't forget we wanted to make friends with school children in other countries."

"That's very true," confirmed Alla, "that's the most popular club activity—letter writing to pen pals."

Club members have a variety of activities to busy themselves with—practice in conversation, dramatics in English, poetry reading. Young botanists exchange seeds with their foreign correspondents. The club has a technical group which operates and takes care of the tape recorder and records foreign broadcasts and American and English folk songs. The club's artists and photographers make up posters, photo-news exhibits and displays.

The club has 180 members now, the youngest is Yura Tutov, nine years old. By the club rules Yura was too young to be eligible for membership, but he refused to be turned down, so an exception was made in his case.

The faculty adviser is Grigori Dorf-Shuster, who teaches English at the school. The club's equipment—tape recorder, books, radio, American and English newspapers and magazines—are provided by the school. The club now has a library of 500 books in English.

The club's first big function was a concert and dance. The dance was fine, you don't have to talk English when you dance. The show, however, with songs in English and recitations from Byron's *Childe Harold* apparently had its difficult moments—the level of the club mem-

bers' English was not too high. But now, Alla assured me, with the club going on to its second birthday, they do fine.

The various groups meet once a week after school for reading, practice conversation, singing and other activities. Typical conversation topics are: "Let's talk about the new films," "My favorite book," "What I want to be." Lectures are given by English teachers, and advanced students from the Foreign Languages Institute talk on art, literature, and English and American life.

A year ago last May Radio Moscow devoted one of its foreign broadcasts to the activities of School 112's English club. The broadcast, opening with the phrase, "Dear friends, wherever you are, listen to us," brought the club a flow of letters from young people all over the world. Club members now correspond with students in 19 countries.

Two young Scotsmen, the brothers Hugh and John Campbell, are honorary club members. In May of 1957 the club held an Anglo-Soviet friendship meeting. A Scotch delegation then visiting Moscow was invited to attend. Tom Campbell, one of the delegates, told the club that his two sons were coming to Moscow to the World Youth Festival and in July the club was host to Hugh and John.

The Scotch boys told the club about Scotland, recited poems by Robert Burns and joined in singing Russian songs. When they left, they wrote this in the club's visitors' book, "We, members of the Scottish delegation to the 1957 Moscow Youth Festival, should like to record the pleasure which our visit to School 112 gave us. Our best wishes. We hope that the English Club will continue to flourish." The Campbell brothers have been corresponding with the club regularly since their visit.

Continued on next page



Lena Kovner, club president, makes an announcement.

Trading stamps with foreign pen pals is one of the club's most popular activities, with the exchange of coins and seeds running a close second.



Schedule of each week's activities is posted for the club's 180 members just outside its headquarters on the fifth floor of the school building.



Tanya Granilshchikova recites one of Robert Burns' poems. Last year the club was host to young men from Scotland, who were elected to honorary membership.



Ira Sumina, announcer of the school programs, conducts a broadcast in which all of the various numbers performed are given in English.

ENGLISH CLUB IN A MOSCOW SCHOOL

Continued

Other honorary members are Nicholas Clarke, the club's first correspondent in England; Sahib Singh Shokay, a social worker in India; Charles Crampton, president of the British Matchbox Cover Club; and Axel Gryspeerdt, president of the Belgian White Wolf Club.

A big event in the club's life was the trip three of its members, Rita Novikova, Anatoli Larkin and Andrei Rozanov, made to Norway in the summer of 1956. They stayed at an international children's summer camp on the invitation of the wife of the Norwegian Prime Minister and made many foreign friends.

While we were talking the club postman brought the mail. One of the letters was from a high school correspondent in Spokane, Washington, congratulating the club on the launching of the first sputnik. "I hope," the letter read, "that it will lead to future peaceful scientific discoveries in your country and mine."

There are English clubs in schools elsewhere in the country. The oldest is in a rural school in Bagan, Siberia, that got started five years ago. The collective farm youngsters correspond with friends in the United States and have exchanged books and records.

Moscow schools 610, 574 and 280 have taken their lead from 112 and have set up English clubs. In other schools, French and Chinese clubs have been organized, all attuned to the sentiment of this verse written by a member of the Bagan village English club:

"The world may be great
But friends can be found
In each country and state
All the world round."



Eager young botanists, Faina Labazina, Lida Kulikova and Tanya Mikhailova, exchange seed and flower specimens with their pen pals in England.



New books for the club library. With about 500 volumes now, the club acquires new books provided by the school and donated by friends.



Yura Klyavin and Oleg Lomanov are using the Russian-English dictionary to check a definition. Of all the club's various books, this volume is most in demand.



Grigori Dorf-Shuster, a teacher of English and the club's faculty advisor. He constantly maintains as a standing rule, "Only English spoken here."



The American folk song *Billy Boy* is being rendered by a club trio made up of Natasha Matalasova, Zhenya Tikhomirov and Galya Malysheva.

MOSCOW TRAFFIC

By Yuri Pavlov

A NEW YORK CITY driver would feel almost at home in Moscow's Mayakovsky Square at peak traffic hours. Cars lined bumper to bumper crawl along at a pace slower than the pedestrian. If you are in a hurry at rush hours, you take the subway. The Sadovaya Ring, one of the city's major thoroughfares, clocks an average of 7,000 cars an hour and Mayakovsky Square about twice that number.

Traffic in Moscow like in every other Soviet city is handled by the municipal Department for Regulating Street Traffic, called ORUD for short. It is responsible for licensing drivers, setting and enforcing traffic rules, and investigating auto accidents.

Driving Regulations

Driving regulations in the Soviet Union are much the same as those in the United States. You keep to the right, pass on the left. On busy streets, passing is prohibited. In heavily traveled streets left turns may be made only at certain marked intersections. Horn blowing is banned except during a heavy fog when visibility is reduced to less than thirty feet.

Speed limits are similar to those in American municipalities. Street signs warn drivers to slow down in areas with heavy pedestrian traffic, in school and hospital zones and other spots where faster speeds might be hazardous.

Traffic signs in the Soviet Union are based on internationally recognized symbols used in European countries. However, one unfamiliar sign which the foreign motorist is likely to see is a yellow circle showing two white pigeons within a black triangle. There is an unwritten rule that if the pigeons fail to move, you stop. It is sometimes necessary to get out and shoo them away.

Moscow's traffic lights are the ever familiar affairs with three standard colors but in reverse order compared with the one adopted in the United States: red on bottom, then yellow and green on top. Lights are either synchronized to permit traffic to flow continuously at the established speeds, or are manually operated by an ORUD officer in an intersection booth, depending on traffic conditions in the given area.

Much of ORUD's work is educational, to reduce driving hazards. Most through trains on Soviet railroads broadcast music en route, but when a train approaches a metropolitan center, talks on local traffic regulations replace the music. Movies include shorts on safe driving and safe walking. Schools and children's parks show animated cartoons to teach safety, which are supplemented by the teachers and ORUD officers who visit for short talks and discussions with youngsters.

Driving Permit

Obtaining a driving permit or license is a bit more complicated than it is in the United States. The applicant must be at least 18 years of age and pass a thorough medical examination. This is not a casual eye test, but a full-fledged physical examination that goes into reflexes and reactions as well. Then there is an oral examination on safety and traffic regulations followed by a driving test with very rigid requirements. In addition to being able to drive competently, the applicant also must prove that he knows how to handle minor mechanical troubles, change a tire, adjust brakes, fix headlights or get a stalled car into operation.

Statistics show that beginning drivers are the greatest hazard to both other drivers and pedestrians. Drivers with less than a year's experience must display a special sign both in the front and rear of

Continued on page 52

RUSH HOUR TRAFFIC IN A DRIZZLE. MAYAKOVSKY SQUARE, SHOWN HERE, CLOCKS AN AVERAGE OF 14,000 CARS AN HOUR. THE ONLY MEANS TO SAVE TIME IS THE SUBWAY.





TRAFFIC OFFICERS

ON DUTY





TRAFFIC LINES UP AS THE RED LIGHT SHOWS ON BOTTOM. THE LIGHTS ON SOVIET ROADS ARE IN REVERSE ORDER COMPARED WITH THE ONE USED IN THE UNITED STATES.

MOSCOW TRAFFIC *Continued*

the vehicle they drive. It features a yellow background with a heavy black exclamation mark that warns other drivers and pedestrians to exercise good care—a novice is at the wheel.

In addition to the license for the average or private driver, there are special licenses for the professionals—the chauffeurs, bus and taxi drivers, and commercial truck drivers. Their examinations are much more complete than those for the more casual private driver. There are three categories of these professional licenses. Only first category, the highest, permits the driver to operate a bus or other vehicle carrying passengers. Transfer from one category to another involves a new test both in technical background and in driving.

When a driving permit is first issued, it is accompanied by a green

coupon which is retained as long as the driver commits no traffic violation. After the first offense it may be replaced with a yellow coupon. A more serious violation or accident would bring about the drawing of the red coupon. Upon its loss, the driver's license is suspended for a six-month period.

Drivers who have lost the first or second coupons may have them restored by driving without further difficulty with the regulations for a fixed period. For example, if one drove for six months without a new violation, he would be restored to his original status with a green coupon.

Some of the traffic violations bring fines of from 10 to 25 rubles. The ORUD officer on duty may also note the violation on the license in addition to imposing a fine to "help" the driver remember to exercise more caution in the future.

NEON LIGHT SIGNS TELL THE DRIVERS AND PEDESTRIANS TO EXERCISE CAUTION.



A TRAFFIC OFFICER EXAMINES LICENSE APPLICANTS ON DRIVING REGULATIONS.



Solving the Problems

Moscow has long and cold winters with frequent heavy snowfalls from December through March. Hundreds of snow-cleaning machines begin their operation with the first snowfall and keep the streets clear through the heaviest storms.

This has been a relatively easy problem to solve compared with that of road building. Moscow is more than 800 years old, and until recently many of its streets were little more than narrow, winding lanes. Now most of the major thoroughfares are very wide. The Sadovaya Ring, for example, is more than 260 feet wide.

But the street reconstruction in an old city is a long, slow process while traffic keeps increasing. Whenever possible, houses standing in the way of traffic streams are not razed in Moscow; they are moved to new sites. In recent years this has become a limited operation since space is now at a premium. Where it is impossible to widen the road, parallel highways are built to divert traffic from it.

A 60-mile highway forming a ring around the city's outskirts is now under construction and this is expected to help ease the traffic situation and particularly remove much truck traffic. All roads converging radially on Moscow will cross this new speedway.

The new road will have two ribbons of concrete each 23 feet wide, separated by a 13-foot parkway in the center. There will be no traffic lights and the speed limit will be 75 miles an hour.

Moscow's subway system takes up much of the traffic. Its lines are constantly expanded to provide adequate transportation facilities for new residential areas and for the busiest sections of the city. For example, with the opening of the giant Lenin Sports Stadium, a new line was built to take care of the increased traffic in the area.

Moscow's traffic planning looks forward to a growing future and the city authorities are thinking in terms of clover-leaf intersections, tunnels and overhead routes to eliminate cross traffic. The program also includes large-scale street widening and multistory and underground garage building. ■



OVERHEAD SIGNS WARN ALL MOTORISTS TO WATCH OUT FOR THE CITY'S PIGEONS.

TRAFFIC CONDITIONS IN SVERDLOV SQUARE IN DOWNTOWN MOSCOW AT DAYTIME.



AT NIGHT HOURS THE TRAFFIC IN THE SAME SQUARE SHOWS BUT LITTLE CHANGE.



FASHION I



Sable-trimmed sleeves lend a very smart touch to this coat with its deep yoke and gathered back.



This frock of white artificial silk with its black design is worn with a full length stole.



Two-piece set for spring. The plain silk coat is marten-trimmed. The dress is patterned brocade.

Sport shorts

N PARADE

Lounging outfit. These pajamas with matching coats are available in several smooth prints.



Sports set featuring a blouse, shorts and a wrap-around skirt.



Changeable taffeta dress with hobble skirt and a patterned rep coat featuring lining to match.



CURTAIN TIME 7:30

SCENE FROM PROKOFIEV'S OPERA WAR AND PEACE BASED ON TOLSTOY'S NOVEL.

THE PLAYS BY FOREIGN AUTHORS INCLUDE SHAW'S MRS. WARREN'S PROFESSION.



THEATERS STAGE

3,541 PLAYS

THIS SEASON

By Alexei Morov

SEVEN-THIRTY is curtain time, when the houselights dim and the footlights brighten the stages of the country's 508 professional theaters for every taste and inclination—drama, ballet, opera and variety.

The theater is immensely popular in the Soviet Union. In the course of one season the average theater will stage five or six new productions and may run as many as twenty plays, including those which were hits in previous years. This is true not only for the famous and internationally known companies like those in Moscow, Leningrad and Kiev, but for the local companies in provincial towns. Productions are staged in every one of the forty languages spoken in the Soviet Union.

Although the Soviet theater is not a commercial theater as the term is commonly used, it generally pays for itself. The subsidy which it receives from the government—it amounted to 300 million rubles last year—is used largely to stage particularly expensive productions, to finance guest performances of entire companies and, most important, to sell tickets at a price to meet anybody's pocketbook.



"WALPURGIS NIGHT" FROM GOUNOD'S FAUST AS PRESENTED AT THE BOLSHOI THEATER. OPERAS AND BALLETS ARE PERFORMED EACH NIGHT ON THE BOLSHOI'S TWO STAGES.

A run through billboard advertising will show a most varied repertoire of plays by authors of all times and from different countries—Shakespeare and Dostoyevsky, Lope de Vega and Anton Chekhov, Leo Tolstoy and George Bernard Shaw, Ibsen and Ostrovsky, Gogol and Gorky, Rabindranath Tagore and Sholom Aleichem, Stefan Zweig and Arthur Miller, Lillian Hellman and Haldor Laxness, Yan Drda and Martin Andersen Nexø, De Filippo, Nushic, Hikmet, Heiermans, Figueredo and many, many more.

All told, during the season starting last fall the Soviet theater has staged 977 plays by contemporary authors and 378 classical plays. The total number of plays staged throughout the country—this includes musicals, children's plays, puppet plays and others—comes to 3,541.

Season's Most Popular Productions

The great names in stage, ballet and opera are, of course, to be found on the marquees of the big city houses like the Bolshoi or the Art theaters in Moscow. But fine artists and gifted companies are by no means limited to the famous theaters in the large cities. The theater company of the provincial Latvian city of Daugavpils with a population of 80,000 recently put on a production of *Hamlet* directed by Sergei Radlov that had theatergoers traveling many hundreds of miles away to see it, not to speak of the leading theater critics.

The beginning of the current theater season coincided with the nation-

wide celebration of the fortieth birthday of the Soviet Union and many of the productions, therefore, centered on the Socialist Revolution of 1917 and the building of the country. Nikolai Pogodin's *Kremlin Chimes*, one of the most popular of the current plays, tells the story of how the plan for the reconstruction of the economically backward and war ravaged country through electrification was worked out under the guidance of Lenin.

In opera, the most interesting premiere this season was the composer Tikhon Khrennikov's *Mother*, with the libretto adapted from Gorky's famous novel of the 1905 Revolution. Another popular production is *Keep Shining, You Stars* by the Ukrainian playwright Ivan Miki-tenko, on Soviet young people's transition from school to lifework. This is also the general theme around which are built Fyodor Knorre's *Two Sisters* and *I Shall Find You* by Yelena Uspenskaya and Lev Oshanin.

Running alongside the standard classics are the plays of Lillian Hellman, George Bernard Shaw, Arthur Miller and other foreign playwrights. A favorite this season is Friedrich Schiller's *Intrigue and Love*.

The premiere of Erich Maria Remarque's *Last Stop* was held in a number of cities in the Soviet Union. This German writer's novels *All Quiet on the Western Front*, *The Road Back* and *A Time to Live and a Time to Die* have long been popular with Soviet readers. Remarque's play, a fiery protest against fascism and the war it brings, is laid in Berlin at the period when Hitler's Germany is crumbling. It was very well received by large Soviet audiences. *Continued on page 59*



Siberia's Krasnoyarsk Drama Theater is among the several that produced *The Morals of Pani Dulskaya* by the Polish playwright Gabrieli Zapolskaya.



Scene from *The Autumn Garden* by Lillian Hellman at the Moscow Art Theater. Arthur Miller and other American writers are also very popular.

THE THEATER

THIS SEASON *Continued*



Dostoyevsky's *Stepanchikovo Village* as performed by the cast of Moscow's Maly Theater. Some viewers stated that the play dimmed the author's satire.



The Promised Land is the title of a scene from the play *Mystery Bouffe* by the Soviet poet and playwright Vladimir Mayakovsky.

Two other foreign favorites this season are *The Morals of Pani Dulskaya* by the Pole Gabrieli Zapolskaya, a satire on middle class family life in the old days, and *Doctor of Philosophy* by the Yugoslav playwright Branislav Nushic, a comedy of errors laid in old Belgrade concerning a man who tries to transform a wayward and unwilling son into a scholar.

Some Plays Are Controversial

Not every play, of course, was received with great applause. Some faded off the boards very quickly, others were hotly argued pro and con. Perhaps the most controversial play of the current season was *Stepanchikovo Village and Its Dwellers* produced by Moscow's Maly Theater company.

The play was adapted from the Dostoyevsky novel. Many thought the adaptation had very much dimmed Dostoyevsky's brilliant satire and had softened the grotesque outlines of the Stepanchikovo inhabitants. There were others who thought the production admirable, particularly the performance by actor Mikhail Tsaryov as Colonel Rostanov.

Theater attendance will, as elsewhere, vary depending upon the play, but a good production will run to full houses for long periods. The Vakhtangov production of Gerhardt Hauptmann's *Before Dawn* has played 300 performances, but tickets are still at a premium.

With the advent of the motion picture in Russia at the beginning of the century and again with the spread of television in the past half dozen years theater people were worried, as they were in America and other countries, that interest in the legitimate theater would lag. But nothing of the sort happened, nor is it likely to happen.

The theater is very much here to stay, if Soviet audiences are any indication. The curtain will be going up at 7:30 on the Soviet stage night after night, long into the dim and distant future. ■



TAJIK STAR KHANIFA MAVLYANOVA AS MARIA IN OPERA MAZEPPA BY TCHAIKOVSKY.

NIKOLAI POGODIN'S PLAY *KREMLIN CHIMES* IS BASED ON LENIN'S PROGRAM FOR THE ELECTRIFICATION OF THE SOVIET STATE. BORIS SMIRNOV (RIGHT) IS CAST AS LENIN.



Disease Is International

HEALING SHOULD BE THE SAME

By Professor Vladimir Kovanov, Director, First Moscow Medical Institute

ALL DOCTORS, regardless of nationality, revere the great men of medicine—the Frenchman Pasteur, the Scotsman Fleming, the German Koch, the American Cannon, the Russians Mechnikov and Pavlov. Disease is international and so must healing be.

It has been the collaboration of scientists of all lands which has rid the world of plague, cholera, smallpox and which has found means for combating syphilis, tuberculosis, poliomyelitis and a hundred other diseases that show no respect for national boundaries.

The sharing of experience is an ancient and revered tradition in medicine. We Soviet doctors adhere to that tradition. Our research institutes and clinics are wide open to our foreign colleagues.

In this past year we were host to more than a hundred foreign medical delegations, among them gynecologists from Uruguay, public health workers from India, internists from France, tumor specialists from Belgium, physicians from the United States, Finland and many other countries.

Participating in the proceedings of our 26th Congress of Surgeons were medical delegations from nineteen countries in Europe, Asia and America. A similarly broad international representation marked our 6th Congress on Tuberculosis, our 14th Congress of Internists and the conference convened in Moscow to exchange experience on the treatment of invalids of the Second World War.

Our foreign guests had every opportunity

to become acquainted with the work of our medical institutions and examine our equipment, observe operations, meet with physicians in city, town and rural areas. The mutual exchange of impressions, ideas and work under way was always most gratifying. We were learning from each other and pleased to be doing so.

Our medical people were happy to return the visits. Soviet physicians in this past year have participated in forty-four scientific congresses held abroad and have visited clinics, institutes and research laboratories in England, Japan, Denmark, the United States, Poland, Czechoslovakia, Canada and other countries.

Together with other Soviet scientists I attended the International Congress on Cardiovascular Diseases held at Atlantic City toward the end of last year. The congress was a striking example of the importance and value of exchange of medical experience for everyone who participated.

We described clinical application of an altogether new instrument for suturing blood vessels that our scientists and engineers had designed. The description of the instrument and the technique, which in animal experiments kept a transplanted heart functioning alongside the natural one for a whole month, evoked general interest and attention.

We, in turn, learned much from the papers of foreign colleagues on the treatment of coronary ailments and arteriosclerosis of

the large blood vessels. Described were methods by which affected sections of these vessels were replaced with plastic substitutes.

We were present at hospitals in New York and Washington where cardiac surgery was performed with the use of hypothermia—lowering the body temperature—and an apparatus for artificial blood circulation was employed. We told of work our surgeons had done in transplanting organs and described the new instruments we used.

There was no hesitation on our part or on the part of our American colleagues in sharing experience that would help us all in treating our patients. When we returned home, we answered innumerable questions about everything we had seen during our trip.

Not long afterward we all learned with satisfaction that an agreement on cultural, technical and educational exchange had been concluded between the Soviet Union and the United States. With such an agreement in operation, the medical personnel of our two countries will be able to broaden exchange of visits and get to know about each other's research work and achievements firsthand. This will be another step in the direction of eliminating the duplication of efforts on a world scale.

Our common aim is to heal, to eradicate disease, to prolong the span of life. The closer our relations, the wider our exchange of knowledge, the faster will we move toward that great objective. ■

A group of participants at the 1957 International Congress on Cardiovascular Diseases take time out for a breath of sea air on the boardwalk at Atlantic City. From left to right are Professors B. Dolgo-Saburov (USSR), J. Kinmonth (Britain), V. Kovanov (USSR), P. Androssov (USSR) and R. Linton (USA).





A few of the scientists who gathered to listen to Dr. Kolthoff's lecture in Moscow, during his recent visit. From left to right: Ivan Alimarin (USSR), Izaak Kolthoff (USA), Alexander Vinogradov (USSR), Harry Irving (Britain), En Jen-ing (China), Victor Spitsin (USSR) and Laszlo Erdely (Hungary).

AMERICAN CHEMIST meets SOVIET COLLEAGUES

PROFESSOR Izaak M. Kolthoff of the University of Minnesota is one of many American scientists to have visited the Soviet Union recently. This is his second visit. The first was twelve years ago.

During his stay in the Soviet capital, Dr. Kolthoff participated in a conference on the use of radio isotopes in analytical chemistry. The conference, held under the auspices of the USSR Academy of Sciences, was attended by 500 Soviet chemists and 35 foreign guests.

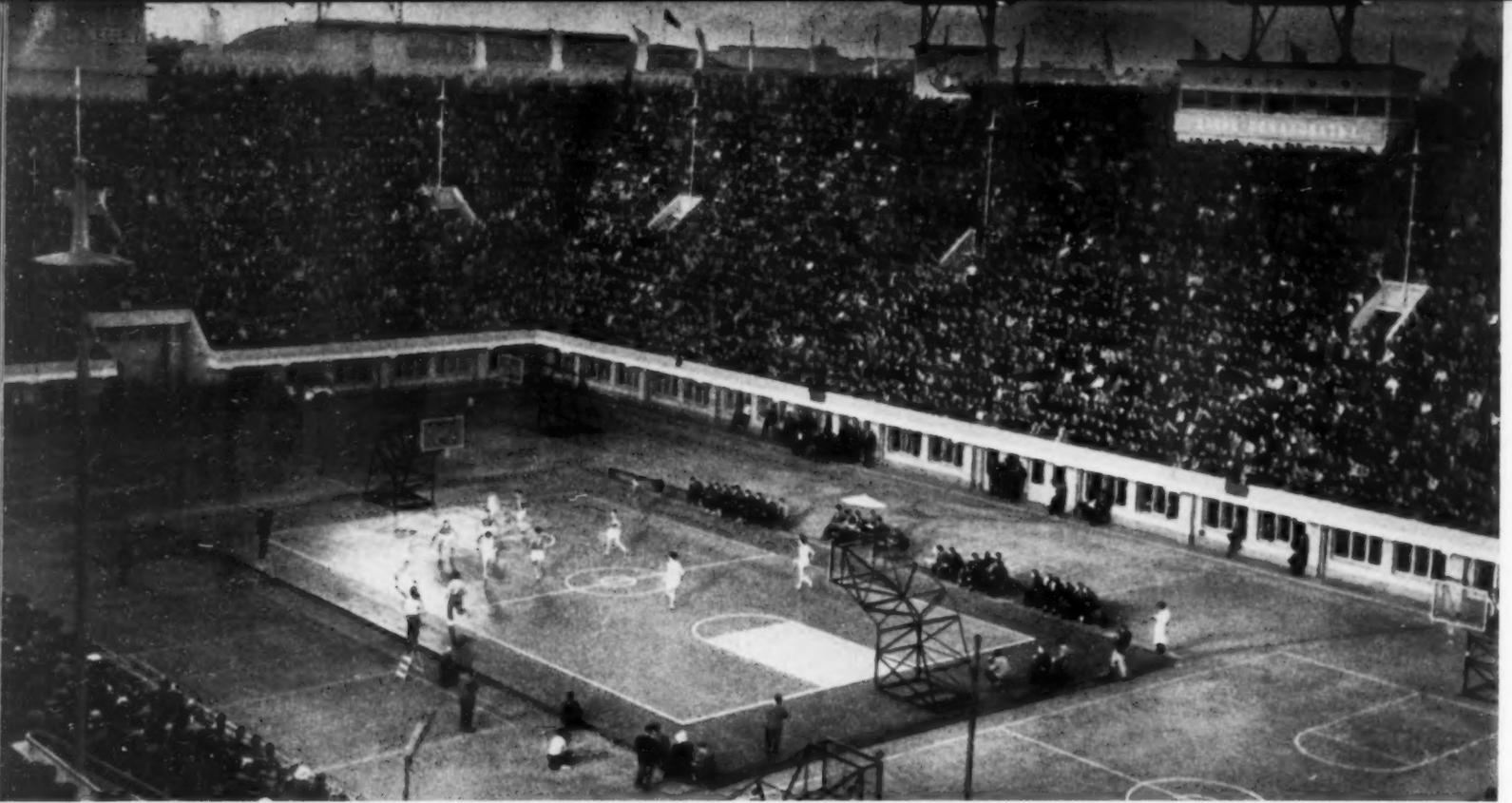
Dr. Kolthoff lectured to an audience of some 500 graduate and undergraduate students of the Chemistry Department of Moscow University on "Induced Reactions" and paid tribute, in the course of his talk, to Soviet science. "I was truly amazed," he said, "by what I have seen here. I have been greatly impressed by your accomplishments and the interest shown by all your people in the success of our common work."

"I hope," he continued, "that my visit will stimulate the development of contacts between Soviet and American scientists. Scientific research for peaceful purposes requires the cooperation of scientists of both our countries."

Dr. Kolthoff visited the Vernadsky Institute of Geochemistry and Analytical Chemistry and the Institute of Physical Chemistry, met many of the research scientists and teachers and talked to Moscow University students. The high point of his trip, Dr. Kolthoff considered, was the warm and friendly talks he had with such eminent Soviet scientists as Academicians Alexander Vinogradov, Ivan Alimarin and Alexander Frumkin. It is such personal exchange, he thinks, that can do much to further both scientific and international understanding. ■



Dr. Izaak Kolthoff of the University of Minnesota is presented with a souvenir badge commemorating the 200th anniversary of Moscow University.



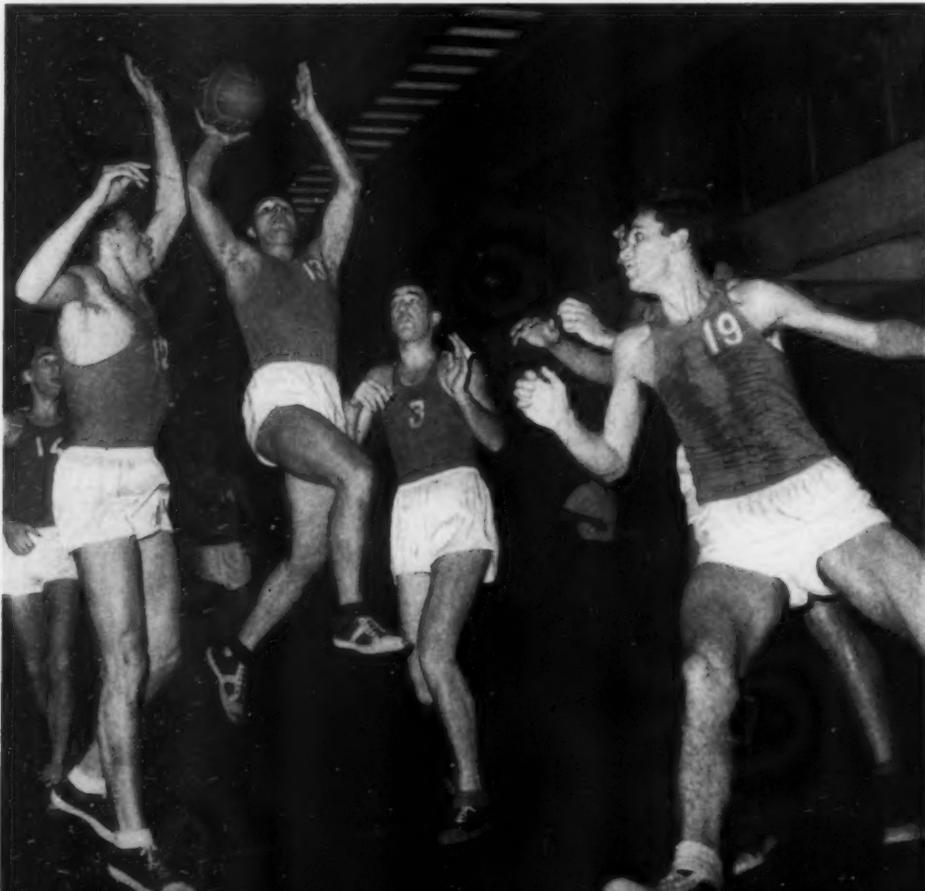
BASKETBALL HAS COME ALONG RAPIDLY IN THE SOVIET UNION, DRAWING THOUSANDS OF FANS TO SUCH COURTS AS THIS OPEN-AIR AFFAIR IN MOSCOW'S LENIN STADIUM.



The USA-USSR Basketball Meet

By Victor Kuprianov

TRAINING SCHEDULE OF THE USSR NATIONAL TEAM INCLUDES INTRA-SQUAD GAMES TO IRON OUT STRATEGY.



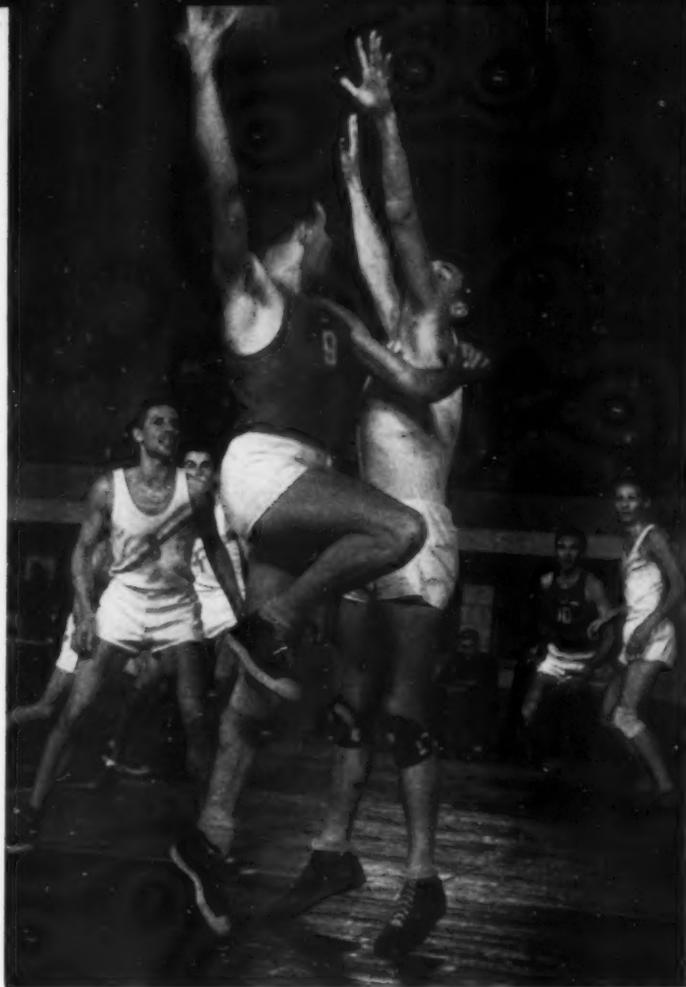
The over-all agreement between the United States and the Soviet Union on exchanges in the cultural, technical and educational fields signed in Washington last January provides for an exchange of athletes and athletic teams.

During 1958 American men's and women's basketball teams, track and field athletes and Canadian hockey squads will journey to the Soviet Union for contests there. At the same time Soviet wrestlers, weightlifters and chess players will come to the United States to meet American teams.

In the following year, 1959, Soviet basketball and track and field squads will travel to the United States for contests, while American wrestlers will visit the Soviet Union.

USSR Illustrated Monthly plans to cover the exchange meets in the Soviet Union and report on the personnel and preparations.

The following article by Sports Commentator Victor Kuprianov describes the Soviet preparations for the forthcoming basketball meet scheduled to take place in Moscow in April.



THE DEADLY HOOK SHOT (USSR PLAYER IN FOREGROUND) CAN BE DEVASTATING.



HEADS-UP BALL PLAYING. SOVIET PLAYERS KNOW BALL-CONTROL MEANS POINTS.

THERE used to be a time when mother would tell junior: "Now if you eat your oatmeal you'll grow up to be a big boy and play volleyball in the All-USSR." Times have changed however. Today most mothers would say: "Now if you eat your oatmeal you will grow up to be a big boy and play basketball in the All-USSR."

I am not prepared to say that the increase in the consumption of oatmeal is in any way the result of the growing popularity of basketball, but I am prepared to say that basketball has grown in popularity, and grown tremendously.

Basketball has been played in our country off and on since the beginning of the century but it never caused a ripple of excitement until the 1952 Olympics when we made our debut in big time international competition. The silver medal the Soviet team won in Helsinki made the public basketball-conscious. At home junior would hang up mummy's hatbox and try to sink anything from rubber balls to dad's slippers into it from across the room.

At the 1956 Olympics our team again won the silver medal and fans were beginning to wonder: "Isn't it about time we went out for the gold one?" That means outplaying such a formidable opponent as the Americans, and the skeptics said: "Let's leave well enough alone and be grateful we won the silver medal."

But one must never be satisfied with what one has already attained in sports. The other man is always moving up and if you content yourself with merely marking time, that is the end of you.

After the Olympics, while the fans were shouting "hooray" to the boys who won the silver medal, the coaches were saying: "We are going right back and brush up on our shooting." Our boys were all right on breakthroughs, but when it came to scoring from

a distance, the odds were certainly not always in their favor.

Distance shooting is very important now that walking skyscrapers have taken to the game. A squad of tall men could cover the

Continued on next page

BULL-DOGGING AN OPPONENT BY CLOSE GUARDING IS TEAM WATCHWORD AND KEY TO THEIR DEFENSIVE PLAY.





NEARING PAY DIRT. PLAYERS GRAB FRANTICALLY FOR THE BALL UNDER THE HOOP.



USSR WOMEN'S TEAM (IN WHITE) FIGHT FOR REBOUND AGAINST BULGARIANS.

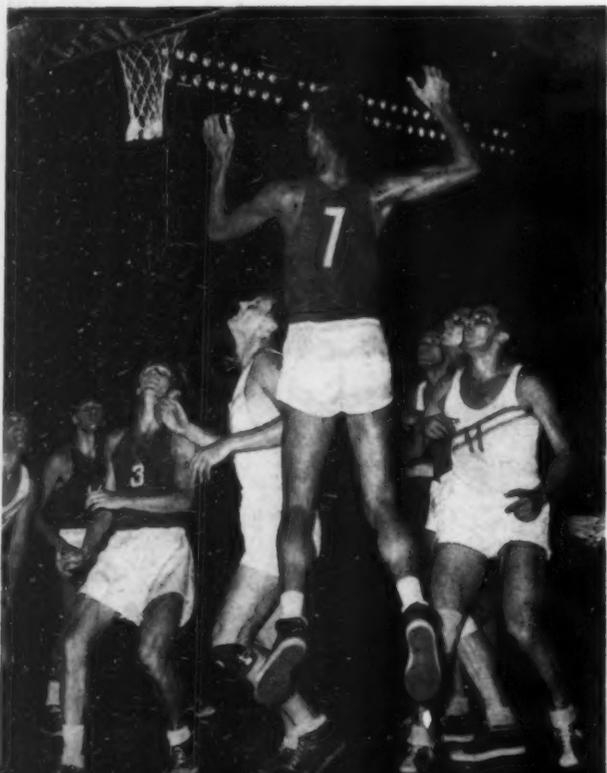
The USA-USSR Basketball Meet

Continued

basket so effectively that the attacking side would need radar to find it. One-hand shots from far away—that's the best antidote for height. And that's what the Soviet team has been working at, and working hard, too.

Another thing that the Soviet team has been trying to perfect is that 'go-out-and-get-that-ball' tactics. That's no easy job and many a player runs through his career without really being able to retrieve the ball. That takes lots of skill, skill takes lots of training and training takes lots of time.

ANOTHER TWO POINTS SWISHES THROUGH THE NET.



Defense tactics is the third thing that the coaches have been working on. Holding "your man" is an art. Our coaches seem to favor holding "your man" so close that he'll think he was born Siamese twins.

How well our players have learned their lesson will be seen in April when the Americans arrive in Moscow to match basketball skill with the Soviet national team.

The All-USSR will probably be the same team that won the European championship. It will be made up of players with an average height of 6 foot 4. Coaches here seem to feel that this is the best height for basketball, since they want a man who can show speed. They don't want actors for the slow-motion newsreels.

That's why the prime consideration in picking the men for the All-USSR will be playing ability and speed. Height is a secondary consideration—but still a help, of course.

The All-USSR will be mainly a team of veterans whose average age is 24 years, although it will range up to 30. However, it will include some hard-playing youngsters who have come up from junior basketball.

Most promising is Alexander Petrov from Baku. He will be graduating from high school this year. He'll be 19 at graduation time, and if he doesn't grow anymore, he'll stand just a wee bit under 7 feet.

The potential high scorer of the Soviet team is Janis Kruminsh, the Latvian lumber-jack who now plays for the Army. If you can reach high enough to measure him, you'll find that your tape will read about 7 foot 3.

The dangerous break-through men are Mikhail Semyonov and Arkadi Bochkarev, also of the Army and both of them boys who will go after any ball at any time. Incidentally, what this duet lacks in feet and inches it makes up, in miles per hour.

These are just a few of the likely candidates for the All-USSR. The squad will be finally picked after the end of the first half of the play-off for the USSR title. The men will come from many clubs, and from all over the country. This system of selection leaves the coaches no more than one month to hammer the squad into shape as a team before the Americans arrive.

The All-USSR has a heavy schedule in store for it this season. The culminating point is the world championship tournament in Chile next October. The feeling here is that the USA-USSR meet in April will be the supreme test for both squads.

Soviet basketball fans are very anxious to see the American women's team in action, since the USA girls hold the world title.

The Soviet girls' squad appears to be no less hopeful than the men about their prospects and they feel they could have done better in the world championship meet.

Our players, coaches and fans are enthusiastic over the plan for a home-to-home series in basketball. The USSR has played the USA only twice—at the 1952 and 1956 Olympics—and the feeling is that these meets should be held oftener. We think that these meets should be held regularly at the national level as well as the university and college levels.

Interest here in the April meet runs high. Tickets will be hard to get. The teen-agers are already brushing up on their English pronunciation to be able to talk to the Americans and suggest exchanges of souvenir pins. That's the latest rage here—and the visiting American squad will do well to come abundantly stocked with pins to cope with the rush.

We make no attempt to forecast the scores but one thing we are sure of—the USA team will get a grand reception and—may the better team win!

INTER-CITY MATCH: LENINGRAD VS MOSCOW. ARKADI BOCHKAREV (RIGHT) IS ONE OF USSR'S CRACK PLAYERS. ▶

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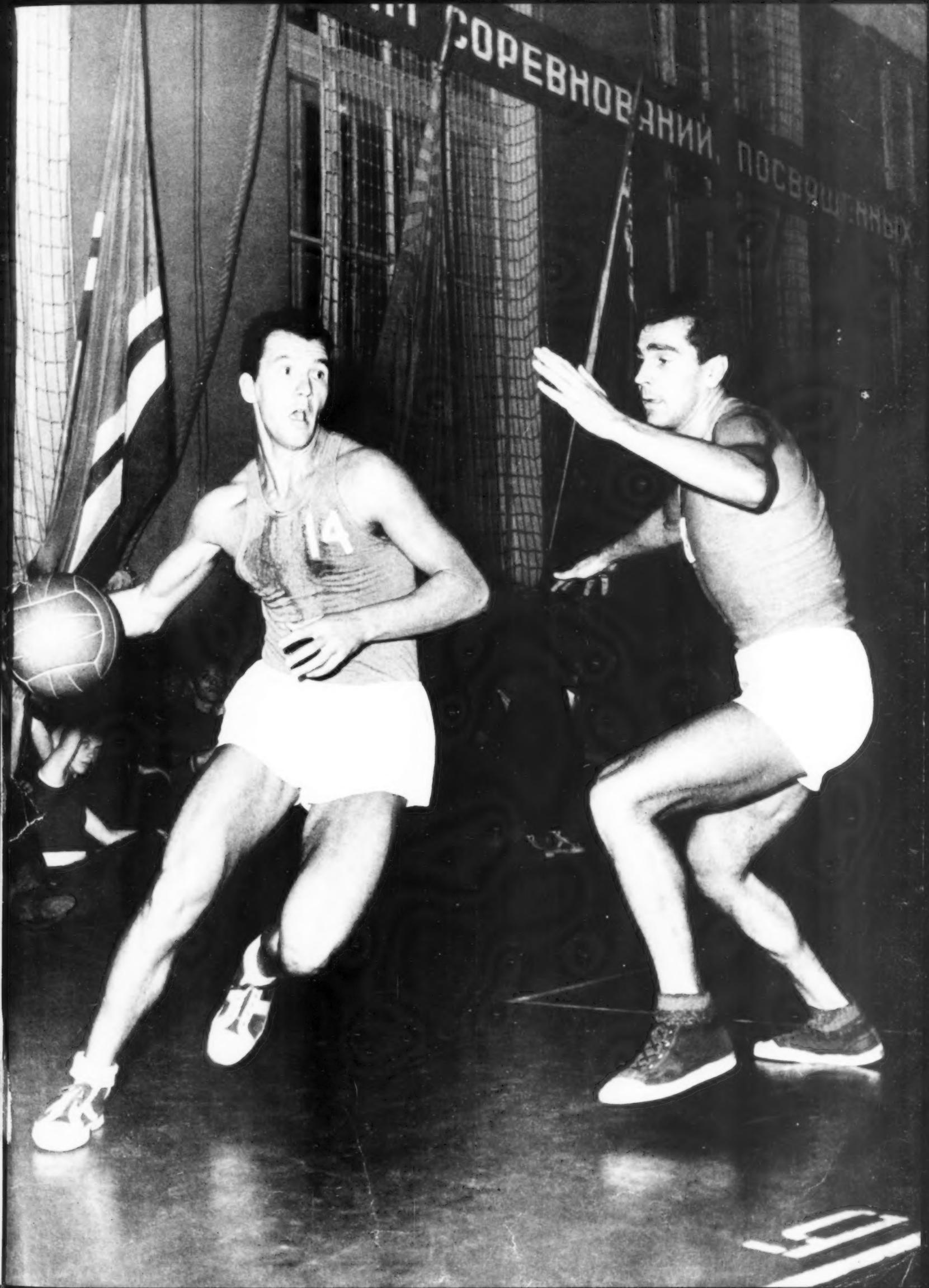
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THE FIRST SPRING OUTING



