THE GREAT CONSTRUCTION WORKS of the SOVIET UNION

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THE
GREAT
CONSTRUCTION WORKS
OF THE
SOVIET UNION

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The scale of the construction projects undertaken in pursuance of the decisions adopted by the Soviet Government in August and September of last year is as colossal as is their importance for the country's economic development. They involve the building of huge hydroelectric plants on the Volga, Dnieper and Amu Darya and the irrigation of the Caspian and lower Amu Darya areas, the western part of the Kara Kum Desert, the Southern Ukraine and the North Crimea.

Power supply is one of the major criteria of a country's industrial might. Without an ample power supply, no branch of the national economy can develop rapidly or at all effectively. The creation of an adequate power industry was therefore one of the primary tasks to which the Bolshevik Party and the Soviet Government devoted their attention from the very inception of the Soviet state.

When we speak of the Soviet power industry we do not only mean the generation of electricity. The concept is wider, and embraces other forms of power. Nevertheless, electrification, that is, the building of heat-driven and water-driven power stations for the supply of electricity to all branches of the national economy, including agriculture, is the cornerstone of the Soviet Union’s power development.

The power industry inherited by the young Soviet state from the tsarist regime was of a very inferior order. The aggregate capacity of Russia’s electric stations
in 1913 was a little over one million kilowatts, and all they could generate was 1,600 million kilowatt-hours a year.

Tsarist Russia held only the 15th place among the electricity-producing countries of the world, despite the fact that she possessed almost incalculable reserves of coal, peat, oil, shale and other fuels, not to speak of the latent resources of her mighty rivers.

In 1920, as a consequence of the first world war, the civil war, intervention and blockade, the output of all the power stations then operating in Soviet Russia had declined to 500 million kilowatt-hours. In other words, a power supply system for the development of the national economy had to be built practically from scratch. It was decided to utilize local sources of fuel and rivers to the utmost.

The GOELRO (the first Government Plan for the Electrification of Russia) was discussed and adopted by the Eighth All-Russian Congress of Soviets in 1920, after the Soviet Republic had scored decisive victories over the forces of intervention. Lenin instructed us that, with the Soviet system of government, electrification would mean the regeneration of Russia, and at the Congress he proclaimed the slogan which has become immortal: "Communism is Soviet power plus the electrification of the entire country."

The GOELRO was to cover a period of 10 or 15 years, and envisaged the reconstruction of old and the building of 30 new power stations (including 10 hydroelectric), with an aggregate capacity of 1,500,000 kilowatts. The country's aggregate annual electricity output would then be 8,800 million kilowatt-hours.

But that plan was already considerably overfulfilled by 1932. Today, the target it set has been exceeded fifteen times over!

From 15th place among the world's electricity producers, the Soviet Union has risen to the first place in Europe and the second in the world, and has outstripped all the capitalist countries in rate of development.
How vast was the devastation done to the Soviet Union's economy by the German-fascist invasion is well known. I should only like to mention that in the regions they occupied the nazis destroyed 61 large and hundreds of small power stations and 10,000 kilometres of high-tension transmission line. In all, they wrecked 12,000 power station and substation buildings. They left many hydroelectric stations in ruins, including the Dnieper plant, the biggest in Europe, which J. V. Stalin has referred to as the creation and pride of the Soviet people.

What tremendous energy the Soviet people had to display to rebuild their country's power industry in so short a time can be imagined.

The electricity output target set in the first post-war five-year plan has been considerably exceeded. The Soviet Union is now generating only a little under 100,000 million kilowatt-hours per annum. This is 200 times more than it produced in 1920.

* * *

The hydrotechnical works undertaken last year, which the Soviet people rightly speak of as the grand Stalin projects, mark a new stage in the accomplishment of the historic task of laying the material and technical foundations of Communist society. They are therefore referred to as the construction projects of Communism. At all the new sites, preparatory work on a vast scale is now in progress. The Volga-Don navigation canal and the Tsimlyanskaya hydropower development are nearing completion. An idea of the scale and economic importance of the new hydrotechnical projects may be gathered from the following comparisons.

The new hydroelectric stations, which are to be completed in five or six years, will have an aggregate capacity of 4,220,000 kilowatts. This is four times as great as the joint capacity of all the existing hydroelectric stations in the countries of South America (Argentina, Bolivia, Brazil, Venezuela, Colombia, Paraguay, Peru, Uruguay, Chile, Ecuador), which have a large
number of rivers of tremendous power-producing potential.

The historic decisions of the Soviet Government have aroused great interest among foreign engineers. This is understandable, since the Kuibyshev and Stalingrad plants will be the biggest hydroelectric stations in the world, each of them with a capacity exceeding that of Grand Coulee or Boulder Dam, the biggest hydropower plants in the United States. The aggregate capacity of the new Soviet hydroelectric stations will be greater than the joint capacity of 20 other big American hydropower plants (Bonneville, McNary, Wilson, Garrison, Clark Hill, Davis, etc.). And it should be borne in mind that the Americans spent several decades erecting them.

The annual output of the new hydropower plants will be upwards of 22,000 million kilowatt-hours, which is equal to the output of all the power stations of Denmark, Finland, Holland, Belgium and Spain together, one and a half times greater than the output of all the hydroelectric stations of France, and greater than the output of all the power stations of Italy. For the sake of comparison, it might be mentioned that the output of the new Soviet hydropower plants will be nearly 20 times as great as that of all Britain's hydropower plants taken together (the aggregate capacity of the hydropower plants of England, Scotland and Wales is a little over 300,000 kilowatts).

The additional 22,000 million kilowatt-hours of electric power will be of immense importance to the national economy.

The Volga will become one of the biggest water arteries in the world. It is a meridional waterway which intersects a number of latitudinal rail lines connecting the industrial areas of the European part of the Soviet Union with the rich regions of the Urals, Central Asia and Siberia. At present this waterway serves nearly one third of the European part of our country, an area greater than Germany, France and Britain taken together. The Volga basin accounts for about 50 per cent of the Soviet Union's
total industrial output; there are 65 million hectares of arable land and 67 million hectares of forest there; it has more than one and a half thousand wharves. With the completion of the new hydropower stations the importance of the Volga basin will be greater still. Their cheap power will enable the industrial plants to produce more goods at a low cost and in vast quantities, and their transportation to all parts of the country will be facilitated.

The new Volga power stations will not only greatly stimulate the growth of industries in the areas immediately adjacent to the river, but will also serve as a base for the wide-scale electrification of the industrial centres of the Moscow Region, the Central Black-Earth Belt and other more remote areas.

The new stations will cover the power requirements of the electrometallurgical and electrochemical industries, which depend for their existence on plentiful and cheap electricity. The increased production of superhard alloys and high-grade steels by the electrometallurgical industry will make it possible to raise the output of automobiles, power equipment, instruments and tools.

The power supplied by the new hydroelectric plants will facilitate the further expansion of the synthetic rubber, artificial fibre, plastics, paints and dyes, fertilizer, pharmaceutical and other industries.

A big industry will be built to process the agricultural produce raised on the 28 million hectares and more of new irrigated land. This is an area larger than that of Britain, Belgium, Holland, Switzerland and Denmark together; nine times as great as the whole irrigated territory of the Nile Valley, where irrigation has been practised for thousands of years, and three and a half times as great as the area the Americans took about 100 years to bring under irrigation in the United States.

What will these new irrigated lands mean for the Soviet people? Before answering this question, it would be well to consider the harvest yields in a number of capitalist countries.
According to the figures of the Rome International Institute of Agriculture, wheat harvests average 12.2 metric centners per hectare in Canada, 12 centners in France, only 9.9 centners in the United States, which has always boasted of the efficiency of its agriculture, 9.1 centners in Spain, 4.2 centners in Algeria, etc.

In the Soviet Union, thanks to the encouragement of the Communist Party and the Government and to the labour enthusiasm of the collective farmers, harvest yields are increasing from year to year. There are many districts where the wheat yield averages 25 centners per hectare. On irrigated areas in arid regions as much as 45-50 centners per hectare are often obtained. Even greater yields will be obtained in the new territories brought under cultivation, thanks to cheap electricity, plentiful water and constant improvement of agricultural techniques.

The total wheat crop in the new irrigated territories will be far greater than that of Canada, which does not exceed 110 million centners (France raises 80 million, Argentina 65 million, Italy 70 million, and Spain 40 million centners).

The yields of other agricultural crops will be no less remarkable, for it must not be forgotten that in the areas where the new irrigated lands will be located there are as many as 300 sunny and frostless days in the year. This means that in the case of some crops two or more harvests can be gathered annually. The conditions will be exceptionally favourable for the development of animal husbandry and poultry farming. The Soviet people will raise in the new irrigated areas sufficient wheat, rye, rice and other cereals, vegetables, fruit and meat and dairy produce to support a population of one hundred million. Obviously, the textile, dairy, sugar, distilling, starch and molasses, confectionery, tobacco, paints and dyes, rubber and other industries will have to be considerably expanded to process the cereal and industrial crops which the new lands will produce in abundance—the vast quantities of cotton, sugar beet, sunflower seed, hemp, kendyr, sesame, etc. The new mills and factories will turn potato
F. Gunko and V. Zverkov, research workers of the All-Union Hydrotechnical Scientific-Research Institute in Leningrad, discuss some problems of water regimen at the model of the Kuibyshev dam.

SOVIET scientists are successfully solving the various problems that arise in connection with the great construction works of Communism. The U.S.S.R. Academy of Sciences has set up a special committee to render assistance in the grand construction work.
and maize into alcohol, acetone, glycerine, dextrin, starch, molasses and synthetic rubber.

The new power stations will make it possible widely to electrify the three major branches of the national economy—industry, agriculture and transport. Electrically-driven tractors and harvester combines will appear in the boundless irrigated tracts. Because of its cheapness and abundance, power will be freely used in agriculture, thus raising its productivity. Many water-transport problems will be solved by the gigantic hydroelectric stations. The work of connecting Moscow by waterway with all the seas washing the European part of the Soviet Union will be completed: the oil and fish of the Caspian, the coal of the Donbas, the timber of the North, the metals and machines of the Urals, the cereals of the Volga region, etc., will all be joined by a single and connected system of waterways.

New electric railways of big carrying capacity will be built in the areas adjacent to the great power stations and the transmission lines.

The new power stations will permit further improvements in working conditions. A plentiful supply of cheap electricity will facilitate the reconstruction of cities, will permit the wide use of electricity in the home, and generally will bring additional amenities to the Soviet people.

* * *

Progressive-minded men and women are becoming ever more cognizant of the essentially humane significance of Communist construction in the U.S.S.R. No sane and unbiased person can fail to see the contrast between the peaceable trend of Soviet economic development and the militarist spirit which stamps the economies of the big capitalist countries.

The rulers of the United States and its partners in the aggressive Atlantic alliance look upon power production as a key industry in their preparations for launching another world war and as an instrument for the further enslavement of the working people. A vast propor-
tion of the electric power produced in the United States is used for the manufacture of atom bombs and other lethal weapons. The American power monopolies are gigantic octopuses whose tentacles extend to every sphere of life; they dictate conditions, force up prices, ration power consumption, ruin small businessmen and farmers.

The capitalist monopolies' sole concern is quick returns, and they are therefore not interested in building big hydropower plants which require years to erect and substantial investments of capital. The capitalist magnates prefer to have the government bear the expense of building such stations and to extract the funds from the pockets of the taxpayers. When the chief and most costly parts of the power plants are completed, the government turns them over for operation to private companies, who finish whatever work is to be done and then make vast profits by dictating the charges for power and irrigation.

The building of the big hydropower plants in the capitalist world is one long tale of waste and robbery. The station on the River Columbia in the United States, for instance, took nearly 20 years to build. All this time it was given the most extraordinary publicity. It was promised that when the Grand Coulee plant began operation a golden age would set in for the manufacturer and farmer of the State of Washington. President Truman, escorted by an army of photographers and movie reporters, attended the official opening of one of the sections of the Grand Coulee project, and said that "the power of this mighty stream will become a well-spring of national strength, an effective buttress of a growing and dynamic democracy."

How far this boast is from the truth! Forty per cent of United States territory is desert or semidesert, only part of which is used for a semiprimitive form of animal husbandry. And in the State of Washington, where Harry Truman made the statement quoted above, there are today 500,000 hectares of drought-land. Masses of farmers flocked there and bought plots, lured by the talk about
the great irrigation works that were to be constructed. But the years passed, no irrigation works were built, and the ruined farmers drifted away, leaving their savings in the pockets of the monopolists. Density of population in the State of Washington today is less than one person per square kilometre. Yet what splendid prospects for the irrigation of extensive tracts of arid land the waters of the broad Columbia River offer!

What has changed since the opening of the Grand Coulee? Nothing except that the power of this huge station is being used to supply armaments works and atomic-bomb plants. The irrigation system is not functioning, and vast areas of land go without water.

Official American propaganda never tires of praising the power trusts, claiming that they have the people’s interests at heart. But ex-governor Pinchot of Pennsylvania, who was well posted on the real state of affairs, pointed out that the power trusts relied on a ramified system of political corruption which embraced the criminal underworld, criminals of the highest and lowest order, who enjoy high protection.

Ex-president Hoover ventured to mention in one of his statements the “great power companies” of the United States. This phrase at once prompted Senator Norris to remark—how can they be called “great power companies”? They have been deceiving and robbing the American people for many years. They are steeped from head to foot in dirty politics that should make any man blush with shame. They have never done anything except fool the people whose pennies go to make up their fortunes, the Senator added.

The predacious attitude of the monopolies towards America’s water resources and land accounts for the fact that, of the 160 million hectares of arable the country possessed in 1913-14, 25 million hectares have gone completely out of cultivation and another 25 million are on the verge of exhaustion. And the process is continuing at an accelerated pace.

“But a few more generations of the course we have pursued will produce man-made deserts which will have

The capitalist countries are squandering colossal sums on war preparations, funds that would be sufficient for the building of gigantic hydrotechnical projects which would be of untold benefit to mankind. A gigantic hydropower station could be built, for instance, in the Straits of Gibraltar with a capacity of many millions of kilowatts, and Gibraltar—now a British imperialist base commanding the entrance to the Mediterranean—would become a vast power centre, and the Mediterranean itself a means of bringing huge areas of sterile land under cultivation.

A hydropower plant, with a capacity of seven million kilowatts, might be built at another outpost of imperialism—the Dardanelles. Water could be brought to the Sahara, and this would open up truly stupendous potentialities. There is a regular morgue of unrealized projects like these—projects for the building of gigantic hydroelectric stations, railways, tunnels, canals, irrigation systems, atomic-power plants and the like. All of them have come to nought, although the science of engineering is sufficiently advanced to cope with them. And how mankind's wealth could be increased if the labour of the tens of millions of unemployed in the capitalist world were put to rational use! Ever larger numbers are becoming convinced of the falsity of the Malthusian doctrine that the resources of our planet are limited, and hence the need for wars of extermination.

Hydropower projects in capitalist countries serve as a means of further enslaving the workers; they do not add to the people's wealth, but are harnessed to the ends of war and human destruction and the enrichment of the capitalist class.

* * *

Electricity will be the chief factor in the power resources of the future. Labour in Communist society will have abundant sources of power at its disposal to lighten all processes, and the power resources of the Soviet
Union are developing at a speed unknown to any other country.

The program of Communist construction outlined by Joseph Stalin for the next fifteen years indicates what increases of output of the major items of production are to be achieved. It is estimated that they will require a power output of not less than 250,000 million kilowatt-hours. This is nearly 500 times more than the power output of the Soviet Union at the time the GOELRO plan was initiated.

But if we look farther ahead and try to determine the future power output of our country, we must first examine some of its potentialities. There are 108,500 rivers marked on the map of the Soviet Union. It is calculated that 1,500 of them alone could drive power stations with an aggregate capacity of 300 million kilowatts and generate more than 2,700 billion kilowatt-hours annually. The water power resources of the Soviet Union are nearly four times as great as those of the United States, and nearly seven times as great as those of Canada. The Soviet Union also leads the world in other sources of power, such as coal, oil, peat, timber, etc.

The Soviet system and the high level of engineering already attained guarantee the possibility of unusually rapid progress in the comprehensive utilization of all these abundant sources of power.

Further electrification of the Soviet Union's national economy necessitates further advances in automatic control and tele-control.

Our power stations have made the initial steps in this direction. Some of them are already automatized to such an extent that they have no working personnel at all and are entirely remote-controlled. The future single grid that will embrace all the power plants of the Soviet Union will make it possible to centralize control of electricity generation and distribution throughout the country.

We can already picture the almost fabulous might man will command in Communist society, when, like a magician, he will control gigantic power resources and
regulate the work of automatically operating factories, all the time perfecting their machinery.

The completion of the grand construction projects of Communism within the next five years will lay the foundation for even greater Communist construction projects in the future. Soviet scientists are already working on projects of truly colossal scale. One of the fascinating tasks of the future is to wrest from nature vast territories that now lie useless. One-seventh of the area of the Soviet Union is still desert or semidesert, and more than one third is bound by permafrost. To regain these areas is one of the most noble tasks our scientists have to cope with.

Enormous volumes of fresh water are poured by our great rivers into the Arctic Ocean. Scientists are working on the problem of diverting part of this water to the extensive desert areas of the southeastern part of the country and thus turning them into fertile land.

An even more impressive task is to eliminate permafrost in an area large enough to accommodate dozens of European states, to transform its climate, plant it with modern cities, and build industries, farms and railways. The work of some of our engineers and scientists proves that permafrost need not be as permanent as its name implies, that creative science is capable of combating and vanquishing it.

The swift development of our power resources is placing means at our disposal which will enable us to refashion nature and transform climate, and to build engineering works which at present seem fantastic.

A big role in engineering will be played by atomic energy, the secret of which Soviet scientists discovered long ago. Truly titanic forces will come to man's aid.

A. Y. Vyshinsky declared in the U.N. General Assembly in November 1949:

"We use atomic energy for our economic plans, in our economic interests. We have set atomic energy to perform great tasks of peaceful construction, we want to put atomic energy to use in levelling mountains, changing the course of rivers, watering deserts, and laying
new life lines in places where the foot of man has rarely stepped.”

Atomic energy will be used not only for gigantic engineering works, for the building of canals, dams and the like, but also for the production of vast quantities of cheap electric power.

Abundant electric power will make its beneficent influence felt in all branches of our economy, and will progressively relieve man in town and country from arduous physical labour. And as the distinction between mental and physical work is increasingly obliterated and the whole of our people are able to devote themselves to higher creative activities, new and boundless vistas will open up for the Soviet Union. Quite understandable, therefore, is the tremendous enthusiasm with which all the Soviet people are contributing to the grand construction projects of Communism which Stalin’s genius has mapped out in the plan for the building of Communism in our country.
At the town of Stavropol the Volga comes up against rocky terrain and takes a sharp eastward turn. It passes between the Zhiguli and the Sokoli hills, and then, skirting the obstacle, resumes its normal south course. The Volga's only bend, known as the Samara Bend, is 160 kilometres long.

It is at the tip of this bend, where the mighty river is joined by its minor tributary Samara, that the city of Kuibyshev is situated. Formerly known as Samara, it is the oldest Russian settlement on the Volga's left bank.

The Zhiguli hills—the Volga's most picturesque spot—have a flora and fauna all their own, a strange blend of a host of northern and southern animal and plant varieties. The Zhigulis are important economically, hoarding limestone and gypsum, bitumen and oil.

As far back as 1910 Krzhizhanovski conceived the idea of a water power station in the Zhigulis. But it was only in Soviet times that his brilliant plan began to work out.

During the First Stalin Five-Year Plan period a beginning was made in the elaboration of a master plan for the all-round exploitation of the Volga—electric power, navigation, fishing, irrigation and water supply. At that time, however, plans for building such grand technical developments as the Kuibyshev and Stalingrad power
stations were admittedly premature. The great strides ahead made by the country's national economy in the postwar period, the powerful growth of its technical basis and its engineering cadres and worker personnel has made the realization of these great schemes possible. On the personal initiative of the great Stalin, the Bolshevik party and the Soviet Government placed these stupendous tasks before the Soviet people.

The Kuibyshev hydroelectric development is to cover a territory 5.5 kilometres in length. An earthwork dam will span the Volga and a concrete spillway with dozens of metal flood-water gates will rise on the river's left bank.

The passage of spring and flood-time waters through this dam presents a complex problem. In high-water years some 70,000 cubic metres of water per second will flow over the dam with a drop of 26 metres. This giant waterfall, with a capacity of 15 million kilowatts, is likely to cause considerable damage to the river bed beyond the dam and damage the installations. To defeat this threat 500 metres of the river bed are to be reinforced with concrete blocks. A wall behind the dam will hold in a steady amount of water. The dam pond thus formed will serve as an effective shock-absorber and reduce the force of the water discharge.

In low-water years the entire amount of the Volga's spring waters will be received and locked in by the huge Kuibyshev and Stalingrad reservoirs. Every single drop will be converted into kilowatts by the turbines. In mean years about 10 per cent of the influx of water is to be discharged.

The Kuibyshev reservoir will be the largest of its kind in the world, with a great many cubic kilometres of water. It will be 500 kilometres long, 40 kilometres wide and have a shoreline of more than 1,500 kilometres—a truly sealike expanse of water! The Stalingrad reservoir will be somewhat smaller.

The swollen waters of the Volga will change many of the river's features. A similar change will be brought about in the geographical location of some of its towns.
and cities. Kazan, for instance, which is now at a distance of five kilometres from the Volga, will find itself on the shore of an inland sea—the Kuibyshev sea.

New kolkhoz towns will spring up on the seaboard, their populations coming from the collective farms now scattered across the bottom of the future seas.

Five fisheries at the Kuibyshev reservoir and four at that of Stalingrad will engage in the propagation of fish in these seas.

The Kuibyshev and Stalingrad hydroelectric stations are of especial importance for the country’s economy. Their respective capacities are estimated at 2 million and 1.7 million kilowatts. Incidentally, the capacity of the largest hydroelectric station in the world, the Grand Coulee on the Columbia river in the United States, has a capacity of 1.4 million kilowatts. This plant, still unfinished, has been under construction for twenty years.

At an average, each of the hydroelectric giants on the Volga will produce 10,000 million kilowatt-hours of electric energy. Their aggregate production is equal to the amount consumed by France or Italy. Every kilowatt hour produced will be a substitute for a kilogram of natural fuel consumed by steam plants. The Volga giants are inexhaustible sources of cheap electric energy.

Here is a distribution chart of the two hydroelectric stations:

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<th>Consumer</th>
<th>Kuibyshev Hydroelectric Station</th>
<th>Stalingrad Hydroelectric Station</th>
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<tr>
<td>Moscow</td>
<td>6.1</td>
<td>4.0</td>
</tr>
<tr>
<td>Volga districts</td>
<td>2.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Central Chernozem regions</td>
<td>-</td>
<td>1.2</td>
</tr>
<tr>
<td>Transvolga and Caspian districts (for irrigation and water supply)</td>
<td>1.5</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong>:</td>
<td><strong>10.0</strong></td>
<td><strong>10.0</strong></td>
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The power will be furnished to Moscow by means of superdistance transmission lines: Kuibyshev-Moscow, 880 kilometres, and Stalingrad-Moscow, 1,060 kilometres. The longest transmission line now in operation is 430 kilometres; its pressure—287,000 volts. The new Soviet power-transmitting lines will have, for the first time in the history of electrical engineering, a voltage of hundreds of thousands of volts. This entails the designing and production of a great number of special types of electrical equipment.

These lines will be equipped with superpowerful, 400,000-volt transformers and switches with a rupture capacity of millions of kilowatts.

The generators to be installed on the Volga will have a greater weight than those—the world’s heaviest—which serve the Shcherbakov power plant.

For many years now the power plants of Moscow, Gorky, Ivanovo, and Yaroslavl have been part of a grid power system. This system embraces steam plants operating on coal, peat and gas, as well as the hydroelectric plants of the three upper Volga developments in Ivanko­vo, Uglich and Shcherbakov. The system is to receive a new influx of energy from the Kuibyshev and Stalingrad hydroelectric stations. Eventually this system will be linked up with its southern counterpart. And when that happens there will come into being a system unparalleled in scale and covering the middle part of the Soviet country—an important step towards the creation of a unified high-voltage network in the U.S.S.R.

Such a power system would prove of inestimable value to the national economy, making for lesser expenditure of capacity, lesser power held in reserve and greater liability of power. Its greatest merit is the opportunity it provides for making maximum use of hydroelectric production, which largely depends on the amount of water received in a given year.

The effectuation of a unified high-voltage network would mean a major task solved in the Lenin-Stalin plan of electrification.
Such, in brief outline, is the magnitude and economic import of the work now being done on the Volga by the Soviet people engaged in the great construction projects of Communism.

**THE MAIN TURKMEN CANAL**

The arid Kara Kum deserts cover seven tenths of Turkmen territory. Nature did much to encourage plant life here, giving the land plenty of sun and a rich soil. It stinted only one thing—water. The timid green shoots are soon turned yellow and burnt by the merciless sun and the dry hot winds. Water was the Turkmenian’s eternal dream. “Land and water,” the Turkmenian used to say, “is what makes a people rich.” Deeply rooted in the Turkmenian people’s memory are the times when, long, long ago, the wild and wily Amu Darya had cut across the Kara Kums to discharge its cool, life-giving waters into the Caspian Sea. And along its banks stretched orchards and vineyards...

The Turkmenian people never despaired of forcing the Amu Darya back into the bed it had forsaken. When life was hard they would speak longingly of their lost happiness, of the sacred dream of the people. And a dream it would surely have remained—were it not for the Great October Revolution. The inestimable advantages of the Soviet order and state system, the fraternal help offered by the great Russian people and other peoples of the newly-found Soviet Motherland enabled the Turkmenian people to launch a planned offensive against the blind forces of Nature.

In the Soviet years the labouring folk of Turkmenia built one irrigation network after another. They have constructed the Bassagakerkin canal, the Karabekaul canal and many others. Socialist agriculture has developed rapidly. The cotton crop and other crops have increased several times over. The development of animal husbandry has made even better progress. In the period from 1934 to 1939 the kolkhoz-owned stock increased more than threefold, and the following decade brought about
another threefold increase. The dearth of water, however, stood in the way of further development in livestock breeding, extension of the cotton area, land reclamation. Lack of fresh water had a similarly injurious effect on the oil, chemical and ozocerite industries.

The construction of the Main Turkmen Canal—launched by the Bolshevik Party and the great Stalin, ever mindful of the Soviet people’s needs—supplies the solution to a paramount problem, the problem of the irrigation of the southern part of the Caspian seaboard, Western Turkmenia, the lower reaches of the Amu Darya and the western part of the Kara Kum desert. Under this scheme, the Amu Darya will give water to millions of hectares of what now is but waste land.

How is the Amu Darya to be diverted to the Caspian? There have been many answers to this question.

One plan centered around the idea of building a low dam in the Amu Darya which would deflect part of the flood-water into the river’s old channel, the Kunya Darva, the banks of which would have to be flood-flanked. The water from the Kunya Darya, the plan said, would flow into the Sarykamysh depression.

This plan found no support because the filling of the Sarykamysh depression would have taken no less than 15 or even 20 years.

Other scientists were for building a “corridor” across the depression to hold the water. The walls of such a corridor would have to be several dozen metres high, its length—about 100 kilometres. This scheme, too, was deemed impractical.

It was eventually decided to go around the Sarykamysh depression, to build a new channel through the sands with a contemplated length of nearly 500 kilometres. This, too, was no easy job. But the Soviet Union was now strong enough to cope with it.

The adopted project, envisaging the construction of a canal with a total length of 1,100 kilometres, also makes provision for a hydrotechnical development near the small town of Nukus in the vicinity of the Tahia Tash mountain. The dam of this development will lift the
G. V. Sidorov, a brigade leader at the Stalingrad hydroelectric project, at work on the bank of the Volga River

Here's the site of the future Stalingrad dam. Preparatory work for the great construction job has been started on both sides of the mighty Volga near Stalingrad—the heroic city which is a symbol of valour and unbending will to victory. Thousands of Soviet people are busy putting up living quarters for the builders of this giant hydroelectric station as well as auxiliary shops, and laying new roads
water line four metres and thus give ample water for both the Main Turkmen Canal and the entire system of new irrigation canals to the left and right of the Amu Darya.

There are many large canals in capitalist countries but none that can compare with the Main Turkmen Canal. The Yusuf Canal in Egypt is 420 kilometres long, the Hudson-Lake Erie Canal in the United States is 560 kilometres long. The total length of the Main Turkmen Canal, by far the greatest construction job of its kind in the world, is 1,100 kilometres.

* * *

In the region of the Amu Darya alone the Main Turkmen Canal will irrigate 800,000 hectares of rich soil. Of these, 220,000 hectares fall to the lot of the Ust-Urt massif on the left bank of the Amu Darya and as many to the Kunya Darya massif. Some 100,000 hectares will be irrigated west of the Tashauz Region, 40,000—at the Sarykamysh depression. This expenditure of water will mean so much less water for the Aral Sea, hence a drop of its sea level. It will also decrease the subsoil waters in the delta of the Amu Darya and thus open a vast area for agriculture.

The area under cotton in these regions will increase three times and cotton-picking in the irrigated fields will increase six- to sevenfold.

Turkmenia will thus become an additional cotton base of all-Union importance with a total area equal to that of Egypt. These regions will give two harvests of cotton a year, and every hectare is likely to yield 40 centners—a figure which may sound fantastic to the capitalist cotton grower. This upswing in cotton growing will boost the cotton industry. Provision has been made for the construction of a number of mills, 16 cotton-oil plants and 70 machine and tractor stations.

The Uzboi will be flanked by broad tracts of Kara Kum land reclaimed for pasturage, the total area of which is estimated at seven million hectares. This large-scale
reclamation scheme will ensure a steady fodder base and further the development of animal husbandry. Karakul sheep, thoroughbred race horses of the Tekin breed and cattle will graze on excellent pastures.

The canal will breathe new life into frostless southwestern Turkmenia which belongs to the subtropical zone. The southern part of the Caspian flatlands will become richer by 500,000 hectares of irrigated land. This land will become a thriving oasis of fine-staple cotton plantations, groves of olives and date palms, vineyards, rubber-bearing plants and plants bearing essential oils, rare fruits, and pistachio and bamboo thickets.

The canal solves the problem of Turkmenia's fresh water supply for industrial uses.

It will bring fresh water to Krasnovodsk, to the workers' settlements of Cheleken, to the railway stations and junctions of the Ashkhabad line. Their need of water satisfied, the industrial centres of the Republic can apply themselves to a more energetic exploitation of the great natural resources of western Turkmenia.

A green belt will skirt the irrigated and reclaimed territories and flank the canal, covering a total area of 500,000 hectares. This land, unlike that in the European part of the U.S.S.R., with its forest belts will have to be irrigated. The green belt of Turkmenia will protect the Republic's industrial centres, kolkhozes and sovkhozes, its towns and villages against winds, which in these parts develop a velocity of 40 metres per second.

Strong green walls will rise along the large canals and around the reservoirs. From the Tahia Tash to the oasis of Charyshly the green tracts will stretch for a distance of 400 kilometres, from Kazanjik to Kyzyl Atrek—a slightly shorter distance. The shelter belts will consist of durable trees: the ash, the poplar, the white acacia, the apricot and the mulberry tree. Thanks to the mulberry the Republic's output of natural silk will increase six times over.

The neighbourhood of the canal is to be densely wooded. This will also be very important economically. Under the favourable natural conditions these forests
will annually yield one thousand cubic metres of wood in the next 25-30 years.

A solution has also been found for another intricate problem, that of the shifting sands. These will be anchored by means of special varieties of bushes. The black saksaul, to cite an example, sends its roots to a depth of 10 metres, thus fixing the soil. In 10 years the black saksaul will reach a height of seven metres and its trunk will be 25-30 centimetres in girth.

The Main Turkmen Canal will roll its waters from the Caspian to the Amu Darya. This waterway will operate at all seasons. Remote districts of Central Asia will be given a direct outlet to the Caspian Sea and the Volga, direct contact, that is, with Moscow and Leningrad.

The realization of this colossal undertaking will involve a host of difficulties, will demand that new and complex problems be solved. What safeguard, for instance, can the builders find to prevent excessive filtration and leakage in an artificial river bed? Too many canals lose half their water on this account. This cannot be permitted in the case of the Main Turkmen Canal. Should the bottom and the walls of the canal be lined with asphalt or with concrete? No, that would be too costly. Soviet scientists found a remarkably cheap and simple solution of this dilemma: clay. Clay that would be let into the canal with the first water, clay that would stop up the tiniest chinks and crevices between the grains of sand and small lumps of earth. The bottom of the canal, said the Soviet scientists, should be covered with a waterproof coat of clay. This method has already been tested in irrigation systems and has been found highly satisfactory.

Silt was also to be reckoned with. In flood time, each cubic metre of Amu Darya water contains 12 kilograms of alluvium. The silt content of the water running in the canal would be equal to some 20-25 million tons. These are to be removed by electric excavators and suction dredges.

* * *
The Soviet people heard of the Government’s decision to build the Main Turkmen Canal with deep gratification. By the working people of Turkmenia this grand construction job of Communism was hailed as “The Canal of Life.” With good reason, for the canal will breathe new life into the deserts of Kara Kum. Turkmenian industry and agriculture are on the eve of a great upsurge. Mighty forests will keep out the fierce winds. The climate itself will become more temperate. Beautiful new cities will be built in Turkmenia.

The construction of the Main Turkmen Canal together with the other magnificent enterprises of the Stalin epoch are a crushing blow to the camp of imperialism, to the fomentors of a new world conflagration. The plain people of the world know that the Soviet people are bent on peace, not war, that the Soviet people are building for Communism.

IN SOUTH UKRAINE

That part of the Ukraine which is in the steppe zone is potentially a land of plenty. A huge area of the southern part of the Soviet land is known as the Chernozem Belt. The climate is warm and sunny and the area has all the necessary conditions for raising bumper crops of winter wheat, cotton, rice, castor-oil plant and grapes. All, that is, save one.

The harvests here, as a rule, are poor ones and the variety of produce scant. When it is time for most of the plants to ripen there is no moisture. Rains fall in spring and in autumn. In summer the weak stems of the plants are broken by hot dry winds, which come in a black storm, and are scorched by the blazing sun. Twenty-two out of sixty-three summers (1887-1950) were droughty. Matters are even worse in the area between Kakhovka and the mouth of the Dnieper liman. This broad strip of sandy territory, 136 kilometres in length, is locally known as the “Kherson Kara Kums.” Many regions of the Dnieper’s left bank are arid steppe land.

The collective farmers, employees of the machine and tractor stations and of the farms of South Ukraine wage
a relentless struggle against the elements. The Soviet state renders them effective aid in their valiant fight. Many of the kolkhozes managed to bring in good harvests even in times of drought. And yet, the earth’s vast potentialities have remained unexploited to the full.

The tillers of the soil had long conceived the alluring idea of utilizing the Dnieper’s vast water resources. Our foremost scientists cudgelled their brains over the problem. However, with the tsar in power, there was no hope of making this ambitious irrigation plan come true. It was only after the Soviet system took over that the will of the Bolsheviks began to materialize the age-old dreams and aspirations of the working people.

In the years of the First Five-Year Plan, on Comrade Stalin’s initiative, the giant Dnieper Hydroelectric Station, named after Lenin, was built. Its dam lifted the water level, flooded the reeds and formed the Lenin Lake with a cubic content of one kilometre. The Dnieper became a source of colossal energy. During the late war the dam of the Dnieper station and the power house were blown up. In 1947, the hydroelectric station, rehabilitated, was again furnishing power for industrial needs, and navigation was resumed along the entire route of the Dnieper.

The successful completion of the postwar Stalin five-year plan lent impetus to the productive forces of the Land of Socialism. The growing economic might of the Soviet Union gave birth to plans of astounding scope.

Other prominent features in the series of enterprises glorifying the Stalin epoch are the construction of the Kakhovka Hydroelectric Station on the Dnieper, the South-Ukrainian and North-Crimea canals.

Water from the Dnieper will perform wonders with the land. There will appear great cotton plantations, flourishing orchards. The fields here will yield bountiful harvests of crops of every description. Experiments have made it safe to prophesy that the irrigated soil is bound to give up to 20 centners of cotton, up to 35 centners of winter wheat, up to 300 centners of potatoes, up to 90 centners of grapes and other fruit, up to 500 centners of beet per hectare.
The Kherson Region, as a result of irrigation, will become a top rice centre. Each hectare will give no less than 300 poods of rice. The cattle breeders will get magnificent pasture land.

The Dnieper scheme, approved by the Government, is so planned that the drawing off of water for the canal from the Lenin Lake will not affect the work of the Dnieper Hydroelectric Station.

Upstream from the city of Melitopol, a hydroelectric development is to arise on the Molochnaya River with a planned capacity of 10,000 kilowatts. An earthen dam, 40 metres high and 8 kilometres wide, will form a reservoir holding six cubic kilometres. At flood-time the canal will transport Dnieper water from Lake Lenin into the reservoir.

Besides, a hydroelectric station will be built at Kakhovka which will have a reservoir with a volume of 14 cubic kilometres. In low-water years a special canal will deliver water from this huge reservoir for the irrigation system. Irrigation will be mechanized. The Kakhovka Hydroelectric Station will yield half of its power for agricultural needs. Hundreds of machine and tractor stations, kolkhozes and sovkhozes will draw on cheap Dnieper power. All the important aspects of kolkhoz work will be mechanized. Electrical tractors and other electrically operated machines will make the labour of Soviet farmers much more productive.

The northern regions of Crimea, like South Ukraine, are noted for their warmth and sunshine. All they lack is, again, fresh water. At a time when plants are in urgent need of water, precipitations are as scant as from 20 to 30 millimetres. And this when such valuable crops as winter grain and fruit are grown here! Were it not for the lack of rain, cotton and grapes would be giving splendid harvests here.

The Government-approved scheme provides for the delivery of water from the Dnieper to North Crimea. The North Crimea Canal will irrigate and water the territory between the Sivash and the city of Kerch—some 300,000 hectares. Formerly, this stretch of land had but small,
isolated areas under irrigation. The wheat and fruit harvests will sharply increase. Areas with overhead irrigation will give the country tens of thousands of Crimean grapes. There will be more aromatic Crimean tobacco.

The Soviet industry receives a great part of its essential oils from the Crimea. Irrigation will greatly stimulate the raising of such perennial essential oil-bearing plants as the rose, the lavender, the sage and the rose geranium.

As a result of irrigation the Crimea will grow more vegetables, enough to satisfy the needs of her population, the needs of her rest homes and sanatoria and her canning industry, which will produce additional millions of tins per annum.

The problems of animal husbandry in the Crimea are also solved by irrigation. Larger grazing grounds, more hay and watering places will double the herds of karakul and other sheep. Cattle, pigs and poultry will likewise increase in number.

This list of benefits to be derived by the Crimea from the canal would not be full should no mention be made of the fact that first Kerch and Feodosia, then Simferopol and Eupatoria will receive fresh water. Water supplied by the canal will be a great asset in the development of the metallurgical industry in Crimea.

The Kakhovka power station will be another major hydroelectric development on the Dnieper. Its capacity is estimated at 250,000 kilowatts and it will sustain an annual consumption of 1,200 million kilowatt-hours in an average year. As pointed out previously, half of this amount will be consumed by agriculture, and the other half by industry.

The entire system of the two canals will be protected from the dry steppe winds by a screen of shelter belts. These will stretch out along the canals, around the reservoirs and above the collateral irrigation canals and skirt the irrigated areas. They will heighten the humidity of the air.
THE VOLGA-DON CANAL

The idea of connecting the Caspian and the Black Sea had formed centuries ago in the minds of the people. It was a vital problem, born of national interests and the interests of trade and progress.

The Volga-Don project received much attention in the very first years of Soviet government. In May 1918, the Council of People’s Commissars at a meeting presided over by V. I. Lenin adopted a decision authorizing preparatory work on the Volga-Don Canal, described by Lenin as “a powerful transportation lever destined to transform the economy of the backward regions of southeastern Russia.” At the same time the administration of the project was formed but the outbreak of the Civil War put a stop to all work on the canal.

Construction of the navigation canal to be used also for irrigation began before the Great Patriotic War in accordance with a plan worked out by Soviet engineers who were carrying out Comrade Stalin’s instructions. A canal joining the Don and the Volga was to crown the great work of reconstructing and building navigation routes linking up the White Sea, the Baltic and the Caspian seas with the Azov and the Black seas. War once again interfered.

The total length of the trunk canal and the distribution canals will be 758 kilometres. The total length of all the canals to be constructed, excepting the temporary water-feeders, will reach the 30,000 kilometre mark. All in all, 600,000 hectares are to be irrigated in Rostov Region, 150,000 in the Stalingrad Region, and in each a million hectares of land are to be watered for pasturage. Cheap power from the Tsimlyanskaya Hydroelectric Station will bring about the electrification of pumps and vessels on the canal and make electricity a common utility in agriculture.

At present, the Don is navigable only from the Tsimlyanskaya village down to the river’s mouth. However, its insignificant depth impedes its exploitation in the interests of transportation. The Tsimlyanskaya dam will
lift the water to an elevation of 26 metres, while the Tsimlyanskaya reservoir will afford a navigable route 170 kilometres long.

The Tsimlyanskaya reservoir will hold a huge reserve of water. Its cubic content will be 12,600 million metres of water, which normally flowed down the river and into the sea in the short season of spring floods. In summertime the accumulated reserve will be sent down the river to increase the depth of the lower reaches of the Don. Inasmuch as a hydroelectric station is being built at the dam the water will first pass through the turbines. The Lower Don will have four other hydraulic installations. Thus, the Don will become a deep-water trunk route from the town of Kalach to the mouth of the Don. The day is not far off when ocean liners will cast anchor in the port of Rostov.

The total length of all the waterways under exploitation in our country was, in 1947, 110,000 kilometres, which was more than the total length of Soviet railway lines and more than twice the total length of the inland waterways of the United States. The Volga navigation system is the country’s most important inland system of water transportation. In the years of the Stalin five-year plans new hydraulic developments have been built on the Volga which have lifted the water level to an appreciable height. Once the Kuibyshev and Stalingrad hydroelectric developments are built, the Volga will become a deep-water navigation line along its entire route, capable of handling an enormous amount of river traffic. At present, the Volga system has direct connection with the Baltic Sea via the Volga-Baltic waterway, and with the White Sea via the White Sea-Baltic Canal (named after Comrade Stalin). The Moscow canal has made the Soviet capital a port of three seas.

The Volga-Don juncture, connecting the navigation systems of these two rivers, furnishes navigation routes connecting Rostov on the Don with Belomorsk, Leningrad, Arkhangelsk and Moscow.

The national-economic importance of the Volga-Don navigation canal is truly great. The Azov Sea has ceased
to be a blind alley of the ocean. The Caspian will become directly connected with the Black Sea. An endless flow of timber from the Kama, oil from Baku, coal from the Donbas, salt and grain from over the Volga, chemical fertilizers from the Far North, will be shipped to all parts of the country.

The Volga will unite a vast territory in one continuous water system. Moscow will become a port of five seas.

Soviet people take a special interest in the Volga-Don Canal. Small wonder, for when the Volga-Don Canal goes into operation there goes into operation the first of the great construction works of Communism. The Soviet Government has seen its way clear to cutting down the scheduled construction time by two years. The spring of 1952 will see the first giant construction work of Communism go into operation.

**POWERFUL SOVIET MACHINERY**

The five great engineering projects of Communism now under way represent a vast construction front.

In five to seven years about 3,000 million cubic metres of earth have to be removed, which is 20 times as much as was excavated at the Moscow Canal. The concrete to be poured amounts to no less than 19 million cubic metres, the equivalent of the quantity poured when the Dnieper water-power station was built—only multiplied by sixteen. Within the same space of time hundreds of thousands of tons of metal sections and equipment must be assembled and installed.

If this colossal amount of work is to be performed in such an extremely limited time an abundance of the most modern machinery is imperatively necessary. This machinery we have. Under Communism, Comrade Stalin teaches, the national economy, organized according to plan, will be based on the highest level of technique. This precept, laid down by Stalin, is being applied by the Soviet people with the utmost enthusiasm. Last year alone our domestic industry produced over 400 new types and models of high-efficiency machines. Their number in-
cludes high-power and superpower construction equipment: giant excavators, powerful dredges, scrapers, dumpcars, bulldozers, etc. These machines are regarded by Soviet builders as prototypes of the perfect technique of Communism.

Consider how the Volga-Don operation is forging ahead. All the heavy work is done by highly productive and clever machinery, the product of the genius of Soviet men. They dig the ground and remove it to the place specified. They lay concrete and convey building material. They do everything man wants them to. And only in the recent past all big construction sites teemed with navvies, carts and wagons. Earth work is now mechanized 97 per cent, and even a higher figure is expected. Only in the Land of Socialism, under socialist building conditions, is such an abundance, variety and modernity of machinery possible. Soviet excavators provided with scoops holding from half to fifteen cubic metres of earth have been put to work at these operations. At the Volga-Don building site we use excavators each of which consists of 53,000 parts and takes 52 railway cars to transport. A Ural walking excavator wields a scoop that will remove 14 cubic metres of earth in one operation. This is the famous ESh-14-65, the product of a large group of Soviet scientists and engineers directed by Boris Ivanovich Satovsky. This triumph of collective labour was so highly appraised by the Government that its creators were awarded a Stalin Prize, First Class.

Another marvel of up-to-date mechanics is the superpowerful excavator put out by the Novo-Kramatorsk plant. The height of this machine is that of a nine-storey building; its weight exceeds 1,000 tons. Each day it excavates sufficient earth to load 2,000 railway cars. It replaces 10,000 labourers. Twenty-five such giants can dig in one year's time a canal the size of the Moscow Canal.

Wide use is being made of scrapers—immense tractor-drawn scoops on wheels. On arrival at the place of work the scraper cuts a slice of earth, scoops it up and conveys it a distance of 100-150 metres. A 6-m³ scraper digs
500 cubic metres a shift. It is operated by a single driver and takes the place of 60 labourers and that many wagons. People respectfully refer to the scraper as "a machine with a higher education."

The "dry" method of removing earth is paralleled by a "wet" method. Water is put to work. Special hydraulic appliances loosen up the earth. Powerful centrifugal pumps suck in the fluid mass—the pulp—and pipe it through to the place of construction. Here the earth finds lodgement while the water flows off, down to the river. That is how earthwork dams are filled in. These suction dredges are capable of "swallowing" whole chunks of rock as long as these do not exceed the aperture in dimension. One of these pumps can get through a thousand cubic metres of pulp an hour, equivalent to the work of 10,000-15,000 navvies. A suction dredge can get up earth from a depth of 17 metres, pipe it a distance of three kilometres, or lift it 80 metres. This huge machine is operated by a crew of 10-12.

A group of engineers has received a Stalin Prize for designing, mastering the production of and applying in practice this powerful suction dredge.

Transportation facilities, including roads, are of particular importance to construction. This is quite understandable. Millions of tons of miscellaneous freights have to be transported. They include sand, stone, concrete, metal sections, equipment, cement, bricks. Every means of transport is employed: automobiles, railways and water craft. Building materials are also transported by belt conveyers. A belt one metre wide moving over rollers at a speed of three metres a second can convey 30,000 cubic metres of freight a day. As the capacity of excavating machinery increases, the freight-carrying capacity of the transport facilities must likewise increase. Ten-ton dumpcars are already in use and the first 25-ton dumpcars are already off the conveyers.

Each year road building is more and more mechanized. Bulldozers are used to prepare the ground. A bulldozer functions like a big knife the shape of a plough-share. In one hour it can clear shrubbery and level out
six hectares of land, which means doing the work of 300 people.

Roads are laid by machines. The bulldozer in the van lays the bed. A self-propelled roller follows and beneath its weight the earth becomes like hard rubber. Other machines join the procession, leaving behind them a ready road.

A powerful elevating grader is used to raise a railway embankment 2½ metres high. The rails and ties are put in place by a mechanical roadlayer, commonly called a railway combine.

Hundreds of kilometres of railway track and automobile roads leading to the construction sites have already been laid. The loading and unloading is completely mechanized. The travelling and stationary cranes are capable of lifting 30-ton loads.

As has already been said above the giant construction operations require the pouring of immense quantities of concrete. This important building material is being prepared by automatized concrete plants eight storeys high, which can be assembled and disassembled. A crew of eight suffices: a dispatcher, three operators, an electrician and three fitters. Everything is done by machines. A central control panel regulates the entire plant. Time is calculated in seconds: loading the concrete mixer—5-8 seconds; mixing—120-160 seconds; delivery of concrete ready for use—25 seconds. Every hour the concrete plant processes two trainloads of materials or 1½ carloads per minute. Every hour 1,000 cubic metres of concrete are produced. The concrete is delivered to the place of pouring in special buckets, each holding three cubic metres. The designer of the automatized dismountable concrete plant was awarded a Stalin Prize for his outstanding invention.

A most important feature of technical progress made in construction is the extension of machanization to every part of the production process. For instance, supports for electric transmission lines will be set up in the following manner. A movable pneumatically operated excavator digs the pit; a powerful travelling crane delivers the
Another barge with freight for the construction of the Main Turkmen Canal is being unloaded at Tahia Tash.

THE Kara Kum Desert, occupying three quarters of Turkmenia's territory, is one and a half times the size of Great Britain. The Main Turkmen Canal, launched by the Soviet Government, will bring life to the Kara Kum and turn it into a flourishing region. The starting point of the canal is the small Turkmen town of Tahia Tash lying at the mouth of the Amu Darya. Stretching for 1,100 kilometres across the desert, it will irrigate 1,300,000 hectares and will water 7,000,000 hectares of pasture land.
metallic support and sets it up; travelling concrete mixers bring the mixed concrete to the required spot.

We have spoken here by way of illustration of only a few of the machines used at the construction sites. Actually many more kinds are used. Soviet machine builders will not rest content with past achievements. Technical thought is constantly advancing and ever more perfect machines are being evolved.

The Stalin premiums awarded for work of outstanding merit in the field of science and invention for the year 1950 attest to the new major successes achieved by Soviet science and technology. The work of the Stalin Prize winners greatly promotes the development of Soviet technique.

As Comrade Stalin pointed out, “in charge of people who have mastered technique, technique can and should perform miracles.”

Bearing in mind this precept of the great leader, builders are seriously taking up studies so as to be able to master technique to the point of perfection, so as to be able to extract from it all that it can yield. No wonder output records of Volga-Don excavator crews are mounting from month to month. Our remarkable Soviet technique has been placed in the skilled hands of the Soviet workers, the solicitous builders of Communism.

* * *

In five to seven years, vast territories comprising more than 28 million hectares, will be rid forever of such calamities as lack of water, drought and hot dry winds. These irrigated massifs will be almost 10 times as extensive as those of the Nile and 3½ times those of the U.S.A. The total territory under irrigation in the Soviet Union amounts to almost ⅓ of all irrigated land in the world, representing thousands of years of human endeavour.

Don water will be carried 200 kilometres to replenish the Manyche and from a distance of 500 kilometres Kerch will receive clean, fresh Dnieper water. Water from the Amu Darya will travel over 1,000 kilometres before it
reaches Krasnovodsk, which has no fresh water supply. Thus potentially fertile lands are provided with vivifying water.

Sun-scorched arid regions will be converted into blooming fields. The sands of the areas traversed by the Dnieper and the Don, those lying near the Caspian Sea and those of the Kara Kum Desert will now be fixed to prevent their further shifting. Young forest will be heard rustling along the banks of the canals. Gardens will bloom where deserts pined before.

Kherson Region will be growing rice. In the Amu Darya delta the world’s greatest cotton district will make its appearance. Essential-oil-bearing plants will grow in abundance in the Crimea. The wheat crop harvested in the irrigated lands near the Volga will exceed Canada’s entire production. It will be twice as great as France’s crop and four times Argentina’s. Southwest Turkmenia will be transformed into one great subtropical orchard. The four new artificial seas will render the main rivers of the European part of the Soviet Union much more navigable.

The longest canals in existence will traverse the southern and southeastern parts of the country. They will interlink six seas. Water lanes will stretch from Belomorsk to the Afghan border, from Leningrad to Batumi.

A galaxy of eight hydroelectric stations will annually generate over 22,000 million kilowatt-hours of cheap electric power. This will make possible an economy of tens of millions of tons of fuel each year. Thousands of kilometres of wire will transmit this energy to the cities, and to industry, transport and agriculture. Already school children paste newspaper excerpts about the new constructions into their geographies. Five years hence new maps will be required. The yellow areas marking desert lands will be decked out in abundant verdure. The new maps will bear the names of the new seas, cities, canals and highways.

The great constructions of the Stalin era will accelerate the creation of the material and technical basis
required by Communism. Putting the irrigation systems, canals and hydroelectric stations into operation will mean a further improvement in the welfare of the Soviet people, and will create in our country an abundance of foodstuffs and industrial raw materials. At the same time the grand projects we have mentioned are models of what our economy will be like in the not very distant future. These magnificent works will still further embellish the Land of Soviets, the Land of Communism, will beautify the life of the first creators of the new happy society.

The great aim of building Communist society inspires the Soviet people, energizes them and stirs to the utmost their desire to devote themselves wholeheartedly to the prosperity of their Soviet Motherland. Boldly and confidently the Soviet people face the beautiful morrow in store for them. The plans governing the great constructions of Communism will be fulfilled. The guarantee of their fulfilment is contained in the wise leadership exercised by the Bolshevik Party and by the working people's great leader and teacher, Comrade Stalin.
Day and night trains carrying freight for the great construction works of Communism speed to their various destinations. We learn what these are from the cards pasted on the box and flat cars which read: "To the builders of the Kuibyshev Hydroelectric Station," "For the Stalingrad water-power plant," "Kakhovka H.E.S.," etc. The flat cars are loaded with automobiles, cranes, excavators. From everywhere machinery, machine tools and building materials are being rushed to the shores of the Volga, the Dnieper and the Amu Darya.

The Soviet people have remained faithful to the glorious tradition of offering their Stakhanovite labour to assist the remarkable building operations under way in their native land. This tradition can be traced back as far as the first Stalin five-year plan periods. It was by the united efforts of Soviet patriots that the Dnieper Hydroelectric Station, the Stalingrad and Kharkov tractor plants and the Magnitogorsk and Kuznetsk iron and steel mills were built.

Recalling those days long gone, the Stalingrad tractor builders, at a general meeting, gave expression to the patriotic sentiments of the country's working population in the following fervent words:

"Twenty years ago our tractor plant, the first of the major industrial enterprises projected under the Stalin five-year plans, began to be erected. The whole country came to our aid, owing to which the plant was finished in a remarkably short time.

"Now we, the workers of this plant, consider it our
public duty, and a matter of honour for each of us, to help the builders of the Stalingrad Hydroelectric Station."

In every corner of our land like-minded people hasten to participate in the national movement to insure that the new power giants are put in operation at the earliest possible date, that the inauguration of the world’s biggest canals and irrigation systems take place ahead of schedule.

Workers in the most diverse branches of industry—miners, machine builders, metal workers, oil workers—all vow in unison to make worthy contributions to the cause of building Communism.

Here is the heartfelt pledge given by Comrade Kulikovsky, a steel melter, employed at shop No. 3 of the Petrovsky mill:

“The erection of the water-power stations on the Volga and the Dnieper and the building of the Main Turkmen Canal require a great deal of steel. Let us build a big stockpile of metal out of our above-plan smeltings!”

At the Kirov Elektrosila plant in Leningrad emulation has developed for the preschedule filling of orders intended for the great projects. Each department appoints a “sentinel” to keep watch and see that the time limit set for each job is observed, that the latest technology is applied and that the necessary appliances and tools are made and provided.

An admirable undertaking! It has been met with approval all over the country. Here are some of the results: the Urals transformer plant has considerably overfulfilled its plan of deliveries to the constructions that will bring us close to Communism. The January Uprising works in Odessa has made a shipment of automatic cranes to the Kuibyshev construction site ahead of scheduled time.

The Novo-Kramatorsk steel melters are already producing thousands of tons of high-grade steel castings for the hydraulic turbines, the lock equipment and the power transmission lines.

Steel melter Kulikovsky displayed excellent initiative. He was the first to produce nine tons of steel per square
A GOVERNMENT decision published on September 21, 1950, called for the construction on the Dnieper of the Kakhovka Hydroelectric Station with a power capacity of 250,000 kilowatts, of the South-Ukrainian and North-Crimea canals, and for the irrigation of Southern Ukraine and North Crimea. A system will be created that will irrigate 1,500,000 and water an additional 1,700,000 hectares of land in Southern Ukraine and in North Crimea. A new power base is being set up on the Dnieper.
metre of furnace bottom, the standard output being six tons.

This record created a stir among steel melters and it was soon emulated by hundreds of others, likewise imbued with patriotic fervour.

"We'll increase oil output above the plan figures!" is the pledge of the foremost Baku oil workers. And Stakhanovites never fail to keep their pledges.

The All-Union Central Council of Trade Unions has radioed and published in the press the resolution it adopted on the Elektrosila's undertaking. It calls upon all trade union organizations to develop socialist emulation for the successful filling of orders for the historic constructions on the Volga, the Dnieper, and the Amu Darya in Central Asia, laying particular stress on high quality. Those that come out on top in this all-Union emulation would be awarded honorary certificates.

The grand constructions of Communism, begun on the initiative of the great Stalin, express in equal measure our might and our love of peace. The Soviet people are engaged in peaceful tasks of a scale exceeding any constructional enterprise that the history of mankind has recorded.

Our people are enemies of war. They are in the van of the fight for peace.

The construction works that are being reared by our people on the Volga and the Dnieper, and in the sandy wastes of Central Asia, include magnificent pieces of architecture and are unparalleled in grandeur of conception.

Suffice it to say that the earthwork involved in the erection of the gigantic hydraulic installations will alone amount to several hundred million cubic metres.

Human hands armed with only picks and shovels would hardly be able to cope with such a herculean task. At best it would take several decades.

But we are living in different times now and different people populate our part of the globe. The Urals boast a machine-building plant that is named after Orjonikidze. Its Stakhanovites, engineers and rationalizers have
brought their energy, ingenuity and perseverance to bear on the mechanization of the navvy’s job. They have put out an excavator which in efficiency and size exceeds any contrivance hitherto produced for this purpose.

This engineering marvel rivals a five-storey house in height. Its jib is 65 metres long, which enables the machine to dump its load almost 150 metres away without moving an inch.

And a new name ought to be invented for the scoop, for how can you call it a scoop when it can accommodate a passenger car with the ease of a private garage! It holds an even 14 cubic metres. And if the jib is shortened its scoop can be enlarged to hold 25 cubic metres.

The designers provided the giant excavator with legs and feet, the latter being enormous hollow beams, the former two pairs of hydraulic cylinders.

The body contains numerous appliances for operating the excavator: slewing gears, traction and lifting winches, suction apparatus. The machine is operated by an engineer, a university-trained driver. He operates the machine by means of push buttons on the control panel in front of him.

For locomotion the operator pushes the corresponding button, which makes the excavator stand up on its “legs.” Its body rises above the supporting frame and moves forward. The body then lowers itself again until it rests on the frame while the “legs” move slightly up and forward, thus taking the next step.

Considering its weight of 1,150 tons the walking excavator does not move slowly. In one minute it makes one step, two metres long.

On the job the excavator is usually far removed from any repair shop. An electric bridge crane has therefore been installed in the body so that any part requiring repairs on the spot may immediately be hoisted.

One looks with awe and wonder upon this nimble monster, this product of Soviet creative genius.

Good luck to you, our mechanical assistant!
FOR OUR DEAR OLD KAKHOVKA

By IRINA GOLOVAN

Little white houses are clinging to the mountain side. Trees, their leaves wilting in the sweltering heat, look down upon the Dnieper waters from the precipice above. The wide sand-strewn beach is cluttered with every manner of freight: piles of bricks show pinkish in the sun; alongside, stacks of lumber rear their heads and a little further on the eye catches glimpses of automobile tires, sacks chock-full of stuff, a lot of loose machine parts and a miscellany of other consignments.

“Kakhovka!”

No sooner had this word escaped the lips of one of the passengers than it was repeated by scores of people and could be heard all over the boat. The passengers crowded on the portside of the steamer and gazed at the slowly approaching shore. Greetings, Kakhovka, so dear to the entire country!

There was much noise and congestion at the landing. Entire families with their little ones and plenty of baggage were coming down the gangway. They had arrived for permanent residence and work. A group of young folk surrounded two girls who had jumped ashore from a motor launch. Somehow the news immediately spread that they were technicians and were going to the testing grounds for the filling in of the dam. They were showered with questions. Then some lad espied an announcement posted up on a tree and gleefully passed on the information it contained: that preparatory courses for the Odessa Hydrotechnical Institute were starting. “That’s just fine,” he declared. “We’ll work and study at the same time.”
"Is there a night school here?" anxiously inquired a small, swarthy and rather stocky young chap.

"Of course there is. How could such a construction site be without an evening school?"

At a bend of the street that led up to the town from the landing a wooden sign-board could be discerned through the obtruding foliage. Inscribed was the following legend in huge letters:

"The construction of the Kakhovka hydrotechnical development is the intimate concern of all Soviet people."

All the new arrivals had to pass this sign in Kakhovka's sun-flooded street. They included a pearly-teethed Georgian, a bricklayer from Voronezh, a dark-haired girl from Poltava and a broad-shouldered tractor driver hail-ing from Siberia.

Professor Alexander Mikhailovich Senkov had come to Kakhovka to tell the builders about the type of spill-way which in hydraulics is known as a "Senkov Dam."

The professor's audience, among which were many whose experience went back to the building of the Dnieper Hydroelectric Station, interestingly scrutinized the miniature cardboard model placed on a table, but entertained some doubts. It really looked somewhat unusual and was a far cry from the massive concrete impediment usually erected to stop the flow of the deep and powerful stream.

"Isn't it built too frailly? Do you suppose it's safe?" a red-bearded engineer whispered to his neighbour.

The professor either overheard or surmised the sceptic's remark. "Is it safe?" he repeated with a smile of evident satisfaction. "That's the very thing we shall now discuss."

The Senkov Dam model resembled a capsized boat. Like a ship it had two sides and longitudinal and transverse bulkheads. By means of the lower ends of the bulkheads—the concrete walls—the dam is to rest on the ground which at the same time is to fill in all the interstices between the walls. The idea was that for the purpose of blocking the movement of the water, maximum use was to be made of the material nature provided, that is, the ground available on the spot.
The decided advantage of such a dam is its economy. It will require only a fraction of the concrete needed for the ordinary, massive dam and can be erected much faster. Besides, calculations and practice have shown that with certain soils this type of dam is safest.

The cardboard model now passed from hand to hand. The more closely the audience became acquainted with the Senkov Dam the more it caught their fancy. For many years this scientist's idea was applied in practice to only small installations but recently a variant of the Senkov Dam has been used with success at a major construction site. Investigations are now in progress to ascertain the applicability of this variant to the Kakhovka hydraulic engineering project. There is great likelihood of its selection by the project authorities.

The builders plied the professor with questions indicating that they were already making mental notes of how this new problem had best be solved.

Suddenly the strains of a melodious song filled the room. Through a window refulgent with the light of the setting sun they saw a girl at work on the scaffolding. She wore overalls and a faded kerchief spotted with plaster. On seeing the crowd of people engaged in serious discussion she abruptly stopped singing and fled in confusion. But already all heads were turned in her direction and even the professor suddenly stopped in his remarks and long pursued her with his glance.

There she is, the renowned heroine of the Kakhovka of today—the girl on the scaffolding, with trowel or paint brush in hand, the younger sister of that other girl who is commemorated to this day in a song describing her in a heavy, soldier's greatcoat marching through fire and smoke along the shell-torn streets of Kakhovka.

From every corner of the land, from town and countryside, young men and women assembled here to build the new Kakhovka. They brought with them the zest and pertinacity of youth, their eager desire to apply their strength to the most difficult and necessary task of the day.

Felixsa Gnatovskaya was born and bred in the neighbourhood of Kakhovka. She was only nineteen when she
was considered the best cotton-team leader of her district. Besides, she held the office of secretary of the local kolkhoz Komsomol organization. She had a good knowledge of the soil, loved it and knew how always to get out of it a little bit more than the calculations and plans provided. But there were years when as early as May the blazing sun mercilessly scorched the fields, and cracks like cobwebs covered the parched soil. At such times Feliksa would scan the cloudless porcelain blue, touch the torrid earth with her fingers and burst into tears in bitter recognition of her utter helplessness.

She was attending a regional congress of the Komsomol when the radio and newspapers spread the news of the new great constructions that were to rise in the Ukraine. It seemed to her that she had long been expecting such a decision. Feliksa declared right there at the session that she was going to do her bit in the building operations.

She reported at the personnel department of the Dnieper station construction administration—a mere slip of a girl with light blue eyes that had a tender yet serious look. She wanted to be a plasterer, by no means the simplest of skills. In the building workers’ schools plasterers were trained for months. But Feliksa asked to be sent straight to a builders’ brigade. “I’ll learn how in a jiffy,” she proclaimed. She was sent to Maria Parkhomenko, an excellent plasterer who, like her, had been a member of a collective farm. Feliksa memorized every motion of her teacher and went through these motions dozens of times a day. In a fortnight she knew her job well, and in another two weeks headed a youth brigade which is now one of the best at the construction site.

In long overalls and bespattered kerchief Feliksa, the erstwhile cotton-team leader, now rules the scaffolding in which one of the new Kakhovka buildings is swathed. She had signed up for an evening school during the winter and convinced all the girls in her brigade that it would be best for them to do likewise. “You can’t get along in a place like this without studying. You’ll fall behind and then won’t be able to catch up.”
Ivan Skrynnikov was a native of Lvov and had come to Kakhovka with his wife, an infant baby and an adolescent brother. They arrived in April on a clear but windy day. Whitecaps danced in the blue waters of the Dnieper. On the hilltops of Klyuchevoye the wind raised tiny but vicious whirls of sand which covered the vines nearby. There, on a desert hill, a meeting was held. It was addressed by a representative of the Dnieper station construction administration who told the new arrivals about the city that was to rise in the very centre of the Kakhovka hydraulic development in place of the village of Klyuchevoye.

A clear picture of this city immediately formed in Skrynnikov's mind—a city with rectangularly laid-out streets, with a theatre, schools, a stadium and tennis courts—a city reclining on the shore of an artificial sea—and he already loved that city. He took part in laying the foundation of its first house. At a later stage he worked in a carpenter's brigade that began to assemble prefabricated wooden houses. At first it took them five days to put up a house, then two, then one. At present the brigade fulfils 200 per cent of its assigned task. In other words, it sets up two houses every day.

Skrynnikov is sometimes asked:

"Aren't you sorry you brought your whole family along? You must be having a hard time of it here with the baby. And then that awful sand..."

But he replies, somewhat surprised:

"How can anybody be sorry with such a fine city in prospect! And the sand doesn't worry me in the least. There will be plenty of asphalted streets and greenery."

The fine city with its asphalted streets and greenery is still a matter of the future, but before long— it will be a present reality.

The new city is springing up 14 km. south of the old. It has not been named yet but it is being referred to as New Kakhovka. Not only dwelling houses but all kinds of auxiliary premises have already been constructed. In the sandy wastes through which cars but recently could hardly make their way, railroads and highways are being
The water is released at the Tsimlyanskaya dam for the first time
laid, a steam-power electric station and a powerful concrete plant have been built and a factory making reinforced-concrete blocks has been begun. Everything is planned here on a grand scale but things have not yet been finally fixed. They exist only in outline. Much is still in a state of flux, changing with every day and hour.

Lida Chornaya, a hydraulic technician, studied at the Zaporozhie technical high school. Once during a lesson the instructor said, “You will all remember how our city looked in 1927.” The class burst into laughter, for none of the students had been born before 1929. It was hard for them to imagine Zaporozhie without its granite palace-like electric station, without the lacework formed by the high-tension transmission poles and wires, without the intertwining branches of the trees that grew in dense woods on the right bank. And the instructor, an elderly man who had taken part in the Civil War, smiled as he heaved a sigh of reminiscence and explained:

“Well, at any rate you will live to see other building operations and still more marvellous transformations.”

Now Lida sits at her desk in the small temporary Klyuchevoye office. Outside her window she can see the steel jaws of the road-building machines at work amidst clouds of dust, while grapevines are trailing nearby. And roundabout there is constant talk of the shores of the new sea, of the new-type dam and the ship-bearing lock to be constructed.

The youthful builders of Kakhovka are merging with the big, firmly-knit family of the veteran Dnieper station construction workers. Alongside of Feliksa Gnatovskaya, Lida Chornaya, Ivan Skrynnikov and others there are workers who really well remember the bare steppe that existed where today extensive woods shade the right bank of the Dnieper at Zaporozhie, who recall the villages where now Lake Lenin lies, and remember the laying of the foundation of the Dnieper power plant.

In 1929 the bricklayer Ivan Andreyevich Ryazanov arrived at the Dnieper station construction site. Subsequently he was engaged on many other construction jobs but has recently returned to build houses in Kakhovka. He
instructs the youth and addresses meetings of bricklayers, carpenters and plasterers. His word carries weight with all, for he is one of the men who built the original Dnieper station.

In the days when that station was under construction Faina Istomina, on Subbotniks arranged for the youth, used to lug barrows loaded with earth, plant trees and unload barges. During the war she became an engineer and worked at a munition plant. She then went back to Zaporozhie to help restore the hydroelectric station. Today she heads a laboratory in Kakhovka for testing building materials. And just think how many young men and women from among those who today perform unskilled labour at the construction job will traverse the same path as Istomina, will become good engineers, qualified specialists in their particular line of work!

A starry blue night descends upon Kakhovka. Suddenly the lights are turned on at Section No. 1, where dwelling houses are going up: the second shift has started. The small, dusty boulevard, full of flowers, the main thoroughfare of the town, resounds with the joyous laughter of the home-bound first-shift workers.

The crowded reading room of the library. Recently its stock of books has rapidly increased. Soviet people from everywhere are sending books as presents to the builders of the hydrotechnical development and its canals.

The summer theatre presents a concert by the Ukrainian state symphony orchestra. Kakhovka has become a main-line town no longer to be sidestepped by guest performers. Tamara Khanum and the Spanish singer Fernando Cardona have been billed here. Actors and actresses from Moscow and Leningrad have also gladdened Kakhovka with some of their excellent staging.

Through the open windows of the girls' dormitory a song of bygone days is wafted through the air, a song that has now become popular again. It tells of the battle for peace that once was waged in burning Kakhovka, of a heroic girl in a soldier's heavy greatcoat. Loud and clear the refrain rings in the night: 

For our country, for our dear old Kakhovka!
By B. POLEVOI

On that day the waters of the Don were directed through the spillway of Tsimlyanskaya Dam. To the accompaniment of joyous shouts and applause from the gay, colourful crowd of building workers perched on the crest of the spillway, the river hurtled with a sibilant roar into the passages opened for it. It flooded the huge teeth of the cutwater and rolled over the apron to form a broad body of water in the concrete-lined valley where an hour earlier the wind had been chasing dry clouds of construction dust.

So out-of-the-ordinary and so majestic was this instantaneous transformation of the hollow into a flowing lake, that not even the most experienced of the engineers, men who had built many a dam in their time, could tear their eyes from it. The first stage of work on the power development was now completed.

Among the builders in their Sunday best there stood out a group of guests wearing Cossack jackets and hats, and broad trousers with stripes down the sides. These were Don Cossacks from collective farms in the locality. In the centre of the group, leaning on his stick, sat 110-year-old Gerasim Siokhin, member of the kolkhoz in the village of Krasnoyarovka. Beside him sat his grandson, a dispatcher at one of the sections of the construction project. He was explaining what was going on to the old man and his fellow villagers and telling them about the job as a whole.

The old man had his hands crossed on his stick and his chin on his hands. The rose-coloured sunset was re-
fleeced in his eyes. He seemed lost in thought, and from his stony face it was hard to tell whether he was listening to his grandson or not. All of a sudden the old man straightened up. His eyes brightened and, looking at the expanse of water spreading before him, he said:

“Glorious works, glorious works, indeed. Stepan Razin, they say, portaged boats from the Don to the Volga. And now steamboats will sail through the steppe.... Miracles do happen.... I've lived to see the day when they open a sluice—and there's a lake for you.” Then, squaring his shoulders as though throwing off a century or so, the old Cossack repeated: “Glorious works, glorious works, indeed. Glory like that can go through fire and water.”

Picking up the thread, as it were, from these simple words of the old Cossack about human glory, a representative of the Romanovskaya District Party Committee, who had come to the construction site with the group of guests, told the story of the thrilling deeds performed by Young Communist League members during the fascist occupation of the area where the Tsimlyanskaia power development is now under way.

The fascist army broke into this area with a swift tank thrust. An avalanche of tanks roared across the flat steppe and at one stroke cut off all roads of withdrawal for the inhabitants. Among those left in occupied territory was Ivan Smol'yakov, secretary of the district committee of the Young Communist League. Ivan Smol'yakov was a buoyant and capable young man who was universally loved among the youth. But his noble heart was set in a weak and ailing frame; ever since childhood he had limped heavily, and one arm hung limp and useless by his side.

... Soon trucks and cars began to go up in flames or be blown to bits on the roads running through the steppe; dead bodies of Hitlerites were found in gullies, among the reeds, at the fringes of the small Don country woods.

It was then that the local folk realized why the secretary of the district YCL committee had remained behind
in occupied territory. More and more often did enemy grain stores burn down, and more and more dangerous did it become for the occupants to travel along the steppe roads. And although the Hitlerites were numerous and armed to the teeth, their local commandant issued an order prohibiting movement along the steppe at night. The enemy's panic fear was the best possible proof of how effectively the young partisans were carrying out the assignments of the Party underground organization. Smolyakov's YCL detachment operated with calculation and foresight, but taking to cover in the steppe is no easy matter, especially in winter, when footprints are left in the snow. And one day a punitive squad which had been after them a long time trailed Smolyakov and six of his comrades to a hamlet where they were resting after a combat operation.

The Hitlerites brutally tortured Ivan and his young comrades to force them to name the Communist undergrounders who directed the detachment's operations and the collective farmers who helped them. But the young partisans did not reveal any names. Then the Hitlerites stripped them, herded them barefoot to the bank of the Don, and pushed them one after the other into the river through a hole in the ice. Ivan was led to the ice-hole last. As he stood at its edge he was ordered again to name his leaders and helpers. This small, puny, ailing young man, all covered with bruises, suddenly straightened up, cast a proud, scornful glance at his executioners, spat in the face of the nearest one, and stepped into the hole in the ice.

Several days later the Soviet Army liberated this region. The bodies of the partisans were brought up with fishing nets, and the young heroes were given solemn burial in their native village of Romanovskaya.

"They operated in this very area where the dam, the locks and the canal are being built," the man from the district committee said, ending his story. Then he repeated the phrase used by the 110-year-old guest at the inauguration ceremony: "Yes, true glory can go through fire and water."
An engineer, a friend of the old Cossack's grandson, then joined in the conversation. He told how YCL'ers of this district, witnesses of Ivan Smolyakov's glorious deeds, were now, in peacetime, at the giant Stalin construction work, carrying on the glorious traditions of their gallant fallen comrades.

Where the waters of the Don rushed and swirled furiously through the section of the channel not yet completely sealed off by the dam, large cribs, or frames of heavy logs filled with stones, had to be set up on the river bottom as supports for the trestle bridge from which a rock fill was later to be dumped into the river by means of dump trucks. Installation of the cribs was a job involving difficult underwater operations. That was when three divers of the local hydraulic engineering office—Sergei Veselovsky, Alexander Nazarenko and Mikhail Lesin—volunteered to do the work, together with the expert underwater construction workers who had been called in from Rostov.

The three were YCL members from the village of Romanovskaya. As boys they had witnessed the deeds performed by Ivan Smolyakov and his comrades. Later they had served in the army, where they learned the trade of divers.

Now all three came to the works superintendent and offered their services in setting up the cribs. The superintendent surveyed the young men doubtfully, but they were so eager and insistent that he agreed to give them a trial.

They boldly tackled this difficult and unusual job. The initial assignment was to lay out beds of large stones on the bottom of the tempestuous river as firm and level foundations for the cribs.

First to descend was Sergei Veselovsky, a small, sturdy chap with a face bronzed by the sun and merry eyes in which flashed that indescribable colour the Don waters assume on a clear, sunny day. He went down to size up the situation, and all too soon he discovered that the river was a strong and violent opponent who would give him and his friends the most difficult battle in all
their diving experience. The swirling current had made the water impenetrably murky: they would have to work by touch. When he touched bottom and headed the current, Sergei Veselovsky learned to his amazement that there it was just as swift. If he lifted his hand from the rocks the current instantly swept it back, and when he was so incautious as to raise his head he received a blow from the swift waters that almost capsized him: they would have to work not only in total darkness, but lying down besides. And they would have to move the big rocks with one hand, holding on to something with the other so as not to be swept away by the current.

When Sergei Veselovsky reached the surface his plan was already clear in his mind: to let a rail down to the bottom, place it crosswise to the current, and, holding on to it with one hand, work with the other, using the rail at the same time as a guide in setting the rocks in a straight line in the darkness.

That was what they did. A rail was let down, and the three young divers, gaining experience as they went along, set about laying out the crib foundations. The work was both hazardous and taxing. Firmly gripping the rail with his left hand, the diver hugged the river bottom and shifted the rocks with his right. Yes, shifted is the word, because the minute he raised a rock from the bottom the current would throw it back together with his hand. And so, hour after hour, unseen and unseeing, the underwater heroes plugged away, levelling the mounds of rocks and filling in the holes in the river bed.

The regulation underwater work time for divers was two hours. That meant six hours for the three of them. But time did not wait. Autumn had come. The Don had to be sealed off and an earth dam washed into place before the autumn rains swelled the river; later the work would be considerably more costly and complicated and—what was least of all desired—joining of the left-bank and right-bank sections of the dam would be delayed. Like everybody else on the construction job, the young divers had at heart not only the interests of their own sector of the work but the development as a whole, and
hence worked much more than the regulation number of hours. There were times when they rose to the surface so exhausted from their unequal battle with the enraged river that after climbing out of their suits they flung themselves onto prepared boards on the ground, unable to sit down or stand up.

They worked without thought of self. And when they came to the complicated and responsible job of installing the cribs proper, a job demanding courage, efficiency, nimbleness and speed, it seemed like child’s play after those gruelling hours of shifting rocks in single combat with the tempestuous current.

As more and more stone-filled cribs barred the river, the current became still stronger. At the end it reached more than three metres per second. Now the man on duty at the earphones could hear nothing but the hard, wheezy breathing of his comrade below the surface. In his battle with the current the diver had to draw on his strength and will power to such a degree that he avoided all superfluous words.

That was how Ivan Smolyakov’s pupils worked in the district where he had fought as a partisan, in the river where he had died the death of the brave for his Homeland, for Communism. In the days of peace they added their labour glory to his battle glory; the memory of this weak-bodied but invincibly strong-willed YCL leader inspired them to feats of labour heroism in the decisive period of taming the river.

One should not get the impression, of course, that it was only the three young divers from the village of Romanovskaya who battled with the Don. This was the work of a collective of many thousands of builders: excavator operators, welders, concrete pourers, bulldozer and scraper operators, truck drivers, bold designers, gifted engineers. Their heroic efforts were multiplied by the no less heroic work of Soviet men and women at distant factories who made the magnificent, powerful, and in some cases simply unprecedented, machines used on the job. To these common efforts the three modest divers, comrades of the famous Don country YCL’er Ivan Smo-
lyakov, contributed their share, their heroism, their youthful energy, inspired by the great idea of Communism.

"Yes, folk in the villages are already making up songs about the heroes of this job," said one of the older Cossacks who had listened to the story of the three divers and now sat thoughtfully watching the reflection of the electric lights in the new expanse of water as the twilight deepened.

I remembered, then, the words of the man who had walked this earth for more than a century. Yes, glory won in battle and earned in labour does not tarnish, is not forgotten. Our Soviet posterity, enjoying the benefits of what we, the men and women of the great Stalin era, built, will recall with equal gratitude the fighters who defended their native soil and the peaceful toilers who remade their country, who adorned it with grand works serving the welfare of man.
At the Communist construction sites, where people work with the most modern equipment provided by Soviet technical skill and where therefore expert handling of machinery is particularly appreciated, renown gained by feats of labour spreads with great rapidity. As we journeyed along the lengthy course of the future Volga-Don Canal we heard much about Victor Georgiyevich Mokhov, a scraper celebrated for the thorough way he has mastered his job. People hundreds of kilometres away who had never set eyes on him were eager to explain the methods of work he had introduced—methods which have enabled him to set up new production records for his remarkable machine. From all the tales told about him there arose in our minds an image of the illustrious scraper that depicted him as a demobilized Guards-tankist, one of those war veterans who readily switched from war machines to peace machines, men who knew their business, who with heart and soul, with undying fervour, are now engaged in the peaceful work they longed for so much in the years of gory battle.

That's the idea we had of Victor Mokhov when we arrived at the Don construction area where he was working. How great was our astonishment when instead of the expected veteran a shy swarthy lad with a face as chubby as a child's stepped into the room. He lowered his heavy dark lashes as his hazel eyes blinked at us in confusion. Then he awkwardly held out his big powerful hand and introduced himself briefly as Mokhov.

“Victor Georgiyevich the scraper?”
“Yes, that’s me. Only drop the Georgiyevich and call me simply Victor. You see yourselves that I am still too young to be honoured with a patronymic,” he added, smilingly. His dark-skinned face seemed to be lit up by the sheen of his two rows of glistening white teeth.

Though Victor proved to be quite young, the short span of life he had lived so far had been anything but smooth and easy.

His birthplace was Illarionovka, a small village in the steppes. Ever since his mother brought him to the kindergarten when she went to work in the collective-farm fields, he developed two definite proclivities: for mechanics and for music. He was still in the elementary grades when his ambitions began to waver: either become a brilliant inventor or a celebrated musician. His dreams however did not stop him from being a good pupil. His father, Georgi Mokhov, a brigade leader who sought to develop in his children whatever gifts they displayed, bought the boy a simple harmonica and a mechanic’s kit. But what his father strove for most was to give his children an education.

Victor’s life was to take a different course, however. The war broke out and the prosperous First of May Kolkhoz, which lay in the way of the fascist advance on Stalingrad, was plundered and levelled to the ground. Georgi Mokhov died a hero in defence of the stronghold on the Volga. The invaders, who made themselves at home in his house, wrecked the harmonica and on their retreat made off with Victor’s kit, of which he had been inordinately proud. When the Soviet army routed the enemy at Stalingrad and liberated the kolkhoz, Victor, then eleven and the only male survivor of his family, was living with his ailing mother and younger sisters.

It was in this harsh period of his life that his real character first asserted itself. Misfortune neither broke nor bent him; on the contrary, it steeled him. He got together his schoolmates to help their mothers till the fields, which but a few months before had been the site of the greatest of battles.
One day Nikolai Ivanovich Bastrykin, a former Red Guard and Civil War partisan well known in these parts, arrived from the city of Kalach bringing a bag of blacksmith’s tools to help the looted collective farm. As he kindled a fire in the old smithy preparatory to forging new implements to replace those destroyed or filched by the nazis, he noticed a lad of slight build standing in the doorway. A German officer’s tunic served the young chap as an overcoat. His boots, several sizes too large, were obviously also trophies of war.

“What do you want, sonny?” the old blacksmith asked, putting the few tools he had brought in their respective places. “I suppose your mother sent you for something.”

“I’ve been sent to you by the kolkhoz management,” the dusky lad replied in a broken bass. “I’m to be your assistant... to hammer and do general work.”

The old man thought he hadn’t heard right but the lad took off his fancy tunic, folded it carefully and put it aside. Then he rolled up the sleeves of a shirt that must have been his father’s, for they were much too long for him and in a tone that was too serious for the occasion asked his incredulous chief:

“Well, shall we begin? What am I to do?” Then he added, undoubtedly imitating somebody: “Spring’s not far off and we need farm implements in the worst way.”

Thus Victor Mokhov made the acquaintance of Bastrykin, his first technical instructor, a skilled blacksmith and a veteran fighter for Soviet power. Like all true masters of their trade, he was something of a poet. He conceived of the iron, from which he together with his youthful hammerer forged all kinds of useful things for the collective farm, not as lifeless matter but as a living, obstinate, refractory being which must be subjected to one’s will and made to assume the forms desired, so as to be man’s loyal servant.

During those strenuous war years there was no place from which the kolkhoz smithy could obtain even fairly decent metal. All kinds of scrap from machines of
war abandoned by the enemy on his retreat lay in heaps in the gullies of the steppe. These had to be hammered and forged into harrows’ teeth ploughshares, metal tires and parts of agricultural machines. Young Victor liked to listen to the blacksmith as he argued with the red-hot lumps of metal that his precise hammer blows were putting into shape:

“You stubborn mule, you won’t give in? Take that! So a fascist forged you to kill people with, to steep the soil in human blood, and you won’t let yourself be re-forged?... Nothing doing... nothing doing, I tell you. You’re going to be beaten into a new shape.... Vitka, snap out of it! Hit’em faster and harder. Atta boy! Now you got ’m! No power on earth can get the better of a Soviet person.”

The clever kolkhoz lad, who at the start could hardly lift the heavy sledge hammer, gradually learnt the blacksmith’s trade. In two years’ time he could not only do small repairs by himself but tackle major jobs. His contact with Nikolai Ivanovich stood him also in good stead because the former had helped to make local history. When they had finished their job of work, put out the fire and called it a day, the old man would sit on the step, light his inevitable pipe and in unhurried tones relate to Victor, who was sharing his company, how he happened to see Comrade Stalin during the defence of Tsaritsyn, as Stalingrad was formerly called. He would tell him about Voroshilov’s famous drive across these steppes and about the invincible strength of Soviet arms and the heroism of Soviet folk. Twice they saved the honour and independence of their socialist Motherland in battles fought right here in these steppes, near the city that now bears a great name.

“We are a peaceable, industrious people. We want nothing that belongs to others, for we have our own; and what we haven’t got we make with these our hands. But should anybody reach out for what is ours, he will surely pay dearly for it.”

When kolkhoz life resumed its course, when the machine and tractor station functioned once more and
SOVIET plants consider it a matter of honour to fulfil the orders for the Stalin construction projects ahead of schedule. The Urals Electric Equipment Plant is successfully carrying out these important assignments.
new tractors arrived, the aged blacksmith tucked away his tool kit for good.

“You’ll now be carrying on without me,” he remarked as he bade his apprentice farewell, holding him in a strong, fond embrace. “I’m returning now to my folk at home. But you, Vitka, have a care and see that your life doesn’t turn out just a waste of time, like a log that won’t burn in the hearth. You must lead a life aglow with energy. That’s what the times demand of us.”

These words deeply engraven themselves in Victor’s mind, for they came from the lips of the man who had first taught him to become a master of his trade. A true son of his remarkable time, indefatigable at work, stubbornly applying himself to whatever noble task he aims to achieve, devoted to his hobbies within a strict schedule of time, he lives and works “aglow with energy.”

When the collective farm no longer needed the smithy he decided to become a tractor driver. For six days on end he fussed around one of these machines and his mother had his sister bring him his meals to the shed where it stood. On the seventh day he drove the tractor into the field and worked it so skilfully, so dexterously, so thriftily, saved so much fuel and maintained the machine in such fine condition that the brigade leader himself had him assigned to a course of study where he would learn to operate a NATI caterpillar tractor. This was a great honour in itself, as there were very few such caterpillars at the MTS and they were entrusted only to top-notch men.

Young Mokhov was fast acquiring an excellent reputation. Wide-awake kolkhoz chairmen were offering him all kinds of special conditions to induce him to work on their particular farm. And the girls who used to stroll past of an evening with songs on their lips would always manage somehow to keep close to the fields in which the comely Victor, now a tractor driver and a member of the Young Communist League, was busily at work. They were drawn there not only by his renown as an expert in steering tractors, not only by his thick
chestnut forelock pertly protruding from under his cap, but also by his soulful playing of the accordion.

We live in a country and at a time when, fortunately, despite all obstacles, all the good points of a person are bound to become developed and all good dreams are bound to come true. And so, while unfolding his inborn technical accomplishments, the young tractor operator did not neglect the musical aspect of his nature. To replace the harmonica his father had presented him with and which a bored fascist had torn to shreds, he applied part of his first wages as a tractor man to the purchase of an accordion. He quickly learned to finger it and now spent much of his time after work—with the gas tank refilled and every screw tightened up—playing and singing his favourite songs. He was particularly fond of the one about the harmonica player who would roam alone at night on the outskirts of his village.

Then gigantic building operations commenced in his native steppes.

To the undying fame of the Red Army men who had fought for Tsaritsyn, and of the Soviet soldiers who had shattered Hitler’s cohorts at Stalingrad, was added the glory of feats of labour performed by the Soviet people who were carrying into life the brilliant Stalin plan of uniting the Don and the Volga. Endless caravans of machines stretched out along the steppeland roads still strewn with rusty battered helmets of alien design. Our young tractor driver became restless. Though he had but a hazy notion of the significance of the great works that had aroused the steppeland from its age-long slumber, he realized from their sweeping range that these were operations of unheard-of grandeur and they irresistibly attracted him, machine-minded as he was ever since childhood. He went to the YCL District Committee and announced his new aspiration to its secretary.

“I’d gladly go there myself, Victor,” was the latter’s sincere reply, and he began to talk about the grand Volga-Don scheme, having recently heard an address on the subject at a meeting of leading Party members; but then he stopped short.
“How are the tractor drivers getting along at your MTS?”

“All the personnel are now fully trained.”

There being no hitch on this score, Victor Mokhov with a Komsomol recommendation in his pocket jumped on a passing truck that took him to the building site. There they checked up on his knowledge of tractor driving and after a month’s schooling he found himself at the wheel of an S-80 transport tractor. While still learning the fine points about its operation he made the acquaintance of Victor Stiglits, a YCL’er from the hamlet of Varlamovka. He too had been recommended for work on the construction site, and the two were soon fast friends. While still in the workshop studying the new machine, they made a compact to work alternate shifts on the same tractor, to declare it a Komsomol machine, one manned exclusively by YCL’ers, and to make it an example to others.

Just then a new lot of powerful excavators, scrapers and bulldozers, manufactured in Soviet factories expressly for these construction works, arrived on the scene. New personnel was required and the young tractor drivers were advised to retrain and become scraper operators. They eyed the new steel giants with awe, for each of them could scoop up and dump at any designated spot 10 cubic metres of earth. Though mechanical things had been his delight ever since his earliest youth Victor Mokhov had never even imagined that such machines existed. But everything at the site was on an enormous scale and so, when put in charge of one of these magnificent tractored scrapers, the two friends registered no surprise.

They were now confronted with the task of quickly learning to operate the new machine entrusted to them, to operate it without any breakage, with circumspection, and, in general, to merit by their work the Komsomol insignia which they had carefully drawn in red on the cabin of their tractor. They were in training only a month. But what a month that was! For days on end they did not get away from their machine. Rest and sleep were cut down to a minimum. The pile of new books which
the youths had expected to devour with pleasure, and Mokhov's accordion, a source of delight to the whole dormitory, were gathering dust in the cupboard. His roommates did not even ask Mokhov to strike up a tune, for they knew that if he did not touch the instrument, without which, in his own words, he could not eat a hearty meal, that meant that he was engaged on some new difficult and responsible job which he was trying to master—a job which consumed all his time and engaged all his thoughts. Hence none of his comrades were surprised when a month later Mokhov and Stiglits were digging their first few cubic metres of earth along the route of the Canal. The month of joint, concentrated study had borne fruit. From the very start, practically without first gathering momentum, they took their place among the best scrapers of the Don district, and later of the entire construction site.

Last year they fulfilled their plan of earth removal 150 per cent. Nor did they think that this was the maximum attainable. They are gradually augmenting their work performance by ferreting out all latent possibilities of their machine, reducing stoppages to zero, and carefully mapping out their route on each new working chart. They have already brought it up to more than 200 per cent of the plan figure. But the quantity of earth removed by the Komsomol scraper is not the sole or main consideration here. Of greatest importance is the fact that Victor Mokhov and his partner have worked out their own methods, have acquired a certain knack which has enabled them to employ, in an original and more intelligent way, these splendid Soviet machines that render completely superfluous all the wheelbarrows and carts that have been used for ages.

In the Don district builders' club where we first became acquainted with Victor Mokhov he seemed to be of a quiet and somewhat shy disposition. And such he really is. But when we saw him at work in the cabin of his machine he looked an entirely different person. He was now stern, on his mettle, all attention, as he skilfully drove his machine with barely perceptible but very precise
movements, while his hazel eyes, bereft of their childlike simplicity, were now screwed up as he keenly scanned the ground ahead. The huge machine readily submitted to his guidance. He seemed to have grown part of it, to have become its brain. And as we watched him at his work we found here one more proof of the fact that many occupations traditionally classified as physical work have long become mental work.

Victor Mokhov and his partner have raised the operation of a heavy, cumbersome scraper to the pitch of perfection. Their exceptional skill has made it possible for them to get maximum results with minimum wear and tear. They pledged their word to each other that their machine would work without overhauling until the construction of the canal was completed. Whereupon they would surrender it intact and undamaged. And indeed, to the astonishment of all, their machine, which has already removed mountains of earth, looks new and "runs like a young one," to use the term of endearment indulged in by both Victors.

Victor Mokhov's dream of becoming a famous mechanic has become a reality. The other dream of this orphaned son of a Soviet soldier—to become a musician—is also materializing. He has become a fine performer on that instrument of his. Reflecting the historical vicissitudes of this famous spot the various melodies he plays are a medley of military marches dating back to the Civil War. It was to their tunes that his teacher, the old Red Guard, fought against the Whiteguard Cossacks at Tsaritsyn. Intermixed are Stalingrad songs sung by his father who lost his life in that city's defence. Then, mingled with these are modern Soviet songs extolling the labour and love of our peaceful people. Then, interspersed, follow flashes of new, as yet barely known melodies whose leitmotif is the great constructions of Communism.