

E. L O K S H I N

INDUSTRY
in the
U.S.S.R.



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E. LOKSHIN

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INTRODUCTION

Thirty-one years ago, in October [November—new style] 1917, the Great Socialist Revolution was victorious in Russia. Under the leadership of the Party of Lenin and Stalin the working class of this country, allied in battle with the broad masses of the peasantry, overthrew the rule of the bourgeoisie and landlords and burst the chains of imperialism that fettered Mother Russia. It saved her from enthrallment by foreign capital and set up within her confines the most advanced and democratic system of government the world had ever known—Soviet Government. On one-sixth part of the globe the dictatorship of the proletariat had triumphed. A new type of state, unprecedented in history—a Soviet, Socialist State—emerged.

The Bolshevik Party and the Soviet Government set down the building of Socialist society in our country as their immediate historic task.

The accomplishment of this mission, a herculean task in itself, was rendered yet more difficult and complicated by the following circumstances. In the first place, when our country had to wage a fierce struggle to abolish its exploiting classes and build Socialism it was the only Socialist State in existence, a state surrounded by a hostile capitalist world.

Secondly: although capitalism in Russia had reached the stage of imperialism, technically and economically Russia was one of Europe's backward states. Highly developed industrial and banking capital dominated her economy, yet

she was an agrarian country with a vast preponderance of small-commodity, primitive agriculture and an industry destitute of modern equipment. Her technical and economic backwardness placed her in a state of semicolonial dependence upon foreign capital. The living and cultural standards of her workers and peasants were extremely low.

In order to effectuate its program of building a new, Socialist society, the Soviet State had to assure the productive forces of the country a high degree of development within the shortest possible period of time, considered historically, and the only way to achieve this was to modernize its industry. The country stood in sore need of a higher level of technology and a better organization of production than existed under capitalism. At the same time the living and cultural standards of the working people had to be substantially raised.

The hostile capitalist encirclement made it particularly urgent for the Soviet State to attain technical and economic independence as quickly as possible and ensure a high defensive capacity.

V. I. Lenin and J. V. Stalin, the great leaders of the Soviet people, repeatedly stressed the danger of an armed attack upon the U.S.S.R. by imperialist states, and the consequent necessity of steadily increasing the preparedness of the country and of securing its economic independence. Our country's fate and the fate of the Soviet people were staked upon the progress made in this direction.

The role of large-scale industry, particularly heavy industry, the producer of means of production, was decisive in the solution of these problems.

Large-scale industry constitutes the economic basis of the dictatorship of the working class. As was stressed by V. I. Lenin, large-scale industry "is the basis of the transition to Socialism." He stated that "...from the point of view of the state of the productive forces, *i.e.*, applying the main criterion of the whole of social development, it is the basis of Socialist economic organization, uniting, as it does, the ad-

vanced industrial workers, uniting the class which exercises the dictatorship of the proletariat."¹

The country's economic independence, and its defensive capacity, are directly dependent upon the scale and technical level of its industrial output and, primarily, that of its heavy industry. Technical and economic independence presupposes high development of the machine-building industry, the core of heavy industry, and of the metallurgical, electric power, fuel and chemical industries.

"In the capitalist encirclement in which it finds itself," said Comrade Stalin, "the country of the dictatorship of the proletariat cannot remain economically independent if it itself does not produce instruments and means of production at home, if it is bogged at a stage of development at which it must keep its national economy strung to the capitalistically developed countries, which produce and export instruments and means of production. To be bogged at this stage means to abandon oneself to subordination to world capital."²

In determining the rates of development of industry and the structural changes of its branches, the Soviet State must proceed from the necessity of constantly reinforcing the country's capacity of defence. The solution of this problem demands the maximum development of a powerful heavy industry.

A modern war is a war of motors, a war of techniques, a war of economic reserves. Modern army equipment is mechanized to an enormous extent. To be able in wartime to produce immense quantities of engines of war of every description the country must have at its beck and call a powerful war industry, resting upon the solid base of highly developed machine-building, fuel, iron-and-steel, chemical and electric-power industries.

Heavy industry furnished the wherewithal for the Socialist transformation of agriculture.

¹ Lenin, *Collected Works*, Vol. XXVI, p. 254. (Russ. ed.)

² Stalin, *The Economic Situation in the Soviet Union*, 1937, p. 6. (Russ. ed.)

The implementation of the policy of collectivizing agriculture and the ensuing elimination of the kulaks as a class presupposed placing Soviet farming on a new and higher technical level.

"... it is impossible to develop collective farms," said Comrade Stalin, "... it is impossible to develop machine and tractor stations without inducing the great bulk of the peasantry, with the aid of the contract system applied on a mass scale, to adopt collective forms of farming, without supplying agriculture with a fairly large quantity of tractors, agricultural machinery, etc. But it will be impossible to supply the rural districts with machines and tractors unless we accelerate the development of our industry. Hence, the speedy development of our industry is the key to the reconstruction of agriculture on the basis of collectivism."¹

Heavy industry is the decisive factor in the technical re-equipment of all branches of the national economy.

The reproduction of the fixed and circulating funds depends more and more upon heavy industry, upon the quantity and quality of its output (machines, mechanisms, raw material, fuel). A development of its corresponding branches makes it possible to introduce machinery, chemicals and electric power into the various processes of farming, as well as to achieve technical progress in the various branches of light industry and in transport.

The production of means of production is the determining factor in raising the material and cultural level of the Soviet people.

With the advance of technology industry plays an ever greater part in the production of articles of consumption. More and more farm products reach the consumer only after industrial processing.

The industrialization of the country and the collectivization of agriculture ensured a steady numerical growth of the working class; they put an end to unemployment in the

cities and to stratification and poverty in the countryside. In consequence, unemployment ended once and for all in the U.S.S.R. as far back as 1931. Thus Soviet rule removed forever during the first of the Stalin five-year plan periods one of the worst scourges from which the working class suffers under capitalism.

By ensuring the technical re-equipment of the national economy the development of heavy industry creates the requisite conditions for a steady rise in the productivity of social labour.

Thus both the tasks of Socialist construction at home and the international situation in which it was being achieved called for preferential treatment of heavy industry as the leading branch of the entire national economy of the U.S.S.R., called for its accelerated development.

Lenin pointed out that

"... unless we save heavy industry, unless we restore it, we shall not be able to build up any industry; and without heavy industry we shall be doomed as an independent country...."

"The salvation of Russia lies not only in a good harvest on the peasant farms—that is not enough; and not only in the good condition of light industry, which provides the peasantry with consumers' goods—this, too, is not enough; we also need *heavy* industry."¹

Substantiating and elaborating upon the Leninist doctrine of Socialist industrialization, Comrade Stalin said:

"Some comrades think that industrialization signifies, in general, the development of any industry. There are eccentrics who assume that even Ivan Grozny, who once upon a time established some rudiments of industry, was an industrialist. If this line were to be followed, Peter the Great would have to be called the first industrialist. This, of course, would be wrong. Not every development of industry is industrialization. The pith of industrialization, its basis, is

¹ Stalin, *Problems of Leninism*, Moscow, 1947, pp. 265-6.

¹ Lenin, *Selected Works*, Moscow, 1947, Two-Vol. ed., Vol. II, p. 817.

the development of heavy industry (fuel, metal, and the like), the development, in the final analysis, of the production of means of production, the development of the manufacture of one's own machinery."¹

The policy of Socialist industrialization became the principal, the general line of the Party with regard to the development of the economy of the Soviet State and of all Socialist construction in our country.

Socialist industrialization differs fundamentally in content, methods of realization and results from capitalist industrialization.

The development of capitalist industry entails the intensification of all the contradictions inherent in the capitalist mode of production.

The capitalist method of industrialization, Comrade Stalin explained, "... leads to a conflict between the interests of industrialization and the interests of the toiling masses, to an intensification of the inner contradictions in the country, to the impoverishment of the millions of workers and peasants..."²

Under capitalism the contradiction between industry and agriculture becomes more pronounced. Capitalist industrialization furthermore sharpens the contradictions between the metropolises and their colonies. Fully dependent upon their imperialist masters the colonies, at the dictate of the latter, are forced to remain purveyors of agricultural and industrial raw materials for the metropolises.

It is a characteristic feature of Socialist industrialization that it is pursued in the interest of the labouring masses, whereas capitalist industrialization spells poverty and disaster for them.

"What are the principal advantages of the Socialist method of industrialization?" asked Comrade Stalin. "The

fact that it leads to a harmony of the interests of industrialization and the interests of the basic masses of the labouring sections of the population; the fact that it leads, not to an impoverishment of the millions, but to an improvement in the material conditions of these masses, not to an intensification of the inner contradictions but to an ironing out and resolution of them; the fact that it steadily widens the home market and increases the absorption capacity of this market, thus creating a firm internal basis for the development of industrialization."¹

Socialist industrialization leads to the industrial development of the non-Russian Soviet border regions and thereby to the abolition of their economic and cultural backwardness.

The Bolshevik Party pointed to Socialist industrialization as the main road that would lead to the general development of the country. In this connection the Party stressed the importance of *high rates* of development for industry in general, and for heavy industry in particular. This was a necessity called forth by the historical conditions of development of the Soviet Union, primarily the country's technical and economic backwardness and the simultaneous capitalist encirclement.

The question of the rapidity of industrialization in the U.S.S.R. would not have been so acute, Comrade Stalin explained, if the Soviet Union had possessed a developed and technically equipped industry. However, Russia had no such industry. The industry it had lagged 50-100 years behind that of the principal capitalist countries.

Furthermore, the swift expansion of Soviet industry was imperative if the preponderance in the economics of the country of scattered small peasant farms employing extremely antiquated methods of production was to be ended. As Comrade Stalin indicated, it was impossible for the Soviet Government to base itself for any great length of time

¹ Stalin, *The Economic Situation in the Soviet Union*, Partizdat, 1937, pp. 5 and 6. (Russ. ed.)

² Lenin and Stalin, *Collected Essays for the Study of the History of the C.P.S.U.(B.)*, Vol. III, p. 99. (Russ. ed.)

¹ *Ibid.*, pp. 99-100.

upon two different foundations—on large-scale, concentrated industry undergoing constant technical perfection and on scattered, small-scale agriculture, technically backward in the extreme.

Hence higher rates of industrial development were bound to and actually did become an objective necessity for the building of Socialism, a law of development of Soviet economics.

The need to industrialize the country as quickly as possible necessarily meant the employment of new ways and means of industrialization, of methods fundamentally different from those used in capitalist countries.

There industrialization, as Comrade Stalin showed, usually begins with light industry. This is explained, in the first place, by the fact that the development of light industry (in which the organic composition of capital is lower and production less concentrated) requires relatively smaller investments than heavy industry. Secondly, capital circulates more rapidly in light industry than in the branches of industry producing means of production.

In the capitalist countries, where the profit motive of the capitalists is the only stimulus of production, capital initially tends to flow into light industry. It is only after light industry has achieved a high degree of development and huge sums have accumulated in this industry that these assets begin to be diverted to heavy industry.

Capitalist countries, as a rule, develop their heavy industry with the aid of huge funds of one kind or another derived from abroad. These may take the shape of contributions exacted from subjugated countries, or wealth obtained from plundering and exploiting colonies, or loans, even if on onerous terms.

In England, for instance, one of the principal sources of funds for industrialization purposes was the despoliation of colonies. The capital thus accumulated over a period exceeding a century was eagerly absorbed by metropolitan industry. But even in the middle of the 19th century light

industry still predominated over heavy industry in England. And it was only toward the close of the last century that heavy industry began to outweigh the former in the economy of the country.

In the other capitalist countries, which took to industrialization later than England, the development of a domestic heavy industry was a more rapid process. Still it went on for decades.

Germany started on the road of industrialization after the Revolution of 1848, but twenty years later she was still an agrarian country with powerful remnants of feudalism, was still industrially backward, with light industry far in the lead. Thanks to her victory over France in the War of 1870-71, Germany seized Alsace and Lorraine, rich in iron-ore deposits, and received a contribution of 5,000 million francs. But even with this Germany required another thirty years almost to become an industrially powerful country.

It is a well-known fact that the United States developed more rapidly than the other capitalist countries, yet it took even this country several decades to develop its own heavy industry.

The commencement of capitalist development in Japan dates back to 1870. Nevertheless, at the turn of the century, Japan's light industry produced almost five times as much as her heavy industry.

The victories she won in the wars with China and subsequently with tsarist Russia furnished Japan with additional sources of accumulation. Yet it was only in 1930-35, i.e., after a lapse of 60-65 years, that owing to the mad armaments race Japan's heavy industry surpassed her light industry in volume of output.

The historical experience of tsarist Russia is likewise indicative of the ways and means by which capitalist industrialization is arrived at. After the Reform of 1861 the development of capitalism in Russia proceeded at a relatively rapid pace. Still, during the half-century of its capitalist develop-

ment Russia was unable to overcome her technical and economic backwardness.

The capitalist method of industrialization, with the sequence of industrial development inherent in it—first light, then heavy industry—was obviously unsuited for the Land of Soviets. The Soviet Union had to adopt a method of its own, a Soviet method of industrialization.

The plan worked out by the Bolshevik Party provided that industrialization should commence with heavy industry and that it be carried out with all possible speed and the employment of the country's own forces and resources. It specified that a powerful heavy industry, capable of fundamentally reorganizing the entire national economy and of providing it with the most modern technical equipment, should be set up in the U.S.S.R. in the historically shortest possible period of time.

In the battle for the realization of this grand scheme, unprecedented in the history of man, the Bolshevik Party proceeded from the premise that the U.S.S.R. possessed all the prerequisites for the consummation of its Socialist industrialization policy. The tremendous advantages afforded by the Soviet structure of state and society and the Socialist system of economy were relied upon to bring this historical task to a successful conclusion.

The Socialist system of economy set up in our country liberated the productive forces from the shackles of the capitalist mode of production. Contrary to capitalism, where the private ownership of the means of production finds itself in contradiction with the social character of production and is an ever-increasing obstacle to the development of the productive forces, public, Socialist ownership of the means of production, which holds undivided sway in the U.S.S.R., fully corresponds to the social character of production.

The development of Soviet economy is determined by state plans which in the U.S.S.R. have the force of economic laws of development. State plans for the development of the national economy of the U.S.S.R. are Socialist in content.

The strength of these plans, as Comrade Vosnesensky points out in his *War Economy of the U.S.S.R.*, lies, first, in the active constructive effort of the peoples of the Soviet Union, the C.P.S.U.(B.) and the Soviet Government. Secondly, the strength of a Socialist plan lies in the fact that it concentrates all the material resources of the country on solving cardinal tasks set by the Party of Lenin and Stalin and the Soviet State. Thirdly, the success of a Socialist state plan "is determined by the proper distribution of man-power and material resources, the existence of reserves to fill possible breaches in the fulfilment of the plan, and the observance of proper proportions among the various fields of material production and distribution as well as production and transportation."¹

The domination of Socialist property in the means of production and the planned character of Soviet economy bar every possibility of economic crisis or depression in the Soviet Union.

One of the principal advantages which the Socialist system of economy enjoys over all others is the fundamental change in the attitude of the worker to his work. Under capitalism work means work for the benefit of a capitalist, an exploiter; it is a shackle, a burden. In the U.S.S.R. work, to use Comrade Stalin's expression, has become a matter of honour, glory, valour and heroism. This new attitude toward work is most vividly manifested in the wide spread of Socialist emulation and of the Stakhanov movement.

The policy of the Bolshevik Party and the genius of its Leninist-Stalinist leadership are the source from which the great achievements of the Soviet Union and all the successes scored in Socialist development spring.

The correctness and vitality of the policy pursued by the Communist Party, and the advantages of the Soviet order and of the planned, Socialist system of economy, guaranteed the feasibility of the magnificent scheme of transforming backward, agrarian Russia into a mighty advanced indus-

¹ Vosnesensky, *War Economy of the U.S.S.R. in the Period of the Patriotic War*, Moscow, 1947, p. 145. (Russ. ed.)

trial power within, historically, the briefest span of time. Socialist industrialization became the principal battle slogan of the Soviet people.

The industrialization of the U.S.S.R. in minimum time could only be accomplished by a maximum of effort on the part of the Soviet people. And the Soviet people proved their worth.

The tremendous means necessary for the establishment of a powerful modern industry had to be found within the country. "And to achieve this," said Comrade Stalin, "it was necessary to make sacrifices and to exercise the most rigorous economy in everything; it was necessary to economize on food, on schools, on textiles, in order to accumulate the funds required for building up industry. There was no other way of covering the dearth of technique. That is what Lenin taught us, and in this matter we followed in the footsteps of Lenin."¹

Realizing the necessity of taking this strenuous course the Soviet people saw it through unswervingly and thus ensured the establishment in the country of a first-class industry.

The personnel question presented great difficulty. To transform the country into an advanced industrial power millions of highly skilled workers, engineers and technicians had to be trained, trained during the very progress of the new construction.

This difficulty was likewise successfully coped with. During the process of building up the material basis for Socialism in the U.S.S.R., large numbers of splendid engineers, designers, technicians and other qualified workers were trained up—men at home in all fields of technology and competent to further technical progress.

The difficulties that attended the Socialist industrialization of the U.S.S.R. were considerably enhanced by the ruthless counteractions resorted to by the enemies of the people,

¹ Stalin, *Problems of Leninism*, Moscow, 1947, p. 521.

the agents of international imperialism. The old world hurled all its forces into the fray to disrupt our country's Socialist industrialization program.

The capitalist elements within the country, supported and directed by the bourgeoisie abroad and the governments of the imperialist states, organized the sabotage and wrecking activities in the U.S.S.R. of the old specialists of the bourgeois persuasion. Stopping at naught, these bands of wreckers attempted to disrupt the establishment of a Soviet Socialist Industry, to perpetuate the country's technical backwardness, to frustrate every effort to strengthen its defensive capacity.

The Trotskyite and Bukharinite would-be restorers of capitalism, those renegades and traitors, engaged in the same counter-revolutionary activities. They were particularly vicious in their efforts to undermine Socialist industrialization, the technical and economic independence of our country, and the consolidation of our national defences. Instead of industrializing our country they wanted to agrarianize it. This would have meant leaving our country helpless and defenceless vis-à-vis the formidable array of imperialist states bristling with arms. The Trotskyites and Bukharinites urged that instead of speeding up the development of heavy industry first, priority should be given to light industry and agriculture. In opposition to the Bolshevik policy of high rates of industrialization, they propounded the treacherous theory of the "drooping curve,"¹ according to which the rate of U.S.S.R. development was to decline from year to year. Instead of seeking a way of overcoming difficulties they proposed climbing down to levels dictated by "bottlenecks."

Exposed and defeated in open battle the Trotskyites and Bukharinites, these enemies of the people, began to practice duplicity, degenerated into fascist agents and in their utter depravity evolved into a band of wreckers, spies and saboteurs.

¹ Cf. p. 55.—Ed.

Under the leadership of the Bolshevik Party the Soviet people made a clean sweep of these Trotskyite-Bukharinite minions of fascism. Their complete rout was one of the most important preconditions for the successful development of the Soviet Union along the line of Socialist industrialization, and for the enhancement of the country's power of defence.

The great idea of the Socialist industrialization of the U.S.S.R. triumphed. It was incarnated in Soviet progress, became a living reality.

Socialism, victorious in our country, is the result of the magnificent transformatory labour and creative effort of the Soviet people, led by the Party of Lenin and Stalin.

After successfully defending the independence of their Socialist fatherland during the years of foreign military intervention and civil war, after speedily restoring the national economy devastated during this period as well as during World War I, the Soviet people completely metamorphosed their country in the course of the Stalin Five-Year Plan periods.

The Soviet Union has become a mighty state, a highly industrialized, technically and economically independent Socialist power. Socialist industrialization and the collectivization of agriculture have enabled the Soviet people, guided by the Party of Lenin and Stalin, to build up in the U.S.S.R. a Socialist society—the first phase of Communism. In the battle for Socialism was forged the moral and political unity of the Soviet people and the indestructible friendship of the nations of the U.S.S.R. The living and cultural standards of the Soviet working people have risen immeasurably. In the field of culture, our country has undergone a veritable revolution.

The historic achievements of the Soviet Socialist State during the pre-war quinquennial periods have brought into existence the material potential requisites for active defence and the successful conduct of modern war. During the grim ordeal that followed the perfidious attack of fascist Germany

and her numerous satellites upon our Soviet country, it was precisely the great achievements of the Leninist-Stalinist policy of Socialist industrialization and the collectivization of agriculture that enabled the Soviet people to defeat its mortal enemies and save the country from fascist enslavement. The war has proved to the entire world beyond all refutation that "...the Soviet social system is a better form of organization of society than any non-Soviet social system," that "...the Soviet system is...a system of state organization in which the national problem and the problem of the cooperation of nations have found a better solution than in any other multi-national state." (Stalin)

The thirtieth anniversary of the Great Socialist Revolution found Soviet industry ascending in a steep upward curve, engaged in the successful realization of the grand plan for the post-war Stalin five-year period, a plan providing for the rehabilitation and further development of the national economy of the U.S.S.R. and the concomitant liquidation of the grievous aftermath of war.

CHAPTER I

INDUSTRY IN PRE-REVOLUTIONARY RUSSIA

Albeit Russia embarked upon the course of capitalist development much later than the principal capitalist countries, her industry at the commencement of the twentieth century had already acquired the most outstanding features peculiar to the last, the imperialist phase of capitalist development.

Russian industry held first place in the world in degree of concentration of labour-power at its enterprises. In 1910 more than half of the total number of workers in Russia were concentrated in establishments employing over 500 workers each, whereas in the United States similar establishments comprised only one-third of all the workers.

The great strides made by the concentration of production and the centralization of capital, as well as the heavy investments of foreign capital in Russia's economy, led to the spread of monopolies in Russian industry. Early in the twentieth century capitalist monopolies already played a decisive part in the industry of pre-revolutionary Russia.

On the eve of the first world war syndicates controlled the bulk of the output in the most important branches of industry. Thus, for instance, the Prodamet syndicate in 1912 concentrated in its hands the sale of 80-100 per cent of all the more important types of output of the iron and steel industry. The Pro dugol syndicate controlled about three-fourths of Southern Russia's coal production. The oil in-

dustry, a number of branches of the machine-building industry, and the textile, match and other industries were also highly syndicated.

Banking capital likewise experienced rapid concentration. On the eve of World War I more than half of all basic banking capital was concentrated in the 7 biggest of the 46 commercial banks in Russia. Banking and industrial capital were rapidly coalescing. In analyzing the statistical data on the capitals of Russia's biggest banks V. I. Lenin pointed out that "... the merging of bank and industrial capital has also made great strides in Russia owing to the formation of capitalist monopolies."¹

High concentration of labour-power and development of big capitalist monopolies were combined, in the industry of Russia, with a low level of technique and technology, an almost complete lack of mechanization of laborious processes and, in consequence, low productivity of labour.

Russia, as V. I. Lenin remarked, was a backward country, "... equipped with modern implements of production to one-fourth the extent of England, one-fifth the extent of Germany, and one-tenth the extent of America."

Considerable remnants of feudalism survived in the country's economy right up to the Great October Socialist Revolution. Huge latifundia, which belonged to the nobility and other landlords, accounted for 70 million desyatins of the choicest land. A variety of feudal services and other forms of peasant exploitation dating back to serfdom were still widespread. Russia thus was a country "... in which modern capitalist imperialism is enmeshed, so to speak, in a particularly close network of pre-capitalist relations."²

These deeply rooted survivals of serfdom in Russia's economy were among the chief handicaps that retarded the development of the country's productive forces. V. I. Lenin

¹ Lenin, *Selected Works*, Moscow, 1946, Two-Vol. ed., Vol. I, p. 681.

² *Ibid.*, p. 703.

pointed out that the main cause of Russia's incredible backwardness and poverty was "... the mediaeval yoke of serfdom, which was responsible for the sorry plight of the broad masses of the peasantry."

The tremendous backwardness of agriculture and the unbelievable poverty of the peasantry sharply curtailed the capacity of the home market available to Russian industry. This was bound to affect the pace of its development.

The important part which foreign capital played in the pre-revolutionary economy of Russia was likewise a characteristic feature of it. As early as the end of last century V. I. Lenin noted that foreign capitalists were avidly pouncing upon Russia, where the standard of life of the workers and their wages were much lower than in other countries and where foreign capitalists were assured of vast profits, far in excess of profits at home.¹

Foreign investments in Russia not only did not decline, relatively, in the sum total of her economy as capitalism developed, but actually increased. In 1890 they constituted 26 per cent of the total capital of joint-stock companies invested in Russian industry; by 1914 this figure had risen to 47 per cent. Foreign capital was particularly firmly entrenched in heavy industry. Foreign firms controlled almost three-fourths of the iron and steel industry, more than three-fourths of the coal industry, approximately two-thirds of the oil industry and more than half of the machine-building industry. Thus tsarist Russia, as Comrade Stalin wrote, "... gave free entry to foreign capital, which controlled such basic branches of Russia's national economy as the fuel and metal industries, ..." ² was paying tribute to foreign capital.

The vast part played by foreign capital in Russian industry considerably enhanced Russia's dependence on the more developed capitalist countries and was a drag on the tech-

nical development of her industry. Foreign firms exerted every effort to impede the establishment in Russia of new, vitally important branches of industry and hampered the technical re-equipment of her industry in general.

Another characteristic feature of Russia's pre-revolutionary economy was the pronounced colonial policy carried on by tsarism. Particularly in the eastern and southeastern borderlands of the country almost all districts inhabited by non-Russians were to all intents and purposes colonies of the central part of European Russia, appendages supplying her with raw materials and agricultural produce.

All these specific features of the development of Russia's national economy—her belated entry upon the road of capitalism, the considerable survivals of serfdom, the vast importance of foreign capital, the limitations of her home market, the whole policy of tsarism, which hampered the industrial development of the country and of the rich sources of raw materials contained in her border districts—were responsible for her immense technical and economic backwardness.

In 1913 industry accounted for 42.1 per cent of the aggregate gross output of industry and agriculture, leaving 57.9 per cent to agriculture—a striking commentary on the agrarian nature of pre-revolutionary Russia's economics.

The bulk of industrial production consisted of consumer goods, which in 1913 represented 66.7 per cent of gross industrial output, while only 33.3 per cent fell to the share of means of production.

In volume of industrial production Russia lagged far behind that of the principal capitalist countries though she surpassed them considerably in territory and population. In 1913 her industrial output was somewhat less than one-fourteenth of that of the United States, a little more than one-sixth of Germany's, two-ninths of Great Britain's and two-fifths of France's. Russia's coal production was little more than one-eighteenth of the output of the United States, one-tenth of that of Great Britain, one-sixth that of Germany

¹ See Lenin, *Collected Works*, Vol. I, p. 436. (Russ. ed.)

² Stalin, *Problems of Leninism*, Moscow, 1947, p. 17.

and two-thirds that of France; in steel smelting Russia's production was two-fifteenths of that of the United States, less than one-third that of Germany, a little over a half that of Great Britain and less than two-thirds that of France; in cement production Russia's figure was one-tenth that of the United States, two-ninths of Germany's, a little over a half of Great Britain's and somewhat less than France's.

In volume of industrial output Russia was 50-100 years behind the principal capitalist countries.

The following vital items were not regularly produced in Russia: automobiles, tractors, machine tools, intricate electric power machinery, equipment for heavy industry, many tools and appliances and the principal chemical products.

Technological processes were extremely antiquated, with very little mechanization of production. In the coal industry, for instance, only 1.7 per cent of production was mechanized in 1913. Russia got her coal by the use of pick and shovel. Her iron and steel mills could not boast a single completely mechanized blast or open-hearth furnace and almost all laborious work in the mills was done by hand. There was no mechanization to speak of in the timber industry, in construction and in loading and unloading operations. In the oil industry the technique of production, and particularly of drilling, was most backward. The metal-working factories were equipped with antiquated, inefficient lathes. Many processes were performed by hand, more especially in foundries and smithies. Very few machines were electrically driven.

The inconsiderable volume of production, the absence of a number of highly important branches of industry, and the low technical level of production reduced pre-revolutionary Russia largely to a position of technical and economic dependence upon the leading countries of the capitalist world.

In view of the extremely poor development of industry at home, tsarist Russia had to import machine tools and other machinery, automobiles, railway cars and seagoing ships, building materials and various chemicals. Though tsarist Russia possessed the richest deposits of useful miner-

als in the world she imported coal, iron and steel and various non-ferrous metals (copper, nickel, tin, etc.). Even raw materials for certain branches of light industry were brought in from abroad.

Imports of industrial equipment and raw materials reached considerable dimensions. In 1913, for instance, 7,800,000 tons of coal were imported. Petrograd, pre-revolutionary Russia's biggest industrial centre, and the entire Northwest burned British coal almost exclusively. In 1913 Russia also imported 151,200 tons of fire brick and clay, over 200,000 tons of iron and steel and their products, over 100,000 tons of non-ferrous metals, 128,800 tons of paper and paper manufactures, about 200,000 tons of cotton, 55,500 tons of wool, 12,600 tons of cotton and woollen yarn, etc.

A considerable part of the most important industrial products consumed within the country was of foreign make.

In 1913 one-fifth of the coal used in Russia was mined abroad; almost half of the raw material used in the textile industry was imported. Imports accounted for 43.6 per cent of the machines used and for almost two-thirds of the country's superphosphate consumption. Every automobile, bicycle and watch and every ton of rubber and aluminum came from abroad.

The extremely unsatisfactory working conditions added to the heavy burden of an inordinately long working day. Wages were a mere pittance. But even this meagre pay was mercilessly cut down by all kinds of fines and the practice of compelling the workers to accept part of their pay in food and manufactured goods supplied by the factory commissary (truck system).

World War I found Russia unprepared both economically and militarily. The stores of rifles, cartridges, shells and other implements of war which Russia possessed at its outbreak were barely enough to cover requirements for the first four months. The productive capacity of Russia's industry, particularly the war industry, was obviously inadequate.

Soon after the war had begun the country experienced a fuel and raw materials crisis. The sharp reduction in coal imports which set in with the opening of hostilities seriously reduced the country's stocks of fuel, while attempts to increase the domestic production of coal proved fruitless.

By the end of 1916 the fuel crisis was so severe that scores of big plants working on war orders, let alone other enterprises, were compelled to stop work.

A regular metal famine set in. At the close of the same year Russia's metal works produced only half the metal required to satisfy the needs of the war industry.

Nor was the tsarist government able to solve the food problem. The war was scarcely a year and half old when not only the urban population but also the army had to be content with starvation rations.

All these causes were responsible for the highly unsatisfactory state of the army's munition supply. During World War I the shell supply (in weight) per Russian soldier was only one-twentieth that of the German soldier. The scarcity of guns and even rifles was acutely felt in the tsarist army. Reinforcements went to the front without arms. In many instances men in the army on active service had to share their rifles with one or two other soldiers. After the February [March—new style] Revolution of 1917, as a result of the continuing war and the mismanagement of the bourgeoisie, industrial production plunged downward at an even accelerated pace. The fuel and metal famine became extremely acute. Factories and mills closed in increasing numbers month after month. In August and September alone 231 enterprises employing 61,000 workers shut their gates, according to the undoubtedly understated figures given by the magazine *Promyshlennost i Torgovlya* (*Industry and Trade*).

The steadily increasing sabotage of the Russian bourgeoisie was one of the principal causes of the economic prostration. Ryabushinsky, one of the country's biggest capitalists, openly proclaimed that the impending revolution must be strangled by the gaunt hand of famine.

Lenin and Stalin indefatigably exposed the counter-revolutionary essence of the sabotage practised by the Russian bourgeoisie. "The capitalists," Lenin wrote, "are deliberately and persistently sabotaging (damaging, stopping, disrupting, hampering) production, hoping that a terrible catastrophe will spell the collapse of the republic and democracy..."¹

Comrade Stalin remarked in an editorial which appeared in the *Rabochi i Soldat* (*Worker and Soldier*) of August 6, 1917, that the Russian capitalists want "... the triumph of the interests of their purses, even at the price of Russia's doom..."²

One of the forms of sabotage resorted to by the bourgeoisie was the concealment of stocks of raw material and fuel at the various enterprises. For instance, Nobel, the well-known oil concern, which in September 1917 had available for delivery to the Government 150 million poods of oil, declared only 82 million poods and actually delivered even less; namely, 65 million poods.

The collapse of transport was another serious factor aggravating the general economic crisis. Every month average daily carloadings dropped. A considerable number of cars and locomotives got out of commission.

The financial crisis was acute in the extreme.

The living conditions of the workers sharply deteriorated. Famine stalked the land.

The Sixth Congress of the Bolshevik Party, which took place at the end of July and the beginning of August 1917, thus characterized the economic situation in the country:

"As a result, after three years of war, Russia's economic condition is as follows: complete exhaustion in the sphere of productive labour and disorganization of production, complete dislocation and even collapse of the transport system, public finances in a state verging on utter ruin and, con-

¹ Lenin, *Selected Works*, Moscow, 1947, Two-Vol. ed., Vol. II, p. 86.

² Stalin, *Collected Works*, Vol. III, p. 192. (Russ. ed.)

sequent upon all this, a food crisis approaching famine, an absolute shortage of fuel and of means of production in general, progressive unemployment, vast impoverization of the masses, and so forth. Already the country is falling into the abyss of final economic decay and ruination."

Thus the government of tsarist Russia proved powerless to solve the problems of war economy during World War I. "In pre-revolutionary Russia... the domination of private property in the means of production," Comrade Voznesensky pointed out, "attended by a low level of development of productive forces, and dependence on foreign capital, gave rise to insoluble difficulties in the conduct of the war of 1914-17."¹

What could save the country from final economic decay and ruination?

Basing itself upon Lenin's and Stalin's works and precepts of this period and proceeding from Lenin's historic April Theses, the Sixth Congress of the Party of the Bolsheviks furnished an exhaustive reply to this question. The only way out of the critical situation in which the country found itself was to end the war and organize production not in the interest of the handful of financial oligarchs but in the interest of restoring the war-devastated national economy, in the interest of the workers and peasants. But "such organization of production in Russia," the Congress noted, "can be carried out only by an organization controlled by proletarians and semi-proletarians, which presupposes the transfer to them of political power, too." Thus a way out of the economic catastrophe could be effected only by adopting the course of *Socialist revolution* and the transfer of power to the Soviets. At the same time the congress deemed it necessary that in the sphere of economics a number of decisive revolutionary measures should be carried out, measures which under a dictatorship of the proletariat would ensure the regulation of production and distribution according to plan.

¹ Voznesensky, *War Economy of the U.S.S.R. in the Period of the Patriotic War*, Moscow, 1947, p. 22. (Russ. ed.)

Most important among these measures were the nationalization of the land, the banks and a number of syndicated undertakings in the oil, coal, sugar and metallurgical industries; the nationalization of transport; the establishment of real workers' control of production and distribution as a transition measure leading to the state administration of production; the establishment of a state monopoly of foreign trade and the organization of a proper exchange of goods between town and country.

The Party also mapped out measures to remedy the desperate financial situation. Its Sixth Congress held that it was essential to stop at once the further issuance of paper money, to renounce the domestic and foreign debts of the state (with due consideration, however, for the interests of small bond holders) and to thoroughly re-arrange the entire taxation system.

The Sixth Congress of the Bolshevik Party played an important historical part in the life of our country. It was the congress of direct preparation for the October Socialist Revolution, with the aim of establishing the dictatorship of the proletariat. It headed the Party and the people for the overthrow of the rule of the landlords and the bourgeoisie, for the armed uprising, for the Socialist Revolution.

CHAPTER II

INDUSTRY DURING THE FIRST FEW YEARS OF SOVIET RULE

The October Socialist Revolution expropriated the landlords and capitalists from the means of production and converted these means into the property of the people. It created in our country all the prerequisites for an unprecedentedly rapid development of its productive forces, for the building of a Socialist society, for the transformation of our country from a backward into a powerful, highly industrialized Socialist power.

The victory of the Socialist Revolution confronted the proletariat, now in power, with the enormous task of reconstructing the old economy and creating a new, Socialist economy.

No sooner had Soviet rule been established than the Bolshevik Party set about the task of solving these problems. The basis of its plan was the economic platform that had been worked out in advance, on the eve of the October Socialist Revolution.

On November 8, 1917, literally on the morrow of the victory of the armed uprising in Petrograd, the Second All-Russian Congress of Soviets adopted its historic decrees on peace and land.

As had been decided at the Sixth Congress of the Bolshevik Party, workers' control was introduced in the national economy. On November 27 the All-Russian Central Executive Committee of Soviets passed the Regulations on Work-

ers' Control, which provided for the introduction of such control "in all industrial, commercial, banking, agricultural, transport and cooperative societies and other enterprises employing wage workers or giving out homework."

The Regulations equipped the organs of workers' control with vast powers—the right to supervise production, to fix the minimum output of an enterprise, to take measures for the ascertainment of production costs and to control all the business correspondence of the enterprise. In order to make these rights effective the government abolished business secrecy by compelling the owners of enterprises to submit all their books and accounts, as well as their entire business correspondence, to the organs of workers' control.

On introducing workers' control the Soviet Government and the Bolshevik Party considered this measure a step preparatory to the nationalization of industry and its administration by the state, a school for teaching the mass of the workers how to manage industry.

But with all the vast importance of workers' control its organs naturally were unable to solve the problems that arose in connection with the general regulation of the country's economic life. The creation of an authoritative government agency charged with directing the regulation of production and the administration of the national economy was an obvious necessity. On December 14, 1917, the Supreme Council of National Economy was organized.

The nationalization of the banks carried out in December 1917 greatly undermined the economic power of the bourgeoisie and promoted the planned development of industry and the whole of the national economy.

Thus within a span of less than two months after the October Revolution historic changes were brought about in the field of economics: private ownership of land was abolished; land became state property, was owned by the whole of the people. Workers' control was introduced; the banks were amalgamated and nationalized. A supreme organ

of administration of the national economy, particularly of industry, was set up.

In executing these political and economic measures calculated to extricate the country from the state of prostration and poverty into which it had fallen and to make planned, Socialist construction possible, the Soviet Government and the Bolshevik Party had to quell the fierce resistance of the overthrown capitalists and landlords. The foreign bourgeoisies and their governments had to be counteracted. The Government and the Party also had to overcome the active opposition of the kulaks in the countryside and of the lower middle-class elements in the cities.

In the struggle against Soviet rule the counter-revolutionary bourgeoisie and landlords were faithfully served by the Mensheviks and Socialist-Revolutionaries, the Trotskyites and the Bukharinites. These agents of the bourgeoisie hoped largely for assistance from the foreign imperialists. They banked on intervention. The Trotskyites and Bukharinites provoked war with German imperialism, strove to help "... the imperialists by making the war against Socialism easier for them," as Lenin said, "while Socialism is still weak, and when the chances of the war are manifestly *against Socialism*."¹

In spite of the Trotskyites and Bukharinites, the Mensheviks and Socialist-Revolutionaries, the Central Committee and the Seventh Congress of the Bolshevik Party and also the Fourth Extraordinary All-Russian Congress of Soviets decided in March 1918, on motion of Lenin, Stalin and Sverdlov, to withdraw from the imperialist war and conclude peace.

The respite thus secured made possible the commencement of Socialist development.

The urgent problem of organizing the administration of the country, of restoring the productive forces destroyed by the war and the mismanagement of the bourgeoisie, of en-

suring the economic progress of the country and of firmly maintaining revolutionary order faced the Party and the Soviet Government in all its magnitude.

But the solution of this problem required a ruthless struggle against the anarchic indiscipline of the lower middle class, for during that period this indiscipline represented the greatest danger.

Lenin demanded that this petty-bourgeois anarchism be overcome and that strict order be instituted at work, that discipline be considerably tightened to enhance the productivity of labour.

Socialist emulation on a mass scale, possible only where the country's economy is organized socialistically, was to figure large in the system of measures intended to raise labour productivity.

If labour discipline and labour productivity were to be decidedly improved one-man-management had to be instituted at each enterprise. It was further necessary to enlist the services of the old specialists, to utilize their experience and knowledge, to see that they are so circumstanced that they will work for the benefit of the people, of Socialist economy.

Furthermore, an end had to be put to the squandering of state property. People had to be taught how to manage thriftily, to be conscientious in handling property entrusted to them and strictly to account for the same.

Under these circumstances it was very important to organize a national system of accounting and control of the production and distribution of goods.

However, the respite gained in 1918 was of very short duration. The Entente imperialists and the counter-revolutionaries at home launched a crusade against the Soviet State in the middle of 1918. Its inspirer was that notorious British imperialist Churchill. The reactionary forces of the entire capitalist world took the field against the great Socialist Revolution. For a long time the country was turned into a besieged camp.

¹ Lenin, *Selected Works*, Moscow, 1935, Vol. VII, p. 353.

The position of the young Soviet Republic was very precarious. The central part of Russia was repeatedly and for long periods cut off from the country's most important raw material, fuel and food supply districts (the Ukraine, North Caucasus and Transcaucasia, the Urals, Siberia, Turkestan and the Far East).

The Bolshevik Party and the Soviet Government appealed to the entire Soviet people to defend their Socialist fatherland. All work was governed by the Party and the Government's principal watchword: "Everything for the Front!" The country was transformed into one vast battleground.

The maximum mobilization of all the resources of the country for the purposes of defence made it necessary to introduce the economic policy of *War Communism*, as it was called. With a war on against domestic and foreign counter-revolution, the Soviet Government had not only to nationalize large-scale industry but also exercise control over medium and even small-scale industry, institute a system of appropriating agricultural surpluses from the peasantry and introduce universal labour service.

During the first six months following the October Socialist Revolution only certain capitalist enterprises had been nationalized, mainly those which refused to submit to the decrees of the Soviet Government and sabotaged production.

Thus, for instance, the decree of the Council of People's Commissars dated January 9, 1918, ordering the confiscation of the property of the Kyshtym Mining District Joint Stock Company, signed by Comrade Stalin for the chairman of the Council of People's Commissars, stated:

"Whereas the factory management of the Kyshtym Mining District Joint Stock Company has refused to comply with the decree of the Council of People's Commissars providing for the introduction of workers' control in production, the Council of People's Commissars herewith resolves to confiscate all property of the Kyshtym Mining District Joint Stock Company, of whatever nature this property may be,

and declares it to be the property of the Russian Republic."

On June 28, 1918, the Council of People's Commissars issued a decree on general nationalization in which the big industrial and commercial establishments, together with all their capital and other property in all branches of industry were declared the property of the Republic.

The nationalization of large-scale industry was a highly important measure of the Soviet State, which annihilated the economic basis of the bourgeoisie and laid the foundation for a broadly-conceived planned organization of Socialist industry. By nationalizing the land, banks, large-scale industry and railroads and establishing a monopoly of foreign trade, the Soviet State gained control of the key positions of the country's economy and placed the dictatorship of the proletariat on a solid economic foundation.

The transfer of industry to the state brought up the important question of organizing its administration anew. The extremely scanty fuel, electricity and raw material resources, as well as the shortage of plant, necessitated a highly centralized allocation of material resources, a concentration of production at the largest enterprises and a distribution of orders in accordance with a single plan.

To this end the operative direction of the separate enterprises was concentrated in the so-called Central Administrations or Centres. The Central Administrations, which embraced separate branches of industry (Tsentrtekstil, Tsentrsement, Glavsteklo, Tsentromed, Glavsol, Glavtabak, Glavsakhar, Glavkozh, etc.), were in direct charge of all branches of activity of the various enterprises subordinated to them.

Industrial development encountered extreme difficulty in the period of 1918-20. The fuel problem was one of the most complicated, for the principal coal and oil districts—the Donets Basin and Baku—had been in the hands of the foreign interventionists and the domestic counter-revolutionaries for a considerable length of time.

The Bolshevik Party and the Soviet Government took determined steps to overcome the fuel crisis. The whole country was roused to combat the fuel famine. In November 1919 the Central Committee of the Russian Communist Party (Bolsheviks) sent a circular letter to all Party organizations, stating in part:

"...the fuel crisis threatens to undo all Soviet work: hand and brain workers are quitting because they are cold and hungry, trains loaded with grain are stranded and it is precisely the fuel shortage that is bringing on real disaster.

"The fuel question has become the cardinal problem, overshadowing all others. The fuel crisis must be overcome at any cost, otherwise it will be impossible to solve any problem, whether of food or of war or of the economy as a whole."¹

On account of the coal and oil shortage particular attention was paid to the procurement of wood (organized lumbering and haulage). Great efforts were made to increase peat production, which Lenin considered of great importance. In 1918, 61.9 million poods were extracted; in 1919 this figure rose to 67 million and in 1920 to 82 million.

But in spite of the heroic efforts of the working class fuel consumption throughout the country dropped considerably.

The metal supply for industry during these years likewise presented a highly complicated problem. In consequence of the extreme fuel shortage, of the absence of large contingents of workers who left the factories for the front and of military operations in the territory, the smelting of iron and steel in the South of Russia during 1919-20 came to an almost complete standstill. Blast and open-hearth furnaces were blown out one after another.

In order to assuage the metal famine resolute steps were taken to maintain metal production in the central regions

¹ *Directives of the C.P.S.U.(B.) on Economic Questions*, Sotsekgiz, 1931, p. 10. (Russ. ed.)

and the Urals, where a considerable number of blast furnaces burnt wood. The rich industrial-crop regions of Central Asia were cut off from the central parts of the country for a lengthy period. Moreover the import of cotton, jute and other types of agricultural raw material had ceased.

The dearth of raw materials and fuel made necessary the strictest centralization in their allocation and in the granting of priority of supply to plants of prime importance to the national defence.

The "Theses of the Central Committee of the Russian Communist Party (Bolsheviks) in Connection with the Situation on the Eastern Front," written by Lenin on April 11, 1919, played an important part in stimulating the mass of the workers to greater activity and improving work in many economic organizations. In these theses the Party appealed for a maximum effort to better the economic condition of the country and organize work in a revolutionary way. "The Central Committee," the theses state, "appeals to all Party organizations and all trade unions to set to work in revolutionary style, and not confine themselves to the old stereotyped methods...."

"We must bend all our efforts, display revolutionary energy...."

The theses evoked a hearty response from the workers and supplied the impulse for the rise of a remarkable movement among the working people, the Communist *subbotniks*.¹

It was started by the workers of the Moscow-Kazan railway, who on May 10, 1919, carried out the first *subbotnik*. Their initiative was followed by the workers as a body at many other establishments. V. I. Lenin immediately took note of the heroism displayed by the workers in the rear and he summarized the significance of this phenomenon in his famous pamphlet, "A Great Beginning."

¹ *Subbotniks*: Days (originally Saturdays) or part days devoted to urgent socially necessary work performed collectively, voluntarily and gratuitously by public-spirited citizens.

Lenin attributed enormous importance to the arranging of Communist subbotniks by the workers on their own initiative. Lenin looked upon the subbotniks as first manifestations of a Communist attitude toward work, as the actual commencement of Communism. "It is," wrote Lenin, "the beginning of a revolution that is much more difficult, more material, more radical and more decisive than the overthrow of the bourgeoisie, for it is a victory over personal conservativeness, indiscipline, petty-bourgeois egoism..."¹

At the close of 1919 the Red Army routed Kolchak (eastern front) and Denikin (southern front). A short breathing space now intervened, which permitted part of the forces to be transferred to the economic front.

Several thousand Communists were assigned the task of helping in the rapid restoration of the railway transport system. Measures were taken to return skilled workers to the factories there to ply their special trades.

This peaceful interval made it possible to proceed to the drawing up of a single economic plan. The Ninth Congress of the Russian Communist Party (Bolsheviks), which took place in March-April 1920, specially noted the significance of this circumstance. "The principal requisite for the country's economic rehabilitation," the resolution of the congress stated, "is the unswerving execution of a *single economic plan* designed to cover the immediate historical period."

Industrial progress required a further and decided strengthening of the principle of one-man-management. The Congress went into this question very thoroughly. It resolved that "... the actual carrying into practice, in high places and in low, of the repeatedly enunciated principle that a definite person must be definitely responsible for definite work is a necessary condition of any improvement in the organization of the economy of production and in its growth."

¹ Lenin, *Selected Works*, Moscow, 1947, Two-Vol. ed., Vol. II, p. 482.

At the end of April 1920 international imperialism made one more attempt to overthrow the Soviet Government. This time it was the Polish gentry under Pilsudski and Wrangel's Whiteguard army, the last stand-by of the Russian counter-revolution, who with the direct support of the British and French imperialists simultaneously took the field against the Soviets.

Soviet industry, which had only just begun its reconversion to the production of civilian goods, was again compelled to devote a considerable part of its capacity, of its material and human resources, to the production of arms and ammunition.

As 1920 drew to a close Soviet Russia defeated the forces of foreign intervention and completely wiped out the Whiteguard armies on its territory. It thus brought the war against the domestic and foreign bourgeois-landlord counter-revolution, which had lasted almost three years, to a victorious conclusion.

The victory of Soviet Russia in the Patriotic War of 1918-20 against 14 states was a victory not only of the front, of the army, but also of the rear. It was a victory of the new, Soviet system and of the Leninist-Stalinist leadership of the Party and the Soviet people. "No army in the world," wrote Comrade Stalin, "can be victorious (speaking of course of a lasting and solid victory) without a stable rear. The rear is of prime importance to the front..."¹

It would have been impossible for the Red Army to defeat the foreign interventionists and the domestic counter-revolutionaries without the firm support of our people.

The vast advantages of the Soviet order and of the Soviet economic system asserted themselves in the achievement of victory over the foreign and domestic foe. Indubitably, no other government in the world would have been able to hold out in face of the difficulties which the young Soviet Republic

¹ Stalin, *Collected Works*, Vol. IV, p. 323. (Russ. ed.)

lic had to cope with during the period of foreign intervention and civil war.

As a result of the four years of imperialist war and three years of civil war, the industry of our country was in great distress.

In 1920 the output of large-scale industry dropped to less than one-seventh of 1913, the manufacture of locomotives decreasing to almost one-seventh, of railway cars to one-twenty-fourth, electrical machinery to less than one-eighteenth, and cement and bricks to between one-thirty-fifth and one-fortieth. In 1920 pig iron smelting was only 2.4 per cent of 1913; copper smelting had come to a complete stop.

Such was the scratch from which the process of restoring our industry had to start. And when we speak of the rate of growth of Soviet industry and compare the level achieved with the 1913 level, we must bear in mind that in 1920 our industry had been forced down far below the 1913 level.

The termination of the period of foreign intervention and civil war enabled the Communist Party and the Soviet Government to proceed to the framing of one single state plan for the development of the national economy.

At the Eighth All-Russian Congress of Soviets, which was held at the end of December 1920, a plan for the electrification of Russia (the Goelro plan) was debated and approved. This was the first long-range single state plan for the national economy. The congress appealed to all working people of the country to exert every effort to bring this plan—the great economic program of the Party of Lenin and Stalin—to fruition.

Designed for a period of 10-15 years the Goelro plan contemplated not only the extensive construction of new electric stations but assigned tasks to all the more important branches of the national economy as well. To Lenin and Stalin the electrification of the country did not mean the erection of isolated power stations but the techni-

cal reconstruction of the whole national economy on the foundation of a modern, large-scale, electrically-operated industry.

The Goelro plan specifically stated: "To draw up a project for the electrification of Russia means to sound the keynote for all constructive economic activity, to build in the main the framework required to carry out the single state plan for the national economy."

The following table gives the Goelro targets for the most important branches of industry:

Branches of Industry	Units	1913	1920	Goelro Target
Pig iron	mill. tons	4.2	0.116	8.2
Steel	" "	4.2	0.194	6.5
Iron ore	" "	9.2	0.164	19.6
Copper	thou. tons	31.1	0.3	81.9
Coal	mill. tons	29.1	8.6	62.3
Oil	" "	9.2	3.8	11.8-16.4
Peat	" "	1.7	1.4	16.4
Cement	" "	1.5	0.036	7.75
Bricks	1,000 mill.	2.1	0.2	10.0

The Goelro plan aimed to lay the foundation of Socialist economy in our country, to accomplish the principal tasks of Socialist construction in the U.S.S.R.—the speediest achievement of technical and economic independence and the enhancement of the country's defensive capacity. These targets were to be reached by industrializing the national economy, giving priority of development to heavy industry, to the production of means of production.

Growth of Industrial Output According to the Goelro Plan
(in per cent of pre-war level)

<i>Large-scale industry</i>	180-200
of which:	
Production of the means of production (Group A) . . .	216.7
Metal industry	194.2
Chemical industry	250.0
Building materials	258.0
Fuel	157.0
Mining	160.0
Production of means of consumption (Group B)	147.4
Textile industry	146.5
Food industry	148.0

Lenin and Stalin considered the Goelro plan of paramount importance. "In my opinion it is a second program of our Party," V. I. Lenin said of the plan to electrify Russia.

In a well-known letter written by Comrade Stalin to V. I. Lenin concerning the Goelro plan, Comrade Stalin characterized it as "a masterly outline of a really *single*, a really *state* economic plan, *without quotation marks*. It is the only Marxist attempt in our day to provide the Soviet superstructure of economically backward Russia with a really practical production foundation—the only foundation technically possible in the present conditions."¹

Thus the Soviet people on the threshold of their transition to peaceful Socialist construction received a grand program of economic regeneration and transformation of the country, a program providing for the building of the groundwork of the Socialist economy of the country and directing the struggle for the economic independence of our Soviet State.

¹ Lenin and Stalin, *Collected Essays for the Study of the History of the C.P.S.U.(B.)*, Partizdat, 1936, Vol. II, p. 365. (Russ. ed.)

CHAPTER III

**INDUSTRY IN THE U.S.S.R. DURING
THE PERIOD OF RESTORATION
OF THE NATIONAL ECONOMY**

Upon the defeat of the main forces of intervention and of the Whiteguards the Soviet people turned to the task of peaceful economic construction. The continuation of the building of Socialism required the speediest possible development of industry and agriculture, the expansion of trade and a decided improvement in the living conditions of the working people. Success on the economic front was the decisive factor in determining the destiny of the Revolution.

The war over, economic progress based on the former policy of War Communism had become impossible. This policy, correct while the war was in progress, was not suitable for the peaceful economic development that set in after the war.

At its Tenth Congress (March 1921) the Party of Lenin and Stalin adopted a new economic policy (N.E.P.) which was intended to promote the building of Socialism but by other methods of economic construction than those employed during the period of War Communism.

Comrade Stalin gave the following classical definition of the essence of the New Economic Policy:

"The N.E.P. is a special policy of the proletarian state designed to permit capitalism while the key positions are held by the proletarian state, designed for a contest be-

tween the capitalist and the Socialist elements, designed for an increase in the role of the Socialist elements to the detriment of the capitalist elements, designed for the victory of the Socialist elements over the capitalist elements, designed to destroy classes and lay the foundation of Socialist economy."¹

In order to raise the level of agriculture and industry and revive trade, a transition had first to be effected from the system of appropriating farm produce surpluses to the tax in kind. This tax was lighter than the assessments under the surplus appropriation system. It left the peasantry the surplus of their farm produce and granted them the right to trade freely in this surplus. This stimulated them to rapidly increase the output of their farms. Private trade was permitted and private capital allowed to be invested to a limited extent in small and medium-scale industry. In the sphere of state industry the business initiative of the separate establishments was encouraged and their material interest in the results of their enterprise stimulated. Excessive managerial centralization was done away with.

The Trotskyites and other enemies of Socialism, who were steering toward a restoration of capitalism in our country, viewed the N.E.P. solely as a retreat before capitalism. This conception had nothing in common with the Leninist-Stalinist conception of the New Economic Policy, which, while permitting a temporary retreat, envisaged an offensive against the capitalist elements to the point of their elimination. After the lapse of only one year, at the Eleventh Congress of the Party, V. I. Lenin stated that it was now necessary to stop the retreat, regroup forces and launch an offensive against private capital.

The works of Comrade Stalin contain a profound elucidation and further elaboration of the doctrine of the New Economic Policy. "In reality," said Comrade Stalin in 1930 at the Sixteenth Congress of the Party, "N.E.P. presupposes

¹ Lenin and Stalin, *Collected Essays for the Study of the History of the C.P.S.U.(B.)*, Partizdat, 1938, Vol. III, p. 33. (Russ. ed.)

not only a retreat and permitting a revival of private trade, a revival of capitalism while safeguarding the regulating role of the state (the initial stage of N.E.P.); in reality, N.E.P. also presupposes, at a certain stage of development, the Socialist *offensive* against the capitalist elements, the *restriction* of the field of activity of private trade, the relative and absolute *reduction* of capitalism, the growing *predominance* of the socialized sector over the unsocialized sector, the victory of Socialism over capitalism (the present stage of N.E.P.)."¹

The development of the Land of Soviets along the track laid down by N.E.P. fully confirmed Lenin's and Stalin's appraisal of this policy.

The transition to N.E.P. introduced substantial changes in the conditions under which industry was developing. Many small industrial establishments were leased to co-operative organizations and private individuals. However, private capital played no great role in industry. By the end of 1923 upward of 5,500 small enterprises employing approximately 80,000-90,000 workers had been let, yet the proportion of private industry was only 4.4 per cent of the entire factory output in 1923-24.

The New Economic Policy likewise contemplated a slight development in the domain of concessions; however, they constituted but a barely perceptible factor in our economy.

The new policy produced changes in the organization of management and the principles of work in state Socialist industry. The principle of business accounting was introduced in all state establishments. Enterprises were united to form trusts. The adoption of business accounting allowed the trusts a certain degree of independence in their daily transactions, authorized them to do the purchasing necessary to carry on production and to sell the products of their factories.

¹ Stalin, *Leninism*, Moscow, 1933, Vol. II, p. 297.

The transition to peaceful construction in pursuance of the New Economic Policy demanded that the entire system of Socialist planning be consolidated. On February 22, 1921, a decree of the Council of People's Commissars set up a State Planning Commission (Gosplan) under the Council of Labour and Defence (S.T.O.). Soon the Government formed planning agencies in every branch of economy: an Industrial Planning Commission, a Central Fuel Plan Commission under the Central Fuel Administration, an Inter-departmental Planning Commission for Transport, etc.

After reorganizing the management of industry and rearranging the principles governing its work in accordance with the New Economic Policy, the Party and the Government fixed the following target for the immediate future: the speediest possible increase of industrial output, the restoration of the pre-war level in industry at a record pace.

During the first few years of N.E.P. great importance attached to the rapid expansion of light industry and agriculture, a measure calculated to improve the supply of the urban population and increase the exchange of commodities between town and country.

Of vast importance also was the accelerated rehabilitation of the raw material and fuel industries. One of the principal obstacles to industrial progress was the acute shortage of circulating funds. A considerable part of the industrial plant was condemned to idleness for lack of raw materials, auxiliary supplies, fuel and electricity. Acceleration of the production of coal, oil, iron ore, iron and steel and electric power, as well as the restoration of the transport system, was imperative.

Accordingly, the bulk of investments during the first years of N.E.P. went to the mining and extracting industries and to light industry.

As a result only one or two years after the transition to peaceful construction industry had made considerable progress.

For 1921 large-scale industry as a whole registered a 42.1 per cent increase in output; for 1922, a 30.7 per cent and for 1923 a 52.9 per cent increase.

Infuriated by the initial successes achieved in the restoration of the national economy the enemies of the Party and of the Soviet people endeavoured in every way to disrupt this progress. The Trotskyites made palpably capitulatory and treasonable proposals, namely, that the most important branches of industry should be turned over to foreign concessionaries and that the debts of the tsarist government, which had been cancelled by the October Revolution, should be paid. Bukharin and Sokolnikov proposed that the foreign trade monopoly be abolished. Trotsky treacherously suggested shutting down such huge plants as the Bryansk and Putilov works, which were of paramount importance to the national defence, assigning as his reason that they did not yield a profit at that time. The Twelfth Congress of the Bolshevik Party administered a decisive rebuff to all these capitulators who sought to surrender to capitalism.

Despite the high rates of development of industry and agriculture the country still experienced considerable economic difficulties. In 1923 the output of large-scale industry was worth 4,000 million rubles. This was almost three times as much as industry produced in 1920, but it still constituted little more than one-third of the pre-war volume of output. At the end of 1923 the country still had about one million unemployed.

In the autumn of 1923 the economic dislocation of the country became more pronounced and an appreciable discrepancy arose between the inordinately high prices of industrial goods and the very low prices fetched by farm produce.

This discrepancy was the result of unthriftiness in production, disdain for questions of economics, high overhead expenses in industry and exorbitant prices for manufactured goods fixed by business executives to the detriment of industry's development.

The Trotskyite Pyatakov, who at that time was in the Supreme Council of National Economy, gave the business executives the criminal directive to squeeze out as much profit as the traffic would bear by rocketing prices.

A sales crisis set in in industry.

The sales resistance encountered in the disposal of manufactured goods was to be largely explained by the severe depreciation of Soviet currency at the time.

But the Government and the Central Committee of the Bolshevik Party did not permit the sales crisis to become protracted or aggravated. Telling counter-measures were adopted. The prices of manufactured goods for general consumption were lowered. A drive was launched on a broad scale for economy, rationalization, and retrenchment of overhead expenses.

The policy of the concentration of production pursued by the Government and the Party was of great importance for the economic regeneration of industry. The shortage of circulating funds felt during the first few years of N.E.P. caused interruptions in the supply of raw material and machinery to industrial establishments. It furthermore led to an incomplete utilization of their production plant, which in turn was responsible for high production costs. Under these conditions it became necessary to concentrate production at the biggest establishments, those technically best equipped and most conveniently situated from the point of view of proximity of raw material sources and of distribution centres of the finished product.

In its resolution on industry the Twelfth Congress of the R.C.P.(B.) particularly stressed the necessity of "a radical *concentration of production* at the technically best equipped and geographically most suitably situated enterprises."¹

The currency reform undertaken at that time had a very favourable effect on the development of the entire national

economy and particularly the liquidation of the sales crisis of 1923. The severe economic straits in which the country found itself during the Civil War had been reflected, in particular, in a sharp depreciation of the ruble.

The Party and the Government adopted a series of measures calculated to establish a stable currency, to consolidate public finances and remove the budgetary deficit. Such a currency, introducing the chervonets, was being successfully established throughout the country. Whereas on January 1, 1923, the currency consisted almost entirely of rapidly depreciating old paper money, chervontsi had displaced this money 90 per cent by the beginning of 1924. The issuance of the old money ceased and by June 1924 it had been completely withdrawn from circulation. The country was now provided with a stable currency.

The lowering of prices of manufactured goods, the concentration of production at the biggest and technically best equipped enterprises, the rationalization of production and the systematic practice of economy as well as the monetary reform made it possible swiftly to overcome the sales crisis and arrange the normal circulation of commodities throughout the country.

Already in 1924 industry increased its volume of output by 16.4 per cent in comparison with the preceding year. The rate of increase achieved during 1925—66.1 per cent—was a record for all the years of Socialist development.

The initial successes achieved in capital construction constituted one of the factors contributing to the upsurge of industry in 1924-26. In 1921-23 investments in industry had been so insignificant that they did not even cover depreciation, on which account the fixed production fund of industry not only did not increase but actually decreased. During the fiscal year of 1923/24 (at that time from October 1 to October 1) the process of the so-called "eating up" of the fixed fund stopped. In that year about 210 million rubles were invested in industry under the jurisdiction of the Supreme Council of National Economy, which about corresponded to the depre-

¹ *Directives of the C.P.S.U.(B.) on Economic Questions*, Sotsek-giz, 1931, p. 116. (Russ. ed.)

ciation figure. In 1924/25 capital construction amounted to nearly 385 million rubles (in 1926/27 prices), almost 100 million rubles in excess of deductions for depreciation. During the next fiscal year (1925/26) expenditures on capital construction already amounted to 811 million rubles, depreciation totaling 360 million rubles. Thus the end of the restoration period already witnessed the beginning of the reproduction of the fixed fund on a progressively increasing scale.

The rapid numerical increase of workers facilitated the industrial progress. Whereas in 1921 the average number of workers employed in large-scale industry was 1,298,000, that figure rose in 1925 to 2,119,000, *i.e.*, increased 63 per cent. Labour discipline improved considerably. The participation of the working people in the improvement of production became more active, as was clearly exemplified by the spread of production conferences. Wages rose steadily. According to the figures published by the State Planning Commission, during the period of October 1922 to January 1924 average daily wages of workers in the fourteen most important branches of nationalized industry increased approximately 90 per cent. Labour productivity more than doubled during the restoration period.

Soviet industry's exceptionally high rates of growth swiftly brought it close to pre-war levels. In 1925 large-scale industry's output represented a value of 7,739 million rubles, or 75.5 per cent of the 1913 figure. The following year the pre-war level was exceeded by 8.1 per cent. The Socialist sector had become predominant in industry: 81 per cent of all industrial output in 1925 was accounted for by Socialist enterprises.

The attainment of the pre-war level of industrial production within a span of six years despite the tremendous destruction of productive forces that our country had suffered was splendid evidence of the immense superiority of the Soviet system of economy over the capitalist system of economy.

In France and Germany, for instance, the curtailment of production as a result of World War I had been considerably less than in Russia in 1920. Nevertheless it took approximately ten years for the industries of these countries to be rehabilitated—much longer than it took the Soviet Union.

Moreover, Soviet industry was restored wholly without the aid of foreign capital. The Soviet Union attained its rapid rates of restoration and of the further development of the national economy without any assistance from abroad, resorting exclusively to its own sources of accumulation.

On achieving the 1913 level, the national economy of the Soviet Union was squarely confronted with the problem of the further prospects of Socialist construction. Pre-revolutionary Russia's level was the level of a country agrarian in type, and backward and dependent in point of technique and economy. Both the domestic task of Socialist construction and the conditions of development of the U.S.S.R. as affected by the international situation urgently demanded that this lag be overcome with all possible speed.

In order to achieve the technical and economic independence of the Soviet Union and decisively increase its defensive capacity, in order to lay the economic foundation of Socialism within the country and ensure constant improvement in the living and cultural standards of the working people, it was essential that the volume of industrial output be multiplied several times over in the shortest possible span of time, that new branches of industry of vital importance to the country be organized and that the entire national economy undergo technical reconstruction. This in turn required that within a few years thousands of new factories and mills be built all over the country, that a new production apparatus be created, primarily for heavy industry, which is the cornerstone of the entire national economy. The successes achieved by Socialist industry were to serve as the basis for the assumption of a decisive offensive against the

capitalist elements all along the front, for their elimination and the victory of Socialism in our country.

All these problems were to find their solution in the policy of Socialist industrialization, which contemplated forced rates of development in industry in general, and in the production of means of production in particular. During the initial period of N.E.P. the tasks of raising the level of agriculture and light industry and of developing trade were given priority. The Soviet State at that time had not yet accumulated sufficient funds for new construction on a large scale. But by the end of 1925, when the national economy approximated the pre-war level, the industrialization of the country had become the paramount practical task of the day. The development of the production of means of production was to be accelerated and on this basis the entire national economy was to undergo thorough technical reconstruction.

At the Fourteenth Party Congress (December 1925) Comrade Stalin focused the attention of the Party and the country on the struggle for the realization by every possible means of the policy of the Socialist industrialization of the U.S.S.R. as the general line of the Party.

"The conversion of our country from an agrarian into an industrial country," he said in the political report of the Central Committee of the C.P.S.U.(B.), "able to produce the machinery it needs by its own efforts—that is the essence, the basis of our general line."¹

"We must advance our industry," Comrade Stalin taught. "We must expand our industry as rapidly as possible and increase the number of workers 2 and 3-fold. We must transform our country from an agrarian into an industrial country, and the sooner the better."²

The Trotskyite-Zinovievite band of traitors to the country

¹ *History of the Communist Party of the Soviet Union (Bolsheviks), Short Course*, Moscow, 1945, p. 276.

² *Stalin, The Economic Situation in the Soviet Union*, Partizdat, 1937, p. 7. (Russ. ed.)

severely denounced this course of Socialist industrialization.

The Trotskyite Sokolnikov and others who took the floor at the Fourteenth Congress of the Party to oppose the Leninist-Stalinist plan of socialistically industrializing the Soviet Union proposed to agrarianize the country. Theirs was a plan of Dawesization, under which the Soviet Union was to remain an agrarian country, exporting raw materials and foodstuffs and importing machinery. This was a treacherous plan of economically enslaving our country, of converting it into a puny, impotent appendage of the capitalist world—a plan which would have left the U.S.S.R. to face the heavily armed imperialist camp unarmed.

The Trotskyite-Zinovievite opposition was shown in its true colours at the congress of the Party. The Party unanimously endorsed the Leninist-Stalinist line of the Socialist industrialization of the country.

The congress charged the Central Committee of the Party to pursue an economic policy that would enable the U.S.S.R. "to ensure" its "economic independence and would shield it against being converted into an appendage of capitalist world economy; for which purpose it is to steer a course of industrializing the country, of developing the production of means of production and accumulating reserves for economic manoeuvring."

As industry approached the pre-war level the problem of new capital construction assumed decisive importance. Toward the end of the restoration period the old plant was in the main utilized to the full and contained no reserve to speak of for the further growth of production. As early as April 1926, the Plenary Session of the Central Committee of the C.P.S.U.(B.) noted that "industry was utilizing the fixed capital inherited from the bourgeois epoch almost completely and was dependent upon the re-equipment of enterprises and the building of new factories and mills for its further expansion..."

On the strength of this the problem of fixed funds, the

problem of accumulating monetary and material means, became the focal point in the operation of industry. In seeking a solution for the problem of fixed funds the Soviet Union could not resort to such methods of obtaining the necessary wherewithal as the imposition of war contributions, a practice peculiar to capitalist countries. Nor could it resort to the seizure and plundering of colonies, the granting of concessions on onerous terms or the contraction of loans in capitalist countries on like onerous terms.

Making good use of the advantages afforded by the Socialist system of economy the Soviet people, in pursuance of the wise policy of the Communist Party, adopted a new course, unknown to the capitalist countries, the course of industrializing the country by drawing upon its internal sources of accumulation. State ownership of the factories and mills, of the transport system, the land and the banks; the foreign trade monopoly, the concentration of domestic trade in state and cooperative organizations, the abolition of incomes from exploitation and of parasitic consumption—all these furnished the state with reliable and constantly increasing sources of revenue for the purposes of industrialization.

Taking the precepts of Comrade Stalin as its premise the Fifteenth Conference of the C.P.S.U.(B.) (October 26-November 3, 1926) laid down concrete ways of struggle for Socialist sources of accumulation.

The process of extended reproduction in Soviet industry was to be maintained primarily by creating new masses of surplus product within industry itself. Besides, supplemental funds were to be assigned from other branches of the national economy via the state budget to industrial construction. At the same time the Party completely rejected the proposal of the Trotskyites to tax the countryside out of all proportion, as this would break the bond between town and country and in the long run would frustrate the entire scheme of industrializing the U.S.S.R.

Private savings were also to be utilized through cooper-

atives, savings banks, state loans, etc., as important sources of accumulation.

The amounts accumulated in industry were directly dependent upon the economy and rationalization attained in its operation. A regime of strict economy was to apply to all the work of the economic organizations.

In response to the appeal of the Party the struggle for the rationalization of production became widespread. The circulating fund was used to greater advantage, labour productivity increased and administrative, managerial and other overhead expenses declined. This made it possible to augment the volume of capital construction in industry from year to year. In 1926/27 as much as 1,090 million rubles (in 1926/27 prices) was invested in planned industry, and in 1927/28, 1,335 million rubles.

The expansion of plant, its improved utilization and the increase in the number of workers made it possible for industry in the U.S.S.R. to continue its high rate of growth after it had attained the pre-war level.

The rapid development of Socialist industry during this period completely upset the Trotskyite-Menshevik "theory" of the drooping curve, according to which high rates of growth were possible only during the restoration period and were bound to drop sharply upon entering the reconstruction period. This "theory" was grounded on a negation of the superiority of the Socialist system of economy and on the extension of the laws of capitalist development to our economics.

In 1928 industry had not yet risen far above the 1913 level. Although the pre-war volume of its output was exceeded that year by half as much again, no sweeping structural changes had ensued in industry and its technical equipment. Light industry still supplied the major part of manufactured goods. No new branches of industry had been set up. The new factories and mills were still unbuilt and industrial production was carried on at the old factories with their obsolete equipment.

In his address to the electorate on February 9, 1946, Comrade Stalin pointed out that until 1928 "...we had to restore our ruined industries and heal the wounds inflicted upon us by the First World War and the Civil War."

The task of setting up new branches of industry and of equipping Socialist industry with new machinery was successfully achieved during the next and decisive stage of Socialist construction, the epoch of the great Stalin five-year plans.

CHAPTER IV

INDUSTRY IN THE U.S.S.R. DURING THE PRE-WAR STALIN FIVE-YEAR PLAN PERIODS

The first three Stalin five-year plan periods (1928-1940) cover a grand epoch in the history of our country. When the first of these quinquennial periods was inaugurated the Soviet Union was still a weak, agrarian country, backward in technique and economically undeveloped. As a result of the Leninist-Stalinist policy of country-wide industrialization and the collectivization of agriculture, the Soviet Union, within thirteen years became a great, highly industrialized power wholly independent of the capitalist world. Socialism was victorious in the U.S.S.R., finally and irrevocably, in all branches of the national economy. Socialist society, the first phase of Communism, was now built, and moral and political unity among the Soviet people achieved. The mutual friendship of the nations of the U.S.S.R. became indestructible, and a profound spirit of Soviet patriotism developed.

The historic victories gained by the Soviet people under the wise leadership of the Communist Party during these five-year plan periods were of signal international importance. During the foreign military intervention and civil war the working people of the U.S.S.R. had demonstrated what heroism they were capable of in defence of their Socialist homeland; during the following six or seven years they had shown that they not only knew how to defend their country

but also to restore the national economy at an accelerated tempo. But during the five-year plan periods the toiling masses of the U.S.S.R. proved to the entire world what truly immeasurable creative, constructive forces lay dormant in a people that had cast off the fetters of capitalism and begun to work for itself, for its own, a Socialist, state.

In summing up the First Five-Year Plan period, Comrade Stalin stated that its results "refuted the assertion of bourgeois economists that the capitalist system of economy is the best of all systems—that every other system of economy is unstable and incapable of standing the test of the difficulties attending economic development. The results of the five-year plan have shown that the capitalist system of economy is bankrupt and unstable; that it has become obsolete and must give way to another, a higher, Soviet, Socialist system of economy; that the only system of economy that has no fear of crises and is able to overcome the difficulties which capitalism cannot solve—is the Soviet system of economy."

The five-year plans are the great triumph of the policy of the Bolshevik Party; they are a triumph of free Socialist labour. In the struggle to translate the five-year plans into reality they became inseparably bound up with the name of the greatest man of contemporary times, with the name of Joseph Vissarionovich Stalin. It was in accordance with his instructions and under his direct leadership that the five-year plans were drawn up and put into execution. The five-year and one-year plans for the development of the national economy, the numerous decisions of the Party and the Government on particular questions of Socialist development, the hundreds and thousands of our first-class plants, our admirably designed machine tools, airplanes, implements and all the up-to-date machinery with which our national economy is equipped, the immense successes achieved in the preparation and training of men and women who have mastered the various techniques and are improving upon them—all these variegated and magnificent practical achievements of our

Socialist construction are the embodiment of the genius of Stalin, his wisdom, his singular perspicacity, unbending will, his fatherly solicitude for people. This is the reason why the Soviet people call these plans *Stalin* five-year plans.

INDUSTRY IN THE U.S.S.R. UNDER THE FIRST FIVE-YEAR PLAN

As the country entered the period of reconstruction with an immense program of capital construction and thoroughgoing technological reconstruction of the national economy, the drawing up of detailed long-range plans in which each year and month had its specific schedule became an obvious necessity. This testified to the increased strength of the Soviet state and of its planned, Socialist economy.

The Fifteenth Congress of the C.P.S.U. (B) (December 1927) issued circumstantial directives on the drafting of the First Five-Year Plan for the development of the national economy of the U.S.S.R. (1928-32). The Party proceeded from the superiority of the Soviet system and its planned, Socialist system of economy. "To be able to direct according to a plan," Stalin said at the Party Congress, "we must have another, a Socialist and not a capitalist, system of industry, at least, a nationalized industry, a nationalized credit system, nationalized land, a Socialist bond with the countryside, the rule of the working class throughout the land, and so forth."

At the same congress Comrade Stalin sternly rebuffed all Trotskyite-Menshevik groups, which asserted that a plan ought to be regarded merely as a forecast, a prognosis. In the Soviet state national-economic plans are planned directives, which determine the direction and fix the rates of economic development.

Planning is one of the most important functions of the Socialist state. It is a powerful organizational force. In the U.S.S.R. state national-economic plans have the force of economic laws.

In its resolution "On the Directives for the Drawing Up of a Five-Year Plan for the National Economy" the Fifteenth Congress of the C.P.S.U.(B.) issued instructions to provide in the plan for rapid rates of growth of industry in general, and of heavy industry in particular.

The Party line of accelerating the development of heavy industry met with furious opposition on the part of the capitulatory Bukharin-Rykov group, which at that time displayed increased activity and combated the Party's course of Socialist industrialization. Instead of high rates of development for heavy industry the rightist capitulators wanted to give light industry priority of development, thus attempting to induce the Party to follow the "usual," capitalist course of development.

In opposition to the five-year plan the Bukharin-Rykov group proposed a two-year plan for the development of agriculture. The principal objective of their scheme was to discredit and frustrate the Stalin Five-Year Plan with its high rates of growth of the Socialist national economy. They wanted to suit the five-year plan to their two-year plan by scaling down appropriations for industrialization.

The Party exposed this scheme and the Right opportunist groups of traitors to the country.

The successes achieved in the matter of restoring the national economy and the rates mapped out by the Party for the Socialist industrialization of the country evoked the ire of a section of old specialists.

Having lost all hope that Soviet Government would degenerate, a group of bourgeois specialists in the Shakhty district of the Donets Basin, who maintained close connections not only with the former Russian factory and mine owners but also with bourgeois circles abroad and foreign military intelligence services, took to wrecking. The Shakhty group deliberately misdirected mining operations, put equipment out of commission, engineered explosions and fires in mines, factories and power stations. In 1928 this gang of wreckers was tracked down, tried and duly punished.

But the significance of the Shakhty case went far beyond the courtroom. In April 1928 a joint plenary session of the Central Committee and the Central Control Commission of the C.P.S.U.(B.) specially examined the question of the lessons to be drawn from the Shakhty case. It stressed the need for Communist business executives to make a profound study of the technique of production and to master the technological processes involved. It also mapped out measures calculated to enlist the workers on a wider scale in the work of managing production and to improve living and working conditions in the Donets Basin.

The Shakhty case furthermore revealed that not all was well in the matter of training new specialists.

The creation of a new technical intelligentsia had to be accelerated and their training improved. Speaking on July 13, 1928 at a meeting of leading members of the Leningrad organization of the Communist Party Comrade Stalin said:

"The lesson of the Shakhty case is that we must accelerate the pace of educating and creating a new technical intelligentsia from among members of the working class, devoted to the cause of Socialism and capable of technically guiding our Socialist industry."¹

The plenary session of the Central Committee of the C.P.S.U.(B.) held in July 1928 outlined a number of major measures to improve the training of new specialists. A number of higher educational institutions and technical schools were transferred from the jurisdiction of the People's Commissariat of education to that of the Supreme Council of National Economy. Concrete improvements were made in the curriculums of universities and technical schools and in the preparation of skilled personnel. The network of factory schools for learners, technical schools, vocational courses, various higher qualification retraining courses, etc., was considerably enlarged.

Improving the training of personnel was a most impor-

¹ Stalin, *Leninism*, Moscow, 1933, Vol. II, p. 52.

tant prerequisite for the achievement of further successes by Soviet industry.

In the spring of 1929 the First Five-Year Plan was examined by the Sixteenth Party Conference. The Party rejected unanimously the "minimal" variant upheld by the Right capitulators and adopted the "optimal" variant as the state plan for the development of the national economy.

"The fundamental task of the Five-Year Plan," Comrade Stalin pointed out, "was to create such an industry in our country as would be able to re-equip and reorganize, not only the whole of industry, but also transport and agriculture—on the basis of Socialism."¹

It was a magnificent plan providing for a Socialist offensive all along the front, a plan for placing our country with its backward, partly mediaeval technique on the highroad of new, modern technique, a plan for the transformation of an agrarian, technically and economically backward country into a mighty industrial power.

The backbone of this plan was the program of capital construction. This building program was to ensure a sharp increase in productive capacities and a rise in technical standards of production in all branches of the national economy, primarily in heavy industry, by developing to the utmost a first-class Soviet machine-building industry and a metal industry.

This stupendous five-year plan was based on the firm belief that the mass of the working class all over the country would wage an active, self-sacrificing struggle for its achievement.

On the initiative of the most enlightened industrial workers, Socialist emulation made its appearance some time before the Sixteenth Party Conference (April 1929). The coal miners of Lugansk (now Voroshilovgrad) and Shakhty (Donets Basin) had started this movement in their trade. Hundreds of shock brigades and shifts were formed by the

¹ Stalin, *Problems of Leninism*, Moscow, 1947, p. 397.

workers of the Moscow, Leningrad, Dniepropetrovsk, Rostov and Ural factories and mills. The Moscow, Ivanovo and Kalinin textile workers concluded among themselves agreements of economic and political significance in which they challenged each other to fulfil the industrial and financial plans of their respective establishments.

But all this was merely a beginning. With the ushering in of the First Five-Year Plan period it became necessary to transform Socialist emulation into a country-wide mass movement. The conference appealed to all workers and labouring peasants in the U.S.S.R. for a wider spread of Socialist emulation. The appeal stated:

"Emulation, which stimulates the creative energy and initiative of the masses, must become a permanent method of enlisting the working people in the work of Socialist construction.

"*Socialist emulation* is a powerful means of stimulating and organizing the initiative of the masses for the fulfilment of the five-year plan. At the same time it greatly encourages *self-criticism* and criticism coming from the lower ranks.

"*Socialist emulation* and the *five-year plan* are inseparably linked to each other. . . .

"The Party calls upon all workers, all those who toil in town and country, to redouble their energies and intensify their struggle under the Leninist banner of the C.P.S.U.(B.) for the industrialization of the U.S.S.R., for Socialism."

The Bolshevik Party's call to spread the practice of Socialist emulation was eagerly answered by the working people of the U.S.S.R. After the lapse of only a few months Socialist emulation had already become a mass phenomenon among Soviet workers, an important stimulus in their work. Enthusiasm for new construction kindled the heart of Soviet man.

The movement for Socialist emulation made immense strides at the numerous building sites. Many workers in the building trades systematically exceeded the established performance quotas, displayed great labour productivity and

strove to have the factory or mill they were working on ready for operations ahead of schedule time. Contrary to all traditions, construction was not relaxed on many jobs even in winter. Builders often stayed on their jobs uninterruptedly for one a half and even two shifts during severe frosts, urged on by the noble desire to accelerate the inauguration of the Kharkov, Stalingrad and Chelyabinsk tractor plants, the Ural machinery plant, the Magnitogorsk and Kuznetsk metal works, the Moscow and Gorky automobile plants and hundreds of other huge establishments—the first-born of Socialist industrialization.

The wide spread of Socialist emulation resulted in great economic successes even during the first year of the First Five-Year Plan period.

In his article "A Year of Great Change" Comrade Stalin, speaking of the results of the twelfth year of Socialist Revolution, described it as a year of great change on all the fronts of Socialist development.

During this year (1929) Socialist emulation effected a decisive change in the sphere of labour productivity: the output per worker rose 12.9 per cent; the pre-war level of labour productivity was exceeded by more than 50 per cent.

The year (more exactly 1928/29) was further remarkable for the important progress made in solving the problem of accumulation and for the volume of new construction under way. Whereas in 1928 total investments in industry (inclusive of cooperative industry) amounted to 1,880 million rubles, that figure rose the following year to 2,615 million rubles, i.e., an increase of 39.1 per cent. Heavy industry received the lion's share—in 1928, 76 per cent and in 1929, 81 per cent of all investments in industry. As a result new industrial plant put in operation in 1929 alone represented a value of over 2,000 million rubles.

The twelfth year of the Socialist Revolution also marked the great turning point in favour of the Socialist reorganization of agriculture. In reliance upon the successes achieved in Socialist industrialization and the collective-farm move-

ment, the Party at the end of 1929 sharply turned from its policy of restricting the kulaks to a policy of eliminating the kulaks as a class on the basis of solid collectivization. The country went through "a profound revolution, a leap from an old qualitative state of society to a new qualitative state, equivalent in its consequences to the revolution of October 1917."¹

The upsurge of Socialist industry and the commencement of its technical reconstruction called for a further improvement in the management of industry. Industrial enterprises had to be given a larger measure of independence; they had to be freed of all petty tutelage. The principles of business accounting had to be more closely adhered to and executives held to stricter account for the work of the enterprise.

Questions concerning the management of industry at the new stage of Socialist construction were settled in the decision of the Central Committee of the C.P.S.U.(B.) adopted December 5, 1929 on "The Reorganization of the Management of Industry." The Central Committee resolved that the factory was to be the basic unit of industrial management. It demanded that business accounting be introduced in all industrial establishments without exception and be brought down to every single shop. Adherence to estimated production costs and high quality of output were to be the principal gauges of good work by any enterprise.

Under this decision the system of industrial management was reorganized, the multiplicity of agencies and duplication of work being abolished.

The question of quality of output became very acute at that time. Upon entering the period of reconstruction, industry was expected to master the new technological processes, the new techniques, and to organize the manufacture of new types of goods. A host of new workers streamed into Socialist industry. All this to a certain extent rendered

¹ *History of the Communist Party of the Soviet Union (Bolsheviks), Short Course*, Moscow, 1945, p. 305.

it difficult to produce manufactured goods of high quality. At many factories quality testing was unsatisfactory and the observance of technological processes was lax.

As it attributed great importance to high quality of output, the Council of Labour and Defence on December 25, 1929, adopted a special decision on "measures to improve the quality of industrial commodities." In pursuance of this decision technical control bodies were set up at the enterprises and increased attention was paid to quality. The fight for quality made for greater efficiency during the various stages of the production process, and this meant further industrial progress.

The increasing momentum of Socialist construction, the great volume of building and of industrial production, as well as the advance of collectivization in agriculture, made possible the achievement of one of the most serious tasks that the Land of Socialism had set itself—the abolition of unemployment. By the end of 1930 this goal had been definitely attained. Unemployment was abolished forever in the U.S.S.R.

The First Stalin Five-Year Plan was proving a success. Most branches of industry were overfulfilling their assignments for the first and second year. At the Sixteenth Congress of the Communist Party of the Soviet Union (Bolsheviks) (June 1930) the Party appealed to the Soviet people to carry out the five-year plan in four years.

The expansion of Socialist industry and of the national economy at large necessitated a radical reform of the credit system.

Until 1930 credit operations consisted mainly in economic bodies extending credits to each other, i.e., commercial credits secured by promissory notes. This complicated the channeling of credit and made the planning of credit difficult. The Party and the Government deemed it necessary to replace the system of commercial credits by direct bank credits. Industrial establishments and organizations in need of credit now had to apply directly to a bank.

The credit reform aimed at reinforcing the principle of adherence to plan, of plan discipline, in the national economy. It sought to consolidate the business accounting system, to intensify the financial control of the fulfilment of the production and accumulation plans.

The reform inaugurated a new stage in the development of business accounting. Enterprises became much more interested materially in the results of their operations.

As the scales of industrial output increased and new capital construction developed technique gained in importance. The technical reconstruction of production by the introduction of the most modern technique became the principal factor in the further augmentation of the country's productive forces. Yet a number of business executives obviously underrated the importance of technique, disparaged it.

In February 1931, at the First Conference of Managers of Socialist Industry, Comrade Stalin, in his speech, "The Tasks of Business Executives," launched the slogan: "In the period of reconstruction technique decides everything."

Comrade Stalin demanded that Bolshevik business executives put an end to the disparaging attitude toward technique, that they realize the utter fallacy of the view that technique was a secondary matter, a matter for experts. "Bolsheviks must master technique," said Comrade Stalin. "It is time Bolsheviks themselves became experts."¹

Comrade Stalin's address played a very great part in developing Soviet economy. It turned the attention of the mass of Communist business executives to technique and to the mastery of it. An intense struggle for proficiency in the new technique set in.

Immense importance for the development of industry attached also to Comrade Stalin's speech delivered on June 23, 1931, at another conference of business executives. This historic speech, "New Conditions—New Tasks in Economic Construction," contained a most profound analysis of the situation that had arisen in the country.

¹ Stalin, *Problems of Leninism*, Moscow, 1947 p. 358.

His speech was a comprehensive, thoroughgoing elucidation of the most important tasks of economic construction: the organized recruitment of workers and the mechanization of labour; the abolition of excessive labour-power turnover and of equalization in payment for work; the elimination of depersonalization (*i. e.*, of the lack of personal responsibility for the proper fulfilment of tasks assigned); the creation by the working class of its own industrial and technical intelligentsia, the change in attitude toward engineers and technicians of the old school; the stricter application of cost accounting.

The six conditions for the achievement of victory which Comrade Stalin proposed opened up new horizons before Soviet industry and indicated the road to further industrial progress.

Comrade Stalin's speech became a militant program of action for all executives in industry and the national economy as a whole.

Industry began to recruit its workers in an organized way, by means of agreements with collective farmers and collective farms. This greatly increased the influx of workers into industry and construction. Industrial mechanization, particularly the mechanization of laborious and physically hard work, became widespread.

The system of wages was rearranged. Wage schedules were revised so as to increase the material interest of the workers in being transferred from lower categories to higher categories. Simultaneously piece work in various forms was introduced on a much wider scale into industry. The material and living conditions of the workers were substantially improved.

Much attention was paid to the proper organization of work and the abolition of depersonalization.

The training of a working-class industrial and technical intelligentsia specializing in production technique was undertaken on a large scale. The successes achieved in the building of Socialism, as well as the ideological and political

defeat of the Trotskyites, Bukharinites and the rest of those traitors, produced a complete change in the mood of the old specialists. The attitude toward them changed accordingly. Their services began to be sought with greater alacrity and they were placed in better circumstances.

The introduction and consolidation of the business accounting system in industry was likewise very successful. Lowering of production costs enabled most branches of heavy industry, too, to yield accumulations.

Carrying into life the six conditions of economic construction laid down by Comrade Stalin meant a further notable advancement of Soviet industry. In 1931 industrial output rose 23.3 per cent above the 1930 level, or more than 200 per cent above pre-war.

In 1932 the country's increasingly strained foreign relations compelled the Soviet Government to convert a number of industrial enterprises to production for the national defence. These plants had to be completely reorganized. The initial difficulties incident to the mastering of the new technique at the new and reconstructed establishments now being commissioned also affected industry's rate of growth that year. None the less the volume of industrial output in 1932 showed an increase of 13.7 per cent.

Its high rates of growth permitted Soviet industry to complete the fulfilment of the First Five-Year Plan in 4¼ years, *i. e.*, in 1932.¹

The program of capital construction showed considerable overfulfilment. The First Five-Year Plan had specified an investment of 19,400 million rubles in Socialist industry during the five years. In actual fact 25,000 million rubles (in prices of the corresponding years) were so invested during the 4¼ years, more than 4/5 of this sum having been allocated to heavy industry. This was a 5-fold increase as against the preceding five-year span, and an almost 6-fold increase for heavy industry.

¹ The plan actually began in the last quarter of 1928.

These heavy investments considerably raised plant capacities in all branches of industry, primarily heavy industry.

Upward of 1,500 new factories and mills were inaugurated during the First Five-Year Plan period. In industry as a whole this resulted in more than a 2-fold, and in heavy industry a 3-fold increase in fixed funds.

Capital construction during the First Five-Year Plan meant not only a tremendous expansion of capacities, but a considerable alteration in the distribution of industry. New industrial centres of great importance sprang up in the U.S.S.R. during these five years, including Magnitogorsk, Chelyabinsk, Sverdlovsk, the Kuznetsk Basin, Karaganda and Stalinsk. The relative importance of the eastern districts of the country in point of industrial output increased substantially.

Vast importance attached to the establishment of a second coal and metal base in the East of the U.S.S.R. It was brought into being on the initiative of Comrade Stalin, who at the Sixteenth Congress of the C.P.S.U.(B.) had set the task of building a Ural-Kuznetsk system of plants in the East to combine the utilization of Kuznetsk coking coal with Ural ores. The significance of this powerful coal-mining and manufacturing centre was particularly apparent during the recent war.

The face of Soviet industry completely changed during the First Five-Year Plan period. A number of new branches of industry were set up, such as a tractor, an automobile, an airplane and an air-motor, a heavy machine-building, a machine-tool, a high-grade metal, a chemical and a food industry.

These additions facilitated the high specialization of Soviet industry. There was a sharp rise in the concentration of industry, and in many of its branches enterprises even changed in type. Thus, for instance, before the First Five-Year Plan the U.S.S.R. did not have a single power station of 100,000 kilowatt capacity. At the end of the period it already had 10 such stations, whose capacities ranged from 100,000 to 310,000 kilowatt. In the coal industry the biggest

mines before the First Five-Year Plan could produce only 500,000 to 600,000 tons; the First Five-Year Plan period, however, witnessed the construction of a number of mines with individual capacities of a million tons and more.

The technique of production also changed. Mechanization made big strides. Thus in the coal industry mechanization of production was just about beginning at the commencement of the First Five-Year Plan period, while in 1932 mechanized output already constituted 62.2 per cent of the total. Before the First Five-Year Plan period not a single blast furnace was completely mechanized. Upon its termination more than a fourth of all pig iron came from such blast furnaces.

The technical re-equipment of industry and the wide spread of Socialist emulation were the principal factors accounting for the 41 per cent rise of labour productivity during the first period.

The following table indicates the great increase obtained in industrial output.

Growth of Output of Large-Scale Industry
(in million rubles, in 1926/27 prices)

	1928	1932	1932 in % of 1926
<i>The whole of large-scale industry</i>	16,860	38,831	230
<i>of which:</i>			
Production of means of production	7,727	21,551	280
Production of means of consumption	9,133	17,280	190

As appears from the table the production of means of production accounted for the greater portion of the aggregate industrial output under the First Five-Year Plan.

Its fulfilment meant that the Goelro plan was realized

ahead of schedule and that most of the target figures were exceeded.

During the current year, Comrade Orjonikidze said in January 1932, we must put into operation electric power stations possessing an aggregate capacity of 1,500,000 kilowatt. This is precisely as much as the Goelro plan contemplated for a period of 10-15 years.

The doubling of industrial production as compared with 1913 was achieved as early as 1930, whereas the Goelro plan had allowed a like period of 10 to 15 years.

The successes of Soviet industry and of the collectivization of agriculture under the First Five-Year Plan wrought a radical change in the economics of the country. It ceased to be agrarian and backward in technique and economy and became an advanced industrial country employing modern machines. The U.S.S.R. had now laid the foundation of Socialism and eliminated the exploiting classes in town and country.

INDUSTRY IN THE U.S.S.R. UNDER THE SECOND FIVE-YEAR PLAN

The historic achievements of the First Stalin Five-Year Plan made it possible to set objectives on a still grander scale for the Second Five-Year Plan period (1933-1937).

The main political task under the Second Stalin Five-Year Plan was the final abolition of all exploiting classes, the complete destruction of the causes that give rise to the exploitation of man by man and to the division of society into exploiters and exploited.

The main economic task set by the Second Five-Year Plan was the completion of the technical reconstruction of the whole of the national economy. It was contemplated to more than double industrial output during this period. There was to be a considerable increase in investments. A vast program providing for further improvements in the living and cultural standards of the working people was included.

The huge building operations during the first five-year period substantially changed the further course of industrial development. Industry was faced with new and complicated tasks. During the first quinquennial period the growth of industrial output had been achieved in the main by exploiting the old plants to the utmost. But in 1931 and the two succeeding years new and powerful factories and combined plants were put into operation. The technical level of production rose decidedly. This meant that during the second period it would be the new plants with their new machinery and the new branches of industry that would be chiefly responsible for the increase in industrial production.

The main condition of further progress in industry was a decided improvement in the utilization of the splendid new machinery with which our industry was equipped.

"In the period of the First Five-Year Plan," said Comrade Stalin, "we succeeded in organizing enthusiasm and fervour for new construction, and achieved decisive successes. That is very good. But now that is not enough. Now we must supplement that with enthusiasm and fervour for *mastering* the new factories and the new technique, for a substantial rise in productivity of labour, for a substantial reduction of production costs.

"This is the main thing at present."

The change in the economics and technique of industrial production during the First Five-Year Plan period had likewise demanded a decided improvement in the system of administration and management of industry.

In many branches of industry red tape and bureaucratic methods of management still persisted. Verification of execution of orders was still badly organized in many economic agencies. The placement of personnel also left much to be desired. Many engineers, technicians and organizers occupied desks in the offices of the trusts and other institutions while there was a shortage of qualified specialists in the factories.

Another serious organizational defect was the functional

system of management prevailing in a number of industries. The scheme of management was divided and sub-divided into numerous sectors, each of which attended to one particular aspect (function) of the general production process. This functional system undermined the principle of one-man-management, created confusion and tended to inflate managerial staffs.

All these defects made themselves particularly felt in the coal industry, in which the technological reorganization of production was especially pronounced.

Measures were adopted to improve industrial management. The decision of the Council of People's Commissars of the U.S.S.R. and the Central Committee of the C.P.S.U.(B.), under date of April 8, 1933, on the work of the Donbas coal industry, and the subsequent decisions of the Seventeenth Party Congress (January 26 to February 10, 1934), indicated the ways and means of reorganizing the management of industry.

The Party and the Government demanded the abolition of the functional system. They insisted that staffs be organized according to the location and special line of production of the enterprise concerned, that there be a stricter verification of the fulfilment of orders, that the selection and distribution of personnel be decidedly improved, that a considerable part of the engineers and technicians be transferred from the offices to the shops and that the number of agencies intermediate between the enterprises and the People's Commissariats be reduced.

The reorganization of industrial management instituted under the decisions of the Seventeenth Party Congress had a beneficial effect on industry and promoted the further growth of its output.

In 1934 gross output of industry showed an annual increase of 18.3 per cent, totalling 50,500 million rubles.

Despite the sharp rise in the curve of Socialist industry, it was perfectly apparent that it contained great unutilized reserves. This was confirmed in particular by the circum-

stance that during the preceding few years industry's fixed fund had grown more rapidly than gross production. Substantial production reserves were likewise attested to by the fact that in 1935 Soviet industry in the main still exhibited considerably lower technical and economic indices than the foremost capitalist establishments, the modernization of its technical equipment notwithstanding.

This situation had been brought on principally by the failure of personnel to keep pace with the increase of machinery in the national economy of the U.S.S.R. The trained personnel deficiency became a problem of first importance.

"Without people who have mastered technique, technique is dead," said Comrade Stalin in May 1935 in addressing the graduates from the Red Army academies. "In the charge of people who have mastered technique, technique can and should perform miracles." And further on J.V. Stalin pointed out that "...the old slogan, 'Technique decides everything,' which is a reflection of a period already passed, a period in which we suffered from a dearth of technique, must now be replaced by a new slogan, the slogan, 'Cadres decide everything.' That is the main thing now."

Comrade Stalin's speech played an important part in the development of our industry. It centered the attention of all business executives and Party workers on increasing their efforts to train personnel.

The Stakhanov movement, which spread over the whole country, was an excellent answer to the leader's call to train cadres capable of mastering technique and of improving upon it.

It was initiated by a young worker, Alexei Stakhanov, a cutter in the Central Irmino mine. During the night of August 30, 1935, he cut 102 tons of coal during one shift of six hours while the standard quota was 7 tons, i.e., he exceeded his quota by 14 times. He was followed on September 3, 1935, by Dukanov, the Party organizer of this section, who cut 115 tons during his shift. Several days later

the Young Communist League member Kantsevalov broke the record again by producing 125 tons.

Only a few days after Stakhanov had established his record the brigade of blacksmith Busygin of the Molotov automobile plant in Gorky began to produce day after day 1,000 and more crankshafts as against the established quota of 675. Evdokia and Maria Vinogradova, weavers at the Nogen mill in Vichuga, began to operate simultaneously 144 looms each as against the standard 16 to 24 looms. The lasting machine operator Smetanin of the Skorokhod shoe factory in Leningrad began to pull 1,400 to 1,800 pairs of shoes over the last as against the quota requirement of 700 pairs, and so forth.

In approximately two or three months the Stakhanov movement assumed a mass character. This movement proved beyond all dispute that our country had already produced a personnel that had mastered technique and was qualified to improve upon it.

On November 14, 1935, the First All-Union Conference of Stakhanovites, men and women workers in industry and transport, was held in the Kremlin. It was attended by 3,000 of them, hailing from every branch of industry and every department of railway work.

The numerous speeches delivered by the Stakhanovites fully revealed their methods and practices. Comrades Molotov, Zhdanov, Orjonikidze, Voroshilov, Kaganovich, Mikoyan and Khrushchev who addressed the conference analyzed the significance of the Stakhanov movement, its origin and further development, and defined the task of leading this movement.

At the end of the conference J. V. Stalin delivered a historic speech, which was a new invaluable contribution to the treasure store of Marxism-Leninism. The most important problems of Socialist construction—the character of capitalist and of Socialist work, the ways and means of abolishing the distinction between mental and physical work, the interconnection between scientific theory and practice, etc.—

were raised by Comrade Stalin on an exceedingly high theoretical plane and were given their profound solution.

Comrade Stalin showed that the significance of the Stakhanov movement consisted primarily in that it was a new and higher stage of Socialist emulation inseparably associated with the new technique and a personnel capable of mastering it. The Stakhanov movement was significant for the further reason that it was demolishing the old technical standards, the old conceptions of the efficiency of equipment, of productive capacities and of plans. It was creating a labour productivity higher than was attained under capitalism.

The Stakhanov movement was significant for the further reason that, to quote Comrade Stalin, "it contains the seed of the future rise in the cultural and technical level of the working class, that it opens to us the path by which alone can be achieved those high indices of productivity of labour which are essential for the transition from Socialism to Communism and for the elimination of the distinction between mental labour and manual labour."¹

The First All-Union Conference of Stakhanovites and the address which Comrade Stalin delivered on that occasion lent further impetus to the spread of the movement. The ranks of the Stakhanovites kept swelling steadily. However the leadership of the movement was still faulty in many important respects.

The way of further developing the Stakhanov movement was pointed out at the plenary session of the Central Committee of the C.P.S.U.(B.) in December 1935.

The session recognized the necessity of breaking down the resistance to the Stakhanov movement offered by the conservative section of the business executives and the engineers and technicians. It stressed the need of giving the movement every assistance. The business executives and the engineers and technicians were to head the movement.

¹ Stalin, *Problems of Leninism*, Moscow, 1947, p. 529.

The Central Committee of the Party resolutely condemned the then existing practice of fixing deliberately low technical standards and designed capacities, as well as obsolete production standards. It demanded a radical change in this practice, an upward revision of these standards. In order to carry out this work the People's Commissariats were to hold production conferences by branches of industry to be attended by the directors of the factories and mills, the heads of departments, the foremen and the Stakhanovites.

Particular attention was paid to the problem of improving the technical knowledge and skill of the workers by organizing for them various types of courses and schools at the enterprises.

On the instructions issued by the above plenary session conferences were held during the first six months of 1936 in all branches of industry. Guided by the experience of the Stakhanovites, these conferences revised the low technical performance standards, re-estimated the rated capacities of the various machines and of the enterprises as a whole and established higher rates of output.

While fixing new technical and production standards the Branch conferences at the same time worked out the organizational and technical measures required to make them effective. The main objectives of these measures were: improved servicing of each place of work in the establishment, providing equipment with various accessories, whipping establishments into shape if behindhand in production and spreading the experience of the Stakhanovites. The conferences were also intent on rearranging the wage schedules in order to give considerably more scope to the progressive piecework system.

The Stakhanov movement was a powerful factor operating to accelerate industrial development. In 1936 alone the productivity of labour increased 21 per cent, and in heavy industry 26 per cent. Equipment was employed with considerably greater efficiency in all branches of industry. On this foundation Soviet industry achieved in 1936 an increase in

production amounting to 30.2 per cent, a record figure for the first two five-year plan periods.

The further progress of industry was immensely facilitated by purging it of the Trotskyite and Bukharinite enemies of the people, who had entered into a counter-revolutionary conspiracy against the Party of Lenin and Stalin and the Soviet Government and actually were wreckers, saboteurs and agents of foreign intelligence services.

The Bolshevik Party, with the complete approval and support of the Soviet people, routed the Trotskyite-Bukharinite bands.

But in order to finish the enemy completely, it was necessary decidedly to increase political vigilance, put an end to political indifference and become thoroughly grounded in Bolshevism. And these were the tasks assigned by the plenary session of the Central Committee of the C.P.S.U.(B.) held in February-March 1937, which supplemented the slogan of mastering technique with the slogan of mastering Bolshevism, of the political training of personnel.

The decisions of this session were greeted with enthusiasm by the workers in all fields of economic life and were successfully carried into execution. Contact between the leading officials and the masses became closer. Our leaders of industry began to listen more attentively to warning notes sounded by the rank and file, to the criticism of the masses, and applied self-criticism more frequently. Conferences of the more active workers at the enterprises became a widespread phenomenon.

All this greatly promoted the advancement of Soviet industry.

The year 1937 was remarkable for the fulfilment of the Second Five-Year Plan ahead of schedule.

At the end of the second quinquennial period the proportion of Socialist property in the entire productive fund of the country (factories, mills, fuel, raw materials, land, forests, transport, livestock, fertilizers, etc.) rose to 98.7 per cent, of which 90 per cent was accounted for by state-owned

property (the property of the whole people), and 8.7 per cent cooperative and collective-farm property. The Socialist system of economy gained absolute supremacy in all spheres of the economic life of the country.

During 1933-37 capital construction considerably exceeded in volume the corresponding figure for the First Five-Year Plan period, as appears from the following table:

Investments in Industry
(in thousand million rubles)

	Total for 1st 5-Year Plan Period	Total for 2nd 5-Year Plan Period	2nd 5-Year Plan Period in % of 1st 5-Year Plan Period
<i>Total investments in industry:</i>	25.0	65.8	263.2
of which:			
Group A.	21.3	54.6	256.3
Group B.	3.7	11.2	302.7

As a result productive capacities rose sharply in all branches of industry, particularly heavy industry.

In the aggregate, plant amounting to 60,000 million rubles were put into operation in industry during 1933-37 as compared with 15,700 million rubles during the First Five-Year Plan period.

This immense growth of the fixed fund produced a decided rise of the technical level of industry. The Second Five-Year Plan period was a period of the introduction of new techniques, of their mastery and the thorough reconstruction of technological processes. In modernity of industrial equipment the Soviet Union became the foremost country in the world.

The completion in the main of the technical reconstruction of the national economy found expression in the extensive renewal of plant. More than 50 per cent of all metal-cutting machine tools installed in the national economy

as of January 1, 1938, were produced during this period. The coal industry was given 2,098 heavy coal cutters during the second quinquennial period, at the beginning of which it had had only 1,473. More than 80 per cent of the country's total industrial output in 1937 came from establishments built or completely reconstructed during the two quinquennial periods.

The mastery of the new technique recorded great progress and plant was utilized with much greater efficiency.

At the power stations hours of utilization of average annual estimated capacity rose from 3,100 to 4,730. In the iron and steel industry the use factor of blast furnaces improved 50 per cent. Average daily steel heats per square metre of hearth area rose from 2.12 to 4.35 tons. In the timber industry the output of sawn products rose from 22.4 to 36.4 cubic metres per frame-shift, etc.

The cuts in the unit consumption of raw material were also evidence of the successful mastering of the new techniques. For instance, the Glavenergo power stations consumed 0.77 kilograms of conventional fuel per kilowatt-hour in 1932 and 0.62 kilograms in 1937. In the lumber industry wood consumption dropped from 1.613 to 1.558 cubic metres per cubic metre of sawn products.

The lowering of unit raw material consumption meant a considerable saving to the national economy. Electric power stations and the iron and steel industry alone saved 27.5 million tons of conventional fuel during the Second Five-Year Plan period, measured by 1932 standards.

The extensive spread of the Stakhanov movement and the mastery of the new technique resulted in a considerable improvement in the productivity of labour and the lowering of production costs during the second period. Output per worker in industry increased 82 per cent as against the 63 per cent specified in the plan. In the machine-building industry the cost of production dropped more than 45 per cent, in the iron and steel industry 20 per cent, in the manufacture of the basic chemicals 30 per cent, etc. In

heavy industry as a whole production costs showed a decline of 27 per cent.

The vast expansion of productive capacities achieved under the Second Five-Year Plan and the quite appreciable progress made in mastering the technical processes involved resulted in a steep rise of the industrial production graph, as the following figures illustrate:

Industrial Production in the U.S.S.R.
(in thousand million rubles, in 1926/27 prices)

	1932	1937	1937 in % of 1932
Industry of the U.S.S.R.	43.3	95.5	220.6
of which:			
Group A.	23.1	55.2	238.9
Group B.	20.2	40.3	199.5
Group A in per cent of total industrial production	53.3	57.8	—

Thus the production of means of production multiplied 2.4 times during the Second Five-Year Plan period and rose to 57.8 per cent of the total output of industry.

The Soviet Union became a powerful industrial state possessing the most up-to-date and the technically most efficient plant, proficient personnel to operate this plant and an industrial and technical intelligentsia of its own of working-class and peasant stock.

INDUSTRY IN THE U.S.S.R. UNDER THE THIRD FIVE-YEAR PLAN

The Third Stalin Five-Year Plan period marked the entry of the Soviet Union upon a new period of historical development, the period of the completion of the building of Socialist society and of the gradual transition from Socialism to Communism.

As a result of the fulfilment of the first two Stalin five-year plans the Soviet Union finished in the main the technical reconstruction of its national economy and gained first place in the world in technical standards of industry and agriculture, and second place in the world in volume of industrial output.

However, our country at the end of the second quinquennial period still lagged considerably behind the most important, most developed capitalist countries economically, i.e., in per capita industrial production.

While this discrepancy had shrunk tremendously in comparison with 1913 as a result of the impetuous advance of Socialist industry, the lag was still quite considerable.

At the commencement of the Third Five-Year Plan period, per capita industrial output was still only a little more than one-fourth that of the U.S.A. (in 1913 it had been 21.4 times less), was two-fifths of that of Great Britain (in 1913 it had been fourteen times less), one-half that of Germany (in 1913 it had been 13 times less), and two-thirds that of France (in 1913 it had been 7.7 times less).

At the Eighteenth Congress of the C.P.S.U.(B.) (March 1939) Comrade Stalin assigned the task of surpassing the principal capitalist countries economically within the following 10-15 years.

The accomplishment of this principal economic task confronting the U.S.S.R. is one of the most important preconditions for the transition from Socialism to its higher stage, Communism.

"Only if we outstrip the principal capitalist countries economically," said Comrade Stalin, "can we reckon upon our country being fully saturated with consumers' goods, on having an abundance of products, and on being able to make the transition from the first phase of Communism to its second phase."¹

¹ Stalin, *Problems of Leninism*, Moscow, 1947, p. 610.

The Third Stalin Five-Year Plan contemplated substantial progress in the accomplishment of this principal economic task. The political and economic strides the country made during the second quinquennial period had established the requisite conditions for the fulfilment in the third period of a still more stupendous program of progress in all branches of the national economy, of a further strengthening of the defensive capacity of the U.S.S.R. and of a decided improvement in the material and cultural standards of the working people.

During 1938-42 the volume of output of the whole of industry was to have increased 92 per cent, reaching 184,000 million rubles in the last year of the third period, the average annual rate of growth having been fixed at 14 per cent. The production of means of production was to have been accelerated still more during the third period, the total increase having been fixed at 107 per cent, *i.e.*, was to have more than doubled.

The Third Five-Year Plan paid particular attention to raising the technique of production to a still higher level. It was designed to cover a period of high-quality and special steels, of applied chemistry and the further mechanization and electrification of production.

In order to provide for the further rise of the living and cultural standards of the people the Third Five-Year Plan specified huge increases also in the production of articles of consumption.

The vast expansion of production and the development of the new technique under the Third Five-Year Plan necessitated an improvement in the organization of industrial management.

The industrial people's commissariats were divided up. The People's Commissariat of the Defence Industry was reorganized into four separate people's commissariats. The People's Commissariat of the Food Industry was divided into three people's commissariats and the People's Commissariat of Light Industry into two people's commissariats,

that of heavy industry into six and that of the machine-building industry into three people's commissariats. This breaking-up process was subsequently continued. The central administrations within the people's commissariats were likewise divided up according to industries and territorial units.

The reorganization of the industrial people's commissariats into smaller bodies greatly enhanced the role of the central managerial and planning organizations and considerably increased the circulation of manufactured goods among them. The drawing up of interconnected plans covering several branches of industry or people's commissariats gained in importance. General questions concerning planning became more intricate: fixing volumes of output and targets involving the most important quality indices; determining programs of technical reconstruction. Under these conditions measures were taken to enhance the role of such organizations as the State Planning Commission and the Economic Council under the Council of People's Commissars of the U.S.S.R. The latter were to fully coordinate the plans and operations as well as the current business of the industrial people's commissariats.

Like the previous five-year plans, so the Third Five-Year Plan depended for its fulfilment on the extensive cooperation of the labouring masses, on the development of Socialist emulation and the Stakhanov movement. The all-Union conferences held by branches of industry played a great part in mobilizing the working people for the fulfilment of the production targets they had been assigned. Leading executives in the field of production, Stakhanovites, scientists, inventors and others, took part in the proceedings of these conferences.

Such conferences were first arranged in the most important branches of the national economy—coal and metal. Early in October 1937 an all-Donets conference of Stakhanovites and shock-work miners was held in the city of Stalino. At the end of the month the metal workers held a con-

ference in Moscow. In November the workers of the copper industry met in the Urals. In February 1938 conferences were held by the building-industry and oil-industry workers. Then came the turn of the peat, cement, electric power, gold and platinum industries. In April 1938 the People's Commissariat of Heavy Industry arranged a conference of geologists and chemists and in June a conference of the active workers of the Donets Basin coal industry.

These conferences greatly influenced the further development of the various branches of heavy industry. The appeals issued by the conferences and the orders of the People's Commissar of Heavy Industry clearly defined the tasks confronting the separate branches of heavy industry and indicated the way they were to be achieved.

Much importance attached during this period to such questions as increasing production efficiency, proper organization of production processes and the elimination of every kind of waste.

At this juncture the threat of a second world war became more and more evident. It was essential to mobilize all resources of production in order to accelerate its expansion to the utmost, to maximize the defensive and economic might of the country.

An intense struggle to work according to schedule, a struggle for production according to a carefully regulated technological process, to further improve the organization of production and the utilization of the fixed fund, developed on a large scale at the factories and mills.

Greater efficiency in the processes of production was also the aim of the drive for economy in the use of raw material, fuel, auxiliary materials and electricity. Enterprises sought to lower the consumption of these items per unit of output by improving production technology, making use of what was formerly regarded as waste, employing substitutes on a large scale and a sharp reduction of spoilage.

Labour discipline showed a further decided improvement. This was a very important prerequisite for utilizing

the reserve powers of production and achieving a further rise of the technical level of industry.

The Bolshevik Party and the Soviet Government explained again and again that the struggle for Socialist labour discipline could not be confined to training and persuasion alone, Methods of propaganda and agitation and the organization of Socialist emulation had to be supplemented by direct coercion of persons refusing to work or placing their personal interests above the interests of the state.

Of exceptional importance for the development of industry was the decision of the Council of People's Commissars of the U.S.S.R., the Central Committee of the C.P.S.U.(B.) and the All-Union Central Council of Trade Unions of December 28, 1938 entitled "Measures for the Regulation of Labour Discipline, for the Improvement of the Practice of State Social Insurance and for the Struggle Against Abuses in this Matter." It provided that any worker absenting himself from work without a valid reason was to be discharged at once. No idling was to be tolerated during working hours. The decree also included measures to prevent workers from frequently changing jobs.

The above decision obtained the warm support of the millions of working people throughout the land. In numerous resolutions workers by hand and brain expressed their unswerving determination to introduce strict order in factory and office, and to put an end to truancy and to flitting from job to job.

However, there still remained at the factories and offices a number, quite small, to be true, of plant and office workers who refused to recognize their responsibilities and duties to the Socialist State. It thus became necessary to introduce new and sterner measures to put an end to the practice of deliberately absenting oneself from work and to tighten discipline at work.

This was particularly urgent in view of the general international situation. In 1940 the flames of World War II already engulfed a great part of the capitalist world. The dan-

ger of the war spreading to our country increased and this made it necessary to accelerate the development of our industry.

On June 26, 1940, the Presidium of the Supreme Soviet of the U.S.S.R. issued a decree which provided that henceforth flitters and absenteeists would be tried in court. The new law met the desire of the Soviet workers to strengthen Socialist discipline. It was in line with their determination to establish strict order at all enterprises, to ensure accuracy and high efficiency at work.

The utilization of production reserve powers and the strengthening of labour discipline was greatly facilitated by the special decision of the Council of People's Commissars of the U.S.S.R. and the Central Committee of the C.P.S.U.(B.) adopted in May 1940, "On Raising the Role of Foremen at the Heavy Machine-Building Factories." The Party and the Government demanded that foremen be vested with the necessary authority to enable them properly to discharge their duties as the direct organizers of production.

The Party and the Government particularly stressed the foreman's responsibility for the introduction of Stakhanovite methods of work and for the maintenance of labour discipline.

This decision came to be used as a guide for other branches of industry as well.

Increased production efficiency was also to show its effects in improved quality of output and in the delivery of goods without any pertinent parts missing. In order to increase the responsibility for quality of output and the delivery of complete sets of goods, the Presidium of the Supreme Soviet of the U.S.S.R. decreed on July 10, 1940, that the issuance of defective industrial products or of incomplete sets of industrial products or of products that do not comply with obligatory standards was an offence against the state and equivalent to sabotage.

The struggle for the further improvement of technique and increased production efficiency during the first three

years of the third period resulted in new economic successes with regard to both production and capital construction. In 1940 alone almost 38,000 million rubles were invested in the national economy (including about 6,000 million rubles invested through non-centralized channels). Aggregate investments for 1938-40 in the national economy of the U.S.S.R. totalled 108,000 million rubles. Of this sum 75,000 million rubles were assigned to industry and transport.

During these years there was a very intensive effort to put new plant into operation. In the coal industry new mines representing an annual capacity of 51 million tons of coal were sunk during the three years of the Third Five-Year Plan period. Electric power productive capacity was increased by approximately 2.4 million kilowatts. New blast furnaces increasing pig iron smelting capacity by 2.9 million tons were blown in. The textile industry was enriched by almost one million cotton spindles.

In the aggregate about 2,900 factories, mills, mines, power stations and so forth started operations during the first three years of the Third Five-Year Plan period in state industry (exclusive of regional industry of local importance). This was almost twice the number of industrial establishments inaugurated during the entire first quinquennial period.

The graph describing industrial output continued its steep ascent during the third period.

Thus in 1938-40 industrial production showed an increase of approximately 50 per cent.

The task of accelerating the country's preparedness for defence and of continuing the technical reconstruction of the national economy of the U.S.S.R. demanded that heavy industry develop faster than light industry also during the Third Five-Year Plan period. In 1938-40 the production of means of production increased more than one-half while the production of articles of consumption increased one-third. Soviet machine building registered particularly great

successes during these three years, its output increasing 76 per cent.

As a result of these rates of increase gross industrial production in the U.S.S.R. had reached, by the middle of 1941, 86 per cent of the target figure set by the Third Five-Year Plan for 1942, *i.e.*, the last year of the third quinquennial period. The corresponding figure for heavy industry was 90 per cent on the eve of the Great Patriotic War. Hence it is quite obvious that if fascist Germany had not attacked the Soviet Union, the Third Five-Year Plan would have been fulfilled as successfully as the preceding two plans.

The figures illustrating the increase in industrial production are the more significant since "the growth of production was attended in the Soviet Union by a reconstruction of industry, particularly the machine-building industry, for the manufacture of the most up-to-date machinery necessary for the national economy and the national defence." (Voznesensky.)

As during the previous five-year plan periods, the growth of production was paralleled in the U.S.S.R. by a rise of the standard of living of the working people and an increase in their general welfare. During the three years of the third period the national income of the U.S.S.R. increased from 96,000 million rubles in 1937 to 128,300 million rubles in 1940, *i.e.*, an accession of 32,300 million rubles, or 30 per cent.

The growth and consolidation of the national economy steadily continued. However, particular branches of industry and separate enterprises still suffered loss from inefficient use of material and human resources. These shortcomings had to be brought to light without fear or favour, and ways and means of improving work had to be indicated in order that all the production resources might be mobilized with greater effect. This task was discharged by the Eighteenth All-Union Conference of the C.P.S.U.(B.) held in February 1941.

With all the force of Bolshevik self-criticism the confer-

ence laid bare the defects in the work of particular establishments and branches of industry.

Red tape and bureaucratic methods of work had not yet been eradicated in a number of people's commissariats and departments (the People's Commissariat of the Merchant Marine, the People's Commissariat of the Electrical Industry, the People's Commissariat of the River Fleet, and others). The People's Commissariats of the Timber Industry and the Building Materials Industry had fallen considerably short of fulfilling the 1940 plan. At many enterprises raw material, auxiliary material and fuel consumption was badly controlled; there were cases of rush work disturbing the rhythm of production, of shops being littered with rubbish and generally neglected, of gross violations of technological discipline, etc. There was considerable unused reserve productive capacity in industry.

The conference demanded that business and Party organizations decidedly improve the system of inventorying equipment and every other kind of property and materials in possession of the enterprise, without which there can be no effective, operative management. Business executives, furthermore, were to put a stop to all losses in the use of equipment, tools, raw material and fuel. This required that all stoppages of machinery, over-consumption of fuel, electricity and raw materials, and all spoilage be eliminated, that the plants be kept clean and in orderly condition and that equipment be handled with care.

The conference paid great attention to the abolition of all avoidable rush work at the various establishments and to the strict scheduling of work. A very important prerequisite here was strict compliance with technological requirements, better planning of work at the enterprises and the preparation of normal stocks of the semi-finished product by one department for the department next in line of production.

It was of great importance to intensify the work of mastering the new technique and of perfecting it. The tardiness with which new models of machines and manufac-

tures were designed and introduced in production could no longer be tolerated. Advanced methods of technology had to be applied more boldly and on a wider scale, and research institutes and laboratories had to work in closer contact with the productive enterprises.

The conference also dealt specially with such questions as consolidating the business-accounting system and improving the quality indices of work in industry with a view to a further reduction of production costs.

The Eighteenth All-Union Conference of the C.P.S.U.(B.) focused the attention of business and Party organizations on the mobilization of all production reserves. The threat of war had made this particularly necessary.

The decisions of the conference resulted in greatly increased production efficiency—the establishment of strict discipline and order at factory, mill and transport. All this was of decisive importance during the following years when industry and transport had to be adapted to the war economy and all production resources had to be placed at the service of the front.

CHAPTER V

INDUSTRIAL DEVELOPMENT IN THE U.S.S.R. DURING THE PRE-WAR PERIOD

SCALES, RATES AND STRUCTURE OF INDUSTRIAL PRODUCTION

The average annual rate of growth of Soviet industry for the entire pre-war period of peaceful Socialist construction, from 1921 through 1940, was 25 per cent.

Throughout the length of this period Soviet industry steadily increased its scale of output, knew only extended reproduction scale. Its planned, Socialist system of economy saved the Soviet Union from the economic crises, unemployment and mass impoverishment that are the inevitable concomitants of the capitalist mode of production. The economic life of our country, directed by state plans for the national economy, developed on the basis of uninterrupted Socialist reproduction on a progressively increasing scale. Its purpose was to enhance the might and economic independence of the Soviet State, strengthen its defensive capacity, enlarge the social wealth of the country and steadily raise the living and cultural standards of the Soviet people.

Whereas in the Soviet Union industrial production never showed a decline during the years of peaceful development, the capitalist countries experienced three economic crises in this period—in 1921, 1930-33 and 1937. Each one of these crises caused a sharp drop in volume of output and an immense increase in unemployment.

Even at their best the capitalist countries never exhibited such rates of industrial expansion as were achieved by Soviet industry.

The following figures will illustrate this point. In 50 years—from 1860 to 1910—Great Britain increased her industrial production 2.5-fold, France 3.4-fold; Germany, which developed more rapidly than the old capitalist countries, showed a 6.2-fold increase in its industrial output during the half-century.

When the period of the general crisis of the capitalist system set in, the pace of capitalist industrial expansion fell precipitately. During the period of 1917 through 1936 the average annual rate of growth of industrial production in the capitalist world was only 1.0 per cent. In Great Britain it was 0.9 per cent, in Germany 3.2 per cent, in the U.S.A. 1 per cent and in France 3.9 per cent.

As has been shown above Soviet industrial expansion was much more rapid.

Particularly high was the rate of growth of Soviet heavy industry. While industrial output as a whole increased on an average 20 per cent a year during the first two Stalin Five-Year Plan periods, the increase in machine building was 32.6 per cent, in the generation of electric power 24.8 per cent, in construction 24.4 per cent.

Highly indicative are also the absolute figures showing the average annual increases of industrial output in the U.S.S.R. During the 20 years comprising the pre-war period, the average annual increase of industrial output rose from the 2,000 million rubles (in fixed prices) of the restoration period (1921-26) to 14,000 million rubles for the first three years of the third quinquennial period.

The very high rates of the Socialist industrialization of the country resulted in a huge increase in the scale of industrial production. In 1940 gross production of industry as a whole amounted to 138,500 million rubles as against 16,200 million rubles in 1913. This meant that the pre-war output of the whole of industry had multiplied 8.5 times over by

1940. Large-scale industry's output in 1940 was almost 12 times that of 1913.

The higher rates of expansion in the production of means of production was responsible for heavy industry exceeding its pre-war level more than light industry. In 1940 gross output of heavy industry was more than 15 times the pre-war figure, amounting to 84,800 million rubles. The corresponding increase of articles of consumption was 5-fold.

Particular branches of industry of prime importance showed even greater increases in comparison with 1913 levels.

Of paramount interest are the rates of growth of the Soviet machine-building industry, as it is the most vital spot of heavy industry, the chief indispensable of war economy.

Russia's pre-revolutionary machine-building industry was very poorly developed. In 1913 the whole output of the machine-building plants (including repair shops) was worth 900 million rubles. At the initial stage of the First Five-Year Plan period the Soviet machine-building industry had already almost trebled this volume of output. At the end of the second period the output was 30 times that of 1913.

Party and Government gave their constant attention to the establishment of a powerful electric-power base and widespread electrification. Generation of electricity, which in 1913 amounted to 1,900 million kilowatt-hours, had increased by 1929 to 6,200 million kilowatt-hours, by 1933 to 16,300 million kilowatt-hours and by 1940 to 48,300 million kilowatt-hours, a 26-fold increase compared with 1913.

Considerable increase in volume of output was also achieved by the iron and steel industry, one of the most important ingredients of modern industrial life.

In 1940 the Soviet Union smelted 15 million tons of pig iron as against 4.2 million tons in 1913. Steel smeltings showed a corresponding increase from 4.2 million tons to 18.3 million tons, rolled products from 3.5 million tons to 13.1 million tons. This expansion of the iron and steel and the machine-building industries was highly essential for the

establishment in the U.S.S.R. of the economic basis required for active defence and the conduct of modern war.

The development of the entire national economy could not, however, have been attained without a solid fuel base to rely upon. Accordingly, the Stalin five-year plans attached great importance to the development of the fuel industry. The struggle for a constantly growing fuel base is well summarized in the following figures: during the period 1913-40 U.S.S.R. coal output rose from 29.1 million tons to 166 million tons, oil output from 9 million tons to 31 million tons; peat output from 1.7 million tons to 32.1 million tons.

The chemical industry exhibited rates of growth that exceeded those of industry as a whole. In 1913 the total output of the chemical industry was valued at only 457 million rubles (in 1926/27 prices). But at the threshold of the First Five-Year Plan period (1928) the pre-war volume of output was already exceeded by almost 50 per cent. The industry reached full bloom during the Stalin quinquennial periods preceding World War II. Due to its accelerated development the gross production of the chemical industry was 6,800 million rubles in 1938, almost 15 times the 1913 figure.

Great also were the successes achieved by the building-materials industry. In 1913 Russia produced 1.5 million tons of cement. In 1940 the Soviet Union's cement output was 5.8 million tons, almost quadrupling production. The manufacture of brick, roofing paper, parchment paper, slate, asbestos, window glass and other types of building material likewise increased greatly.

Articles for general consumption, too, were produced in constantly growing quantities. The textile industry, for instance, produced goods worth 3,500 million rubles in 1913 and in 1938 goods worth 11,200 million rubles, a 3.2-fold increase. The production of cotton fabrics grew from 2,224 million metres to 3,491 million metres, the output of footwear (exclusive of felt boots, rubbers and galoshes) from 8.3 million pairs to 213 million pairs. The value of the gross out-

put of the food industry rose from 5,800 million rubles in 1913 to 19,800 million rubles in 1938, or 3.4 times over.

"This unprecedented growth of production," Comrade Stalin pointed out, "cannot be regarded as the simple and ordinary development of a country from backwardness to progress. It was a leap by which our Motherland became transformed from a backward country into a progressive country, from an agrarian into an industrial country."

The Socialist industrialization of the U.S.S.R. radically changed the whole national economy, and industry, of course, in particular.

In 1913 agriculture was the predominant branch of the national economy, representing as it did 57.9 per cent of the country's total production. But already at the beginning of the Second Five-Year Plan period large-scale industry accounted for 70.4 per cent of the total output of the national economy. The proportion of agricultural production in the national economy fell to 29.6 per cent while in absolute figures it showed considerable growth.

The Party and the Government devoted great attention to changing the structure of industrial output. In 1913 the production of means of production yielded only one-third of the gross output of industry in the aggregate, whereas the production of articles of consumption yielded two-thirds. But already under the first plan the greater part of the total industrial production was accounted for by heavy industry, and in 1940 more than 60 per cent of the total industrial output consisted of instruments and means of production.

These figures reflect the splendid victory achieved by Socialist industrialization, the outstanding feature of which was the accelerated growth of the production of means of production.

The machine-building industry occupied a key position in the development of heavy industry and in its structure. Its output accounted for a sharply increasing percentage of the total. In 1913 the output of the machine-building industry was no more than 6.8 per cent of the total output of large-

scale industry, but in 1940 it had risen to 31 per cent. This percentage was the highest in the world.

In the process of the industrial transformation of the country, power and chemical production also increased their respective percentages of total industrial production. Electric power production increased from 0.27 per cent in 1913 to 2.13 per cent in 1938. The production of the chemical industry in 1938 constituted 6.4 per cent of the total industrial output.

The enormous shifts in the structure of Soviet industry were a result of the establishment of a whole series of new and very important branches and lines of production, without which it would have been impossible to carry out the tasks of Socialist construction.

During the period of the Stalin five-year plans there were set up in the U.S.S.R. a powerful tractor and automobile industry, a highly developed aeronautical and tank industry, and a number of new industries producing ordnance, trench mortars and other armament. The creation in our country of a powerful defence industry was one of the outstanding achievements of Socialist industrialization.

Another industry that sprang up under the five-year plans was machine-tool making. Before the revolution there were a few small factories which manufactured a very limited number of exceedingly primitive machine tools. During the five-year plan periods huge machine-tool plants were built in Moscow, Gorky, Kiev, Kharkov, Sverdlovsk and a number of other cities. The old machine-tool making plants were thoroughly reconstructed. As a result the Soviet Union today is the possessor of a powerful machine-tool industry capable of producing any type, however intricate.

Other industries established in the U.S.S.R. are heavy machine building, shipbuilding, and the manufacture of chemical machinery, building and road-making machinery, textile machinery, etc.

The manufacture of modern farming machinery dates from this period; and the output of the transport-machinery

industry and of other industries also has thoroughly changed in character.

A powerful metal industry has arisen under the five-year plans. All the high-grade metal works are the offspring of the Stalin quinquenniums. Electrometallurgy, which makes possible the production of steel of particularly high quality, is extensively developed in the U.S.S.R.

A number of exceptionally important products, particularly aluminum, magnesium and nickel, were first manufactured on a large industrial scale during the Stalin five-year plan periods. The same applies to the extraction and processing of rare metals. In the oil industry the manufacture of high-octane gasoline has been mastered, which is of exceptional importance to the national defence.

Important branches of the chemical industry have been set up in the U.S.S.R. during the plan periods, such as the manufacture of coke and its by-products, of nitrates, aniline dyes, chemical products derived from wood, artificial fibres, synthetic rubber, plastics, pharmaceutical chemicals, varnishes and dyes, etc.

Light industry and the food industry have also introduced many new lines of manufacture.

Thus during the thirteen years preceding the recent war there evolved in the U.S.S.R. an industry which in scale of production, technique and structure differed radically from the industry of pre-revolutionary Russia. The profound changes in the structure of industrial production are a reflection of the industrial transformation of our country and the establishment of an industry capable of coping with the great tasks that face the mighty Soviet Socialist State.

The unprecedentedly high rates of growth of Socialist industry wrought a change in the ratios of production between the industry of the U.S.S.R. and that of the capitalist countries.

While tsarist Russia's industrial output in 1913 was less than one-fourteenth of that of the U.S.A., a little over one-sixth that of Germany, two-ninths that of England and two-

fifths that of France, Soviet industry as early as 1937 was only a little less than one-third that of the U.S.A., 17.3 per cent more than that of Germany, one and a half times as much as England's and more than three times that of France.

The share of the U.S.S.R. in world industrial output showed particularly great increases in the most important types of manufactures of heavy industry.

In volume of industrial output the Soviet Union gained first place in Europe and second place in the world as early as 1937, being surpassed only by the U.S.A.

CAPITAL CONSTRUCTION AND FIXED FUNDS IN INDUSTRY

The enormous scale of capitalist construction, which ensures the constant augmentation of productive capacities in all branches of industry, constitutes one of the principal factors of extended reproduction in Soviet industry.

The immense construction program attached particular importance to the problem of accumulating material and monetary resources.

In the solution of this problem the Soviet Union could not resort to capitalist methods of accumulation.

"History up till now," said Comrade Stalin, "has known three paths of the formation and development of powerful industrial states.

"The first path is the path of grabbing and pillaging colonies....

"The second path is the path of military conquest and the exaction of large indemnities from one country by another....

"The third path is the path of usurious concessions and usurious loans from capitalistically developed countries to a capitalistically backward country...."¹

All these paths were unacceptable to the Soviet Union. A

¹ Stalin, *Leninism*, Vol. I, Moscow, 1934, p. 227.

Socialist State could not base its development on the pillaging of colonies or on wars of conquest, for these paths are incompatible with the very nature of the Socialist system of society. The freedom and independence of peoples, big and small, and their economic and cultural flourishing, constitute one of the most important principles of development of Soviet society.

Nor could the U.S.S.R. follow a course of granting concessions on onerous terms or of accepting loans from the main capitalist countries on such terms, as such a course would have meant the loss of its independence.

The Communist Party and the Soviet Government led the Land of Soviets along a different course, the course of industrializing the country by drawing on its interior sources of accumulation.

"As I have already said, this path has not been explored by bourgeois states; but that does not imply by a long way that it is impossible for the proletarian state. What is impossible, or nearly impossible, in this case for bourgeois states is quite possible for a proletarian state. The point is that in this respect the proletarian state enjoys advantages which bourgeois states do not, and I dare say, cannot, enjoy."¹

These advantages are the consequence of the fundamental difference between the bourgeois state and our state, which creates the conditions for different sources and methods of accumulation. These conditions are: Socialist ownership of the instruments and means of production and planned economy.

Socialist industry has incomparably greater possibilities than capitalist industry of raising the productivity of labour, of constantly lowering production costs and thus increasing accumulations.

In addition to accumulation within industry, which accounts for the principal portion of the means required for

¹ *Ibid.*, p. 229.

the industrialization of the country, there are the revenues derived from agriculture, another source of accumulation. Soviet Socialist agriculture, the largest-scale agriculture in the world and the one most highly mechanized, is able to yield considerably greater accumulations than the small-scale and technically backward agriculture of the capitalist countries. The state loans subscribed to by the people out of their incomes likewise constitute a source of accumulation in the U.S.S.R.

The superiority of the Soviet system of economy is manifest not only from the accumulation of immense means but also from their proper use in Socialist construction. Under the capitalist economic system capital is put into this or that branch of the national economy not because the development of the branch in question is of greatest importance to the country, to society as a whole, but for entirely different reasons. When a capitalist has to decide what line of production is most profitable to him he goes by current business conditions. In capitalist society the flow of capital from one branch of the national economy to another is spontaneous, following the law of the average rate of profit.

In Socialist economics accumulated means are allocated in accordance with the national-economic plan, the importance of particular branches of industry and the part they play in the carrying out of the political and economic tasks of the Socialist Soviet State. In the U.S.S.R. the accumulations of the state enterprises are assigned by the Party and the Government in a planned way to such purposes as the strengthening of the might of the Soviet State, the further expansion of production, the creation of essential stock-piles and the raising of the living and cultural standards of the working people.

The superiority of the Socialist system of economy with regard to accumulations and their distribution was made use of with exceptional skill by the Bolshevik Party and the Soviet Government.

This is attested to by the increasingly huge figures describ-

ing performance in the field of capital construction in the U.S.S.R. From 1929 through 1940 approximately 300,000 million rubles were invested in the whole of the national economy. The greater part of these investments was allotted to industry, primarily heavy industry. During the decade 1929-38, 107,400 million rubles out of the 222,900 million rubles representing aggregate investments were put into industry. The division of investments between the production of means of production and the production of articles of consumption appears from the following figures:

Investments (including Capital Repairs) in Industry in the U.S.S.R. during 1929-38
(in thousand million rubles, in prices of the corresponding years)

Branch of the national economy	1929-33	1934-38	Total for decade 1929-38
<i>Industry</i>	34.5	72.9	107.4
<i>of which:</i>			
Production of means of production	29.5	60.8	90.3
Production of means of consumption	5.0	12.2	17.2

Thus during the decade 1929-1938, 84 per cent of the total of investments in industry went to heavy industry.

The tremendous increase in the volume of capital construction was attended by a thorough reorganization of the very processes of construction. During the first three Stalin five-year plan periods a powerful building industry arose in the Soviet Union.

The enormous expansion of capital building operations and the technical improvement of construction processes considerably increased the effect of investments in construction. The productive capacity of industry grew immensely and steadily. Under the Second Five-Year Plan, for instance,

the fixed fund put in operation in the whole of industry was 3.8 times as great as under the first plan.

To summarize. Whereas in the beginning of 1929 fixed production funds in large-scale industry totalled 10,300 million rubles, that figure had increased by the beginning of the Second Five-Year Plan period to 22,600 million rubles, and by the beginning of the Third Five-Year Plan period to 57,900 million rubles. In the aggregate, the fixed production fund of large-scale industry multiplied 5.6 times during the first two quinquennial periods alone.

As specified by the plan of capital construction, heavy industry's fixed fund increased at a more rapid rate than those of light industry.

For electric power stations the fixed production fund showed an 8-fold increase during this period. For the coal industry the increase was 6-fold, for the iron and steel industry 7.7-fold, the metal-working industry 7.7-fold, the chemical industry 10-fold, the food and grocery supplies industry 4-fold, etc.

In no country in the world has there been such an impetuous growth of plant as in the U.S.S.R.

In the U.S.A. during its prime the fixed capital invested in industry increased on the average 6-6.5 per cent a year. During economic crises there is a sharp recession in the rate of growth of fixed capital in industry in the capitalist countries or there is no increase at all. It is a characteristic feature of the general crisis of capitalism that huge productive capacities stand chronically idle.

In the Soviet Union the increase of fixed funds was steady and exceedingly rapid. Their vast growth in Soviet industry brought about a thorough renewal of them during the Stalin five-year plan periods. As early as January 1, 1936, in the manufacturing industry of the U.S.S.R. the production funds of the completely reconstructed and new factories constituted four-fifths of the total, the new factories alone accounting for 42.5 per cent of these funds. At the power stations the completely reconstructed and new enterprises

accounted for 87.5 per cent, in the chemical industry for 94 per cent, in the iron and steel industry for 97.2 per cent and in the metal-working industry for 85 per cent of all production fund. In 1937-40 the process of renewing the fixed fund continued to be very intensive. By the beginning of the Great Patriotic War there had been a complete renewal of Soviet industry's fixed fund. Thus almost our entire industrial plant at the outbreak of the war had been installed during the preceding thirteen years.

The Soviet Union has the newest and most up-to-date factories and equipment of any country in the world. This is one of the most substantial factors accelerating the development of productive forces in the U.S.S.R.

TECHNICAL PROGRESS IN INDUSTRY

One of the most important features of Socialist construction is the thorough technical reconstruction of industry and on this basis of the whole national economy. The role of technical progress is exceptionally great in the building of Communist society.

The building up of Communist society will signify the attainment of a new level of development of technique and labour productivity, a higher level than that of capitalism. Even during the first phase of Communist society—under Socialism—the Soviet Union has won first place in the world with regard to technique of production.

Technical progress in the national economy is one of the foremost conditions for increasing output in the U.S.S.R.

Under a Socialist system of economy technical progress becomes one of the prime factors of a steady growth of labour productivity and a better utilization of the material elements of production, and hence of a rise in the living and cultural standards of the working people.

Furthermore, the development of technique makes it possible to relieve the workers of heavy physical labour.

Thus perfection of the technique of production becomes under Socialism one of the principal means of abolishing the distinction between mental and manual labour.

Technical progress in the national economy is also highly important to ensure the technical and economic independence of the U.S.S.R. and to strengthen its defensive capacity.

In the Soviet Union the development of technique is free from the limitations imposed by the capitalist mode of production. Here the motives for developing technique have changed radically. Here the main stimulus for such development is the desire to lighten human labour as much as possible, to expand its productive power, to strengthen to the utmost the might of the Soviet State and of its defensive capacity and to increase without surcease the quantity of material values created by society.

The anarchy inherent in the development of capitalist technique has been eliminated in the U.S.S.R. and planned technical development of the national economy has been made possible. Here technical progress has become the servant of the people, a vehicle bringing better working conditions and an improvement in other material aspects of life. The spread of technical education, the inventive faculty as a mass phenomenon, the participation of substantial sections of the working people in rationalization schemes and, lastly, the nationwide Stakhanov movement, which reveals the hitherto latent possibilities of technique, as well as the mastery of the new technique by scientific workers and wide sections of engineers and technicians, are very important aids in the process of the technical re-equipment of our national economy. They likewise constitute a potent means of accelerating the development of Socialist industry.

Only the Socialist system of production can fully unfold the unlimited possibilities inherent in contemporary science and technique. The Communist Party and the Soviet Government have made extensive use of these potentialities and have created the conditions assuring technical development here at a pace unequalled in any other country.

During the thirteen years preceding the war Soviet industrial plant was thoroughly renewed and a radical improvement of technological processes effected. The introduction of the most up-to-date machinery and the rapid rate at which its operation is being mastered are striking features of Socialist industry's development.

Mechanization in general and its higher stage, the introduction of automatic machinery, indicate the main line of development of Soviet technique based on extensive electrification.

The immense importance of mechanization has been repeatedly stressed by the Bolshevik Party and its leaders. Speaking at the Eighth All-Russian Congress of Soviets, Lenin pointed out that "we must introduce more machines everywhere, we must resort to machine technique as widely as possible."¹

When the restoration of the national economy had been completed and the period of the Stalin five-year plans was ushered in, the problem of the mechanization of production, and in particular of laborious and heavy physical work, acquired decisive importance.

In his historic speech on the six conditions of victory, delivered on June 28, 1931, Comrade Stalin specially emphasized the great importance of mechanizing Socialist construction. He pointed out that "we must proceed immediately to *mechanize* the heavier processes of labour and develop this mechanization to the utmost...", explaining further that "mechanization of labour processes is for us the *new* and *decisive* factor, without which we shall be unable to maintain either our tempo or the new scale of production."

Soviet industry has scored great successes in the mechanization of production.

In the coal industry, for instance, mechanized mining in Russia constituted 1.7 per cent of the total in 1913; in 1938 mechanized production in the U.S.S.R. was already

¹ Lenin, *Selected Works*, Moscow-Leningrad, 1935, Vol. VIII, p. 270.

90.1 per cent of the total. This brought the Soviet Union to first place in the world in level of mechanization of coal mining.

It must be admitted, however, that before the war there had been no all-round mechanization embracing all the processes of work in the coal industry.

In the oil industry production was completely mechanized. Moreover, the mechanization of oil production in the U.S.S.R. developed along the most progressive lines—the proportion of oil extracted by means of deep-well pumps, compressors and gas lifts grew constantly. At the beginning of the Third Five-Year Plan period almost three-fourths of the oil output was obtained by these methods.

The drilling of oil wells exhibited one of the most progressive tendencies in the development of technique—the substitution of continuous rotary motion for reciprocating motion. While before the Revolution the oil industry employed rotary drills in hardly 2 per cent of its operations, the principal method of boring having been the use of drop drill and rod, rotary and turbine drilling accounted for 96.7 per cent of output at the end of the first quinquennial period, and by the end of the second period these methods had completely eliminated the rod and drop tool method.

Before the Socialist Revolution only horses were used for hauling logs in lumbering operations. In 1933 mechanical haulage (tractors, trucks, narrow-gauge railways, overhead transmission and other mechanized lines) still accounted for only 2.6 per cent. In 1938 mechanized haulage of logs in the principal lumber camps reached 38.2 per cent, of which 18.8 per cent was tractor-drawn and 13 per cent trucked. Despite these achievements the timber industry still lags far behind other industries in mechanization.

In 1929 the iron and steel industry of the U.S.S.R. did not have a single completely mechanized blast furnace. But in 1933 such furnaces already produced one-fourth of all pig iron smelted, and at the beginning of the Third Five-Year Plan period over 60 per cent. The pouring of pig iron

has reached a high level of mechanization. Today the bulk of pig iron is machine-poured.

In steel smelting departments not only are all the new open-hearth furnaces equipped with charging machines but in the old shops, too, mechanical charging has replaced hand charging. The pouring of steel is now highly mechanized. Steel smelting processes are now largely automatically controlled.

In the metal-working industry foundries have been mechanized to a considerable extent. Parallel with this, perfected and more precise methods of production are being introduced at many factories, such as founding under pressure and the use of permanent metal moulds. Punching of metals and cold working of metals under pressure are widely employed. The technical level of machine tools has been considerably raised by a sharp increase in the number of high-efficiency types, such as powerful heavy machine tools, special polishing machine tools, etc. The acceleration of cutting operations and the equipment of machine tools with all kinds of appliances considerably increased their efficiency.

During the Stalin five-year plan periods the branches of industry producing articles of consumption also reached a high level of mechanization. The needle-trades and the footwear industries, for example, were transformed from semi-handicraft, technically backward industries into highly mechanized industries.

The most up-to-date equipment, in part automatic, was widely introduced in the food industry of the U.S.S.R.

The fish industry, too, became highly mechanized. Already at the beginning of the Third Five-Year Plan period fishing was mechanized more than 70 per cent.

A general idea of the extent of this mechanization may be obtained from the data describing the increase in the principal means of production available per worker. During the first two quinquennial periods alone the value of basic means of production available per worker increased more

than 3-fold in the coal industry, almost 4-fold in the iron and steel industry, almost 8-fold in the non-ferrous metal industry, almost 2-fold in the metal working industry, and 2.5-fold in the chemical and cement industries.

A great part of the success achieved in the mechanization of production was due to increased electrification. In the period of 1913 through 1940 the estimated capacity of all electric power stations in the U.S.S.R. increased 10-fold and the generation of electricity 26-fold.

This made possible a decided increase in industrial electrification. During the first two five-year plan periods alone the electric power consumption of Soviet industry (including the building industry) increased 7-fold. The industry of the Soviet Union became the most highly electrified industry in the world.

Technical progress in the U.S.S.R. is also achieved by the extensive use of chemicals and chemical methods in production. As early as April 1928 the Council of People's Commissars of the U.S.S.R. noted in its decision on the use of chemicals and chemical methods that "modern chemistry is changing the basic principles of industrial production and discovering new sources and types of cheap raw material. It is creating vast material values from the simplest and commonest elements and serves as a direct instrument for the Socialist transformation of agriculture. It has therefore rightly been brought to the fore as one of the decisive factors of the industrialization of the national economy."

The vast importance of applied chemistry for the development of the productive forces of the Soviet Union and its defensive capacity was pointed out by the Party in a decision of the Central Committee of the C.P.S.U.(B.) passed in September 1929 concerning the work of the Northern Chemical Trust, as well as in a number of decisions of Party congresses and conferences.

In pursuance of the directives of the Bolshevik Party and the Government of the U.S.S.R., chemical methods of

processing substances have been widely introduced in the various branches of industry.

Already before the Great Patriotic War work was started in the Soviet Union on the underground gasification of coal, a process of obtaining fuel by chemical means.

In the oil refining industry of the U.S.S.R. cracking, a chemical process, is employed on an increasing scale. On the eve of the First Stalin Five-Year Plan this process was hardly employed at all in the production of gasoline. In 1932 cracking already accounted for 24 per cent of the output; in 1937, for 57.7 per cent. The technical level of Soviet oil refining is of the highest. In the U.S.A. only 47 per cent of the gasoline produced in 1937 was cracked.

The development of the production of artificial liquid fuels is a striking illustration of applied chemistry in industry.

In the iron and steel industry chemical methods are used to produce special and high grade steels and ferro-alloys, as well as a long list of by-products. Thus, for instance, the Soviet Union has made much progress in utilizing the by-products of coking, on the basis of which it established a benzol industry.

The historic achievements of Socialist industrialization made possible the radical technical reconstruction of agriculture in the U.S.S.R. In 1913 only 6 rubles' worth of agricultural machinery and implements was available per hectare of sowing area, but as early as 1938 the value of agricultural machinery, tractors and automobiles per hectare of sowing area in the state farms and collective farms was 65 rubles.

Before the revolution no tractors whatever were used on Russian farms. It was Lenin's dream to provide the countryside with a hundred thousand tractors. In 1940 Soviet agriculture already possessed over 500,000 tractors and 182,000 combines. The supply of mineral fertilizers to the farms multiplied several times over. In 1928 agriculture received 243,100 tons of such fertilizer and in 1938 over

3 million tons. A sharp increase in the supply of producer goods to the countryside was decisive for the Socialist reconstruction of agriculture.

The Soviet Union won first place in the world in point of saturation of industry and agriculture with new machinery.

"Our industry and agriculture," said Comrade Stalin; at the Eighteenth Congress of the C.P.S.U.(B.), "are now based on new, up-to-date technique. It may be said without exaggeration that from the standpoint of the technique of production, from the standpoint of the degree of saturation of industry and agriculture with new machinery, our country is more advanced than any other country, where the old machinery acts as a fetter on production and hampers the introduction of modern technique."¹

The U.S.S.R. had now completed in the main the technical reconstruction of the national economy, having equipped industry and agriculture with up-to-date machinery and recorded important progress in its mastery. This constituted one of the most significant achievements of Socialist construction.

The Soviet Socialist system of planned economy opened up the possibility of developing socialized production in its most perfect forms. In degree of concentration, specialization and combination the industry of the U.S.S.R. ranks first in the world.

The high degree of concentration of pre-revolutionary Russia's industry with regard to the number of workers employed per enterprise was combined with a low degree of technical development, as a result of which manual labour was used extensively.

During the first three Stalin five-year plan periods the concentration of industrial production sharply increased in the U.S.S.R., and not only with regard to labour power but also productive capacity. The Magnitogorsk and Kuznetsk

combined metallurgical plants, the Ural aluminum works, the Ural heavy machine-building plant, the Chelyabinsk tractor plant, the Moscow and Gorky automobile plants, the Ural railway car works, the Moscow Krasny Proletari machine-tool plant, the Moscow turret lathe plant, the Gorky milling machine plant, the Moscow ball-bearing plant, the principal chemical plants, the Barnaul and Tashkent textile plants and the Moscow and Leningrad meat packing plants are among the biggest and technically best equipped establishments in the world.

The Soviet Government's construction of large, modern enterprises had as its necessary consequence the establishment in our industry of a new technique and of a higher type of organization of production. The new huge factories of Soviet industry are always in the van of the struggle for technical progress, higher productivity of labour and lower production costs.

While increasing the concentration of production the Communist Party and the Soviet Government waged a resolute campaign against the giant mania by which many were possessed. Hence they had numerous medium-sized and small establishments built side by side with huge industrial plants. The introduction of modern machinery in these smaller establishments rendered them highly efficient. At the same time they had due regard for the expediency of dispersing industry throughout the country, as well as of extensively using local fuel and raw materials and of minimizing time limits for building operations.

Increased concentration of production in the U.S.S.R. went hand in hand with increased specialization, cooperation and combination in industry.

Specialization in production facilitates the introduction of mass production, makes possible the use of specialized equipment and leads to the specialization of personnel.

Under capitalism specialization in production denotes a sharpening of the contradictions inherent in the mode of production, particularly an intensification of the general

¹ Stalin, *Problems of Leninism*, Moscow, 1947, p. 607.

anarchy of production and increased competition among the various capitalists. In the Soviet Union specialization of production develops according to plan and hence leads to progress in technique and is one of the most telling factors of the impetuous growth of industry and labour productivity.

The Party and the Soviet Government devoted great attention to specialization in production. In the resolution adopted at the Sixteenth Congress of the C.P.S.U.(B.) specialization and cooperation were described as tasks of first-rate importance. "The congress recognizes that the rationalization efforts are to be directed chiefly toward the specialization of enterprises, to be accompanied by a reduction in assortments of goods produced, the organization of mass production and cooperation among the specialized factories."

The directives of the Party produced a high standard of specialization in Soviet industry, particularly the machine-building industry.

In that industry dozens of special branches were set up: the manufacture of machine tools, tools, automobiles, tractors, railway machinery, communications equipment, ball bearings, tanks, airplanes, ordnance, etc.

The machinery-producing factories began to specialize in particular models and types. Our automobile, tractor, airplane, locomotive, railway-car and other factories have reached a degree of specialization unequalled anywhere in the world.

The successes achieved in the specialized manufacture of machinery in combination with the immense scale of operations resulted in continuous and systematic mass production in many Soviet machine-building plants.

Specialization has also been extensively introduced in the iron and steel industry and in the textile, needle-trades and other industries.

The development of specialization and the correlative increase in the number of separate and independent branches

of industry necessitated extensive recourse to industrial cooperation. Such cooperation is developing in the U.S.S.R. on the basis of the single national-economic plan, which determines the most expedient interconnections in production between separate branches of industry and separate enterprises.

Cooperation among enterprises is widely developed in our industry. Foundries cooperate with plants of the metal-working industry, tractor and machine-tool plants with power-machinery plants, and other branches of the machine-building industry with ball-bearing plants. Automobile, tractor, airplane and tank factories have their connections with a ramified network of factories of related industries.

The development of industrial cooperation was one of the main factors operating in favour of higher technical standards, better organization of production and greater efficiency of small and medium-sized establishments.

The rich experience in cooperation acquired by Soviet industry was of great importance during the war, when small and medium-sized establishments, as well as establishments of local industry, had to be mobilized and geared to the needs of the war. Hundreds and thousands of such factories and mills took part during the war through the medium of cooperation in the manufacture of complicated and important types of armament.

Alongside of specialization and cooperation our industry also extensively developed the practice of combination, which V. I. Lenin defines as "the grouping in a single enterprise of different branches of industry. . . ."¹

Combination prevents interruption of the process of production and accelerates this process; it makes possible a more complete and comprehensive utilization of raw materials and waste.

In Soviet industry there are big plants in which the manufacture of machinery is combined with the production

¹ Lenin, *Selected Works*, Moscow, 1947, Two-Vol. ed., Vol. I, p. 639.

of iron and steel, chemicals, building materials, non-ferrous metals, sulphuric acid, etc.

The tremendous expansion of Soviet industry and the establishment of a number of highly important new branches of industry, as well as the completion of the technical reconstruction of industry, secured the Soviet Union a large measure of technical and economic independence.

Whereas in 1913, 43.6 per cent of machinery requirements were covered by imports, such imports dropped to 30.4 per cent in 1928 and to 0.09 per cent in 1937. The impetuous growth of industrial production has resulted in a complete cessation of the importation of coal, tractors, automobiles, cotton, superphosphates, bicycles, etc., into the U.S.S.R. The Soviet Union can produce any type of product, even the most complicated, at its own plants, with its own forces, from its own raw material and in the necessary quantities.

DEVELOPMENT OF INDUSTRY'S RAW-MATERIAL BASE

The Soviet Union is the richest country in the world in point of natural resources.

However, tsarist Russia was ill acquainted with its mineral wealth. Up to 1918 only a little over one-tenth of Russia's territory had been geologically explored. Most of the country was a blank on the map. The study of mineral deposits with the aid of detailed geological photographs was particularly neglected. It was severely handicapped by the circumstance that such study was largely confined to the European part of the country. Moreover, the very technique of geological surveying was very inferior under the tsar.

The effectuation of the Socialist industrialization plan required a thorough knowledge of the country's natural wealth. Its mineral raw-material base had to be enlarged to ensure its technical and economic independence and the accelerated development of its industry. Accordingly, geological survey-

ing was undertaken on an immense scale during the pre-war five-year plan periods.

These surveys considerably increased our stock of knowledge of the Soviet Union's mineral deposits. The proportion of areas photographed in geological detail rose considerably.

From January 1, 1918 to January 1, 1939, chiefly during the Stalin five-year plan periods, Soviet geologists photographed almost 7,500,000 square metres of territory, a tremendous area which more than quadrupled the hitherto investigated area of the U.S.S.R. As a result of the wide development of geological surveying, knowledge of the Soviet Union's natural wealth increased tremendously under Soviet rule.

Coal deposits were estimated by pre-revolutionary Russia at 238,000 million tons. By the beginning of the Third Five-Year Plan period surveyed deposits of coal in the U.S.S.R. were more than seven times as great, totalling 1,654,400 million tons. Immense coal deposits have been found in the eastern districts—the Urals, Siberia and Central Asia.

Pre-revolutionary Russia's surveyed deposits of oil were estimated at 900 million tons. Soviet geologists increased this figure several times over. Dozens of new rich oil-bearing areas have been discovered in the Baku region (Apsheron Peninsula), and also in the Grozny and Maikop districts. Rich oil deposits have also been found in the middle Volga area, Bashkiria, Western Kazakhstan and elsewhere.

Ascertained oil deposits in the Soviet Union rose to a total of 4,700 million tons as of January 1, 1938.¹

Russia's iron-ore deposits were estimated at less than 2,000 million tons in 1913; by the beginning of the Third Five-Year Plan period ascertained deposits had risen to 267,400 million tons. Surveyed deposits increased considerably in the southern iron ore regions of the U.S.S.R. (Krivoi Rog and Kerch). Very rich iron ore has been discovered in the central European part of the U.S.S.R.—the

¹ Oil deposits of the U.S.S.R., including all categories, total 8,700 million tons.

Kursk magnetic anomaly, and the Tula, Khopper and Lipetsk deposits. The iron-ore fields of the Urals, Western and Eastern Siberia, Kazakhstan, the Far East, the Kola Peninsula and other regions were studied much more extensively.

Soviet geologists discovered huge new deposits of non-ferrous metals and greatly increased the survey of these important types of metal.

Rich copper ore deposits have been discovered in the Urals, Kazakhstan and Uzbekistan.

Immense natural deposits of rare metals—of increasing importance for the development of industry—have been found in the U.S.S.R. The large deposits of non-ferrous and rare metals discovered in the Altai, in the Soviet Pamir region, the “roof of the world,” and in parts of Central Asia must be given special mention.

Some of the richest potassium salt deposits in the world have been discovered in the Solikamsk district. Such deposits have also been found in the Trans-Volga area. Among the world's most extensive apatite deposits are those discovered in Khibiny.

The Soviet Union is also rich in bauxite deposits. Besides the widely known Tikhvin bauxites the Ural and other deposits of this mineral are intensively exploited.

Forests take up the enormous area of 610 million hectares in the U.S.S.R., upward of one-fifth of the world's timber area, much more than any other country possesses. In the U.S.A., for instance, the timber area comprises 243 million hectares, in Canada 297,800,000 hectares, in Sweden 23,200,000 hectares.

The Soviet Union is also enormously rich in peat, the principal chemicals and water power.

In sum, the Soviet Union's share of the world's known natural resources has sharply increased under Soviet rule. While pre-revolutionary Russia occupied tenth place in the world in ascertained iron-ore and coal deposits, the U.S.S.R. occupied first place in the world in ascertained

iron-ore deposits and second place in coal deposits. The U.S.S.R. is also first in deposits of oil, peat, potassium salt, apatite, etc., and in water-power and timber resources.

The following table comprises the most important items of the natural wealth of the U.S.S.R. (as of the beginning of 1938):¹

	Unit of measurement	World deposits	Inclusive of	
			U.S.S.R.	U.S.A. without colonies
Coal	1,000 mill. tons	8,250.0	1,654.4	2,889.2
Oil	mill. tons	7,935.0	4,679.3 ²	1,861.0
Hydroelectric power ³	mill. kwh.	No data	280.0	82.2
Timber area	mill. ha.	3,000.0	610.0	243.0
Peat ⁴	1,000 mill. tons	250.6	150.6	13.4
Iron ore	1,000 mill. tons	500.4	267.4 ⁵	94.4
Manganese ore	mill. tons	2,458.0	784.9	5.2
Apatites	mill. tons	623.0	477.0 ⁶	2.0

As appears from the table, the U.S.S.R. contains more than one-fifth of the world's coal deposits, more than half of its oil deposits, more than one-fifth of its timber lands, 60 per cent of its peat deposits, more than half of its iron-

¹ See *Sotsialisticheskoye Stroitel'stvo Soyuzov S.S.R.*, Gosplanizdat, 1939, p. 31.

² Deposits of categories A+B+C₁, i.e., deposits ascertained by geological survey (comparably with other countries). Total deposits of all categories in the U.S.S.R., including supposed deposits based on geological investigation, amount to 8,689.6 mill. tons.

³ Potential capacity for average annual water consumption.

⁴ Calculated in air-dried peat equivalent.

⁵ Inclusive of 256,500 mill. tons of ferriferous quartzites.

⁶ Deposits of categories A+B+C₁. Total apatite deposits—1,977 million tons.

ore deposits, almost one-third of its manganese-ore deposits and more than two-thirds of its apatite deposits. No other country in the world is so rich in natural resources.

The industrialization of the country and the raising of the standard of living of the working people required also a considerable enlargement of the agricultural raw-material base. In tsarist Russia, in spite of the agrarian nature of the country, this base was extremely narrow. In 1913 the area sown to industrial crops was only 4,551,000 hectares, or 4.3 per cent, of the total sown area of 104,999,000 hectares.

The gross production of a number of industrial crops was not sufficient to cover the requirements of Russian industry. In 1913, for instance, almost half the cotton needed had to be imported.

Pre-revolutionary Russia's level of production of industrial crops, as of all agricultural produce, was exceedingly low.

The victory of the Leninist-Stalinist policy of collectivization of agriculture and the thorough technical reconstruction of agricultural production created all the preconditions for an extensive development of industry's agricultural raw-material base.

During the Stalin five-year plan periods sowing areas considerably increased, industrial crop areas increasing faster than aggregate sowing areas. In 1938 sowing areas totalled 136,943,000 hectares, 30 per cent in excess of the 1913 total. Industrial crop areas that year exceeded 1913 crop areas 140 per cent, totalling 10,960,000 hectares.

The area planted to cotton amounted in 1938 to 2,083,000 hectares as against 688,000 hectares in 1913, a 3-fold increase. The sunflower area increased in this period from 969,000 hectares to 3,145,000 hectares, a 3.2-fold jump. The total sugar beet area (for refineries) was 649,000 hectares in 1913 and 1,180,000 hectares in 1938, an 80 per cent increase.

The accelerated development of industrial crop areas increased their share of the aggregate sowing area. From

1913 through 1940 the percentage of the total sowing area represented by the industrial crop area rose from 4.3 to 7.9.

The technical reconstruction of agricultural production and the improvement in agro-technological processes witnessed in the country since the establishment of Soviet rule considerably raised industrial crop yields. Whereas in 1913 the raw cotton yield was 1.08 tons per hectare, in 1938 it was 1.2 tons (and 1.45 tons in irrigated areas). Refinery sugar beet yield rose from 16.8 tons per hectare to 18.31 tons, of potatoes from 7.61 tons to 9.56 tons.

Increased sowing areas and crop yields have resulted in a considerable increase in agricultural production, particularly industrial crops.

Gross Production of Cereal and Industrial Crops in the U.S.S.R.
(in million tons)

C r o p s	1913	1940	1940 in % of 1913
Cereals	80.1	118.8	150%
Cotton (raw)	0.7	2.7	385%
Flax (fibre)	0.3	0.57	190%
Sugar beet	11.0	21.3	190%
Sunflower	0.7	3.3	470%

The great increase in gross industrial crops was accompanied by a great effort to improve their quality. An increasing percentage of sorted seeds was used. For instance, the quality of cotton fibre began to show much improvement and toward the end of the Second Five-Year Plan period long-fibre seeds were used for upward of four-fifths of the entire area planted to cotton.

The figures adduced characterize the high rates of development of the sources of agricultural raw material for

industry in the U.S.S.R. This enabled the Soviet Union, despite the immense growth of its industry, and particularly of the production of articles of consumption, to free itself completely of the necessity of importing agricultural raw materials. In 1927-28 one-third of the cotton required by the country was still imported; under the Second Five-Year Plan such imports ceased.

CHANGES IN THE DISTRIBUTION OF U.S.S.R. INDUSTRY

The distribution of industry has been greatly changed in the Soviet Union under Soviet rule.

In pre-revolutionary Russia its distribution was extremely irrational. The three principal industrial districts of the country—the central district (including Moscow), the north-western district (including Petrograd) and the southern district (the Ukraine)—comprised approximately three-quarters of the country's entire industrial plant. The vast expanses of the Urals, Siberia, the Far East, Central Asia and the Transcaucasus (with the exception of Baku) were almost entirely undeveloped industrially.

In consequence of such an irrational distribution of industry numerous non-Russian districts and distant borderlands were doomed by the policy of tsarism and the Russian bourgeoisie to economic and cultural backwardness and colonial dependence.

From the point of view of the national defence as well, the distribution of industry before the Revolution was exceedingly illogical in that the vast bulk of it was located at a short distance from the western borders. The country thus courted disaster in case of war.

The Soviet State was obliged in the shortest possible historical period to make important changes in the distribution of its industry. It had to channel it eastward in particular and disperse it over the territory of the Soviet Union, in accordance with the Socialist principles of the distribution

of productive forces and with due regard for the national defence.

The main premise for a rational distribution of industry throughout the country is planned economy.

Another prerequisite is a proper distribution of mineral raw material and fuel resources throughout the country. And in the U.S.S.R. these resources exist in great abundance and are spread over its vast territory, making even and rational distribution possible.

Already Engels in his *Anti-Dühring* pointed out that "only a society which makes possible the harmonious co-operation of its productive forces on the basis of one single vast plan can allow industry to be distributed over the whole country in a way that is best adapted to its own development and the maintenance or development of the other elements of production."

V. I. Lenin in April 1921, in his "Outline of a Plan for Scientific and Technical Work," singled out as one of the principal objectives of Socialist construction the task of a "rational distribution of industry in Russia from the point of view of proximity of raw materials and minimum waste of labour in the passage of the raw materials from the initial processing through the successive stages of the semi-finished product up to and including the finished product." Fully in accord with this, Lenin in the very same manuscript stressed the need of utilizing local fuels.

Comrade Stalin concretized and elaborated upon Lenin's injunction concerning the distribution of productive forces. He worked out solutions for the problem of dispersing industry over the territory of the country, of setting up a second coal and metal base in the East of the U.S.S.R., of a "Second Baku," of the maximum development of local fuel and raw material bases, of the industrial development of the non-Russian Soviet Republics. These solutions and the execution of the stupendous program of the Socialist distribution of productive forces in the Soviet Union were carried out under Comrade Stalin's direct leadership. They

are invaluable contributions by him to the theory and practice of Socialist construction in the U.S.S.R.

The greatest changes in the distribution of industry were achieved under the Stalin five-year plans for the industrialization of the country.

At the beginning of the First Five-Year Plan period the U.S.S.R. had one coal and metal base—in the South. The Socialist industrialization of the country under the five-year plans made the establishment in the East of a second coal and metal centre an urgent necessity.

The decision of the Central Committee of the C.P.S.U. (B.) on "The Work of the Ural Metal Industry," adopted May 15, 1930, noted that "the industrialization of the country cannot in future look to the southern coal and metal base alone for support." The Central Committee held that "the establishment in the East of a second important coal and metal centre of the U.S.S.R. by utilizing the rich coal and ore deposits of the Urals and Siberia was a vitally essential condition."¹

Soon after the adoption of this decision, Comrade Stalin, at the Sixteenth Congress of the C.P.S.U. (B.) (June 26 to July 13, 1930), spoke of the task of properly distributing industry as one of the most urgent economic objectives.

"However we develop national economy," he said, "we cannot avoid the question of how properly to distribute industry, as the leading branch of the national economy."²

The decisions of the Eighteenth Party Congress (March 1939) were also of vast importance for the distribution of industry. The directives of the congress provided for the universal development of the principal economic districts of the U.S.S.R., the maximum utilization of local fuel and raw material, and the setting up of new large centres of industry in the East. They also required the establishment

of duplicate enterprises. These decisions acted as guiding principles to be applied in planning the distribution of industry.

The congress demanded that in carrying out the new capital construction program under the Third Five-Year Plan "...the following considerations must control:

"We must bring the industry nearer to the respective sources of raw material and to the districts consuming their output so as to eliminate uneconomic shipments and shipments over too long distances; furthermore, we must continue the advancement of districts, which were economically backward in the past."

The principal trend in the dispersion of our industry was the shift to the East, which solved the most important problems arising out of the rectification of the irrational distribution of pre-revolutionary industry. The Party and the Government smashed the rabid resistance of the counter-revolutionary Trotskyite band of wreckers, who sought to frustrate the building of an industry in the East of the country, and overcame the tremendous odds encountered in developing the formerly backward districts. They thus achieved decisive successes in the Socialist distribution of the country's productive forces.

On the initiative of Comrade Stalin there was established in the East of the Soviet Union a second powerful coal and metal base, the Ural-Kuznetsk metallurgical combine—the pride of our country.

In carrying this grand building program into execution the Soviet people radically transformed the old Ural region.

In pre-revolutionary times the industry of the Urals was extremely antiquated. Lenin in his classic, *The Development of Capitalism in Russia*, wrote "...direct survivals of the pre-Reform system, extensive practice of *otrabotki* [labour rent], attachment of the workers, low productivity of labour, obsolete technique, low wages, predominance of hand production, primitive and aboriginally wasteful exploitation

¹ C.P.S.U. (B.) in *Resolutions*, Part II, p. 417. (Russ. ed.)

² Stalin, *Leninism*, Moscow, 1933, Vol. II, p. 310.

of the natural wealth of the region, monopoly, restriction of competition, seclusion and isolation from the general commercial and industrial movement of the time—such is the general picture of the Urals.”

Yet in extent and variety of mineral wealth the Urals are one of the richest spots in the world.

The Socialist Revolution opened up before the Urals vast possibilities of development. Long before the last war the Urals became one of the principal industrial centres of the U.S.S.R.

A gigantic metallurgical plant, one of the biggest in the world, was built in Magnitogorsk during the Stalin five-year plan periods. In Chelyabinsk a ferro-alloys plant arose. In Novy Tagil a metal plant was put in operation. Old metal plants were reconstructed and enlarged in Ural-Chusovaya, Zlatoust, Serov, Beloretsk and elsewhere. In the Urals a powerful coke by-products industry was established and a non-ferrous metal industry with huge plants was developed to full size during these periods.

Here a powerful base for the machine-building industry came into existence. Under the five-year plans a multitude of engineering works, including such gigantic enterprises as the Ural machine-building plant, the Chelyabinsk tractor plant, the Ural railway-car plant, the Ufa motor works and a number of electrical machine-building and arms and ammunition plants were inaugurated here.

The chemical industry set up in the Urals is represented by such big establishments as the Solikamsk and Berezniki plants.

An oil industry sprang up in the steppes of formerly backward Bashkiria. In the area between the Volga and the Urals the foundations of a “Second Baku” were laid.

In 1940 the Urals produced 13-14 times the 1913 volume of manufactured goods. This figure may serve to characterize the Urals’ industrial growth.

The wartime removal of industry to the East and the extensive development of new capital construction during

that period led to a further rapid development of the Urals. Ural industrial production as a whole increased 3.6-fold during the war, the output of the metal-working industry showing a 5.7-fold increase.

The face of Siberia too changed completely. Before the Great October Socialist Revolution this was a territory which had no industry of its own. Under the five-year plans many parts of Siberia were transformed into big industrial areas. Coal production there developed into a large industry. The Kuznetsk coal basin became one of the country’s chief purveyors of coal. Its deposits total many times the Donets Basin deposits. Even before the late war Kuznetsk Basin coal output achieved very high figures. The Cheremkhovo and other Siberian coal fields were considerably developed.

The Kuznetsk metallurgical giant constitutes the backbone of Siberia’s iron and steel industry. In Novosibirsk, Krasnoyarsk, Irkutsk and other cities a great number of machine-building plants were erected. In Kemerovo a powerful combination of chemical plants sprang up. The non-ferrous metal, the textile and the food industries were also extensively developed in Siberia.

Industrial development made great strides also in the Kazakh Soviet Socialist Republic, which had been almost barren of industry in the past. There was an extensive development in this republic of the non-ferrous metal industry (the Balkhash copper smelting plant, the Chimkent and the Altai combined metal works), of the coal industry (Karaganda coal fields), the oil industry (in the Emba and Aktyubinsk districts), the chemical industry (the Aktyubinsk chemical plant, phosphorite production in the Kara Tau district), of the food industry (the Semipalatinsk meat-packing plant, the Guryev fish cannery and others).

The Uzbek, Tajik, Turkmen and Kirghiz Republics likewise witnessed vast economic changes of a fundamental nature. Hundreds of enterprises were built and put into operation in the Transcaucasian republics.

All this testifies to the creation of new industrial centres in the country. At the same time the old industrial regions of the country also experienced profound changes.

Moscow Region, for instance, was now no longer a textile but a metal centre. Moscow City's skyline was dominated by such structures as the Stalin automobile plant, the Elektrozavod plant, the huge Krasny Proletari and Orjonikidze machine-tool works, the Ball-Bearing plant, the Frezer and the Kalibr tool works, the completely reconstructed and greatly enlarged Serp i Molot metal works, the thoroughly rebuilt Dynamo plant and dozens of other big engineering works.

In Moscow Region the list of new industrial establishments included the Kosaya Gora and Novaya Tula metal works, the Elektrostal plant and the Stalinogorsk chemical works. Mining in the Moscow coal basin greatly increased. At the same time the textile and food industries were much enlarged in both Moscow City and Region.

Leningrad became a huge centre for the manufacture of high-grade machinery, ship-building and appliances. Industrial activity in Gorky, Yaroslavl, Saratov, Kuibyshev, Stalingrad and numerous other central cities developed considerably.

Industrial expansion on a large scale also came to the Ukraine under the Stalin five-year plans. The country's southern and foremost metallurgical base—the Donetsk Basin and the Dnieper region—was considerably enlarged and reconstructed. It is now engaged in the successful rehabilitation of its vast productive capacities. In the Ukraine (Kharkov, Kiev, Voroshilovgrad [former Lugansk], Gorlovka, Kramatorsk, Nikolaev, Dnepropetrovsk, Krivoi Rog and other cities) a powerful machine-building industry was established. The Dnieper hydroelectric power station, the pride of the whole Soviet Union, named after V. I. Lenin, is once more producing electricity. In the South of the Soviet Union the chemical, sugar, building-materials and other industries were also extensively developed.

The vast dimensions of the new construction and its proper distribution greatly changed the country's industrial map.

Vast distributional changes occurred, for instance, in the coal industry. In 1913 the Donetsk Basin accounted for 86.8 per cent of aggregate coal production. Under Soviet rule the new coal fields were extensively exploited. Coal output in the Moscow basin increased almost 25-fold, in the Kuznetsk basin 22.4-fold and in the Kazakh Soviet Socialist Republic (chiefly Karaganda) almost 50-fold in the period from 1913 through 1938.

As a result the relative importance of the Donetsk Basin declined appreciably notwithstanding the large absolute increase of its production.

The map of the oil industry was likewise largely redrawn. In pre-revolutionary Russia oil was extracted in practically only two districts: Baku, whose wells in 1913 produced 83 per cent of the total, and Grozny, which accounted for 13.1 per cent.

After the establishment of Soviet Government oil output rose considerably at both Baku and Grozny. The Baku wells produced 7.7 million tons of oil in 1913 and 24 million tons in 1938. Grozny's output more than doubled.

However, the considerably accelerated rates of development of the new oil fields reduced Baku's and Grozny's portion of the total oil production. During the pre-war Stalin five-year plan periods oil extraction was organized in the Volga and Ural regions, the Krasnodar Territory, the Far East and Central Asia. The new oil fields already occupied an important place in oil deliveries.

Changes in the maps charting Soviet oil production and oil products consumption entailed corresponding changes in the distribution of the oil refining industry. Huge refineries were built in Krasnodar Territory and in Saratov, Grozny, Ufa, Moscow and a number of other cities.

Re-distribution greatly affected also the iron-ore and metallurgical industries. Iron-ore production in the Urals

and Siberia rose from 19.4 per cent of the country's total in 1913 to 31.5 per cent in 1938.

Under the five-year plans the iron and steel industry developed more rapidly in the eastern parts of the U.S.S.R. than in the South. As a result in 1940 pig-iron smelting in the East of the U.S.S.R. exceeded the 1913 level 4.7-fold while pig-iron smelting at the Southern mills increased only 3.2-fold. In 1940 steel smeltings in the East were 6.5 times the 1913 figure; in the South, 3.5 times that figure. In the production of rolled metal the corresponding figures were 6.4 and 3.

Accordingly, the percentage of the total iron and steel production contributed by the eastern districts greatly rose: for steel smelting it was 21 per cent in 1913 and 32 per cent in 1940.

During the Great Patriotic War pig-iron and steel smeltings increased by more than half in the East of the U.S.S.R.

There has also been a change in the map of the metal-working industry. Whereas at the beginning of the Third Five-Year Plan period the production of the Soviet metal-working industry as a whole was 23.3 times that of 1913, it was 55 times the 1913 figure in the Armenian Soviet Socialist Republic, 66 times in the Turkmen Soviet Socialist Republic, 54 times in the Uzbek Soviet Socialist Republic, 83.1 times in the Kazakh Soviet Socialist Republic, etc.

These figures attest to the splendid victory achieved by the Leninist-Stalinist national policy. They proved the great gains made in the field of the Socialist distribution of productive forces.

Owing to the wise policy pursued by Lenin and Stalin the backward non-Russian border districts, which used to be ruthlessly exploited by tsarism and the bourgeoisie, have become powerful industrial areas. They have advanced far along the road to economic and cultural prosperity.

During the first years of the recent war, when part of the western and southern districts of the U.S.S.R. had been seized by the invader, the Soviet people appreciated in full

measure Comrade Stalin's farsightedness. For it was his genius that directed the establishment, within the span of 10-15 years, of a powerful, universally developed heavy industry in the unbounded eastern expanses of the Soviet Union.

PERSONNEL AND LABOUR PRODUCTIVITY

One of the most conspicuous features of the Socialist industrialization of the U.S.S.R. is the constant increase in the number of people employed in industry. Industrial output multiplied at such a furious pace that increase in the productivity of labour alone was unable to maintain this tempo. A constant influx of new workers into industry became essential.

During one decade (1928-1937) large-scale industry's personnel increased from 3,100,000, to 8,400,000, *i. e.*, multiplied more than 2.5-fold. In the whole of the national economy the number of factory and office workers increased from 11,400,000 in 1913 to 27,800,000 in 1938.

The profound technical reconstruction of industry required a personnel trained in all the necessary skills. The Party and the Government organized a system of training workers on a large scale. It set up factory schools for learners, vocational schools, various courses for industrial training, high proficiency schools, Stakhanovite and other schools.

This considerably increased the number of skilled workers. The union-wide census of the population taken in January 1939 contains eloquent testimony of the successes achieved in this field.

From 1926 through 1939 the population of the Soviet Union increased 16 per cent. During this period the number of skilled industrial workers multiplied several times over. Thus, during 1926-1938 the number of milling machine operators increased 13-fold, of turning-lathe operators 6.8-fold, of mechanics 8.7-fold, of plasterers 7-fold, etc.

One of the most complicated problems that arose in connection with Socialist industrialization was the procurement of engineers and technicians. Their number in Russia's pre-revolutionary industry had been completely inadequate. Very many foremen and superintendents of shops and departments were just employees who had much practical experience but no secondary technical schooling, not to mention a higher education.

The reconstruction of industry on a new technical foundation was impossible without first preparing hundreds of thousands of highly skilled persons. The Bolshevik Party and the Soviet Government, which considered the personnel problem of decisive importance, proceeded to train them on an immense scale.

In the 1914/15 school year attendance at the higher educational institutions in Russia was 112,000; in 1938/39 the corresponding figure for the U.S.S.R. was 602,900, *i.e.*, more than five times as high. Attendance at technical and other secondary schools training personnel increased from 35,800 to 951,900, *i.e.*, 26.6 times.

As a result during the pre-war five-year plan periods a new and numerous Soviet intelligentsia sprang up—from 1926 to 1939 the number of engineers multiplied 7.7-fold, of scientific workers 7.1-fold.

"It is no longer the old hidebound intelligentsia which tried to place itself above classes, but which actually, for the most part, served the landlords and the capitalists," said Comrade Stalin. "Our Soviet intelligentsia is an entirely new intelligentsia, bound up by its very roots with the working class and the peasantry."

In the U.S.S.R. where people work for themselves, for their Socialist society, for their own state, work has become a matter of pride, honour and valour. The mass development of Socialist emulation and its higher stage, the Stakhanovite movement, are splendid proof of this.

As early as June 1930 Comrade Stalin stated in his report at the Sixteenth Congress of the Party that "one of

the most important facts, if not the most important fact, in our construction at the present time is the Socialist competition of factories and works, the roll-call of hundreds of thousands of workers on the results achieved in competition and the widespread development of the *shock brigade movement*."

The Stakhanov movement, inseparably connected with the new technique and the struggle for the mastery of it, elevated Socialist emulation to a higher plane, and proved to be a powerful stimulant of greater labour productivity and of accelerated Socialist reproduction on a progressively increasing scale.

The mass development of the Stakhanov movement in all the branches of the national economy, primarily in industry, and the constant improvement in the technical and economic indices of industry are evidence of the fact that our personnel is successfully coping with the new technique and constantly improving upon it.

Socialist industry and agriculture are equipped with the most up-to-date machinery in the world manned by workers, engineers and technicians who can extract every ounce of efficiency it contains.

The higher technical level of industry, the mastery of the new technique by our personnel and the radical change in the attitude of the Soviet workers to production and work, as well as the improvement in the living conditions of the working people, are the factors that make for high productivity of labour in Soviet industry.

Everybody knows what great importance V. I. Lenin attached to the growth of labour productivity. "In the last analysis," he wrote in 1919 in his article "A Great Beginning," "productivity of labour is the most important, the principal thing for the victory of the new social system.... Capitalism can be utterly vanquished, and will be utterly vanquished, by the fact that Socialism creates a new and much higher productivity of labour."

Under Soviet rule, and in particular during the Stalin

five-year plan periods, labour productivity in the U.S.S.R. increased at a rapid rate. In 1938 output per worker (in fixed prices) was 369.6 per cent of 1913. In the metal-working industry the productivity of labour increased 4.4-fold during this period, in the iron and steel industry 3.7-fold, in the coal industry 2.4-fold, in the textile industry 2.5-fold and in the food and grocery-supplies industry (exclusive of fish) 3-fold.

Not a single capitalist country can point to such rates of growth of labour productivity.

Whereas during the first two quinquennial periods labour productivity in the U.S.S.R. doubled, the increase in the capitalist world during this period was a bare 4 per cent.

The victory of Socialism, the Socialist industrialization of the country and the collectivization of agriculture created all the material requisites for a decided improvement in the living conditions of Soviet working people. The Communist Party made wide use of these requisites, inasmuch as the welfare of the people is one of the principal aims of Socialist development.

During the Stalin five-year plan periods the aggregate payroll of the entire national economy increased several times over.

State expenditures on education, public health, social insurance and other types of cultural and everyday services for the population at large likewise showed tremendous growth. During the Second Five-Year Plan period alone these expenditures rose almost 4-fold, totalling the enormous sum of 30,800 million rubles in 1937.

The complete eradication of unemployment and of the causes that engender it, and the right to work, to rest and leisure and to education, the exercise of which is fully ensured in our country, are among the greatest achievements of the Socialist Revolution, are the fruit of the victory of Socialism. Every man and woman of labour has the opportunity to work at a trade or profession of his own choice,

suited to his capabilities, and is paid for his work according to its quantity and quality.

The capitalist countries present a quite different picture. There real wages constantly fall. There unemployment has assumed a mass character and become chronic. Millions of workers in the capitalist countries are unable to find work and are doomed to lead a life of starvation and poverty. In 1938, according to the understated statistics of official bourgeois agencies there were 18 million unemployed throughout the capitalist world, 10,900,000 of them in the United States alone. And today, in post-war economic conditions, when a considerable part of the armies has not yet been demobilized, millions of people are again looking for work in the countries where capitalism holds sway.

CHAPTER VI

INDUSTRY IN THE U.S.S.R. DURING THE GREAT PATRIOTIC WAR

Hitler Germany's perfidious attack on the Soviet Union confronted the economics of the country with new problems. In his historic address of July 3, 1941, Comrade Stalin called upon the entire Soviet people immediately to put all work on a war footing, to subordinate everything to the requirements of the front and to the task of organizing the defeat of the enemy. It became necessary in a minimum of time to eliminate the German army's numerical superiority in tanks and airplanes, to supply the Red Army with new, perfected types of armament, to make our armed forces numerically superior to those of the enemy in every type of implement of war.

This task was considerably complicated by the circumstance that during the first stage of the war the Hitlerite armies, taking advantage of the element of surprise, seized some of the biggest industrial districts of the country. The industry of the German-occupied districts had accounted in 1940 for approximately one-third of the aggregate industrial output of the U.S.S.R. Included here were almost two-thirds of total coal production, about half of iron and steel production and almost 40 per cent of power production.

Only the peoples of the Land of Soviets, who had the benefit of a planned, Socialist system of economy, were capable under these conditions of improving the economic

affairs of the country and creating a powerful, smoothly operating war economy. The solution of this problem was possible because the Soviet State could firmly rely for support on the Socialist ownership of the means of production, which exercised undivided dominion in the economy of the U.S.S.R., on the powerful industry that had been created during the Stalin five-year plan periods and on its large-scale collectivized agriculture.

The wise leadership of the Party of Lenin and Stalin, the moral and political unity of the Soviet people, their ardent patriotism, their heroic, self-sacrificing toil and the amity existing among the peoples of the Soviet Union ensured the accomplishment of the difficult and complicated tasks of the war economy.

The swift institution of a well-gearred system of war economy required an immense amount of organizational work.

Operating on a tremendous scale yet specific in its instructions, the State Committee of Defence headed by Comrade Stalin directed the entire military and economic life of the country, the mobilization of all resources in aid of the front and the establishment and development of the country's war economy.

During the war conversion process speed was of the essence in mobilizing plant, manpower and raw materials and making them available for the national economy. The conversion was accomplished under extremely difficult conditions, yet in remarkably little time. Whole branches of civilian industry and many separate enterprises had to be enlisted at once in the production of war supplies. Cooperation among enterprises in close proximity of each other was widely practiced, particularly because of the limited possibilities of moving industrial freights.

A vast complex of intricate technical and organizational problems urgently called for solution in connection with the conversion of civilian industrial enterprises. In compact periods measured by weeks factories were required to

prepare new blueprints and the entire technology of production, produce the necessary appliances, patterns, dies and tools and master the new technological processes. In many instances the change to the production of new types of manufacture necessitated the enlargement of particular sectors of production, the replanning of equipment and the solution of extremely difficult technical problems.

The war made new demands upon the tank, airplane, motor and other factories of the defence industry. At short notice they had to sharply increase output of armaments, institute and effectively employ the production line system and modernize designs.

The redistribution of raw material and fuel reserves available in the country greatly facilitated the rapid war conversion of Soviet industry. One of the main objectives of planning during the war period was to ensure that in allocating available resources priority was given to the various branches of the war industry and the most important branches of heavy industry.

The difficulties of reorganizing industry for the production of munitions were greatly aggravated by the simultaneous need to transfer plants from the war zones and endangered areas to the East.

The first few months of the war were a period of resiting productive forces on a scale unprecedented in world history. During three months in 1941 upward of 1,300 large enterprises were transplanted to the eastern regions of the U.S.S.R. During the first six months of the war over a million railway cars loaded with equipment, raw material and fuel moved east on this mission.

Unparalleled labour exploits performed by the working class of the U.S.S.R. restored production in the transferred industrial establishments at their new sites. In spite of the originally bad housing conditions and other hardships construction and installation made swift progress. In many cases after the arrival of the equipment three or four weeks sufficed for its installation at the big factories and their

departments; and in no more than three or four months industrial establishments reached their pre-war level of output. To take the Engels factory as an illustration. Evacuated from Zaporozhye it restarted operations twenty days after the arrival of its equipment at the new site and was soon doing far better than before the war. The labour force of an aeronautical factory evacuated to the Volga region required only fifteen days of building and installation to resume production.

The resumption of production by industrial enterprises transferred to the East was immensely facilitated by the extensive industry that had been established in the East of the U.S.S.R. under the wise policy pursued by Comrade Stalin during the pre-war five-year plan periods. In the Urals and Siberia mining had been greatly developed. These regions had numerous power plants and engineering works, an extensive railway network, etc. At the outbreak of the war the eastern districts were in the middle of a new construction program which placed in their possession a great number of buildings near completion. The reserve productive capacities of numerous factories were now likewise made use of.

The mass resiting of industrial enterprises was a major success for the Socialist system of planned economy, a graphic illustration of its vast superiority over the capitalist system of economy under the supremely difficult wartime economic conditions.

The war conversion of the national economy and the resiting of industry were carried out in accordance with state plans. No more than a week after the outbreak of hostilities the Soviet Government adopted a plan providing for the mobilization of the national economy during the third quarter of 1941. After the lapse of about six weeks, on August 16, the Government adopted a second wartime plan, a "war-economy plan" for the fourth quarter of 1941 and for 1942 covering the Volga Area, the Urals, Western Siberia, Kazakhstan and Central Asia. These plans, drawn

up upon the initiative and under the personal direction of Comrade Stalin, provided for the war conversion of Socialist economics, the resiting of industry in the East and the accelerated expansion of the most important branches of the war industry. As in peacetime so now these plans were an immense organizing and mobilizing factor.

The shortage of workers was one of the most difficult problems of war economy which the U.S.S.R. had to face during the first few months of hostilities.

The war had taken millions of able-bodied persons away from productive work, so that the task of drawing the country's manpower reserves into industry acquired paramount importance.

In February 1942 the Presidium of the Supreme Soviet of the U.S.S.R. ordered the mobilization of the able-bodied population in the cities for work in industry and construction at their places of residence for the duration of the war.

The factory vocational schools and the trade schools organized on the initiative of Comrade Stalin before the war were greatly instrumental in securing workers for industry. During the first two war years alone 1,300,000 young workers came from these schools to work in the factories and the transport system.

War conditions made necessary a further tightening of labour discipline and a stop to abnormal labour-power turnover. To this end the Presidium of the Supreme Soviet, by Decree dated December 26, 1941, and entitled "On the responsibility of industrial and office workers at war-industrial enterprises guilty of unjustified absenteeism," declared all such workers and also the workers of establishments of other branches of industry supplying the war industry by way of cooperation mobilized and attached until the end of the war to the factories and mills at which they were employed.

The tremendous losses of the national economy of the U.S.S.R. due to the occupation of a number of Soviet

districts by the enemy, the resiting of industry and the reorganization of establishments for the manufacture of products new to them resulted during the first few months of the war in a considerable decline in production. Many enterprises were "on wheels" during this span of time, and had not yet been rehabilitated and hence were temporarily unable to produce.

From June to November 1941 gross industrial output shrank 52.4 per cent and the manufacturing of rolled metal between the outbreak of the war and December 1941, 67.7 per cent. The production of non-ferrous rolled metal during these months dropped to 1/430 and that of ball bearings to 1/21.¹

November and December 1941 were the most grievous months for Soviet industry during the Patriotic War. In December of that year it scraped bottom, but then began to rise.

By spring of the following year the most difficult stage in the development of the war economy had been left behind.

During the first year of the war the direct tasks of industrial conversion were in the main achieved and the evacuated factories restored at the new sites assigned to them. New connections relating to material, technique and production were established among the enterprises. The initial period of learning how to produce the new items of manufacture, of mastering the new technological processes, was now over. Such essential problems as the redistribution of the available manpower and the improvement of labour discipline had found their solution by that time.

In firm reliance upon the advantages of Socialist, planned economy the heroic Soviet people, organized and guided by the Bolshevik Party and the Soviet Government, demonstrated to the whole world their ability to effect a swift

¹ Voznesensky, *opus. cit.*, p. 43. (Russ. ed.).

and complete mobilization of the economic forces of the country for the war.

During the first year of the war the conversion to war purposes of plant taken from other branches of industry and the utilization of raw materials and auxiliary substances available within the country constituted the principal source of increase of war production. Thereafter, internal reserves, such as qualitative improvement of work, increased labour productivity and reduced production costs, were chiefly responsible for the further upsurge of the war economy of the U.S.S.R.

To ensure a steady rise in the production of munitions of war in the U.S.S.R. a campaign to increase efficiency—maximum utilization of its internal reserves and the constant perfection of its technology and organization—was launched in industry. Elimination of waste in the use of materials, improvement of labour productivity and mastering the methods of production of new types of manufactures now became the cardinal objectives of industry's war effort.

In the struggle for the maximum utilization of all the latent possibilities of production, accuracy and the smooth working of the entire production process according to schedule was of great importance. Strict compliance with production schedules was vigorously enforced during the war in the vast majority of enterprises.

Rationalization of production, intensification of production processes and technological perfection were fought for on a wide front during the years of war.

In the machine-building industry, for instance, much attention was given to accelerating cutting processes, to the increased employment of automatic and semi-automatic machinery and the introduction of more modern methods of metal working.

In the iron and steel industry considerable progress was achieved during the war in the smelting of high-quality steels of special make in high-capacity open-hearth furnaces

(185 tons and over), in increasing charges of blast and open-hearth furnaces, in shortening the production cycle (high-speed smelting) and better utilization of equipment. At the chemical, oil refining and other plants where chemical methods of working up raw material prevail, much was accomplished in the way of intensifying regimes of work of machine groups and obtaining high use factors for equipment, etc.

The need of economy was greatly stressed during the war. Strict watch was kept to prevent the use of materials in excess of the fixed allowance. Rationalized methods of working up raw materials and semi-finished products were studied intensively. Wastage and spoilage were reduced to a minimum and the use of substitutes encouraged.

Much attention was paid in wartime to improving labour discipline and raising labour productivity.

With the commencement of the war the working people of the U.S.S.R. became even more disciplined and self-sacrificing at work than hitherto. Socialist emulation developed on a country-wide scale. In fact, it was the chief method of work while the war was in progress. The bulk of the workers regularly fulfilled and overfulfilled their quotas. In 1944, 23 per cent of the workers employed in the aviation industry finished two quotas and even more a day; in the machine-tool industry two-quota workers constituted 25 per cent of the personnel, in the electrical industry 23.3 per cent, in the trench mortar works 21.5 per cent and in the heavy machine-building plants 17 per cent.

Socialist emulation assumed a variety of forms. The Stakhanovites of industry greatly rationalized technological processes and improved the organization of work. Numerous groups of workers who called themselves "frontline brigades," as well as Young Communist League and youth brigades, strove for maximum output with minimum personnel.

At many factories the public bodies were reviewing the manner in which work was organized.

The practice of one worker simultaneously operating a great number of machines became widespread in many industries, particularly the war, machine-building and textile industries.

In order to improve the qualifications of workers engaged in mass trades, industrial training at the various enterprises was organized on a wide scale. Stakhanovite schools, all kinds of courses, proficiency schools, production seminars, and so forth were established. The principal method of teaching workers who had never been employed in industry before was individual instruction by attaching each novice to some experienced worker.

The extensive development of Socialist emulation, the acquisition of techniques and new methods of organizing production, and the successes achieved in the vocational training of the workers were reflected in an increase of labour productivity and a decrease in the cost of production, particularly in the war industries. Between May 1942 and May 1945 the productivity of labour increased on the average in the industry of the U.S.S.R. as a whole more than 40 per cent, including a 47 per cent rise in the aviation industry, a 48 per cent rise in the tank industry, a 54 per cent rise in the ammunitions industry and a 55 per cent rise in light industry.

The saving resulting from the lowering of production costs of comparable industrial production amounted to more than 50,000 million rubles during the war.

One of the most important factors augmenting production during the war was capital construction.

Beginning with 1942 investments in industry steadily rose and by the end of the war the aggregate volume of capital construction throughout the Soviet Union had reached the pre-war level. The number of building operations considerably increased in 1942-44. According to the figures of the Industrial Bank, it financed the building of 10,315 new industrial establishments in 1942, 10,418 in 1943 and 20,647 in 1944.

Owing to the priority of tasks assigned to the war economy serious changes were introduced in the structure of industrial investments. Of particular national-economic importance was the great expansion of capital construction and the commissioning of new establishments in the iron and steel, coal and electric-power industries.

During the latter part of the war the plant put in operation in these industries exceeded the corresponding peacetime figures.

Great attention was paid during the war years to enhancing the effectiveness of investments. The consistent application of the policy of concentrating material supplies and manpower reserves at priority construction sites, the high degree of mechanization as well as the extensive use of prefabricated parts, the introduction of high-speed building and equipment installation methods, and the judicious use of simplified and lighter parts produced sharp cuts in building operation time schedules.

Blast furnaces, for instance, used to take two or three years to build before the war. Thus blast furnace No. 3 at the Azovstal plant with a volume of 1,300 cubic metres was built before the war in two years and four months. The same kind of blast furnace was constructed at Magnitogorsk during the war in less than eight months. At the Magnitogorsk plant the seventh coking battery put into operation in July 1944 and built by the production-line method was finished in one-third the time it would have taken before the war. Rolling mill "450" at the Makeyevka factory was built before the war in one year and eight months. During the war a similar mill was put up at the Kuznetsk factory in five months. At a number of electric power stations the big boilers were installed in two or three months during 1940-45 whereas before the war such work would have taken about half a year. Before the war the sinking of a mine took 2-2½ years; during the war years this period was reduced to 1-1½ years.

The reduction in building time schedules and in the

volume of uncompleted building rendered investments highly effective.

During the war years Soviet industry was enriched by the addition of a great number of new enterprises: the Altai tractor plant, Amurstal, the Chelyabinsk metal plant, an aluminum works in Stalinsk (Kuznetsk Basin), 2 pipe-rolling mills in the Urals, a number of new blast and open-hearth furnaces, the Chelyabinsk, Bezymyansk and other electric power stations, hundreds of new mines, etc. Ten blast furnaces, 53 open-hearth furnaces and 2 Bessemer converters as well as 18 rolling mills and 12 coking batteries were added to the iron and steel industry plant during the war years in the Soviet rear.

Early in 1943 the work of rehabilitation undertaken immediately after their liberation in the districts that had formerly been occupied greatly contributed to the industrial output.

The working people of the Soviet Union displayed great labour heroism in restoring the factories, mills and mines destroyed by the German hordes. A group of steel smelters at the Stalino steel mill (Donets Basin) did not leave its shop for days on end when the work of restoring open-hearth furnace No. 1 was reaching its critical point. At the Mariupol turbine works a powerful motor was restored in four months by a brigade of workers headed by foreman Ossipenko, while the time schedule allowed eleven months. At the Frunze plant a blast furnace was restored 120 days ahead of schedule.

In the course of the work of rehabilitation both workers and engineers had to solve numerous complicated technical problems. At the Kuibyshev pipe-rolling mill in Mariupol a 2,200 kilowatt motor which had been blown to pieces that seemed good only for scrap was reassembled in a short period of time and again put into operation. Workers and engineers employed at the Petrovsky metal plant assembled six locomotives from parts of demolished locomotives that had lain scattered along the tracks. A huge blast furnace

at the Azovstal plant which had been moved off its base and was slanting as the result of an explosion was put back in place without dismantling.

The Moscow coal basin, for instance, was completely cleared of the German invader in December 1941. Eight months later its output had already reached the pre-war level and at the beginning of 1945 exceeded it more than 2-fold.

In September 1943 the Donets coal basin was returned to the Soviet fold. Like the Moscow Basin, the Donets Basin had been completely devastated by the Germans. Its rehabilitation became one of the most important economic tasks confronting the country.

The very first anniversary of the liberation of the Donets Basin marked a total inauguration of 752 mines, 102 of which were of large size. In 1944 Donets Basin coal production multiplied five times as compared with the preceding year, and at the end of 1945 this coal region yielded half its pre-war output.

Great achievements were recorded in the rehabilitation of the iron and steel industry in the southern and central regions. In 1944 alone 11 blast furnaces, more than 40 open-hearth furnaces, 25 rolling mills and upward of 50 coking batteries were rehabilitated in the Donets Basin and the Dnieper region. At the Red October high-grade metal plant in Stalingrad 7 open-hearth furnaces, a blooming mill and a number of rolling mills had been restarted by the beginning of 1945. In the Central regions iron and steel mills were being restored at a rapid rate—the Kosogorsk, Novaya Tula, Lipetsk and other plants. At the beginning of 1945 approximately 30 per cent of the pre-war plant producing pig iron, 35 per cent of the plant producing steel, 46 per cent of the plant producing rolled products and 40 per cent of the plant producing coke had already been rehabilitated in all the liberated districts.

By the end of the war several dozen electric power stations had been rehabilitated in the liberated districts, which greatly facilitated rehabilitation in general.

The machine-building industry was likewise very successful in plant rehabilitation during the war. Even before the war was over huge plants, such as the Electrosila, the Bolshevik, the Izhor factory, the Krasny Putilovets and various shipyards, all located in heroic Leningrad, had been restored and had resumed production. The Stalingrad tractor plant was also restarted. A number of large machinery plants were rebuilt and restarted in the Ukraine.

The following figures will summarize the vast extent of wartime capital construction and rehabilitation. During the three war years 1942-44 capital construction in the U.S.S.R. totalled approximately 79,000 million rubles (exclusive of the value of evacuated equipment). In the eastern districts of the country 2,250 large industrial establishments were built and put into operation. In the districts liberated from German occupation over 6,000 factories, mills and mines were rehabilitated. During the war 100,000 metal cutting machine tools, 24 blast furnaces, 128 open-hearth furnaces, 70 electric furnaces, 56 rolling mills, coal mines representing an annual capacity of 73 million tons and power stations of an aggregate capacity of 3,400,000 kilowatt were inaugurated in the Soviet Union.

The wartime achievements of industry located in the East of the U.S.S.R. were particularly great. The resiting of industry and the vast scale of new construction in the eastern parts of the Soviet Union largely redrew the industrial map of our country.

Industrial plant in the Urals exhibited the greatest expansion. Hundreds of factories and mills that had been evacuated from the South of the U.S.S.R. and numerous new enterprises started operations in the Urals during the war years.

During the same period considerable industrial growth could be observed also in Western Siberia, Kazakhstan, Uzbekistan and the Middle Volga area.

The wartime changes in the territorial distribution of our industry are of great importance to the national economy.

Their effect has transcended by far the duration of the war. The wartime industrial development of our country's eastern districts fully accords with the directives of the Party and in particular with the decisions of its Eighteenth Congress on bringing industry nearer to the sources of raw material and the centres of consumption, on the all-round development of the most important economic regions of the U.S.S.R., the creation of duplicate establishments in the East, etc. During the war considerable progress was thus accomplished in the more even and rational distribution of productive forces throughout the country.

The general development of industry during the war period may be described as follows:

Beginning with January 1942 there was a steady increase in the country's industrial production. By the end of 1942, Soviet industry's gross output was more than one and a half times the output at the beginning of that year. In 1943 it exhibited still further growth, the gross industrial output being 17 per cent above the figure for the preceding year.

The increase was particularly great in the East of the U.S.S.R. During the first half of 1945 industrial output in the East was twice that of the corresponding period of 1941, war industrial output exhibiting a 5.6-fold increase. Industrial output of the Urals multiplied 3.6 times during the war period, of Siberia 2.8 times, of the Volga area 3.4 times.

The great economic effort of the Soviet people found its most striking expression in the results achieved by the war industry. During the war the production of airplanes in the U.S.S.R. increased 4-fold, of tanks 7 to 8-fold, of guns 6 to 7-fold and of ammunition almost 4-fold.

In 1915-17 Russia's gross output of large-scale industry was valued at 33,000 million rubles (in fixed prices), whereas the value for 1942-44 in the U.S.S.R. (principally its eastern districts) was 361,000 million rubles, *i.e.*, almost eleven times the former figure.

The Soviet Government and the Communist Party were able to make good use of the material possibilities created during the Stalin five-year plan periods for the establishment of a smoothly operating and expanding war industry.

Throughout the last three years of the war the industry of the U.S.S.R. not only supplied the front with artillery, aircraft, tanks, ammunition and other types of matériel in the necessary quantities but also accumulated corresponding reserves. And the quality of our armament was superior to that of the Germans for the entire length of the war.

The policy of Socialist industrialization saved the Soviet Union from enslavement and desolation. The Soviet Union achieved not only military but also economic victory over the enemy.

"Just as the Red Army gained a military victory over the fascist troops in a long and severe struggle, fighting singlehanded," said Comrade Stalin, "so the working people in the Soviet rear gained an economic victory over the enemy in single combat against Hitler Germany and her accomplices."

This is unimpeachable testimony that the economic foundation of the Soviet State is incomparably sounder and more tenacious of life than the economy of any other state.

CHAPTER VII

INDUSTRY IN THE U.S.S.R. UNDER THE POST-WAR STALIN FIVE-YEAR PLAN

After the victorious termination of the Great Patriotic War, the Soviet people returned to their peaceful pursuits. Our Socialist country was confronted with the stupendous problems of post-war development.

In finding solutions for these problems the advantages of the Soviet system, the Socialist system of our national economy, have become once more fully apparent.

In the United States industrial production has declined considerably since the end of the war. Unemployment is again assuming a mass character. Already several million people are out of work and the wages of those still holding jobs are being cut. As a result of the sky-rocketing of prices dictated by the capitalist monopoly interests the subsistence minimum has risen more than 50 per cent since the outbreak of the war. A sharp drop in real wages has ensued. The United States is on the eve of a profound economic crisis. In England this crisis has already set in. France is in great economic straits. The purchasing power of the working people of England and France is likewise falling steadily, thereby aggravating the internal situation in these countries.

Thus the post-war economics of the capitalist countries is marked by a shrinking of production, a growth of unemployment and a lowering of the living standards of the labouring masses.

Suffering none of the incurable ailments of capitalism, such as crises and unemployment, post-war economic life in the Soviet Union follows an entirely different course.

The Socialist, planned system of economy opens up before the Soviet toilers unlimited possibilities of an early healing of the wounds inflicted by the war and of steadily expanding the national economy.

In his historic speech of February 9, 1946, Comrade Stalin held out to the Soviet people the magnificent prospect of new tremendous progress for the national economy of the U.S.S.R.

In this speech Comrade Stalin pointed out that the Soviet Union during the next few quinquennial periods must raise industrial output to approximately three times the pre-war volume.

Comrade Stalin assigned the task of bringing annual pig-iron smeltings to 50 million tons and steel smeltings to 60 million tons, as against 15 million tons and 18.3 million tons respectively in 1940. This means that 3 to 3.5 times as much pig iron and steel will have to be produced.

Coal output must increase from 166 million tons in 1940 to 500 million tons, *i.e.*, 3-fold, and oil production correspondingly from 31 million tons to 60 million tons, *i.e.*, 2-fold.

Naturally, such an augmentation of production is beyond the possibilities of a single five-year period. "This will need, perhaps, another three five-year plans, if not more," said Comrade Stalin. "But it can be done, and we must do it."

Fulfillment of the titanic tasks mapped out by Comrade Stalin constitutes the essence of the Soviet Government's entire post-war economic construction program. This program is designed to accomplish these principal economic tasks and to effect a gradual transition of our country from Socialism to Communism.

An important step toward the achievement of the targets set by Comrade Stalin is to be made even during the first post-war quinquennial period (1946-50).

In no country in the world were the ravages of war as great as in the Soviet Union.

As a result of the havoc wrought by the fascist invaders and the divorcement of millions of people from productive work, Soviet industry and the national economy as a whole possessed toward the end of the war considerably less plant and produced considerably less than in 1940. In consequence living standards dropped.

The post-war five-year plan has as its principal economic and political objective: to rehabilitate the economy of the war-devastated regions, to restore and subsequently considerably exceed the pre-war level of production of industry and agriculture throughout the country.

Despite the immense destruction caused by the enemy, the rehabilitation of Soviet industry after the war is being achieved at a much more rapid pace than during the restoration period following World War I, the military intervention and the Civil War.

As the various branches of industry reach their pre-war level, they continue to develop at very high speed, so that in 1950 their gross output will amount to 205,000 million rubles (in 1926/27 prices), or 48 per cent in excess of pre-war.

The rapid restoration of industry in the liberated regions, one of the most important economic objectives of the new five-year plan, is an important part of the general program of the industrial advancement of the U.S.S.R. It is contemplated that industrial output in these districts should multiply 3.9-fold under the new five-year plan, which will ensure a 15 per cent increase over the pre-war level of their industrial output by the end of the period.

In order to reach the production level specified in the five-year plan, Socialist industry must achieve an average annual growth of output of 15,600 million rubles.

Such an enormous absolute augmentation of industrial production sets a record even for the U.S.S.R. During the restoration period of 1921-26, the average annual increase of industrial production was 2,000 million rubles, under the First Five-Year Plan it was 5,500 million rubles, under the Second Five-Year Plan 10,400 million rubles, and during the first three years of the third period 14,300 million rubles.

The production of means of production is of prime importance for the attainment of the goals set by the new Stalin Five-Year Plan. To rehabilitate hundreds of cities and thousands of factories and mills, provide the national economy with sufficient quantities of fuel and the transportation system with the requisite rolling stock and rails, satiate agriculture with machinery, implements of every description and chemical fertilizers, and considerably increase the productive capacity of light industry and the food industry, heavy industry must be given priority. It ensures the extended reproduction of the fixed and circulating funds in all branches of the national economy. Hence its rates of growth must exceed those of all other industries.

The law on the new five-year plan provides as follows: *"To give priority to the restoration and development of heavy industry and railway transport, without which the rapid and effective rehabilitation and development of the entire national economy of the U.S.S.R. would be impossible."*

It is the primary function of heavy industry to insure the laying of a solid foundation for the metal and electric-power industries upon which to develop the whole of the national economy.

In the development of the iron and steel industry under the new five-year plan vast importance attaches to the rehabilitation of the southern metal plants. By the end of the new five-year period the 1940 level of output of the iron and steel industry as a whole will be exceeded 35 per cent: in 1950 the Soviet Union will receive 19.5 million tons of

pig iron, 25.4 million tons of steel and 17.8 million tons of rolled metal.

The new five-year plan also sets new high target figures for the non-ferrous metal industry. Under this plan copper output is scheduled to increase 1.6-fold, aluminium 2-fold, magnesium 2.7-fold, nickel 1.9-fold, lead 2.6-fold and zinc 2.5-fold.

Coal output is scheduled to mount to 250 million tons in 1950, 51 per cent above the 1940 level. Thus the rate of increase provided by the new five-year plan for coal production is somewhat higher than for industry as a whole and for transport. This will facilitate the improvement of the coal supply for the national economy.

Progress in coal production is to be attributed largely to the restoration of the Donets Basin, a task which must be completed by 1949. In 1950 the Basin's coal output will be 88 million tons as against 85.5 million tons in 1940. The eastern coal fields will likewise develop at a rapid rate under the new five-year plan.

In the oil industry pre-war output and refining levels are to be attained in 1949 so that in the year following 35.4 million tons of oil will be obtained as against 31 million tons in 1940.

Rapid progress in the development of the national economy of the U.S.S.R. depends to a large extent on the rapid extension of its electric-power base. Accordingly, the generation of electricity is to reach a total of 82,000 million kilowatt-hours in 1950, 70 per cent in excess of the pre-war figure.

Higher rates of increase of power generation in comparison with the rates scheduled for the national economy as a whole, tend to lessen the scarcity of electric power supply experienced in particular districts. It makes possible a more extensive use of electricity in all spheres of the national economy and ensures adequate current for the national economy.

The new five-year plan stipulates rapid rates of extend-

ed reproduction of the fixed fund in all the branches of the national economy.

Already before the Great Patriotic War the machine-building industry held a more important place in the U.S.S.R. in aggregate industrial production than in any other country. Under the new five-year plan its relative importance is increasing. This is indicative of the high speed with which the process of renewing the most active part of the fixed fund, namely equipment, is proceeding in the U.S.S.R. At the end of the five-year period the number of metal-cutting machine tools in the national economy of the U.S.S.R. will total 1,300,000 or approximately 30 per cent above the United States total for 1940.

The manufacture of locomotives is to exceed the pre-war level 2.4-fold in 1950, of railway cars 2.9-fold, of automobiles 3.4-fold, of tractors 3.6-fold and of textile machinery 4-fold.

High target figures have been assigned under the new Stalin five-year plan for the chemical industry. It will exert a steadily growing influence on the development of the entire national economy and its technical progress. In 1950 the pre-war level of the chemical industry is to be exceeded 50 per cent. Particularly great attention is being given to the development of the production of mineral fertilizers, made essential by the set purpose of greatly increasing crop yields.

One of the *sine qua non*'s of capital construction plan fulfilment as mapped out in the current five-year plan is a rapid expansion of the building-materials industry. In 1950 the Soviet Union will produce 10.5 million tons of cement, a 1.8-fold increase in comparison with 1940. The production of slate will increase 2-fold, of window glass 1.8-fold, etc. The development of the building-materials industry contemplated by the plan will provide a firm material base for the completion of the capital construction program.

The rapid progress of heavy industry will make it pos-

sible to supply all branches of the national economy with much greater quantities of material and machinery. During the war heavy industry, converted to a considerable extent to production for the front, was unable to ensure the normal reproduction of the fixed and circulating funds of light industry and the food industry, of the transport systems and of agriculture. Today Soviet heavy industry is in a position steadily to increase its supply of equipment and raw materials to all branches of the national economy. It can therefore considerably exceed the pre-war volume of material and machinery supplied to the national economy. The interrelations between the technique of production of heavy industry and of the other branches of the national economy will thus be extended and strengthened.

Railway transport will receive 7,585 locomotives and 472,500 freight cars (in 2-axle equivalents) during the course of the new five-year plan period as against 5,960 locomotives and 255,000 freight cars (in 2-axle equivalents) received during the Second Five-Year Plan period.

Under the new five-year plan agriculture is to receive 720,000 tractors (in conventional 15 horsepower units) and 4,500 million rubles' worth of farming machinery whereas during the Second Five-Year Plan period it received 512,000 tractors and 1,900 million rubles' worth of farming machinery. Under the Second Five-Year Plan 8.7 million tons of mineral fertilizers were produced; in 1946-50 that figure is being raised to 17 million tons.

Decidedly improving the living conditions of the working people of the U.S.S.R. constitutes one of the most important tasks under the new Stalin five-year plan. To accomplish this it is necessary that in addition to speeding the progress of agriculture those branches of industry which produce articles of consumption should also be restored and further developed.

During the First Post-War Five-Year Plan period branches of industry producing consumer goods are developing at a very rapid rate—17 per cent a year on the average—

sufficient to double the output of these industries during the quinquennial period.

Local industry, both state and cooperative, is occupying an important place in the development of the production of articles of consumption under the new plan. During the war this industry was largely engaged in production for military purposes. At the end of the war state and cooperative local industry ceased to fill such orders and resumed the production of general consumer goods and local building materials. In 1950 local state and cooperative industry will have increased the manufacture of furniture by 30 per cent and of knitgoods by 25 to 30 per cent compared with 1940.

The great increase in volume of output is to be paralleled by a richer assortment of goods produced and an improvement in their quality. These are among the most important targets of all industry, including the branches producing articles of consumption. There is to be a decided improvement in the assortment of woven goods, needle-trades wear, knitgoods, footwear, etc.

The carrying out of the huge construction program is essential if industrial output is to achieve the target figure specified in the five-year plan.

During the plan period it is necessary not only to make good the loss of fixed funds incurred by the war but also to ensure the further augmentation of productive capacities in all branches of the national economy.

Rehabilitation and new construction on a large scale are a fundamental condition of further progress in the national economy during the post-war five-year period.

The plan allots 250,300 million rubles for centralized investments in the national economy of the U.S.S.R. during 1946-50.

The principal part of these investments is designed to strengthen still further the industrial might of the U.S.S.R. Capital construction in industry during these five years will total 157,500 million rubles (in estimate prices of 1945).

This means that investments in industry under the new plan will be 1.5 to 2 times the amount invested under the first and second five-year plans combined.

In the course of the post-war quinquennial period, 5,900 industrial establishments are being restored or built, *i.e.*, 1,400 more than were put into operation under the Second Five-Year Plan. As a result, in 1950 the fixed fund of the national economy of the U.S.S.R. will reach a total of 1,130 million rubles, 8 per cent in excess of the pre-war figure.

Productive capacities are increasing greatly in all branches of industry. In the iron and steel industry, for instance, 45 blast furnaces, restored and new, 180 open-hearth and electric furnaces, 104 rolling mills and 63 coking batteries are being put into operation. This implies that during one quinquennial period alone our country will augment its smelting and metal-rolling capacity by 3 to 4 times the capacity which Russia was able to create under tsarism in the course of many decades.

In the Donets Basin coal industry 182 major coal mines are being restored and in addition 60 new pits are being sunk.

The following figures strikingly illustrate how much work has been required to rehabilitate the Donets Basin. To restore the mines it was necessary to pump out 650 million cubic metres of water, *i. e.*, as much as is contained in a lake measuring 70 square kilometres and 10 metres deep. The work involved in clearing the clogged mines would suffice to dig and timber a tunnel extending from Moscow to Paris. The dwellings requiring rebuilding in the Donets Basin are numerous enough to house 700,000 to 800,000 people.

No country in the world ever engaged in restoration work on such a gigantic scale. It took five to six years to restore the coal mines of the du Nord and Pas-de-Calais basins destroyed by the Germans during World War I although the destruction was only one-fifth as great as in the Donets Basin.

Numerous buildings are also going up in the other coal fields of the U.S.S.R. As a result mines possessing an aggregate capacity of 183 million tons are starting operations under the present plan.

Restoration and construction work in the field of electrification is carried on with such speed and on such a large scale that the growth of capacities of electric power stations exceeds the growth of plant in other branches of industry. The aggregate electric power capacity added under the five-year plan will amount to 11,700 million kilowatt, so that the estimated capacity of electric power stations will be 22,400 million kilowatt in 1950, that is, will double during the quinquennium.

Dozens of plants are being restored or built during the five-year period for the machine-building industry.

Industries producing articles of consumption are also doing much capital construction and adding to their fixed fund. During the five-year plan period cotton spinning and weaving mills start operations in Tashkent, Stalinabad, Ferghana, Novosibirsk, Astrakhan and in the Georgian Soviet Socialist Republic. New cotton mills are starting to work in Ufa, Chelyabinsk, the Altai territory and Northern Kazakhstan. Thirteen artificial silk and fibre mills, a number of shoe and hosiery mills, etc., are being rehabilitated or newly built. Scores of new and hundreds of restored factories are starting production for the food industry.

Rapid technical progress in all branches of the national economy, running parallel with the development of new and restorational capital construction, is one of the cardinal conditions for a powerful upswing of production in general.

In the speech he delivered on February 9, 1946, Comrade Stalin set the task of not only equalling in the very near future the achievements of science abroad but of excelling them. In accordance with this directive, the law on the five-year plan provides for further "technical progress in all branches of the national economy of the U.S.S.R."

Great attention is paid during the post-war five-year

period to questions of mechanizing production processes, particularly laborious processes.

In the iron and steel industry such processes are being further mechanized not only in blast furnace, open-hearth furnace and metal-rolling departments, but in all the auxiliary shops, such as in mine, coal and coke yards and in transport departments.

In the coal industry all processes are to be completely mechanized. The specified rates of mechanization are exemplified by the provision that during the five-year plan period mechanical appliances employed in the coal industry will multiply 3- to 4-fold in comparison with the pre-war total. The total mechanization of coal mining will provide all the conditions necessary to insure against interruptions in the various processes of coal extraction and to decisively change the entire production scheme of the mines.

Many laborious processes are still unmechanized in the building-materials industry, particularly the cement industry. The introduction of electric excavators, large-size dump cars, grab cranes, etc., is of substantial assistance in the mechanization of these processes.

The timber industry continues to be one of the most laborious and inadequately mechanized branches of the national economy. The law enacting the new five-year plan stipulates that "the cutting and hauling of timber be transformed from an industry in which manual labour predominates into a developed mechanized industry with permanent and qualified workers." By the end of the quinquennial period haulage of logs from forests to mills, etc., is to be mechanized 55 per cent, while felling and hauling through forests are to be mechanized 75 per cent.

In the machine-building industry such progressive methods of production as high-speed milling, drilling and grinding, founding under pressure and in coquilles (metal forms), automatic welding, the tempering of metals by high frequency currents, and so forth, are being developed on a large scale.

Oil executives are expected to develop high-speed methods of drilling, particularly turbine drilling, to a maximum. Electric power stations must employ the most up-to-date types of equipment, using steam of high pressure and temperature.

During the new quinquennial period automatic control must be widely introduced in production processes. In the iron and steel industry, for instance, the plan provides that more basic machinery be equipped with automatic control. Factories and works of the non-ferrous metal industry engaged in the concentration of ores are also to be equipped with automatic control and regulation of technological processes.

The introduction of automatic equipment is especially widespread at electric power stations and grids, and in particular at hydro-electric power stations, which are to be rendered completely automatic first and foremost. The plan further provides not only for the introduction of separate automatic and semi-automatic machines but also for the automatic equipment of entire machine-tool rows.

The chemical industry, the cellulose and paper industry, the weaving and footwear industries and a number of branches of the food industry are likewise rendering their technological processes and production controls automatic to an increasing extent.

The extensive introduction of automatic control excellently illustrates the new technique characteristic of the period of Communism. The maximum employment of automatic machinery in production ensures a maximum increase in the social productivity of labour.

The electrification of production is also making great strides under the new five-year plan. The rapid expansion of the electric power base under the plan makes it possible to use electricity in production processes still more systematically and extensively.

Separate automatic electric drive is now widely used in industry. At the same time there is now being adopted a sys-

tem of electric drives organically connected with the operative mechanisms of the machine. Modern multi-cut lathes, for instance, will be driven by several motors, and so will high-speed paper-making machines.

Under the new five-year plan electric power will be used directly in technological processes (electric smelting, electrochemical production, electric welding) on a much greater scale.

In applied chemistry, intensification of technological processes, which accelerates these processes, raises the efficiency of the machinery and reduces the labour required, is a highly important trend of technological progress.

Oxygen-blasting is one of the methods of such intensification. Under the current plan oxygen-blasting is employed in the iron and steel industry, the gasification of coke, the manufacture of nitric and sulphuric acids, and elsewhere. Combination based on complete, all-round utilization of raw materials is being widely developed. Still more intimate and diversified are the forms of combining the iron and steel industry with the coke industry and its by-products, with other branches of the chemical industry and with the building-materials industry. There are great prospects in store for combination based on the complete utilization of the waste products of sawmills and of cellulose and paper factories.

The establishment of new branches of industry is receiving serious attention. During the current five-year plan period the gas industry, the new industries producing organic synthetic products and alcohol and synthetic rubber from non-food raw materials, as well as the artificial silk and staple fibre industries, are being greatly developed.

In addition to these trends in technical progress which have already become clearly defined, our scientific workers, engineers and technicians work extensively on finding new ways and means of developing techniques.

Serious attention, for instance, must be bestowed during the present quinquennial period on the technique of jet

propulsion, the principle of which was first propounded by the brilliant Russian scientist Tsiolkovsky. The further harnessing of jet propulsion and its employment in the national economy would lead to new record-breaking speeds and capacities.

Much is being done to develop the technique of radio location.

Of great importance is the mastering of the transmission of constant high-tension current over long distances (1,000 kilometres and over), the maximum distance for the transmission of such current being 400 kilometres today.

The plan provides for extensive research in nuclear energy and the possibility of employing it for peaceful purposes. To convey an idea of the importance of this problem suffice it to state that the atomic fission of one kilogram of uranium releases as much energy as the combustion of 1,700 tons of gasoline. The employment of atomic energy for peaceful purposes will inaugurate a new epoch in the development of material production.

Under the new five-year plan technical progress in the field of production is one of the most important pre-conditions for raising the quality indices of work in industry.

Under the new five-year plan labour productivity is scheduled to grow 36 per cent in industry and 40 per cent in construction in comparison with 1940. Increased labour productivity thus becomes a vital factor in the expansion of production as planned for the new quinquennial period.

In addition to more machinery and improved organization of production increased labour productivity depends also largely on stricter labour discipline, improvement in the organization of production, a constant effort to secure progressive rates of utilization of raw material, equipment and fuel. Highly important is also the work carried on to improve qualifications and train up skilled personnel.

The proper organization of wage schedules is a valuable means of improving labour productivity. The new five-year

plan contains provisions calculated to stimulate the material interest of each worker in the results of his work. This is achieved, in the first place, by extending the practice of simple piece work and progressive wage scales for piece workers and, secondly, by an upward revision of the wage schedules themselves.

Socialist emulation has been a powerful factor improving labour productivity and accelerating Socialist reproduction on a progressively increasing scale at all the stages of Socialist construction. Under the new Stalin five-year plan Socialist emulation is becoming still more widespread and furnishes the basis for a steady increase in the productivity of labour.

Improved technique and organization of production, as well as increased labour productivity, considerably reduce production costs during the current five-year plan period. Industrial production costs are to drop 17 per cent compared with 1945, while quality of output is to improve simultaneously. The reduction of the cost of construction is to be 12 per cent. The total saving to the national economy expected from the lowering of production expenditures is set at almost 160,000 million rubles for the five-year period, a colossal amount, to be sure.

Comrade Stalin's speech of February 9, 1946 and the new five-year plan law adopted by the Supreme Soviet of the U.S.S.R. evoked a new and mighty upsurge in the production effort of the working people of the U.S.S.R.

In all branches of Soviet industry good production records are scored not only by individual workers, brigades, sections and shops, but often by the entire staff of the enterprise.

In the iron and steel industry there is extensive emulation for the improvement of use factors of blast and open-hearth furnaces, for greater assortment of rolled metal products and improvement of their quality, for greater labour productivity and lower metal production costs.

In the coal industry there is an extension of the movement begun on the initiative of Nikolai Lukichev and

Leonti Boriskin, coal cutters, to accelerate preparatory work and reconditioning at the mines.

In the textile industry the campaign to raise productivity of labour and learn from the experience of multiple-loom operators is gaining momentum.

The mighty wave of Socialist emulation which has swept the entire Soviet Union, and the colossal organizational work performed by the Bolshevik Party and the Soviet Government, have borne splendid fruit. The national economy of the Soviet Union is growing unintermittently.

The first year under the post-war Stalin Five-Year Plan was a year of new successes achieved by Soviet industry.

In accordance with the provisions of the law on the five-year plan, the post-war reconversion of industry was completed in the main in 1946. This means that the vast majority of enterprises have been switched back to peacetime production.

Comparing 1946 with the preceding year, industrial production showed an increase in every line. Pig-iron smelting rose 12 per cent, steel smelting 9 per cent, rolled-metal production 13 per cent, coal output 10 per cent and electric power generation 10 per cent.

Much progress was achieved in 1946 by the Soviet machine-builders, who multiplied the output of trunkline locomotives 30-fold and of freight cars 29-fold, increased the manufacture of motor trucks 38 per cent, of passenger automobiles 26 per cent, of machine tools 34 per cent, of tractors 72 per cent, of combines 350 per cent and of threshers 280 per cent. The output of woven fabrics, footwear, hosiery, meat, butter and fish also increased substantially in 1946.

In the aggregate the gross output of civilian goods for the whole of Soviet industry increased 20 per cent in 1946 as compared with 1945.

This remarkable increase in production was based on the successes achieved during the first year of the new five-year period in the domain of capital construction.

During 1946 about 800 state enterprises were built or rehabilitated, and put into operation. Their number included 6 blast furnaces, 18 open-hearth furnaces, 10 rolling mills and 36 big mines.

The work of rehabilitation, which was carried on on a wide scale, contributed largely to the increase in industrial production. In the districts that had been occupied by the enemy, industrial output increased 28 per cent in 1946 compared with 1945.

The national-economic plan for 1947 (adopted by the Council of Ministers of the U.S.S.R.) provided for a new and pronounced development of the national economy. It mobilized the Soviet working people for new exploits on the labour front.

1947 marked the 30th anniversary of the Great October Socialist Revolution. In honour of this event Socialist emulation was practised on a country-wide scale. In the various factories, mills and mines, the workers pledged themselves to fulfil their annual programs in advance of schedule, to finish the entire year's plan by November 7, the day of the celebration of the Great Socialist Revolution.

The vitalizing patriotism and the moral and political unity of the Soviet people, their profound consciousness of their duty to country and state, and the cultural and technical progress of the working class are once more strikingly manifested in the Union-wide Socialist emulation and the development of the Stakhanov movement during the post-war five-year plan period.

During the first two years of the current quinquennial period there was a new vintage of Stakhanovites. Gerasim Zaporozhets, who has achieved a new high record for coal cutting, has become famous throughout the land. Similar glory has come to Mikhail Kucherin, the Mariupol steel-smelter famed for the speed of his smelting; to Elizar Kuratov, forgesman first class of the Gorky automobile plant, who has far outstripped all American records for labour productivity; to Maria Volkova, a weaver of one of the Orekhovo-

Zuyevo cotton mills, who considerably increased the number of looms simultaneously operated by her; to Vasili Matrosov, a cutter of the Paris Commune shoe factory in Moscow, the initiator of a movement to have each factory department plan its own way of introducing Stakhanovite methods of work; Pavel Bykov, a turner at the Moscow polishing machine plant, who greatly increased the efficiency of his machine by rationalizing the treating of parts.

Engineers and technicians also have joined the great movement for Socialist emulation. On the initiative of Alexander Ivanov, a technologist of the Kirov plant in Chelyabinsk and of Nikolai Rossisky, senior foreman of the Moscow Kalibr plant, engineers and technicians are engaged in friendly rivalry all over the country for the best method of rationalizing technology, for high, Stakhanovite labour productivity on the part of all the workers of a whole enterprise, for the utilization of all internal production reserves.

The 30th anniversary of the Great October Socialist Revolution was celebrated by the Soviet people by tremendous achievements in the struggle to fulfil the new five-year plan. Filled with enthusiasm for the restoration and further development of the national economy, the Soviet people are making great progress in every one of its branches. It has already become a glorious tradition in the U.S.S.R. for Stalin five-year plans to be not only fulfilled but over-fulfilled. This tradition will be creditably upheld also in the case of the post-war Five-Year Plan.

The statements published by the State Planning Commission of the U.S.S.R. on the execution of the state plans for the restoration and development of the national economy covering 1946 and 1947, respectively, contain figures illustrating the tremendous successes achieved in our country during the first two years of the post-war Stalin Five-Year Plan.

The vast majority of branches of industry not only fulfilled but over-fulfilled the plan targets for 1947.

In the second year of the present five-year plan period gross production of the whole of industry increased 22 per cent in comparison with 1946. The smelting of pig iron rose 14 per cent, coal production 12 per cent, oil production 19 per cent and electric power production 15 per cent.

Development of the most important types of production—the manufacture of locomotives and railway cars, of automobiles and tractors, of combines, textile machinery, electrical equipment, metal cutting machines, etc.—showed progressive rates of increase in 1947, which is having a very favourable effect on the further rapid development of the entire national economy of the U.S.S.R.

Industries producing articles of consumption also achieved considerable successes in 1947. The output of the textile and of light industry during this year alone increased 33 per cent.

As a result of the huge scale and the increased effect of the capital restoration work and new capital construction carried on in the liberated regions by the stintless efforts of millions of Soviet patriots, entire industrial districts are being regenerated and hundreds and thousands of enterprises are rising from their ruins. In 1947 the gross industrial output of the liberated regions was 33 per cent greater than in 1946.

On the basis of these high rates of growth the average quarterly level of production of the pre-war year 1940 was attained as early as the fourth quarter of 1947.

In fulfilment of the historic decision adopted by the plenary session of the Central Committee of the C.P.S.U.(B.) in February 1947, the Soviet peasantry raised and harvested an abundant crop. In 1947, the cereal crop yield reached the pre-war figure, with the gross cereal crop showing an increase of 58 per cent in comparison with 1946.

The year 1947 brought a substantial improvement in the living and cultural standards of the Soviet people. At the end of the year the rationing system was abolished and the system of the free sale of foodstuffs and manufactured

goods at reduced prices was instituted. The lowering of state retail prices meant a benefit to the working people of the Soviet Union amounting during the year to upward of 57,000 million rubles. Simultaneously with the abolition of the rationing system a monetary reform was instituted, which strengthened the currency of the country. The purchasing power of the Soviet ruble rose considerably, as did real wages of factory and office workers.

In 1948 the progress of the Soviet Union's national economy continues. During the first quarter of this year gross production of the whole of industry increased 32 per cent in comparison with the corresponding period of the preceding year. The smelting of pig iron gained 36 per cent during this quarter, the mining of coal 20 per cent, the production of oil 24 per cent, the generation of electricity 18 per cent, the manufacture of trunk-line locomotives more than 100 per cent and the production of tractors and farming machinery 130 per cent. During the same quarter there was also an increase in the volume of capital construction and in the productivity of labour.

These results evoked a new accession of strength and energy. They filled our hearts, the hearts of the Soviet people, with pride in our country, in our Soviet system, in our great and wise Bolshevik Party, in our Soviet system of economy which knows but one road, the road of growth, of uninterrupted progress. On the initiative of the politically advanced workers at the various enterprises the struggle for the fulfilment of the Five-Year Plan in four years is constantly gaining in scope.

Under the tried and tested leadership of the Bolshevik Party, under the guidance of its great leader and teacher, Comrade Stalin, the Soviet people will in a minimum of time heal the severe wounds inflicted by the war, will strengthen the might of the Soviet State still further and inaugurate a new era, an era of unprecedented economic and cultural prosperity for our Socialist motherland.