USSR

BULGANIN'S MESSAGE TO OUR AMERICAN READERS

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AUGUST, 1956 — 20 Cents

In the heart of the Soviet capital
—See Page 2

USSR

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President Dwight D. Eisenhower and Premier Nikolai A. Bulganin at the Geneva Conference last summer.

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MESSAGE TO OUR READERS FROM NIKOLAI A. BULGANIN, CHAIRMAN OF THE COUNCIL OF MINISTERS OF THE USSR

The publication of the magazine USSR in the United States for the purpose of acquainting American readers with life of the Soviet people, just as the publication of the magazine Amerika in the Soviet Union, will help the peoples of our two countries to acquire a more intimate knowledge of each other and will contribute to the development of mutual understanding between the United States and the Soviet Union.

We are deeply convinced that differences in ways of life and in political and social systems need not be an obstacle to friendship and fruitful cooperation between our peoples in advancing peace and security as well as in furthering economic and cultural interchange.

Development of friendly relations between states is often impeded by ignorance and prejudice. President Dwight D.Eisenhower, speaking at the Geneva Conference in July 1955, said that if in the months and years ahead our peoples broadened their knowledge and understanding of each other, further agreement between our governments might be facilitated.

We fully share this opinion and hope that the magazines USSR and Amerika will help to foster mutual understanding between our peoples.

I am happy on this occasion to convey cordial greetings and wishes of prosperity to the people of the United States.

N. Bulganin.

SS

A Day in Moscow

Text by Vladimir Kurochkin

Welcome travelers! Visitors are shown arriving at Vnukovo, a Moscow airport.

GOOD MORNING, dear friends.

These words sound kindly in all languages of the world. They come on the air first thing in the morning, rousing folks to activity.

Muscovites heard them as usual, when the city was still hushed and half-asleep, as it were.

Irina Bessonova, a student of the Moscow State University, was preparing to do her daily dozen. The radio announcer was about to begin. But how she would have loved to linger by the open window! From the twelfth floor of the students' dormitory on Lenin Hills she could see the surrounding area. But the girl's thoughts carried her beyond this, she alone knows where.

The occupants of the other rooms down the corridor were astir too. But men are less prone to day-dreaming, and student Nikolai Avramenko did not lose a moment.

Moscow's streets get this care every morning.

After a good night's sleep . . .

Irina Bessonova and her friend, both future geographers, prepare breakfast.

A Moscow square with the famous Bolshoi Theater in the background.

A good housewife wastes no time.

Close shave.

Rush hour at a subway entrance.

The assembly shop of a Moscow plant that turns out polishing lathes.

Offices of the State Bank of the USSR.

A Day in Moscow

Hundreds of thousands of taps were now open all over the city. Water was filling the baths, gushing in the kitchens, spluttering from the hoses of Moscow's janitors.

Perhaps the biggest call for water is in the morning. But Muscovites have plenty of it, particularly since the Moskva River was joined to the Volga by a canal in 1937.

Meanwhile the streets are already busy with traffic. Motor and trolley buses roll up to the stops one after another, and crowds pour into the subway stations in an endless stream.

It is only an hour since work has started, but this machine tool is quite ready. It floats out of the shop at the end of a crane. A few minutes more will see it packed in a case, loaded onto a truck and shipped off. Before the shift is over many more such machine tools will have left the assembly shop.

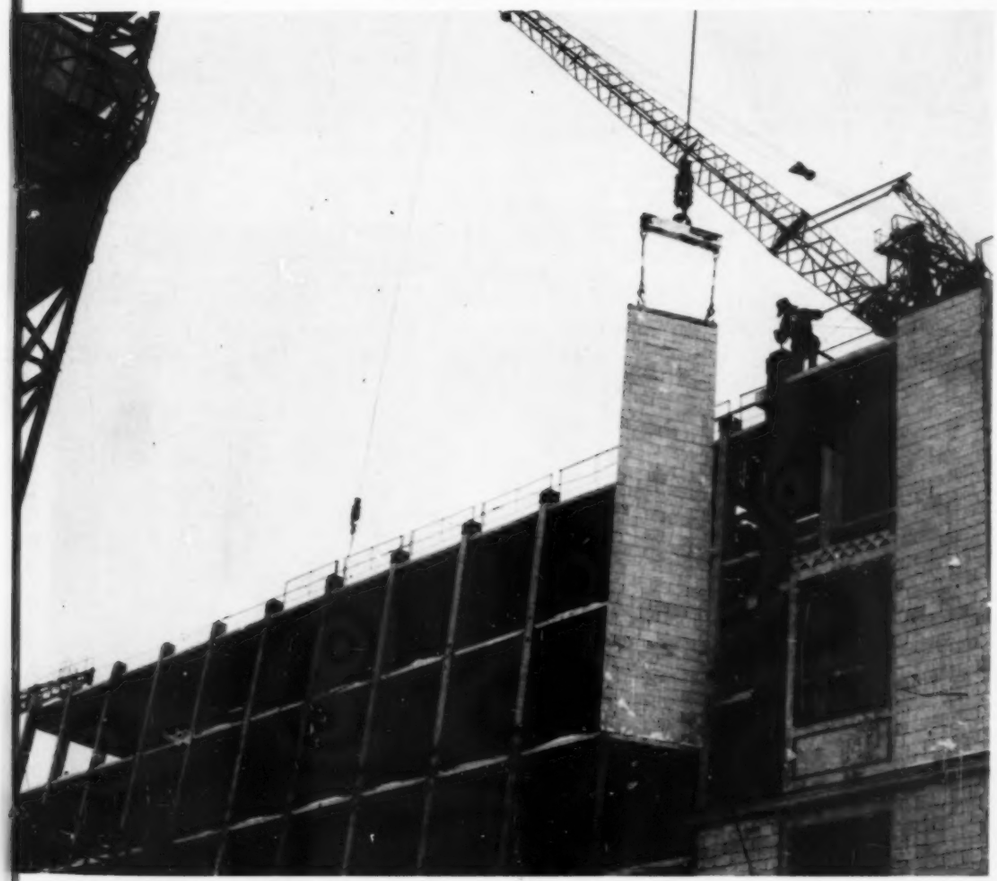
The sun climbs higher, and with it rises the peak of traffic in the center of the city. The old clock on the Kremlin tower rings out its chimes. It is the hour when work starts in the government offices. It proceeds with clocklike precision. Dull office routine, perhaps, but none the less indispensable. In the ministries thousands of employees start tackling their problems. There is a big day ahead of them.

Khoroshevsky Road. One of the newest thoroughfares in the capital. Ten years ago it was wasteland. Now it is crowded with dwelling houses. One has to travel far down the road to see the builders at work on new houses. A huge panel of walling sails leisurely through the air, swings into place and is made fast. Two stories of wall have been run up in a single operation.

Today will probably see the rest of the wall put up where now there is a gap. The new tenants are waiting—one must work against time!

Moscow is growing fast. As much as 47,000,000 square feet of housing space has been built here in the past five years, and another 97,000,000 will be made available by the end of 1960. In other words, Muscovites will receive about 270 to 300 thousand new apartments.

The Presidium of the Supreme Soviet (Parliament) of the USSR is housed here.



Construction goes ahead-at top speed.

Lunch time.

Drawing by Yuri Cherepanov

Gladioli or roses? Take your choice. →

All Moscow turns out for a big soccer game.

Showing the latest fashions.

Busy day for the youngsters.

Pigeons a

Pigeons are the same the world over.

A Day in Moscow

But still there is a shortage of housing and therefore builders are in a hurry.

And now comes the housewives' hour, when no one is in the way. It is the hour of straightening up and furniture shifting, the hour for electric vacuum cleaners and floor polishers, the hour which most husbands dread if they have the misfortune to be at home during these domestic rites.

It is a rare woman who will not run out to the market at this time to buy some flowers for the house.

Moscow's morning is now over. Before we realize it noon has come. Lunch time—and we feel it too!

One may have something to eat in an open-air cafe close by. These cafes are well attended at all hours of the day and night.

The more staid prefer the quiet leisurely atmosphere of the restaurant. Here one may talk shop.

The women workers of the Yava tobacco factory have lunch in their own tidy canteen on the premises.

The streets are pleasant at this hour. The sun is high, the shadows are shortened. The carefree children are having a good time.

It is interesting to watch the children feeding the pigeons on Manege Square. There are many squares and streets in Moscow where these birds "rule the roost," so to speak. In such places there are even special signs for motorists with the warning, "Careful, slow down!" and the picture of a dove.

At this hour the boulevards of Moscow live a life of their own. Here little children are taken out for a walk. Old folks, wrapped up in memories of the past, sit sunning themselves on the benches.

However, we have stayed out of doors too long. Lunch hour is over, and the city has swung back into its work rhythm.

But not all Muscovites are working in the full sense of the word these afternoon hours. Here we have a brilliantly lit hall, with a stage, an audience. What is this—a theater? In a way, yes. Here the intricate "drama" of a lady's wardrobe is presented. This is the show hall of Fashion House on Kuznetsky Most Street.

A Day in Moscow

Many people visit Moscow's museums, art and sculpture expositions, and agricultural and building exhibitions.

Moscow has 116 state-run museums and permanent exhibitions, not to mention the innumerable so-called "seasonal" exhibitions.

It is good to breathe the fresh air after one's work. The Moskva embankment is a favorite spot with Muscovites. Boys and children are attracted here by the sight of motor ships sailing past the Kremlin buildings.

A girl gazing dreamily into the distance is approached by her boy friend. Perhaps they will go to the park next to Khimki riverport, taking a long ride there through the city, which gives them so much time for talking things over and admiring the sailboats, skimming like birds over the gleaming waves.

Meanwhile, new visitors keep arriving in Moscow. Eleven railways converge upon the city. Tourists and people traveling on business stream into the capital from all over the country.

The workday is over. People are relaxing now. The cheerful lights of the Bolshoi Theater go up. At the Tchaikovsky Hall there is a recital by the young violinist Igor Oistrakh. There is noise and bustle around the entrances to scores of other concert halls and theaters.

And how about spending a quiet evening at home, sitting in front of the TV, looking and listening to a broadcast from the Moscow State Circus? How amazingly plastic are the movements of those girl gymnasts, the Bubnov sisters! They are fairly young artists, graduates of the Circus Training School, but they are already popular with the public.

It is getting late, but not too late to spend an hour in a restaurant over supper and dance to the music of a jazz band.

Night approaching. Moscow's streets are emptying. The motor buses are returning to their depots, where they immediately pass into the hands of the cleaners and mechanics, who get them ready for their next day's run.

Moscow's nocturnal lights glow cheerfully—the only sign of life in the sleeping city.

Platform of the Kievsky Railway Terminal in Moscow.

Moscow quiets down at nightfall.

Exhibit of British art.

The Wheel of Youth: The Bubnov sisters perform at the circus.

See you tomorrow.

By Anatoly Markusha

The author of these notes began to fly at the age of 17; as a member of the Air Force he saw action in the Second World War. Serving as a test pilot after the war, he later transferred his interest to journalism, contributing to Moscow newspapers and magazines and to radio broadcasts. Eagle's Pupil *is the title of a small volume of stories prepared by the author for the press. It reflects his experience as a pilot.*

TU-104 Plane Joins Civil Air Service

A FEW MONTHS ago I dropped in to see Professor Ivan Ostoslavsky, a prominent Soviet aerodynamics engineer, in his small office at a test airfield. We were discussing high speeds and speculating about the immediate future of aviation.

Suddenly I was shaken out of my contemplative mood by something which could really be described as a bolt from the blue. Fast as I was, I could see nothing, for the plane had already passed leaving behind it the sound which tore down through the air like a clap of thunder.

"Got that, eh?" queried the scientist, a faint smile playing on his lips.

That turned our conversation to the question of power.

"That plane is fitted with 50,000-horsepower motors which have become quite common," the professor observed.

I thought of that conversation when the newspapers were filled with reports about the first flights of TU-104, the new jet airliner designed by Academician Andrei Tupolev.

Airship

A jet airliner! It could fill volumes. However, my space is quite limited.

What shall I begin with?

Perhaps it is worth mentioning again that the new airship flies at a speed of about 500 miles an hour, that it flies in the stratosphere, without the slightest discomfort to the 50 passengers it carries, for the air in the hermetically-sealed cabin is conditioned, its pressure being the same as at an altitude of 10,000 feet, the temperature in the passenger compartment invariably approximating 70° F.

As a rule, a life-size model is made before the construction of a plane is undertaken, for no drawing, however detailed, can give as good an idea of the plane.

Previously the commissions appointed to examine models of new planes consisted of some 10 to 20 experts. But more than 100 experts skilled in various fields were present in the huge shop when the model of TU-104 was discussed.

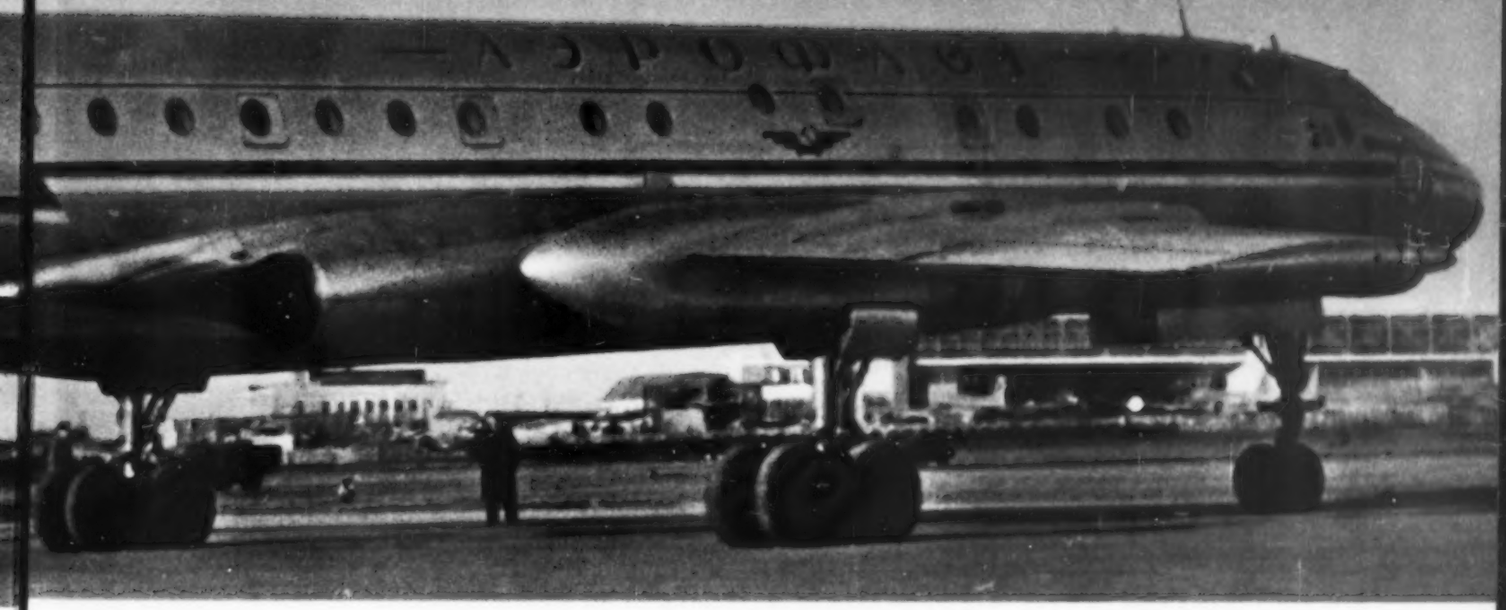
Often, desiring to stagger the reader's imagination, we say: "You can put two locomotives under each wing of this machine."

Such examples may perhaps impress the reader, but they do not click, for locomotives are not associated in one's mind with an airfield.

I believe that the presence of more than 100 representatives

...L COMFORT

Academician Andrei Tupolev, designer of the plane.



from many industrial enterprises tells much more about the size of this plane than any other comparison which outwardly may appear more striking.

While talking to the members of this commission one could mentally reconstruct the development of the TU-104 from the first sketches (models, tests in wind tunnels, working drawings, full-size model) to the final product.

Godfather

It is the test pilot who takes the plane on its first flight, studies its performance in the air, helps to discover and correct the shortcomings one inevitably finds in a new plane; in a word, he is the first judge of the plane.

The test pilot is the plane's godfather. He has the first and last say in the question of launching it; he signs the certificate okaying the plane for service.

The certificate of the TU-104 was signed by Yuri Alasheyev, senior test pilot. I have known him for many years. We studied at the same aviation training school. Then came the war and we drifted apart.

We were destined to meet again. As I listened to his story about the tests of the new plane I thought of the progress made by the thin youth I remembered. I was now listening to a man equipped with versatile knowledge, which is characteristic of our generation of test pilots.

Finding that I was especially interested in the new plane, Yuri said:

"Open your notebook and write: TU-104 ushers in an entirely new quality. Imagine the municipal transit system tomorrow getting new buses which will run at about 125 miles an hour. What will happen in the city on the day after tomorrow if new traffic regulations are not issued at once, if specially trained drivers are lacking and special measures are not taken to protect pedestrians? Perhaps the analogy is a bit far-fetched, but that is how I see it. Of course, everything is much more difficult in aviation, even though the 'air lanes' are immeasurably wider. Passenger jet planes flying at triple speeds will require changes in the civil air service as drastic as faster buses may necessitate them in the city transport service."

The First Start

After all the excitement, impatient waiting and anxiety the plane was ready to start.

With the crew aboard, the plane moved down the runway, gathering speed, its mighty wings slowly bending upward, rigid like the arms of a giant athlete, then it tore away from the ground, soaring into the air.

The first flights required a special strain of effort on the part of the crew, for not everything worked smoothly at once. That was natural. This is why test flights are necessary, as

Yuri Alasheyev who test-flew the new 500 mile an hour jet airliner.

the designers say to "perfect" the machine, to bring out possible defects.

On one of the first flights the speed indicators failed. And one cannot fly without knowing the speed. It required rich experience, a keen intuition and an excellent "feel" of the machine to land safely.

On the same day the engineers discovered and eliminated the cause of the failure, and the machine was taken up for the next test flights.

More difficulties and surprises were ahead. The control of the plane had to be improved. That done, the next surprise was the failure of the radio navigation instruments while the plane was in the clouds, and without the instruments a navigator is like a blind man in the jungle. It was necessary to continue flying in the clouds for a long time before that defect could be removed.

Safety First

It is impossible to tell of all the problems that were solved in the test flights, they were so numerous. I shall, therefore, confine myself to a few, the more important ones.

There is a very big difference between the take-off and landing weight of a jet plane. On a long flight the plane consumes tons of fuel, and, naturally, becomes lighter. But would it not be dangerous to land immediately after the take-off, with a full load, in an emergency?

. . . The TU-104 began to glide. Great weight means a high gliding speed, the wings cutting the air with a howl. The ground was drawing nearer, and the pilot was as rigid as a tight rope.

The chassis touched the concrete smoothly, and the plane rolled down the runway. And the following was placed on record: "Landing at full weight is safe."

The TU-104 can fly safely with one motor in operation. But suppose it had to take off with one motor. Calculations have shown that it could be done. However, every calculation has to be tested in practice – that is an absolute rule.

The crew made a number of preliminary flights. At first the plane simply "ran" on one motor, then the pilot opened the throttle all the way on one of the motors and partly on the other. Everything went off smoothly. Finally, the plane commander gave the order to disengage and Vladimir Benderov, the engineer, shut off the motor. A few anxious seconds followed. The plane had to be kept moving at set speed along the concrete runway, without swaying aside or straying to the soft ground. It tore away, gathering altitude.

But it was still too early to rejoice. One successful take-off does not guarantee complete safety. And the crew made one

ATOMS FOR PEACE

An Interview with Professor Dmitri Blokhintsev

PROFESSOR DMITRI BLOKHINTSEV is a theoretical physicist, known for his work in quantum mechanics and its application. In recent years he has worked on the theory of reactors and was in charge of the construction of the world's first atomic electric station. Recently he was named director of the newly founded international research organization known as the Joint Nuclear Research Institute.

Our correspondent visited the Professor in his apartment in Moscow. Tall and fairly young — he is not yet 50 — Professor Blokhintsev looks like an athlete. In recent years he did some mountain climbing in the Caucasus and the Pamirs; he plays tennis and is fond of canoeing and skiing.

"It is not so simple to tell about the peaceful uses of atomic energy in the Soviet Union," said the Professor. "This work is conducted on an exceptionally large scale which is growing all the time. Perhaps it would be best for you to ask questions; I shall be glad to answer them."

QUESTION: *With reference to the planned construction of a number of new atomic electric stations in the Soviet Union could you give us some details regarding this big undertaking?*

ANSWER: In the next five years the USSR will put into operation atomic stations with an aggregate capacity which will apparently exceed the planned capacity of similar power stations in the United States and Britain and which will be approximately the capacity of the world's largest hydroelectric stations. This, of course, does not mean that in five years from now the atomic electric stations will account for a considerable amount of the country's power output. However, it is a very imposing experiment, which may make it feasible to undertake a really grand construction development of new nuclear power stations in the next few decades.

How are the new Soviet atomic electric stations going to be distributed geographically? Previously it had been rightly thought that atomic power stations were needed primarily in areas to which it is expensive to ship coal and where there is no water power. Frequently, however, it was primarily remote places difficult of access and desert areas that were our concern. But calculations have shown that from the point of view of economic efficiency atomic electric stations should be built in areas with large industrial centers. This is the basis for the plan to build large stations of 400,000-600,000 kilowatt capacity near Moscow, Leningrad and in the Urals (in Sverdlovsk Region).

The problem of economic efficiency of atomic power stations is very important. According to available data, capital investment per unit of rated capacity for atomic electric stations will be appreciably more than for stations using coal for fuel. However, the cost of a kilowatt hour produced by a large atomic station can be less than the cost of one produced by a station using coal.

It should be borne in mind that only large atomic stations will make economic efficiency possible.

QUESTION: *What is your idea about*

(Continued on Pages 60 & 61)

take-off after another before the following could be placed on record: "A take-off with one motor is safe."

The Commander Makes a Decision

The plane was flying south, its route lying over desolate country without any visible landmarks. It was a test not only for the plane, but also for its navigator, Paris Rudniev. There were many miles to be covered, and there was the danger of a fuel shortage should it not fly straight to its destination.

Rudniev headed straight for his destination, but he found a sandstorm sweeping over the airport.

"What's the situation?" inquired the plane commander.

"The signal lights are on, but I don't see them," was the reply received from the airport.

Yuri Alasheyev knew that no more than a hundred yards separated the man on duty from the signal lights. Nevertheless, he decided to land.

The first attempt to land was not successful, the side wind having diverted the plane from the runway.

The plane commander tried again.

The storm had not abated, and clouds of brown sand and dust were sweeping over the airport. There were only a few yards between the plane and the ground when Rudniev cried "The runway is to the left."

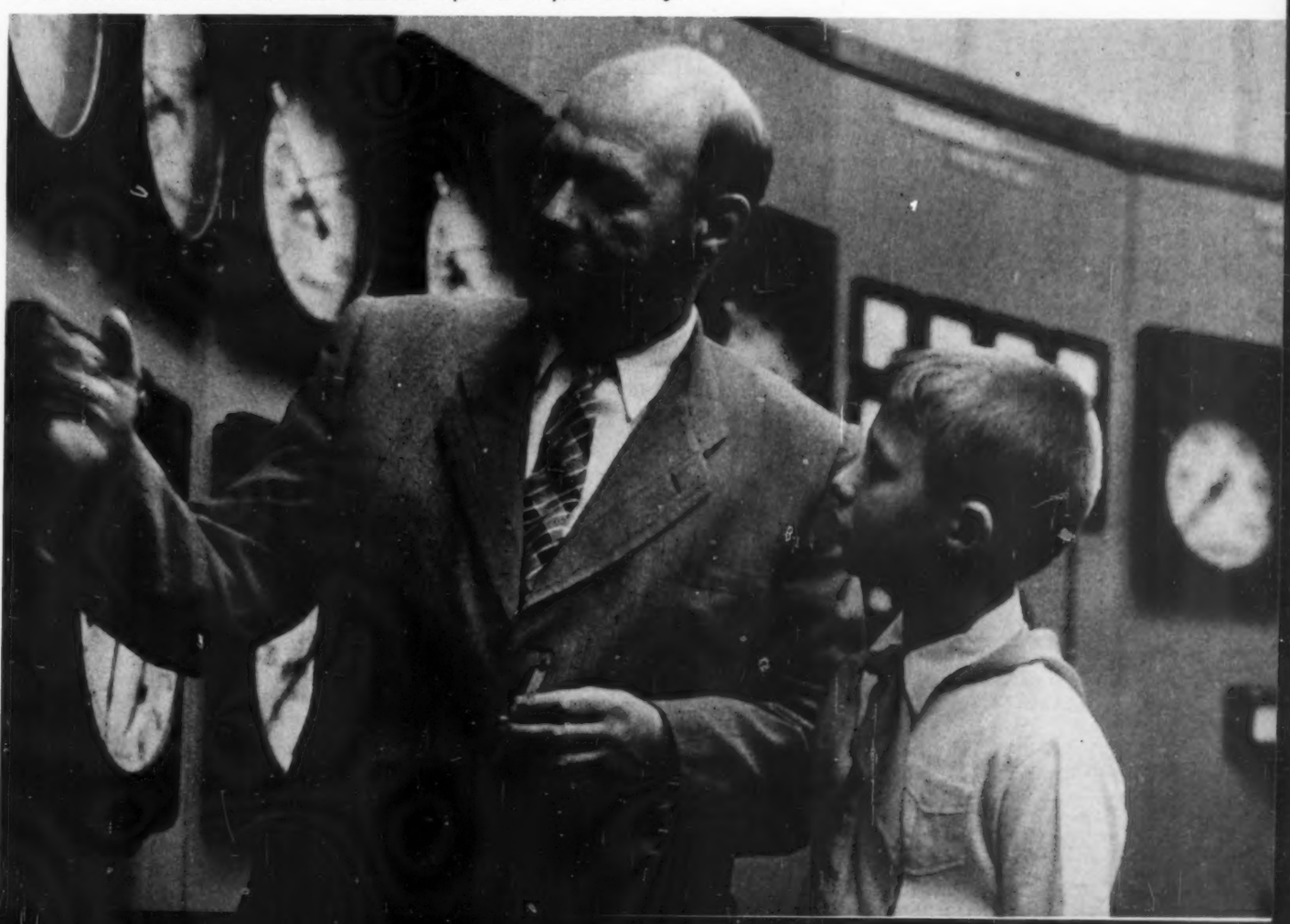
Alasheyev swung the plane toward the left and landed.

A few hours later the plane was again in the air on its way to Moscow. That day it covered more than 3,700 miles.

In the short time that has passed since that take-off the passenger jet plane has become a commonplace. But it is still a thrill to remember those test flights.

First passengers get aboard.

"From here we control the atom," Dmitri Blokhintsev says to his 10 year old son Igor.




Tomato crops are good this year!

THE PEOPLE AND THE SOIL

By Vladimir Matskevich

Vice-chairman of the Council of Ministers of the USSR

THE SOVIET UNION with its vast territory, stretching from the Black Sea coast to the Arctic shores, embraces several climatic belts. Is there any need to say how diverse its agriculture is?

Besides grain grown on vast areas, our people cultivate cotton and flax, sugar beet and potatoes, vegetables and soybeans. We have fine orchards and vineyards, districts where subtropical plants grow. Meadows and pastures stretch for many millions of acres. Dairy farming, hog and sheep breeding and poultry farming are widespread.

In the Soviet Union there is no private ownership of land; it all belongs to the state. But only a small part of it is cultivated by state farms; the rest has been turned over for free and perpetual use to those who till it.

Our peasants do not lack land. Most of them have united and work on collective farms, cooperatives in which the implements and means of production are not privately but collectively owned.

Naturally, both big farm machinery and up-to-date scientific achievements

RUSSIAN PORCELAIN

can be utilized much more efficiently on large tracts of land. This is what enables our collective farms and state farms to raise the productivity of agriculture and to supply the country with steadily growing quantities of grain, milk, meat, sugar, vegetables, cotton, flax, etc.

The rapid development of industry and the growth of the urban population, however, constantly confront our agriculture with new tasks. The demands for agricultural products grow from year to year. That is why we are exerting every effort to advance all branches of agriculture.

183,000,000 Tons of Grain

Special attention is paid to grain cultivation in the Soviet Union.

The development of virgin and long-fallow land has contributed and will contribute much toward increasing grain production.

Truly titanic work has been carried out in the past two years in little developed areas. Hundreds of new state farms have sprung up in the boundless steppes of Kazakhstan, Siberia and the Urals where hundreds of thousands of young patriots came to settle and help the state in this big and important new undertaking.

By their joint efforts the new settlers and old-timers in these parts have accomplished much; in two years they plowed 74,000,000 acres of virgin soil.

We are already harvesting a lot of grain from the new lands and will reap still more in the future. Special mention must be made of the fact that the grain grown on virgin soils entails the lowest production cost in the country.

Another major source of bigger grain production is the expansion of corn cultivation. This crop is not new to the Soviet Union, but formerly it was grown only in the South on a small acreage, while now it is spreading throughout the country.

Corn does not ripen in all regions of our country, and in some districts it is used for silage. Conserved cobs, harvested in wax-milky ripeness, make splendid concentrated fodder for hogs.

Last year the area under corn was increased four times over, and in the next five years it will come to 69,000,000 acres.

To assure bigger corn yields, we have undertaken to produce hybrid seed. This was the subject of a big conference held in Dniepropetrovsk, the Ukraine, recently. Scientists and farmers exchanged opinions on how best to organize this work and, taking into account the experience of other countries, mapped out a plan of action. Special scientific institutions and state farms will engage in growing hybrid seed, and seed factories will be set up.

Although the level of grain production is now about one-third higher than that of five years ago, we are not satisfied with it. The requirements of the country are such that by the end of the Sixth Five-Year Plan, that is by 1960, we shall have to produce no less than 183,000,000 tons annually! We have every reason to assume that this task will be successfully accomplished.

Richer grain harvests will be accompanied by a substantial increase in the production of cotton, flax fiber, sugar beet and other industrial crops.

Doubling Meat, Milk and Wool Output

The head of livestock in the USSR has increased considerably in recent years, and productivity of the animals has grown. Yet the level achieved is clearly inadequate, and in the next five years the production of meat, milk, eggs and wool must be at least doubled.

The production of meat will rise, first and foremost, through the extension of hog breeding, which yields the quickest results. Approximately half of the meat produced will be pork. For this purpose more hogs will be fattened chiefly for pork and bacon.

In addition, cattle farming for meat will be developed intensively in Kazakhstan, Siberia, the Far East and other steppe areas with natural fodder resources. Special farms raising and fattening beef cattle have already been set up there. Poultry farms are being organized to increase the output of poultry and eggs.

Dairy farming is advancing rapidly. As a result of improving the fodder resources, first of all through greater corn supplies, the herds of cows and their productivity are growing on the collective farms and state farms. In the future bigger corn harvests will make for higher milk yields.

The reserves of animal husbandry are so great that not only separate collective farms, but entire districts, regions and republics are considerably cutting the time schedules set for the fulfillment of the plan. The country's greater demands for animal products will be satisfied.

Close to 2,000,000 New Tractors

A high level of mechanization is a distinctive feature of Soviet agriculture. This level is rising from year to year, as agriculture gets more machinery of the latest makes. During the Fifth Five-Year Plan period (1951-1955) 824,000 tractors, 410,000 trucks, 217,000 harvesters and many other machines were sent to the countryside. Under the Sixth Five-Year Plan, industry is to deliver another 1,650,000 tractors, 560,000 harvesters and a host of other farm machines.

The qualitative change in farm machinery is a salient feature. Highly efficient diesel tractors and the latest models of combines, wheel tractors on pneumatic tires, and hydraulically operated mounted and semi-mounted implements will be widely introduced during the Sixth Five-Year Plan period.

All this will bring about a sharp rise in labor productivity in agriculture, which is one of the prime tasks. In the next five years labor produc-

In the next five years labor productivity in farming is to be nearly doubled. Measures are being taken to assure the more efficient utilization of machinery and to cut the idle time of tractors. An extensive program of rural electrification and mechanization of labor-consuming jobs in animal husbandry is being carried out.

Economic Cooperation and Competition

Soviet agriculturists take legitimate pride in their achievements. But at the same time they realize full well that much still remains to be done to advance agriculture. They are aware that a study of know-how, of everything that is good and useful in the agriculture of other countries, can be of great benefit.

Therefore we heartily support the establishment of contacts with agricultural specialists in other countries.

Last year when the *Des Moines Register* proposed an exchange of agricultural delegations between the USSR and the United States, this initiative met with a lively response both in our press and among our agriculturists. Now it is clear how timely and useful this exchange of delegations has proved for both countries.

We shall always remember the warm and friendly reception accorded us in the United States and the frank talks we had with many farmers, scientists and other American agriculturists. Many of the good things we saw at farms and colleges in the United States and Canada are now being utilized in our agriculture, naturally taking into account the specific conditions of our collective farms, machine and tractor stations and state farms.

We agree with the *Christian Science Monitor*, which last year, when the Soviet delegation was in the United States, wrote that in the first direct contact between the peoples of the two countries in many years, the Russian agricultural specialists clearly demonstrated the new spirit of peaceful coexistence. "On the whole this two-sided exchange — the tour of Russian farmers in the United States while American farmers traveled over the Soviet Union — evidently already did much to demonstrate the new spirit," the paper noted.

Agricultural delegations from many countries have visited the Soviet Union recently. Last year hundreds of delegations came to the USSR Agricultural Exhibition. Our delegations have studied the experience of agriculture in Britain, Sweden, Finland and other countries. This friendly exchange of know-how convincingly shows how timely and vital is the idea of peaceful coexistence of countries with different social systems.

We have no doubt that the extension of personal contacts and friendly ties between agriculturists of different countries and the consolidation and expansion of scientific and technical cooperation in farming will be beneficial to all peoples.

IN A VILLAGE BOOKSHOP

Lenin Central Museum Marks 20th ANNIVERSARY

View of the museum building in Revolution Square in Moscow.

Section with exhibits on Lenin's childhood.

THE LENIN Central Museum in Moscow, established 20 years ago as a monument to the founder of the Soviet state, is visited by close to 1,000,000 persons annually.

Created by the efforts of the entire country and constantly augmented, the museum has steadily grown until it now contains 21 exhibition rooms in which Lenin's manuscripts, photographs, records of his speeches, personal belongings, works of literature and art dedicated to him, and other objects are on display.

The museum presents a clear picture of Lenin's life, a life devoted to intensive work to further the cause of the common man.

As one reads Lenin's notes and outlines and examines his personal effects one is struck by the modesty and simplicity of this great man. "He is as simple as the truth," Dmitri Pavlov, a Sormovo worker, once said of Lenin. This is seen in all of the items collected in the museum. Lenin's study in the Kremlin and the hut near Razliv, where he hid from the police in the summer of 1917, both of which are on display, as well as the photographs of him speaking at meetings and gatherings or in a circle of his friends, all show that Lenin was remarkably unassuming, a cordial, tactful man accessible to all, cheerful and always busy.

The hall where the Decree on Peace is exhibited is invariably crowded. In this historic document, signed by Lenin the day after the establishment of the Soviet state was proclaimed, the essential principles of the peaceful foreign policy of the Soviet state are set forth in his own hand, and the idea of peaceful coexistence is expressed.

There is a constant stream of people in the museum. The museum has become not only the symbol, but also a concrete expression of the people's love for Lenin — the leader, the man, and the friend.

The Lenin Central Museum has several branches, among them Lenin's apartment and study in the Kremlin and the Memorial Museum at Gorky, near Moscow, where he died. There are also branches in ten Soviet and three foreign cities.

Lenin's Study In the Kremlin

From the Recollections of Lydia Fotieva, Lenin's Secretary

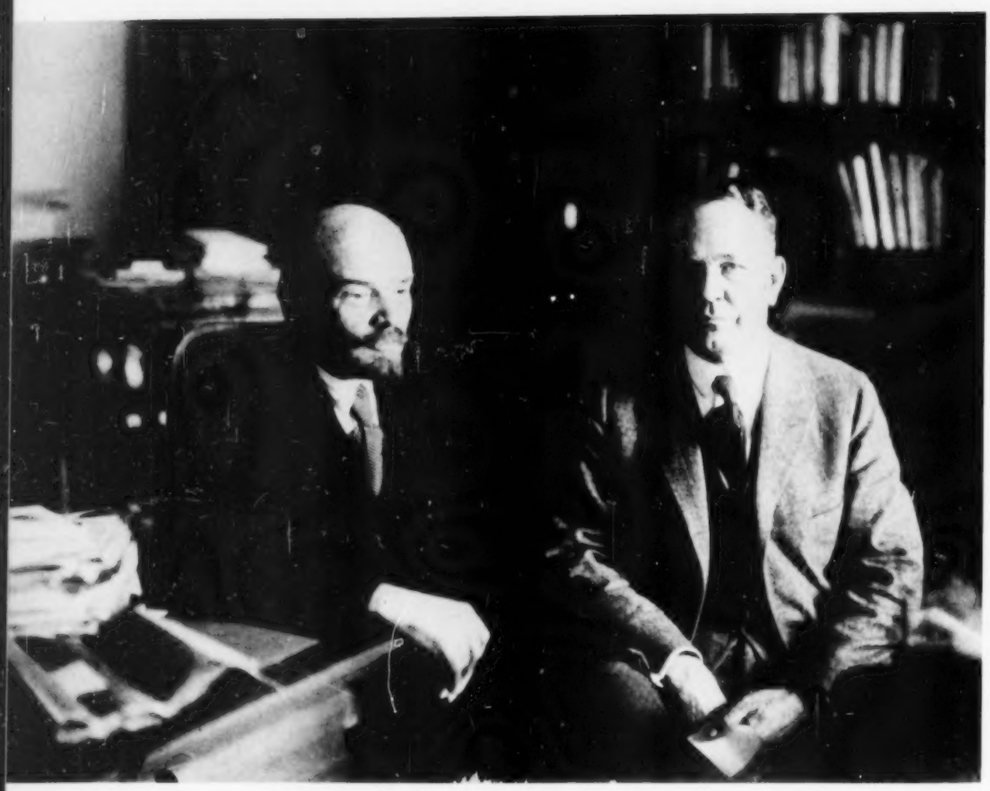
LENIN'S STUDY in the Kremlin is a small, simply furnished room. There everything reflects his habits, tastes and requirements. The doors and windows have no draperies. Lenin disliked them. Nor did he ever allow the blinds to be drawn, as though he did not want to be separated from the outer world in any way.

On the stove hung a "No Smoking" sign printed on a piece of cardboard. It appeared after Lenin was wounded, and the doctors insisted that there should be no smoke in the room where he worked. It was difficult, however, to enforce the rule, for many people paid no attention to it. Once, after visitors who smoked had left, Lenin told me to take the sign down.

"If we can't enforce the rule, there's no use having the sign up," he remarked.

A view of the Kremlin from Lenin's study.

As head of the Soviet government, V. I. Lenin often received ordinary citizens. One of these meetings in the early Soviet period is shown in V. Serov's painting in the museum.



This rare photograph, published for the first time, shows Lenin with Parley Christensen, 1920 Farmer Labor Party candidate for President of the USA, as they met in Lenin's study in November, 1921.

He himself never smoked.

Lenin liked his study. He was offered a larger and better room in another wing of the building time and again, but he refused to move.

On Lenin's table there was a mother-of-pearl paper knife for slitting the leaves of books. When he saw it for the first time Lenin said with surprise and pleasure:

"I only remarked in passing that I should like to have a paper knife like that, and it was sent to me the very next day."

In the same way that he disliked sloppy work and never failed to reprimand whoever was responsible for it, he was also pleased when things were done quickly and well, even though they might be trifles. I remember how pleased he was with the wall calendar issued by the State Publishers for 1919 or 1920, in which the figures were so large that they could be seen clearly from across the room. The calendar hung on the wall opposite his desk, and Lenin daily tore off the leaves himself

Whenever Lenin gave any of his secretaries an especially secret letter to be forwarded he would say: "Sew it up and seal it yourself" and then ask with his quizzical smile: "Can you do it?"

Lenin was very fond of jokes. He had a way of working gaily. Frequent laughter would come from his study during his reception hours. He also laughed often at meetings of the Council of People's Commissars.* His laughter was extremely contagious but never wounding. It was laughter of a man of ebullient energy. This was transmitted to others, and everybody around him worked with enthusiasm and joy. His instructions were nearly always accompanied by a jesting remark and a smile.

A simple wicker chair stood at his desk; there was a similar chair in the assembly hall. Lenin did not like easy chairs and never sat in them.

*In the early period the Soviet government was called the Council of People's Commissars.

In 1919, after a meeting in his study, Lenin asked me to get him an "ordinary plain table on four legs at which one could sit and write." This table was placed next to his desk with a large armchair upholstered in leather on each side. When he had visitors, Lenin would move the armchairs closer to his desk and lean forward in the attitude of an attentive listener. Lenin made a perfect audience if he was interested in the conversation.

On the desk stood a small lamp with a green glass shade. Lenin never turned on the upper lights in the evening if he was alone in his study. Nor did he ever leave his study without turning the lights off. If one of us left the light on and Lenin saw it, he never failed to reproach us the next day for wasting electricity.

All the free space between the windows in the study was taken up by bookcases. When the books began to overflow the bookcases, a special room was allotted for a library, and only the books Lenin needed most remained in his study.

Sometimes, during his brief moments of leisure, Lenin would thumb the pages of some book of Russian classical literature.

New books were all placed, according to Lenin's wish, on the lowest shelf of one of the bookcases. Although Lenin had to squat on his heels to look through them he did not want them shifted, saying he was used to having them there.

There were revolving bookstands to the right and left of the desk; they were built according to Lenin's specifications and he called them "twirlers." Behind the desk stood two stands with bound files of Russian and foreign newspapers marked "French," "German," "English," "Italian."

Opposite the stands stood a big palm tree. Lenin liked it and looked after it himself. When the tree began to wilt, he called in a gardener. Lenin did not like cut flowers and never allowed them in his room.

That small, modestly-furnished room breathed order and efficiency. The only exception was the ancient clock, which was always wrong. This annoyed Lenin, for he thought very little of a clock or watch that did not keep perfect time, and this clock was sometimes all of 15 minutes slow. Lenin often complained to the watchmaker who repaired and wound the clocks in the Kremlin, but it was evidently impossible to do anything about it.

Lenin's desk in his study.

Distant Star

By Vladimir Lugovskoy

Star, distant star, your cold and sightless ray
Adorns the crowns of trees with shivering light.
As dawn stalks near, you pale and fade away
To reappear again with dusky night.

Your world is winged fire, a scorching blaze,
To formless atoms giving flaming birth.
Why do you stare with frigid, icy gaze
At me, a speck of dust upon the earth?

Perhaps you are no more or, lonely, stray
Among the orbs, new worlds at your command,
And like a blinded man your aging ray
Our planet touches with a faltering hand.

I cannot rule your destiny, you are
Removed from me, a distant, hazy glow.
And yet, and yet I hold you captive, star,
For I, I see, I dream, I think, I know.

Translated by Irina Zheleznova

Flaming Amber

By Mikhail Dudin

Upon the sand the charging sea
A piece of amber cast,
A shining gift for you and me,
A relic of the past.

From out the depths of time it came
Here at our feet to lie,
A clear, unflickering yellow flame,
Transparent as the sky.

It tells us of another age,
Long swallowed by the sea,
And deep inside its golden cage
Conceals a tiny bee.

And I time's veil would cast aside
To watch the bee, unseen,
From flower to flower, untiring glide
And fragrant harvests glean.

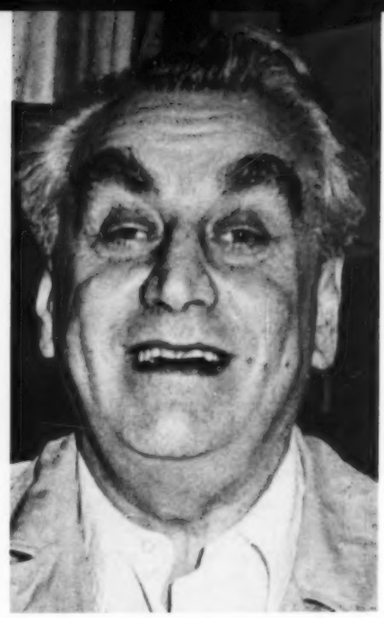
I am in love with life. It tells
Its truthful tale to all,
While love for you in secret wells
From out my brimful soul.

Life's wisdom fills the deepest well,
Its counsel is discreet,
And he who heeds its voice can tell
The bitter from the sweet.

Love is not something to be torn
From life by force or wile,
But flaming amber proudly borne
And tendered with a smile.

So take it, youth, and let it speak—
Its tale is never done,
And let its light grow never weak,
But glow forever on.

Translated by Irina Zheleznova



Grigori Alexandrov is one of the most popular film producers in the USSR. Thirty years ago he produced together with Sergei Eisenstein and the cameraman Eduard Tisse the film Armored Cruiser "Potemkin," *which caused a sensation throughout the world.*

But that was only a "prelude to fame." Shortly thereafter Alexandrov changed his genre. The heroic ceded place to the comic. He became a director of musical film comedies. "And he who walks through life with song, will never get lost or go wrong," sang the heroes of his Jolly Fellows. *And the director proceeded with songs and clever jokes from screen to screen with his* Circus, Volga-Volga, Spring *and other pictures.*

In the past few years Alexandrov produced a few films outside the field of comedy. We had, however, learned that he was planning to return to his favorite genre, and we asked him to tell our magazine his plans for the future, and his ideas about the modern cinema in general.

GRIGORI ALEXANDROV says:

A day without laughter is a day wasted

My new comedy is completed: it will be filmed by the "wandering mask" method

ADLAI SCOTT, an American businessman, and his secretary, Frank Stevens, a young writer; John Peables, a British theologian; Lucien Chevalier, a French actor; the German Countess von Traubenbach and her private doctor, Adams, who follows Freud in the treatment of his patient, meet on a plane bound for the Soviet Union. They are all traveling as tourists. A storm forces the plane down in the Volga area. The tourists think it a good idea to take Soviet life "by surprise," and "miss the Intourist car," as the British theologian puts it. They decide to tour the country on their own, with the result that they make a long, interesting and amusing trip, and find themselves in the most unexpected places.

When did that happen?

Never, in reality. It could have, however. And this is the plot of my new musical comedy, *The Pilgrims*.

I have already written the script, and the cameramen will soon get to work. The scenes will be shot in different parts of the Soviet Union. The heroes of the picture will see life in the Soviet Union as it really is.

From the very outset, in the plane, the foreign tourists like the stewardess, Varvara Smirnova, who speaks French. At their request, Varvara goes with them on their trip. There are two romances, one between the French actor and the German countess, the other between the American writer and the Soviet stewardess. They form an important part of the story, but the picture will tell you about them better than I can.

The statue has lost its qualities

The Pilgrims will be full of music and songs, Soviet songs as well as American, French, Indian, Mexican and Chinese songs, for my tourists will meet other visitors from different countries, also touring the Soviet Union.

I should like to invite well-known actors from the United States, France, Britain and Germany to play the parts of the foreigners. The filming of *The Pilgrims* will start this summer.

My next motion picture is to be *The Secret of Success*. I am now working on the script. It will also picture travel with amusing adventures, but here the travelers will be Soviet actors who are touring Europe and America.

I am a comedian by calling. And comedians believe that a day without laughter is a day wasted. I shall be happy if *The Pilgrims* and *The Secret of Success* bring a smile to the lips of the spectator and fill his heart with optimism.

The Soviet Union has now tremendously increased its motion picture output. That will help to make for greater variety on our screen. Then, British, French, Italian, Mexican, Indian, Egyptian, German and other films have also found an appreciative audience in our country. It is to be regretted that American films are still lacking. We have seen hardly any American films here since the war.

It is also a fact that the Americans know little about our pictures. I believe that many people in the United States would welcome more films picturing the Russian ballet, Russian operas and the life of the Soviet people today.

During my trips abroad (I have done quite a bit of traveling) I heard the opinion expressed that the standards of Soviet cinematography had declined. That is partially true. But, it seems to me, that is also true of all the film-producing countries, except, perhaps, Italy.

This, I believe, is because with the appearance of sound and color we had to give up the great achievements of the silent, black-and-white cinema and failed to acquire creative command of the powerful new media of expression placed at our disposal by sound, color and the wide screen. Let us compare the silent cinema with a marble statue. Sound came, and we made this statue speak and sing. Color appeared, and we painted it. The wide screen came, and the statue was expanded to colossal proportions, with the result that it lost all its fine

qualities. Sound and color have been superimposed upon it, without developing a new art.

We have transferred to the screen the methods of the theater, painting and music. We have applied the laws of static painting to dynamic cinema colors. The strength of the wide screen, in its present shape, lies in its potentiality as an attraction. It is effective in depicting landscapes, mass scenes and battle scenes. But so far it is not effective in showing people. And it is the task of every art to concentrate on human beings, because they have always been and will continue to be the chief subject of every art.

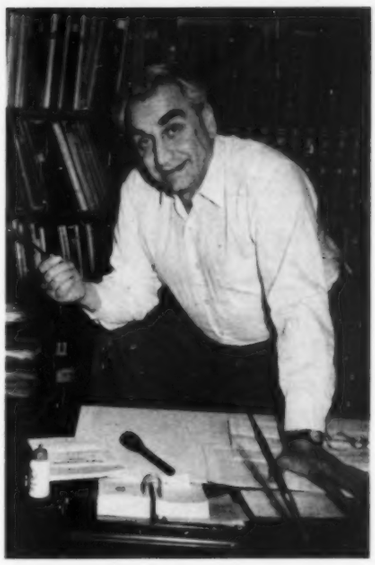
It is now necessary to invent, discover and creatively assimilate new media of expression in order to advance the art of the cinema and to imbue it with new strength. All the efforts of the Soviet Union's filmmakers are bent to this task. I am endeavoring to solve some of these new problems in *The Pilgrims*.

A new method of color film production invented in the Soviet Union, the "Wandering Mask," makes it possible to film the actors and their environment separately. All the scenes in which the actors take part may be shot in advance at the studio against a background of special infra-screens, without settings or trips to shoot scenes on location. Later, everything else can be shot—buildings, mountains, the sea, etc. — without the actors. This method saves a great deal of time and expense. Moreover, it opens up new artistic possibilities for the screen. With this method I hope to produce a more expressive and forceful film.

We have many other novel developments. But problems of cinema technique cannot be solved in isolation, on a limited scale. The new cinema art will flourish to the full measure of its strength and possibilities only if it is backed by the combined experience of the world cinema. That requires the intercourse and cooperation of film-makers throughout the world.

On our way home from Mexico at the beginning of March my wife Lubov Orlova and I spent a few days in New York. We saw *Inherit the Wind* starring Paul Muni, an American actor who is well-known in our country, at the New York National Theater. I believe he would be good in the role of Adlai Scott in *The Pilgrims*.

Paul Muni Starring? And why not?



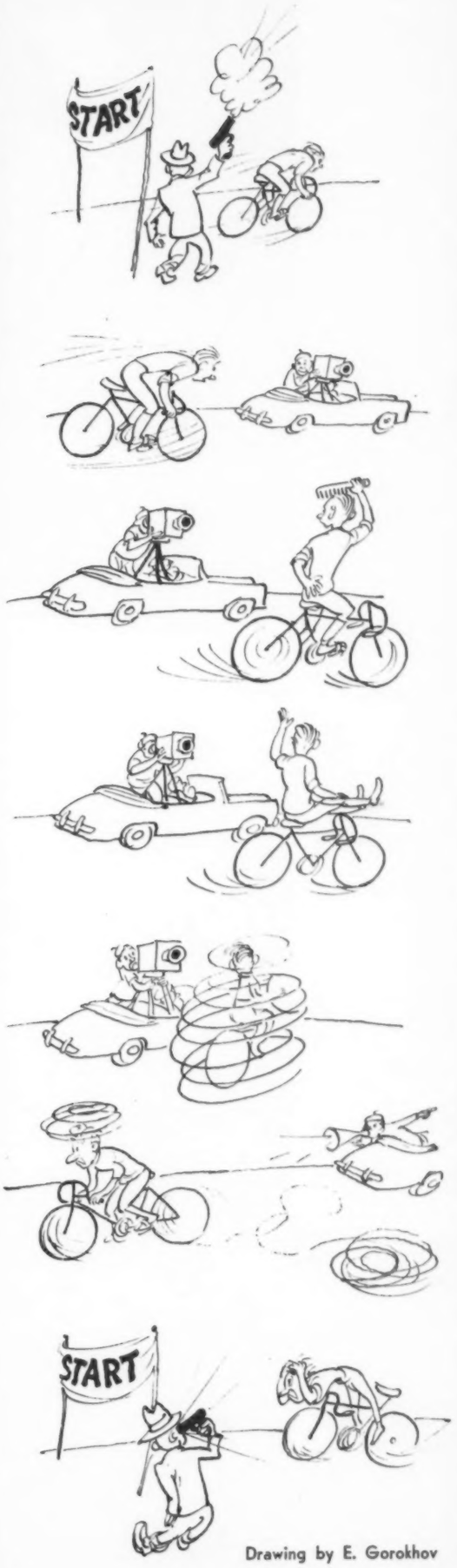
"Big Bug Eye" better than the rocket missile

Businessmen in the American cinema world made many suggestions that would open up possibilities for showing American films in the USSR, for an exchange of technical and artistic experience. I also found that there is sentiment in favor of joint production of films.

Mr. Michael Todd was planning to establish business contacts with Soviet cinematography and bring his "Todd-A.O." equipment to the USSR. I saw this equipment in operation. This splendid new system of filming and film demonstration, the "Big Bug Eye" lens, as it is called in the USA, is a great contribution to the development of motion pictures. I believe that the "Big Bug Eye" could overcome the many miles that lie between us with greater success than any rocket missile.

Mr. Todd has visited Moscow recently. His first negotiations with the Ministry of Culture of the USSR had favorable results. An agreement has been reached on the joint production of five feature films over a period of five years. It will be a kind of Soviet-American five-year plan in the cinema. Production of the first of these films, *An Evening of Soviet Attractions*, will begin in the immediate future.

Film imports and exports, joint production of films, shooting of scenes on location in our two countries, exchange of talent—that is an expression both of cultural cooperation and economic exchange between our two countries. The first experiment has shown that there are real possibilities for success. The guest performances of the Everyman Opera in Moscow, the concerts of Gilels, Oistrakh and Rostropovich in the United States and of Isaac Stern in the USSR, the success of Lillian Hellman's *Autumn Garden* at the Moscow Art Theater — all that is real evidence of the great possibilities for cultural exchange and cooperation. It seems to me that the present time is favorable for broadening this exchange and cooperation.



Drawing by E. Gorokhov

# of Two Million

Pavel Novikov returns home to Leningrad after service in the Navy.

During the course of one year, until May 1957, the armed forces of the USSR are to be reduced by 1,200,000 men. This is in addition to the 640,000 men who were demobilized in 1955. Three hundred seventy-five warships are to be withdrawn from service. Accordingly, armaments and military expenditures will be reduced in the USSR. Under decision of the government, all the demobilized men are assured jobs.

The Soviet government is prepared to consider the question of further reducing the armed forces of the USSR if the other powers also reduce their armed forces and armaments.

With his grandmother, the bold seaman feels like a little boy again.

Young Novikov found work of his liking without difficulty.

Novikov in the evening department of the Polytechnical Institute.

Novikov is telling his friends the traditional sea stories.

I Live in Kazakstan

By Gabit Musrepov
Kazakh Writer

A WARM BREEZE brings the fragrance of apple blossoms through the open window of my den. Springtime in our city, which is surrounded on all sides by apple orchards, is simply wonderful. And how enchanting it is in summer, aglow with the hot sun; it reminds one of a vast garden in bloom! The autumn, too, has its charm. The air on the wide streets is fresh, crisp, and invigorating.

Don't think that I am moved by blind love for my native city; the beauty of our city, which is called Alma-Ata, is recognized by all visitors.

This beauty seems symbolic to me: for Alma-Ata is the capital of Kazakhstan, the heart of my republic.

If you take a look at the map of the Soviet Union, you will find the Kazakh Republic, one of the constituent republics of the USSR, situated on the southeastern frontier of Europe and occupying a vast expanse of Central Asia. It is almost equal in area to Australia, and is more than five times as large as France and Switzerland put together. This is the first national state of the Kazakhs, who came here from the interior of Asia.

My republic is still very young—only 35 years old. But in this brief period it has traversed a long road, if measured by historical progress.

For countless ages, up to the twenties of our century, Kazakhstan had been by-passed by world progress. Innumerable generations of my countrymen were semi-starved and ragged herdsmen. Driving the herds of horses and flocks of sheep belonging to a few rich feudalists from one pasture to another on the boundless steppes, the majority of the Kazakhs lived in felt tents and led a miserable existence in dire poverty. Poverty, as always, went hand in hand with ignorance. Before Soviet power was established 98 per cent of the Kazakhs had been illiterate. The teachers in our region could be counted on the fingers of one's hands, while doctors seemed to be magicians inaccessible to the plain people, and disease took a big toll among us.

But the physical aspects of Kazakhstan are conducive to free and happy living. Its steppes are immense and fertile, the rivers wide and deep, and the land rich in minerals. Coking coal, iron ore, nonferrous and rare metals, silver, platinum, oil—there is everything one can dream of! And all this wealth was lying untouched.

On the vast territory of Kazakhstan there were only a few shabby towns, administrative and commercial centers, separated from one another by a complete lack of roads. Industry was represented by a few semi-primitive factories, small workshops, to be more exact. Kazakhstan's economic development had stopped at the level of the Middle Ages, and that was true not only of its economic development; it fell behind the march of time.

Today we only recall it as a nightmare. Anyone who had known Kazakhstan in the past would not recognize it now.

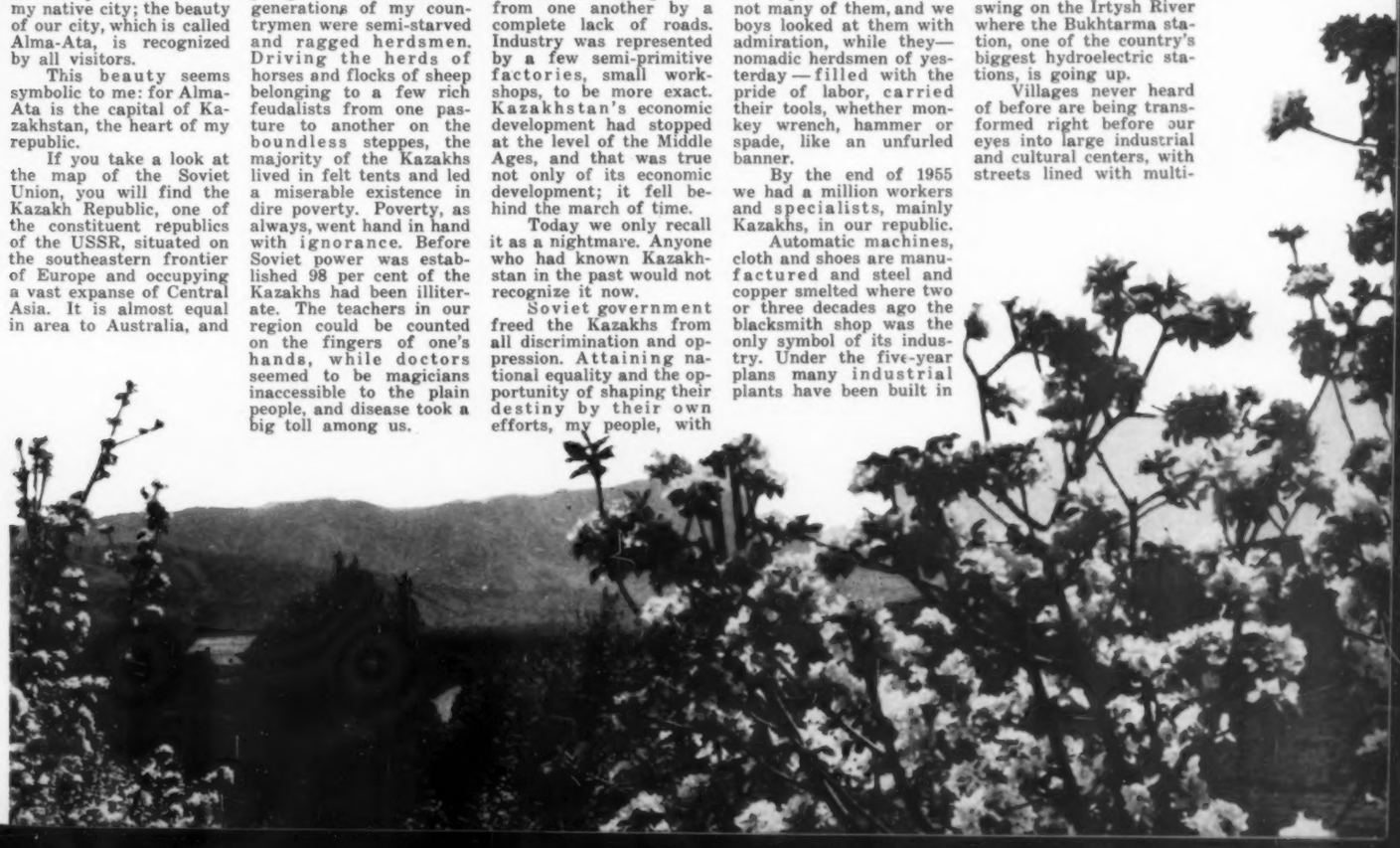
Soviet government freed the Kazakhs from all discrimination and oppression. Attaining national equality and the opportunity of shaping their destiny by their own efforts, my people, with the fraternal aid of the Russian people and of the other nations of the USSR, have achieved a great deal in this brief span—a mere instant on the clock of history.

I still remember the unforgettable days when Kazakh workers appeared for the first time. They were builders of the Turkestan-Siberia Railway, which was constructed here after the 1917 Revolution and was a major contribution to the industrial progress of our republic. There were not many of them, and we boys looked at them with admiration, while they—nomadic herdsmen of yesterday—filled with the pride of labor, carried their tools, whether monkey wrench, hammer or spade, like an unfurled banner.

By the end of 1955 we had a million workers and specialists, mainly Kazakhs, in our republic.

Automatic machines, cloth and shoes are manufactured and steel and copper smelted where two or three decades ago the blacksmith shop was the only symbol of its industry. Under the five-year plans many industrial plants have been built in Kazakhstan, and more are being built all the time. A year after the cartographers had marked Temir Tau, the new steel city on the map, they had to indicate Rudnogorsk, another new industrial and cultural town, a center of iron ore concentration plants. Recently we celebrated the opening of the powerful Ust-Kamenogorsk Hydroelectric Station, which is making a big contribution to the industrial development of the eastern regions of the republic, and now work is in full swing on the Irtysh River where the Bukhtarma station, one of the country's biggest hydroelectric stations, is going up.

Villages never heard of before are being transformed right before our eyes into large industrial and cultural centers, with streets lined with multi-



story apartment houses, schools and stores. A good many new towns have gone up in virgin localities in steppeland wastes.

Many new features have appeared in our animal husbandry and farming. Formerly the Kazakhs did not know how to grow rice, and the cotton they raised played a minor part in the economy. Today cotton and rice are the republic's chief crops.

To tell the whole story, we must admit that the appearance of some districts of the Kazakh steppe did not change until recently. In summer, generously silvered by feather grass, and in winter, buried completely by snows and held in the grip of the frost, they seemed to be completely unaffected by the march of time. Millions of acres of the most fertile black-soil land lay untouched, with only the steppe eagles soaring over them, regarding themselves the masters of earth and sky.

But the waking hour had come for these lands too. In the spring of 1954 the Kazakh people, with the cooperation of people from other Soviet republics, launched a general offensive against the virgin land. In the very first year 39,360,000 acres of our virgin land were sown for the first time, making a substantial addition to land under cultivation, while another 44,280,000 acres of properly prepared virgin soil will be added this year. Today a total of 66,420,000 acres have been put under crops in the republic.

The trilling of the skylarks and the powerful melody of the swans in early morning blend in the Kazakh steppes with the flow of new, life-asserting sounds. These are the sounds of human speech and the merry honks of automobile horns; the singing of circular saws eating into the wood, and the rhythmical beat of diesel engines; the clear-voiced songs of young women and the hard blows on the anvils in the smithies. And the steppe eagles, still making their circular flights as before, no longer recognize the land they have known since time immemorial.

Not only the face of Kazakhstan has changed; the whole order of things and the spirit of my people have become different.

Poverty has gone never to return. With the republic's economic development the standard of living of the whole people is rising; workers, peasants and professionals have higher incomes. My countrymen have moved from their dark yurts (tents) into bright and airy brick houses surrounded by fruit orchards. Medical care is taken for granted by them, and they see nothing unusual in their children, boys and girls alike, going to school, in the descendants of shepherds becoming diplomats, scientists, writers, ministers or factory directors.

Our native tongue has become the official language of our republic; it is used in schools and colleges, in the Council of Ministers and the Supreme Soviet; papers and magazines, literary and scientific works are published in the Kazakh language.

Kazakh national culture is flourishing. The colorfulness and brilliance of many of the performances of our opera theater (and the same goes for the drama theater) are envied, I happen to know, by some theatrical people in Moscow. Kazakh artists enjoy public favor on their tours of the Soviet Union and foreign countries.

In the past few decades, Kazakhstan developed its own native intelligentsia. It was quite recently, just before the last war, that Moscow papers carried the news of the first Kazakh to get a doctor's degree in science, of the first to become a member of the Academy of Sciences, and of the first Kazakh woman to become a ballerina. Now it has become an everyday feature. Kazakhstan has 25 higher educational establishments, 125 technical high schools and other special schools. The majority of the 100,000 students on their rolls, as well as of the teaching staffs, are Kazakhs. The republic has its own scientific center, the Academy of Sciences, which unites many scientific research institutions. It is headed by the celebrated Kazakh geologist Kanysh Satpayev. All our older scientists, art workers, government and economic leaders started out in life in smoky felt tents, in families where the adults learned to read and write only in Soviet times.

Nearly 78 billion rubles is to be invested in Kazakhstan's economy during the current five-year plan period. New railways and factories, big hydroelectric stations and oil pipelines, well-appointed cities and smaller communities will be built, and all this will be accompanied by greater abundance for everyone.

As a writer, I meet people of all professions. And although Sharif Kuzembayev, a lathe operator at the Alma-Ata Heavy Machinery Works, expresses his thoughts differently from, say, Academician Kanysh Satpayev, and rice grower Ibrai Zhakhayev differently from writer Mukhtar Auezov or from singer Kulyash Baiseitova—they are all equally inspired by the great prospects of the republic's development.

And even though they express themselves differently, I think it is not difficult to understand them.

Luck never fails this old hunter.

Girl worker from a cannery in the city of Guryev on the Caspian sea.

She h
of sh

This productive field only recently was virgin soil.

Karaganda, city of Kazakh mine workers.

One of the numerous coal mines in the Karaganda Basin.

She helped develop a new breed of sheep.

A proud grape picker.

She is pleased with her catch from the Caspian sea.

A young Kazakh girl performing a national dance.

On a collective farm pasture in the Ala-Tau mountains

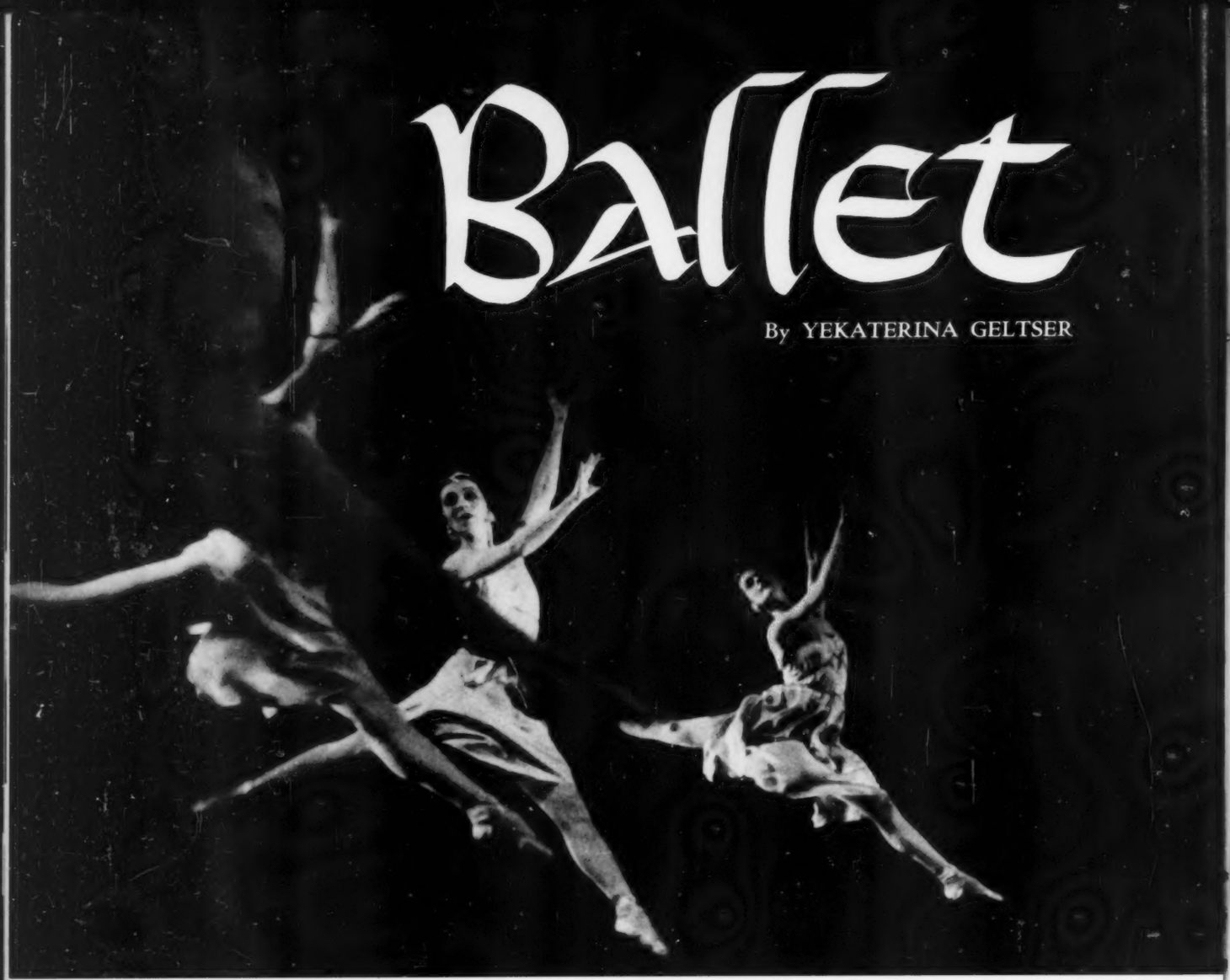
President of the Kazakh Academy of Sciences, Kanysh Satpayev is the son of an illiterate nomad.

Their mothers gave birth in a tent, not a maternity home.

Serkebayev is a singer of whom the Kazakh Opera and Ballet Theater is proud.

Ballet

By YEKATERINA GELTSER



—Photos by Georgi Petrusov

A celebrated Russian ballerina, Yekaterina Geltser graduated from the Moscow School of Choreography in 1894, whereupon she was associated for 35 years with the Bolshoi Theater. She made quite a number of foreign guest performance tours dancing with Nijinsky in the Diaghilev company, in Paris in 1910, and with Mordkin in New York in 1911.

Distinguished by her superb technique in the classical ballet and in the folk dance, Miss Geltser was also noted for her dramatic talent. She infused with fresh blood many roles in the classical ballets. As Tao Hoa in Red Poppy, *the first Soviet ballet, she was first to perform the role of a modern woman in that genre.*

Miss Geltser now heads the ballet master's department at the Moscow State Institute of Theatrical Art.

THE OLD Russian and the Soviet ballet . . . Are they identical? Is there any difference between them, and if so, what is this difference?

I have heard the question asked by people with no more than a nodding acquaintance with Terpsichore. And each time I felt like countering it with:

"Is there no difference between the strong, handsome youth and his father, broken by age and disease?"

This, of course, is a qualified analogy, as are all analogies. But it contains a grain of truth and an essential one.

Yes, the Soviet ballet is direct and rightful heir to the old Russian ballet. And it has received a splendid heritage.

In the course of its development our choreography has produced not only a blend of the sweeping, precise movements of the Italian ballet, and the grace and ease of the French ballet; it has contributed to this art a great many novel, national features. Typical of the Russian ballet is its interpretive power, its ability to convey, through the medium of the dance, the full gamut of human thoughts and emotions. In great measure our choreography owes its remarkable development to those great luminaries of Russian music Tchaikovsky and Glazunov, and to the brilliant ballet masters Marius Petipa and Lev Ivanov, who first produced *Swan Lake, Sleeping Beauty, Nutcracker Suite, Raymonda* and other ballet treasures.

Even in 1910 the Russian classical ballet (whose greatest exponent was Anna Pavlova) had no equal. And the question confronting it was: "Whither now?"

Art cannot stand still. That which does not progress, declines. But the managers of the imperial theaters and the esthetics-mongering aristocracy clutched at the old, threadbare traditions of "classicism" in the ballet, raising obstacles to any innovation on the stage.

Yet there were worthwhile innovations. Alexander Gorsky, Moscow ballet master and producer of some 40 ballets, tried, not without success, to apply in choreography the new methods of acting and producing developed at the Moscow Art Theater.

Georgi Farmanyants.

A stand against the old forms was taken in St. Petersburg by Mikhail Fokine, a talented ballet master whose work, although of great merit, contained much that was contradictory.

Of course, not everything was acceptable. Some ballet masters went so far as to reject completely classical ballet dancing and tried to make ballet consist of nothing more than acrobatics and pantomime. Others, while not denying the importance of the classical dance, were prepared to sacrifice content for spectacular effects.

The painful search for new paths lasted some 15 years. From 1917 on the Russian ballet became the Soviet ballet, although no marked change had as yet occurred in it.

The Birth

But something had happened that infused fresh strength into Russia's choreographic art, held out a promise of progress, and helped it to advance. The ballet had found a new audience: workers, peasants and Red Army men. They acclaimed the classical ballet and took it to their hearts. I shall never forget how, at a concert at the Dukat Tobacco Factory in 1918, the workers called for an encore of the "step by step" (they did not know the French expression *pas de deux*) from the ballet *Don Quixote*. *Swan Lake*, *Sleeping Beauty* and other Russian and Western ballets received a new lease of life on the Soviet stage.

But while paying due tribute to the classical heritage, the ordinary man wanted ballets with modern subject matter; he demanded an embodiment of the social themes that interested him. Many thought it impossible. According to the "time" theory which predominated in choreography, only plots removed from the audience by centuries were suitable for ballets.

"Is it possible," queried the skeptics, "to put the modern woman 'on her toes' within the conventional limits of the ballet? Hardly!"

But the skeptics were wrong. Following a number of failures and disappointments a Soviet ballet did appear on the stage, and it determined the subsequent development of our choreography. The ballet was Gliere's *Red Poppy*, which Vasili Tikhomirov and Lev Loshchilin produced at the Bolshoi Theater in 1927.

Sofia Golovkina and Vyacheslav Golubin performing the pas de deux in the Flames of Paris.

Maya Plisetskaya as Qitri in Don Quixote.

Notwithstanding a certain stylization in music and production, *Red Poppy* was an immediate success. It brought the contemporary scene to the stage, giving original embodiment to social ideas which our audiences hold dear. For the first time in the history of ballet the hero was the people, represented not by an impersonal *corps de ballet*, but by many striking personalities. In order to make the ballet more dramatic the authors of *Red Poppy* gave it an exciting plot and fused the mass scenes and individual dances into a story that developed dynamically.

A way was found out of the impasse.

What the Soviet ballet achieved in *Red Poppy* has been developed successfully in other ballets on contemporary themes. They include D. Klebanov's *Svetlana*, about the builders of a new city in the Siberian taiga; M. Chulaki's *Youth*, which deals with the early years of the Soviet state; G. Mushel's *Ballerina*, which tells the story of an Uzbek peasant girl who becomes a ballet dancer; and A. Spadavekkia's *Shore of Happiness*, a ballet set in the Crimea immediately before and at the beginning of the last war.

Possibilities of the Dance

Ballets on contemporary themes are only one of the many novel trends in Soviet choreography. Productions taking their themes from classical literature became popular in the middle of the thirties. Among the most outstanding were Asafiev's *Fountain of Bakhchisarai* and *Prisoner in the Caucasus* (based on Pushkin's poems of the same names), Prokofiev's *Romeo and Juliet*, Gliere's *Bronze Horseman* (based on a poem by Pushkin), and Solovyov-Sedoy's *Taras Bulba*, based on Gogol's novel by this name

Although they lost in the ballet their basic medium of expression, the spoken word, the characters in the poems did not lose their fidelity to life. So rich and expressive had the dance become that it could convey the poetry and develop the characters without the help of speech. That was seen most graphically in *Fountain of Bakhchisarai*, produced by Rotislav Zakharov, and in *Romeo and Juliet*, produced by Leonid Lavrovsky. Thanks to the melodious, emotion-filled music of Asafiev and Prokofiev, and the masterly choreographic and dramatic treatment, these productions became a landmark in the development of the Soviet ballet. Each scene was carefully designed and polished, with the "dance for the dance's sake" completely banished. Each character was given his individual language of gestures, movements and plastic forms, and the production as a whole acquired infallible logic through a succession of choreographically-treated lyrical and dramatic scenes.

A revision was undertaken at the same time of the old classical ballets. I am inclined to consider most successful the new interpretation of *Swan Lake* presented by Vladimir Burmeister at the Stanislavsky and Nemirovich-Danchenko Music Theater in Moscow. The theatrical world of the USSR acclaimed this production as an outstanding event.

What is the secret of the success that *Swan Lake* has continuously enjoyed?

In its almost octogenarian life on the stage, this Tchaikovsky ballet has had scores of interpretations in Russia. However, what most of the old ballet masters strove for was the spectacular rather than the profound. They shifted the score of *Swan Lake*, and made cuts in it. Burmeister (his mother belongs to the Tchaikovsky family) took a different course. With the help of

the Tchaikovsky Museum he restored the original score of *Swan Lake,* thereby making the composer's message clear. Corresponding changes were made in the libretto, especially in Act III, which was converted from an entertaining kaleidoscope of dances at the Prince's ball into a highly dramatic scene. The dances have not become fewer, but the dramaturgy of the whole act has become so purposeful that the acting grips the audience.

Also very successful is the new treatment given Act IV and the prologue (an altogether new feature), which shows Odette being converted into a swan through the spell of the evil magician.

The Soviet School of Ballet and the Dancers It Has Trained

When I think of the two ballet schools in Moscow and St. Petersburg and compare them with the 11 schools opened in Soviet times, I rejoice not so much because of the quantity as because of the great improvement that has been made in the system of training dancers. Programs have been extended to include general ten-year schooling, in addition to a study of folk dancing, a course in the history and theory of the ballet, theater, music and the fine arts, and training in acting. No longer is the system of mechanically memorizing separate movements practiced.

There are scores of Russian ballerinas and male dancers noted for their flawless technique and strikingly individual interpretations. Among the better known names are those of Galina Ulanova, Natalia Dudinskaya, Olga Lepeshinskaya, Maya Plisetskaya, Raisa Struchkova, Alla Shelest, Konstantin Sergeyev, Vladimir Preobrazhensky, Yuri Kondratov, Yuri Zhdanov and Askold Makarov. The many talented young people who have recently come to the fore include Marina Kondratyeva, Ninel Kurgapkina, Ludmila Bogomolova, Alla Osipenko, Nina Chistova, Rima Karelskaya, Sofia Vinogradova, Boris Khokhlov, Vyacheslav Kuznetsov, Nikolai Fadeichev and Gennadi Ledyakh.

Ballet in the Non-Russian Republics

Talented dancers in the non-Russian republics are becoming increasingly strong rivals of the Russian dancers. Among the most prominent are Vera Tsignadze and Vakhtang Chabukiani of Georgia, Galya Izmailova of Uzbekistan, Gamer Almaz-Zade of Azerbaijan, and Anna Prijede and Velta Vilcin of Latvia.

None of those nationalities had a ballet of its own in the old days. There were only two ballet troupes, the Moscow and the St. Petersburg. Today ballet troupes exist in all the non-Russian republics; altogether, there are 32 ballet companies in the USSR.

During the Turkmen Art Festival in Moscow, at the end of last year, the opera and ballet theater of the Turkmen Republic presented the ballet *Aldar Kose.* The audience could not have known of the difficulties that the producers of that first Turkmen ballet and those who danced in it, the Turkmen young men and women who had obtained their training in Moscow and Leningrad, had to overcome before that ballet could be staged.

It is necessary to say that along with the staging of the first national classical ballet—and it is really classical because the ballet dancers and the *corps de ballet* are dancing *sur les pointes,* and it has the classical adagio variations, *pas de deux* and other steps of the classical ballet—Turkmen choreography had to create a stage variation of brightly expressed folk dances without which there could be no Soviet ballet. *Aldar Kose,* a gay production picturing the adventures of a popular hero of Turkmenian folklore, proved to be so original and so interesting choreographically that it has been transferred without almost any changes to the Moscow and Leningrad stage.

The non-Russian republics have produced other ballets, the most outstanding being *Marusya Boguslavka* (Ukrainian), *Leili and Mejnun* (Tajik), *Gorda* (Georgian), *Lajma* (Lettish), *Lake Prince* (Byelorussian) and *Shurale* (Tatar). This has greatly enhanced the possibilities of the Soviet ballet, enriched its dance idiom, and converted it into a genuine people's art.

A quest for the new has always marked the development of Soviet ballet. Not content with the heritage bequeathed to it by the old Russian ballet, it has contributed many novel features to choreography. There have been mistakes and the bitterness of failure, as well as achievements and the joy of success, but painstaking work, energy, persistence and talent have enabled the exponents of Soviet ballet dancing to scale ever new summits.

Galina Ulanova as Tao-Hoa in the Red Poppy.

Moscow Tech and Its Alumni

An interview with Professor Dmitri Prokoshkin

FROM THE RAILWAY station the lean, simply-dressed young man went straight to the institute. There he found the massive door locked. He rang the bell, and kept on ringing until at last a burly, sleepy-eyed doorman opened the door and asked in alarm:

"What's up? What's the matter?"

"I've come for the examinations," the youth answered.

"You must have dropped off the moon, my dear fellow," the doorman growled, his bushy iron-gray mustache fairly bristling with indignation. "Who ever heard of exams at five in the morning!"

And he closed the door with a bang.

The youth glanced at his watch. How slow time was moving. If only he could whip it up!

That was 26 years ago. Since then many changes have taken place in the life of Dmitri Prokoshkin, who came to Moscow in the summer of 1930, a resolute peasant lad in search of knowledge.

After receiving a secondary schooling in his native village, he came to Moscow to continue his education, and became an engineer. The ability he displayed as an undergraduate opened the doors of science to him. He became a graduate student, got his degree, and wrote a number of research papers.

Professor Dmitri Prokoshkin, Doctor of Technical Sciences, has been head of the Bauman Higher Technical School in Moscow since 1954. A prominent specialist in metallography, he enthusiastically devotes all his energies to training young specialists.

"The Moscow Higher Technical School," Dmitri Prokoshkin told our correspondent, "is one of the oldest higher educational establishments in Russia. Last year we celebrated our 125th anniversary. It may interest you to know that in the past 25 years the MHTS has graduated three times more engineers than it did during the entire preceding century.

"We train specialists in turbine engineering and machine-tool construction, foundry and rolling mill production, and mechanical engineering, in a word, the men who make the machines used in producing machines. Naturally, this is a fairly complicated business, especially in this age of rapid progress in mechanical engineering. But so far the 'consumer' has not complained. Judging from the way our graduates are snatched up by the factories, the reputation of our school is fairly high.

"I put this down chiefly to the work done by the members of our teaching staff, which includes more than 800 persons. Among them are venerable scientists, eminent authorities in their field, such as Dr. Ivan Kukolevsky, who had been teaching at the MHTS for more than half a century, Professor Edward Settel, Corresponding Member of the Academy of Sciences Alexander Tselikov, and others. We also have young instructors who have already made their own contribution to science.

"Our students, of course, enjoy not only the authoritative advice of their professors, but all the wealth of modern scientific and technical knowledge. They have at their disposal up-to-date laboratories and a library containing more than half a million scientific and technical volumes in Russian, English, German, French and other languages, as well as periodicals from almost every country in the world.

"The theoretical knowledge acquired by the students is consolidated by practical work and a thorough study of production processes. We attach special importance to this. In their first and second years our students master the trades of lathe operator, milling machine operator, fitter and other industrial jobs in the school's workshops, and begining with their third year they have a month of practical work at a factory every year. There they acquire the material for their term papers and graduation projects. Life itself usually suggests the topics of the papers and theses.

"Only recently, for instance, the loading and unloading processes in the open-hearth shop of the Hammer and Sickle Works in Moscow were mechanized in accordance with a plan submitted by Victor Matveyenko, one of our graduating students. Another MHTS undergraduate, Vitali Vinokurov, worked out an improved method of electro-slag welding of superpower press frames, which is already being applied. A new method of machining turbine vanes proposed by undergraduate Vladimir Ignatenko is being employed at a plant in Leningrad. Many graduation projects presented by our students have found application at the Magnitogorsk Works, the Bearings Plant, and other industrial establishments.

"I could cite many more such facts, and if they lead you to infer that the MHTS graduates are clever, efficient young men who know their job, you will not be mistaken. Our aim is to train not merely intelligent engineers, but innovators, active, resourceful people capable of dealing independently with new problems and of posing such problems. In most cases we succeed."

"Surely there are exceptions, aren't there?"

"Naturally. There is never uniformity in life, whether good or bad! Although we enroll students through competitive examinations and we try to select the most promising, we sometimes get deadwood. Science, unfortunately, has not yet invented an apparatus to enable us to determine unerringly the individual inclinations and aptitudes of a person. Sometimes a young man who has brilliantly matriculated will in his second year reveal an inaptitude for technology and fall behind in his studies. If he does manage to graduate, he will make a poor specialist.

"But these, I repeat, are rare exceptions. As a rule, our students love their future profession and prepare for it with all the ardor and energy of youth, and very favorable conditions exsist for this.

(Continued on Page 38)

Vladimir Prikhodko and Inna Sokolova, who study together at the institute, are seen at work in a laboratory.

This equipment is idle only at night.

Vitali Shevchenko is a freshman, but he feels quite at home.

THIS MAP shows the more important industrial enterprises to be built in the USSR in 1956-1960. Altogether 6,000 large plants will be erected under the Sixth Five-Year Plan to meet the country's growing requirements. Priority development of heavy industry is regarded as an essential condition for over-all economic progress.

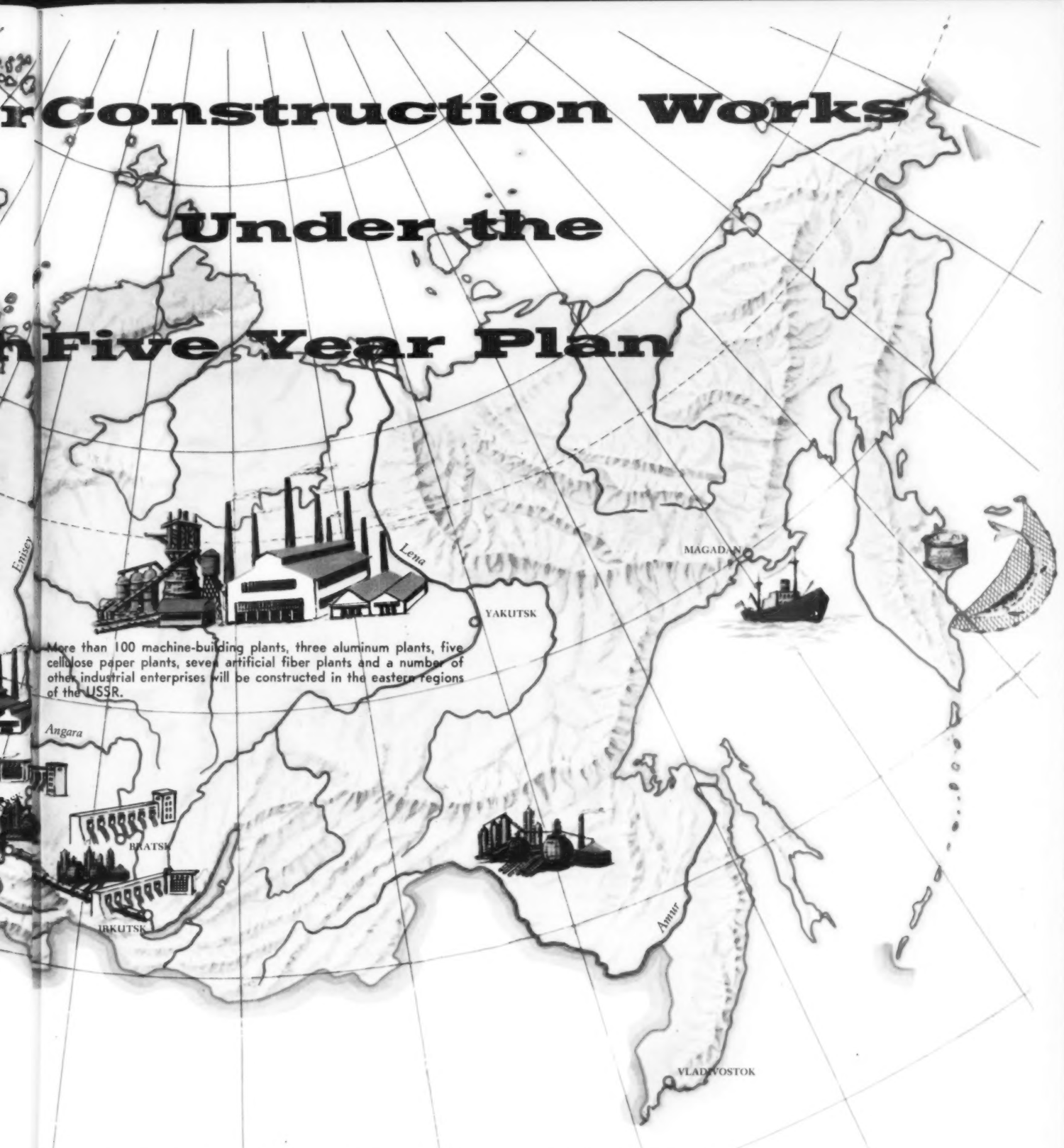
The map reflects an important feature of present-day industrial development, namely, the eastward shift. With three-quarters of the country's coal resources, vast deposits of iron ore, nonferrous and rare metals and chemical raw materials concentrated in Siberia, Kazakhstan and other eastern areas of the USSR, this is a natural trend. The potential water power of Eastern Siberia's rivers alone exceeds that of all the rivers in the USA, Canada and Japan.

The larger of the 140 thermal, hydro and atomic electric stations to be built under the plan will be located in Eastern Siberia. This includes the Bratsk Hydroelectric Station with a designed capacity of 3,200,000 kilowatts. It will have 18 turbines, and the dam across the Angara will be more than three miles long and 425 feet high. The Bratsk and the three other big hydroelectric stations to be built on the Angara will form the Angara cascade.

Soviet metallurgy has increased the production of metal tenfold compared with pre-revolutionary output, and under the Sixth Five-Year Plan it is to go up considerably more. Among the new plants of ferrous and nonferrous metallurgy to be put into operation in the next few years, the largest will be the Karaganda Works in Kazakhstan. It will be one of the biggest iron and steel plants in the world.

The iron and steel industry will also be further developed in the European part of the USSR. The Cherepovets steel mills in the Northwest, now nearing completion, will be one of

r Construction Works Under the h Five-Year Plan



More than 100 machine-building plants, three aluminum plants, five cellulose paper plants, seven artificial fiber plants and a number of other industrial enterprises will be constructed in the eastern regions of the USSR.

the chief suppliers of metal for such machine-manufacturing centers as Leningrad and Riga.

Before the war oil production had been concentrated chiefly in Baku and the North Caucasus. Now, as the derricks on the map show, the center of oil production has shifted to the Trans-Volga region. The country's oil output in 1960 will reach 135,000,000 tons, or 64,000,000 tons more than in 1955. The increase will be achieved by further development of the oil fields of the Trans-Volga region and also in Turkmenia, Uzbekistan, Siberia and the Far East.

The sixth five-year period will see further mechanization and automation of industrial processes. A hundred new big machine-building plants will go up in the Urals, Siberia and the Far East in the next five years. One of them, the Novosibirsk Electrical Equipment Works, indicated on the map, is to play an important part in electrifying the country's railways and building high-voltage transmission lines.

A combine harvester factory, the biggest in the Soviet Union, is under construction in the town of Pavlodar, in the Kazakh Republic. The manufacture of machines is to be expanded in the old industrial centers, but not as intensively as before. Special attention is being given to mass production of new types of tractors, trucks, harvesters and farm implements, and also machinery for factories making consumer goods.

Light industry and the food industry, too, are to be substantially developed during the next five years. They will get 1,600 new enterprises, including textile mills, shoe and clothing factories, dairies, meat and fish packing plants, furniture and domestic utensils factories, radio factories, and so on. They will be built all over the country, from subtropical Ashkhabad in Turkmenia to Murmansk in the Arctic, and from Transcarpathia in the West to the Chukotsk Peninsula in the East.

Moscow Tech—*(concluded from page 34)*

"Do you know that the budget of the MHTS for the 1955-1956 school year amounts to 100,000,000 rubles? That means that an average of 10,000 rubles is spent annually on each student. That does not include expenses connected with the practice period he spends at the factory, which are fairly heavy. Students going out to factories on practice have their fare and traveling expenses paid and are provided with board and lodging free of charge. This is in addition to the monthly allowance which they receive from the state.

"Our students are well provided for. They do not have to worry about the petty financial cares of life or how to earn their daily bread. You have only to look at them, cheerful, vigorous young men, successful both in studies and sports, to see this."

"What can you tell us about the prospects of the Moscow Higher Technical School?"

"They are brighter than ever. In the course of the Sixth Five-Year Plan, that is between 1956 and 1960, we are to train about 8,000 engineers. That is twice as many as we graduated during the past five-year period. This spring our school had a graduating class of 1400, which is 350 more than last year.

"Naturally our school has to be enlarged. You must have noticed the new buildings going up on our campus. The 12-story building will contain lecture halls. Simultaneously, a new heat-engineering laboratory building and a building for the transport engineering department are being erected. Dormitories for the students and apartments for members of the teaching staff are also being built. In a word, we are making progress with our building program."

"I gather from what you have said that the MHTS receives a large amount of scientific and technical literature from abroad. Do you also maintain direct contact with scientists and engineers in other countries?"

"Yes, of course. Only recently our school was visited by scientists and engineers from France, Britain, Italy and Czechoslovakia. Last autumn we entertained the American scientist B. Dodge. His book *Chemical Engineering Thermodynamics*, published in the USSR in 1950, is well known to Soviet mechanical engineers. Naturally, we welcomed Mr. Dodge as an old acquaintance.

"I should like to say in conclusion that my colleagues and I heartily welcome contact with the scientists, college teachers and engineers of other countries. The development of science and engineering is a single world process, and the more intercourse we workers in science and engineering have with one another and the more we learn of each other's best achievements, the faster we shall progress."

AMERICAN SCIENTISTS

Many Soviet scientists and those of other countries attended the USSR Conference on Physics of High Energy Particles held recently in Moscow.

Professor E. Segre of Berkeley, Calif. told the conference of his latest investigations.

J. Marshall of Chicago, and the Soviet scientists S. Nikitin and L. Goldin carried on their discussions in the lobbies during recess.

Is He the Oldest Man?

IT IS HARD to believe that this graybearded man who holds himself so erect on his spirited Caucasian horse is 148 years old. But it is a fact. He was born in 1808, at the time when Thomas Jefferson was President of the United States.

This old man is Makhmud Eivazov, a native of Pirassura, a mountain village in Azerbaijan.

Every day the postman brings a bulging mailbag to his home. Letters come from different parts of the Soviet Union and from many countries in Europe, Asia and America. Thousands of people ask him:

"What is the secret of your long life? What have been your occupations, and what sort of life do you lead now?"

In the first place, Makhmud Eivazov has always been very active. He has been a farmer all his life. In his youth he was a shepherd. He has grown fruit and raised wheat and corn; he has been a beekeeper and a poultry farmer. He is also a carpenter and he once worked as blacksmith. Even today he cannot bear to be idle and is often to be found working in his garden. Last year he undertook a long trip to Moscow to see the capital and the USSR Agricultural Exhibition.

To what does he owe his longevity?

"Pure mountain air and healthy farm labor," says Makhmud Eivazov.

Makhmud Eivazov has a big family: he is the father of 23 children and the head of a whole dynasty of 152 persons. In Pirassura village he is Great Grandfather to everyone. His eldest daughter is 120 years old.

The Great Grandfather enjoys general respect and esteem. The collective farm of which he is a member has built him a new house. The house stands in an orchard which Eivazov himself planted. He receives a special pension from the government of Azerbaijan, and a short while ago the Presidium of the USSR Supreme Soviet conferred upon him the Order of the Red Banner of Labor.

Nor is he the only Methuselah alive today. The Soviet Union has more than 40,000 men and women more than 90 years old. Some 4,500 of them have already celebrated their 100th birthday. It is noteworthy that women make up almost 75 per cent of these old people. The longevity record belonged to Tepse Abziva, an Ossetian, who died recently at the age of 180.

It was considered in the past that only the country's southern highlands favor a long life span. Investigations conducted of late have shown, however, that length of life does not depend upon an abundance of warmth and sunshine. Northern Yakutia, a region of eternal frost and snow, has as many people over the age of 100 as Southern Abkhazia.

As a rule, people who pass the century mark look much younger than their years. They are all remarkably active, sociable and kindhearted. There are no sullen or mean people among them. Makhmud Eivazov says emphatically:

"Wicked people don't live long!"

He certainly ought to know.

Olympic Trials Set in Moscow

August to See 10,000 Compete in Sports Events

INTERVIEW WITH MIKHAIL PESLYAK

Assistant Chairman, USSR Olympic Committee

THROUGHOUT THE expanse of the Soviet Union sportsmen have geared their program to the coming Olympic Games. The big event preceding the 1956 Olympics will be the Sports Festival of the Peoples of the USSR, which will be held in Moscow in August.

Some 10,000 contestants are expected from the Sixteen Republics of the Soviet Union and from Moscow and Leningrad, which are represented independently. This figure compares with a total of 6,000 participants in the Helsinki Olympics.

The right to take part in the Sports Festival in any of 21 sports events has to be won at elimination contests held first at factories and in villages, then on a district, regional, and finally, republic scale. Out of the 5,000,000 men and women who have competed in the Russian Federation, for example, only 500 will be selected for the final competitions.

Our festival is to be held in the new stadium now under construction at Luzhniki, in Moscow. "Stadium" is perhaps not the right word. What is being built there is a sports park covering a territory of 375 acres. The main stadium will seat 100,000 persons. Besides, there will be a big swimming pool, a stadium for ball games, an indoor arena, six soccer fields and 70 other athletic grounds. All these are to be ready by August.

During 1956 a total of 165 USSR Championship Tournaments are planned both in the big cities and in the more remote countryside centers. The Georgian mountain village of Bakuriani will witness the USSR mountain skiing championships, while the USSR ski racing contests will be held in Kirovsk, beyond the Arctic Circle. And the Caucasian town of Grozny will play host to the country's rural track and field stars.

During the interview Mikhail Peslyak said all these things without even a glance at the 20-page sports schedule on his desk. Of course a list of that size is too much to commit to memory, but he could rattle off the main events without a moment's hesitation.

A novelty this year are the USSR championships in handball and motorboat racing — sports that are new to us. Many international sports meets with Soviet participation are scheduled. They include a Soviet-British boxing match in Moscow, the world cycling championships in Copenhagen, the world volleyball championships in Paris, the fencing championships in London, the European weight-lifting championships in Helsinki, and the rowing championships in Yugoslavia. The all-USSR soccer team will play eight games against the teams of foreign countries, including Denmark, Israel, Hungary, the Federal Republic of Germany, and France. Soviet soccer clubs will play teams from about 20 countries.

Mikhail Peslyak commented wryly that "it's a strenuous program," adding that Soviet sportsmen are making equally strenuous preparations.

DOMESTIC NEWS ITEMS

AKHMED ADAMOV and Manna Alieva, peasants from the village of Sulebkent in the Caucasus mountains, have celebrated the 100th anniversary of their wedding. The whole village celebrated it, since most of the villagers are the old couple's grandchildren or great-grandchildren.

Responding to his friends' congratulations, Akhmed Adamov, a lean active old man with a snow-white beard and black tufted brows, remarked with a humorous twinkle:

"So far I have no cause to regret the choice of wife I have made. As to how things will turn out later, the future will show . . . ."

Adamov is 122. His wife, a chatty old lady, the wrinkles on whose swarthy face can only be discerned at close quarters, is reported to be five or seven years her husband's senior. We must rely on hearsay, naturally, as there is no way of checking this.

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NADEZHDA DEMYANENKO, a collective farm woman from the Ukraine, presented her husband with three daughters in one day.

When she was brought home from the maternity ward of the rural hospital quite a little crowd met her with flowers. The farm management appointed an experienced nurse, who had been employed at the local nursery, to look after the triplets, and she will be paid by the collective farm. The management of the machine and tractor station at which the father of the triplets is employed has given him a grant of 7,000 rubles to buy furniture and baby carriages. The triplets are receiving special attention from the local doctor.

Judging by the rate at which they are putting on weight and developing their vocal powers, they are quite satisfied with all this fuss and attention.

A LIFE SAVED

A MAN WAS lost in the desert.

It happened recently during a sandstorm, a frequent occurrence in the Kara-Kum, the "land of black sands," which occupies 115,000 square miles of the territory of Soviet Turkmenia in Central Asia.

At the height of the storm, Mukhtar Arabov, a young Turkmenian employed on a section of the Kara-Kum canal construction job, decided to see what the storm was doing out in the open. He stepped only a short distance away from the tent, staggering beneath the furious blasts, but when he turned to go back he saw nothing around him but whirling clouds of blinding sand. Getting panicky, he darted aside and lost his bearings altogether, battling his way doggedly farther and farther into the desert.

The first to miss him were his tentmates.

"He-e-ey!" they shouted, running out into the open "Mukhtar! Mukhtar!"

But not a soul appeared out of the whirling murk.

The workmen then ran off to the engineer, the work superintendent and the chairman of the trade union committee. The siren sounded the alarm. Several hours later, when the wind had subsided somewhat, eight search parties went out into the desert to look for the lost man. Time was precious, since the farther a person penetrated into the desert the harder it was to find him.

After a fruitless search the parties returned.

The next day, which was sunny and calm, the construction area management called out planes to take up the search. Two planes circled over the desert for hours, but they, too, were unsuccessful.

Forty-eight hours after Arabov's disappearance hundreds of people were out, determined to save his life—pathfinders on foot, drivers of cross-country vehicles, airmen, and shepherds wandering from oasis to oasis with collective-farm flocks. Thousands of others all along the construction route, people in Ashkhabad, the republic's capital, and even in Moscow, followed the search efforts with keen interest and anxiety.

On the third day Arabov was rescued. He was found far out in the desert, utterly exhausted from thirst and fatigue.

When he came back to the camp, he was extremely annoyed with himself and unhappy at the trouble and alarm he had caused and the number of people he had torn away from their work.

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DO YOU KNOW THAT . . .

in the past two years the Soviet Union has brought under cultivation 74,000,000 acres of virgin and long-fallow land, which is equal to the territory of Maine, New York and Pennsylvania taken together?

in 1960, the last year of the Sixth Five-Year Plan, industrial output in the USSR will be three times greater than in 1950 and 5.3 times greater than in the prewar year 1940?

in 1955 the Soviet Union's electric stations daily produced as much power as was produced in Russia in all of 1920?

of the nationalities inhabiting the USSR 19 acquired a written language only after the Great October Socialist Revolution of 1917?

the Soviet Union has a population increase of 3,000,000 annually? Between 1951 and 1955 the population of the Soviet Union increased by 16,300,000, a figure greater than the populations of Sweden, Norway and Denmark put together.

CHESS — MOST POPULAR GAME IN TH

International Grandmaster Alexander Kotov was born in the town of Tula, near Moscow, in 1913. He learned to play chess at the age of 14 and a year later became the champion of his native town. He was awarded the Grandmaster's title in 1939. He has been the champion of Moscow and the Soviet Union, and has captured first place at international meets several times. At two Challengers' Tournaments (in 1950 and 1953) and at many international meets he has played against American chess players both in the United States and at home, and also in other countries.

Grandmaster Kotov is the author of a number of books on chess, including A. Alekhine's Chess Legacy *and* The 1950 Venice Tournament. *He is also co-author of* The Soviet Chess School *and* The 1952 Interzonal Tournament in Stockholm.

A mechanical engineer, Alexander Kotov is the author of several inventions that have been patented.

By Alexander Kotov

International Grandmaster

THE INTERNATIONAL leadership of Soviet chess has won the envy and admiration of experts in all countries, and their dilemma was expressed recently by Argentine grandmaster Miguel Najdorf in a conversation with a Soviet player.

"How can one play against you?" the Argentine expert declared. "Smyslov here played against Euwe and employed a sharp variation in the Ruy Lopez. The next day 800 Muscovites called him up, offering a new move that would win immediately!"

The expansive Argentinian was right in many ways. Actually the lively interest shown by thousands of chess lovers in theoretical novelties is boundless. Each new variation, each important game is subjected to such "control" on the part of thousands of chess devotees in our country that it involuntarily compels the masters to improve their style all the time, to enhance their knowledge and continue their quests.

This is the atmosphere in which our masters work and create. It is not in vain that in recent years our masters produced numerous most interesting combinational games. See, for instance, how deeply David Bronstein was able to penetrate into the secrets of the position he attained against Paul Keres in their encounter at the 1955 Inter-Zonal Tournament in Göteborg.

DIAGRAM NO. 1

WHITE: K.Kt1; Q.Q1; R.QR1; R.KB1; B.QB1; B.QB2; Kt.QKt5; Kt.KKt3; Pawns: QR3, QKt2, KB2, KKt2, KR2 (13);

BLACK: K.KKt1; Q.Q1; R.QR1; R.KB1; B.QKt2; B.K2; Kt.QR3; Kt.KB3; Pawns: QR2, QKt3, QB5, Q2, KB2, KKt2, KR3 (15).

Bronstein stunned the spectators and his opponent by playing in this position: 1. BxP!! PxB 2. Q-Q2! Keres spent nearly an hour pondering over this without discovering any defense against the threatening invasion of the White pieces. He is faced with the threat of his KR-Pawn being captured by the Queen, after which the threat of Kt-KR5 with inevitable mate cannot be prevented. Keres played *2..... Kt-R2*, but after *3. QxRP P-B4 4. KtxBP RxKt 5. BxR* was also subjected to an irresistible attack. Bronstein's designs would have been fully revealed after Black's best defense: 2. ..... Kt-B4. Then effective variations might have arisen. Here, for instance, is one of them: 2..... KT-B4 3. QR-K1 Kt-Q6 4. BxKt PxB 5. Kt-B5! B-K5! 6. Kt(Kt)-Q4 R-Kl 7. Kt xPch K-B1 8. Q-Kt5 B-Kt3. The simplest way to win in this position is 9. RxB RxR 10. QxKt, but White could play for the "beauty" of it: 9. R-K6!? QPxR 10. QxB! PxQ 11. KtXP mate.

The creative approach to the theory and practice of chess, which is so characteristic of the representatives of the Soviet chess school, demands great concentration of the participants in a tournament which also means tremendous physical stamina. Therefore our masters get into especially good physical condition prior to contests. Thus, for instance, Botvinnik holds special training sessions to accustom himself to think in a noisy tournament hall, or to sit opposite a restless opponent. He plays training games with the radio going full blast, picking his opponents from among inveterate smokers, although he himself does not smoke. Physical training is, of course, only supplementary to the preparations in chess theory. In training for tournaments, our masters study all the moves discovered by their colleagues all over the world, generalize the experience of international meets, and bring new ideas into theory. In preparing for the tournament they usually study a minimum of 50 of the latest games of each future rival. That means that in preparing for a tournament with 20 persons the master has to look over and analyze at least 1,000 games. Quite a bit of work!

The increasing number of gifted young people coming to the fore every year is conducive to the development of chess as a sport.

"But don't give simultaneous exhibitions with Young Pioneers," half in jest and half seriously Euwe warned his colleagues going to Moscow.

That there are good grounds for such a warning was learned especially well by the British Master R. Wade when he established a peculiar "world record" in Moscow in 1951. Giving a simultaneous exhibition on 30 boards against school children at the Moscow House of the Young Pioneer, Wade lost 20, drew 10 and thus failed to win a single game. Wade, however, demonstrated true stoicism after this incident.

"I think," said the witty Englishman, "that had any one of the Young Pioneers played against 30 Wades, his result would have been no worse."

From the chess clubs functioning in almost every Soviet school, from victory over classmates to triumphs at championship meets of cities, republics and the whole country — such is the path traversed by many celebrated chess players. That is how it was with Vasili Smyslov and David Bronstein. The same road from a Young Pioneer to the status of grandmaster was traveled by Yuri Averbakh and Mark Taimanov. And in our times quite a young shift appeared on the scene—Boris Spassky, Mikhail Tal and others. They boldly solve the problems posed by the different positions and discover fine and veiled combinations which show great mastery.

Try to find, for instance, a win in the following position.

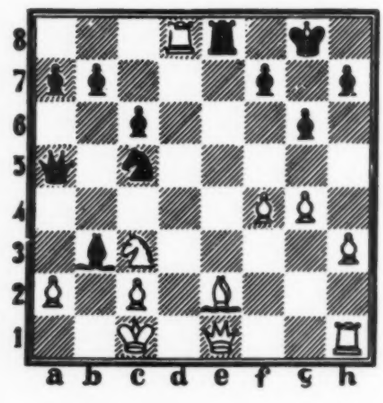


DIAGRAM NO. 2

WHITE: K.QB1; Q.K1; R.Q8; R.KR1; B.K2; Kt.QB3; Pawns: QR2, QB2, KB4, KKt4, KR3 (11);

BLACK: K.Kt1; Q.QR4; R.K1; B.QKt6; Kt.QB4; Pawns: QR2, QKt2, QB3, KB2, KKt3, KR2 (11).

In this position Master A. Lytikov, the young champion of the Russian Federative Republic, elegantly settled the outcome of this game in his favor by bringing the sacrifice he offered on QKt6 to its logical conclusion.

Can you find the solution to this?

The striving of Soviet masters to engage in keen battles from the very first moves resulted in the disappearance from their repertory of such openings as the Lasker Defense and many variations of the Queen's Gambit involving many exchanges

IN THE SOVIET UNION

and simplification of the position. On the other hand, such sharp opening schemes as the King's Indian Defense and the Sicilian Defense live and flourish. The Soviet chess players are following in this the traditions of their brilliant compatriots Mikhail Chigorin and Alexander Alekhine, who always strove for combinational, interesting games.

The Soviet chess school scored a number of important victories in recent years. Suffice it to mention that the world chess crown is worn by Mikhail Botvinnik, the world's First Lady in chess is Elizaveta Bykova, while the junior title holder is Boris Spassky. The two world's team titles, among men and students, are also held by Soviet representatives.

There are people who claim that this is too much, that we should share them with others. But prizes in sports are never given as a gift — they are captured in an honest and keenly-fought contest, for which we are always ready. But as far as our experience and knowledge are concerned, we share them willingly, in a true friendly spirit, with our chess colleagues.

That is quite natural, for the chess players of all nations are bound by ties of traditional friendship, which is not undermined but strengthened by the tenacious struggle of tournament play.

A good example of such friendship is the relationship between the chess players of the Soviet Union and the United States. It dates back to 1925, when the bold attacks conducted by Frank Marshall aroused the admiration of Muscovites. Since that time American chess players have been frequent guests of our country, and in 1954 a team of Soviet grandmasters visited New York. We hope that we will visit each other more often in the future. Three meets between American and Soviet masters have already been planned for this year: we expect an American team to visit Moscow in September to play in the Chess Olympiad; two weeks later the Alekhine Memorial Tournament will start with the participation of Grandmaster Samuel Reshevsky; and finally, a match is being planned for the end of the year between two grandmasters who are distinguished for their interesting schemes and original style. We are referring to the long-awaited duel between Samuel Reshevsky and David Bronstein.

Schoolteacher Lakhayev (right) is one of the best chess players in the Tajik Republic.

Violinist David Oistrakh and his son Igor, also a violinist, are fond of chess.

A Visit With David Oistrakh

By Alexei Morov

THOSE WHO HAVE seen David Oistrakh on the stage must have noticed that he does not go in for theatrical poses, that his playing is not strained, is completely devoid of exaggerated emotionalism or superfluous, accentuated expression. Everything is amazingly simple and sincere.

That is also the impression you get when you see David Oistrakh at home. You will find nothing in his study that is garish or flashy. The room is decorated in quiet good taste, conducive to study and work.

When Oistrakh isn't working, you will often find him at the chessboard. He and his son Igor, also a well-known violinist, are both tremendous chess enthusiasts, and the games they frequently play together are keenly contested. As in music, Igor makes every effort to do better than his father in chess. But, as in music, so far he has not succeeded.

A glance at Oistrakh's desk reveals another hobby, photography. Alongside the sheet music and phonograph records, with which the apartment is filled, you will always find boxes of film. Wherever Oistrakh goes he takes his camera with him. While in Paris recently he photographed the ceremony at a cemetery in Montparnasse when a monument to the great Russian chess player Alexander Alekhine was unveiled. While I sat in his study Grandmaster Kotov phoned to ask if he could have a copy of the photos Oistrakh took in Paris.

"I'll have them printed as soon as I finish the roll," Oistrakh told him. "Then I'll give you the very first prints." Turning away from the phone, he said to me, "Unfortunately, there's very little time for my hobbies."

This past season has been a busy one for Oistrakh. It included a three-weeks' tour of the Scandinavian countries, six weeks in the United States with a packed concert schedule, a stay in Moscow, and then appearances in Britain, Belgium, Holland and France.

"Yes, this season has been filled to the brim with hard work, I must admit," said Oistrakh.

I visited him the day after his return from Paris and he was still filled with impressions of his recent tour. But upon learning that I wanted to interview him for the magazine *USSR* he agreed willingly.

"It is fine that contacts between the Soviet people and the people of America are increasing. I should like to take this opportunity to send my greetings to my colleagues in the United States and American music-lovers."

I remarked that our readers would undoubtedly like to hear about his latest tour of Western Europe.

"Together with my accompanist, Vladimir Yampolsky, who always travels with me, I spent 20 days in London, where I gave recitals and played with symphony orchestras. I also appeared on radio and TV and made recordings for Columbia. When I recorded Brahms' concerto for violin and cello, I played with the noted French cellist Pierre Fournier.

"From Britain we went to Belgium. There I played with the orchestra in Brussels. Then we went to Holland, which I had visited previously, 19 years ago. There I gave four concerts in Amsterdam and another four in the Hague. My tour wound up in Paris with a program of sonatas by Beethoven, Tartini, Brahms and Prokofiev at Pleyel Hall. In Western Europe, as in the United States, prominent musicians and cultural leaders asked me a great many questions about Soviet art. Many of them intend to perform in the USSR."

"What are your plans for the summer?" I asked Oistrakh.

"I shall play at the Grieg Festival at Bergen, Norway. Then, I shall be soloist with the Leningrad Philharmonic under Yevgeni Mravinsky in a tour of the German Democratic Republic and the German Federal Republic, Switzerland and Austria. While in Vienna I shall take part in the Mozart Festival."

That program will be followed by a two months' vacation, after which come appearances in Yugoslavia, Poland, Bulgaria and Rumania.

Neither his West European impressions nor his interesting future tours have dimmed Oistrakh's pleasant memories of his visit to the United States. During our conversation he kept returning to the days he spent in America, speaking of the people he had met there in the world of music.

"It was a great pleasure to meet the musicians of the Philadelphia Orchestra and its chief conductor, Eugene Ormandy. The Philadelphia Orchestra is a most interesting ensemble, comprising a group of highly skilled, great artists."

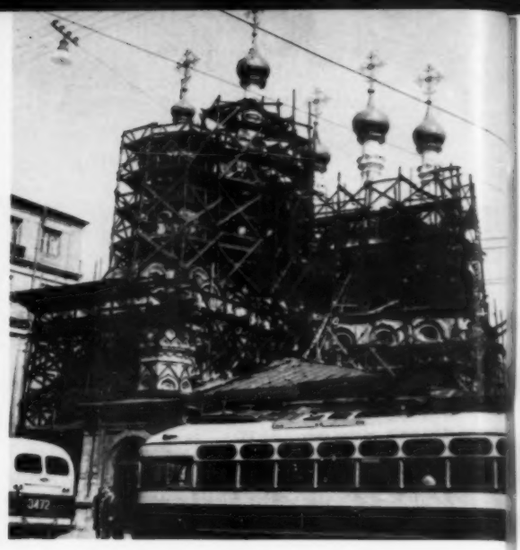
Oistrakh feels that it would be difficult to find a more suitable conductor for that orchestra than Eugene Ormandy.

"Although Ormandy is a man of striking individuality, he is an extremely sensitive partner, an accompanist who detects every wish, the slightest impulse of the soloist, and does not force his own opinion on him," said Oistrakh.

Oistrakh also retains warm memories of his appearances with the Boston Symphony Orchestra and the New York Philharmonic. Here he remarked that Soviet and American musicians could learn a great deal from each other.

"I became convinced of that over and over again at my concerts in America and during my meetings with American artists. It is a pity that for some three and a half decades there was almost no creative contact between our two great countries. If the visits of Emil Gilels, Mstislav Rostropovich and myself to the United States, and the visit to Moscow of my American colleague, the violinist Isaac Stern, as well as the tour of the Soviet Union made by the Everyman Opera do not remain exceptions but mark the beginning of broad, regular cultural exchange, the musicians of both countries will be the winners."

Here Oistrakh immediately added: "And not only the musicians!"

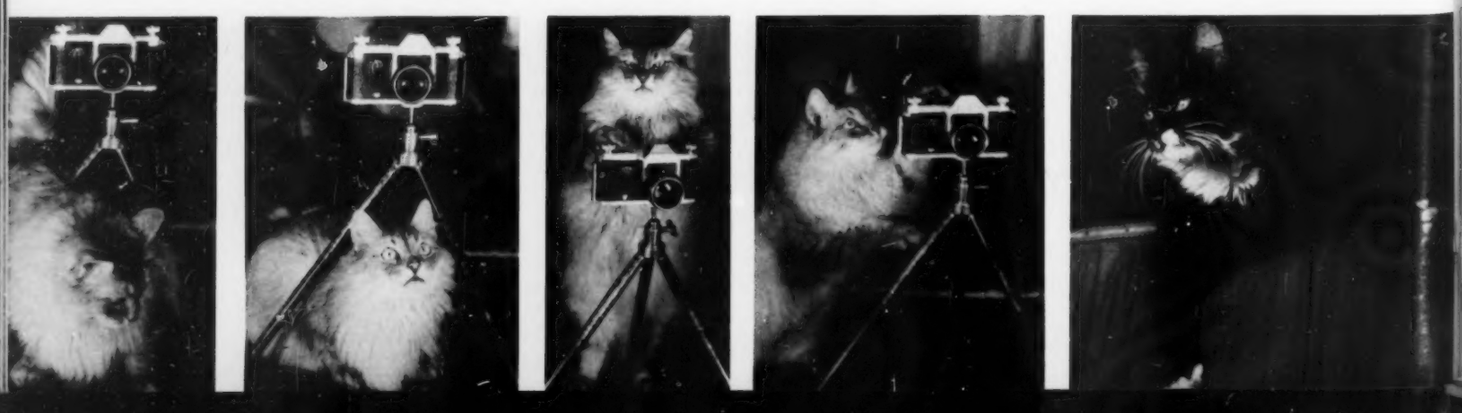


The Rozhdestvo Church in Putinki, Moscow, in scaffolding. It was built in 1648-1652, and is one of the 870 architectural monuments in Moscow which are preserved by the state for their historical value.

In the past four years 190 such monuments have been restored in Moscow. About 100,000,000 rubles was spent on this. At present, another 140 old Russian monuments are undergoing restoration.

Ivory binding of a manuscript written in 989. It was carved by Armenian craftsmen and belongs to the ancient collections of the Matenadaran, in Yerevan, capital of the Armenian Republic.

Kitty's Photo Studio



THE GREATEST EVIL CAN BECOME THE GREATEST BOON

Igor Kurchatov discusses controlled thermonuclear reaction

Igor Kurchatov, outstanding Soviet scientist, has been working for more than 20 years in the field of nuclear physics. Major problems of the physics of chain reactions of fissionable nuclei have been solved with his participation. An experimenter of wide talents, he is simultaneously an outstanding organizer of scientific investigations.

Our correspondent has asked Academician Kurchatov a number of questions on research in controlled thermonuclear reactions conducted in the USSR Academy of Sciences.

Question: Of what significance are the studies of controlled thermonuclear reactions?

Answer: How to harness the energy of thermonuclear reactions is one of the cardinal problems of contemporary science and technology. In the hydrogen bomb we are already able to create conditions for the thermonuclear reaction of the fusion of hydrogen atoms into helium atoms. But only by learning how to control the speed of this reaction is it possible to avoid an explosion and to place thermonuclear energy at the service of industry. This is an exceedingly difficult and unusually interesting problem. By solving it, man could, for example, use as a source of nuclear fuel the practically limitless quantities of hydrogen contained in water instead of the rare elements—uranium and thorium. Thus, mankind would forever be freed from worrying about sources of energy needed for its existence.

Questions: Under what conditions do thermonuclear reactions proceed?

Answer: Thermonuclear reactions can proceed only under very high temperatures. A reaction of noticeable intensity takes place only at a temperature of over one million degrees centigrade. To utilize a thermonuclear reaction for energy purposes matter has to be heated up to a temperature of hundreds of millions of degrees, perhaps up to a billion. Only in that case will the atoms of matter have sufficient velocity for the nuclei to overcome the electrical, mutually repellent force and to draw together close enough to make nuclear transmutations possible.

As early as before the war Dr. Hans A. Bethe, who is now in the United States, arrived at the conclusion that it is these thermonuclear reactions taking place within the sun and the stars that are the main source of the colossal energy they radiate. The transmutation of hydrogen into helium which Dr. Bethe studied with Dr. Weizsäcker, however, proceeds very slowly. The cycle lasts about a million years, and it takes place, moreover, in stellar conditions when the pressure is measured by billions upon billions of atmospheres and the density of matter is tremendous. Under the impression of these astronomic figures, it seemed as though in conditions on our planet it would be impossible to achieve a thermonuclear reaction of noticeable intensity which would take a period comparable to the span of human life. With the drop in density, the speed of the reaction declines very rapidly.

Only after the discovery of the reaction between the nuclei of deuterium and tritium, the heavy and super-heavy forms of hydrogen, has it become possible to achieve a thermonuclear reaction on earth. Scientists have established that thermonuclear reactions in deuterium and a mixture of deuterium and tritium are of especial interest, since a relatively smaller temperature is needed to start the reaction than between heavier atoms, for example between atoms of lithium, beryllium or boron. The idea arose of using the explosion of an ordinary atomic bomb to create, even if only for a very brief period, the needed high pressure and temperature. All this taken together has made it possible to achieve an instantaneous (explosive) thermonuclear reaction in the hydrogen bomb.

Scientists are now confronted with the alluring task of placing thermonuclear reaction under control. To use a metaphore, this, in a sense, would be to create our own sun on earth. It may seem that the chief problem is to find a way to heat up hydrogen to hundreds of millions of degrees, without resorting to an atomic explosion.

Question: But what is actually the chief problem?

Answer: A simple theoretical calculation shows that if it is possible to invent a method of heating hydrogen without any losses of heat, not so much energy will be needed to obtain a temperature of millions of degrees. For example, to heat up, with no heat losses, one gram of deuterium to one million degrees (when a thermonuclear reaction becomes so intensive that it can be registered) only several kilowatt-hours of electricity are needed.

With such small quantities of energy transmitted to deuterium the possibility of a destructive explosion is precluded. Hence, by finding a way to eliminate heat losses we could hope to create a thermonuclear reactor.

The most serious cause of heat losses is the heat conductivity of matter. The point is that when we heat up a substance, the dispersion of heat into the surrounding environment proceeds simultaneously. As the temperature rises the speed of dispersal of energy increases very rapidly, so much so that when a substance is heated up to tens of thousands of degrees, a further rise of the temperature becomes impossible. The particles of heated hydrogen, moving freely in a chamber, hit its walls and transmit their energy to them. To heat them up to higher temperatures it is necessary to set up some kind of "barrier" to the movement of the particles toward the walls, a "barrier" at which they would not lose their energy. Moreover, it would be sufficient to keep them from reaching the walls only for the brief time needed for the nuclear transmutation.

Question: Are there ways to accomplish this task?

Answer: Evidently, different ways lead to this goal. In 1950 the Soviet Academicians A. Sakharov and I. Tamm proposed to use a strong magnetic field for thermal insulation.

Under the high temperature necessary for a fusion reaction, any substance can remain only in an ionized state when electrons are torn away from the atoms. The electrons and ions in a strong magnetic field can move freely only along the magnetic force lines. If they move across these lines their paths are wound into small-radius spirals. As a result, the movement of the heated particles of the hydrogen toward the walls of the chamber can be impeded greatly.

A magnetic field suitable for thermal insulation can be created, for example, by a current passing through the winding around the chamber or even by passing a strong current directly through the gas. In the latter case the gas will be heated simultaneously.

Question: Are the things you have said about the possibility of thermal insulation and heating only theoretical views or have experiments been conducted in this direction?

Answer: Soviet scientists have been carrying on extensive experiments in this field for several years.

Of interest are the studies made to ascertain the physical processes which accompany a high current impulse discharge in different gases. They have been conducted in the USSR Academy of Sciences by a number of physicists and engineers under the guidance of Academicians L. Artsimovich and M. Leontovich.

In a number of experiments the temperature exceeded one million degrees. We do not know of any other laboratories attaining such temperatures. Let me recall that higher temperatures can be reached only during destructive explosions of atomic or hydrogen bombs, while in our experiments there have been no explosions and the equipment makes it possible to duplicate such discharges an unlimited number of times.

Of great interest are the observations of neutron and X-ray radiation. It is noteworthy that the intensity of the neutron flux in a number of cases is much bigger than might have been expected from a thermonuclear reaction of such brief duration and at a temperature of a million degrees. This means that more intricate processes than the simple heating of gas by electric current occur in the discharge chamber. This once again shows that heated ionized gas contains potentialities by far not explored and that control of the processes taking place in it may yield unexpected results for physics and technology.

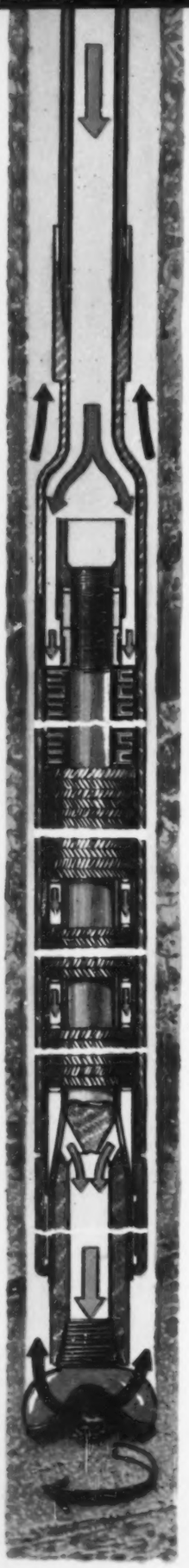
Question: Are there other ways leading to controlled thermonuclear reactions?

Answer: In our interview I have devoted attention to the causing of thermonuclear reactions with the help of brief electric impulse discharges. Evidently it is quite possible to raise further the temperature and the intensity of thermonuclear reaction in this way. But considering the problem of controlled thermonuclear reactions in its full scope, we find a number of other trends worthy of thorough study. Of considerable interest among them is the use of the so-called "stationary processes," during which the thermonuclear reaction is continuous.

Very great importance is attached in the Soviet Union to any studies designed to put thermonuclear energy to peaceful uses. In my public statements I have pointed out that Soviet scientists want to work on the solution of this problem of cardinal importance for mankind with the scientists of all countries, including scientists of the United States, whose research work enjoys merited respect in our country.

Our Turbodrill

By Mikhail Gusman, Engineer



Cross-section of the turbodrill.

LET ME BEGIN by relating the following incident which happened at the Fourth International Oil Congress in Rome, in June 1955.

There was a long list of speakers, and the rules therefore had set a time limit of 15 minutes. The chairman enforced the rules strictly.

Professor F. Trebin, a Soviet delegate, was one of the last to speak. He, too, was stopped by the chairman when his time had run out, but the congress delegates wanted him to go on, so great was their interest in his subject, which dealt with the development in the Soviet Union of a new method of drilling wells.

Revolution in Drilling Technique

Until recently the rotary method of drilling oil and gas wells was the only one employed both in the Soviet Union and in other countries.

The drilling equipment on the surface rotates the bit which is attached to the lower end of the pipe. Wells are often a mile to a mile and a half deep, and in order to rotate the bit, the motor had to rotate the whole column of pipes weighing more than 100 tons.

This method is obviously inefficient as more than half of the power developed by the motor goes to overcome the friction caused by the pipes rubbing against the well walls. A load of up to 30-35 tons is transmitted to the bit, and the pipes, subjected to big stresses, often go out of commission.

Back in 1922, M. Kapelyushnikov, a Baku engineer, now a corresponding member of the USSR Academy of Sciences, recommended that the motor be connected directly with the bit down in the well. That was an ingenious idea, but it did not work out practically. The turbine motor designed by him proved unsuitable for drilling wells and it was given up.

In 1941 the Soviet engineers P. Shumilov, R. Yoannesyan, E. Tagiev and the author of these lines, after extensive research and experimentation, developed a multi-step turbine motor for drilling wells; it is based on a new principle.

Our turbodrill has revolutionized drilling technique. It has done away with the need of rotating the huge column of pipes to rotate the bit. The bit is rotated directly by the turbodrill shaft, while the pipes remain stationary during the work, being lowered from time to time as the drilling proceeds.

Obviously this method of drilling considerably increases the motor efficiency. But that is not all.

In rotary drilling a clayey solution is pumped through the pipes to wash the bit and bring the rock to the surface. The same is done in turbodrilling. But whereas in the former case the clayey solution performs a subsidiary function only, now it is the main motive force. The liquid, passing through the multi-step system of vanes, rotates the turbine.

The turbodrill has raised the drilling speed almost ten times over and has cut the drilling cost in half.

The nature of drilling has changed. Broken pipes are a thing of the past, and now it is no longer necessary to haul to the surface the mass of pipes to change the bit or do repair work. All that is necessary is to bring up the turbodrill. The deafening clatter of rotary drilling has given way to an almost unbroken silence.

Turbodrill Has Great Advantages

Ten years ago a new town—Oktyabrsky—sprang up in Bashkiria, an Autonomous Republic in the European part of the USSR. A newcomer would be surprised at the wide currency of the word "Devon" there. Devon Street, Hotel Devon, Devonian oil fields . . .

It is all explained by the fact that very rich deposits of oil had been discovered there in Devonian strata at a depth of around 5,600 feet. The place is known as the Second Baku, and it now produces more oil than the original Baku fields, which used to be the main oil-producing center in the USSR.

But the tapping of the rich oil resources in Bashkiria had run up against big difficulties. Rotary drilling was not efficient there. The situation changed radically when turbodrills were introduced. They drill 30 to 50 feet an hour and sink a well to the Devonian depths in one month. This is five to eight times faster than could be done by rotary drilling.

The Tuimazy district in Bashkiria had long been regarded by Soviet oil workers as the one with the hardest rock. But not long ago we attained an average mechanical drilling speed of about 100 feet an hour, a much higher speed than the best showing made in the soft clayey rock in the southern areas of the USSR.

Our new method of sinking inclined wells is of great importance for the development of the oil industry.

Rotary drilling of inclined wells was so expensive and inefficient that in many cases when it was necessary to sink inclined wells on the sea bottom or under buildings, it was found preferable to rig up foundations offshore or to remove the buildings and drill ordinary vertical wells; it was cheaper.

With the turbodrill available the sinking of inclined wells presents no special difficulty, and the cost is practically the same as in vertical wells.

This has made it economically advantageous to tap the offshore oil deposits of the Caspian Sea and also the rich oil deposits under the densely populated districts of Baku.

We think that the possibilities of further improvement of the turbodrill and its application are far from exhausted and we are continuing to work intensively along these lines.

Business Agreement

We had occasion to meet Mr. O'Connor, Vice-President of Dresser Industries Inc., when he was in the USSR to negotiate for a license agreement to manufacture turbodrills of Soviet design in the United States. He looked over our laboratories, studied the technology of making experimental turbomotors and then went with us to the Bashkirian oil fields.

A comparative test of turbine and rotary drilling was conducted in the Tuimazy oil fields where the rock is exceptionally hard.

We started with rotary drilling, and after 30 minutes we had drilled roughly two feet. Then a turbodrill was lowered into the well and in 35 minutes it had dug down 50 feet.

Mr. O'Connor became so interested in the experiment that though it was 7 degrees F. below zero he stayed at the site until 3 A.M. watching the turbodrill in operation.

After our return to Moscow from Tuimazy, the negotiations quickly ended in the signing of an agreement.

The agreement is not merely a commercial transaction. It also provides for technical cooperation. In exchange for our blueprints and our help in inaugurating turbodrilling in the United States, Dresser Industries Inc. undertook to help us improve the technology of making bits.

We hope this agreement not only will be of mutual benefit but will also promote contacts between Soviet and American engineers.

"A good deal in a businesslike atmosphere," says Mr. O'Connor, vice-president of Dresser Industries (center). R. Yoannesyan, one of the drill designers (left) and S. Dvorkin, chairman of Machine Export (right) agree with him.

VLADIMIR KUTS

The USSR Champion Distance Runner Is Introduced by His Wife Raisa Polyakova - Kuts

THE BUZZER made me jump. The editor must be in an ugly mood, I thought, as I rushed to face that cold stare of his. He looked at me a moment as though sizing me up and rattled off: "I want a story about a sports-minded sailor. Minashkin, the swimming champ, and Kuts, the track star, are in town. Get hold of either one of them. And I want the story in two days."

That was all. And I ceased to exist as far as he was concerned. I tried to appear at ease, but I just couldn't. This was my first assignment after graduating from the university.

Minashkin or Kuts? Was the editor pulling my leg or what? Minashkin had just set a world record in swimming. Well, a sailor being able to swim would only be natural. But a sailor running—somehow it didn't sound right.

This ought to be easy sailing, I thought, as I dialed the number of the sailors' sports club. I already pictured the contented smile on the editor's face as I handed my story in—and just at that moment I heard a far-off voice telling me that Minashkin had just left Moscow. "What about Kuts?" I asked, making my disappointment all too obvious. "Oh, he returned from Switzerland last night and in about an hour's time he'll be telling the boys here about the 1954 European track and field championships."

I must have broken all existing traffic rules to get there in time. As I rushed in a young naval officer of average height with a generous helping of blond hair walked onto the platform. This must be Kuts, I guessed.

I did not get my interview that day. That is, we did talk about many things as we walked about town. But every time I'd ask Kuts to say a few words about himself for my story he'd just smile that sly smile of his and say: "Later."

That "later" dragged out for several days. Not that I didn't like the assignment, but the editor was raving mad. He wanted that story. Every time I'd call for the interview Kuts would talk about many things, then we'd go out walking. But my note pad remained as blank as when I bought it.

I had almost given up hope when Kuts himself came to the rescue. I still remember how he dashed into the room in his traveling coat, carrying his tiny suitcase. He had no time to sit down, but he did stay long enough to give me all the facts I needed for my interview.

"I'm off for London, for the Britain-USSR match," he said.

And a few days later the radio brought the news of Chris Chataway's victory over Kuts. But Kuts told correspondents that he planned to set a new world record, and very soon, too. The sport "experts" insisted that Chataway's time was nothing short of phenomenal and Kuts could do nothing, especially now that the season was in the wrapping-up stage. The experts' opinion convinced me that it was hopeless, and I must confess I was downhearted. But how little I knew Kuts.

The Only Passion that Burns Without Destroying

The tables were turned in Prague on October 22, 1954. In a duel with Emil Zatopek, Kuts set a new world record in the 5,000-meter race. Kuts won much more than just the world crown—he won me, too, and I became his wife.

Last summer we spent a few days with Kuts' parents in the village of Alexino, in the Ukraine. Alexino is a wonderful place to live. It is surrounded by a seemingly endless forest where lofty pines and their more leafy brothers mingle in one big carefree jumble. The picture would not be complete without mentioning the tortuous brook that comes up to the fringe of the village's pastures. Alexino was the place Kuts spent his childhood—a childhood in which he learned to work at an early age. This helped him acquire a good physique. His liking for sports became a passion. But this is the only passion that burns without destroying. If there is a secret to eternal youth—this is it. Really, there's not a person who will say that Kuts looks anywhere near his 30 years.

Naval service and sports kept Kuts pretty well occupied, but he still found time for his hobby—machinery. He would spend many an evening over stacks of books and technical magazines studying some new-fangled engine. Machinery became an obsession with him. He knows all the details of every car on the market. And now his mind is set on buying the latest model Volga and driving down to the Crimea and Caucasus. He has already made a thorough study of the car and has told me about all the "improvements" he is going to introduce. I won't admit it to him, but I

Elina Bistritskaya in "An Unfinished Tale"

REJECTING A TOO INSISTENT ADMIRER.

SAVING THE LIFE OF A SICK CHILD.

MEETING THE MAN OF HER HEART.

VLADIMIR KUTS—*(concluded from page 45)*

really am afraid that his "modernized" model will stall somewhere on the road to the Crimea. Time will tell.

Lesson to Housewives: What One Old Rooster Can Do

Dynamo stadium, Moscow. September 1955 . . .

The occasion—the USSR-Britain track and field meet. The event—the 10,000-meter race with Kuts running against Gordon Pierie and Ken Norris, Britain's top performers. Kuts' tactics remained the same as always—a quick breakaway to the lead from the start. This has cost him victory more than once. And now, too, we all wondered—would he be able to keep up the grueling pace to the very end?

As soon as the starter's shot rang out Kuts took the lead. Pierie kept close on his heels and although Kuts piled on spurts and speed, Pierie dogged his steps and would not be shaken off. Two laps to go. Excitement reached its peak. The stands roared their encouragement to the two runners. Suddenly Kuts' hand went to his side and a grimace of pain crossed his face.

"Too bad. He'll drop out," said someone sitting nearby.

It was then that I realized how important regimen and proper diet are for the athlete. The race had started at five and at noon Kuts was to have had lunch. But the chicken I bought turned out to be not the spring chicken I had intended it to be, but an old rooster which three hours of boiling made no tenderer. Instead of noon Kuts sat down to lunch at about two. And now with only two laps to go that undigested rooster began pecking away.

I whispered—"Hold on darling, I'll see that it never happens again." I'm sure he heard me above the howl of the stadium, because he overcame that pain and tore away from Pierie. The gap widened—20—30—50—100 meters! Now the entire stadium shouted in unison: "Come on Kuts! Come on Kuts!"

I know what it cost him to make that final spurt. He broke the tape and up went his right hand, something he always does when crossing the finish line.

Revenge

Half an hour later, tired but happy, Kuts sat in the stands with me watching the British jumpers and throwers. Suddenly a stranger came up to us—a Hungarian—and handed Kuts a note: "Sandor Iharos broke your 5,000-meter record in Budapest."

Somehow I pitied Kuts at the moment, but not a muscle moved on his face. "What about it?" I blurted. "Do you think you'll regain the crown?" Kuts said nothing—he pretended not to hear the question.

A few days later, while we were enjoying one of Tchaikovsky's superb ballets at the Bolshoi Theater, Kuts suddenly bent over and whispered into my ear: "I think I will." Although it came like a bolt out of the blue, I knew what he had in mind. In the intermission Kuts told me that he had made up his mind to have a go at Iharos' record at the coming international meet in Yugoslavia.

The record set by Iharos equalled 13 min. 50.8 sec.—a time that only recently seemed fantastic for the 5,000-meter race.

. . . On a bright September morning in 1955 a team of Soviet track and field stars boarded the plane for Yugoslavia. At a stopover in Budapest Kuts congratulated Iharos on breaking the world record. But he already had in his pocket a running schedule with which he planned to regain the crown . . .

Here in Moscow we sat glued to our radios following that race. And then the announcer broke the news—13 minutes 46.8 seconds—a new world record!

But one month later Iharos sliced 6.2 seconds off Kuts' record and it now stood at 13 minutes 40.6 seconds!

No Secrets

Kuts gets letters from all over the world asking for his secret of success. Of course, there is no secret to it. His fine showing is to be explained by two things—first—he is in excellent physical condition, and secondly (and most important!) he is hard working and persistent to a degree anyone could envy.

I do not remember a single case of Kuts ever being even 10 minutes late with his training. He trains regularly in all weather—rain, frost or scorching heat are no deterrents. After the winter season he has to fight down weight. At the peak of form his weight is 155 pounds, height—5 feet 8 4/5 inches. In winter his weight mounts to 169½ pounds—and the surplus has to be discarded by April or May.

Kuts is now working hard to whip into shape for the Sports Festival of the Peoples of the USSR in August and the Olympic Games in November-December. He believes that the winning time at the Olympics for the 10,000-meter race could be 28 minutes 50 seconds and for the 5,000-meter, 13 minutes 33 or even 30 seconds.

"It's hard to say who will be the first to chalk up these results," Kuts tells me. "But these times are within the reach of Chataway and Pierie (Britain), Iharos (Hungary) and Zatopek (Czechoslovakia). If I set one of these highs," he adds, "I'll be the happiest man on earth."

I'd like to see my husband happy, what wife wouldn't?

Elina Bistritskaya

WHEN IT BECAME known that Friedrich Ermler, the popular Leningrad film director, was to produce a photoplay based on a scenario by K. Isayev published in a Soviet literary magazine, letters started pouring in from movie fans. They wanted to know who was cast for the leading role of Elizaveta Maximovna, the doctor. The names of many well-known movie actresses were mentioned.

It came as a surprise, therefore, when Ermler chose Elina Bistritskaya, an actress of the Drama Theater in the city of Vilnius. Her name was not very well known, although she had previously been filmed in two pictures.

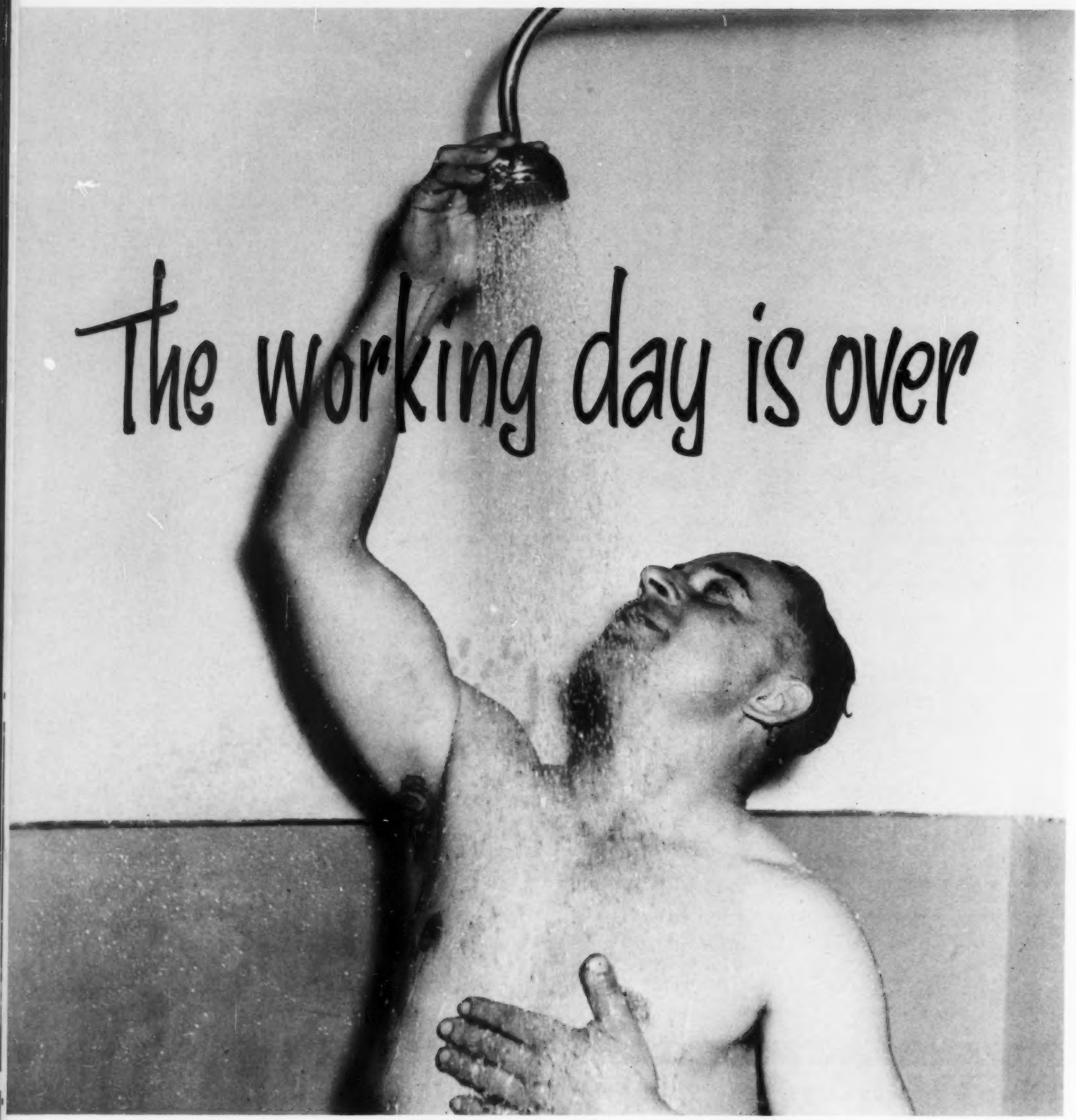
Her screen debut took place in 1950. The young actress was then filmed in a Kiev Studio production entitled *In Peacetime*, dealing with the life of navy men. The film was a success, but Bistritskaya had such a small part in it that her debut hardly attracted any attention. She appeared again in 1954 in *The "Bogatyr" Sails for Marto*, a production by the same Kiev Studio, in which she played the part of the ship's radio operator, a charming naïve girl. But again she had no luck—the role was uninteresting.

That was why her great success in Ermler's new film *An Unfinished Tale* came as such a surprise to many people.

The heroine of the film Elizaveta Maximovna, visits her patients at home. It is an onerous, tiring duty. The young doctor meets all kinds of people—good and bad, sympathetic and indifferent. She falls in love with one of her patients—a bedridden engineer. The engineer, of course, falls in love with her too. This is the plot of the picture in a nutshell.

Elina Bistritskaya is now 28. Her great charm as an actress combined with personal good looks promise to keep her in the limelight.

The working day is over



VLADIMIR STROGANOV works at a machine-building plant in Podolsk. He moved to that small industrial town south of Moscow when he was a 17-year-old country lad. He wanted to become a skilled worker, and he did, after completing a two-year course of training at the plant.

Today Vladimir Stroganov is a fitter of high-pressure turbines. He makes an average of 1,600 rubles a month. Two or three times a year he travels to other towns to assemble equipment made at the plant, for which he gets a 50 per cent increase in his wages. However, his wife Tamara prefers her husband not to go traveling about.

Vladimir married early. At the age of 31 he has a 10-year-old son, Gennadi, and a daughter of seven, Ludmila.

His week ends are spent with his family. By one o'clock on Saturdays he is free, and soon after our photographer caught him at home. On weekdays he has his dinner at the plant cafeteria, where he can get a three-course meal for three rubles. But on Saturdays he saves his appetite for dinner at home.

Photos by Oleg Tsesarsky

On this particular Saturday dinner was late. His little daughter, however, had already set her table.

Father and daughter are in a hurry to get their dinner.

After dinner father and son work on their boat preparing it for a fishing trip. They came home in time for the TV program.

For her, Saturday evening ends early.

Most evenings Vladimir likes to sit outside and smoke and talk with friends. But this time his wife decided she wants a walk. So his friends must go alone. When a wife makes up her mind, a man must yield.

Sports Commentary

By Victor Kuprianov

Editor's Note:
THE NAME VICTOR KUPRIANOV, as a check-up will confirm, is not listed in the current edition of *Who's Who*. Neither have we found mention of him in the *Encyclopedia Americana* or in Gibbon's *Decline and Fall of the Roman Empire*. We have also compared our artist's sketch on this page with the busts in the Hall of Fame and Madame Tussaud's Museum of Horrors, but again no likeness could be detected.

We feel, therefore, that a word of introduction is needed. In a nutshell Victor Kuprianov's sport biography is this:

At an early age he mastered the art of gate-crashing to perfection. At school his athletic career was enviable—he was put in charge of the school mascot (a nanny goat, we understand). At college he won his letter by scoring the winning point when the ref's whistle got clogged up at the crucial moment. Since then he has been covering events and personalities for Radio Moscow's Sport Spotlight programs.

And now with the introduction made we turn our sports desk over to Victor Kuprianov.

☆ ☆ ☆

Track and field. Everybody talking Olympics and wondering who the selectors will pick for the team. It has been announced that the Soviet Union is to be entered in all events, maybe field hockey, too. Coaches will be facing a double problem. One—getting athletes up to peak form. Two—keeping athletes from going stale with an athletic season dragging on until December.

First major tournaments of the season bring good showings and new names. Four new world and one European record set. Mikhail Krivonosov, world's number one hammer thrower, sends record up another 1 meter 33 centimeters (to 65 m. 85 cm.). It's become a habit with him. He broke the record twice last season. Decathlon man Kuznetsov credited with new world pentathlon record. Bruno Yung (Esthonia) walked 20 kilometers in 1 hour 30 minutes 0.8 seconds—2 seconds better than previous world mark. Fourth record—4x800 meters relay by Moscow student quartet—Gomez, Kovalev, Govorov and Osminkin. European record—200 meter hurdles Muscovite Bogatov—23.4 seconds. Interesting sidelight: Igor Kashkarov, Moscow power engineering student, set USSR high-jump record—2 meters 6 centimeters. This is 6 centimeters below world record (held by USA), but 2 centimeters better than the gold medal jump at the last Olympics.

Results at maiden tournaments this season better than opening times and distances last year.

Vladimir Kuts, Soviet distance man, named as probable successor to Emil Zatopek (Czechoslovak miracle runner who won three gold medals at Helsinki Olympics), says he will run 5,000 and 10,000 meters. Expects the records for both these events to be broken this season. Admits he will make an attempt. Optimistic as to future performances but will not commit himself.

Crystal gazing: Olympic prospects—track and field. Women—bright. Men—a few gold medals, not too many. Victory for USA.

Weight-lifting.. Three more world records went into the bin at an international match here in Moscow. Featherweight Victor Korj, strongman from Rostov, added 500 grams to the world record he set last autumn in the continental press. Lightweight Raphael Habutdinov, Novosibirsk metal worker, did likewise to send the high up to 122 kilograms. His plans for the future: a gold medal at the Olympics and maybe another record or two. Fyodor Bogdanovski, the boy who holds the European crown and has no respect for world records, struck Tommy Kono's old one out of the books with a 3-lift total of 412.5 kilograms. And in just about as long as it takes to boil your morning eggs he came back and broke the new record—boosting it to 415 kilograms.

The question everyone is now asking is: What is the limit of human strength?

USSR national water polo squad going into training for international meets and Olympics. Feeling is that we might do better than at Helsinki games (seventh place). One of the boys told me he'd like to see international exchanges on a collegiate scale as well. Suggestions? Yes—Yale vs. Moscow University. Am inclined to believe it's a swell idea.

A FREAK OF NATURE

A MOST INTERESTING and rare natural phenomenon, globular lightning, was observed recently near Tashkent (capital of the Uzbek Republic) during a rainstorm. Penetrating into the house of Rasulev, a local collective farmer, it caused much damage.

The whole family was in the dining room where the table had been set for supper, and music was coming from the radio in the next room. Suddenly the music stopped: lightning had struck.

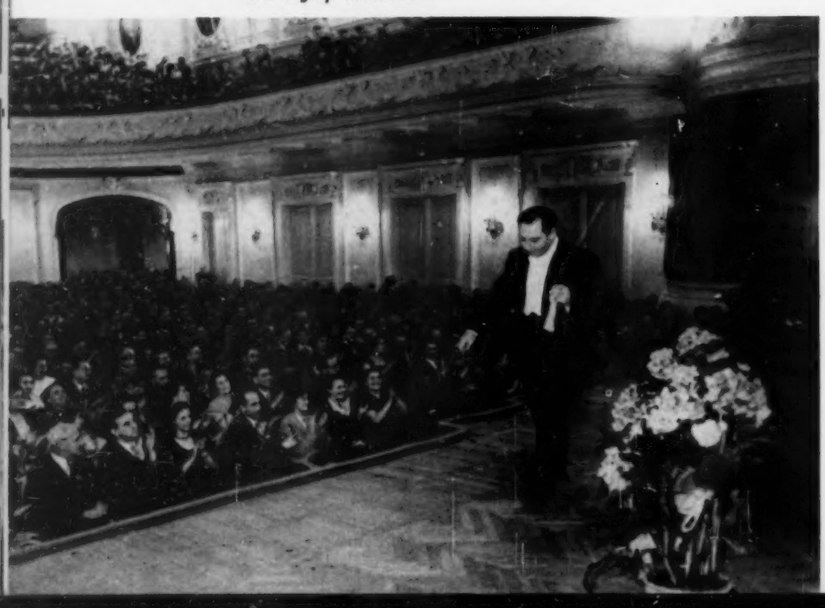
Striking the 50-foot high aerial, the lightning shattered the insulator and moved down the cable, seemingly evaporating it. Next it swept through between the bricks into the house, burned the wire leading to the radio set, melted the safety fuse and, tumbling into a mirror, pulverized it. Then it broke the windowpanes made of Bohemian glass, sent a big samovar flying from a shelf to the floor, tore a hunting rifle and clock from the wall, broke the cupboard glass and some of the chinaware, and passed through the corridor into the room where the Rusulev family was assembled.

All the people in the room fainted. Passing over their heads, the lightning broke the dishes, and, breaking the wall at three points, filtered through into the street.

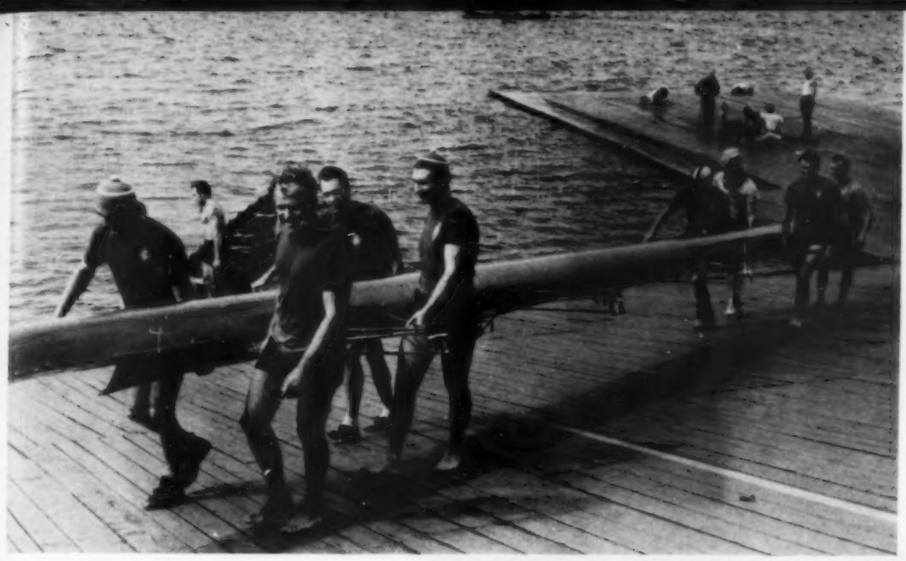
People living as far as a mile and a quarter from the Rasulev home heard three thunderclaps one after another which sounded like salvos.

When they regained consciousness, the members of the Rasulev family did not at first realize what had happened to them.

The American violinist, Isaac Stern, at a concert in the Large Hall of the Moscow Conservatory. His performances in the USSR were highly successful.

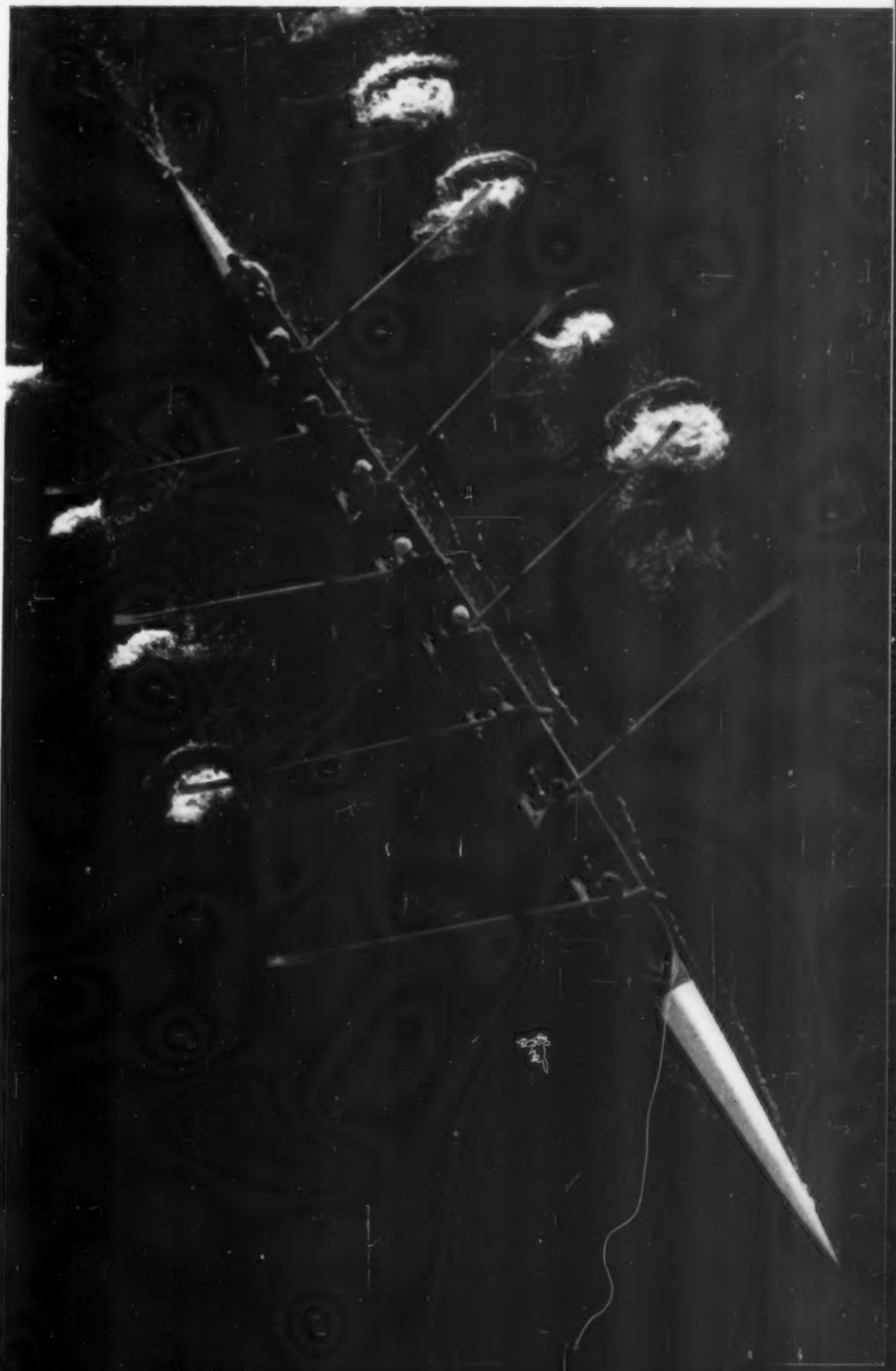


James W. Kinder, Oklahoma farmer on a pleasure trip to the USSR, shows photographs of his family to young Muscovites he met on the subway.



THE SEARCH FOR SPEED

By Alexei Galitsky



IT ALL LOOKS so graceful and effortless—but few of the spectators admiring the movement of the shell cutting through the water like a razor know how much hard work goes into a perfect performance. So let's lift the curtain and peep backstage.

The first thing that catches our attention is the man following every stroke from his vantage point on the trailing motorboat. Every now and then up goes his megaphone and out comes something like this:

"You're losing speed! Turn the blade wider! Amiragov, you're 'pinching' the water again . . ."

After two hours of training the scull goes back to the boathouse and the crew huddles together for another pep talk. When I happened to be there the coach had lots to say, but it all boiled down to this:

"We're no worse than last year, but that's all. If you fellows want to remain champions you've got to work out new techniques and tactics. And the sooner the better."

Now when a coach tells you that, it certainly does set you thinking. And especially when it comes from Coach Alexander Shvedov.

Alexander Shvedov is a veteran of rowing. He made his debut in rowing 20 years ago at the age of 14. That was the time the so-called orthodox style prevailed in rowing. The "orthodox" athletes believed that the movements of the oarsmen must be strictly uniform down to the minutest detail.

Years passed, Shvedov became a mechanical engineer. He won his Master's Degree and became an assistant professor, but he did not abandon rowing as a hobby. But he did begin to become increasingly adverse to the dogmas of rowing. Alexander noted that the oarsmen who didn't stick to the prescribed standards made the best oarsmen, as a rule. He also began experimenting and soon came to the conclusion that the main thing in the technique of rowing was not some standard carriage of the oarsmen's body, but the work of the oar in the water. In other words, the important thing was not what happened *outside* the water, but what happened *in* the water. And if you want to be technical about it—this is what

is known as the "rational stroke." The movements of the oarsmen should be as easy as possible, individual and convenient for him to get the most effective stroke: each oarsman his own style!

Shvedov's eight were a fine lot: graduate students of Moscow's colleges—Yevgeny Brago, Slava Amiragov, Yevgeny Samsonov and Vladimir Kryukov, toolmaker Vladimir Rodimushkin, motor engineer Igor Borisov, medical student Leonid Gissen and teacher Alexei Komarov. All of them were versatile athletes: Rodimushkin was on the all-Moscow skating team, Amiragov had made the headlines as a marksman, Borisov held the Moscow crown in skiing and Samsonov was a first-class soccer player.

Shvedov never harnessed his pupils to any hard and fast formula. He insisted that they themselves analyze every movement. Once he came around with a new force distribution scheme. He convinced the crew that in order to apply the maximum of effort on the grip of the oar and, consequently, increase the speed, they had to break their bodies away from the thwart as much as possible, making a jump, as it were, rather than a rollback. True, at the end of this movement a strong jolt was inevitable, and if the crew "flopped down" on the thwart, the boat would take a strong dip and lose speed. The problem now was to work for a smooth lowering of the body to avoid this loss of speed.

But just how to start the stroke proved a hard nut to crack.

Should they sink the oar gradually, pressing, as it were, on the water, or should they strike the surface on the swing? Debates flared up. Samsonov tried to prove that if you put your palm on the water and immerse it gradually, you will hardly feel the resistance of the water. But just try and strike the water with your palm from the air and you hurt your hand. The resistance is too strong!

The crew began experimenting. They found that with the stroke made on the jump and the strike of the oar from the air speed drops sharply at first, but then increases just as fast and is maintained for a longer distance. The average speed turned out higher than achieved with other methods of rowing.

Then came their first bid for the championship, and defeat!

And what made it worse were the catcalls and jeers:

"Look at those professors! They're perfect on paper and speechmaking, but not on water!"

But Shvedov stood firm. "The principle is correct," he asserted. "We have just not had enough training, and we must polish up on certain things."

They started a motion-picture analysis of the movement of the boat and found that when the oar strikes sharply the wave hits the poop and lowers the speed. Furthermore, the position of the arms was wrong: the elbows dropped lower than the grip, and this reduced the traction of the oar. Then they noticed that at 44 strokes per minute the average speed of the boat was lower than at 38-40 strokes, which meant that the secret of speed was not in rapid strokes but in full ones.

They trained to a state of oblivion, complicating their objectives in every possible way and increasing the strain. During their workouts they started with other strong teams and later evaluated their actions with the strictness of the most exacting judge.

No one has ever noticed any discord among the eight. They are like one big happy family despite their differences in character and careers.

Yevgeni Brago strikes you as being extremely good-natured, but ready to flare up like a match. He lost his father in the war and went through many hardships. But the vicissitudes of life had only hardened this youth, who was very sensitive by nature. Many people were amazed at his persistence. While preparing for the Olympics he trained as hard as anybody else, though he was busy with his diploma project at the Power Engineering Institute at the time.

Vladimir Rodimushkin is one of the "old men" on the team. He is past 30. He was a scout in the war, shell-shocked, and had his share of hardships and danger. Taciturn and reserved—"Flint" is what his friends call him.

Slava Amiragov is one of those who unwittingly enchant those around them with their versatile knowledge and singular intelligence. He is a machine-tool engineer by profession who plays the piano beautifully and goes into raptures when reciting Byron and Burns in purest English. As a devoted hunter Amiragov has traveled a lot. Rowing was harder on him than on the others and, probably, because of this he does not like to accept any hard and fast formulas, under any circumstances. He's one of those who must be convinced by trying it out himself first.

Igor Borisov comes from a family of athletes. He is perhaps a little more self-confident than is good for him. Everything in sports comes to him with comparative ease and that sometimes makes him obstinate and hard to talk to.

Vladimir Kryukov is one of those

(Continued on Page 61)

Programs of Jewish Literature and Music

By Mikhail Shulman

PROGRAMS OF JEWISH literature and music always draw large audiences in Moscow, Leningrad, Kiev, Odessa, Riga and other cities in the Soviet Union.

The appearances of Honored Artist of the Republic Emmanuel Kaminka, who reads stories and fragments from novels by Sholom Aleichem, are especially popular. On the occasion of the fortieth anniversary of Sholom Aleichem's death, which was widely observed in the USSR recently, Kaminka appeared in a special program, which included the great Jewish writer's well-known works: "If I Were Rothschild," "The High School," "Seventy-Five Thousand" and "No Luck." His reading art, his intonation and gestures convey to perfection the unfading wisdom, the sparkling folk humor and heartfelt sorrow that mark the works of the classical Jewish writer. Sholom Aleichem's widow, who heard Kaminka during a visit to the Soviet Union, thought very highly of the artist's masterly execution, calling it exemplary.

Another artist who gives readings of Sholom Aleichem is Max Resnick-Martov of the Latvian Philharmonic Society. He studied in a theatrical school under the direction of Mikhoels, and the schooling he acquired from that illustrious artist is distinctly felt in his art of delivery. His readings are chiefly from *Tevye the Milkman*.

One of the better known singers of Jewish folk songs is Mikhail Epelbaum. His repertory is quite varied, and it includes the epic *Kinder Yoren* ("Childhood Years"), the lyric *Bei Mir Bist Du Shein* ("You Are Beautiful to Me") and the comical *Machuteniste* ("My Son-in-Law's Mother"), all old songs. Epelbaum is now working on a new program, a repertory of contemporary songs, in which he is assisted by the Jewish poet Talalayevsky and the composer Rosenfeld.

Other singers of Jewish songs who have been enjoying success are Saul Lyubimov, an artist of the Moscow Variety Stage, Anna Guzik, a soloist of the Kharkov Philharmonic Society, and Sidi Tal, a singer from Chernovitsy.

Max Resnick-Martov of Latvia reciting Sholom Aleichem's "Tevye the Milkman" at an evening of Jewish literature and music in Moscow.

THE TRETYAKOV ART GALLERY'S CENTENNIAL

As told by A. Botkina-Tretyakova

With the world's largest collection of Russian paintings, the Tretyakov Gallery is one of Moscow's most popular museums. Canvases on view there mirror the history of Russian painting from ancient times to the present day.

Asked by the editors of USSR *for a brief story on her reminiscences and her reaction to the centennial, Alexandra Botkina-Tretyakova, daughter of Pavel Tretyakov, the founder of the gallery, declared:*

"I shall be pleased to do that, especially since I am almost as old as the gallery. I was 88 years old last December."

I HAVE THE most vivid recollections of my father, Pavel Tretyakov, who founded the Russian Art Gallery in Moscow, and I can see him even now: tall, lanky, with hazel eyes which looked almost black beneath his bushy eyebrows. They burned when he was angry. But that was very rare. It took something entirely extraordinary to make my father lose his temper. Rumor had it that one day he had lost control of himself and had shaken a workman by the collar for adjusting the glass in the dome of the gallery so loosely that it came down, nearly scratching the pictures.

Father always wore a double-breasted coat, a shirt with a turned-down collar, and a white bow tie. He wore his trousers over soft leather boots with broad toes. He never changed the style of his coat, and we were so accustomed to seeing him dressed like that, that we never noticed when a new coat was made. That also goes for his broad-brimmed felt hat. And that is how I remember him today.

Collecting paintings was my father's lifelong passion, and he spent his whole fortune on it.

It was 100 years ago, in 1856, that my father ordered his first Russian painting, *Temptation*, by Nikolai Shilder, and bought the *Finnish Smugglers* done by Khudyakov. From that time on he never missed a Russian art show. He met painters, called at their studios and bought everything that appealed to him. His rare artistic taste and intuition never failed him; he acquired the best productions and he could be depended upon to recognize the makings of a great painter in a budding artist. Our house in Zamoskvorechie* was gradually filled up with pictures. I don't remember an instant when our walls were not hung with paintings. They filled the drawing rooms downstairs, and covered completely the walls of my father's study. Before long there was no space left on the walls for any additions. It was clear that special premises would be necessary for them. And my father, with his customary energy, set out to find them.

The façade of the new building for the gallery was designed in traditional Russian style from the drawings of the celebrated artist Victor Vasnetsov.

Pavel Tretyakov was more than a patron of art and a collector. An outwardly reserved man, he had an irresistible passion for Russian art. He kept abreast of all its developments, rejoicing over its successes, eager to add to his collection every production earmarked with talent. Among Russia's progressive artists he enjoyed unanimous recognition as a most devout guardian of the interests of Russian culture. They applauded his intention to turn his collection into a national museum of Russian art and kept their best works for him. They were aware that Tretyakov was working with them for a common cause, for compiling a collection which would become a great treasury of Russian art. It was a great honor for a young artist to be represented in the Tretyakov collection.

Knowing that an art gallery could not reflect the complete development of art unless it contained productions of the great masters of the past, Tretyakov turned his attention to the sources of Russian art and became a regular client at the antique shops. He was one of the first to appreciate the artistic merits of icons and to acquire the best specimens for his art collections.

My uncle Sergei (my father's younger brother), who had a collection of foreign paintings, died in 1892. And in the autumn of that year my father turned over the two collections to the city of Moscow. Since then the gallery has been known as the Pavel and Sergei Tretyakov Gallery. My father became the curator of the gallery, remaining at that post until his death on December 4, 1898. The grateful city conferred upon him the title of Honorary Citizen of Moscow.

In Soviet years the Tretyakov Gallery has grown immeasurably. Exceptionally valuable private collections were transferred to the gallery. Today it contains splendid examples of early Russian paintings, and its eighteenth century collection is remarkably complete. Paintings by Alexander Ivanov, Serov, Korovin and Vrubel, and works by the "World of Art" painters Dobuzhinsky and Kustodiev were transferred to the gallery from various collections. Consequently, only after the 1917 Revolution was Tretyakov's dream fulfilled, his dream of a gallery which would reflect all the centuries in the history of Russian fine arts.

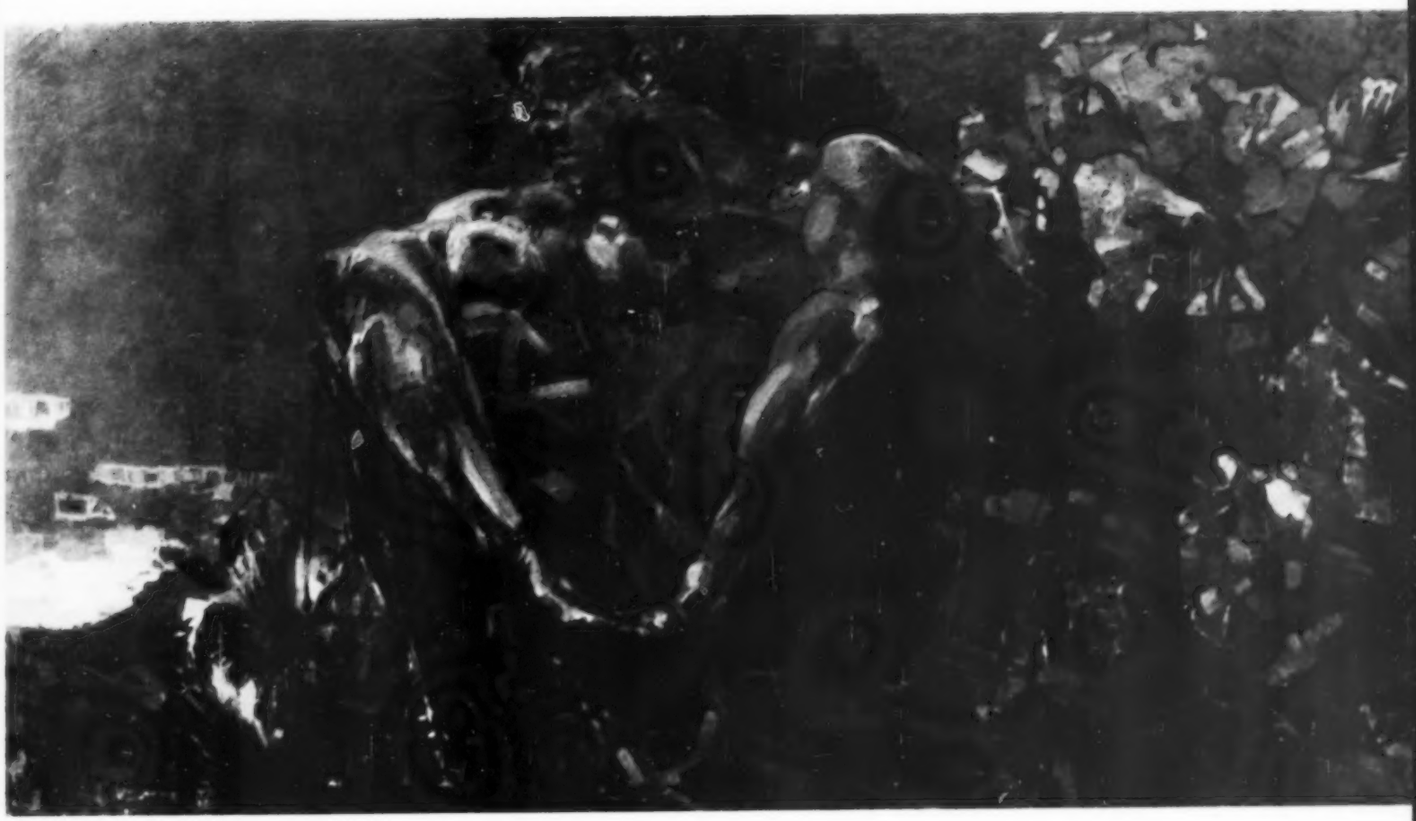
How much the Tretyakov Gallery has grown may be judged by the fact that it had 4,067 works of art at the beginning of the Revolution, and it has more than 35,000 today.

Visitors to the Tretyakov Gallery today will find rare specimens of eleventh and twelfth century art: fragments of mosaics from the Mikhailov Monastery of Kiev, the remarkable Vladimirsk Madonna, and ancient Novgorod and Rostov-Suzdal memorials. Then there is the staggering art of the Russian Renaissance, the leading representatives of it being Feofan Grek and Andrei Rublyov.

*A merchants' residential district in old Moscow.

In a hall of the Tretyakov Gallery.

A. Vasnetsov. *Prince Ivan and Beautiful Yelena Riding the Gray Wolf*



M. Vrubel. *The Demon.*

I. Levitan. *Over the Chasm.*

M. Antokolsky. *Ivan the Terrible.*

B. Ioganson. *A portrait.*

Rublyov, the father of Russian art, is often called the "Russian Raphael." His *Trinity*, a priceless painting distinguished for its great emotional appeal and spiritual beauty, is the pivot of a large collection of old Russian paintings of the Rublyov-Dionisiy school. The next in order are the Novgorod, Pskov and Stroganov icons, as well as sixteenth and seventeenth century paintings.

The eighteenth century is represented by the masterly and forceful productions of Rokotov, Borovikovsky, Antropov and Nikitin. A special hall contains the works of Levitsky, leading portrait painter of that period. The great wealth and variety of Levitsky's productions marked by a deep psychological insight and knowledge of human nature faithfully reproduce the spirit of those times.

Alexander Ivanov's *Revelation of Christ* and the masterly sketches for it stand out conspicuously among nineteenth century paintings. Venetsianov and his circle, the first Russsian realistic genre school, are well represented. Next to Venetsianov comes Fedotov who represents another stage in the evolution of Russian genre paintings.

Many halls at the Tretyakov Gallery contain the productions of the members of the Association of Traveling Exhibitions and allied artists. They comprise the basic nucleus of the Tretyakov Gallery. Works of Perov, Kramskoy, Repin, Ge, Surikov and Vasnetsov, and the landscape painters Fedor Vasilyev, Savrasov, Shishkin and Kuinji are exhibited in special halls. These halls, together with the expositions of Yaroshenko, Makovsky, Korovin, Klodt, Maximov, Myasoyedov and Savitsky afford a clear idea of Russian painting in the late nineteenth century; the characteristic feature of that period was the rising tide of the democratic movement in Russian art, the struggle for a genuinely Russian art.

In the two halls containing Repin's splendid productions, the visitor will find the most popular canvases of this great master. The pictures, drawings and sculptures in the nineteenth century art section differ in style and manner of execution, but the trend toward a great national art is common to all of them.

This trend is characteristic of all of Russia's modern artists. The best contemporary painters number in their midst Yuon, Grabar, Ioganson, Sergei Gerasimov, Brodsky, Ryazhsky, Alexander Gerasimov, Deineka, Efanov and Korin. The Kukryniksy trio and Shmarinov lead in the black-and-white productions, while Konenkov, Andreyev, Shadr, Mukhina, Sarra Lebedeva and Merkurov represent the most famous modern sculptors. Their productions along with those of many other contemporary artists are on view in the last halls of the Tretyakov Gallery.

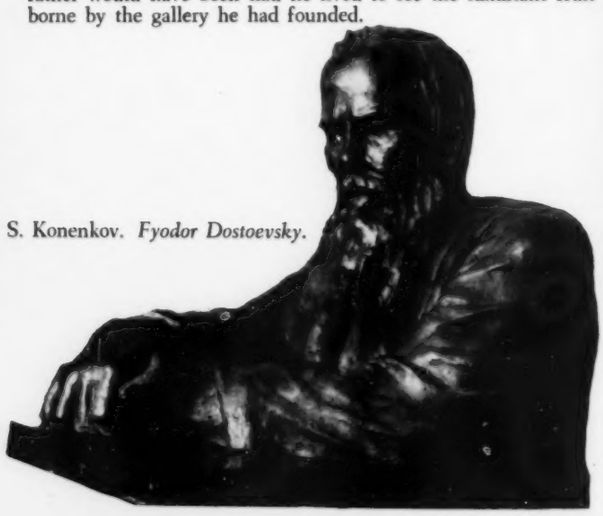
An index of the growing popularity of the gallery is contained in the record of attendance: 8,368 persons in 1881; 59,042 in 1893; more than 200,000 in 1920; and 1,300,000 annually in the past few years.

In Soviet years the Tretyakov Gallery has also developed into an important center of research in art. Its scientists have written valuable books and monographs and developed new methods of restoration. Lectures and conferences on art have become regular features at the gallery.

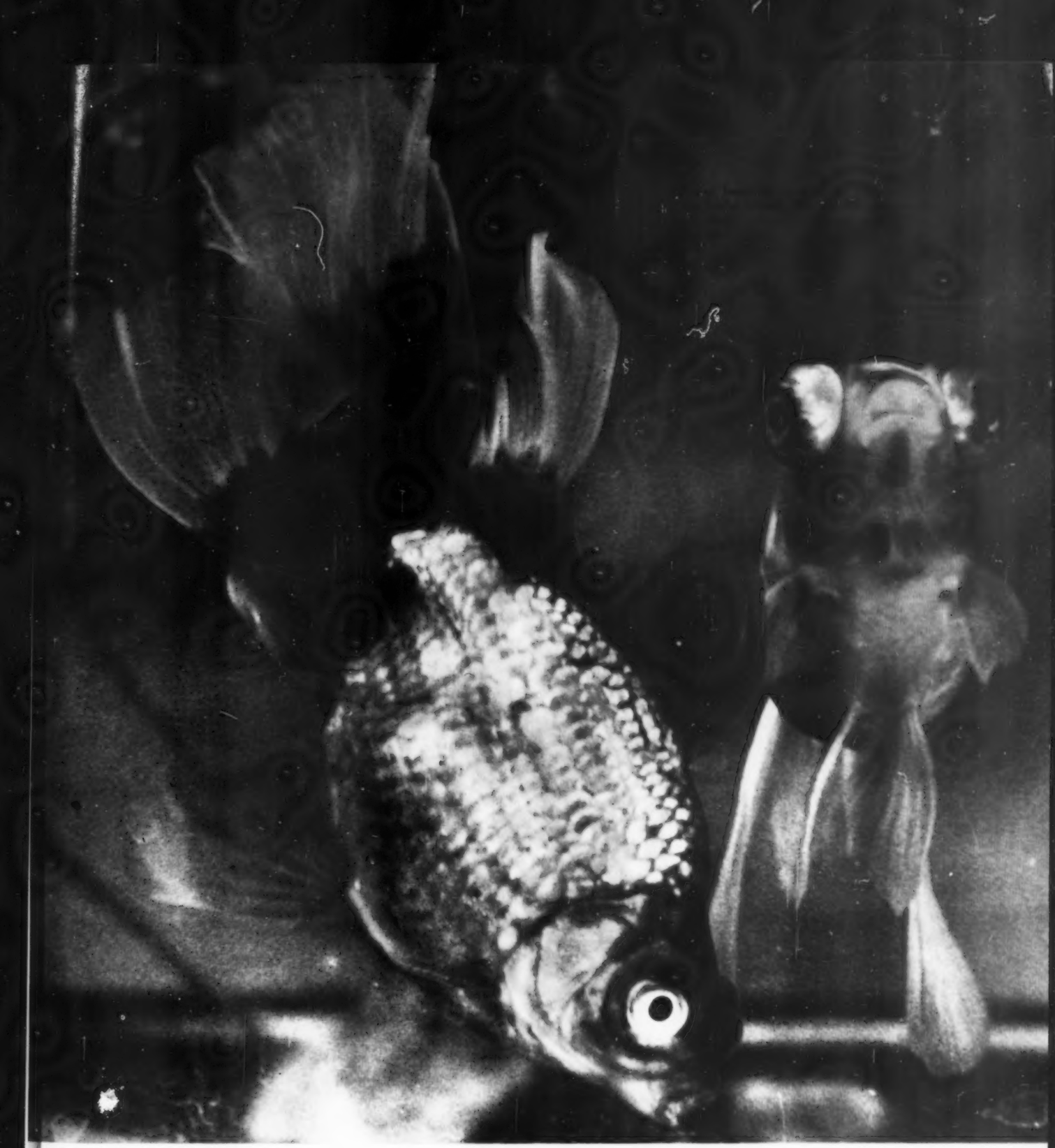
The gallery lends its pictures for exhibits in the Donets coal basin, the Urals, the Transcaucasus, the Ukraine, Siberia and the Far East which attract millions of visitors. It has also presented pictures (4,649 in the past few years) to museums in different parts of the country.

Many old masterpieces have been restored by the experts employed in the restoration studio of the gallery.

Its centenary finds the Tretyakov Gallery richer than ever. It justifies more than ever before its calling as a treasury of Russian art, the pride of our national culture. How happy my father would have been had he lived to see the luxuriant fruit borne by the gallery he had founded.



S. Konenkov. *Fyodor Dostoevsky.*



HOBBIES AND COLLECTORS

VASILI FEDOTOV, a physician in Yalta, the Crimea, has been collecting matchbox labels for more than 30 years. His albums contain labels from nearly every country in the world. Although he has more than 80,000 labels in his collection, he considers this merely a start, since the tastes of match manufacturers and the imagination of their designers are practically unlimited. This fact, however, does not worry Dr. Fedotov. He is glad, if anything.

★

Coming into the apartment of Dmitri Moshnyagin, Moscow electrical engineer, you breathe an atmosphere of history from the sixth century B.C. onward. His hobby is collecting coins. In a comparatively short time he has made a valuable collection of coins from the ancient cities of the northern Black Sea area. It includes, among others, two coins of the Scythian King Inismey, and coins minted in Olbia. The most valuable items of his collection Moshnyagin rightly considers the coins minted in the sixth century B.C.

★

Konstantin Tochiev, an office employee in Maikop, the Caucasus, has three hobbies. He has collected more than 25,000 postage stamps from all over the world. He has an excellent collection of ancient coins from countries of the East. And lastly, he has postcard albums with about 7,000 views of different cities. He has recently presented parts of his collections to the local museums, unloading himself, as he expresses it, for a fresh spurt.

School's Out!

Photos by Mikhail Ozersky

He got up that morning at the crack of dawn without waiting for his mother to shake him awake with a little grumbling, the way she usually did.

Even that tiresome operation of brushing his teeth, which, between ourselves, he thought a sheer waste of time, one of those adult inventions calculated to make life harder than it was, he performed that day with surprising ease and even with a certain zest.

Nina Rogova, who read her son's mind as if it were an open book, said laughingly as she packed him off to school:

"School is all very well, but loafing is better—is that it?"

Yuri—that is the name of our hero—decided to play safe and let the remark pass, but mischievous lights danced in his eyes. "Mamma's right, of course," he said to himself.

Vacation—what a grand word that is! It makes sad people cheerful, serious people lighthearted. It stands for complete freedom for the schoolboy. And what can be more wonderful than freedom, whether for grownups or youngsters?

However, life is so arranged that the good things never come by themselves, there is always some obstacle in the way. Just as luck would have it, the teacher at the last lesson unexpectedly showed an interest in Yuri Rogov's knowledge of arithmetic.

Vacation: what a wonderful word it is!

Even this chore was fun today.

At heart he knew his mother was right.

The last exam.

"Hey, dad, it's my Meccano set!"

But even that he was prepared to take like a man. Especially since it no longer mattered, as the report card was already made up and signed. True, some of the marks could have been better, but that could be fixed, he still had time!

And now, at last, it was all over. Hundreds of little bells seemed to have suddenly started ringing from the top to the bottom of the school building. The school year was over.

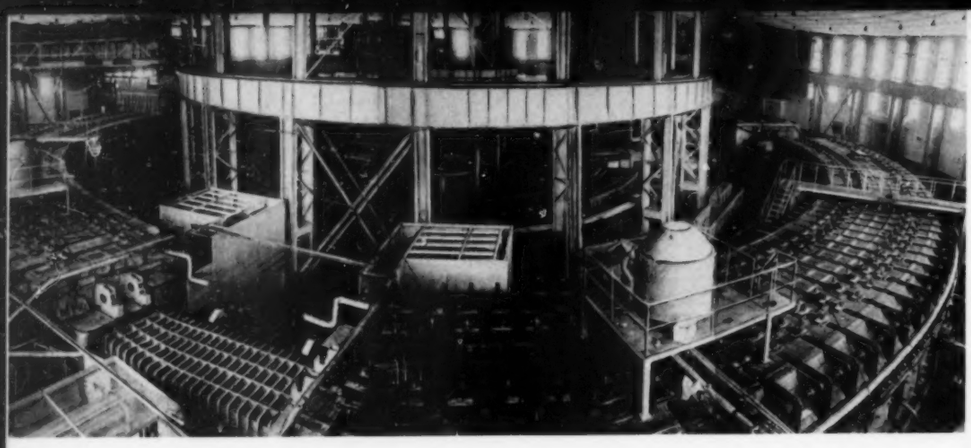
The soccer enthusiasts lost no time in holding a pitched battle right next to the school. Our photographer snapped a shot of Yuri at one goal (the goal being marked off—alas!—with school caps) which decided the outcome of the game.

At home Yuri found a gift he had dreamed about for a long time. For being promoted from the first to the second grade Rogov senior had bought him a Meccano set.

In the evening, when Yuri, lost to the world, sat snugly in a corner of the sofa reading a thrilling book, his parents definitely decided that in August they would all go down South together to the warm sunny coast of the Black Sea for their vacation.

That was how the summer holidays started for Yuri Rogov, the son of an electric locomotive driver from the small town of Lublino, where the luxurious trains bound for the Ukraine and from the Ukraine to Moscow speed past without stopping.

Our hero scores a goal.



The huge synchrophasotron, which is being completed at the electro-physical laboratory of the Academy of Sciences of the USSR, is expected to accelerate particles to an energy of 10 billion electron volts.

ATOMS FOR PEACE—*(concluded from page 12)*

the general direction of building reactors in the Soviet Union?

ANSWER: Our viewpoint on this question is, apparently, close to the American view. We believe that at the present stage of building reactors as many reactors of different types and capacities as possible should be built.

In the USSR reactors have been built which operate on a low power level, and we use them to study the physics of chain reaction, utilizing neutrons of different energies — from the smallest "thermal" neutrons to high "fast" neutrons. In the same connection different moderators are being studied: graphite, ordinary and heavy water, and also beryllium.

Besides low-power reactors we have also built and studied reactors operating on medium power. They are the prototypes of power reactors and are used not only for studying the physics of chain reaction but for investigation of thermo-technical and other engineering problems as well.

Next come large reactors, up to the size of reactors used at large atomic stations, which make it possible to study all aspects of the operation of atomic electric stations. These include reactors with different moderators in which uranium of different degrees of concentration and, in some cases, natural uranium will be used.

QUESTION: *Could you tell us in greater detail about the kinds of reactors that are being designed and built in the USSR?*

ANSWER: The first atomic electric station put into commission in our country in 1954 has enabled Soviet scientists to conduct a number of interesting experiments, and now we are designing a reactor for an electric station of the same type with an electric capacity of 200,000 kilowatts. This reactor will have a graphite moderator and will be cooled by ordinary water under high pressure. While the principal design features of the reactor of the first station will be retained in it, it is planned to introduce a number of improvements. In particular, it is intended to superheat the steam in the channels of the reactor's active zone. This will make it possible to increase considerably the working pressure of the steam in the thermal circuit and to use up-to-date turbines of high parameters at the new station, which should substantially increase the efficiency of such a station.

Of great importance from the economic aspect of an atomic electric station is to what extent the atomic fuel in it is burned up and to what extent it is reproduced. It should be borne in mind that in contrast to ordinary electric stations, in atomic electric stations the fuel is not only used up but is partially recovered through the formation of plutonium from the poorly fissionable isotope of uranium-238.

In this connection the project of an atomic reactor with an electric capacity of 200,000 kilowatts being worked on by a group of physicists headed by Academician I. Kurchatov is of great interest. In this reactor ordinary water under pressure will be used as a moderator and coolant. Owing to the specific features of the process of slowing up neutrons in ordinary water, a considerable reproduction of atomic fuel is expected to take place in the reactor. An atomic electric station equipped with such a reactor will not only use up the valuable isotope of uranium-235 but will also to a considerable extent reduce the consumption of the atomic fuel through the formation of plutonium.

Another prospective type of atomic reactor has been developed by a group of scientists and engineers headed by Academician A. Alikhanov. In this reactor the moderator will be heavy water, which, as is known, practically does not absorb neutrons. The coolant will be carbonic acid gas. The special feature of this reactor is that natural uranium can be used as fuel. This fact is important economically, since in such a case it will be possible to reduce the load of factories which produce enriched uranium.

Much importance is given in the USSR to reactors operating on fast neutrons which reproduce the atomic fuel to a large extent. Such reactors operate without a moderator, and use concentrated uranium or plutonium as atomic fuel. The large reproduction of atomic fuel in these reactors is due to the conversion of the poorly fissionable uranium-238 or thorium into the highly fissionable plutonium or uranium-233.

From the point of view of ordinary thermotechnics such a reactor is a real miracle, for in the atomic "furnace" of an electric station with such a reactor more atomic fuel is produced than is consumed.

The Soviet Union already has in operation fast-neutron reactors, and through these large numbers of physical constants have been measured and the so-called coefficient of reproduction of atomic fuel, which is the principal economic index for reactors of this type, has been determined.

On the basis of completed research, Soviet scientists believe that they already have a good idea of the theory of the phenomena produced by fast-neutron reactors. The progress made has enabled them to proceed to design a reactor of this type for an atomic power station with an electric capacity of 50,000 kilowatts.

These are just the main directions. They do not by far exhaust the whole scope of work done in our country on reactors.

QUESTION: *What possibilities are there today for developing atomic reactors for transport?*

ANSWER: I shall have to disappoint those who hope that in the near future when starting out on an automobile ride or a long trip by air, all they will need to do is to take along a small tablet of uranium for fuel for the atomic motor. To get a chain reaction it would be necessary to take along scores of times as much uranium as is burned out. In addition biological protection from radiation from the atomic reactor will not be easy, unless it is going to be made out of the fictitious substance of which H. G. Wells dreamed and which, he figured, would abolish gravity. However, this does not mean that there are no prospects for using atomic energy in transport. Soviet scientists and designers have already worked out a number of marine atomic units to serve as a source of motive power for ships.

At one of the Soviet shipyards construction has begun of a large icebreaker which will be powered by an atomic engine. Radioactivity, which is inevitable when an atomic reactor is in operation, will not be dangerous for the crew and passengers because of reliable protection. The icebreaker will not need to be refueled more than once in two or three years, and its great power of movement will make it possible for it to break through the heaviest ice.

There can be no doubt that ocean-going ships will be the first to have atomic engines, enabling vessels to make very long voyages without refueling and ensuring them high speed. It can be predicted that after them will come the turn of heavy planes, which are already as large as some ships. It will perhaps also be possible to install an atomic engine on locomotives; however, an ordinary powerful electric engine getting its current from an atomic station will still be the better solution.

QUESTION: *The range of questions embracing the conception of "atoms for peace" also includes problems of all-round utilization of radioactive substances. Could we ask you to touch upon this subject?*

ANSWER: I must tell you that the application of radioactivity and labeled atoms is remote from my immediate scientific interests. I shall therefore touch upon the subject only in general outline.

I think that the production of radioactive elements will be of no less importance than the production of electric power by means of nuclear fission. The Soviet press has pointed out that by the end of the current Five-Year Plan period (1956-1960) the total number of radioactive elements to be produced by atomic reactors in the USSR will be equivalent to 10,000 tons of radium. I should like to remind you that a dozen or so years ago a few grams of radium were regarded as an immense amount of wealth. Today considerable work is being done in standardizing substances produced by the Soviet radiochemical industry.

Soviet industry and agriculture are mastering more and more extensively the technique of utilizing radioactive elements. For instance, in many factories labeled atoms are used to inspect products. Radioactive elements help to develop high-yielding varieties of plants, to protect fields and granaries from pests and to employ more rational feeding of the stock and increase their productiveness. In medicine, radioisotopes are widely used to treat various diseases. They have also been used effectively in diagnosis.

Radioactive substances and labeled atoms have become regular features in a large number of Soviet scientific laboratories. They help our scientists to penetrate more and more deeply into formerly inaccessible secret recesses of chemical, biological, technological and other processes.

QUESTION: *Could you tell us, even if only in rough outline, in a way that a layman will understand, about the major work being conducted by Soviet scientists in theoretical research of the atomic nucleus, nuclear forces and "elementary" particles?*

ANSWER: In the sphere of nuclear

physics, our scientists have solved many problems of great practical importance, such as for instance, the building of reactors. In particular, Soviet scientists have made a detailed study of the dependence of the probability of fission of different atomic nuclei on the speed of neutrons, the laws of slowing-down neutrons and their interaction with the products of the disintegration of uranium, and, finally, the alteration of different substances in neutron and gamma fields.

It is planned in the next few years to develop vast experimental and theoretical work in all main divisions of contemporary nuclear physics. They will be conducted in many scientific institutions.

A considerable number of questions will be solved, among others, by the Joint Nuclear Research Institute, which has up-to-date scientific equipment. The institute has a synchrocyclotron with an energy of 680 million electron volts. This autumn we hope to begin experiments on a new large electromagnetic machine—a synchrophasotron—capable of accelerating the protons to produce a colossal energy of 10 billion electron volts. This machine is called a generator of artificial cosmic rays, a cosmotron, and the name is fully justified. In addition, the institute will build a research nuclear reactor with a very dense neutron flux and a cyclotron for accelerating the multiple-charge ions of different elements, and a number of other experimental units.

The development of new experimental techniques will make it possible to study more profoundly and accurately experimental facts and phenomena relating to the physics of particles of high energy. And this, it is to be hoped, will bring in its wake another stream of ideas and theories.

On the synchrocyclotron now in operation precise investigations on the interaction of neuclons (protons and neutrons) and nuclei will be continued. In particular, it is planned to conduct investigation by means of polarized beams of protons and research of the dispersions of pi-mesons, the particles which apparently are responsible in the main for the forces holding together the neuclons in the nucleus ("nuclear forces").

The new Soviet cosmotron will make it possible to study more fully the properties of super-heavy elementary particles, namely, the hyperons, to ascertain the laws of simultaneous production of several mesons in collisions of neuclons, and conditions for the production of heavy K-mesons. The latter is of special importance because whereas now the significance of pi-mesons in nuclear interactions are already more or less clear, the part played by heavy K-mesons in nuclear processes is not yet clear. Yet it is evidently very important, particularly where the neuclons have large energies, and it thus constitutes a major aspect of the "nuclear forces" problem—one of the principal problems of modern physics.

Today, we already have some idea of the size and internal structure of protons and neutrons, but even more remains unclear in this matter. We expect that the work which will be done on accelerators at the Joint Nuclear Research Institute will contribute to the study of the structure of the neuclons and other atomic particles, to an understanding of the interaction of particles and to a rational classification of them. In this latter respect it will prove highly interesting to launch experimental work also on anti-particles, one of which—the anti-proton—has recently been discovered in the United States by Professor E. Segre in E. O. Lawrence's laboratory.

The new research reactor with a high density of neutron flux will make it possible to study still more fully the interactions of neutrons with nuclei — the reaction of fission of nuclei under the influence of neutrons, the reaction of nuclear capture of neutrons, and so on. With this reactor we shall be able to measure the so-called cross sections—values which will enable us to judge of the probability of a particular reaction as a result of the interaction of a neutron with nuclei. Special "selectors" will enable us to gauge the dependence of these "cross-sections" on the energy of the neutrons.

The possibilities of Soviet experimental physics will be further broadened when a cosmotron with a capacity of 50 billion electron volts, now being designed, is completed.

Of course, the work of our experimenters will be reinforced by thorough research of Soviet specialists in theoretical physics. Together with theoretical physicists of other countries they will have to undertake the big task of the future—the development of a new theory of nuclear phenomena. It will probably go beyond the bounds of the modern quantum theory and the theory of relativity, on which physics of our day is based.

QUESTION: *What possibilities are there for greater international cooperation by scientists in the sphere of atomic energy?*

ANSWER: Such cooperation is essential if we want to widen the possibility of peaceful uses of the energy of atomic nuclei, for any slackening of international scientific relations will inevitably lead to a considerable retardation of the progress of science itself. The spirit of healthy competition and liberal mutual information should be the rule in relations among scientists everywhere. The first step in the sphere of atoms for peace was made last year at the conference of scientists in Geneva, and now new steps are necessary.

Soviet scientists intend to strengthen their cooperation with scientists in all countries. We esteem highly, among others, the achievements of our American colleagues and we speak with respect of such outstanding scientists as E. O. Lawrence, I. I. Rabi, V. I. Lamb, E. Segre, F. Dyson, E. Wigner, A. Bethe, G. T. Seaborg and many others. I was very happy to establish friendly contacts with Professors E. M. Weinberg and W. G. Zinn last year in Geneva. However, I must admit that scientific contacts between physicists working in the USSR and the USA are far from adequate.

The problem of utilization of atomic forces is one of the biggest problems facing humanity today.

It seems to me that the attitude of my youngest son, Igor, who is 10 years old, with regard to the ways of utilizing atomic energy is a very wise one. I dare say he was the first representative of the younger generation to visit the world's first atomic electric station, and the impression it made on him was probably one of the greatest of his young life. As far as I can see, he has very little interest in atomic or hydrogen bombs, but he certainly is eager to travel on atomic ships, locomotives and planes. Who knows, perhaps some day he will succeed in realizing the bold projects of his childhood.

—Interview by Lev Zubkov

See in the next issue of our magazine a picture story about Marshal Georgi K. Zhukov, a war time hero and President Dwight D. Eisenhower's companion-in-arms.

THE SEARCH FOR SPEED—*(concluded from page 52)*

who catch everything on the go. One can't help envying his natural coordination of movements, his uncommon agility and speed. Yet at the same time he is forgetful and sometimes ridiculously absent-minded.

The others are just as different from each other: Yevgeny Samsonov – strong-willed and brusque, Leonid Gissen—mild and tactful, Alexei Komarov—extraordinarily industrious.

Each of the eight has his own occupation, his own family and interests. Rumor has it that on one of the national holidays they began celebrating separately at different places. One telephone call followed another and finally all eight were gathered around the same holiday table.

. . . But the fight for speed continued. For a long time the result of 6 m. 21.8 sec. was believed ideal on Moscow water. Then the oarsmen began whittling off fractions of seconds. Next whole seconds were scraped off: 6.15, 6.10, 6.09, 6.07, 6.05, 6.03, 5.58!

And finally, after nearly ten years of joint effort and search, they merited for the first time the crimson jerseys of USSR champions. Then on Baugswerde Lake in Denmark they outstroked the Italian, Czech, Danish and French oarsmen. The "Wings of Soviets", eight were awarded the gold medals of European champions. At the Henley Regatta, the unofficial world championship, the crew was awarded the much coveted Grand Challenge Cup. The Leander Club, famous English eight and adherents of the orthodox style of rowing, was left far behind. And again in Bosbaan, near Amsterdam, the eight outpaced all competitors, showing 5 m. 53.3 seconds in the finals. Not a single eight in the history of European rowing has ever shown this time.

"The Russian school of rowing," wrote the Dutch newspaper *Nieuwe Rotterdamse Courant* about the "Wings of Soviets" eight, "has undoubtedly given many people good reasons for reconsidering their theories."

. . . What next? Rest on their laurels? Oh, no!

And as before the search for speed continues.

If you want to watch them, just take a ride to Moscow's Khimki reservoir.

SIDELIGHTS ON SPORTS STARS

By Lydia Borodina

At seventeen—holder of USSR records in three events: high jump, shot put and discus. In 1953—world's third best result in the pentathlon (100 m. and 200 m. dashes, hurdles, high jump and shot put).

Now Lydia Borodina is one of those few sports writers who write about what they have actually tried. Her articles on sports have won her as much acclaim as her prowess in track and field.

This page introduces Lydia Borodina, the high-jumper (see photo above) and Lydia Borodina, sports writer (see article below).

Four Times as Much as Her Own Height

She isn't very tall (5 ft. 2 in.) and isn't very plump (114 pounds). You will recognize her at once by her thick black hair and enormous expressive gray eyes. Slender, graceful, charming, she looks more like a dancer than an athlete.

Who is this girl who registers a broad jump of 6 m. 31 cm., almost four times as much as her own height? She is 24-year-old Galina Vinogradova, a Leningrad college student who holds the world record in the running broad jump.

An Enviable Character

An athlete often sets records during training sessions, but at competitions, particularly international competitions, excitement may prevent him from getting anywhere near them.

Mikhail Krivonosov, a Minsk college student, the world's best man in the hammer throw, does just the opposite. As a rule, he sets records only abroad, and only at big international meets.

One of his world records he established in 1954, at the European championships in Berne. Another world record was set last summer when Krivonosov performed at the Second World Youth Games in Warsaw. He wound up the 1955 season with a brilliant performance at a big international meet in Yugoslavia, where he brought his world record up to 64 m. 52 cm.

However, Krivonosov has just let me down. At the recent USSR track and field competitions in Nalchik, the North Caucasus, that is, at home, Krivonosov set another world record with a hammer throw of 65 m. 85 cm. This must be a case when the exception proves the rule.

"Devil's Dozen"

At the thirteenth world speed skating championship, February 13 was the decisive day. In fact, the figure "13" haunted the Soviet sportswomen who took part in the 1955 championship. For one thing, their delegation was made up of 13 persons. And when the girls decided to go to the movies before the races started, they were sold tickets for the thirteenth row!

Rimma Zhukova became the 1955 world champion. Probably no other woman skater in the world had enjoyed the success she had in the previous five years. She had broken world and USSR records more than ten times, and each year won at least one big competition. Everything, however, but the world title. That always slipped through her fingers at the last moment. Either she fell in a decisive race, or made a poor start, or had bad luck in the drawing.

When at last Rimma became world champion her friends said: "You did it at the thirteenth championship. Thirteen may be bad luck for others but it's just the opposite for you!"

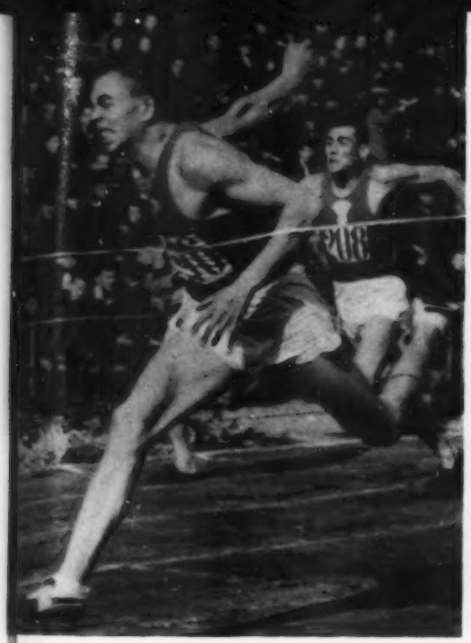
Indeed, at the fourteenth championship this year Rimma lost the title to another Soviet skater, Sofia Kondakova.

School and Style

If we look through the lists of the world's ten best shot putters for 1955, we'll see: "G. Zybina—16 m. 67 cm.; T. Tyshkevich—16 m. 24 cm.; Z. Doinikova—15 m. 92 cm."

Vsevolod Bobrov (right) captains the USSR picked team, which is World as well as European and Olympic champion.

Galina Vinogradova, world record holder in the running broad jump.



Ardalion Ignatyev, a village schoolteacher, is the country's best sprinter.

Nina Romashkova, European discus throwing champion.

Mikhail Krivonosov holds the world's record in the hammer throw.

Most track and field fans know that for three years now the three Soviet women have headed the list of the world's ten best shot putters. But what fans may not know is that Galina Zybina, Tamara Tyshkevich and Zinaida Doinikova live in the same city (Leningrad), are all college students, and all belong to the same sports society, Zenith. What is more, they all train under the same coach, Victor Alexeyev, once USSR javelin champion seven times running.

What is interesting is that although the three friends train together, each has her individual style. That is immediately obvious.

Galina Zybina stands sidewise to the direction in which she puts her shot and bends very low. Tamara Tyshkevich does not bend so low, while Zinaida Doinikova stands in the initial position with her back to the direction in which the shot flies. This in spite of the fact that the three girls have a common school of technique.

Who's Right?

I once listened to two athletes arguing about whether it is possible to give good performances if you compete in several sports. One said it was impossible, while the other maintained that it was absolutely necessary not only to train but to compete in different sports.

Most Soviet athletes believe that you can't make a good showing in any one sport unless you go in for several sports. When it comes to competing, however, the opinion is that you should select only one sport, otherwise you'll have too heavy a load and that is bound to reflect on your performance.

But in the history of Soviet sports you will find interesting cases where athletes not only competed but became champions and set records in several different sports. Take Alexandria Chudina, captain of the USSR women's volleyball team. She is also USSR champion and world record holder in track and field sports.

Then there is Vsevolod Bobrov, captain of the USSR ice hockey team. Until a short time ago he was one of the country's best soccer forwards.

Konstantin Kudryavtsev, the present coach of the USSR speed skating team, was once USSR champion and record holder in speed skating (the 500 m.) and in track and field (the pentathlon).

And finally, there is Yevgeny Grishin, twice Olympic speed skating champion and world record holder. At Cortina d'Ampezzo they called him "Owens on ice." He took up speed skating when he was USSR cycling champion.

For the First Time in History

Soviet hockey players and speed skaters set a unique record this past winter when they won a "triple" title: champions of the world, Europe and the Olympics.

For the first time in the history of sports one country won all the titles and medals at a world championship. That was the women's speed skating championship of 1956, where Soviet skaters carried off the titles in all four races and for the total of the events, and that meant all the medals, too. Fifteen out of fifteen!

Mamma's a Champion

The first Soviet gold medal at the 1952 Olympics was won by discus-thrower Nina Romashkova. Since then she has never tasted defeat, although she has performed at all the big meets. This is all the more amazing in view of an event that should have interrupted her triumphal tour of the world's stadiums for a time.

In September 1953 Nina Romashkova (Ponomaryova) won the USSR crown in a keen contest with Nina Dumbadze of Tbilisi, the Georgian capital, world record holder in the discus. In October she performed successfully at a meeting in Sweden, and in August 1954 became European champion.

From Berne, where the European championships took place, Nina took the plane home immediately after her event was over. Many wondered why she could not wait to see the end of the championships, a matter of only a few more days. But Nina had every reason for hurrying home to Moscow. There she had a tiny son waiting for her. His mother had become European champion when he was only four months old.

"World Team"

An out-of-the-ordinary relay race was held during an international meeting in Yugoslavia last September. Racing against the Yugoslav team in the 4 x 100 m. relay was a team made up of two Soviet runners, Ignatiev and Bartenev, Richard of the United States, and Czecsji of Hungary.

Here is what Gavriil Korobkov, coach of the USSR team, had to say about the race, which was won by the "World Team" as the spectators nicknamed it:

"To 'coach' Richard and Bartenev required less than half an hour. Right from the beginning they passed the baton so smoothly and with such terrific speed that I sincerely regretted the fact they would be running on different teams at the next Olympics!"

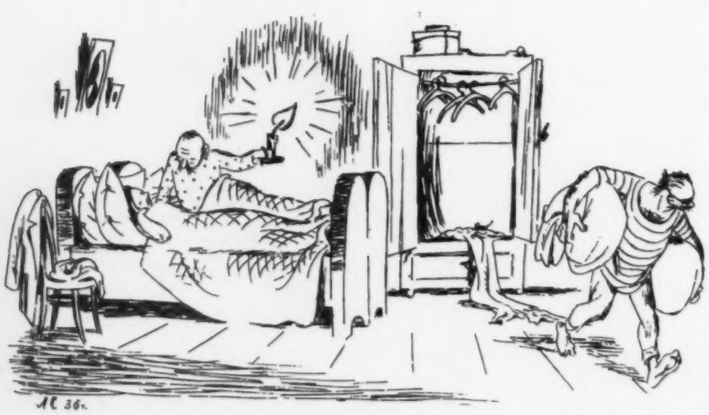
Nina Otkalenko, the Soviet track star, and a British friend.

"The First Step"

Leonid Soifertis

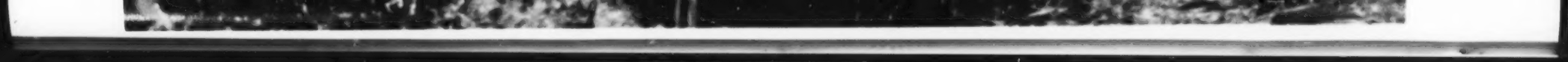
Leonid Soifertis has been on the staff of "Krokodil," a satiric magazine put out in Moscow, for more than 20 years. He was born in the Ukraine. Although his father was a salesman in a dry goods' store, he sent his son to study at the Institute of Art in the Ukranian city of Kharkov. While a student Soifertis had cartoons and drawings published in local newspapers and later in Moscow publications. His works have been included in Soviet art exhibitions shown in Paris, New York and London. He has several drawings in this year's Annual World Art Show in Venice.

"Excuse me, are you the famous lion trainer?"
"No, I simply wash them and brush their teeth."



"Just imagine, my dear, I just dreamt that we were stripped of everything!"

"A Quarrel"



Bee breeding is very popular among Soviet farmers

The famous Soviet cyclist,
Igor Ippolitov and his son