SOVIET LIFE

PEACEFUL COEXISTENCE

SPORTS FOR ALL

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SOVIET LIFE

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LETTERS TO THE EDITOR

It is the business of a state to maintain and promote the well-being of its people. The czar's government failed in its obligation to the people and was rightfully abolished. And by a justified revolution the people established a new government whose task is the well-being of the people. The greatness of a people is the caliber of the man and woman constituting the membership composing that society.

In other words: That nation will have achieved its goal of greatness whose people all are highly educated and productive and ideal-minded.

I would love to know how much nearer is the Soviet socialist society in succeeding to build a greater, better, nobler man and woman, to make the better society, the hope of all mankind.

Meyer Chariff
Miami, Florida

While subscribing to SOVIET LIFE, I would like to make this brief note.

When the Soviet Photo Exhibition (USSR PHOTO-70) came to New York, it captivated me with an awareness of intelligence and beauty.

I have kept the USSR PHOTO-70 booklet *Soviet Union Today* as a souvenir. Well, reading, from time to time, the souvenir booklet (I enjoyed the photography best), I decided to write to SOVIET LIFE. Incidentally my two and a half year-old niece likes the picture of the baby in the blue walking suit, and Y. E. Maximova and V. Vasilyev of the Bolshoi Theater.

Daniel A. McMahon
Plainfield, New Jersey

In the last 17 years I have read many of your articles in SOVIET LIFE. The things I am most impressed by are the advances in technology which were stepped up very fast when Lenin came to power in 1917.

Keeping up with the rest of the world could not be done without great sacrifice. No American understands how the *people* of *Soviet Russia* have the *great strength* and *courage* to win this *long long* fight to lead the world in modern technology.

Your magazine proves that the Soviet Union is supporting an ongoing aviation program. Articles on history and archeology prove that it took 1000 years for your people to come together and form a great nation before Lenin put your people on another course or direction.

The picture *Zaporozhye Cossacks* shows one instant in the long struggle against many great enemies who tried to destroy them and they bore it with great spirit. The 1941 invasion was only one of the great forces your people have had to fight.

"The Letter from Antiquity" shows you are opening up a field of history that is little known in the West. The Greeks were one of the greatest cultures of all time.

Dan Burns
Omaha, Nebraska

people and events

USA City Officials in the USSR

Louis Wozar, president of the Town Affiliation Association, spoke for his delegation, which made a two-week tour of the USSR last July, when he said that the international atmosphere was favorable for friendly contacts between the cities of the USA and the Soviet Union. The group also included the chairman of the association's board of directors, Frederick W. Brittan; its vice president and the mayor of Santa Fe Springs (California), Betty Wilson; and its executive vice president Thomas Gittins.

Another group of American mayors and city officials was visiting the USSR at this same time. It was headed by the then president of the National League of Cities, Roman S. Gribbs, mayor of Detroit. After a talk with Moscow mayor Vladimir Promyslov in the Moscow City Soviet, Gribbs said: "What we Americans are always curious about are the progressive changes that have been made in other cities which we can adapt for our own use back home. I was particularly impressed by the way the city of Moscow is treating its waste—so that the water is returned to the Volga River basin as clear as it was when it was taken from the source. This is something that many cities in the United States are just beginning to do. Within the next 10 or 15 years we hope to achieve your level."

Allen Pritchard, Jr., executive vice president of the Cities organization, spoke of other concerns: "We have been very much impressed with the comprehensive plan for the city of Moscow—the major emphasis on housing and on transportation, both of which are critical problems for many of our major cities—and with the attention that is being given to providing both of these and at the same time preserving a reasonable amount of green space."

The visiting Americans met with officers and members of the Union of Soviet Societies for Friendship and Cultural Relations with Foreign Countries (SSOD) and of the Institute of Soviet-American Relations.

The deputy chairman of SSOD, Mikhail Peslyak, hailed the visits of both groups of Americans as an expression of the closer relations developing between American and Soviet cities and peoples.

Junior Farmers

Last October our country celebrated its annual Farmers Day.

Over-all agricultural achievement was announced, and the best farmers honored. There were awards to youngsters who helped their parents on the collective farms during school holidays.

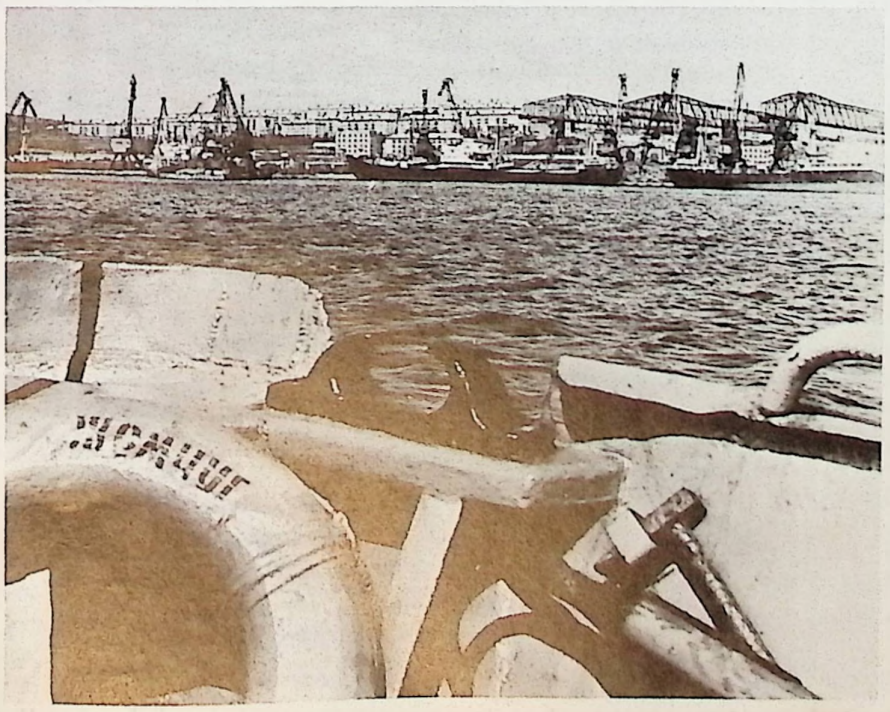
Natasha Veretennikova won a machine-milking contest held in Stavropol Territory (the southern part of the Russian Federation). The contestants were all high school students.

Taxi Driver's Book

The second edition of *From the Taxi Driver's Seat,* by Yevgeni Ryzhikov, a Moscow hackie, sold out its hundred thousand copies within a matter of days.

Ryzhikov had nursed the idea of writing such a book for a long time. "I made a habit of jotting down interesting things that happened to me and other drivers. After the notes began to pile up, it seemed like a good idea to work them up into the story of our profession," he said.

The book has been entered in a contest sponsored jointly by the Union of Writers of the USSR and the All-Union Central Council of Trade Unions. The theme of the contest is the contemporary working class.



Port Vanino

Construction of the Soviet Far Eastern port of Vanino is in full swing. New piers and a storage area are being built in the timber export district. An industrial TV installation is going up, rail lines are being expanded and a new electric power station is nearing completion.

At the same time modern multistory housing is girdling the surrounding hill in terraces that drop to the sea, and, close by, there will be shops, schools, polyclinics and kindergartens. Higher up, at the top, stands the Palace of Culture; behind it are athletic grounds that include a stadium, indoor swimming pool and a sports palace.

Port Vanino will be one of the biggest harbors in the country. With other Far Eastern ports—Nakhodka, Vladivostok, Kholmsk and Nagayevo—it will play an increasingly important role in developing the rich mineral areas of the Soviet Far East.

PEACEFUL COEXISTENCE: LENIN'S CONCEPT, TODAY'S FOREIGN POLICY

By Georgi Zisman

WHEN VLADIMIR LENIN formulated the basic principles of Soviet foreign policy in October 1917, he concluded that the peaceful coexistence—or "peaceful cohabitation," as it was then called—of the capitalist countries and the first socialist republic was both possible and vitally necessary. That conclusion was rejected not only by the bourgeois world but even within the working-class movement itself. It was not immediately understood and aroused doubts and criticism.

It took half a century for Lenin's idea to win the support of the majority of the world population, for the principles of peaceful coexistence to be widely recognized by governments and nations as an objective necessity. The principles, said Leonid Brezhnev, General Secretary of the CPSU Central Committee, at the World Congress of Peace Forces in Moscow in October 1973, "are becoming more and more specific in content, and are gradually becoming generally accepted as a standard of international relations."

The experience of peaceful historical development, interrupted by bitter wars, proved the scientific verity and historical inevitability of Lenin's idea. It answers the interests of all nations, all countries that wish to avoid the horrors and misfortunes of destructive wars, of all who strive to strengthen international security, who work for mutually advantageous cooperation and economic and cultural contacts between countries.

The strength and correctness of Lenin's idea lies in its scientific nature, in its conformity with the real processes taking place in the world. Like all the teachings of Marx and Lenin, peaceful coexistence is not a brilliant guess or a wishful thought, but a thoroughly substantiated conclusion and an integral part of a profoundly scientific theory, the product of a close study of humanity's past and present development.

Even before the Great October Socialist Revolution in Russia Lenin had come to the conclusion that there would be a long historical period, a whole epoch of transition from the old social system to the new one, when the capitalist and socialist countries would live side by side.

This conclusion was confirmed by history after the first socialist state was formed in 1917. For almost 30 years the Soviet Union was the only representative of the new, socialist system and consistently pursued its peaceable, democratic foreign policy in an atmosphere of ill will and hostility created by the Western countries.

After the defeat of the Nazis in the Second World War a new stage of development began. Other countries chose socialism, and it became a world socioeconomic system. The coexistence of the two systems, socialism and capitalism, became an objective necessity.

One of Lenin's great contributions was that he indicated the only wise, the only possible, course of international relations in the era of the existence of the two world systems.

The Revolution and Peace

From the moment the Soviet state was founded, Lenin perseveringly advanced his policy of peaceful cooperation with the capitalist countries. On the day of the triumph of the Socialist Revolution, October 26, 1917, he made his Report on Peace to the All-Russia Congress of Soviets of Workers' and Soldiers' Deputies. It was his first public address after the Soviets took power. In this report and in his Decree on Peace, he declared the struggle for peace to be the main task, the general line of the foreign policy of the Soviet Government, and urged all belligerent countries to begin immediate negotiations for the conclusion of a just and democratic peace, a peace without annexation or indemnities.

As the head of government, he took every opportunity—public speeches, talks with foreign diplomats and journalists, official documents—to underline the peaceful nature of Soviet Russia's foreign policy. The resolution of the Seventh All-Russia Congress of Soviets, which met in Moscow in December 1919, written by Lenin himself, stated:

> "The Russian Socialist Federative Soviet Republic wishes to live in peace with all peoples and devote all its efforts to internal development in order to establish the smooth running of production, transport and government affairs on the basis of the Soviet system; this has so far been prevented by the intervention of the Entente [1] and the starvation blockade." [2]

In its first years, the Soviet state had to defend itself in a bitter, sanguinary war, to repel the attempts of reaction at home, supported by foreign imperialist forces, to overthrow the power of the people and restore capitalism. For almost three years a civil war raged on the huge territory of the former Russian Empire. During this whole period Lenin and the Soviet Government declared time and time again to the peoples and the governments of the world that Russia wanted peace. To solve the chief and most difficult task of the Socialist Revolution, the task of the restoration and development of the national economy, to build a new life, "we need peace, a firm and lasting peace," he said.

The united forces of the home and foreign counterrevolution were routed by the Red Army, the armed forces of the workers and peasants. And as soon as the war ended and a period of peaceful coexistence of the Soviet Republic with the bourgeois countries set in, Lenin defined the aim of its foreign policy:

> We shall do our utmost to preserve peace in the future . . . having started on our work of peaceful development, we shall exert every effort to continue it without interruption.[3]

Here is manifest evidence that the peace policy of the Soviet Union and all socialist countries is not a temporary, transient phenomenon and not a tactical maneuver. It derives from the vital interests and needs of the peoples of the socialist countries, from their aspirations to increase their material well-being as soon as possible, to build socialism and communism, from the conviction that their chosen path is the right one.

Cooperation, an Integral Part

Lenin repeatedly pointed out that in the major imperialist countries there were statesmen and businessmen who, viewing events realistically, were interested in cooperation and in normalizing relations. In this connection, he emphasized, it was not without reason that the attempts of the reactionary circles of the West to isolate

[1] The alliance of Britain, France and czarist Russia, formed in 1907 to counterbalance the alliance of Germany, Austria-Hungary and Italy. The formation of these alliances was dictated by the desire to recarve the colonial possessions and led to the First World War of 1914-1918.

[2] Vladimir Lenin, *Collected Works*, English edition (Moscow: Progress Publishers, 1965), vol. 30, p. 231.

[3] *Ibid.*, vol. 33, pp. 149, 151.

Soviet Russia were hopeless and that the economic blockade of the Soviet Republic did direct damage to these countries themselves. In December 1921, at the Ninth All-Russia Congress of Soviets, he said:

> As for the blockade, experience has shown that it is an open question as to who suffers from it most, the blockaded or the blockaders.[4]

And a little later in a speech to the All-Russia Congress of Metalworkers, Lenin, referring to the business representatives of the countries that had invited a Soviet delegation to the Genoa economic conference, said:

> We know perfectly well that by no means all of you want to fight.[5]

But peaceful coexistence means more than the preservation of peace between states with different social systems, although it is indisputable that rejection of war as a means of settling differences is the decisive factor here. An integral part of this policy is the recognition of the possibility and the necessity for cooperation. In his very first speech on the foreign policy of the Soviet Government, in the very Report on Peace mentioned before, defining the attitude of the new government to the treaties concluded by czarism and the bourgeois Provisional Government, Lenin said:

> We reject all clauses on plunder and violence, but we shall welcome all clauses containing provisions for good-neighborly relations and all economic agreements; we cannot reject these.[6]

In the first years of the Soviet state, Lenin and his comrades had to defend the concept of cooperation with the capitalist countries—the necessity for establishing, through treaties, mutually advantageous relations with them—not only in polemics with anti-Soviet ideologists but also with opponents of this policy in the ranks of the Russian Communist Party. A grouping of so-called "left Communists" opposed the peaceful policy of the Soviet Government, criticizing it particularly for pulling out of the imperialist world war and concluding the Brest-Litovsk peace with Germany in March 1918. Ridiculing their position as unrealistic, Lenin wrote:

> A socialist republic surrounded by imperialist powers could not, from this point of view, conclude any economic treaties, and could not exist at all, without flying to the Moon.[7]

But in coming out for cooperation—political, economic and cultural—Lenin insisted that it would be successful and fruitful only if there were strict respect for the sovereignty and territorial integrity of all countries; noninterference in their internal affairs; unconditional recognition of the right of every nation to settle independently the problems of its internal life and its political and economic system; equality in relations between countries and consideration of the interests of the cooperating partners; recognition that mutual advantage is an imperative condition of economic cooperation and international trade; strict adherence to treaties and commitments undertaken.

In this connection he warned more than once that economic, cultural or diplomatic cooperation becomes impossible if it is hedged about with conditions that permit interference in the internal affairs of the Soviet Republic.

Lenin regarded the economic relations of the Soviet Republic with capitalist countries as an objective historical necessity. In his last speech before the Eleventh Congress of the Russian Communist Party in 1922 he developed this thought:

> The fact of the matter is that the most urgent, pressing and practical interests that have been sharply revealed in all the capitalist countries during the past few years call for the development, regulation and expansion of trade with Russia. Since such interests exist, we may argue, we may quarrel, we may disagree on specific combinations—it is highly probable that we shall have to disagree—this fundamental economic necessity will, nevertheless, after all is said and done, make a way for itself. . . . We can say with a fair amount of certainty that regular trade relations between the Soviet Republic and all the capitalist countries in the world are certain to continue developing.[8]

In this connection he stressed:

> There is a force more powerful than the wishes, the will and the decisions of any of the governments or classes that are hostile to us. That force is world general economic relations, which compel them to make contact with us.[9]

The present state of international relations serves as one more proof of the validity of Lenin's theses. But the concrete embodiment of his theses, correct as they were, required long and persistent efforts. Lenin's ideas on international cooperation have formed the basis of the country's foreign policy at all its stages. In the first years of the Soviet state, in the period preceding the Second World War and in the cold war period which followed, the efforts of Soviet statesmen and diplomats were concentrated on the implementation of the Leninist principles of peaceful coexistence, on ensuring the just and democratic peace Lenin called for, a peace founded on respect for the rights and interests of all nations.

In recent years a profound and qualitative change has been taking place in the minds of men all over the world, in the activities of statesmen and parliamentarians in the majority of countries. Regarded from the aspect of the struggle between the ideas of peace and the ideas of militarism, the essence of this change lies in the recognition, full or partial, that peaceful coexistence is the only realistic approach to international relations in the present-day world. This change in sentiment is finding practical expression in the changed relations between countries. Its direct application in international life is the present shift from cold war to détente, from military confrontation to peaceful cooperation.

Now, when prospects for the preservation of world peace are more hopeful, when the danger of a world nuclear-missile war which threatened mankind for almost a quarter of a century has lessened, the Leninist principle of peaceful coexistence is becoming a generally accepted standard of international life. That, to a considerable extent, determines the course of events. It explains the turn toward constructive cooperation of the socialist countries with the countries of Western Europe: France, the Federal Republic of Germany, Italy and a number of others. Concrete examples of these changes are the treaties concluded by the Soviet Union, Poland and the German Democratic Republic with the Federal Republic of Germany.

The change in the relations of the two superpowers, the United States and the Soviet Union, has a tremendous influence on events. The visit of the President of the United States to the Soviet Union in May 1972 and the visit paid by Leonid Brezhnev, General Secretary of the CPSU Central Committee, to the USA in June 1973 paved the way for the transition from confrontation to détente, from cold war to mutually advantageous cooperation. There is no doubt that considerable difficulties still lie ahead, no few obstacles still have to be overcome, but a solid foundation has been laid for continuing the positive dialogue hailed by all peace-loving people.

The effectiveness of Lenin's principle of peaceful coexistence is confirmed by the fact that more and more Western statesmen are showing a desire to break through the cold war inertia, to join the peaceful dialogue with the countries of socialism. In the struggle under way in the Western countries between the champions and opponents of détente, more authoritative voices are being raised by those who have a sober and realistic approach to the basic problems of the present-day world and accept the idea of peaceful coexistence, not only as an attractive slogan, but as a practical foundation for relations between countries.

The Soviet state expresses the will of its people for a stable peace. Three years ago, at its Twenty-fourth Congress, the Communist Party of the Soviet Union advanced a comprehensive peace program, which met with the approval of all peaceable people. This program is being carried into effect persistently; it is no accident that it has become known as the "Soviet peace offensive" in the West.

It outlines a feasible way of eliminating the hotbeds of tension in all areas of the world, of freeing mankind from the specter of a thermonuclear catastrophe. It leads to a stable and irreversible détente.

[4] *Ibid.*, p. 152.
[5] *Ibid.*, p. 220.
[6] *Ibid.*, vol. 26, p. 255.
[7] *Ibid.*, vol. 27, p. 71.
[8] *Ibid.*, vol. 33, p. 265.
[9] *Ibid.*, p. 155.

Members of the Apollo crew visited the Soviet Union at the end of last November. Their trip was another stage in the preparations for the joint American-Soviet space flight.

THE APOLLO CREW IN MOSCOW

THE STAY of the American astronauts in the Soviet Union divided itself into two more or less related parts: work and sightseeing. The first consisted of studying the Soyuz spaceship, listening to lectures, viewing technical films and going over flight documents. The astronauts were shown the equipment at the Cosmonaut Training Center, including the simulators used by Soviet spacemen, which are as close as you can get to actual flight. Much attention was given to language study, and everybody took a great interest in the joint sports program.

The diverse activities and classes involved many others besides the future Soyuz and Apollo crews. It gave specialists at the Cosmonaut Training Center their first practical experience with a joint project.

Spaceships, like planes, have fundamental similarities that make it easier to get acquainted with another country's craft. But there are, of course, decided differences between the Soyuz and Apollo, and these differences were the subject of special study by the Americans.

Apparently the commanders lead their crews in language study, as well.

The training and meetings over, some of the Soviet specialists were asked to comment on results.

Academician Boris Petrov, Hero of Socialist Labor, Chairman of the Intercosmos Council, USSR Academy of Sciences:

"The present meetings have gone beyond getting acquainted with unfamiliar equipment. They required that the crews take a good look into the principles behind the systems and understand the why of their operation. We feel we've accomplished this —we're very pleased with the progress."

Vladimir Timchenko, a representative of the Soviet technical director:

"We are now elaborating and coordinating documents that I would call functional, for example, the plans for testing different systems and the work schedules of the ground control centers. Recently the Johnson Space Center in Houston ran a dynamic docking test of the American and Soviet systems, but there was no discussion of docking units during the meeting. Both the American and Soviet directors of the project are devoting their attention to planning classes and training sessions for the crews.

"On the whole, the work of the Soviet and American sides is proceeding according to schedule, what we call first-level schedule. This applies also to the experimental work, which has kept up with the agreed deadlines."

Valeri Kubasov, cosmonaut, Hero of the Soviet Union:

"In July 1973 we visited the USA and attended lectures on the theory of the Apollo design. The American astronauts were on a similar mission to the Soviet Union, studying the Soyuz. The first item on the agenda of these visits was a theoretical acquaintance with the other country's spaceships. Joint training directly on simulators will be next—in Houston in July and Stellar Town in September.

"One of the problems now is language. The two countries use different terminology in space research—for the design of ships and on-board systems, and so on. We are working out a single technical terminology.

"Personal meetings and regular contacts are of great importance for the participants in the forthcoming joint flight. I thought the visit was particularly useful in that regard."

On the eve of the American astronauts' departure for home, our correspondent Alexei Gorokhov put a number of questions to Vance Brandt, a member of the first Apollo crew, and Alan Bean of the second Apollo crew.

With what feelings are you leaving Moscow?

Brandt: "I found my first trip here very pleasant. I made a good many friends and saw a number of interesting things. What impressed me most, I think, were the museums, the Kremlin and some of the old cities we visited."

Bean: "I have just been to the Soviet Army Museum. It gives an excellent picture of the history of the Soviet people from the end of World War I—the Revolution—to the present. I realized there that the Soviet people are highly interested in their country's past. Since we are going to be working so closely with the cosmonauts, I think it is important to understand Soviet history. I can see now that the Russians I have met here are very heroic types, stoic and strong. These museums tend to convey that picture."

What are your impressions of Stellar Town and the equipment at the Cosmonaut Training Center?

Brandt: "It's a very modern city. I was impressed by the fact that there is so much construction going on and that you have such good facilities there already for training cosmonauts. The Soyuz is an excellent spaceship."

You visited Kaluga, the home of pioneer space scientist Konstantin Tsiolkovsky, and

The sightseeing was no less intensive than the working part of the visit. It included trips to the ancient Russian cities of Vladimir and Suzdal, a tour of the Moscow Kremlin, meetings with well-known Soviet stage people at the All-Russia Theater Society and, of course, a visit to ancient Kaluga, where Konstantin Tsiolkovsky, the founder of modern cosmonautics, worked and lived and where the Museum of the History of Cosmonautics is situated.

That city on the Oka is 110 miles from Moscow. In the museum Eugene Cernan, with Alexei Leonov as guide, went through the Vostok spaceship, the first manned space vehicle. Alan Bean must have used a half mile of film in Kaluga.

"Any country would be proud of a museum like yours," General Thomas Stafford, leader of the U.S. astronaut team, said later. Stafford's Russian, incidentally, is quite good —he has been studying the language of his future partners for five months. Alexei Leonov's English is also up to expectations.

Moscow reporters interview the American and Soviet spacemen after their meetings.

saw the Museum of the History of Cosmonautics. Will you comment on that trip?

Bean: "I wanted especially to see the museum because I had heard about Tsiolkovsky long ago, when I first became interested in space. He is well known in our country. I was also curious about the exhibits of the automatic spacecraft that had orbited the Moon and taken the first pictures, investigated Venus and soft-landed a capsule on Mars. I thought they were beautifully displayed. I had my camera with me, and I hope the pictures come out because they're very good."

Brandt: "The cosmonautics museum was one of the high points of the trip. I don't think we have anything yet that is comparable. It's a good way to preserve a record of the early history of space flight for our children."

Where were you on April 12, 1961, when Yuri Gagarin made his flight?

Bean: "I was in Jacksonville, Florida, at the time. I wasn't surprised, because when you launched your Sputnik, I knew it would not be long before you put a man in orbit. As a pilot myself, I was elated. Pilots all over

Time out for recreation in a busy work program in preparation for the joint flight.

the United States felt good for him and wished they could be there with him. We wanted to join the space program, too. There were some astronauts training, but I wasn't one of them."

How do you appraise the meetings with Soviet spacemen?

Brandt: "I'm enthusiastic about our joint flight. We have a very good mission coming up, and I feel I've got more than enough energy for the job."

Bean: "Alan said it for me."

There are two trends in space research—the use of automatic craft and of manned ships. Which is your choice?

Brandt: "I think we need both. Some projects turn out best with automatic craft. An example is weather satellites, because they must stay in orbit sometimes for years and observe the atmosphere through cameras on a regular daily basis. Other flights call for manned craft. Space stations, for instance, need people to conduct a large variety of experiments, to study the Earth and the Sun, and to handle unexpected failures that may occur, as you could see with the Skylab.

"So it turns out that both methods are useful. The Soviet and American space programs have both, and I think we will continue in this direction."

A visit to the State Museum of the History of Cosmonautics in ancient Kaluga.

On a visit to Stellar Town the Americans try some Soviet space food.

Soviet cosmonaut Alexei Leonov (far right) doubled as guide on a tour of the museum exhibits.

Would you like to take part in a joint mission to, say, Mars?

Brandt: "I hope that someday our cooperation will expand to include other joint missions, to places like Mars. Of course, any project of that size would probably require the cooperation of several countries.

What will you say about this trip when you get home?

Brandt: "That the Soviet cosmonauts are a great bunch of guys. We've come to know each other and get along very well. I have the greatest confidence that the joint flight will strengthen the friendship between the United States and the Soviet Union."

Bean: "Your country is much more attractive and enjoyable than I had imagined. People are friendly here and easy to get along with. It's one of the most fascinating places I've been to. When I get home, I'm going to tell my friends about my new impressions of Russia and the Russian people. I think it will change a good many concepts. This is a beautiful country, and I'm glad that we will be working together."

Galina Shugurova, 20, of Siberia, the all-round world art gymnastics champion.

sports for all ages

Building Harmonious Human Beings

THE TWENTIETH CENTURY might be the age of speed, but it is also the sedentary age. For example, a large number of workers spend their days driving one vehicle or another. Think of the number of truck drivers, train engineers, ship and plane pilots, and then of the people whose job it is to sit at various control panels.

To put it simply, people's expenditure of physical energy is approaching the zero mark. Academician Axel Berg calculated that the muscular effort of human beings is only one per cent of what it was in the nineteenth century.

This is something to worry about: Some people see the men and women of the future as frail beings with hypertrophic skulls. A sad picture but, we think, somewhat exaggerated.

The reason for our relative optimism is mass sports. After all, we don't build stadiums and gyms just to fill people's idle moments, or produce heavy barbells merely to develop the muscles of that "strongest man on Earth."

Because human beings are the major concern of socialist society, and because sports are so important to health, it is the government's responsibility to see to it that everyone gets the chance to participate. About 50 million people, every fifth person in the country, build themselves up through athletics at the country's 210,000 sports clubs. This is no passing enthusiasm. Our sports activities are led by more than 250,000 trained coaches and instructors. Backing them up are more than three million unpaid volunteers, many of whom were once famous athletes.

Coaches and physical education teachers get their training at 23 physical culture institutes, 25 junior colleges, 10 schools for coaches, three research institutes and 84 physical education departments at teachers institutes.

Sports statistics of all kinds quickly become outdated these days. We have about 3,000 stadiums and 7,000 specialized gyms; next year there will be many more. Our goal, mass participation, calls for a considerable increase in the construction of sports facilities.

Automation and the other blessings of civilization notwithstanding, we believe there will be more than enough space in the cities of the future for soccer fields, bicycle paths, tennis courts. To expand the sports facilities of old cities along modern lines presents something of a problem; in new cities these facilities are planned beforehand. Sumgait in Azerbaijan, Chirchik in Uzbekistan, Severodonetsk in the Ukraine, Volzhsk in the Russian Federation were all built and settled by young people, with provision for sports fields, gyms and swimming pools. Though their athletic facilities differ, depending on the tastes of the local youth, they all provide plenty of elbowroom for participatory sports. Cities like these are our future, not the automated Edens where people's muscles atrophy.

It is not simply a matter of building stadiums and swimming pools. Popularizing sports, attracting millions of people, takes a great deal of work and thought. The new set of physical training standards, introduced in 1972, covers people of all ages, from schoolchildren to those past 60. Its promotion slogan is Prepared for Work and Defense (Russian abbreviation GTO). GTO is a whole variety of measures—organizational, educational and promotional—for each of five age brackets. The idea is to keep men and women interested in participatory sports throughout their lives.

Such people as Hero of Socialist Labor Alexander Gitalov, the famed tractor driver; circus artist Igor Kio; General Nikolai Kamanin, one of the first Heroes of the Soviet Union, and many other luminaries have passed the GTO tests and wear the badge. So have athletes Valeri Borzov and Olga Korbut.

Sports help out on the job, as well. Doctors and physiologists have begun to search out for the different occupations patterns of motion that will compensate for the inactivity of one or another group of muscles. Statistics show that in factories where sports get a big play, the incidence of ailments drops.

A factory team made up entirely of athletes is not unusual today. One such team, led by Nikolai Nikolayev, is at the Komsomolsky Mine in Norilsk, a city in the Arctic Circle. The leader holds a Master of Sports title in wrestling; his assistant Victor Panteleyev is an International Master of Sports; the other nine members have the title of either master or candidate. In such a team the work goes smoothly and earnings are higher. The management and the trade union committee meet the athletes halfway; they get time off, with pay, to compete in other parts of the country.

Physical culture and sports are more than body builders, they build character. Self-confidence, courage, determination, comradeship are standards that every athlete, from the world record holder to the village champion, sets for himself.

There is another component which makes athletics what it is: the will to win.

These days, when both sides are more or less equal in technique, tactics and physical fitness, the critical factor is self-control, keeping nerves and emotions in check.

The once famed soccer player Nikolai Tishchenko finished one game with a broken collarbone, and the decisive goal was scored on his pass. Gymnast Victor Chukarin entered the arena with an injured hand and won the world title. Johanes Kotkas pinned his wrestling opponent in the final encounter despite an injured rib.

There are many such example in the memory of sports fans and writers. Obviously, we don't want athletes to stay in after they've been hurt; health is more important than titles and applause. Besides, that degree of self-discipline is rare. But in sports the power of example is tremendous, perhaps more than in any other field, so that the courage of leading athletes helps shape the characters of millions of young people.

That sports teach not only through individual example is a truism. They are inseparably linked with the idea of the collective—the team, the sports club, the country.

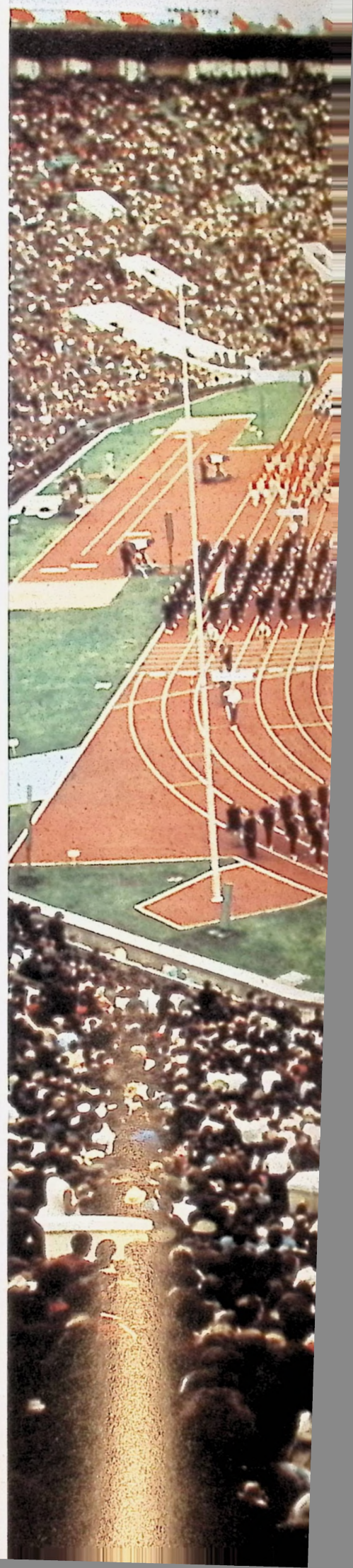
You frequently come across the phrase "team victory" in the press. A cliché, but true nonetheless. A feeling of confidence in their teammates helps players perform better; the squad thinks and acts as a unit. How many times in championship games have we seen the odds-on favorite defeated by poor teamwork?

In the war year of 1944 the USSR Soccer Cup was won by the Leningrad Zeniths. Before and since that time, they have been a good but not spectacular team. Their 1944 victory occurred shortly after the city's 900-day blockade had been broken, so it is unlikely that the winners were in particularly good shape either technically or physically. But what united them then was what united all Leningraders: the feeling of responsibility, mutual assistance and friendship. While this is an exceptional example, it is indicative.

Sports bring whole nations closer. In the USSR their growth is aided by the mutual assistance and cultural interchange of the different republics, nationalities and peoples. By drawing on the experience of the country's best athletes, helping each other build facilities and provide training, the republics are constantly expanding their sports programs.

Evidence is the traditional USSR People's Games (both summer and winter), the biggest sports competition in the country, in which teams of all the constituent republics plus Moscow and Leningrad participate.

For both contestants and spectators the Luzhniki Stadium is superior to many of the stadiums where past Olympic Games have been held.



Moscow is sports-minded.
Last year 227 of its young men and
women became USSR champions
and 80 won world and European titles.

SPORTS IN MY LIFE

Mikhail Gromov, Hero of the Soviet Union, Honored Master of Sports, test pilot

I've been a physical culture addict from early childhood. Way back when I was a little boy, my father introduced me to the trapeze and the dumbbells.

I went in for outdoor games like *lapta* (a Russian ball and bat game), soccer and volleyball, and running. All this developed my muscles and coordination and gave me the self-confidence later to fly a Farman-3 plane on my own before my friends in an aviation club had the nerve to.

There's no denying that physical culture has been something of a fairy godmother for me all my life. Not only did it put me in that plane; I could count on it to be a reliable companion on the most hazardous flights.

Let me give you an example. I remember testing one of our new planes in 1927. It turned out to be quite unpredictable, and I went into what pilots call a flat spin. On the twenty-second spin, when I knew the situation was hopeless, I parachuted out of the plane. I wouldn't be here to tell the tale if it were not for my background in physical culture and sports. I had to muster every bit of strength I had to leave the plane, which was pointing inexorably toward Earth (at the time there were no catapults). They told me it was the first parachute jump from a spinning plane.

Now I like watching soccer and ice hockey. But I don't intend winding up just a spectator. I always start the day with exercises and a good jog. And when I can, I also do some swimming.

Alexander Dmitriyev, fitter at the Vladimir Ilyich Electromechanical Plant in Moscow

I grew up in the thirties. They were tough years for our country, but sports were a big thing. Especially for teenagers. I went in for gymnastics and ice hockey, and soccer, of course—for us youngsters soccer was the king of sports. No boy today could imagine how and where and in what outfits we used to play. Stadiums, sports grounds, goals, real boots? They didn't exist for us, even in our dreams. Things are so different today.

Why do I value sports so much? Because they have helped me. During the Second World War I suffered terrible wounds—my central nervous system was affected and I lost my hearing. I was given up by the doctors, a hopeless case, bedridden for life. I was left to help myself: I started to move one finger, then another, I would raise my hand an inch and then rest an hour. I worked up a program of physical exercises and kept on, day after day, getting one muscle after another to move. In three months I could run. I forgot all about being a chronic invalid. I went back to the front and ended the war as a senior lieutenant.

Today, in my fifties, I still play volleyball, do some running, and ski and skate all winter. Whoever thinks that manual labor is a substitute for physical culture is mistaken. Quite the opposite. The more tired I get at work, the more I train to get over the fatigue.

Igor Kio, magician, winner of an international magician's prize

Before becoming a magician, I had to learn the simple fact that practice makes the performer. All the miracles we bring to pass in the circus, all the bright colors, dazzling costumes, everything the spectator sees and everything that makes him love what we do is only the proverbial tip of the iceberg; underneath is the sweat and the tears the audience never sees. All my experience tells me that the skill of the circus artist demands physical strength and good form. That's where continuous and regular sports activity comes in.

Our circus does in fact have a long sports history. It was in the circus that the talents of sports stars Vladimir Zamotkin and Yuri Bykovsky really blossomed. They were at one time national acrobatic champs. The famous animal tamer Walter Zapashny was a circus acrobat for some years. He also qualified for the Master of Sports title in weightlifting, gymnastics and diving.

I wish I could add my name to the list, but I didn't get involved in sports to any degree. Most circus artists begin working in the arena at a very early age. I knew as a very young child that I would follow in my father's footsteps—he was a circus magician. My interests at the time were limited to school, the circus and soccer. But soon I had to give up regular practice in my favorite sport, I had to go on tour with the circus from one place to another. But I haven't given up soccer. On tour we try to arrange friendly games between the circus team—I'm the captain—and local teams. We get a lot out of these soccer games. The change in activity helps us relax from the nervous strain of performing.

Yakov Belopolsky, head of an architectural office, winner of the Lenin and State Prizes

We are living in a time of tremendous psychological strain, whether our work is in industry, science or art. Sports and intellectual endeavor are, I am convinced, mutually supportive, interdependent. Sports are an absolute must for a stable personality. No other activity helps so much to relieve the stress and strain of the age.

In my younger days I went in for many sports. But my love of chess had the greatest effect upon me. It taught me to think, to plan ahead. A game of chess became a mental exercise, developed in me the gymnastics of three-dimensional thinking—indispensable for an architect.

I like soccer, it gives me an esthetic pleasure. I am no worshipper of fantastic records. Much more important, I believe, is the mass enjoyment of sports. I don't care much for the kind of basketball game where supergiants toss the ball into the basket with no effort at all. The score seems to become the sole aim of the game, and the excitement is completely gone.

Our era must emphasize a continuing and well-rounded physical development. We architects have an obligation to participate in that purpose; we must design and build sports grounds, swimming pools, gyms close to where people live, literally in their own back yards.

Alexander Gitalov, head of a tractor brigade, twice Hero of Socialist Labor, Deputy to the USSR Supreme Soviet

Farming is no occupation for the weak or the sickly. Generally speaking, we farmers can't complain about our health. Those who work the soil, like Antaeus seem to gather strength from it. However, while nature has taken care to give us good health, it's up to us to nurture it. And nature's best helper is physical culture and sports.

I don't think I have to go into what harvesting involves. The work and the fruits of a whole year can hang on one short hour. That is when the machine operator needs triple stamina and strength, he must call upon the tremendous amount of energy he has stored up. Regular sports training will build up that reserve. My tractor-driver friends and I have been put to the test more than once.

I do my daily dozen regularly in the morning or, rather, at dawn. I'm an early bird and get up before the sun does. I love *gorodki* (Russian skittles) and volleyball, and we have pretty good courts in the village. There is also an excellent soccer field. I'm a little too heavy now for the game, but the younger fellows keep chasing after the ball way into the evening. We have a new coach at the farm who's good at many sports. A lot of the boys from my tractor brigade train with him in gymnastics, volleyball and cycling. I don't have to worry about them, they stay in shape.

Figure-skating pair Irina Rodnina and Alexander Zaitsev. Below, an aspiring but still wobbly duo.

Children's Figure-Skating School

By Irina Rodnina

Olympic, World and European Figure-Skating Champion

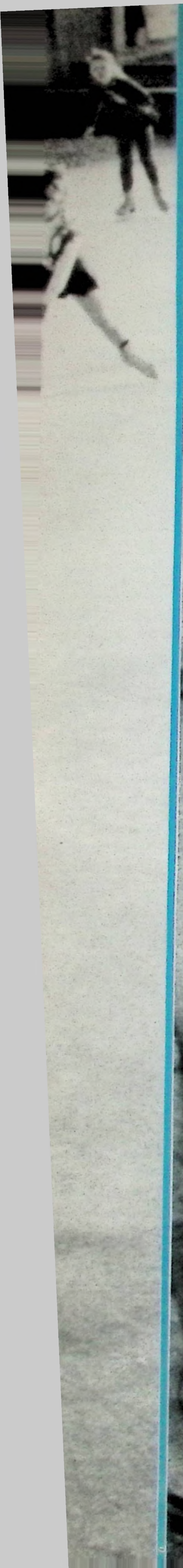
With Alexei Ulanov, Irina Rodnina has taken top honors four times at European and world championships and won the gold medal at the 1972 Olympics. Since spring 1972 she has been skating with Alexander Zaitsev. In 1973 they placed first at the world and European championships.

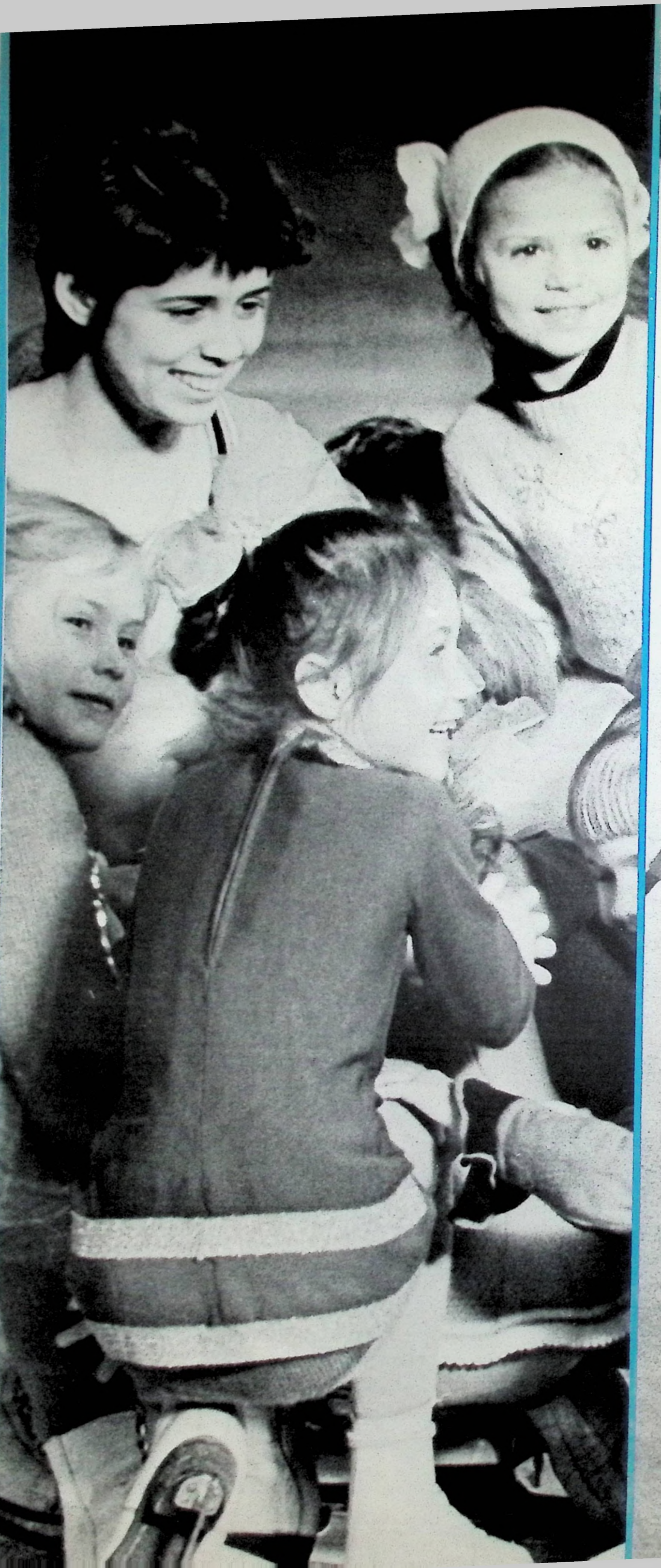
HIGH SPEEDS and giddy leaps, graceful movements, music, sparkling ice—that is figure skating. But how much energy goes into the training for this beautiful spectacle?

In our country figure skating is one of the most popular winter sports. Thousands of girls and boys train at the many rinks.

Soviet figure skating is world famous and so are the leading skaters: Lyudmila Smirnova and Alexei Ulanov (pair skating), Lyudmila Pakhomova and Alexander Gorshkov (ice dancing), Sergei Chetverukhin and Yuri Ovchinnikov. They have won repeatedly at world and European championships and at the Olympics. I'm happy that I too have been able to contribute to this sport.

The figure skater's career begins at the children's skating schools, whose number is increasing from year to year. There used to be only two main figure-skating centers — Moscow and Leningrad—but at the recent junior championships youngsters from Sverdlovsk, Kiev, Kirov, Kazan, Tallinn, Gorky and other cities competed. Over 60,000 children now go in for figure skating.





These are some of the 300 four- to ten-year-olds in the children's figure-skating school of the Soviet Army Central Sports Club. To get into the school, you have to be physically fit, supple, and have a good sense of rhythm. Left: Irina Rodnina enrolled at the school when she was six.

The future skaters I am going to tell about attend the children's skating school at the Soviet Army Central Sports Club. I began studying there at the age of six and still train at its rink.

Applicants to the school must pass intensive tests for physical fitness, musicality, rhythm and plasticity. Skilled specialists train the children, among them Stanislav Zhuk, a former figure skater, silver medal winner at three European championships and the best coach in the Soviet Union; Alexander Gorelik, silver medal winner at the 1968 Olympics; and Victor Ryzhkin, several times the champion of the USSR. Choreographers, composers, musicians and costume designers create the compositions and plan the programs.

At the disposal of the students are all the necessary equipment, facilities and medical services. The tuition fee is a token five rubles a month; after two years instruction is free.

It's not easy to become a good figure skater; both the students and coaches must follow an intensive regimen. Success comes only to the most persistent and stubborn. But the years spent at the school leave their mark. Though not all the youngsters become champions, they grow up healthy, resourceful, with a keen sense of beauty, and that is the goal of Soviet sports.

The Rossiya, the biggest hotel in the capital, has accommodations for nearly 6,000 guests. It faces the Moskva River embankment, along which bicycle races are usually held.

INVITATION FROM MOSCOW

By Konstantin Andrianov
President of the USSR Olympic Committee
and Member of the International Olympic Committee Executive Board

IT IS IMPOSSIBLE to imagine Moscow without its broad range of sports activities: from neighborhood soccer to international meets and physical culture festivals.

Every four years in Moscow the flags of all the Soviet republics greet the finalists of the USSR People's Games. In scope and showing the games easily measure up to the Olympics .

Many major international contests are held in the capital. In recent years it has developed into a meeting ground for holding world and European championships, contests for continental cups and just plain friendly games. Representatives of international sports associations, journalists, trainers and athletes themselves say that meets held in Moscow are always well organized, that ground conditions, housing and social programs are excellent and the atmosphere warm and friendly.

All these considerations must have had a good deal to do with the choice of Moscow for the 1973 World University Games. A record number of athletes (more than 4,000) came from 72 countries. Dr. Primo Nebiolo, president of the International Federation of University Sports, said after the games:

"Though there is no direct connection between the University Games and the Olympic Games, I can say for myself that Moscow has all the necessary sports facilities for the Olympics and, as has been shown, great experience in the organization and staging of contests."

Soviet athletes have been competing in the Olympic Games since 1952. In the last two decades about 2,000 of the best of them participated in winter and summer Olympics, more than 600 medals were won. Soviet sportsmen, together with those of other countries, have made their contribution to peace, mutual understanding and world sports at the stadiums of Helsinki, Melbourne, Rome, Tokyo, Mexico City and Munich, on the snow-covered slopes of Cortina d'Ampezzo, Squaw Valley, Innsbruck, Grenoble and Sapporo. And it is interesting to note that Muscovites always seem to constitute our Olympic vanguard. Some 200 citizens of Moscow have won Olympic titles.

But it is not only, and not so much, a matter of titles. More important is the extent of mass involvement in sports and their general accessibility. More important is the fact that almost a million Muscovites of all ages, every seventh person in the capital, are sports participants, not just spectators. The city has 70 stadiums, 6 sports palaces, 26 swimming pools and more than 1,000 gyms.

Our chief sports center is the Lenin Central Stadium in Luzhniki, with 140 facilities spread over half a square mile. The most impressive is the Big Sports Arena (the stadium proper). It has grandstands for 101,-000. Under the grandstands are 14 training halls and more than 1500 auxiliary areas, including a hotel, two restaurants, a movie house, a sports museum, a clinic and an international telephone and telegraph office.

The Sports Palace, seating 17,000 and with room for 15 different events, is the second largest sports arena in Luzhniki. Four million patrons annually flock to sports attractions, official and otherwise, in which sportsmen of many different countries compete.

It would probably take more than a day to go through all the Luzhniki facilities. A staff of hundreds of workers and specialists look after swimming enthusiasts, the children in their own sports grounds, visitors at the Small Sports Arena and the tennis courts, the soccer fields and the various ball courts. There is room for 23 simultaneous events if all the facilities are in use.

Other sections of Moscow have modern sports installations also. On Leningrad Prospect are the popular Dynamo Stadium, with grandstands for 60,000 people, and the Young Pioneer Stadium, which has a cycling track. Elsewhere are the halls of the Central Army Sports Club and the Krylia Sovetov Palace.

Major international contests are held at the Locomotive Stadium, the shooting range in Mytishchi, the modern pentathlon base in Planernaya and the Khimki rowing center, which is of recent construction but already has played host to oarsmen competing for the 1973 European championship. It deserves special mention. The two courses (the width of the main one is 136 yards and the return route—81) stretch a distance of 2515 yards. No traffic of boats, kayaks and canoes is allowed the other way. The canal is filled with dead water.

Though Moscow already has many stadiums and halls, courts and swimming pools, the Master Plan for the development and reconstruction of the capital, approved in 1971, includes something more, notably sports complexes right in the residential areas. In addition to stadiums intended specifically for the residents of the given neighborhood, there will be sports halls, swimming pools and sports grounds citywide. Major facilities will be concentrated in four districts. Centers are to be built in the southeastern and northeastern zones of the capital; the two which have been in operation—in the southwestern district (where Luzhniki is located) and the northwestern (along Leningrad Prospect)—will be expanded.

The southeastern district of Moscow is not yet able to offer much in the way of sports. But it has a promising future, a big ensemble is slated for Nogatino. This complex is to be built along a picturesque bend of the Moskva River parallel to a speedway. An area of almost half a square mile will have a big stadium, general purpose halls, a cycling track and a swimming pool. The Nogatino complex will be able to schedule international meets in seven different events —soccer, basketball, cycling, swimming, diving, volleyball and archery.

In the northeastern zone are two of Moscow's biggest and most beautiful parks, Sokolniki and Izmailovo, where national and international expositions are held frequently. The Institute of Physical Culture moved there recently on its fiftieth anniversary. The new complex consists of five spacious buildings with classrooms, rooms for medical services, an indoor arena with a 218-yard circular track and two rifle ranges.

Several hundred students can work out at the same time in the institute's gyms and halls, though it is not yet completed. It will have a stadium, an indoor swimming pool, courts and a soccer arena. A complex of hotels to accommodate 10,000 tourists will be built near the institute.

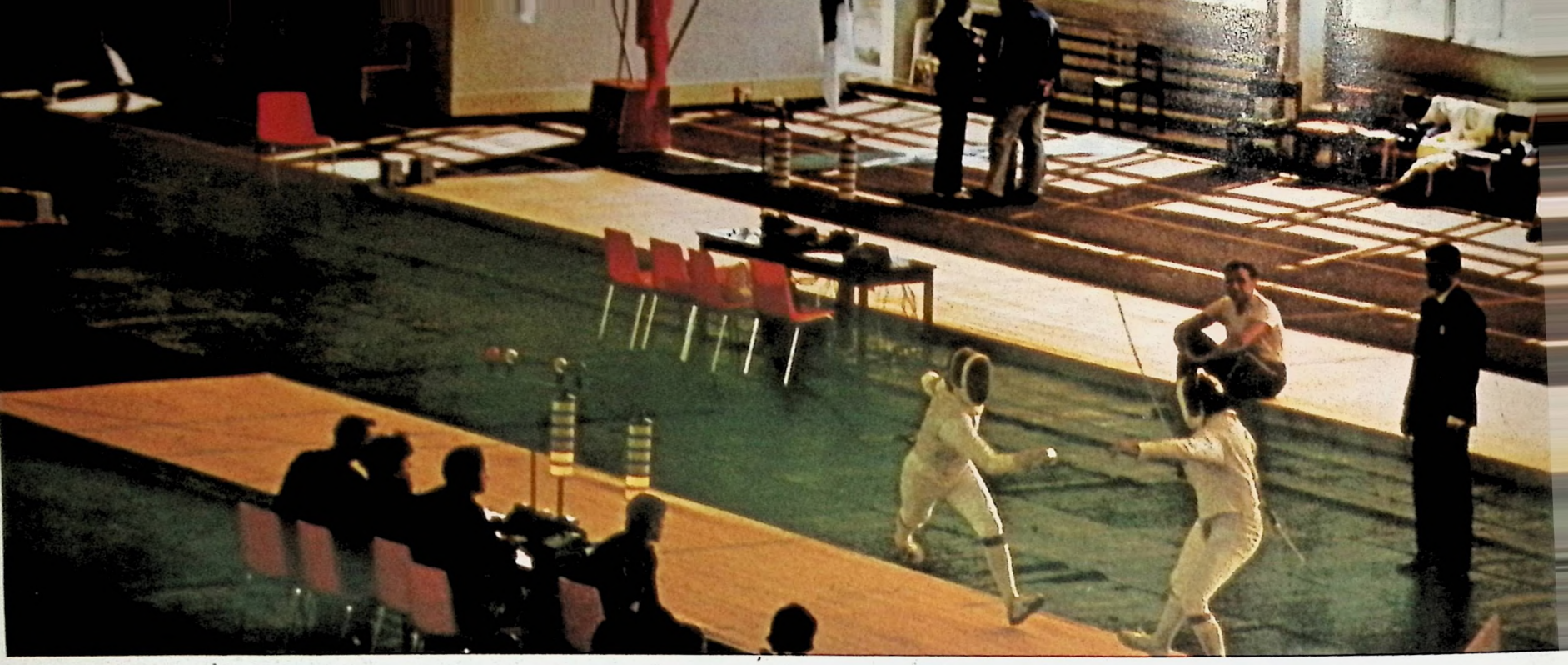
In the neighborhood, in the green zone of Izmailovo Park, a fine site has been chosen for an Olympic village. Architects are planning for three skyscrapers and other buildings.

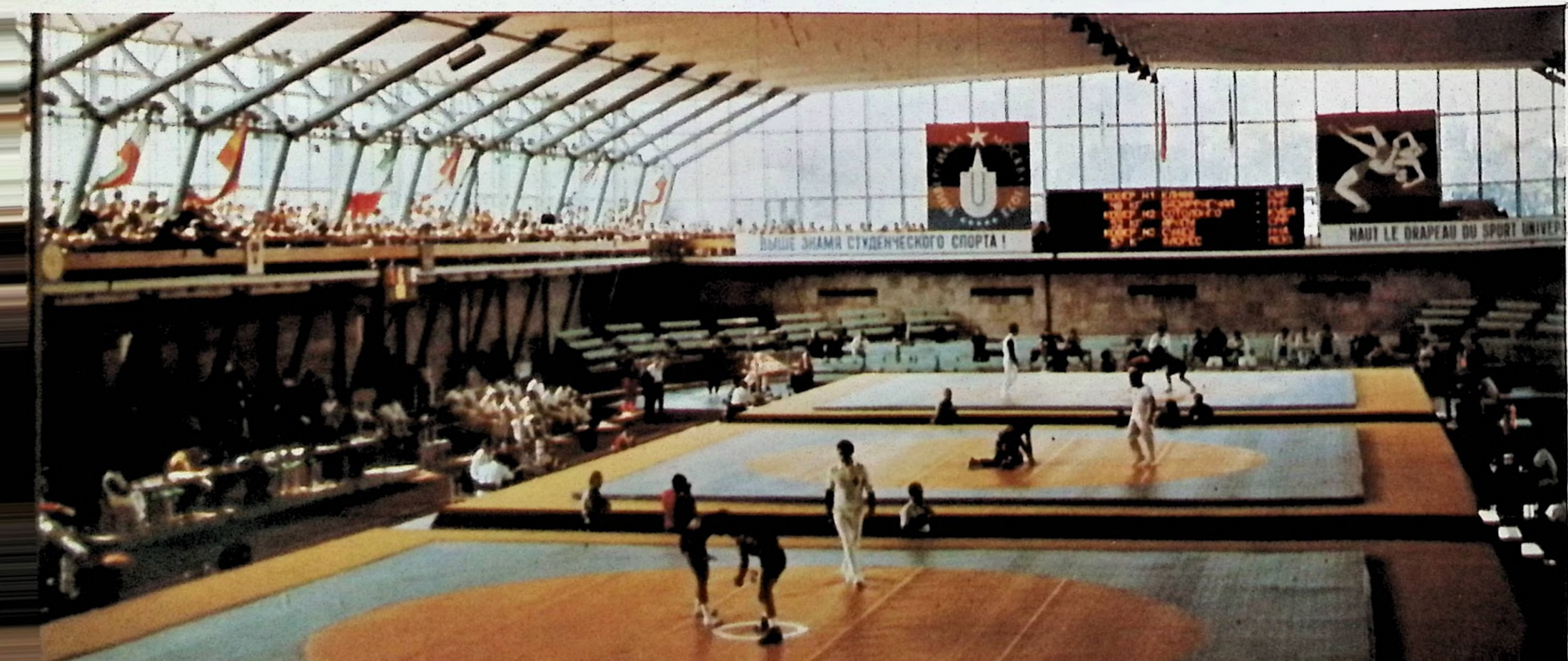
The village will have a concert hall and a hotel, with most of the suites designed for two. Guests will be able to choose among four restaurants, several buffets, a number of bars and shops.

All four sports zones in Moscow will be connected with each other and the whole of the capital by convenient transportation (Metro, bus and trolley bus). After the reconstruction of the capital's transport network and the addition of another circumferential highway within the city limits, Moscow's sports zones will be interconnected by additional speedways.

In short, the capital of the USSR is well prepared for any international meet, even the Olympics.

And so, Moscow extends an invitation.




ВЫШЕ ЗНАМЯ СТУДЕНЧЕСКОГО СПОРТА !
HAUT LE DRAPEAU DU SPORT UNIVE

Moscow has 70 stadiums, six sports palaces, 26 swimming pools, and more than a thousand indoor athletic facilities and gyms.

Left, top to bottom: The indoor sports arena in Sokolniki. The new rowing canal in Krylatskoye. One of the 16 gyms and sports arenas in the Physical Culture Institute. Right, top: The pool at the Luzhniki Stadium.

"We are glad that Moscow is running for the nomination. Everyone knows perfectly well how much the Soviet Union has done for the good of the Olympic idea."

WILLY DAUME
President
of the Organizing
Committee
of the Olympic
Games in Munich

Modern photography can stop an acrobatic jump in all its fascinating drama, but the living presence is still unequaled.

NO SPEED LIMIT HERE!

Racing is not just a spectator sport in the Soviet Union. A lot of young people compete, especially students, who very often build their own cars.

The amount budgeted for public health and physical fitness grows from year to year. In 1959 it was 4.8 billion rubles, in 1966 it went up to 5.8 billion rubles, and in 1971 to 9.3 billion. The trade unions, which finance most sports clubs, will spend some two billion

KEEPING FIT IN MOSCOW

By Victor Kuprianov

A PHYSICAL FITNESS boom has hit Moscow. I made the discovery quite accidentally.

It all started when one of my wife's friends asked her at a luncheon, "Don't you think your husband is putting on weight?"

Instead of saying, "I like him that way!" my wife made the mistake of inquiring, "Well, what can I do about it?"

I don't know what they told her, but you can surmise what she told me.

The very next morning I was shepherded to the Lenin Stadium (in Luzhniki) to enroll in the fitness course for the past middle-aged. I had never regarded myself as past middle age, but I found that there were thousands more who had suddenly made the discovery and decided that they wanted to keep fit.

The first step was a medical checkup at my local polyclinic, where they gave me a certificate listing all my ailments. Deep down inside I hoped that with a list of ailments that long they'd turn me down and let me enjoy life my own way. But that isn't the way it worked out.

Exercise is for everyone and every condition, I was told, and they introduced me to a group of joggers who had all had—and forgotten—major coronary disorders.

At the stadium all newcomers are divided into groups according to the state of their health. Exercise sessions are held twice a week under the supervision of a physical education expert. They start with a warmup to let you know that you've still got muscles. The course also includes swimming, volleyball and skiing in winter. It's lots of fun, that is, after you get over the embarrassment of being referred to as past middle-aged. Some members of the group are nearing 70 so I still regard myself as young.

Popular is hardly the word for these courses. The stadiums and sports clubs are having trouble coping with the influx of fitness fans.

I remember when the fad just started, the skeptics were telling this joke:

"Why are you jogging?"

"Because I want to die healthy."

Now no one laughs. The keep-fit bug has bitten the public hard. Morning and evening the city's boulevards are full of jogging citizenry. Jogging too is under medical supervision. Your local polyclinic gives you all the necessary advice and instructions.

Statistics recently published show that one Muscovite in seven goes in for sports and physical fitness activities. There is a countrywide program in operation to involve everybody from age 10 to 60. You have to meet certain qualification norms to earn a handsome pin that millions wear with pride. I am in Grade 5 (age 50 to 60), which means that to qualify for the pin I must be able to jog 15 minutes, ski 3 miles in as long as it takes me, swim 150 feet (no time limit) and hike six miles. Boys and girls 10 to 13 are in the first group. Their simple program consists of morning exercises and instruction in hygiene as well as sports of their own choosing. In short, training and qualifying for this physical fitness pin is really enjoyable.

All sports facilities invite people to come and train and take the necessary tests. So it can become a family affair. In fact, many industrial plants and offices make the arrangements for their employees and families to use the facilities.

One of the results of this program is that everyone's doing the morning exercises on TV and radio. For fellows like me, who hope to get away with sleeping through the broadcast, they sell long-playing records with the exercise explained and a musical accompaniment. The embarrassing moment is when you buy one of these records and the clerk, usually a young thing, asks, "For what age group, please?" The temptation to flex your muscles and say: "For the Samson class" is great, but with all eyes and ears focused on you, you just mumble, "For me" and you keep your fingers crossed, hoping that the young lady behind the counter will wrong-guess your age by at least 30 years and say it out loud.

Hiking is another activity interesting more and more people. We Muscovites are lucky: We have ideal woodland to ramble through and a network of hiking clubs that keep planning new trails. There is nothing formal about membership in these clubs—anyone who wants to come is welcomed. The hikes are held every weekend. A bulletin board near my house, put up by the local club, announces the hike of the week, giving the time and meeting place. It's a come one, come all affair.

The hikes I've gone on have attracted the older generation mainly, but the schools arrange such outings on a large scale, and they do not restrict them to the Moscow area.

Speaking of outings, which seem to be the favorite weekend activity of Muscovites, the trade unions at all enterprises arrange weekend mushroom hunts; without question the number of participants eclipses the figure for any other sport or weekend pastime. My office charters buses to take us out to the choice mushroom areas, and there we are turned loose—each one carrying a basket so spacious it holds more mushrooms than we could find in a year. Still, it is a prestige symbol that also marks the optimist. In the winter ski jaunts are arranged with chartered trains (health trains, we call them) that not only take us out but provide dressing rooms and hot meals.

Some of my cronies prefer ice fishing, and the trade union at the office takes care of that too.

It's great fun if you don't mind getting up before dawn to drill your fishing holes in the ice and get settled. This used to be exclusively a male pastime, but the women moved in. I think it must have been the terrific number of fish stories we told at home that got our wives curious to see what the one that got away actually looked like.

Summer fishing is also attracting lots of people, and we have regular contests. I blush to admit that the women beat us men at the last one, which took place on the outskirts of Moscow this past summer.

While the city is expanding its sports network, back yard athletics are rapidly catching on. A recent government ruling says that all new housing projects must have sports facilities, depending on the size of the community: They range from soccer fields to ministadiums, gyms and swimming pools.

For boys from the age of 11 we have countrywide back yard championships in soccer and ice hockey. Upwards of three million boys competed in each sport last season. The hockey tournament is open only to boys who do not belong to the regular junior sports clubs. Here in Moscow ice is no problem. The house management provides the area for the rink, which the boys themselves make. One of the rules for team qualification in the tournament is that it must make its own rink. Of course, the house management helps with the side boards and lighting. And there is usually someone in the neighborhood who has played the game himself or knows enough to act as coach.

In hockey the rules are simplified; in soccer the boys play by rules that vary from field to field and from one day to the next. In fact, in my back yard the boys have modified the game so much that the rest of the world might like to know in what respects. To begin with, there is no time-keeping. The game breaks up only when irate mothers march their sons in to supper. The second great innovation is the player-referee. Since no one wants to referee a game (and who listens to a ref anyway!), they combine the two. The system works, I have discovered, although sometimes high-decibel shouting weighs more heavily in the scales than skillful technique.

One thing the Soviet sports program has achieved is continuity. From school sports the boy or girl graduates to institute athletics. One in three is active in sports. That is ensured by the pattern of intermural tournaments and intramural activities. Institutes field more than just one varsity team. They may have as many as nine basketball teams competing for the championship, and ranking is calculated on the aggregate showing of all of them. Students can choose any sport, including mountain climbing and aerobatics, at no cost whatsoever.

Boys and girls who do not go on to an institute but take jobs are also involved in sports through the different sports societies. Membership dues are a modest 30 kopecks a year, and that covers the use of all facilities, equipment, coaching and medical supervision, no matter what the sport.

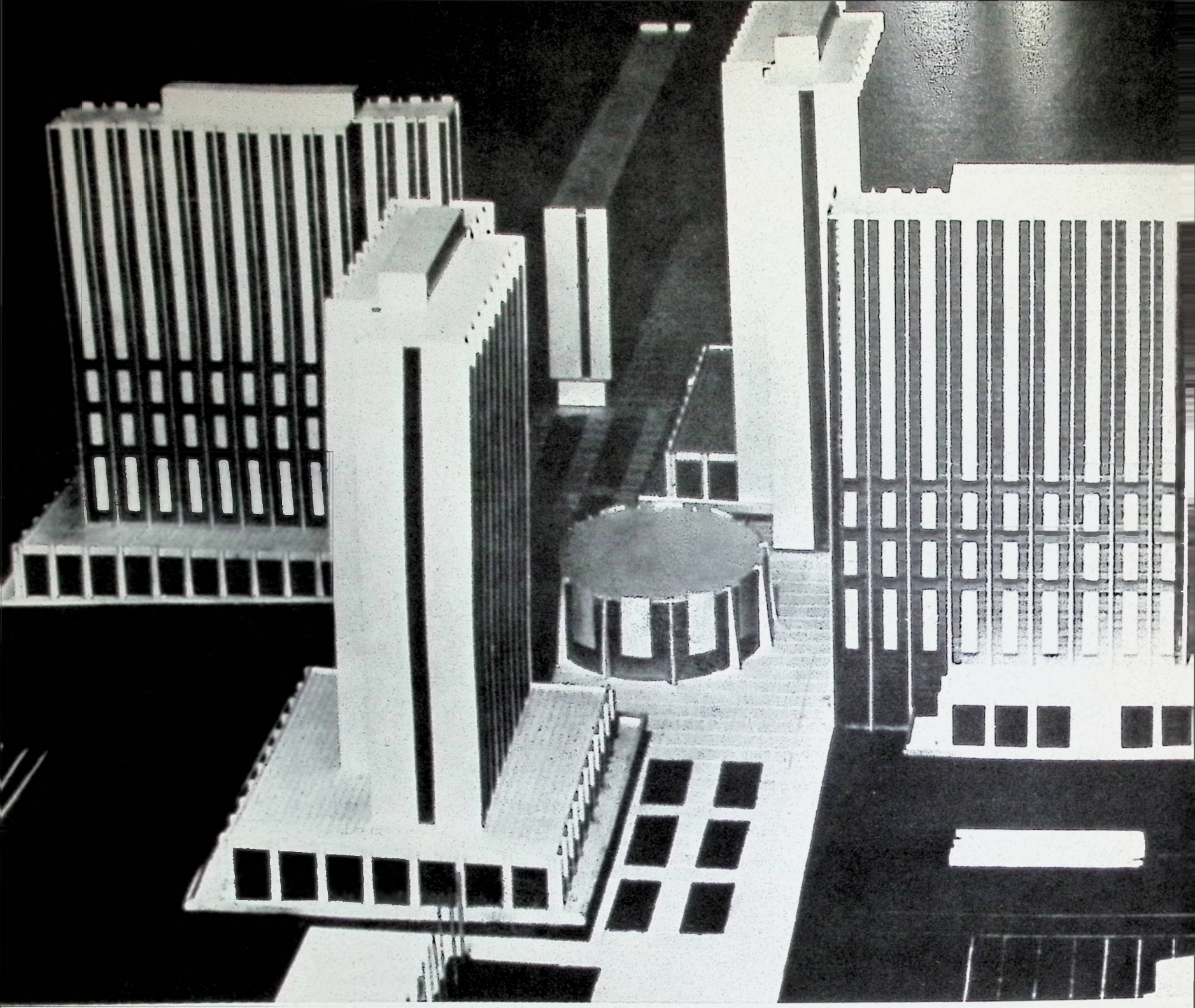
The traditional USSR People's Games (Spartakiad) will begin in 1974 and extend over a two-year period. The purpose is not just to scout Olympic talent but to popularize sports and get more people involved. At the games held four years ago, a participation figure of about 45 million was registered. The attitude here is that the Olympic year is not only for the Olympic stars. We hold local tournaments that match the Olympics in involvement and excitement.

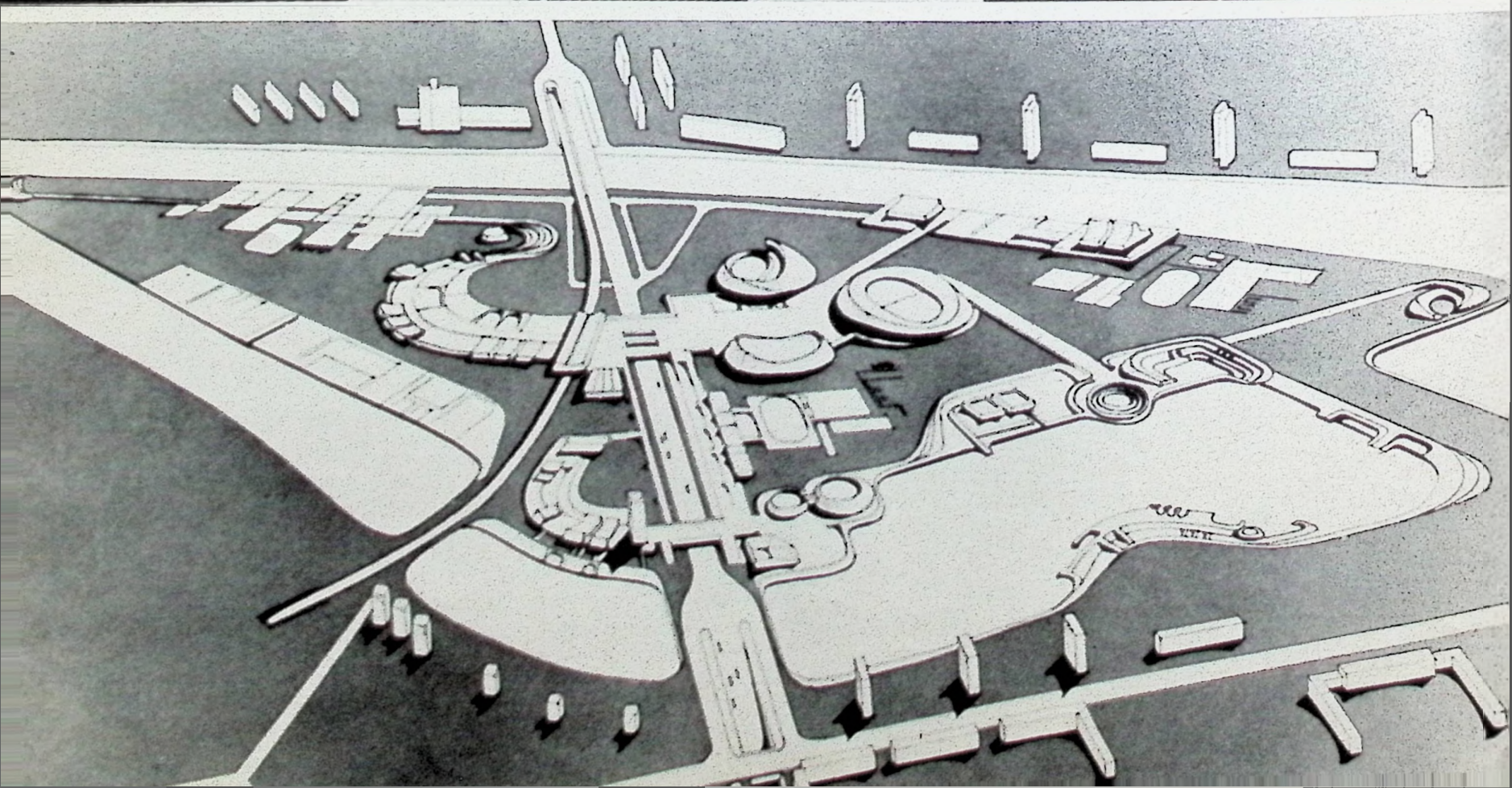
The Soviet sports program has given the conventional stadium a new look. The stadium is not merely a place to come to watch sports; it is there for everyone to use. Admission to stadium grounds is free, and everyone is invited to take part in the sport of his or her choice.

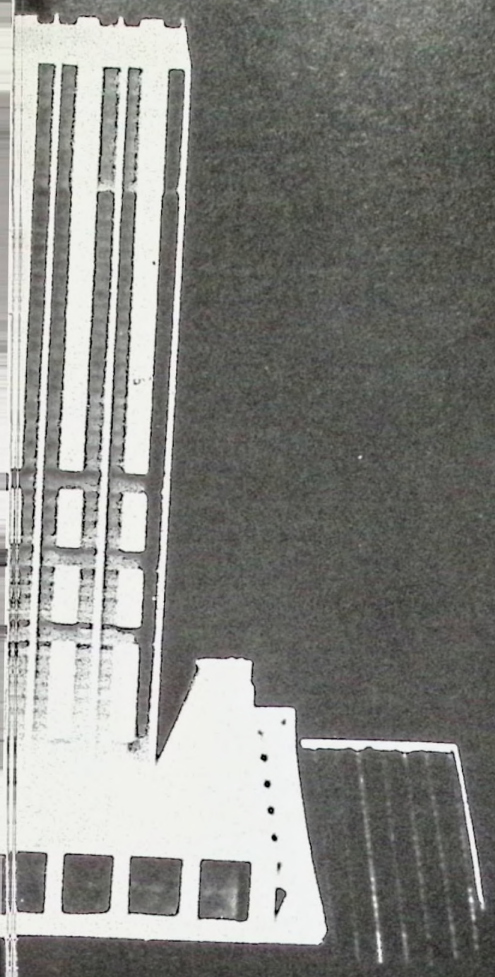
Lenin Stadium in Moscow invites boys and girls from the age of five to learn to skate, swim and even play tennis. What's more, we have special children's stadiums exclusively for the school generation. At the top of the popularity list for girls are figure skating and gymnastics. Some girls are already doing Olga Korbut's routines.

There is one big string attached to all these children's activities: Good marks at school are a must. One failure is enough to get suspended—and they are very strict about this rule. At tournaments the player may even be asked to show his report card.

We want sports to be a grassroots movement and provide facilities for all. The Soviet Union spends billions a year on its sports and physical fitness program; there's no ruble-pinching. We believe that when we invest in sports, we are investing in good health.





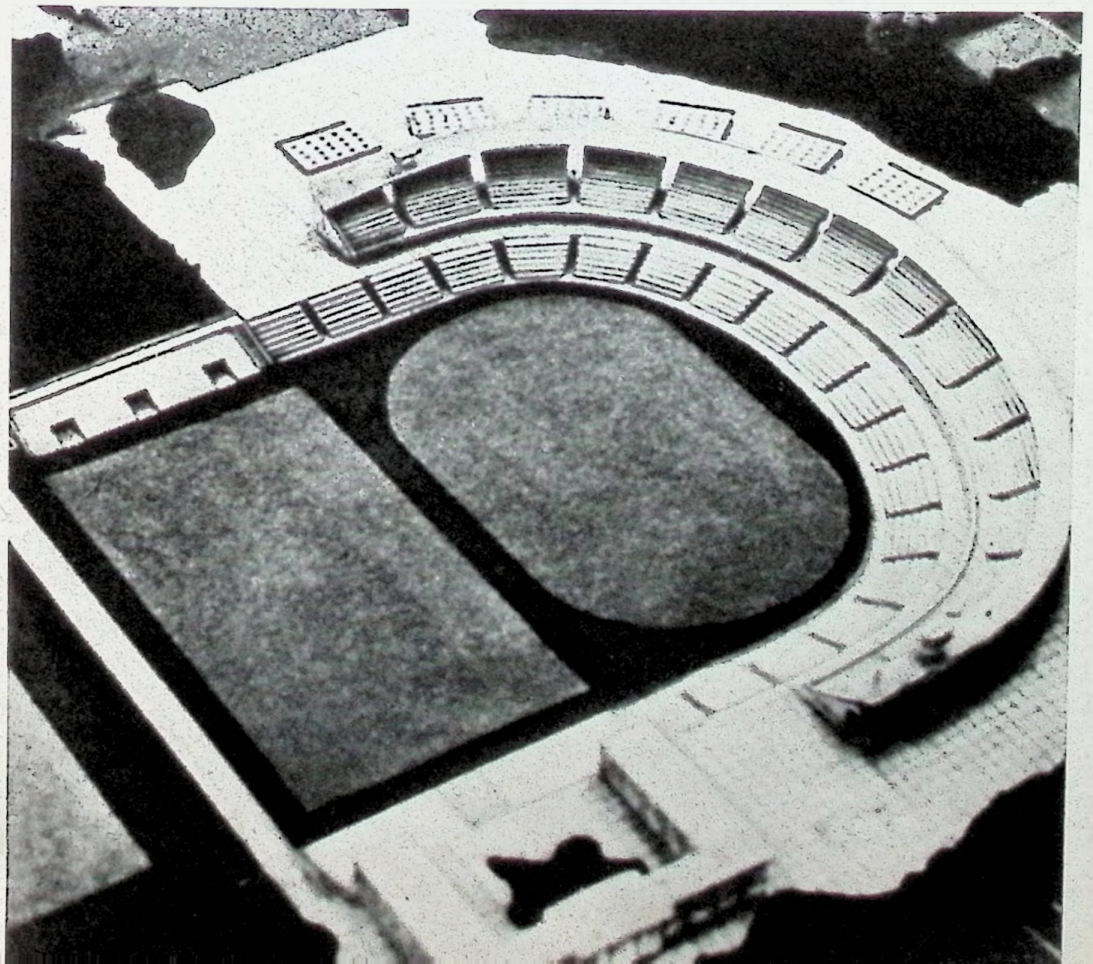


SPORTS are being given considerable prominence in Moscow's general development plan. The provision of sites for athletic and fitness activities and outdoor recreation is a matter of daily concern. Experts are planning sports facilities ranging from neighborhood playgrounds to multipurpose city centers.

Accessibility and mass participation are the main principles in such siting. Thus, smaller facilities will be built in the residential areas and the extensive network distributed evenly throughout Moscow's center and suburbs. Larger sports complexes, each catering to between 250,000 and 400,000 people, are to be erected in each housing development. The plan also envisages

FUTURE SPORTS CONSTRUCTION IN THE CAPITAL

Blueprints of a hotel for the projected Olympic village in Izmailovo. Below left: The Nogatino sports complex. Below right: The new facilities of Moscow's Central Institute of Physical Culture.



municipal sports centers that will accommodate national and international meets. There will be four such centers: Luzhniki in the southwest, Leningrad Avenue in the north, Izmailovo in the east and Nogatino in the south. The first two have been operating for some time, but they are to be expanded. Eventually Nogatino will become as well known as Luzhniki.

New athletic facilities are under construction in the city center, as well. A multipurpose indoor stadium, shaped like an oval, will be built in a quiet part of downtown Moscow where old buildings are being razed. The stadium will have a regulation-size soccer field with stands seating 40,000 to 50,000. It can be used also for cycling, track and field, ice hockey, figure skating and speed skating. If necessary, the main arena can be divided into several smaller ones for fencing, boxing, basketball, and so on.

School sports come in for special attention in the general development plan. All schools are now being built with gyms and sports fields. Architects have suggested that in the new model housing developments the gyms of several neighboring schools be combined, with sliding partitions. These enlarged gyms can be used by young people in the evenings.

Sociologists have estimated that in the near future 55 to 60 out of every 100 Muscovites will participate in sports and physical fitness programs. That is why the development plan provides for 10.8 square feet of sports area per person.

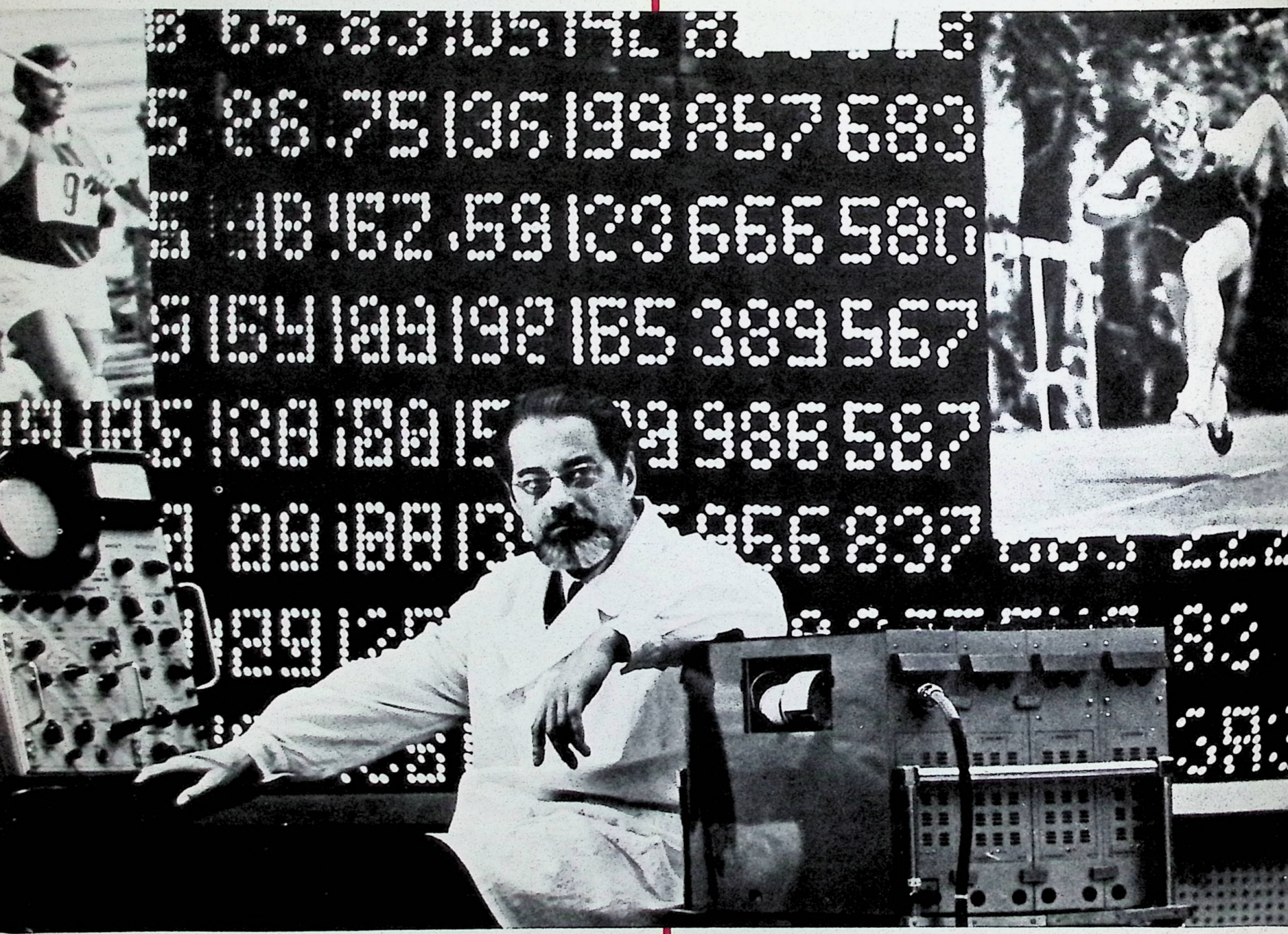
TRAINING AND SCIENCE

THE WAY to new sports achievements is an up staircase whose steps are growing higher and more difficult. Champions of past decades would be surprised, not so much by present records as by current loads. Anyone who wants to be first these days really has to sweat for it. But there is a limit to the number of miles you can run and the tons of metal you can lift in a day. Intensive training by itself isn't producing the desired results.

So sports turned to science. Medical specialists, biologists, psychologists and engineers got down in earnest to finding a scientific basis for training sessions and even to predicting new achievements.

In our country research in sports is conducted at 21 physical culture institutes, 31 sports departments of teachers institutes and four research institutes of physical culture and sports located in Moscow, Leningrad, Kiev and Tbilisi. Some requests of sports organizations are also researched by scientific laboratories that have no formal ties with sports but are willing to tackle projects somewhat off the beaten track.

The volume of scientific information doubles every five to six

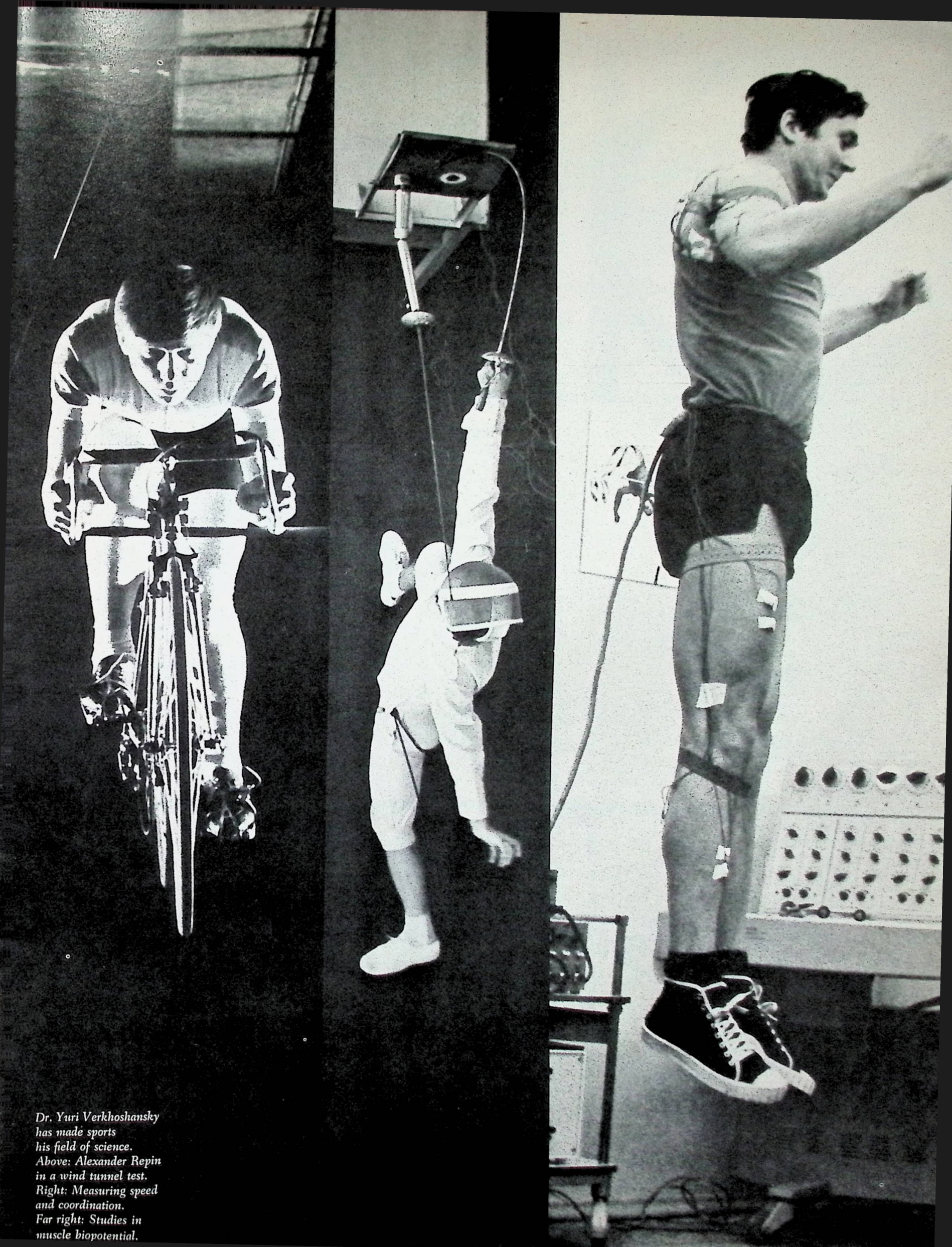


it takes both to break records

years. This imposes special demands on coaches. They must be thoroughly versed in medicine, biology and psychology—have a rounded education in all fields—if they want the confidence of their charges.

This is also a significant fact: Some of our outstanding athletes got their education in a scientific field and now, no longer in active sports, are working for the good of their young replacements. The famed high jumper Valeri Brumel is working on a graduate degree in sports psychology. Arkadi Vorobyov, who won the Olympic weightlifting championship twice, has become a professor. He is writing his doctoral thesis on the medical and biological characteristics of weightlifters.

Science and technology have made considerable amendments to the record tables, but caring for champions is not their primary function. The principal purpose of this research is to find out how to derive the maximum benefit from sports for the health of millions of people, for their harmonious development. That is the real reason the specialists have come to the stadiums.



Dr. Yuri Verkhoshansky has made sports his field of science. Above: Alexander Repin in a wind tunnel test. Right: Measuring speed and coordination. Far right: Studies in muscle biopotential.

Around the Country

THEATER FIGURE

Georgi Tovstonogov, chief stage director of the Bolshoi Drama Theater in Leningrad, was awarded the Order of Lenin this year on his sixtieth birthday. The theater he has headed for some 20 years is considered one of the country's best. Shakespeare, Dostoyevsky, Chekhov and modern Soviet and foreign plays produced by Tovstonogov have all been major events in Soviet theater. Along with his work as a director Tovstonogov teaches at the Leningrad Theater Art Institute.

MALACHITE DEPOSIT

A new rich lode of malachite (a rare green semiprecious stone) has been discovered in the openworks on Mt. Vysokaya in the Urals.

The famous iron-yielding mountains Blagodat and Vysokaya have been feeding iron ore to the blast furnaces and iron and steel plants of the Middle Urals for two and a half centuries. Now Vysokaya will be mining malachite as well.

BYELARUS TRACTOR TESTED IN NEBRASKA

The tractor-testing station of the University of Nebraska has been operating for almost 50 years. Serving countries from all over the world, it compares various tractors, evaluates the products of different manufacturers and makes recommendations for improvements.

The 1,139th tractor to be tested was a Soviet Byelarus MTZ-80, which rolled out to the testing ground last October under the auspices of Tractorexport of the USSR. It passed examination with flying colors.

The test records will be sent to farm-machine operators all over the world and will also be listed in the tractor guide known as the Red Book.

HEALTH RESORTS FOR CHILDREN

A cardiology complex for children is under construction in Sochi, the health resort on the Black Sea coast famous for its mild climate and mineral springs. The complex will consist of treatment facilities, housing, schools, a movie theater and other services.

Health resorts for children are being set up in other Black Sea areas. The health camps in the two large resort complexes under way near Yevpatoriya and Kabardinka will accommodate 40,000 children at one time. The network of children's health facilities is growing in practically all the resort areas of the country— in the Baltic area and in Central Asia. The Soviet Union now has some 1200 health centers for children, accommodations for whom are maintained by the trade unions.

CALVES FROM THE USA

American businessman J. Macbarron and farmer Joseph Givhan recently gave Soviet cattle breeders three pedigree bull calves. Bonny Boy, the gift of Macbarron, is a Scottish Highland variety, a very productive and hardy breed. Their long hair helps these animals withstand cold winters, and because they are not fussy about their food, they fatten equally fast on both steppe lands and Alpine pastures. Bonny Boy will live in the breeding center of the Altai Scientific Research Institute of Agriculture in the south of Western Siberia. Givhon's calves are the valuable Aberdeen Angus red breed, not generally raised in the USSR. The meat of this breed is of high quality, and when the Aberdeen Angus is crossbred, it passes on its good beef. The two bull calves have gone to the Kalmyk Republic in the lower reaches of the Volga.

RINGWORM VACCINE

A reliable vaccine to protect cattle against ringworm has been developed in the USSR. This fungus skin disease, widespread in Europe, Asia, Africa and America, affects wild and domestic animals.

RAINBOW TROUT

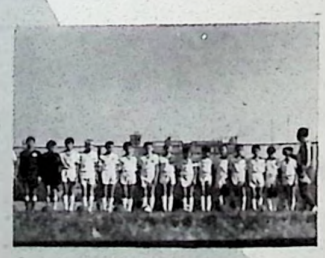
Many fish-breeding farms in the Transcarpathian region, Ukrainian SSR, breed varieties of trout. One of the largest is in the Zhdimr Preserve near the little town of Svalyava. In a year the fishery produces some 44,000 pounds of trout, mostly raduzhnaya (rainbow). Compared with the more ordinary kinds, the raduzhnaya grows twice as fast but with no loss of flavor.

The Transcarpathian fish farmers do not neglect the everyday species either: Some 50,000 fry are let out into mountain streams every year.

The number of trout-breeding farms in Transcarpathia keeps growing. A new one, about to start, is expected to provide more than 150,000 pounds of trout a year.

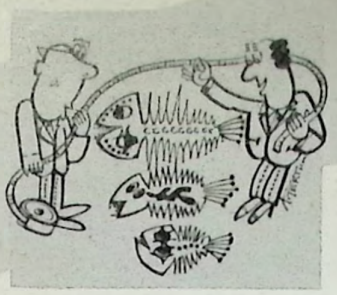
NEW SOVIET CAR

Mass production of the Volynyanka has started at an auto plant in the West Ukrainian city of Lutsk, and the first consignment is already on sale. This multipurpose automobile, for rural use mostly, can carry six passengers or about a half ton of cargo and make a top speed of 43 miles an hour.



CHILDREN'S SOCCER SCHOOL

At the Pakhtakor Stadium in Tashkent, capital of the Uzbek SSR, children have been learning to play soccer for two years now. The soccer school has an excellent football field as well as various other sports grounds and gear. All this is free. So is the medical supervision.



FISH FOSSILS

Soviet paleontologists have made a number of interesting finds in Estonia. They discovered imprints of fish that inhabited the Earth 350 million years ago. The outlines of fish skeletons were well preserved in the soft clay.

Traces of other extinct sea inhabitants — predatory lobe-finned fish, some of them a foot and a half long—have also been found. The large size of these specimens makes it possible to study not only the skeletons of the fish but the structure of their internal organs as well.

AMERICAN LITERATURE IN THE USSR

American literature studies in the Soviet Union are expanding geographically. A center for specialists teaching American literature in the universities of the Russian Federation was set up in Krasnodar on the Kuban River a short time ago. The first in a series of publications with the overall title of *American Literature* and edited by Professor Nikolai Samokhvalov saw print recently.

The articles, centering on the development of romanticism and realism in the United States, are diverse in subject and approach. Soviet scholars seem to be interested in writers who are not much studied in the United States, as evidenced by the articles on Richard Harding Davis and George Lippard. Russian-American relations are another area of interest, as might be expected. One of the articles is devoted to John Reed, Albert Rhys Williams and others who were witnesses of the October Revolution.

OLD TREES

The State Committee for the Protection of Nature of the Ukrainian Republic has made an inventory of unique trees, boulders, rocks, waterfalls and caves.

As many as 3,295 trees over a hundred years old have been registered, including a 1300-year-old oak in the Yuzefin preserve in the Rovno Region, a 1,000-year-old oak in the Cherkassy Region and a 700-year-old oak in Khortitsa, Zaporozhye Region.

KAMAZ TRUCKS

Under construction now in the city of Naberezhnyye Chelny in the Tatar Autonomous Republic on the Volga is the Kama Truck Plant. It will be the Soviet Union's largest enterprise for the manufacture of heavy-duty vehicles. The Kamaz-5510Z farm dump trucks will be produced there. Moscow and Minsk designers joined efforts to evolve this reliable vehicle. The six-wheeler with two axles does very well on rough cross-country terrain.

NEW YOUTH CLUB

A building of interesting design is under construction in Yerevan, the capital of Armenia. Basically a youth club, it will have a film and concert hall seating 1200, a hotel, rooms for some 20 hobby groups and for lectures and gymnastics.

A café will be perched at the very top on a rotating superstructure.

NATURAL GAS IN THE DESERT

Two more large gas deposits have been discovered in the Kara-Kum Desert in Turkmenia (Central Asia). They are near the industrial center of Chardzhou and close to the surface, which makes operations easy. Gas extraction is one of the 40 industries started in the republic in the Soviet period.

ELECTRIC DIGGERS

The first electrically operated excavators have started work in oilfields of Western Siberia.

The new machines have four times the efficiency of those used previously in the Siberian oilfields. Besides, no matter how freezing the weather, the engine does not have to be warmed up.

THE BOLSHOI MODERNIZED

The Bolshoi Theater is to be reconstructed and enlarged.

Audiences, however, will not be aware of any changes. They will see the same eight columns, the same Apollo's chariot over the entrance, the same lantern lights and the same auditorium, with seats for over two thousand opera and ballet fans. What will be changed is the back end of the building in order to provide more space for the many requirements and services of the modern theater.

QUEEN OF THE FISH

The Far Eastern Amur River is populated by 100 fish species, the kaluga among them. This variety of sturgeon, called the Amur Queen, is the world's largest freshwater fish; it grows to a length of 15 to 20 feet and a weight of several hundred pounds.

The kaluga is a relict fish, living only in the Amur and never leaving the river throughout its life cycle. It spawns three or four times a year and matures very slowly. The male becomes adult only in its seventeenth or eighteenth year and the female in the twentieth to twenty-second year. The life span of this giant fish is 300 years.

Research on the feasibility of sturgeon breeding in the Amur basin is under way in the Amur branch of the Pacific Institute of Fishing and Oceanography, and the migration pattern of the kaluga is being studied. A large fish-breeding farm will be built in the lower reaches of the Amur.

AIR QUALITY

The Sanitary and Epidemiological Service of Kaunas, one of Lithuania's largest industrial centers, has made a thorough inspection of the city air and taken necessary air-protection measures. For example, one of the city's factories was told to close down its foundry pending the installation of special filters. And a new traffic-regulation system has been put into effect, with the approval of medical men. It will eliminate traffic jams at crossings, where the largest volumes of exhaust gases are emitted.

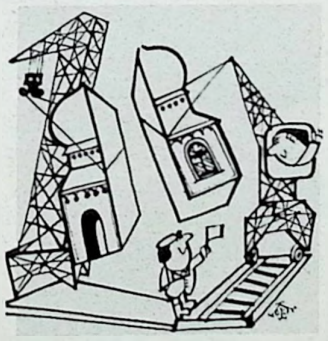
AMERICAN MUSIC IN LENINGRAD

A new program, "American Popular Music in the Theater and Movies," was given its first performance recently by the Leningrad Concert Orchestra under the direction of Anatoli Badkhen at Oktyabrsky Grand Concert Hall.

This is not the first time works of American composers have been performed in Leningrad. On the boards right now are George Gershwin's *Porgy and Bess*, at the Academic Maly Theater of Opera and Ballet, and Leonard Bernstein's *West Side Story*, at the Komsomol Drama Theater.

The new program includes compositions of Gershwin, Cole Porter, Bernstein, John Lewis, Burt Bacharach and others.

One of its programs is dedicated to the seventy-fifth anniversary of Gershwin's birth.



BUILDINGS BRACED

A method of reinforcing buildings above subway tunnels or other underground facilities has been worked out in Leningrad. The building is "cut" into short sections, each of which is tightened along its perimeter with steel ropes pulled through special holes. If necessary, houses are levelled up with jacks. Tenants do not have to leave their apartments while the work is under way.

The new method is especially useful when an architectural memorial or a large industrial plant cannot be moved. It has already been utilized on a number of structures, including the landmark building of the former City Duma on Nevsky Prospect.

NEW ARMENIAN GOLD FIELD

Gold is being mined at a new field in the Armenian mountains, not far from Lake Sevan. In addition to placer and nugget gold, very rare crystalline formations of the precious metal have been found here.

A gold-mining combine will be in operation in the Ararat Valley in a few years.

WILDLIFE PRESERVE

The saigas, hoofed mammals inhabiting the steppes and semi-deserts of Central Asia, were on their way to total annihilation at the turn of the century. But as a result of wildlife conservation measures taken by the Soviet Government, several million now roam their own preserve.

These animals, prized for their horns, meat and skin, have been studied for a long time. Uzbek naturalists traced their migration patterns and selected for a hunting preserve an area of six and a half million acres in a spacious depression overgrown with tall grasses, where tens of thousands of saigas winter.

GOLD STAR TO INTOURIST

The International Organization of Tourism has awarded its Gold Star to Intourist, the official Soviet travel agency. Intourist is the first organization to receive this award; previously it had gone only to individuals who made significant contributions to the development of international travel.

Intourist works with 700 travel agencies, air, ship and rail lines all over the world. Last year it served 2,340,000 visitors to the USSR from 150 countries.

THE FRIENDS OF SOVIET RUSSIA

By Lyudmila Borozdina

Photographs by
Igor Zotin

Toykino, a small village in the Ural area of the eastern part of European Russia, is the directing center of the Lenin State Farm. A group of Americans, members of the Society of Friends of Soviet Russia, arrived with a shipment of tractors in 1922. The team, led by Harold Ware, had come to show the farmers how to use the machines. The birch grove in which they set up their tents, a garage and a storehouse is still called "the American field" by old-timers.

To illiterate peasants only a few years removed from the primitive farming of prerevolutionary Russia, the tractor brought by Harold Ware (left) was a strange machine. Today, the big collective and state farms use great fleets of them. Toykino children, who study English in school, look through an issue of SOVIET LIFE.

GRATITUDE EXPRESSED BY LENIN

To the Society of Friends of Soviet Russia in the United States

October 20, 1922

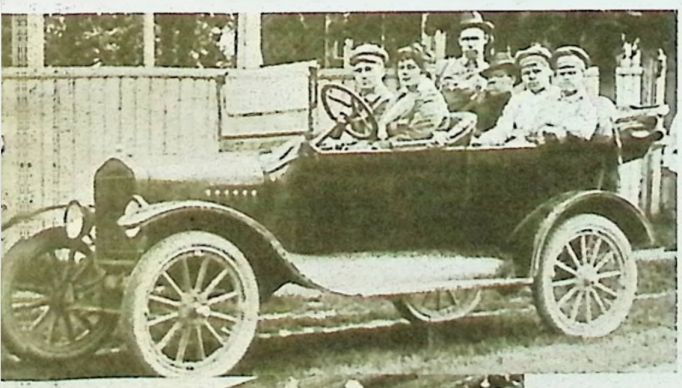
Dear Comrades,

I have just verified by special inquiry to the Perm Guberniya Executive Committee the extremely favorable information that was published in our newspapers about the work of the members of your society, headed by Harold Ware, with the tractor team at the Toykino State Farm, Perm Guberniya.

In spite of the immense difficulties, particularly in view of the extreme remoteness of that locality from the center, and also the devastation caused by Kolchak during the Civil War, you have achieved successes that must be regarded as truly outstanding.

I hasten to express to you my profound gratitude and to ask you to publish this in your Society's journal and, if possible, in the general press of the United States. . . .

LENIN
Chairman of the Council
of People's Commissars

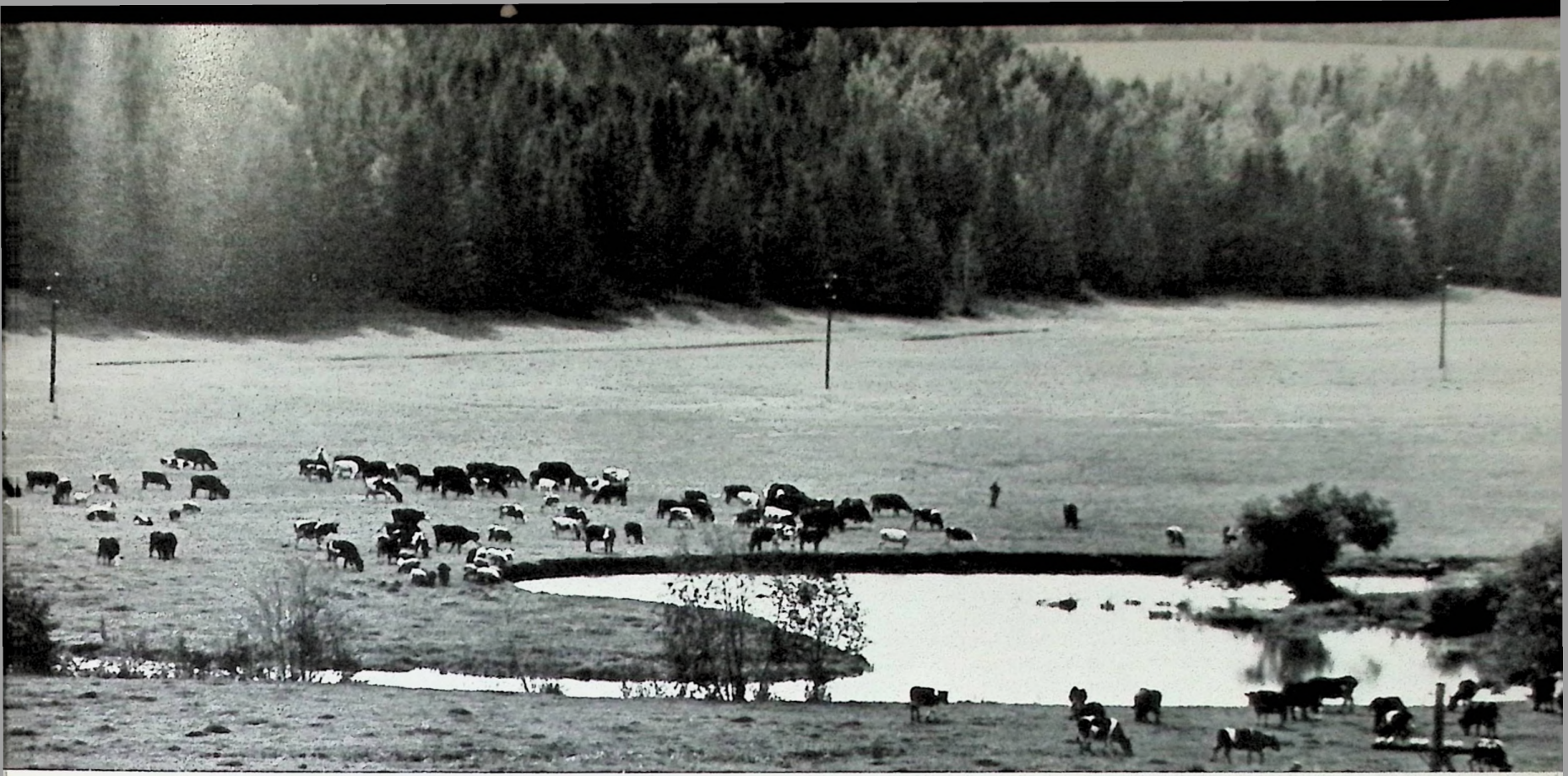


This 1922 picture was published in the newspapers of Perm, the regional center. The Sunday demonstration to show how much more work a tractor could do than a plow brought peasants from many villages around. Harold (standing) and Christa Ware (behind the wheel).

This letter, reprinted here in part, was published in the newspaper *Pravda* on October 24, 1922. It appeared somewhat later in the *New York World*. Lenin wanted the people of America to know that the 50,000 dollars they had contributed to the Help Soviet Russia Fund had not been wasted

After secondary school team leader Alexei Shubin went to Perm and became a building worker. But he didn't take to urban living. "I got used to farm life," he says, "to work in the open." He is studying agronomy by correspondence and expects to get a diploma shortly. His wife Lyudmila was born and raised in Toykino. She has a degree in economics and is the farm's accountant. The young couple has two children, boys.

Mornings Alexei makes the rounds of the fields, garages and barns to see how things are going and lend a hand where needed. Lyudmila's province is figures: accounts, papers and reports. The farm grows winter and spring crops: wheat, rye, oats, barley, peas. All operations are mechanized. Dairy products and pigs are also moneymakers. Above: Alexei's boys fooling around with their father's motorcycle.



Young people set the tone in Toykino. When they finish their studies at specialized secondary schools and institutes, they return to their native village to work as builders, agronomists, veterinarians, teachers, pharmacists.

Continued from page 33

This episode has long become history, since it happened more than 50 years ago. But we wondered what the state farm is like today and whether the people of Toykino remember who helped their village get on its feet after the severe famine of 1920-1921. We went to Perm Region to find out.

The "American Field"

The village of Toykino is very much out of the way—100 miles from the town of Perm and 50 miles from the nearest railway station. There are no highways or any large industrial plants in the vicinity. This is Priuralye, an area near the Urals with great stretches of fields, coniferous forests, rivers and lakes. Quiet country. In early August the villagers are still harvesting rye. After that come wheat and barley, oats and seed clover. Then the plowing for winter crops. We arrived just when everything had ripened and every hour was precious.

We traveled on a bus that runs from the station in Vereshchagino, where one American Fordson and 20 Case tractors, one Ford truck and one car, as well as seeding machines and harrows were unloaded on June 1, 1922. Nine Americans and two Italians—all members of the Society of Friends of Soviet Russia—came with the machines. The villagers knew nothing about either tractors or cars. In an interview with a correspondent from the newspaper *Izvestia*, from which, by the way, Lenin learned how things were going with the arrivals, Christa Ware said: "When we unloaded at Vereshchagino, we seemed to be faced with an absolutely insurmountable task—to drive heavy tractors for the whole 50 miles along bad roads. . . . There were no men in the nearby villages—the majority had been killed in the World or Civil wars—and the local population had no physical means of cultivating their plots of land. . . ."

It took several days to drive the tractors from Vereshchagino to Toykino. Bridges were hastily built over the streams and marshes, and gullies filled up.

There were several thousand acres of land near the village of Toykino that had lain fallow for several years. They had been owned by the royal treasury. It was on that land that Ware's tractor team was to show its skill.

The big, gently sloping rise, bearing the signs of habitation and overgrown with bushes, is still called the "American field." Everyone in the village knows it, from schoolboy to old-timer. Today's tractor and truck drivers or building trades workers, familiar with all sorts of machines and mechanisms, have to think back hard to the time when the villagers looked at tractors with wonder, sometimes even with fear.

The Americans used to work from dawn till dark. They lived in tents, camped out right in the field, about a mile from the village. They met with all sorts of difficulties —not enough gas, for one thing. The kerosene was no good in the tractors, there was no machine shop to make spare parts, no water nearby, the water had to be brought from the village. But these were people who were not discouraged by difficulties. They kept on working, learned Russian and taught the villagers to operate tractors and drive cars.

The Perm newspapers were quick to re-

spond to the first contacts between the American group and the Russian farmers. Describing a village meeting, they quoted one of the Americans. "We have come," he said, "not for concessions or to enrich ourselves at the expense of the labor of the people. We American workers know that to achieve a kingdom of labor you have to build up your agriculture and industry. That is why we came to lend you a helping hand."

The Americans were quick to win the gratitude and affection of the local people. They helped the poor farmers do their plowing. They spent what little spare time they had at the village club, dancing and singing with the young people. They left a profound imprint on the memory of the Toykino people, these Americans:

Harold Ware and his wife Christa Ware; Joseph Bronker, John Shlonberger, Felice Roffredo — mechanics; George Iverson, Charles Geck, Otto Enstren, Seaborn Irrikson and Mikke Meling—farmers; and Gudash—a doctor.

Harold Ware's Plan

Harold Ware and his wife were qualified agronomists. Before going to Soviet Russia, they had studied Russian soils to familiarize themselves with the conditions under which the tractor team would have to work. Ware mapped out for Toykino a long-range plan of land cultivation until 1926. He advised the state farm to specialize in grain growing and cattle breeding, to introduce four-plot rotation, with clover sowing as a must, and to do regular liming, particularly, of acid soils.

Ware's plan was the subject of our talk with Alexandra Sushentseva, the present chief agronomist. She is 45 and comes from a peasant family in the neighboring Bashkir Autonomous Republic. After graduating from an agricultural institute in the town of Perm, she was assigned to Toykino. She has been working there for more than 11 years now. The farm has four production teams, one from each village near Toykino, which is the base. A large fraction of Toykino's 17,000 acres is plowland and mowed area. The farm specializes in meat, milk and grain. Sushentseva said she believed that Ware's plan was right for this big but difficult to work stretch of land.

Without liming and crop rotation with clover, we couldn't possibly produce a good harvest. Hay fields and clover make cattle breeding possible. The farm has 1400 head of horned cattle and 3200 pigs.

A few words about state farms in general. They came into being in the very first years of Soviet power, when there were no collective farms and most of the produce was raised by individual peasant farms. State farms were set up on lands that had belonged to the royal treasury and had lain fallow. Workers on state farms have much the same rights as factory workers when it comes to wages, holidays, pensions and the like. The one difference is that they also have their own plot of land for personal use.

This was how the Toykino state farm was set up. It now has 460 rather well-paid workers. The farm has been building houses on a considerable scale. In the past three years 60 families moved into new apartments.

As a member of the local Soviet, Alexandra Sushentseva was well informed on Toykino. She told us about the housing and other projects under construction and showed us around a big village club, shops, a telephone exchange, a kindergarten, a new eight-year school and a hospital.

"We have begun supplying gas to the villages," she said. "Soon there will be no stacks of firewood near the houses; gas will be used for heating."

This Perm village five decades later would have pleased Harold Ware.

"He was a fine man with a strong will and a kind heart," recalled Akim Pustovalov, one of the first Young Communist League members in the village. "I wonder what happened to him."

We told him what we knew about Harold Ware.

In the spring of 1923, encouraged by Lenin's opinion of his work, Harold Ware went to the United States to collect more money and bring another tractor team to Soviet Russia. In the autumn of 1924, another tractor team did arrive. On Ware's initiative, a Russian-American Agricultural Association was set up on land in the Northern Caucasus provided by the Soviet Government. Ware worked with that association. Later he helped organize more state farms and was assistant director and production manager of the experimental Zernograd State Farm near Rostov (the southern part of European Russia). He spent 10 years on Soviet farms, beginning with Toykino. In 1932 he returned to the United States. Word came that he was killed in a car accident in 1935.

It was then that the People's Commissariat (Ministry) of State Farms of the USSR issued a special decree perpetuating his memory—Harold Ware scholarships were established for students of agricultural colleges.

As for the farm where Harold Ware's tractors made the first furrow, its green fields perpetuate his memory.

Solidarity

The Society of Friends of Soviet Russia was founded in the United States following Lenin's Appeal to the International Proletariat in August 1921. There was a bad harvest that year—35 guberniyas were stricken by famine. Hunger and typhoid fever took thousands of lives. It was a disaster for the young Soviet republic, with its economic system still in chaos after the World and Civil wars.

The Society did more than send foodstuffs, it sent tractor teams. Harold Ware's team, the first, came to Toykino. Both the Soviet Government and Ware knew that two dozen tractors, lost somewhere in the vast expanses of Russia, could not do much to relieve the famine or to move the countryside to mechanized production. But the assistance and the sympathy of the American working people who had contributed money for two tractor teams were dramatic expressions of international solidarity with the Soviet Republic.

In his letter to the newspaper *Pravda*, Ware noted: "We came in order to teach, but we learned much more ourselves. We know that Russia is strong and patient enough to cope with all the tasks and difficulties involved in one word: rehabilitation."

And it was indeed.

QUERIES FROM READERS

QUESTION: I have read that in your country the higher educational institutions are attended not only by secondary school graduates but also by young people who already hold down full-time jobs. What is the reason for this—is it the desire to earn more money or the fear of finding themselves unemployed because of automation?

ANSWER: Earnings can't be the main reason young workers want to continue with their schooling. The difference between what a highly skilled worker and the average engineer makes is relatively small. Nor is anyone in our country worried about automation, since there is no unemployment. In situations where a machine takes over jobs, the workers are placed elsewhere or retrained. They continue to draw their pay during the retraining period. The law requires that the new job pay at least as much as the old one.

The explanation lies elsewhere. Sociological studies show that the prime motivation for acquiring a higher education is the wish to do creative work, work that is fulfilling. Incidentally, more than half the six million members of the USSR Society of Inventors and Rationalizers are industrial workers, bench-workers. Besides, young people want more than trade or professional knowledge, they want to keep up with developments in science, to have a background in literature and the arts. They want to be considered cultured people.

QUESTION: Are there special schools that train artists, musicians and actors?

ANSWER: We have more than 7,000 music and art schools for children who show promise in these fields. The music school course is seven years. The children are taught the fundamentals of music theory and learn to play musical instruments. They study general education subjects at a regular school. Those who want to make music a career go on to a four-year school with a course of study that combines music and general high school subjects. Especially gifted children go to specialized secondary (10-year) music schools. Those who graduate from one of these two types of music schools are eligible for admission to a conservatory. The conservatory offers majors in piano, stringed instruments, wind instruments, folk instruments, singing, choral conducting, theory and composing, history and theory of music. Before the Revolution there were only five conservatories, now there are 23—in the larger cities and in practically all the capitals of the union republics.

There are 19 schools of choreography attended by 3500 boys and girls. Ballet dancers are also trained at 13 ballet studio-schools attached to music theaters and institutes of dramatic art.

Future artists and sculptors go to children's art schools and then to a four-year art school. When they complete the course of study, they are eligible for admission to industrial art schools. A higher art education is offered by special institutes with departments of easel painting, monument painting, graphics, sculpture, design.

Seventeen institutes of dramatic art train actors, stage managers, scenic designers and ballet masters for dramatic, musical, children's and puppet theaters. Future drama critics also study there.

Institutes of cinematography prepare script writers, film directors, actors, cameramen and film critics. Future writers study at the Gorky Literary Institute. Tuition at all schools is free, and students receive stipends besides.

QUESTION: Are there special courses for those who wish to study, say, music or acting in their free time?

ANSWER: Yes, there are. They are called People's Universities of Culture. They were formed on the initiative of many mass organizations, including the Young Communist League (Komsomol); most of the students are young people. They offer lecture courses in esthetics, history (of the theater, music, film), fine arts and literature. In addition, lectures, special concerts, plays, previews of films from the rich collection of the State Film Archives of the USSR and excursions to museums and art galleries are arranged. The lectures are given by prominent writers, artists, critics, theater and film directors, and actors at palaces of culture and clubs, urban philharmonic societies, and such organizations as the Union of Writers, Union of Composers, Union of Cinematographers and the All-Russia Theatrical Society.

QUESTION: Is it true that universal secondary school education is being introduced in the Soviet Union?

ANSWER: By the end of the current five-year plan period, that is, by 1975, the transition to universal secondary education will be completed.

QUESTION: Please describe the administrative structure of the Soviet Union.

ANSWER: The Union of Soviet Socialist Republics is a multinational socialist state in which all nations and races are equal. It is a socialist federation comprised of 15 sovereign and equal union republics: The Russian Soviet Federative Socialist Republic, the Ukrainian Soviet Socialist Republic, the Byelorussian SSR, the Uzbek SSR, the Tajik SSR, the Turkmen SSR, the Kirghiz SSR, the Kazakh SSR, the Georgian SSR, the Armenian SSR, the Azerbaijan SSR, the Moldavian SSR, the Latvian SSR, the Lithuanian SSR and the Estonian SSR; 20 autonomous republics; 8 autonomous regions and 10 national areas. The main administrative-territorial units are the territory, region, district, city and village. Big cities are divided into districts.

Each union republic retains all its sovereign rights: the right freely to secede from the USSR, the right to enter into direct relations with foreign states and to conclude agreements and exchange diplomatic and consular representatives with them, the right to have its own constitution. The highest organ of state power in a union republic is the Supreme Soviet of the union republic, and the highest executive organ of state power is its Council of Ministers. In the Soviet of Nationalities of the USSR Supreme Soviet each union republic is represented by 32 deputies.

An autonomous republic is part of a union republic. Each autonomous republic is represented in the USSR Supreme Soviet by 11 deputies and has its own constitution, Supreme Soviet and Council of Ministers. For instance, the Georgian SSR includes the Abkhazian and Ajarian autonomous republics. The territory of an autonomous republic, like that of a union republic, cannot be changed without its consent.

An autonomous region is a national territorial formation which, because of the specific national composition and mode of life of its inhabitants, enjoys administrative and political autonomy. It is represented in the Soviet of Nationalities of the USSR Supreme Soviet by five deputies. The organs of state power, state administration and the courts in the autonomous region, as in an autonomous republic and a union republic, use the language of the predominant local nationality.

Several districts constitute a region. An administrative-territorial unit consisting of several districts and one or more autonomous regions constitute a territory. For instance, the Jewish Autonomous Region is included in Khabarovsk Territory.

The small nationalities of the North are organized in national administrative units known as national areas.

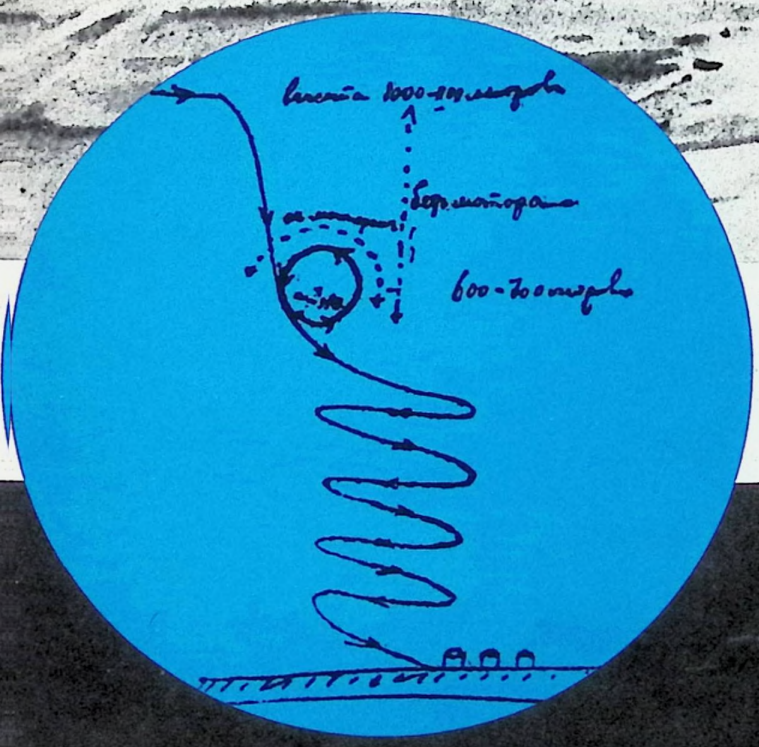
QUESTION: What languages are used for teaching in the USSR?

ANSWER: In grade and secondary schools the teaching is done in the language of the predominant local nationality. As there are some 120 languages in the Soviet Union (50-odd nationalities first acquired a written language of their own under Soviet power), the Russian language is the common language of communication between the nationalities. Therefore, the Russian language is a required subject in all national schools. Besides, all the national republics have Russian schools for the children of parents who consider Russian their native tongue. In cities with a population of several nationalities, schools have been organized where the teaching is done in the languages of these nationalities. For example, in Tbilisi, capital of Georgia, there are Georgian, Russian, Armenian and Azerbaijani schools.

At higher and specialized secondary schools the teaching is done in the language of the union or autonomous republic in which the given school is situated as well as in the Russian language. Every institute department has both Russian and national departments, and the students themselves choose the language in which they want to hear lectures, do their written work and conduct seminars and examinations.

Artseulov, a veteran Russian airman, pictured Nesterov's flight, wheels upside down, in this drawing.

Pyotr Nesterov, Russian Army captain, executed the first "dead" loop in aviation history. He was cited by the Kiev Aeronautics Society for risking his life to make this experiment in aerobatics.



KNIGHTS OF THE FIFTH OCEAN

By Mikhail Lvov

Nesterov with his plane.

CAPTAIN PYOTR NESTEROV of the Russian Army made the world's first correction of artillery fire from a plane and led the world's first group flight. But even if he had done nothing more than execute the first loop in the history of aviation, every flyer, past and present, would still be in his debt.

The loop he executed on September 9, 1913, was no accident. It was as calculated as the experiment of a doctor who gives himself a lethal inoculation to save the lives of others. Before performing the aerobatic maneuver he had thought up, Nesterov, with pencil in hand, did it mentally. Risky? In some languages it is called the "dead" loop.

". . . A pilot cannot do without aerobatics," wrote Nesterov. "Vertical turns and slips, rolls and loops must be part of the training program. . . ." He was right. Nowadays every flyer has to develop a skill in aerobatics.

Nesterov's feat was recognized not only by his colleagues but by scientists. The Kiev Aeronautics Society awarded him a gold medal inscribed: "For your scientifically validated solution of the problem of controlling an airplane in a vertical bank and for your willingness to risk your life for science." In many countries this "dead" loop is also called a Nesterov loop.

Fame did not spoil the Russian ace. In the spring of 1914 he flew from Kiev to Odessa, setting three records at once: in airborne time, speed and distance. He flew the 450 kilometers (279.6 miles) in 3 hours and 9 minutes at an average speed of 142 kilometers (88 miles) per hour. Now, of course, when the Soviet flyer Alexander Fedotov broke his own world record by averaging a speed of over 2600 kilometers (1600 miles) per hour along a 100-kilometer (62.137-mile) closed circuit, the achievements of those days seem modest: A car can travel at the same speed along a good road. But this was at the dawn of aviation.

Pyotr Nesterov made a large contribution not only to aerobatics but to the tactical military use of airplanes. He also did designing. In 1910 the Central Engineering Board considered a project for a craft he suggested: a monoplane with two stabilizers located in the front and the rear and two elevators. It was voted down, and he was refused financial support. He built the plane at his own expense and flew it. Then he began building a second craft. If not for the First World War, which forced Nesterov to interrupt his work, he might have been a famous aircraft designer.

On September 8, 1914, Captain Nesterov rammed and destroyed an enemy plane, losing his own life. During the Second World War his exploit was repeated by hundreds of Soviet flyers. Alexander Pokryshkin, cited Hero of the Soviet Union three times and presently Marshal of Aviation, wrote: "There are many characteristics that to this day are shared by Captain Nesterov and the flyers of the Soviet Union. The fearlessness typical of the Russian people, their readiness to give their lives for the glory and happiness of their Motherland, their willingness to take risks, their persistence in overcoming the obstacles along their path,

Svetlana Savitskaya, 1970 world women's aerobatics champion, is a Moscow Aviation Institute student and a trainee of the national flying society. It has dozens of affiliated flying, glider and parachute clubs all over the country. Instruction, planes, gas, oil and airfields are free. Annual dues are a few rubles.

Merited Master of Sports Igor Yegorov, aviation engineer by profession, was the 1970 world men's champion. He did not do so well in 1972, missing out on the very difficult tail slide. He is now training for the next international match. Below: The USSR Aerobatics Team. Igor Yegorov is fifth from the left.

the daring of their thought and its revolutionary scope. . ."

There are dozens of flying, gliding and parachuting clubs all over the country with an active membership of young men and women. The clubs are open to anyone whose health is good. The annual dues range from a modest one and a half to three rubles, depending on whether the member is a student or holds a job. All the expenses for professional instruction, planes, gasoline, oil and the use of airfields are covered by the DOSAAF (Voluntary Society of Assistance for Aviation, the Army and Navy).

Merited Master of Sports Igor Yegorov from the Volga city of Kuibyshev, 1970 world aerobatics champion, had this to say about DOSAAF:

"For every Soviet sportsman-flyer the road to the sky is all his own. . . . But there is a vital junction that unites us all. That is a DOSAAF air club."

The career of many famous flyers, including Igor Yegorov himself, confirms the statement.

Igor, the son of a printer, was still in the ninth grade of secondary school when he joined a gliding club. Then, when he turned 17, he switched to a YAK-18 sports plane. During summer vacations he spent his days and nights at the airfield of a club on the bank of the Volga River.

Igor still recalls the thrill of his first independent flight, that incomparable joy of free flight.

He became a good flyer and decided to make aviation engineering his career. He enrolled at an institute, hoping that the combination of study and training at the air club would be manageable. It was. In 1963, still a student, he did such difficult aerobatic stunts as a vertical half-roll, turn at the hump at an angle of 60 degrees from back to back, and an outside spin. The team of Volga flyers to which Yegorov belonged earned the right to compete in the Tenth USSR Championship, which was held in their native city of Kuibyshev.

The senior trainer of the Soviet Union, who had watched the performances, told Yegorov,

"You put on a good show, son. Don't quit this sport."

In 1965 Yegorov classified as a Master of Sports. Not long after that he became a member of the national team.

The Sixth World Championship, held in Great Britain in 1970, was a triumph for Soviet sportsmen. The world's over-all champion was aviation engineer Igor Yegorov; the world's over-all woman's champion was Moscow Aviation Institute student and trainee of the Moscow DOSAAF Club Svetlana Savitskaya.

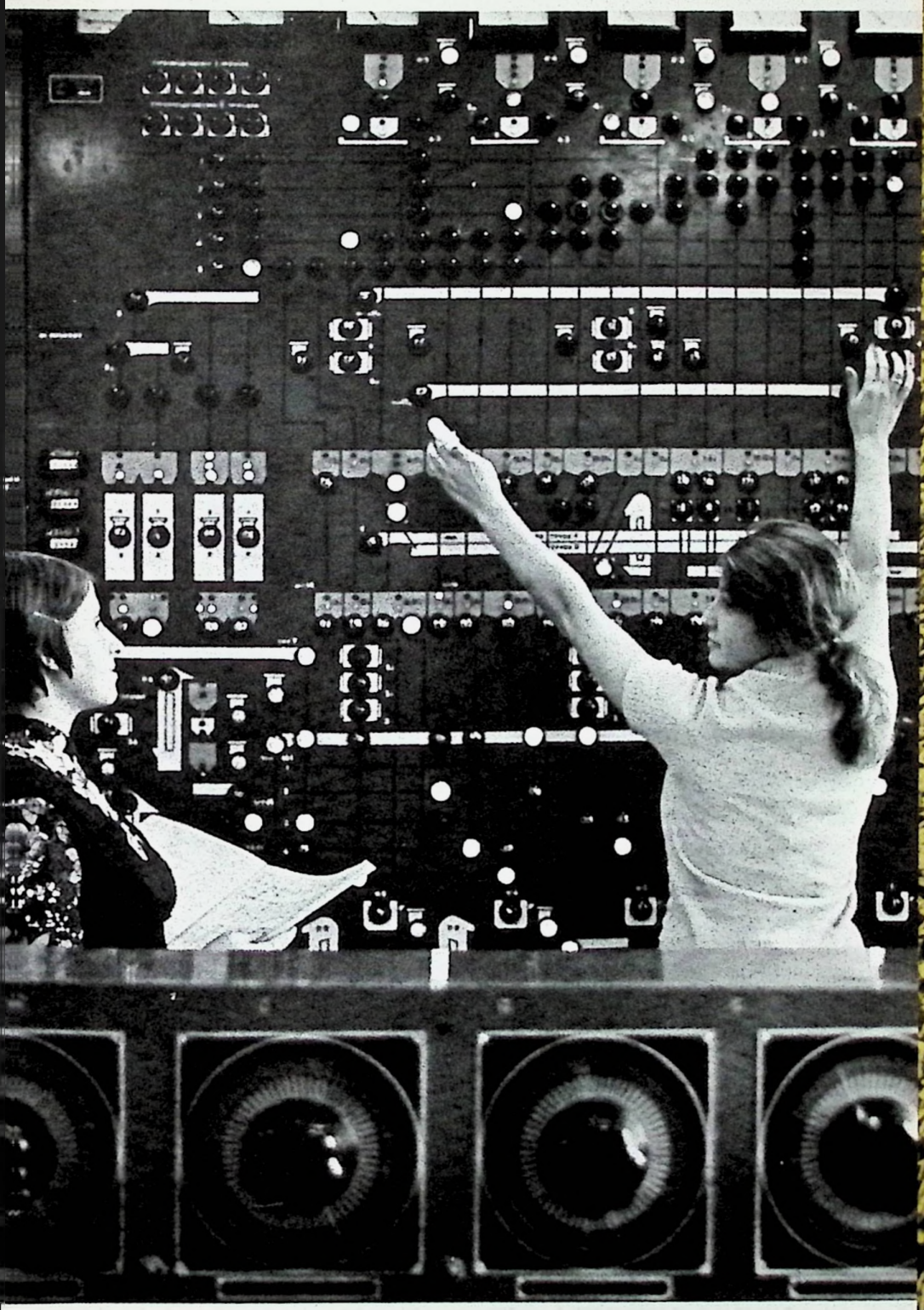
In the Seventh World Championship, in 1972, Yegorov did not do as well. He was unlucky in the tail slide, a very difficult stunt. His plane, after reaching the required height vertically, slid in the wrong direction.

He is preparing now for new international matches, but he still finds time to devote to young sportsmen. Voluntarily, without pay, Igor is teaching them the complex skills of flying.

The descendants of Pyotr Nesterov are continuing the traditions of the knight of the fifth ocean.

THE NEW GRANARY

Grain production is the chief branch of Soviet agriculture.



"A HUNDRED POODS AND MORE"

By Lev Voskresensky

In 1973, 316 million acres were sown to grain in the USSR.

GRAIN production is one of Soviet agriculture's most important concerns. An area as large as France, the Federal Republic of Germany, Great Britain and Italy combined was sown to grain in the Soviet Union last year, 316 million acres.

Climatic conditions for the growing of this food staple, however, are not nearly as good as in those countries. Sixty per cent of the arable land in the USSR is in what we might call the risky farming zone, as compared with the USA's one per cent, for example. About three-quarters of our marketable grain is raised in regions which periodically suffer from severe drought. It is especially hard to raise and harvest grain crops in Siberia, where the growing period is very short, there is little rain, late spring frosts do not end until June and early frosts begin late in August. In a word, natural conditions are less favorable than in any of the developed agricultural countries of the West.

The Ukraine is the oldest and the traditional granary of the Soviet Union. Its contribution to the national yield is very large—one-fifth of the gross output.

The Volga area raises 15 per cent of the country's grain. The black-soil steppes that stretch along the banks of the river and the hot summer's abundance of sunny days yield hard durum varieties of wheat. The best kinds are much in demand both at home and on the world market. The flour from grain harvested in the Volga area makes first-quality bread, semolina and the best macaroni and pastries. Durum wheat is easily recognized. It has heavy, solid ears with long, shaggy awns, and its large, glassy grains are cold to the touch.

But growing this wheat in the Volga area is no simple matter. More than any other part of the country, the region is afflicted with drought. Sometimes the steppes are burned by the sun right down to the ground, the water basins dry up, and drinking water has to be brought to some villages in tanks. The climatic conditions in 1972, for instance, were very bad, but the central government took timely steps to forestall any break in the normal course of day-to-day existence. The livestock yield was not reduced, and the price of bread and other food products did not go up.

The crop return in Kazakhstan, the Urals and Western Siberia that year was good.

The virgin lands, areas of Northern Kazakhstan and Western Siberia which were reclaimed in the 1950s, added 105 million acres to the country's arable potential. Breaking so vast an area to the plow in so short a period is one of the great achievements of the socialist economic system. It took only seven years to create a new giant granary that made grain production less dependent on weather changes in the European part of the Soviet Union. Some 50 years ago all the lands east of the Urals provided nine per cent of the gross output of grain. Now Kazakhstan alone raises 12 per cent and Western Siberia eight. It is also worth noting that, together with the Volga area, the East has become an important supplier of the best varieties of hard wheat—including durum.

The Northern Caucasus, with its rich black-soil steppes along the banks of the Kuban River, raises 10 per cent of all the grain crop. This is probably the only part of the USSR where growing conditions approach those of the warm and humid European countries and the grain-producing states of the USA.

The Kuban district grows a range of soft wheats. If the wheat of the Volga area resembles diamond-shaped crystals, the grain of Kuban looks like amber. It is very rich in protein and vegetable gelatine, and bakes into tasty, light and spongy bread.

The average grain yield in this district is 3,000 pounds and more per acre. Some Kuban collective farms harvest as much as 4500 to 5300 pounds. The farms here are very large: The typical collective farm has over 50,000 acres of mostly arable land.

Though natural conditions in various parts of the country vary widely, as do grain-growing methods and the grain itself, production of this crop and others follows a common plan, whose goal is a more than abundant and completely dependable harvest every year.

Steps taken to improve the yield will go far to help reach that goal. Boris Kurdin, USSR Deputy Minister of Land Reclamation and Water Management, a leading specialist in the field, says:

"It is of course impossible to irrigate all the dry lands, and we do not set ourselves such a task. But even if one-fourth of the land under cultivation had sprinkler irrigation, the grain yield of the USSR would no longer be at the mercy of the weather."

This will take considerable funds and time, but the work has been started. Extensive irrigation systems are being constructed, as a beginning, in the arid Volga area and in the south of the Ukraine. For the first time in the history of the country vast zones of guaranteed irrigated grain production are being created.

Irrigation systems have enabled Soviet selectionists to breed varieties yielding almost 9,000 pounds of grain per acre. The winter wheat Mironosovskaya-Yubileynaya has already produced that yield in experimental conditions. Academician Vasili Remeslo, who bred the variety, thinks its potential crop capacity can be 8,000 to 9,000 pounds per acre. A very high yield indeed, considering that only some 30 years ago the almost unarguable "hundred poods" (1400 pounds per acre) was considered the ideal yield for the Russian farmer. And though folk songs still make references to that hundred-pood harvest, such a yield is no longer extraordinary even in Siberia, not to mention the Kuban and the Ukraine. Attesting to the change is a comment by Grigori Zolotukhin, USSR Minister of Farm Produce Purchases, who worked in the Kuban for many years and knows the district well.

"In 1972," the Minister said, "the Kuban suffered from serious drought, and the average yield was only 2200 pounds per acre. I am not exaggerating when I say that the farmers there were quite disappointed in the yield. A few decades ago such a harvest would have been considered entirely satisfactory."

It is clear that standards have changed, and the progress made by Soviet selectionists is one of the reasons. For example, there is a new variety of summer wheat, the Saratovskaya-29. In addition to its high yield capacity, it also has unsurpassed milling and baking properties. Or take the famous Bezostaya-1. Bred by Academician Pavel Lukyanenko, it ranks first in world agriculture for winter wheat and is the basic variety grown in Yugoslavia, Bulgaria, Hungary, Rumania, Czechoslovakia, Turkey and many other countries. In the USSR approximately 20 million acres are sown with Bezostaya-1, abroad about 7½ million.

Many selectionists believe that triticale, the first artificially bred kind of plant whose cells contain the chromosome sets of both wheat and rye, will make the bread of the future. Nikolai Turbin, president of the USSR Society of Geneticists and Selection, believes that triticale can surpass all other ear cultures in biological potential and crop capacity. Intensive and successful work in chromosome selection is going on in our research institutes.

Crop management and fertilization, as well as mechanization, are other important elements in the Soviet program for larger and more stable yields. These terms have larger meaning than the use of mineral fertilizers and machines. They comprehend soil liming, plant protection, the use of polymers and the creation of a network of agrochemical services—in a word, a whole complex of measures.

Agricultural chemistry is still a young science in the USSR. At the turn of the century, when Western farmers were using mineral fertilizers as a matter of course, Kliment Timiryazev, a Russian naturalist, was explaining to Russian peasants that you did not put saltpeter in the soil to grow salt bread. This is not a folk tale. Old Russia did not produce any mineral fertilizer. The chemical industry is a Soviet product. Our farmers today cannot imagine working without the help of chemistry.

Crops in the Soviet Union have to be harvested quickly, nature sees to that. A great fleet of harvesting machines does the job. Soviet farms employ over two million tractors, 1.3 million trucks and about 700,000 grain combine harvesters. In recent years our combine-building industry has shifted over completely to the manufacture of such new, highly productive harvesters as the Kolos, Sibiryak and Niva. In competitive tests these machines were equal and sometimes superior to such combines of Canadian, French and Belgian make as the Massey-Ferguson, Oliver and Armada.

The grain crop is an important determinant of a country's standard of living. The more grain a country harvests, the more it can allocate for fodder; the more livestock it can raise, the better its people are fed.

The USSR is one of the countries with a high standard of nutrition—3200 calories per person per day. The consumption of meat, milk and eggs is constantly increasing; of bread, going down. A larger fraction of the grain consequently can be allotted to cattle breeding, says Leonid Khitrun, first assistant to the USSR Minister of Agriculture.

During the years of the Eighth Five-Year Plan period (1966-1970) about 88 million tons of grain, half the country's average annual yield during these years, was used for fodder. During the three years of the present five-year plan period the figure has already exceeded 110 million tons.

The aim is to raise the average annual production of grain during the present five-year period to 210 million tons, to harvest 30 million tons of grain more than in the preceding five years.

GLACIER ON THE RAMPAGE

The glacier, miles long and a third of a mile wide, crawled down the mountains burning everything along the way.

This was how Lev Sokolov, leader of the team of hydrologists, got to the newly established observation post. Right: The Medvezhiy (Bear) Glacier was flinging room-sized blocks of ice in our direction. They dropped into the river with a deafening roar.

By Vladimir Surkov

Photographs by Victor Sakk

An emergency report came in from the Pamirs in May 1973: The Medvezhiy Glacier had come to life. In the mountain valley of Vanch the alarm was sounded, and Vladimir Surkov, *Izvestia* special correspondent, took off for the glacier with a glaciological expedition of the USSR Academy of Sciences.

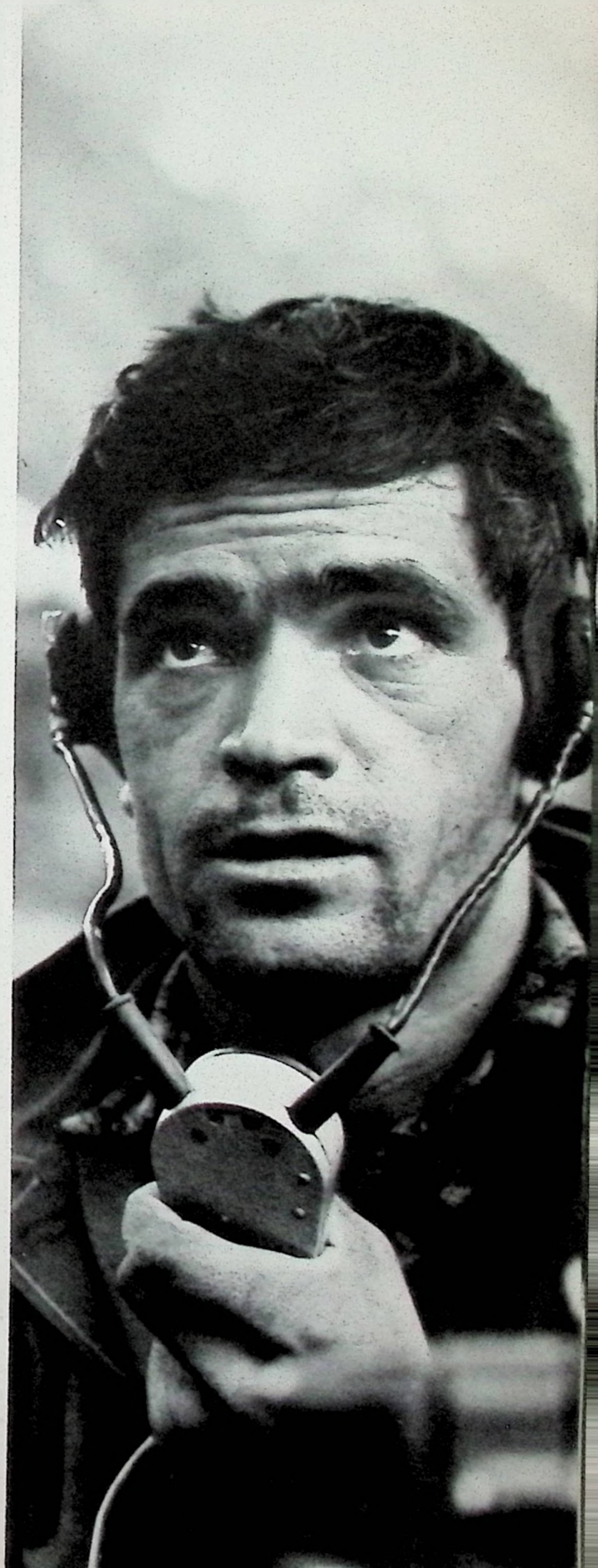
OUR HELICOPTER was flying over a freakish and chaotic mass of rocky mountains covered with ice and eternal snow. There it was—the famous Roof of the World—with the highest mountain peaks in the USSR. Nothing but glaciers everywhere, more than 4,000 of them on the Soviet Pamirs, spreading over an area of some 4,000 square miles. And all of it ice! A mammoth storage battery nourishing all the Central Asian republics.

With blizzards sweeping their abrupt slopes and snowslides vanishing into blue abysses nearby, glaciers, glittering coldly, flow past beneath us. There isn't a living soul in sight. If someone from another planet were to see this endless expanse, he would surely conclude that our Earth is uninhabitable: It is so hard to imagine life of any kind in this land of eternal frost, in this desert of rock and ice.

But these grim Pamir areas only seem to be uninhabited. There is a great deal of life down there below, in those mountains and mountain valleys nature has lifted above the clouds. Before long we saw it. By we I mean the researchers of the USSR Academy of Sciences' permanent Pamir glaciological expedition. Its distinguished chief is Leonid Dolgushin, with a doctorate in geography, who probably knows more about glaciers and their eccentricities than anybody else in the world. An amazing man: At 62 he still does a solid day's field work.

We'll be landing soon. I hesitate to say that out loud, with Yuri Zhuravlyov, the commander of our MI-8, listening; this is a first reconnaissance flight after a long spell of bad weather. For a full month air routes over the Pamirs had been closed by a thick cloud covering, fog and heavy snowfall. There was a break in the clouds today with a

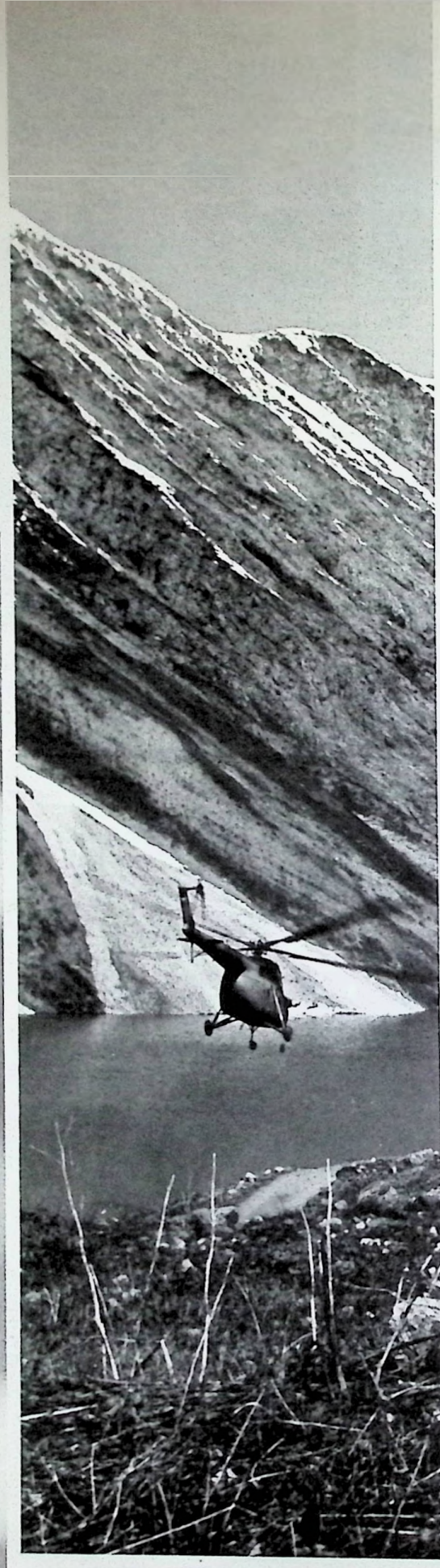
The creeping barrage of water, rock and mountain debris approaches the district center. The last forecast of the field expedition is flashed to the valley by radio transmitter from the mountain area near the glacier.



little sunshine, and we had taken off from Dushanbe, the capital of Tajikistan, and headed for the Vanch district, with its raging Medvezhiy (the Russian for bear) Glacier. No one knows what the weather will be like an hour from now.

With the threatening situation in the Vanch valley, a team of glaciologists, geologists and weathermen has to get to the walking glacier. Khrustalny settlement, which is close to the site, cannot be reached by foot or by car, the highway has been buried by snowslides and rock debris.

The situation is tense but spirits are high. The farms by the river are ready to move people and stock at a moment's notice. Right: More specialists arrive by helicopter.



Leonid Dolgushin (in beret), a Doctor of Science in geography, probably knows more about glaciers and their habits than any man alive. He has been studying Medvezhiy for some 10 years.

There It Is—Medvezhiy!

"Look," the plane commander said suddenly. "That's Medvezhiy under us."

We could see a glacier, many miles long and 1600 feet wide, crawling down the mountains, advancing on the Vanch River valley below. This was the glacier's tongue. It had come to life and, moving into the valley, had blocked the Abdukagor River, the Vanch's right tributary, forming a big squarish lake, all set up to unleash terribly destructive mudflows.

His eye taking in all this, Leonid Dolgushin turned to me, "I'm in the grip of such mixed feelings. The fact is that what we forecasted has happened: After 10 years the Ice Bear is spurting forward again. At the same time I am full of anxiety: Medvezhiy is moving considerably larger masses of ice than last time, and it is almost inevitable that the lake will break through, with millions of cubic feet of water coming down on the valley and settlements scattered here and there. We have to prepare for the break to keep the loss to a minimum."

We landed near the mountain village of Poymazor, soon to set out for our first rendezvous with

the glacier, awakened and stirring.

Alone with the Glacier

Medvezhiy is hurling in our direction multiton blocks of ice they call valises here. Each of them, the size of a big room, drops into the river's rocky bed with a deafening roar.

The glacier's menacing advance has already done some damage, it has pulled down a telephone line. Having blocked the Vanch's right tributary, it has reached the left one—the Dustiroz River. A second ice dam is building up here. The settlement of Khrustalny, where geologists and an expedition of scientists are living, is in grave danger. And though it is situated on a mountain terrace, high above the Vanch River's flood plain, the ice is nearing their cabins.

Dolgushin sets off for Medvezhiy's tongue. For 10 years now he has been keeping the glacier under constant observation. Many scientific and practical conclusions have been reached, and a number of theoretical works have been written on forecasting the catastrophic movements of these ice giants.

Medvezhiy has advanced over a mile into the valley. The mass of ice is now moving at the rate of 33 feet a day. Blocked by an ice dam, the Abdukagor River has formed into a lake containing some 320 million cubic feet of water. In 1963, 215 million cubic feet collected in the lake, and when the lake broke through, a 33-foot-high mudstream rolled through the Vanch valley. Today there are over 100 million more cubic feet of water in the lake, and it keeps coming in. What will the mudflow be like now? The Central Committee of the Tajikistan Communist Party and the republic's Council of Ministers have met and worked out measures to head it off.

Breach in the Dam

The roar of hurtling waters today joined the cannonade of Medvezhiy, the glacier continues to move downward, headed for the mountain valley. Breaking through the ice dam, the water thundered down along the Vanch's rocky bed.

A mountain stream, originating as a small, at times hardly noticeable, streamlet, gradually builds up titanic force, turning into a raging mudstream that has the capability of destroying everything in its path. That was precisely what happened this time. When the water from the lake first breached the ice dam, the hydrometeorological service registered a small drainoff—175 cubic feet per second. Only a few hours later the lake was shooting out 880 cubic feet of water, then 2500, 4300, 8400; then 25,000 cubic feet every second, then 35,000 and, finally, 53,000. The mud-and-rock mountain stream headed for the Vanch valley, its strength steadily increasing.

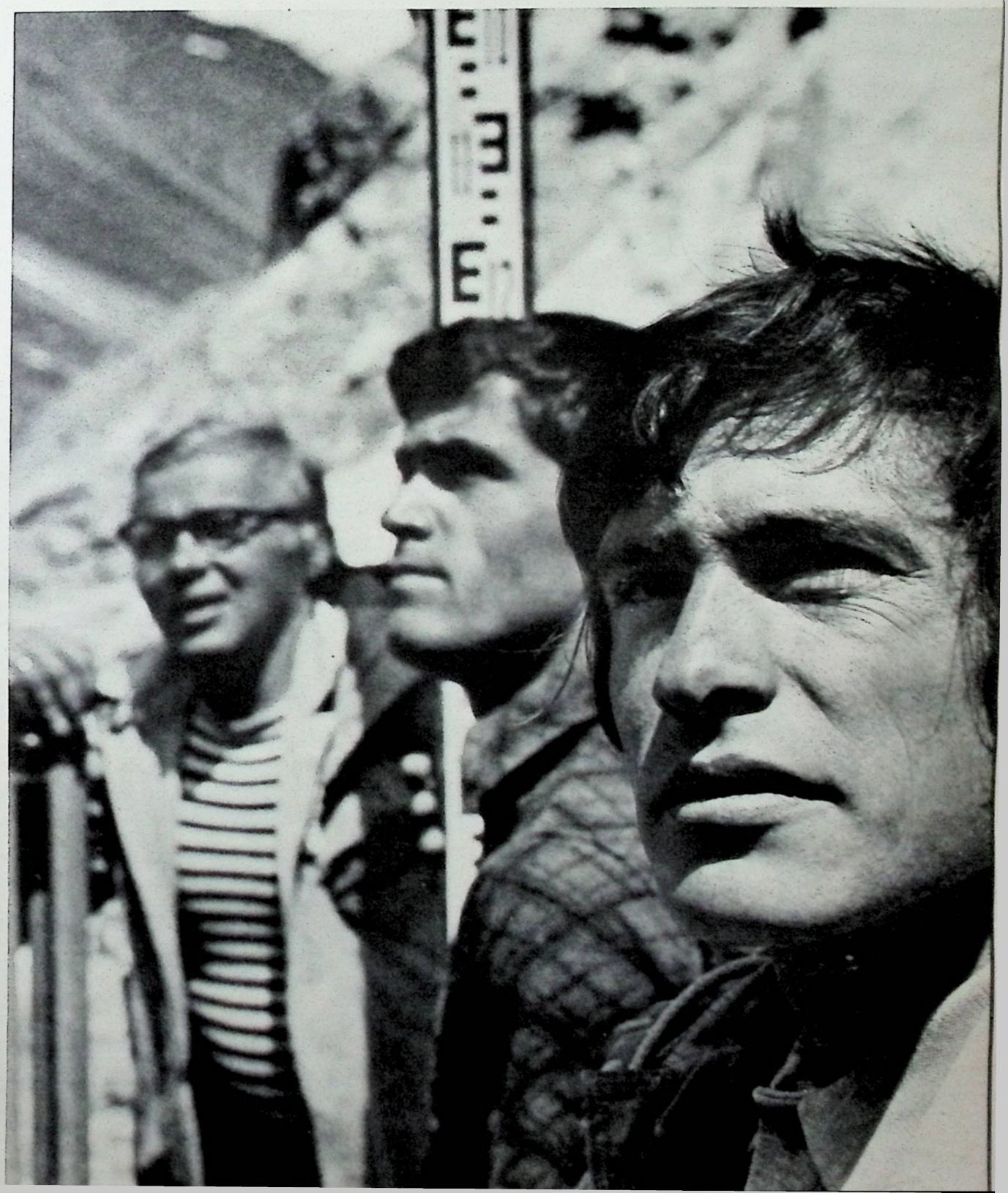
But people were prepared for it. This natural force could have swept away the bridges spanning the raging river. But they had been dismantled in advance and their metal trusses and girders carried up the mountain slopes.

The creeping barrage of water, rocks and mountain debris was approaching the district center. The main water intake of the Vanch Hydroelectric Power Station is located here, in the river's flood plain. It is not meant, of course, to handle such a terrific flood. But it is already protected by a reliable dam. An hour ago a directed explosion resounded over the river, breaking up a rock-filled cofferdam, and the bulk of the stream, before it even reached the head structure, was deflected along the river's old broad bed.

Many collective farms and villages are located along the Vanch's rocky banks. The people were temporarily moved to safe localities and the cattle shipped out.

The Final Outcome

And now the culmination of the two-month glacial epic. For several hours the elements raged at the district center as well as along the entire river. But none of the structures nor the hydroelectric station proper was damaged. More important, not a single person was hurt, although 530 million cubic feet of water came pouring out of the lake up in the clouds.



Some of the glaciologists, hydrologists, geologists and weathermen in this emergency expedition to the Roof of the World.

ART ON STAMPS

By Leonid Fursenko

WORKS OF ART—Russian, Soviet and foreign—are reproduced on USSR postage stamps periodically. Here are philatelic reproductions of masterpieces in Moscow's Tretyakov Art Gallery, named in honor of its founder, collector Pavel Tretyakov (1832-1898). In the hundred years since its founding the gallery has collected some 50,000 paintings, drawings, sculptures and icons by Russian artists from the eleventh century to our time. The works reproduced on these stamps date from the second half of the eighteenth to the close of the nineteenth century.

In the latter half of the eighteenth century Russia experienced a flowering of national culture that was strongly influenced by the progressive ideas of the Enlightenment. In 1757 the Academy of Fine Arts was founded, an institution that has trained a great many Russian painters, sculptors, architects and engravers. One of the distinguished painters of the period and a leading member of the academy was Anton Losenko (1731-1773), a man of peasant origin. While giving preference to the then dominant historical genre, he was also an outstanding portraitist. His studies of contemporary figures in the arts include the important *Portrait of Actor Fyodor Volkov,* father of the Russian theater, which he did in 1763. The masters of eighteenth century Russian painting, in general, deserve special credit for their studies of contemporaries, notably Fyodor Rokotov (1735/36-1808), whose sensitive renditions portrayed the convictions and inner life of his subjects. His *Portrait of Poet Valerian Maikov,* done in the 1760s, is a fine example of his work. Paintings of everyday life were the exception in those days. All the more interesting, therefore, is *A Peasant Dinner* (1774) by Mikhail Shibanov (dates of birth and death unknown). The work testifies to the broad creative scope of this portraitist, a serf of Count Grigori Potyomkin. The creations of Dmitri Levitsky (1735-1822), which influenced many painters, marked the summit of eighteenth century Russian art. His characterizations are always precise, diverse and individualized, as, for instance, his *Portrait of Nikolai Novikov*—an eminent Russian enlightener and publisher—done in the 1790s. By the close of the eighteenth century, landscape painting moved up to a place of prominence along with historical paintings and portraits. Fyodor Alexeyev (1753-1824) is considered one of the pioneers of Russian lyrical landscape painting. Traveling through Russia, the artist carefully depicted on canvas the specific features of different cities, creating their distinctive "portraits." You might call Alexeyev's paintings architectural landscapes. His *View of Voskresensky and Nikolsky Gates* (1811) gives an idea of his style, his light and free brushwork.

Russian art of the first half of the nineteenth century reflected the social contradictions of the period. A realistic portrayal of life took precedence, and much of the painting done incorporated progressive ideas. The work of Alexei Venetsianov (1780-1847) was the most considerable achievement of the period. He was probably the first of the Russian painters to devote himself entirely to genre painting, to link his artistic interests with the life of the people. A good many of Venetsianov's works depict peasant children as, for example, *There You Have Dad's Dinner,* which he painted in 1824.

Along with Venetsianov, Vasili Tropinin (1776-1857) was a major figure in the development of Russian realist art of the first half of the nineteenth century, particularly in portraiture. He painted writers and artists, nobles, merchants and common people. His interest in people led Tropinin to the creation of such type portraits as *The Lacemaker* (1823) and *The Guitarist* (1832).

The peculiarities of Russian portraiture of that period were most vividly embodied in the creations of Orest Kiprensky (1782-1836). More, Kiprensky made his own contribution to world portrait art of the age. He combined brilliant execution with humanist content, profound interpretation of image and expressiveness. These qualities characterize his *Self-Portrait* (1828).

Karl Bryullov (1799-1852) brought a major development to Russian art: Russian classicism was on the decline by then, giving way to the romanticism of such canvases as his *Italian Noon* (1831). Bryullov influenced a good many painters of subsequent generations, among them Ivan Aivazovsky (1817-1900). The sea was Aivazovsky's only subject, the theme of several thousand of his paintings. His creations, with great scope, feeling, strength and grandeur, seek to capture the sea's rich diversity, its boundless inconstancy. He caught one such moment in *The Seaside* (1840).

Mid-nineteenth century Russian art was marked by the increasing emergence of genre painting. Pavel Fedotov (1815-1852), an artist with a tragic destiny, was its most distinguished representative. Closely observing everyday events, Fedotov portrayed the life and morals of the petty nobility, merchants and civil servants, thus preparing the ground for the critical trend in painting. His *The Young Widow* (1851) is intensely dramatic.

Alexander Ivanov (1806-1858) also devoted his life to the fight for a new, socially meaningful art. He sought to give his images content and emotional and psychological expressiveness. His plein-air painting much anticipated the efforts of other artists. Italian nature in his landscape *The Lower Gallery in Albano* (mid-nineteenth century) is depicted with great philosophical depth and freshness.

Ivan Shishkin (1832-1898) was a major figure in Russian landscape painting of the latter half of the nineteenth century. His images of nature are poetic, conveying the national and even local distinctiveness of the landscape. The forest—its grandeur and mystery—is one of his favorite themes. *Pine Wood,* done in 1872, is characteristic.

Alexei Savrasov (1830-1897) is one of the classic landscape artists of that period. His modest but poetical landscapes re-create the essence of Russian nature. He saw and had the gift for conveying the poetry of an outwardly quite unattractive landscape as, for instance, in *Country Road* (1873).

New elements entered into Russian art of the second half of the nineteenth century, a critical view of real life and sympathy for the common people. The works of Vasili Perov (1833-1882), exposing everything that degraded and incapacitated man, differed markedly from the paintings of the preceding period. Portraiture also occupied an important place in his work; his *Fyodor Dostoyevsky* (1872) is a masterpiece.

The movement of Russia's foremost artists for a democratic realistic art was led by Ivan Kramskoy (1837-1887). His famous portrait of the Russian poet Nikolai Nekrasov (1877) is a sample of his insight into the psychology of his contemporaries. He was for many years the ideological leader of Russia's painters, more particularly he was the nonacademic mentor of Ilya Repin (1844-1930), the greatest artist of the period. Probably no other Russian artist painted so broad a picture of contemporary life and gave it so much diversity as Repin. His *Arrest of a Propagandist* is dated 1880-1892.

Vladimir Makovsky (1846-1920) was also an advocate of the progressive ideas of his time. His subjects were extraordinarily diverse and included civil servants, priests, old military men and pensioners. *Meeting* (1882) is one of his most famous paintings: A peasant woman comes to see her son who has been apprenticed to an artisan in the city.

Vasili Surikov (1848-1916) devoted himself completely to Russia's past. That does not, however, belittle his importance in the history of Russian art. He achieved exceptional depth and truth, and depicted with great force a number of major events in the history of Russia's people. All told, Surikov painted only seven canvases, but each is the work of a gifted artist. The subject of one—*Boyarinya Morozova* (1887)—is a seventeenth century religious movement.

Nikolai Kasatkin (1859-1930) was the first painter to portray the life and struggle of Russia's working class. His paintings shocked contemporaries with the boldness and novelty of their content. His *Woman Miner* (1894), remarkable for its emotional expressiveness, is the product of a visit to the Donets Coal Basin.

Mikhail Vrubel (1856-1910) was one of the most talented and original artists of the late nineteenth century. His work bore the imprint of the coming twentieth century. The theme that runs through all his work is the tragic conflict between society and the strong, proud individual. Vrubel drew much of his subject matter from mythology, epic songs, folk tales, legends and classical literature. His *Princess Swan* (1900), for example, is a symbolic treatment of Alexander Pushkin's *Czar Saltan.*

Art treasures of the famous
Tretyakov Gallery on stamps

THEATER IN AN AUTO PLANT

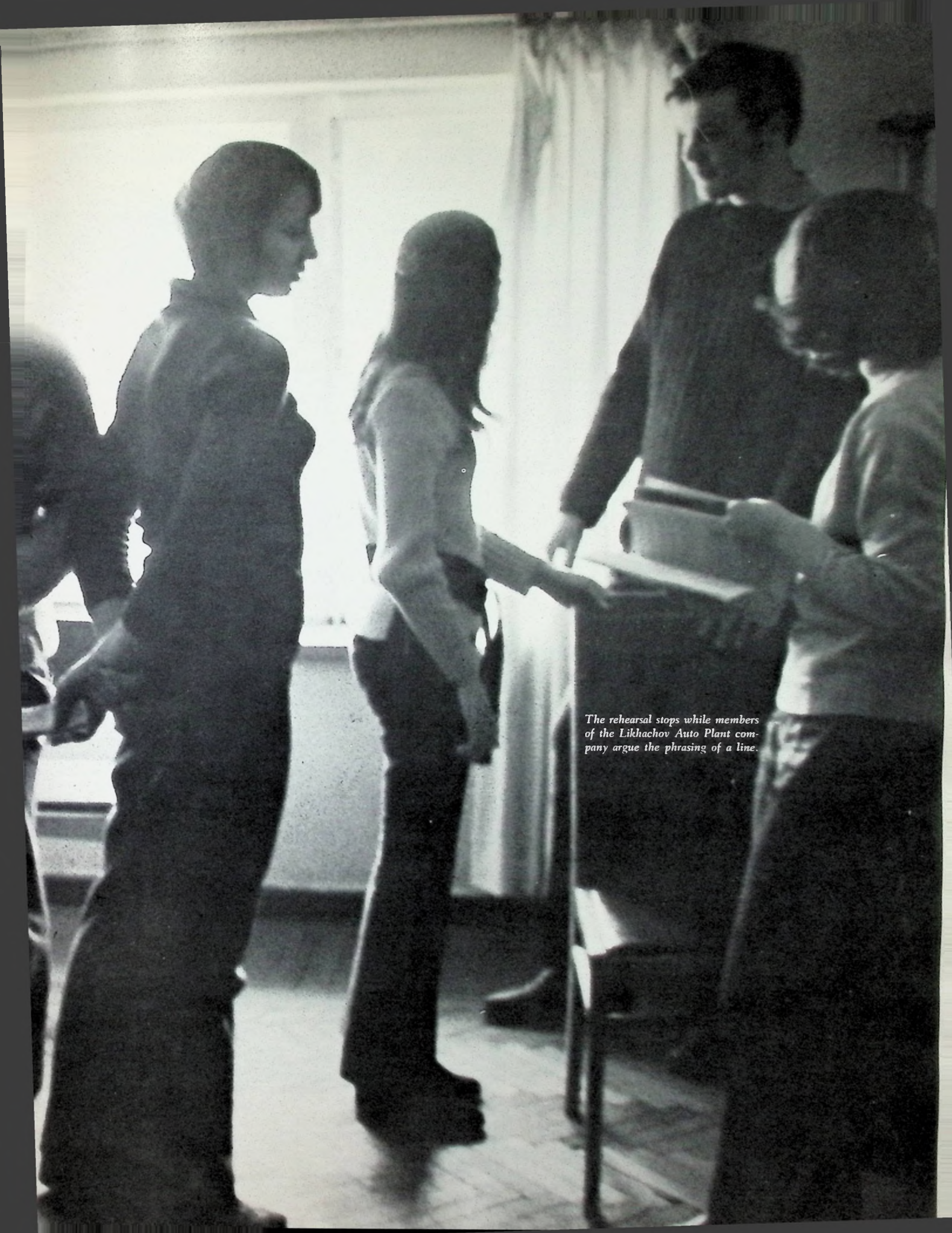
By Anna Nikolayeva

Photographs by Alexander Lobov

Over half the Soviet Union's towns and cities have an amateur theater. There are 1200 of them, twice the number of professional companies. Performances are given in almost all the languages spoken in the USSR. The directors of these amateur troupes receive their training at institutes and theater schools.

Every year the work of these theaters from all over the country is shown in Moscow at the Bolshoi Theater and the Palace of Congresses.

Some 10 years ago the title of People's Theater was established for the best of the amateur companies. More than 900 have won the title.



The rehearsal stops while members of the Likhachov Auto Plant company argue the phrasing of a line.

THE PEOPLE'S THEATER of the Likhachov Auto Plant in Moscow is one of the country's oldest amateur theaters. It opened on February 10, 1937, to mark the centenary of the death of Alexander Pushkin with a program of the poet's works. Every year since, the company has staged a Pushkin performance on this anniversary date.

As is true of all the people's theaters in industrial plants, the members of the company and most of its audience are workers. The function of these theaters is to provide the workers with an avenue for creative expression and give them an appreciation of dramatic art.

In the 30 years since it was founded, the People's Theater of the Likhachov Auto Plant has developed a style of its own and a repertoire composed, in the main, of heroic and romantic plays.

As a rule, the theater prefers not to mount productions other theaters do. Often the actors will produce original drama or adapt fiction and poetry for play or reading performance.

Russian classical playwrights are represented by Gogol, Turgenev, Ostrovsky, Leo Tolstoy and Chekhov, and Soviet literature by Gorky, Sholokhov and Paustovsky. Foreign plays and works of fiction staged by the company include Shakespeare's *Romeo and Juliet*, *The Gadfly* by Voynich, *The Friends from Pittsburgh*, adapted from Mark Twain's *The Adventures of Tom Sawyer* and *The Adventures of Huckleberry Finn* and a reading of American short stories.

Not too long ago the People's Theater celebrated the thirtieth birthday of *The Friends from Pittsburgh*. All seven actors who have played Tom Sawyer, beginning with Vladimir Mochalin, the first Tom, and ending with the present one, Kolya Denisov, a student at the theater studio, took part in the jubilee performance.

Some plays in the repertoire are put on every year. Each new generation of actors gives them its distinctive touch. And there is no hiatus in the development of succeeding generations: Future actors are trained at the theater's children's and youth studios. Boys and girls 11 to 14 whose parents work at the plant or live in the neighborhood are admitted to the children's studio through competitive examinations. After three years of study they move on to the youth studio, following which they become regular members of the company.

Preparing for a new production at the People's Theater, the actors try to become one with the character and the period. They have available the collections of the Bakhrushin Literary Museum and Theatrical Museum in Moscow and that of the Pushkin House (Institute of Russian Literature) in Leningrad.

Working on Turgenev's *A Month in the Country* and preparing a stage version of his *Spring Freshets*, members of the casts visited the Turgenev museum in Orel, where they studied nineteenth century photographs and documents. They also walked in the beautiful old park in Spasskoye-Lutovinovo, once the Turgenev estate, where they gave a performance of *A Month in the Country* for the local collective farmers.

In preparation for *Natasha Rostova*, adapted from *War and Peace*, they made two visits to Tolstoy's museum-estate in Yasnaya Polyana, where they also performed for the local people.

The plant's trade union covers all the theater's expenses, which include the salaries of the producer, the orchestra leader and the stage directors, who also teach at the studios, and the costs of the trips the company makes to various cities. The theater has a makeup room and wardrobe of its own, the costumes usually designed by graduates of a theater school.

Some of Likhachov's amateur actors—assembly line workers, a technician and an engineer.

The entrance to the plant's palace of culture looks much like the foyer of a professional theater.

Amateur actors never have as much time for rehearsals as they would like. It isn't always easy after a day's work at a lathe or in a design office to shrug off fatigue and get down to business, but love for the theater prevails.

Victor Zunin was 13 when he entered the studio of the People's Theater. Today at 33 he is an engineer at the plant, secretary of the party organization in his department, married and with a little girl of three. In spite of his job and his social and family responsibilities Victor rarely misses a rehearsal. "To be able to express through my characters the things that interest me in life—that's the greatest satisfaction," he says. Why didn't Victor become a professional actor? Because his life would not be complete without engineering, no more than it would be without the theater.

On Saturdays and Sundays the doors are opened to the public. The theater is always full: Not only the 200 people who make up the company and study at the studios consider it their own; everybody who works at this big automobile plant has an emotional share in their People's Theater.

Valeria Talashova is getting her acting training in the theater's youth studio. She works in the motor shop of the Likhachov plant.

The repertoire includes classical Russian, Soviet and foreign plays. Scene from Turgenev's A Month in the Country. *Left: A modern play of the sea.*

A scene from the amateur theater's production of Snow Queen. *Tanya Anisimova is Gerda and Nikolai Novoshilov is the king.*

Larisa Korovkina as Zhenia Komelkova in the play The Dawns Are So Quiet Here.

LAWYER AT A PLANT

By Nikolai Belov

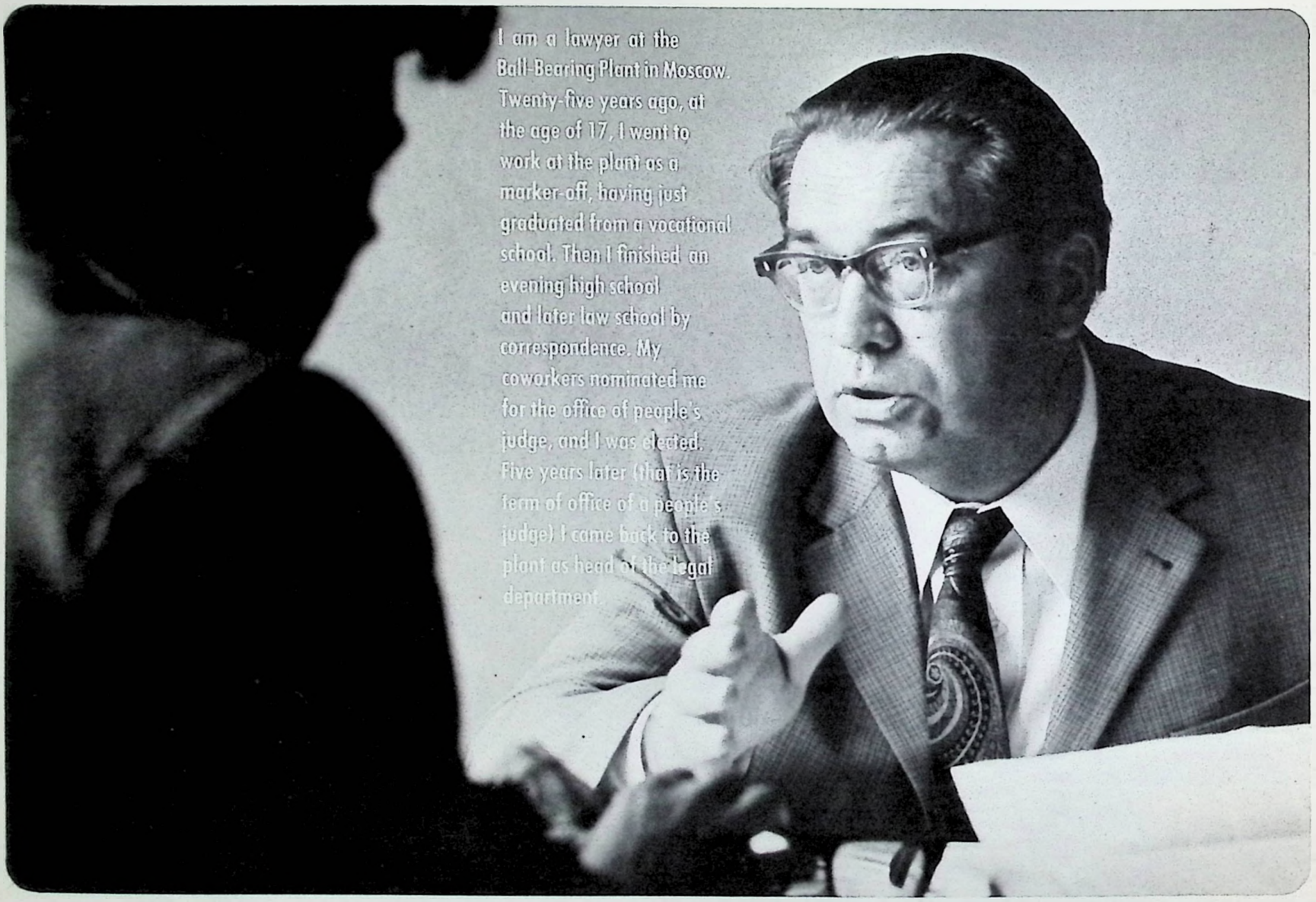
FIVE PEOPLE make up the legal department at our plant. Our main job is to familiarize the plant personnel with the law, giving particular emphasis to labor-management provisions. A ready knowledge of labor relations law is important for employees in the personnel department, for instance, who hire, fire and promote factory and office workers. For people in that department we have organized a special three-month course. Not long ago I gave a lecture for this course on transferring workers from one job to another. The personnel staff must know exactly the who and the why and the when of every such job shifting. At a Soviet plant or office a worker may not be transferred without his or her consent, nor is management permitted to put the employee in a lower paying job. There are exceptions: A worker can be demoted for a serious violation of work rules or some other action which has caused material damage. But even this penalty requires the consent of the trade union committee.

Lawyers speak regularly at meetings of active trade union members, who often suggest the topics. The graduates of vocational-technical schools are particularly interested in labor legislation because of the very substantial privileges they are entitled to under the law. We explain, for example, that the working day of teenagers is two hours shorter than that of older workers, six hours is the limit. They earn equal pay for equal work and a vacation of 24 working days, which can be taken at any time of the year.

We do not confine our work to labor-management differences. People often come to us for legal advice on other matters. One not atypical example was the situation of a woman worker with children who got a divorce and wanted to know how much of her husband's income she was entitled to. We told her that a father has to pay a quarter of his earnings for one child and a third for two children. That includes all his earnings—extras like overtime work and bonuses.

A lathe operator (a correspondence student at a technical school) came to me recently with a complaint. His shop superintendent refused to give him paid leave to take his exams. We found out that the shop was understaffed, but we insisted that the law had to be observed. The student got his paid leave.

One might ask: Doesn't this application of the law tend to slow down production? No, it would only seem to. In this case, management put narrow interests ahead of the general good. The point is that not only is the lathe operator interested in furthering his education, in becoming a more productive worker; the plant wants him to advance himself. The law giving paid leave to students



holding full-time jobs was adopted precisely because it reflected the larger interests of socialist society.

Another example of management ineptitude involved a worker who complained to us that his resignation notice was being ignored. He wanted to change jobs. Soviet law says that if an employee wants to leave the job, two weeks' notice must be given. If by the end of the two weeks the order of dismissal has not been signed, the worker may stay away from work and continue to collect the wages, but—at the expense of the executive who did not sign the order. In this case the matter was settled by explaining the situation to the shop superintendent. But if it had not been amicably resolved, we could have taken it to court.

People sometimes ask if our interference does not chip away at respect for management. We think it is just the other way round. If we had not stepped in, both shop superintendents would have taken unlawful actions which would have had to be reversed anyway. And this would have really hurt their reputations as responsible administrators. The fact that in the past few years not a single employee at our plant has brought a complaint about the unlawful actions of management to court shows how strictly the labor laws are observed here.

But that is only a part of our work. Another of our jobs, no less important and time-consuming, has to do with contracts: Lawyers are involved in the plant's relations with its suppliers and with the enterprises that buy its goods. So in addition to the law we must know our economics. Such things, for example, as the quality and volume of metal to be delivered for ball-bearing manufacture are not everyday matters. Should we or our suppliers have complaints, they are looked into by an arbitration commission responsible to the executive committees of the regional Soviets of Working People's Deputies and the Councils of Ministers of the autonomous and union republics. The final arbitrator is the USSR Council of Ministers. The interests of our plant in arbitration proceedings are defended by our legal department.

A good example of our work was a recent case we won against an enterprise which did not make deliveries on time, thereby violating the terms of our contract and putting us to considerable expense. The enterprise had to cover our losses.

Our duties, then, are to familiarize plant personnel with the law, act as their legal counsel in case of need and advise the plant management on business contracts.

NEXT ISSUE

The theme of the May issue is environmental protection, a subject that has always had high priority in the country. Among the earliest decrees adopted by the new Soviet state were those dealing with the use of woodlands and fishing grounds and the establishment of a wildlife preserve in the lower reaches of the Volga. The government, headed by Lenin, recognized the importance of taking immediate protective measures even at a time when the country was gripped by famine and devastation. An article discusses the role of the state in protecting nature and the 200 decrees that became the basis of Soviet legislation.

Leningrad is the country's second largest city and one of its leading industrial centers. Our correspondent was curious about how a city with 2,000 factories could remain free of smog and have a river running through its center clean enough to swim in. She interviewed Vasili Kazakov, its mayor, to get some answers. Among the things he told her was that Leningrad has a general development plan drawn up in 1966 which takes into account the major sources of pollution and provides for eliminating them. It can be done. Leningrad is living proof of that.

The land shelters and nourishes the people who inhabit the planet Earth. A recent round-table discussion sponsored by the magazine *Voprosy Filosofii* dealt with, among other subjects, the wasteful and thoughtless extraction of the Earth's mineral resources that threatens to exhaust the coal supply in 100 to 150 years, the silver supply in 13 to 40 years, and lead in 20 to 60 years. The food problem is also acute and will become worse with the population growth. There are already 2.4 billion starving or semi-starving people for every 450 million who have enough to eat. Is population control the answer or are there other practical solutions? A portion of the discussion is reprinted in May.

The rising salinity of the Sea of Azov threatened its tremendous fish yield—70 pounds per acre of water. Damming the Kerch Strait will control it to within 0.05 per cent. An article about a complex and ingenious scheme—the first of its kind in the world, say the specialists.

"The forests saved our Revolution from starvation. It is the duty of each of us to plant trees to replace those cut down." So read the Komsomol appeal on Forest Day in 1923. A picture story shows how the younger generation is fulfilling this duty and many other related ecological tasks projected by nature protection organizations throughout the USSR.

An American teacher's impressions of Soviet educational methods based on his observations and experience in teaching literature to Soviet students.

The Oka River flows through the large industrial city of Ryazan in the Russian Federation. It has a population of 350,000, as well as thermal power stations, nonferrous metallurgical installations, foundries, one of the largest oil refineries in the country and a synthetic fiber plant. How is it, then, that the water at the city beach is not polluted? The answer to this question is the subject of a well-illustrated article.

COMING SOON

An issue for and about children

SCIENTIFIC AND TECHNOLOGICAL COOPERATION BETWEEN CMEA AND EEC COUNTRIES

By Dzhermen Gvishiani
Corresponding Member of the USSR Academy of Sciences,
Vice Chairman of the State Committee for Science and Technology of the USSR Council of Ministers

TWO integrated economic regions have taken shape on the European continent: the European countries of the Council for Mutual Economic Assistance and the members of the European Economic Community (Common Market). Although the two groupings embody similar processes of internationalization and concentration of productive forces, they reflect the fundamental difference of their socioeconomic systems. But this difference does not exclude the peaceful coexistence of the two groupings, the mutual value for the countries in contemporary Europe's integrated regions of economic, scientific and technological ties.

The present international atmosphere is favorable for a basic change in the economic relations of Eastern and Western Europe. Indications of this change are the good relations, both political and economic, that have developed between the Soviet Union and France and the Federal Republic of Germany. The need for cooperation is, to a considerable degree, dictated by the scientific and technological revolution.

No country can hope to achieve economic and social progress without mastering the new technology. But this entails tremendous expenditures, the efforts of large research groups, the construction of sophisticated and expensive experimental and semicommercial equipment, and the use of the most advanced computer technology. Nations with small or medium-size potentials and reserves cannot assimilate the findings in all fields of study at once and apply them to full effect.

The organization of large-scale production, particularly of items that need intensive scientific and technological development, requires pooling the efforts and resources of several countries and adjusting to the potentials and demands of a large market. All this makes imperative the development of scientific, technological, production and commercial cooperation of the countries of Eastern and Western Europe, the CMEA and Common Market countries included.

For example, the environment has become a major world problem. The contamination of the air and water, soil deterioration and the depletion of natural resources are serious concerns in many countries, especially the USA and Western Europe. Such problems as the pollution of the environment by industry and transport, the wasteful extraction of minerals, the neglect of reclamation measures, the use of injurious fertilizers and chemicals, the interference with the ecological balance are not, of course, an inevitable consequence of economic activity. They can be avoided by using the findings of science and technology.

The solution to these problems, as well as to those of continued economic development, is well within the capabilities of the European countries. They have already accumulated a large body of experience in economic, scientific and technological cooperation both inside and outside the CMEA and the Common Market. Long-term scientific and technological ties have expanded particularly. These include intergovernmental agreements for the solution of problems through specialization and cooperation in production.

Tracing the evolution of the Soviet Union's scientific and technological ties with most European countries, we find that at first there was only an occasional exchange of individual specialists and scientists. Then followed a period when agreements on cultural and scientific exchanges were concluded. In the last five-year period there has been a tendency to move on to joint projects.

In recent years CMEA member countries have concluded several hundred agreements with West European countries, primarily with EEC countries, both on an intergovernmental and intercompany basis. Apart from the USSR, Bulgaria, Hungary, Poland and Rumania have accumulated considerable experience with such agreements in recent years. They provide for the sharing of scientific and technological information, patents and licenses, for joint research and design, and the cooperative manufacture of various items. The latter includes the exchange of parts and units and the coordinated marketing of the finished product in the cooperating countries and on the world market. The mechanism of this type of cooperation is being improved, and new areas are being developed.

In their scientific and technological exchanges with the West, the CMEA member countries are equal partners, making a substantial and ever growing contribution. The CMEA members have a good experimental and production base and wide-ranging commercial contacts on the world market. This is particularly true of the Soviet Union, whose scientific and technological potential, experience in large-scale research and achievements in advanced fields of science and engineering are generally known. All this taken together creates favorable conditions for large-scale joint projects and for the marketing of new products throughout Europe and the world. CMEA undertakings are open to nonmembers in Europe and on the other continents.

The Soviet Union and other CMEA members welcome cooperation with Western Europe. The ties between the USSR and many West European countries testify to this fact. Soviet-Italian scientific and technological cooperation is one example. The Soviet Union is working with more than 30 Italian industrial and financial agencies and companies. FIAT is helping to build the Volga Auto Plant in Togliatti. Agreements have been concluded with IRI for ferrous metallurgy, shipbuilding, machine building, transport and telephone communication; with ENI for oil and gas, as well as with textile and knit goods firms and other branches of light industry.

The Soviet-Italian projects for the extraction and transport of natural gas are also mutually profitable. Agreements in this field cover a period of 20 years and more.

Cooperation between the USSR Academy of Sciences and three major Italian scientific institutions—the National Council for Scientific Research, the dei Lincei National Academy and the National Institute of Nuclear Physics—is also developing rapidly.

Soviet and French scientists and specialists have been working together in such fields as physics, oceanography, hydrology, biology, public health and the use of computer technology in planning and production management. Soviet-French cooperation in industry includes such undertakings as the joint development of a continuous metallurgical process, oil well drilling, and the manufacture of chemical products, as well as the construction of a number of large industrial complexes in the USSR.

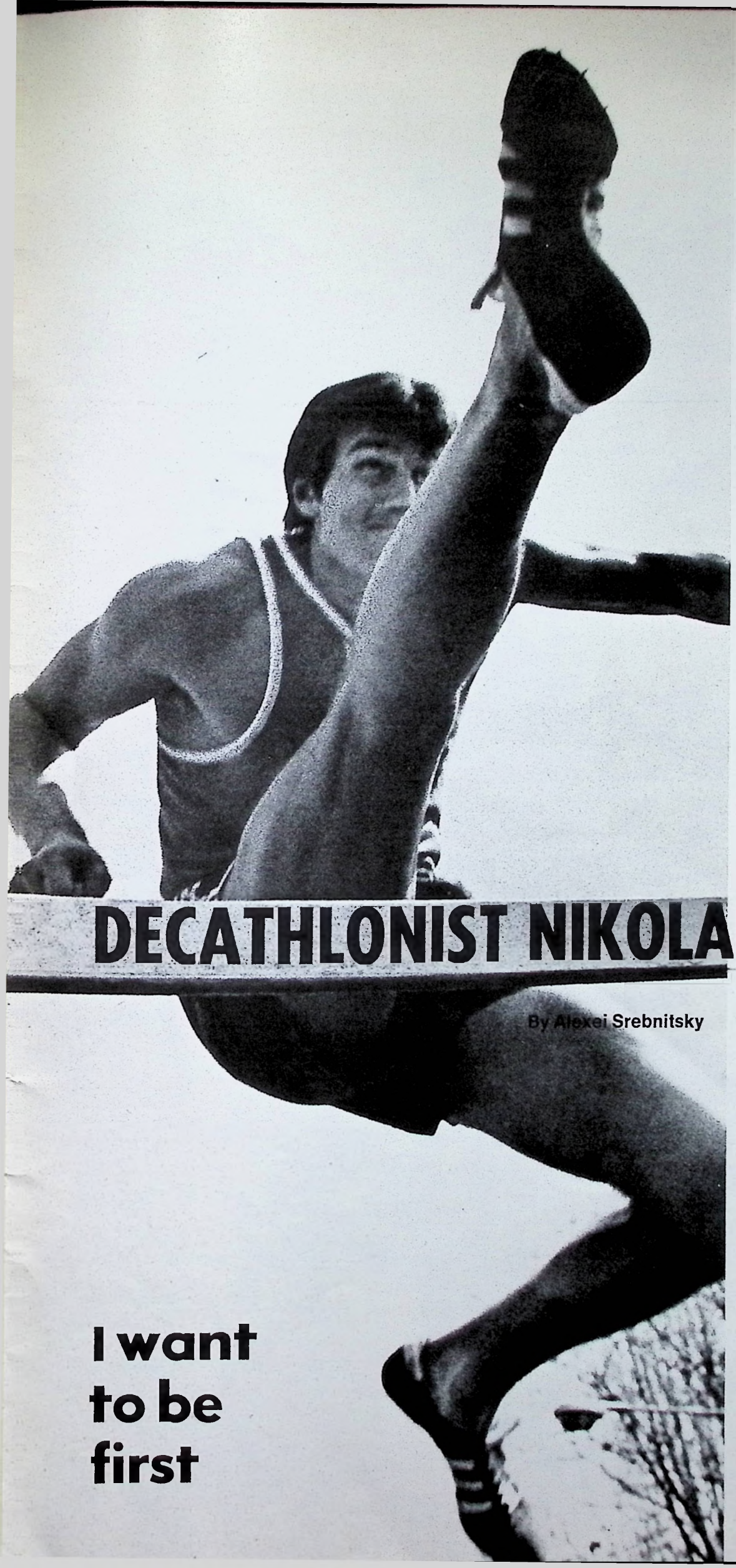
The Soviet Union's scientific and technical ties with Austria, Belgium, Denmark, Finland and Sweden have expanded in recent years. Cooperation with leading Dutch and Swiss firms is growing. Some 30 projects have been negotiated for scientific and technical cooperation with companies in the Federal Republic of Germany, and a joint commission will soon be created for scientific, technological and economic cooperation between the two countries.

The creation of unified power and transport systems, the organization of transcontinental transportation and other joint efforts of several European countries can establish a solid basis for cooperation. Similarly, the combined efforts of European scientists could be of great significance in combating cancer, cardiovascular and virus diseases and other health problems.

These, to our mind, are the main areas for European cooperation, including among the CMEA and EEC countries. They could serve as organizational structures for the evolution of joint scientific research and coordinated projects.

It is in the interest of the European continent to extend this cooperation to such highly developed countries as the USA and Canada, which have traditionally been linked with Europe.

Scientific and technological cooperation will make it possible to increase the scientific potential of each European country and of the continent as a whole, to bridge the scientific and technological gap between the various states and strengthen the mutual ties of the European peoples.



DECATHLONIST NIKOLAI AVILOV

I want to be first

By Alexei Srebnitsky

"Avilov is great! What he has done is an inspiration to Europe!" exclaimed the famous West German decathlonist Willi Holdorf. That was after the tall Soviet athlete in the red jersey ran the 1500 meters, the last event in the decathlon, at the Olympic Stadium in Munich. Until that finish, that is to say, until August 1972, Holdorf was the only European who had ever won the Olympic gold medal in the decathlon (Tokyo, 1964). The second man to beat the Americans was 24-year-old Nikolai Avilov (height 6 feet 3 inches, weight 185 pounds). In his 10 years in sports, Avilov had competed in the decathlon 20 times. This last time, in Munich, he broke a world record, which added a special glow to his Olympic gold medal. The victory in the decathlon is deservedly considered the most important in athletics. What accounts for Avilov's achievement? "In all the years he has trained, he hasn't missed a single workout," the champion's coach, Vladimir Katsman, said.

NIKOLAI AVILOV went in for athletics with no thought of the decathlon. In 1961 his model was the famed high jumper Valeri Brumel.

He enrolled at a children's sports school in Odessa (a big Ukrainian port on the Black Sea) for the high jump. But he soon decided that going through the same motions day after day was a bore. Tall, springy and fast, he was easily persuaded to join a basketball team.

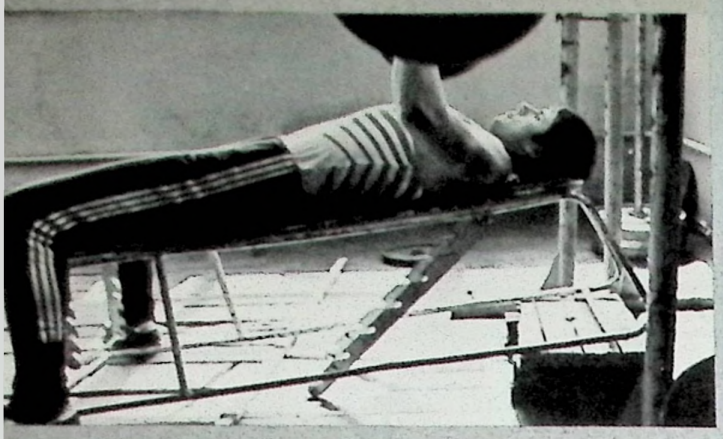
An instructor at the school who happened to meet Vladimir Katsman, one of the best coaches in Odessa, told him about the very capable but fickle adolescent. Katsman was not overly impressed but decided to check on Avilov anyway. They had a talk and got down to business.

At 16 Avilov cleared the bar at 6 feet 6 inches. There was no competition for him in Odessa, and he was bored. Reproaching him for irresponsibility, the coach got Nikolai started on the shot, the discus and the pole vault. Anything to keep this capricious youngster, for whom he had high decathlon hopes even then, from running off to the basketball court, or anywhere else, again.

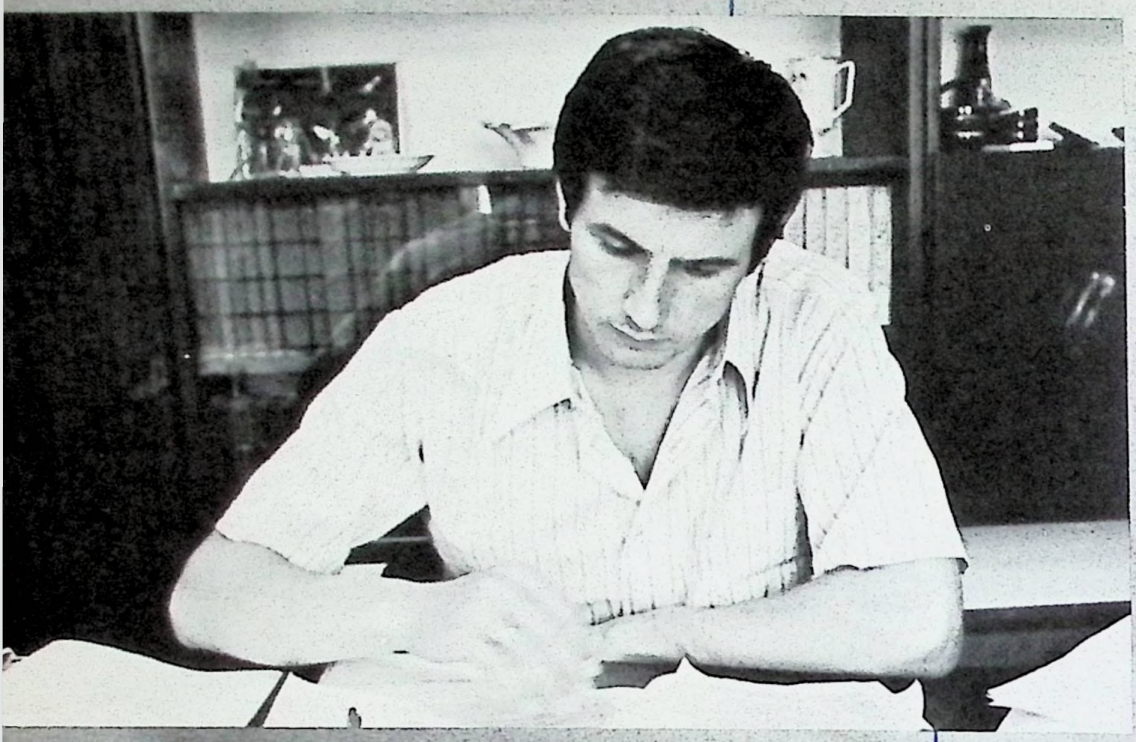
When Nikolai said he was aiming to pass the eight-foot mark in the long jump (a new event), Katsman threw another idea at him:

"How about a different eight—8,000 points in the decathlon?"

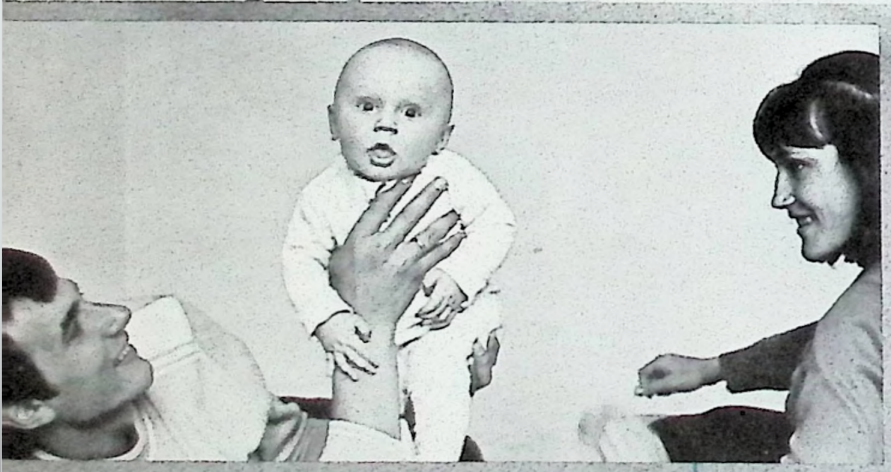
In 1965 Avilov captured the USSR scholastic championship in the decathlon. Three years later he went to the Olympic Games in Mexico, where he placed fourth. This too was something of a surprise; the Olympics decathlon is a sport for full-grown men, and at the high altitude of Mexico City many of them were breathless and depressed from lack of oxygen. Avilov was just past his twentieth birthday, and he hadn't yet lost his adolescent gawkiness.



"In all the years he has trained," said coach Vladimir Katsman after Avilov broke the decathlon record in Munich, "he hasn't missed a single workout."



Avilov is a graduate of the law school of Odessa University. He had to give up sports for nearly half a year to work on a thesis for his degree.



Avilov met his wife Valya, a high jumper and bronze medal winner, at the Olympics. His plans for six-month-old Seryozha: soccer playing.

Coach Katsman searched him out at a children's sports school in Odessa and got him started on the shot-put, discus and pole vault.

Mexico convinced the specialists that Avilov was psychologically stable and, as Katsman claimed, a potential Olympic champion.

As for Avilov himself, his first Olympics impressed him for reasons other than the decathlon: "In Mexico I met Valya."

Competing for Two

Avilov's wife, the former Valentina Kozyr, is herself a well-known athlete. At the Mexico Olympics she won the bronze medal in the high jump.

They are a tall, attractive couple. After his victory in Munich Avilov said:

"I couldn't possibly have made a poor showing —I was competing for the two of us."

Valentina, then six months pregnant, had stayed home in Odessa. Avilov promised her that he'd bring home a gold medal, and he did. Not that she had any doubt about it.

Neither did Nikolai's father Victor. Before seeing his son off to Munich, he bought a sheep: "My son will be coming back a champion, and we need the sheep for a celebration feast. All Odessa is invited."

Odessa celebrated.

An All-Round Contender

Actually, only those very close to Avilov had unquestioning faith in an Olympic victory prior to Munich. After the very promising showing in Mexico, he failed twice in the four-year interval. He hopelessly lost the European title to Joachim Kirst of the German Democratic Republic. While Avilov did reach the 8,000 mark, he won the national title only once and did not approach the national record set shortly before by Boris Ivanov. In the list of the world's leading decathlonists for the pre-Olympic year 1971 Avilov was fifth—after Kurt Bendlin (Federal Republic of Germany), Ivanov, Kirst and Hans-Joachim Walde of the FRG. Moreover, he made only two starts the whole season.

Even his participation in the Olympic Games was in question at one time. Some of the leading experts thought Katsman had given his pupil too small a training load in the pre-Olympic season. Only the energetic intervention of Ivan Stepanchonok, head coach of the USSR team, and the country's outstanding decathlon specialist Fred Kudu outweighed the adverse judgments.

Katsman knew what he was doing. At the time Avilov was suffering from a serious stomach ailment. Valentina hurriedly made herself a specialist in dietetic food, and the coach, just as quickly, revised the training program for the Olympics, particularly cutting down on the number of performances in official meets. The coach knew that failure is bad for morale; what Avilov needed was a psyching up that would make him put everything he had into his Olympic effort.

And that's how it worked out. In Munich Avilov bettered his personal records in seven decathlon events: long jump 25 feet 2¼ inches, shot-put 47 feet 2¼ inches, 400 meters 48.5 seconds, 110-meter hurdles 14.31 seconds, discus 154 feet 1½ inches, pole vault 14 feet 11 inches and javelin 202 feet 3½ inches.

In the high jump he repeated his best achievement of 6 feet 11½ inches.

He did his usual 11 seconds flat in the 100 meters and covered the 1500 meters in 4:31.9, setting a world record of 8,454 points for the decathlon as a whole.

The dramatic accident of Kirst, who upset the hurdle, fell and dropped out of the running, happened when the gold medal was already in the bag. Avilov was disappointed with this turn of events.

"I was really sorry that Kirst dropped out," he said. "He's a great athlete. If he had continued to the end, my result would have been higher and the contest on the second day would have been more interesting."

A closer look at the meters and seconds shown by Avilov demonstrates that the Olympic champion is a typical product of our decathlon school. It is the same school that produced Vladimir Voikov, the first European champion from the USSR; the hard working Vasili Kuznetsov, who lacked the athletic qualities of a decathlonist but broke world records by sheer will; and Rhein Aun, silver medalist of the Tokyo Olympics. It is the school that believes in the harmonious development of decathlonists. The Americans, for instance, put their hopes on the track events, and Taiwan's C. K. Yang set world records exclusively through his high results in the pole vault. Our decathlonists work for a confident and even performance in all the events.

Nikolai Avilov is not a phenomenon but simply the best of many excellent Soviet decathlonists.

Hard to Be First

Avilov was dubbed the Smiling Man by Italian journalists who saw him in action at the World University Games in Turin. With his smile goes the lively wit of the Odessan.

But he can, when necessary, grit his teeth. Olympic fans still remember the last event, the 1500 meters, which brought Avilov the gold medal and with which I started this story. Actually the result was not all that important—Avilov simply had to reach the finish, and the title was his. But for his teammate Leonid Litvinenko it was the last chance to make the trio of medal winners.

Litvinenko made a desperate spurt ahead. Avilov ran with him for several meters but then fell back, all of a sudden grabbing his side and staggering. Katsman, sitting in the grandstand, closed his eyes in horror: Would Avilov really drop out? But, face distorted with pain, he went on, dragging after Litvinenko. Then came the home stretch. Avilov crossed the finish line second and dropped to his knees. The whole stadium was in an uproar chanting his name, but he heard nothing. Later he and Litvinenko stood with arms around each other, looking at the figures on the scoreboard which showed that Avilov had won the championship and Litvinenko the silver medal.

"The gold medal is mine all right. But the record is Leonid's. Dragging after him was a matter of principle: I've never lost to him by more than a hundred meters in this event," Avilov said later.

Then there was the 1500-meter run at the World University Games in Moscow, a year after the Munich Olympics. Again Avilov stayed in despite terrific pain. This time it was a strained tendon, and it was clear from the previous results that he could not win the championship title. Nevertheless, he went on to finish second in the race. Afterward Avilov congratulated the decathlon winner, Ryszard Skowronek of Poland, and immediately left the stadium.

"I took up the sport to be champion," he said, "but it's hard and getting harder." Indeed, when it comes to athletics, the fates have been springing unpleasant surprises on Avilov lately. In other areas everything is going fine. Avilov is the father of a son and a graduate of the Odessa University law school. Actually, he had very little time to prepare for the post-Munich starts, including the University Games.

But Avilov is now training hard. Still young, he has plenty of time ahead. His present target is Montreal. That can mean new trials and tribulations, but also the chance for new wins.

THE YOUNG WORKER

Interview with Anatoli Arkatov, Member of the YCL Central Committee

The Seventeenth Congress of the Young Communist League of the Soviet Union, opening in Moscow at the end of April, will give special attention to the young worker. In this interview, Anatoli Arkatov, a member of the YCL (Komsomol) Central Committee, shares his thoughts on the younger generation of the working class and its tasks. Arkatov, 29, is a worker's son and a factory worker himself. He has held a job at Moscow's Likhachov Auto Plant (Russian abbreviation, ZIL) since he was 16. He started as a fitter and learned the trade of adjuster. Arkatov is also studying at an evening institute attached to the plant. He is deputy secretary of the plant YCL Committee.

Q: Speaking at one of the plenary meetings of the YCL Central Committee, you said, among other things, that the Komsomol wants especially to ensure a worthy replacement for our present generation of workers. What do you mean by worthy replacement?
A: That's a pretty complex notion. Let me see how I can explain it. Our working class has a long tradition of political consciousness, responsibility for the general interest, political activity, unity and collectivism: These are the spiritual and moral characteristics of the people in our new socialist society. Naturally, they're combined with enthusiasm about the job and high professional standards.

As I see it, the worthy replacement isn't merely someone who follows these traditions, excellent though they are. We expect our young workers of today and tomorrow to reach a still higher level. The response to this standard is especially evident in their vocational qualifications—the scientific and technical revolution requires a steady increase in knowledge, and our young workers are meeting that requirement.

Each generation of the Soviet working class contributes something new, something of its own. This is especially true of the young men and women of today, if only because they have a better education and, compared with their parents, more opportunities for all-round development.

As you see, the criteria for "worthy replacements" are pretty high.
Q: Judging by Komsomol activities, today's young workers take a very responsible view of their obligation to society. What do you think?
A: Definitely so. Our country owes much of its economic progress, for instance, to the younger generation. Young people constitute half the country's work force. This proportion does not indicate anything special, because it's the same in many other countries. The difference here is that our youth is active and shows a creative approach. In industry, as a rule, the young workers have more education than the older ones, and they make up the bulk of the innovators and other activists.

Take our plant, for example. A while ago we Komsomols organized several experimental youth brigades whose job was technical innovation and production streamlining. The members of these brigades, in addition to fulfilling and exceeding their shift quotas, worked up plans for improving production technically and put them into practice. Our idea soon caught on, and the movement, now called technical initiative of the youth, has spread to industrial plants generally.

This initiative, apart from the money it saves (one invention reduced production costs by an average of 7200 rubles on a countrywide scale, and one suggestion saved 700 rubles), is also an impetus to the professional development of young workers. They not only get the chance to express themselves, but earn public recognition.

Equally striking is youth initiative on what are known as key construction projects. The country is building factories, power stations and towns, sometimes in remote areas. Most of these projects are the work of young volunteers. In 1972 they completed 60 key projects, last year the number increased to 135. And there are plenty of young workers involved. The Komsomol committee of such projects in the most remote parts of the country gets piles of letters from young people applying for jobs there.

These key projects bring out such characteristics of our youth as the desire for new experiences and for mobility. But I don't think this is their real motivation. What is? Let me go back to tradition again. The key-project concept originated in the late twenties and early thirties, at the beginning of the country's socialist industrialization. The projects were, of course, different, smaller in scope and on a simpler technical level, but the heightened emotion and revolutionary spirit they generated has lived on to our day.
Q: You mentioned young people earning recognition. How does that happen? When they begin work at the plant, what are their prospects—vocationally and in terms of general growth?
A: Let's begin with the fact that they have every opportunity to improve their qualifications through training courses, or in the shop with the help of experienced coworkers and foreman-instructors. They learn the trade of their choice, raise their qualifications and earn higher wages.

In addition, young workers can study without quitting their jobs—either at an evening high school, if they do not have a complete secondary education, or at a technical school or institute. Large plants run their own technical schools to train engineers. There is one at ZIL with a student body of more than 1500. The labor law gives a number of privileges to young people who combine work with study, including additional paid vacations to take exams and prepare diploma projects.

As you see, beginners at our plant have a good many opportunities. What they become depends on them. The fact is that a great many executives and leading engineers have worked their way up from the shop.
Q: What is the role of the Komsomol here? How does it help the young worker?
A: I'd say that the young workers are looked after by the Komsomol even before they come to the plant. I'm talking about vocational guidance in the schools. This year some 200,000 secondary school graduates will take jobs in industry. The Komsomol organizations, together with teachers and representatives of different plants, have made a considerable contribution to helping them choose work that they like.

But this is only half the problem. When a newcomer shows up at the plant, it is essential to make him feel part of the collective right away. I was lucky. My father, mother and elder brother all worked at ZIL, so it was like a homecoming for me. But it doesn't always happen that way. Most of the additions to our personnel now come from other towns and villages. Some young people take a long time to adjust, and the Komsomol has to look after every one of them. We help them choose an interesting job and enroll in evening or correspondence courses, involve them in community activity, see to their recreation and leisure interests —especially those who live in a hostel.
Q: The practical help of a Komsomol organization is very important, of course, but how about character development? What does the YCL do about that?
A: That's a complicated question. You can't have rules for that. Komsomol branches work in such a way that young people acquire civic-mindedness and the communist world outlook naturally, in the process of constructive labor. A considerable role here is played by the participation of our young men and women in socialist emulation and production management. That enriches the young people's minds, shapes their character and strengthens their will.
Q: What have you personally gotten from the Komsomol?
A: A lot. The incentive to study, interest in community activity, motivation to develop and grow—they all came from the Komsomol.
Q: Aren't you an exception? After all, you're a member of the YCL Central Committee.
A: Actually my being on the YCL Central Committee didn't have much to do with it. We're all equal members of the organization. It encourages productive ideas from everyone and offers unlimited opportunities for civic activity and personal growth. As for the YCL Central Committee, all its decisions are made on the basis of proposals from the primary organizations, that is, from rank-and-file Komsomol members. The Central Committee considers the interests of the broadest masses of young people. Community activity in the Komsomol gives each member a chance to show his or her talents and abilities in public service.

AMERICAN NUMISMATISTS IN THE SOVIET UNION

A LARGE GROUP of coin collectors from various cities in the United States made a three-week tour of the Soviet Union. They visited Moscow, Leningrad, Odessa and cities in Uzbekistan, Central Asia.

"Every Soviet city we visited has its own local color," said Irving Berlin, Vice President of Numismatic International, from Dallas. "In Leningrad we saw unique numismatic collections in the Hermitage. In Tashkent, the capital of Uzbekistan, we went to the famous bazaars in the old city searching for rare

By Vladimir Belyakov
Novosti Press Agency

coins, and we admired the splendid historical monuments of Bukhara and Samarkand."

"I have never before met such hospitality as in your country," added Robert Barrett, a professor from New York. "All doors were open to us. This is a good sign for similar exchanges in the future."

On the last day of their stay in the Soviet Union the American collectors were received at the Moscow Friendship House. The hosts were members of the USSR-USA Society, the staffs of museums and Soviet collectors. The visitors were welcomed by Anatoli Shaten, one of the leaders of the USSR Collectors Society.

The Soviet collectors presented their American guests with souvenir silver medals coined in commemoration of the fortieth anniversary of the establishment of diplomatic relations between the Soviet Union and the United States and the first visit of American numismatists to the Soviet Union.

MUSIC BREAKS THE BARRIER

American Pianist on Concert Tour

SUSAN STARR has made four tours of the Soviet Union since 1962, the year the American pianist won second prize in the Moscow Tchaikovsky International Competition.

The young pianist finds her Soviet tours very exciting: "I feel, in a way, every tour is a challenging thing for my career. Professionally, it is extremely demanding because the Soviet audience is so knowledgeable, and there's a special feeling when I play in the Conservatory Hall in Moscow because this was the scene of the 1962 Tchaikovsky Competition. I always feel there is a certain level of excellence, a level of perfection that I must achieve when I play here. It's quite like the feeling I have when I play in Carnegie Hall in New York or in Chicago, where one becomes terribly nervous. But the audience is so warm, they put me at my ease and I'm inspired to play my very best.

"It's never a satisfactory performance if I cannot feel the audience response directly, and I don't mean just from applause. I mean to talk with them, to see what they have to say to me. Maybe not just about my playing. You can read so much in people's faces and, especially, if you have achieved something by the playing. A barrier has been broken. Some sort of international communication has come into play. Then I feel I've served a worthwhile purpose, and if it's because I played well, then I hope all of our good pianists and violinists and cello players will country so that we can really make the ties of friendship stronger."

Starr has traveled widely in the Soviet Union. Her most memorable visit was to Volgograd, where she saw the monument commemorating those who fell at the Battle of Stalingrad.

"It was the most moving experience of my life," she said. "I think any American can imagine the pain and suffering of war, but we've never really gone through these experiences in our own land. That's why it hits home so—the enormity of it and the graves and the people walking up those steps to place the roses. And the statue of the mother with the fallen son—everybody's son, everybody's brother, he belongs to everybody, and it's everybody's grief and

Cosmic Problem Solved

From theoretical investigations by 32-year-old Alexei Friedman, Doctor of Science (Physics and Mathematics), Siberian scientists have developed a unique plasma installation. It permits the modeling of a number of processes occurring in the galaxies.

Doctor Friedman heads the cosmic plasma dynamics laboratory in Irkutsk. He has proved mathematically that many processes in the galaxies can be described by equations similar to those used to determine the behavior of plasma.

"Until recently we believed that spirals in the galaxies resulted from the strong gravitational forces generated by the tremendous mass of these formations," he says. "But it turns out that spirals are a universal property of a revolving continuum, whether it is water, air or plasma."

For 200 years scientists in various countries have been investigating the problem Doctor Friedman has solved. He proved that each galaxy has a unique path of development determined by the conditions of its origin.

Soviet-American Trade Relations Expanding

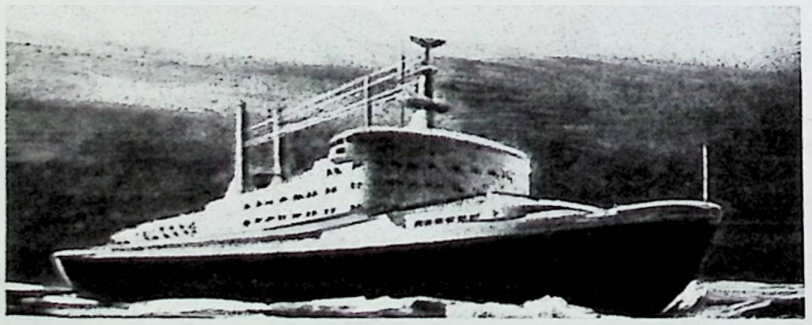
The third session of the Soviet-American mission on trade completed its work in Moscow last autumn. The delegations were headed by Nikolai Patolichev, USSR Minister of Foreign Trade, and George Shultz, U.S. Secretary of the Treasury.

Among the topics discussed was long-term cooperation on industrial projects, including the transfer of Siberian natural gas to the United States.

The joint communiqué noted that in the first seven months of 1973 the total exchanges between the USSR and the USA came to about 900 million dollars, more than in 1971 and 1972 combined.

The heads of the delegations exchanged documents confirming the official opening of the trade missions projected during the Washington summit talks in June 1973.

The U.S. business office began operation in Moscow on October 3, 1973. In their comments at the opening ceremony, U.S. Chargé d'Affaires Adolph Dubs and U.S. Secretary of Commerce Frederick Dent, who had both participated in the work of the session, stressed the unusually rapid growth of relations between the two countries.



Atomic Icebreaker Under Construction

In Leningrad, the city where the world's first atomic icebreaker, the *Lenin,* was built, a second one, called the *Arktika,* has just been floated at the Baltic Shipyard in the mouth of the Neva.

Its central section can easily hold a 10-story building. This is where the heart of the ship, the nuclear power plant, will be located. The new icebreaker, much more powerful than its predecessor, will prolong winter navigation on the northern routes and will lead ships through the heavy ice at a higher speed. A modern passenger liner uses about 5500 tons of liquid fuel on its way from Europe to America. To cover the same route, the *Arktika* will need about five pounds of fuel.

The new ship is a very sophisticated structure. Its hull, 460 feet long and 100 feet wide, has room for 1,280 shops and other facilities connected by some 60 miles of tubes and 370 miles of cable. A reliable radiation safety system is being installed.

Special attention has been paid to living and recreation areas for the crew: air-conditioned cabins, dining rooms, a canteen, a club, a library, a music room, a movie auditorium, a gym, and a winter swimming pool.

The atomic icebreaker is being built in Leningrad, but other cities are involved in the project. Moscow, Gorky, Riga, Tashkent, Kaliningrad and Vladivostok are supplying machines, equipment and instruments.

"THE MOST INSPIRING TOUR WE EVER HAD!"

THE LATE JOSÉ LIMÓN'S dance troupe gave the Soviet Union its first experience of American modern dance in February and March of last year. The 16 dancers had no idea how Soviet audiences would receive them and admitted to some apprehension: The nation was accustomed to the traditions of classical ballet and the folk dance and might not respond to an unfamiliar mode. Their style and principles of movement were virtually unknown to the Soviet public.

Moreover, the program was unusual: *The Moor's Pavane, Orfeo, There Is a Time, The Unsung, Dances for Isadora.* As Daniel Lewis, the acting artistic director, put it, "In his major works Limón is saying something to the audience; he didn't believe that dance was only entertainment. He wanted to teach people by showing them the drama of the human condition, to make some impact on their lives and to bring people to a much closer relationship with one another. We try to tell stories that speak to people all over the world as testament to the human spirit."

This is how the dancers felt about the audience.

Laura Glenn: "I'm so very glad to be here. The enthusiasm is tremendous. Every place we've been to has been sold out."

Daniel Lewis: "People came backstage to throw their arms around us—they loved what we did—but on opening night they waited for two numbers before they let us know how they felt. The Soviet audience is intelligent and ready for anything new both on and off stage."

Edward De Soto: "The most inspiring tour we've ever had! The Soviets received us magnificently. They reach out for culture, especially for dance, and are close to all the arts."

Nina Watt: "We had fantastic rapport as performers. I would love to have stayed longer."

Ann Vachon: "We've been living on audiences' affection—it was such a warm reception. I also liked the custom here of turning on the houselights so that we could also see the audience and applaud back—we loved that."

Among the memorable events of the month-long tour, which took them to four Soviet cities, Moscow-Leningrad-Riga-Kiev, were the opportunities the troupe had to visit dancing schools. There was one in each city. But the most exciting visit was in Leningrad, at the Kirov Choreographic School.

"We didn't realize it was going to be the great experience it was," said Jennifer Scanlon. "The Kirov people had provided a whole recital, and the school was just ringing with ghosts of Nijinsky and Pavlova when, all of a sudden, I began to see all the things I had heard about—here they were—in the school. We were to demonstrate a class but hadn't

The José Limón Dance Company applauding an enthusiastic Moscow audience and vice versa.

Members of the visiting American troupe sit in on a Moscow ballet school class.

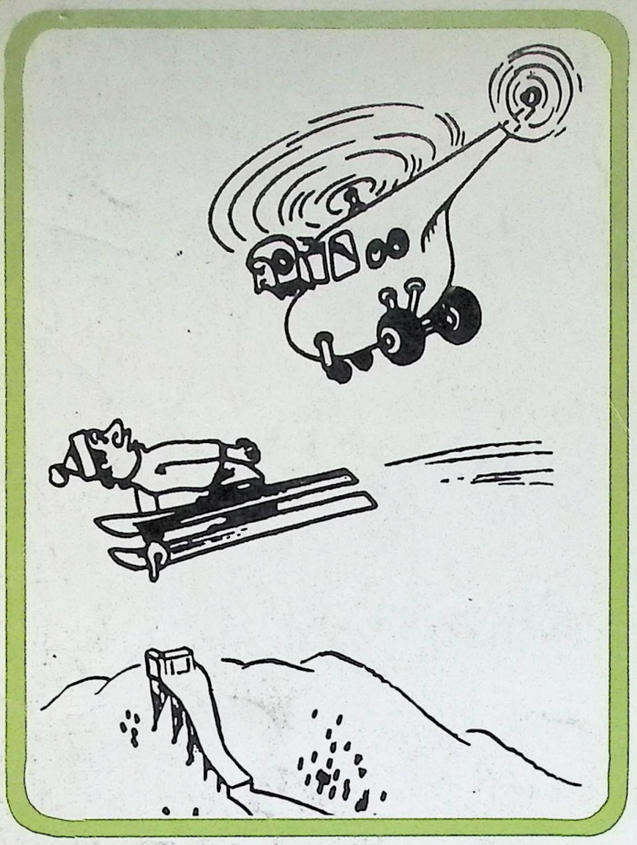
brought any dances with us. We did the class but we wanted to do more because they had given us so much."

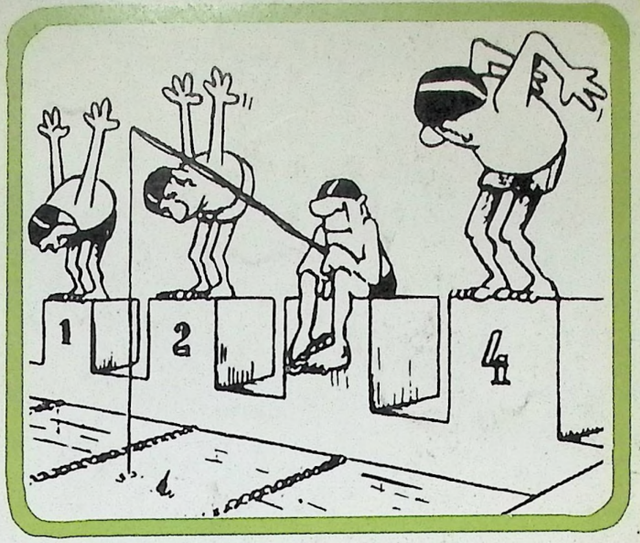
High points of the tour were the talks and exchanges with Soviet artists; Lewis said that for him those contacts were the main reasons for the visit because "we can learn what the Soviets have to offer in dance, and the Soviet Union has some of the finest dancers in the world and one of the best dance companies I've ever seen in my life. I want to learn from them. Konstantin Sergeyev, the Kirov Ballet's artistic director, has done so much for us. He saw to it that a demonstration was set up for us to watch all the classes, from the little children to the senior class, and we reciprocated and showed them some of the Limón techniques. And when it was over, we just looked at each other and shook hands and realized that we had communicated. I took what I could from the classes and I will bring it all home with me."

Peter Sparling: "The Bolshoi school was also quite amazing—the way young people specialize and are trained at such an early age. This was so impressive! And seeing the men's ballet senior classes was very interesting—there was lots of personality there."

Risa Steinberg: "Watching classes being taught, I've learned a lot for my own teaching. Seeing eight- and nine-year-olds studying has helped me understand what I need to do in training the dancer."

Robyn Cutler: "We have grasped the importance of discipline and technique just by watching Soviet performers."





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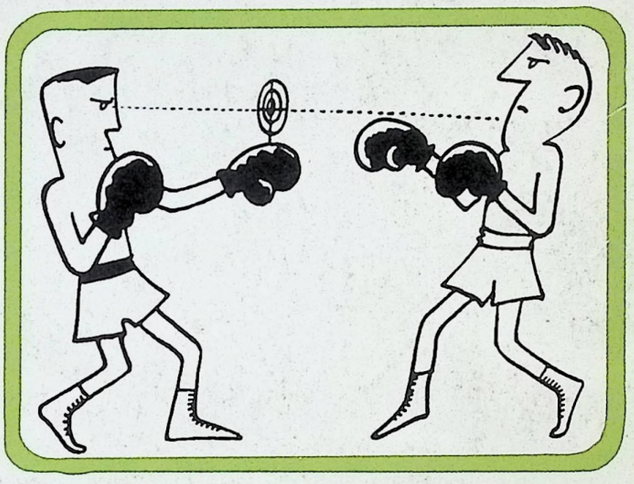

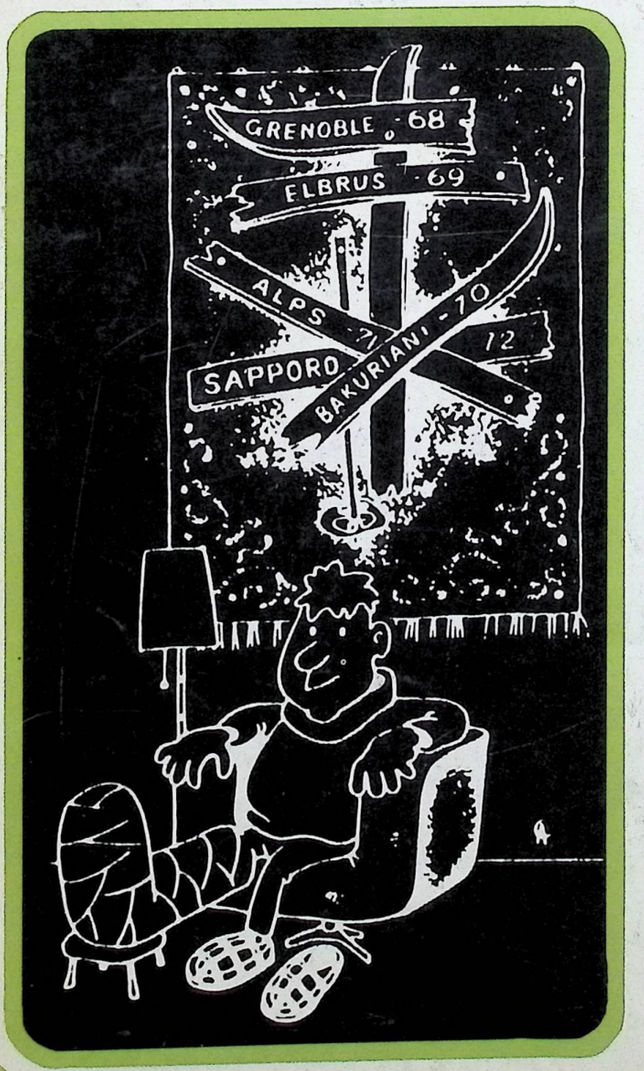

Cartoons by Sergei Tyunin