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RUSSIA'S SOVIET ECONOMY

JONATHAN CAPE LONDON

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TO

Ruth, Billy, Johnny, and Bobby

FOREWORD

By William Henry Chamberlin

THE RULERS of the Soviet Union have isolated their country from the outside world to a degree unmatched by any nation of comparable size, population, and political importance. Only a small number of diplomats and journalists and a very few miscellaneous visitors are allowed to reside in or to visit Russia.

It has always been dangerous for Soviet citizens to be on friendly and intimate terms with foreigners. A frequent sequel to such friendship was arrest and administrative exile. Now this prohibition has been made explicit in two laws, enacted by the Soviet Government since the war. One of these laws forbids intermarriage between Soviet citizens and foreigners. The other makes it a crime for any Soviet citizen to give information on almost any subject to foreigners.

Firsthand grass-roots reporting of Soviet life has become virtually impossible. Newspaper correspondence from Moscow has been reduced to transcribing and sending what appears in the strictly controlled Soviet press. The Soviet Government has set up almost every conceivable roadblock in the way of the inquirer for truth about Soviet political, economic, and social conditions. One would search almost all Soviet publications in vain for references to such indisputable historical facts as the famine of 1932–33, the vast forced labor system, and the details of the purges of the ranks of the Communist Party which went on from 1934 until 1938. Less and less information has been made available on vital economic statistics. The information that is released is often of a clearly partial and propagandist character.

In view of these circumstances it is difficult to achieve a just and accurate view of the strong and weak points, the achievements and failures

of the Soviet regime. Yet to know Russia with realism, neither overestimating nor underestimating its potentialities, is an imperative necessity for Americans.

And it is this kind of knowledge which one finds in abundance in Mr. Schwartz's massive survey of the Soviet economy. The author has not only consulted, but thoroughly mastered and organized, an impressive mass of source material. He uses with judicious discrimination many citations from Soviet publications, balanced and amplified by references to the more serious studies of Soviet economy and Soviet life in foreign books and publications.

He has checked and rechecked his facts and figures; in many cases he has evidently gone through sheafs of dry reports in order to find one revealing clue. As a result of this vast amount of labor, intelligently directed, he has pierced the iron curtain to such a degree that one can learn from this book how a Soviet factory is run, how a collective farm is managed, what methods the Soviet Government employs in such fields as finance and foreign trade, how a Soviet trade union differs from the Western idea of such an organization.

Although the book is primarily concerned with the Soviet economy, it almost inevitably covers a much wider field. Politics and economics, under the Soviet system, are inextricably intertwined. The Soviet economic system, with its state ownership of everything from steel mills to barber shops, its compulsory planning of the entire national economy, could only function on the basis of a tight political dictatorship. So one cannot understand the workings of the Soviet economy without taking into account the dictatorial role of the ruling communist party.

And both Soviet politics and Soviet economics have roots deep in the Russian past. The reader will find suggestive parallels between the problems and methods of Peter the Great and those of Stalin, between the growth of serfdom in the medieval Russian state and the steady extension of the power of the state over the individual in the Soviet Union.

The author steers a happy middle course between accepting Soviet claims at face value and denying that there have been any Soviet achievements at all. He emphasizes the tremendous forward leap in the output of the heavy industries, chemicals and machines, coal and steel, and the accompanying development: an increase in the number of trained engineers, scientists, chemists, technicians. He points to the

growth in public health service, while pointing out, on the basis of Soviet publications, that the quality of this service often leaves much to be desired.

At the same time he clearly indicates the tremendous human cost involved in such measures as the forced pace of industrialization and the collectivization of agriculture. As Mr. Schwartz builds up, on the soliddest kind of factual foundation, his picture of Soviet economic vicissitudes during the last thirty-three years, one is often reminded of a brilliant phrase employed by the great Russian historian, V. O. Klyuchevsky, in describing the growth of the medieval Muscovite state. "The state," writes Klyuchevsky, "swelled. The people shrank."

And when the Soviet record in improving the condition of the average Soviet citizen in such bread-and-butter things as food and clothing and housing is put to the test, the result is negative. Mr. Schwartz proves from Soviet statistics that, while money wages rose about tenfold between 1928 and 1948, the cost of food and clothing went up substantially more. And the housing situation in the cities and towns, as the author shows with frequent references to Soviet sources, has shown steady deterioration. New building has not kept up with the very large increase in the urban population, owing partly to industrialization, partly to natural growth of population.

The author frequently returns to the important point that the consumer is the forgotten man, or woman, in the Soviet Union. This is because of the absence of competition in the system of state and cooperative trading, and the lack of any free market incentive to win the consumer's favor.

Much of the emotional sympathy which communism has aroused outside of Russia is due to the belief that it has somehow helped the underdog and made for general equality, even at a fairly low standard of living. Mr. Schwartz shows conclusively that both these views are illusions. Nowhere could one find a perpetual underdog class so maltreated, so utterly wretched and without hope, as the slave laborers in the Soviet concentration camps. The author handles this subject with notable restraint and unwillingness to go farther than the definitely proved facts seem to warrant. His judgment is all the more impressive:

"The conditions under which these prison laborers live and work, as described by those who have been through the experience, are appalling.

Semi-starvation is apparently chronic, and great brutality is common in the conduct of guards and supervisors. Lodging is of the poorest and usually most inadequate for the rigorous climates in which many of the camps are located. Workers apparently receive some small monetary payment, but far less than that received by ordinary hired workers."

The author subjects data on Soviet wage and salary scales and taxation to careful examination. The conclusion which emerges from his research is that the spread in income between the skilled and unskilled worker, between the average worker and the members of what might be called the Soviet bourgeoisie—the managers and engineers; the favored writers, scientists, and other intellectuals; the high-ranking bureaucrats, military, police, and civilian—is often wider than one would find in the United States. The general Soviet standard of living, in terms of consumer goods and services, is immensely lower than that of the United States and substantially below that of Western Europe. But what there is seems to be at least as unequally distributed. A suggestive straw in the wind is the fact that about ten per cent of the population owns about two thirds of the deposits in savings banks. That there are savings banks and government bond issues which pay interest is one of the many interesting features of the Soviet economy reported in this very detailed work.

The Soviet income tax is not so leveling in its effects as the same levy in the United States, or, still more, in Great Britain. The top surtax levy for most urban residents is thirteen per cent, which means that a Soviet citizen with an income running into hundreds of thousands of rubles can keep most of it for his own use.

At the same time the author makes it clear that the uses to which money can be put in the Soviet Union are limited. A man could not, for instance, purchase a big estate or start a factory or any other enterprise which employs workers for profit. The uses of income are largely restricted to satisfaction of personal consumption needs, and there is not as much impulse to save or hoard money in Russia as in most other countries—partly because the state-regimented economy assures full employment, partly because the value of the ruble has depreciated tremendously during the period of Soviet rule.

More fundamental and important in the Soviet system than inequality

of wealth (although this is very marked, especially since wartime rationing was abolished in 1947) is inequality of power.

The author shows, with abundant documentation from Soviet sources, how the grip of the state on the two largest occupational groups, industrial workers and other wage earners in the cities and peasants in the country districts, has steadily tightened. The story of Soviet agriculture is a tremendous, gripping, and tragic drama. It has never been adequately described, if only because it has long been impossible for foreign observers to live continuously in Russian villages. But Mr. Schwartz pieces together the main historical facts with material drawn from a large variety of sources.

The first consequence of the Bolshevik Revolution was to produce something like an equal division of the Russian land. Not only the estates of the nobility and the wealthy landowners, but the holdings of the relatively well-to-do peasants, were confiscated and divided up: every peasant family received a share of the village land (most Russian peasants have always lived in villages, not on separate farms) in proportion to the number of "eaters" in the family.

In theory land was the property of the state and purchase and sale of land were illegal. But in practice, for a decade after the Revolution, the small peasant farm, averaging under twenty acres, predominated in Soviet agriculture. The Soviet Government disliked this system, because it was hard—almost impossible—to force twenty-five million separate peasant households to grow the crops the state wanted them to grow, or to part with as much of their produce as the government wanted for the cities and the armed forces.

Beginning in 1929 a tremendous drive was set on foot to compel the peasants to pool their land in larger units, known as collective farms. At terrific cost, including the deportation of hundreds of thousands of peasant families (*kulaks*), many murders and executions in reprisal, a tremendous famine in 1932–33, and the destruction of a large part of the nation's herds and flocks, collective farming was imposed as a way of life on the Soviet peasants.

The author traces its development up to the present time and shows how the Soviet state, through the far-flung Communist Party network and through centralized agencies known as Machine Tractor Stations,

completely dominates the collective farm and extracts a large share of the peasants' produce as a tax in kind. He also shows, with references to Soviet publications, how the peasants try to shirk work on the collective farm and to put in most of their time and effort on their individual garden plots and small-scale animal husbandry. This has led to a legal requirement of a minimum number of days which the peasants must devote to the service of the collective farm. It does not require any great stretch of the imagination to see in this situation a revival of the serfdom which prevailed in Russia before the emancipation decreed by Tsar Alexander II in 1861. Under the regime of serfdom there was also constant and bitter dispute as to how much work the peasant could put in on his own land and how much he must do for his master, who might be either the Crown or a private individual.

The worker in factory or office is under equally strict regulation. If he quits his job without the permission of the state organization which employs him, he commits a crime. Absenteeism without cause is also a penal offense. Trade unions in Russia are unrecognizable by Western standards. They do not call strikes, and their principal function is to speed-up the workers. The theory is that since the workers get the full benefit of what they produce it is in their own interest to work as hard and efficiently as possible.

As the author points out, Lenin once remarked that trade unions should protect the workers against "bureaucratic distortions." And the head of the Soviet trade unions in the twenties, Mikhail Tomsky, tried to apply a policy of direct defense of workers' wage interests. But Tomsky was one of the many old Bolshevik victims of the purges of the thirties. The viewpoint that has prevailed is that the trade-union leadership, which is monopolized by Communists, should be, for all practical purposes, merged with the state ruling bureaucracy. As the author says:

"State compulsion is an important element in all Soviet labor relations, and the difference between 'free' and 'unfree' workers there is one of degree rather than necessarily of kind. All Soviet workers are affected by the fact that in their country coercion has been allied with planning to replace the free operation of market forces in capitalist economies."

One of the strongest impressions which may be derived from this book is the amazing contrast between the immense mobilization of human effort under the Soviet regime and the meagre return in terms of

improved human welfare; it recalls to the writer the twelve years which he spent in the Soviet Union from 1922 until 1934 and the striking discrepancy he then noted between the prodigious achievements registered every year in Soviet statistics and the poverty, squalor, and absence of elementary comforts and conveniences in everyday Soviet life.

Not the least of the many merits of Mr. Schwartz's significant study is that it offers several explanations of what might seem to be this insoluble riddle. The author offers convincing proof that Soviet figures, prepared and published without any public critical check, are in some cases falsified and exaggerated. Real gains made in factory production are sometimes offset by losses in oldfashioned artisan output, which supplied a considerable proportion of consumer needs in prewar Russia. Finally, and this is perhaps most important, the Soviet rulers have always placed "guns" far ahead of "butter" in their scale of values.

Mr. Schwartz's work may be commended to American readers as a faithful, scholarly, and complete picture of Soviet economic conditions, based on wide research and presented in an attractive style.

PREFACE

IN THE PRESENT world situation, the need for comprehensive and accurate information about the Soviet Union is too obvious to require justification. This volume is an attempt to meet part of that need. It seeks to present a synthesis of available knowledge regarding all major sectors of the Soviet economy, particularly as regards their organization and operation. In addition, the first three chapters are concerned with certain aspects of the background of this economy which seem indispensable for comprehension of the development under Soviet rule since 1917. In the preparation of this material, the intention throughout has been to present the most factual and accurate information available. Too much writing on the Soviet Union has been marred by distortion born of either devotion to or hatred of that country. The author is not neutral in the present conflict between the democratic and totalitarian areas of the world, but he is acutely conscious of the necessity for correct information if our people and our policymakers are to reach sound conclusions in making the vital decisions required by the current struggle.

The writer who has the temerity to attempt a work of the scope presented here soon finds himself faced by numerous obstacles. Two may be singled out here for comment. First, it is at present virtually impossible for a scholar concerned with the Soviet Union to visit that country and to investigate it with the freedom he would have if he were doing a comparable study of, say, the United States or Great Britain. Second, for more than a decade the Soviet government has maintained a varying, but always substantial, veil of secrecy over the key data regarding its economy. The student who would present quantitative conclusions about Soviet economic life in the past decade must transform himself into a detective, searching for the needles of information in the vast and almost barren haystacks of Soviet writing on economic topics. Fortunately, enough clues have been found by this writer and other researchers to make it possible to present what is believed to be a reasonably ac-

curate picture of the main features of the Soviet economy during and since World War II. In some important areas of the economy, such as those involving armaments production or atomic energy development, very little is available. The reader will find that much of this volume is based upon estimates made by the author from Soviet materials. In general, the basic sources employed are indicated. Research workers wishing full descriptions of how these estimates are arrived at may obtain them by writing to the author.

In all this work, the fundamental question of the credibility of Soviet statistics must be faced. It is of course possible that the totalitarian masters of the Soviet economy are misleading both their own people and the outside world by publishing false, as well as ambiguous, data. This writer does not believe so. On the basis of his own experience and research, he believes that Soviet statistics are basically accurate in the overwhelming majority of cases, though not all; to mask secrets about their economy, Soviet leaders prefer ambiguity and withholding of data rather than outright statistical prevarication. At the same time, this author's experience has been that every Soviet statistic must be scrutinized with care to make sure that one understands its precise definition and its degree of comparability or noncomparability with other data often published under the same title. Unless this is done, seriously incorrect conclusions may be reached. Problems of the meaning and interpretation of Soviet statistics are treated in detail as appropriate throughout this volume.

A book such as this one is in many senses a social product rather than the work of any one individual. The author's debt to the many sources he has employed are indicated throughout the text. In particular, however, his thanks must be tendered to Herbert Block, M. Gardner Clark, Leon Herman, Holland Hunter, Melville Ruggles, and Theodore Shabad for making available helpful information. Thanks are also due to the various publishing houses and publications which have granted permission for reproduction here of copyrighted material. The research for this volume has proceeded for a number of years. During that time the author has received research funds from the Social Science Research Council and the Maxwell School of Citizenship, and these have helped materially. Throughout this work the author has had the warmest encouragement and help from his superiors at Syracuse University, including Paul H.

Appleby, Dean of the Maxwell School, Carl R. Bye, Chairman of the Department of Economics, and Warren B. Walsh, Chairman of the Board of Russian Studies.

The effort to avoid errors of fact or interpretation is the primary obligation of a scholar. Keenly conscious of his own deficiencies, the writer has sought the advice and counsel of other specialists with great profit to himself and to this work. Among those who have read portions of this work and who have made valuable suggestions are George B. Cressey, Alexander Gerschenkron, Leon Herman, Holland Hunter, Evsey Domar, Paul Sweezy, Theodore Shabad, Murray Ross, Lazar Volin, Warren B. Walsh, Philip Taft, and Archibald M. McIsaac. Charles D. Kenney assisted in checking the manuscript.

The writer's great thanks are also due to the Prentice-Hall organization, which has given him every cooperation at all times. The editor of this series, E. A. J. Johnson, read the manuscript and gave helpful criticism. Wilbur F. Eastman, Jr., first suggested the idea from which this book finally developed.

Unless otherwise indicated, maps in this volume were prepared by Vaughn Gray and checked by Theodore Shabad. Norma Balcam and Aline E. Blumner did yeoman service typing the manuscript and the latter assisted with the index. The author's wife, Ruth B. Schwartz, assisted at every stage of the work and bore its burdens cheerfully along with those arising from her own creative efforts.

As usual, all mistakes of any kind are the sole responsibility of the author, who will be grateful to those who communicate news to him of any such they may find.

Harry Schwartz

SYRACUSE, N.Y.

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RUSSIA'S SOVIET ECONOMY

CHAPTER I

THE RESOURCE BACKGROUND

MANY ELEMENTS COMBINE to fashion the economy of a large state such as the Soviet Union. This chapter will be concerned with some of the most fundamental of these elements. It will treat the physical setting of Soviet life, the availability and distribution of major natural resources, and the composition of the population. These are the basic physical and human resources at the foundation of the Soviet economy. Such other important factors as the economic development of Czarist Russia, the changing technology of production, the political and economic organization of the USSR, and so on, will be considered later in this volume.

The pattern of Soviet resources must be regarded from a dynamic rather than a static point of view. As do other modern industrial countries, the USSR regards limitations imposed upon it by terrain, climate, or soil as barriers to be removed or circumvented. Thus deserts can be irrigated, poor land fertilized, and mountains pierced by tunnels, where the required technologies are possessed, if the advantages to be gained outweigh the costs. Similarly the mineral wealth of a major nation is constantly changing in response to such factors as discoveries of new deposits, depletion of old ones, and scientific advances affecting the production or use of different minerals. Finally, human beings are perhaps the most changeable resources of all. Given the proper training, the ignorant shepherd boy can be turned into a skilled engineer, and within broad limits the location pattern of a country's population can be so altered as to shift workers to where they are needed most. These and other dynamic possibilities have been employed by the Soviet

regime in its economic development to date. Similar dynamism in resource utilization is to be expected in the future.

The Physical Setting

Two facts stand out in any consideration of the USSR's physical geography: the vast size of the country and the enormous variety of natural conditions contained within it. The Soviet Union forms the largest contiguous land and water area ruled by one government. Its area of about 8,436,000 square miles is almost three times as large as the continental area of the United States, comprising about one seventh of the total land surface of the earth; almost one sixth if we exclude areas covered by ice caps. North to south, Soviet territory stretches over 2,700 miles, and east to west about 7,000 miles.[1] Occupying a large segment of Eastern Europe and all of Northern Asia, the USSR has land borders with countries from Poland to China and Korea as well as an enormous coastline, mainly on the Arctic and Pacific oceans but also on the Baltic, Black, and Caspian seas. Both its size and its location have played important roles in its political, economic, and military history.

The Soviet Union has an enormous variety of natural conditions. The range of climate permits both the raising of reindeer near the Arctic Circle and the growing of tea and citrus fruit in subtropical southern areas. Its mountains are among the highest in the world—Mount Stalin rises almost 25,000 feet above sea level—but it also has the great Caspian depression. Deserts cover large areas and must be irrigated to produce crops; bogs and swamps abound in other regions, requiring large-scale drainage projects before the land can be farmed. Such contrasts could be multiplied many times to illustrate the complexity of the physical geography.

In the following sections we shall consider specific aspects of the USSR's physical geography and natural resources from transportation, agricultural, and industrial points of view, in that order.

From the standpoint of transportation, the vital elements to be considered are topographical, i.e., the pattern of mountains, plains, and other land forms; the extent and distribution of rivers, lakes, and other internal waterways; and land and water routes for foreign trade.

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[1] S. S. Balzak *et al., Economic Geography of the USSR,* p. 1. New York: Macmillan, 1949.

Soviet Topography

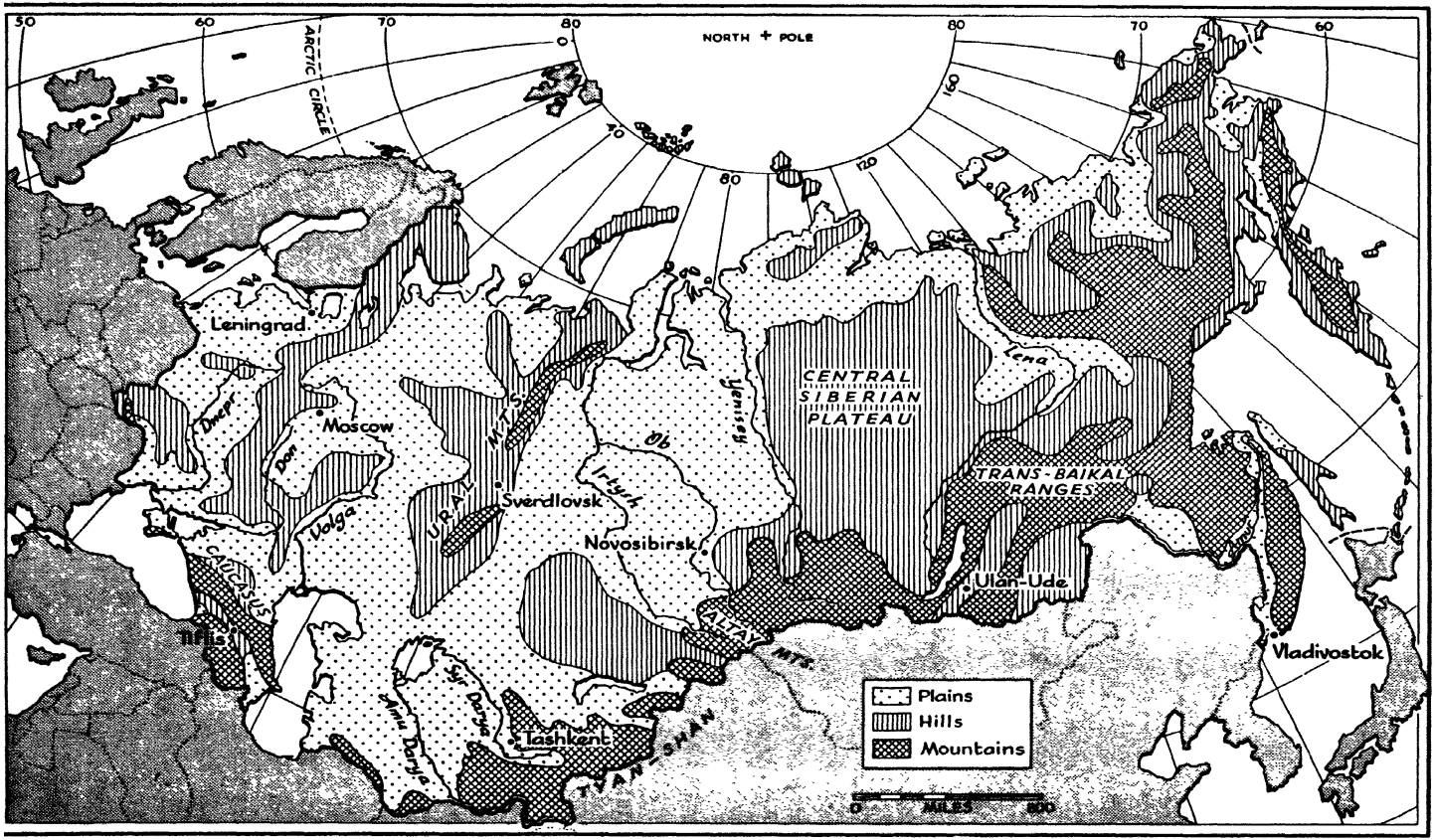
The dominating feature of the USSR's topography is the great plain—hilly in some parts, level in others—that stretches from the country's western borders in the heart of Europe eastward to the Yenisey River in the middle of Asia. Most of this plain is less than 1,000 feet above sea level. The Ural Mountains separate it into two parts, but they offer no more serious obstacle to land transportation than the Appalachian Mountains to movement from the Atlantic seaboard to the Mississippi valley. On the west the Urals usually slope gently; they have many low passes; and their peaks seldom rise above 3,000 feet, though the highest is over 6,000 feet above sea level.

Obviously such a vast and relatively level area invites movement over it by men on foot or on horse. It offers tempting conditions for the building of roads and railroad lines, though the absence of rock for ballast is a handicap. In the Western Siberian Lowland, the Asiatic portion of this plain, height above sea level varies only a few hundred feet over distances of more than 1,500 miles. Little wonder that a major portion of Russian and Soviet history is occupied with the sagas of great migrations, north and south, east and west, over this immense plain.

An important extension of the great Russian plain southward is the Central Asiatic Lowland, an area of deserts, oases, and irrigated sections. Historically the home of non-Russian Moslem peoples primarily engaged in pastoral livestock tending, under the Soviet regime this territory has become an important region of settled agriculture and industry.

Land transportation is more difficult in the mountainous areas, which form roughly one fifth of the USSR's territory. Mountains and upland regions bound much of the central Russian plain and its extension in Central Asia. Most of these are in the southern and eastern portions of the country, though the Carpathian Mountains are in the southwest at the Czechoslovak border and the Karelian uplands adjoin Finland.

West of the Caspian Sea, the Caucasian and Crimean Mountains are important terrain features. Farther east, beyond the Kara Kum desert, most of the southern border of the USSR is fringed by mountain and highland areas, including the towering Pamir, Tyan-Shan, and Altay ranges among others. North of these mountains and stretching east from the Yenisey to the Pacific is an area with complex topography, most of it upland and mountain country with many plateaus and high



I. SURFACE CONFIGURATION OF THE USSR

hills. The Central Siberian Plateau, the Verkhoyansk Range, and the Northeastern Mountain Complex are among the main sectors of this vast area.

Bulky commodities can usually be moved more cheaply by water than by land, particularly over long distances; thus it is not strange that the extensive internal waterways of the USSR are an important link in its present transportation system and have much potentiality for greater use in the future. There are about 100,000 rivers with basins of more than 100 square kilometers, and thousands of lakes. In the main the most important rivers run north and south, a factor which limits their usefulness, since a very large proportion of Soviet freight is shipped east or west. Virtually all the Soviet Union's northern and eastern boundaries are formed by the Baltic Sea, the polar seas, and the Pacific Ocean. In the south the USSR has long coastlines on both the Caspian and Black Seas.

The usefulness of these waterways for transport is sharply limited, however, by the fact that the great majority of them freeze over during part of each year. In the extreme north, ice makes water passages unusable often for eight or nine months each year. Even the Amu Darya in Central Asia is frozen two to three months each year.

Economically, the most important river is the Volga, which annually carries the largest freight volume of any inland waterway. This river rises in the swamp country north of Moscow and empties into the Caspian Sea, after traversing some 2,300 miles. Among the major cities on the Volga are Gorky, Kazan, Kuibyshev, Saratov, and Stalingrad. Oil and food products are carried north up the river; timber and manufactured products are the main types of southbound freight.

Other major riverways in the European USSR include the Kama, a tributary of the Volga; the Northern Dvina, which reaches the White Sea at Archangel and carries much of Soviet timber; and, in the south, the Dnepr and Dnestr rivers, which flow into the Black Sea, and the Don, which flows into the Sea of Azov. The Soviet Union, like Czarist Russia before it, has been active in building canals and deepening river channels in order to connect many of the major rivers and lakes in this area. This has been done to make possible increased east-west water traffic and to permit ships entering ports in the north or in the south to penetrate deep into the continental plain. Thus Moscow is connected

with the Volga basin by a major canal and linked with the Leningrad area by the Mariinsk canal system and the Baltic–White Sea canal.

In Asiatic Russia the major rivers, the Ob, the Yenisey, and the Lena, together with their many tributaries, flow into the Arctic Ocean and are frozen much of each year. The opening of the Northern Sea Route along the polar seas in the mid-1930's not only permitted vessels to steam from Vladivostok to Murmansk or in the opposite direction each summer, but also made possible increased use of the major Siberian rivers as channels of distribution for the areas through which they flow. During World War II large amounts of Lend-Lease supplies were sent to the inhabitants of Northern Siberia over these waterways. The increased accessibility of this area has greatly facilitated the exploitation of its resources.

In the Soviet Far East the Amur River is most important. This river follows much of the boundary between the Soviet Union and China and then connects Khabarovsk with the ocean port of Nikolayevsk on the Tartar Strait. In Central Asia the Amu Darya and the Syr Darya, both of which flow into the Aral Sea, provide courses for ship transportation.

Important parts of the water transportation system are the lakes and seas entirely or partially in the USSR. The Black, Caspian, and Aral Seas in the south are the largest of these. Among the most important lakes are Ladoga and Onega near the Finnish border, Balkhash and Issyk-Kul in Central Asia near the border of Sinkiang, and Baikal in Southeastern Siberia. The Sea of Azov, between the Ukraine and the North Caucasus, is linked with the Black Sea by the Kerch Strait.

International Connections

Soviet imports and exports of goods move over both land and sea routes. The importance of land transportation in this trade has increased greatly since World War II, as the result of the great expansion of commerce between the USSR and the communist-dominated countries in Eastern Europe and Asia. Natural barriers do not significantly obstruct transportation toward the Atlantic Ocean from the USSR's western borders, and railroads carry a large portion of this trade. A man-made obstacle here is the difference between the "wide" gauge

(5 feet) of Soviet railroads and the "standard" gauge (4 feet, 8½ inches) employed generally throughout Europe, which has usually made necessary unloading and reloading of goods at the Soviet border.

Overland transportation facilities to the countries south of the USSR, in the Near East and Asia, are less well developed, both because of the mountain barriers frequent along these borders and because in the past the volume of trade has been small. In the future, as trade increases between Communist China and the Soviet Union, road and rail transport facilities will probably be improved.

The use of Soviet ports on major oceans and seas is usually hampered for some months of each year because of ice, which closes or slows down traffic in these ports. Among the few Soviet ports that are generally usable all year round, Murmansk, on the Barents Sea in the Far North, and the Black Sea ports such as Odessa and Novorossiisk are outstanding. When winter loosens its grip, Soviet Baltic Sea ports from Kaliningrad to Leningrad, along with Archangel and Murmansk, offer outlets to Northern Europe and the Atlantic Ocean. Vladivostok, Sovetskaya Gavan, and Nikolayevsk are among the USSR's major ports on the Pacific Ocean for trade with the rest of Asia, Australia, and the western coasts of North and South America. Major Soviet ports on the Caspian Sea, such as Baku and Makhach-Kala, are used for maritime trade with Iran as well as for domestic commerce. In the south, however, the Black Sea ports are most important for trade with the Mediterranean area and across the Atlantic. From the USSR's point of view, a major weakness of its dependence upon Black and Baltic Sea ports for maritime access to the west lies in the fact that exit from both bodies can be cut off with comparative ease by other powers controlling the relatively narrow channels of egress. Soviet interest in the Turkish Dardanelles, for example, has been motivated by the desire to obtain more control over the vital passageway between the Black Sea and the Mediterranean.

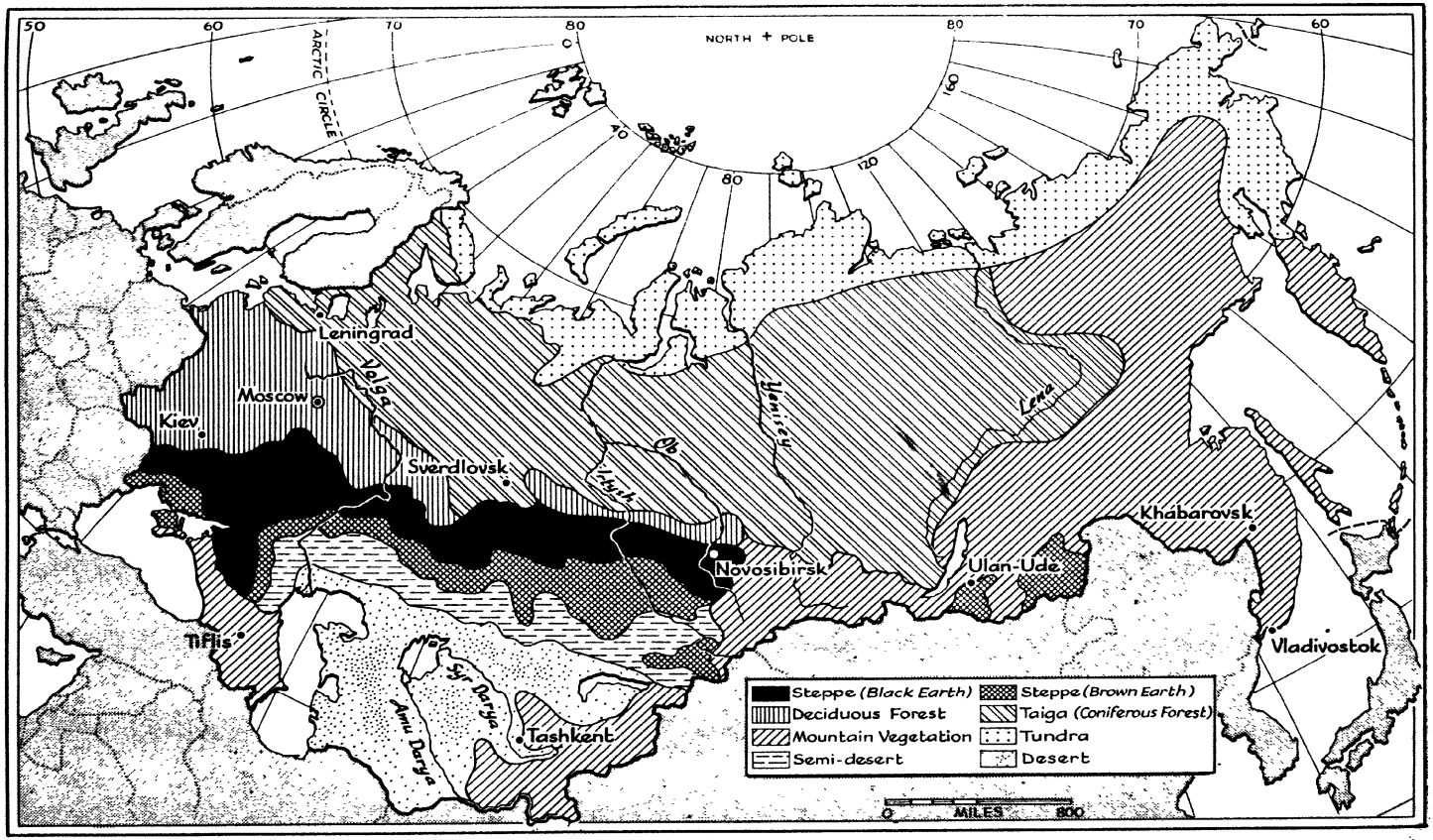
In the discussion above, the nature of Soviet topography as well as the distribution of coastal and inland bodies of water have been considered primarily from the point of view of transportation. It must not be forgotten, however, that these features of the physical setting also exercise important influence upon the climate of the USSR and therefore upon its agriculture. In addition, as we shall see below, the complex terrain is associated with rich mineral deposits.

The Agricultural Setting

Climate and soil are the major natural factors determining the possibility of agricultural development in any area. Man may modify the effects of these factors by irrigation, fertilization, use of hothouses, and other techniques, but all these are expensive. Agriculture develops most easily where the conjunction of temperature, rainfall, sunlight, and quality of soil is favorable.

The great bulk of the USSR has a continental climate with very cold winters and relatively warm, though short, summers. Most of the land area of the Soviet Union lies in the same latitudes as Canada, between 45 degrees north latitude and the Arctic Ocean. Only the more southern portions of the USSR lie in latitudes corresponding to those of the northern and central areas of the United States. Most of the great land mass of the USSR is well inland, distant from the temperature-moderating influences of oceans and seas, and experiences consequent extremes of cold and heat. The coldest and most extreme climate is to be found in northern Siberia, where, in the neighborhood of Verkhoyansk, the coldest January temperatures in the world have been recorded. On the other hand, the severity of winters in the European section of the Soviet Union increases as one goes from the northwest to the southeast, because the former area is adjacent to large bodies of water. Leningrad, on the Baltic Sea, has warmer winters than many cities south of it, though its winters are longer. Long periods of warm weather are most characteristic of Central Asia. In Turkmenistan, for example, about 150 days annually have temperatures over 68 degrees Fahrenheit; in some parts of the extreme northern USSR, conversely, that temperature is rarely or never reached.

Over much of the Soviet Union the climate is unfavorable for farming. In a large part of the northern and central area the length of the frost-free period is too short to permit crop-growing by conventional methods, though special intensive—and expensive—techniques worked out by Soviet scientists have permitted the growing of some crops even beyond the Arctic Circle. Large areas of the USSR have inadequate or barely adequate rainfall, a situation aggravated over much of the southern part by the prevalence of hot, dry winds that suck the moisture from the land. In some of the desert and semidesert areas, particularly in Central Asia, this lack of water is offset by irrigation or by rigorous ad-



II. NATURAL REGIONS OF THE USSR

herence to dry-farming techniques. But in many of the most productive agricultural areas, drought and crop failure are ever-present menaces that become a reality every few years. The Southern Ukraine, the North Caucasus, and the Volga River valley in the region of Saratov are some of the most important regions in this category.

The interaction of climate and soil as the setting for crop- and livestock-raising may be best understood by considering the major zones of natural vegetation in the USSR. These zones have been considerably affected over the centuries of course, as men have cleared forests and broken the ground with the plow, but they still represent a valuable schematic guide to the broad outlines of the complex interrelationships between the natural factors. In general each zone extends from west to east across the surface of the USSR.

The most northern zone is the tundra, an area characterized by freezing or near-freezing temperatures almost all the year and permanently frozen subsoil. Waterlogged bogs and marshes cover much of this area during the brief summer, and moss, lichens, dwarf bushes, and flowers grow during this short respite. The raising of reindeer, fishing, and hunting are important occupations of the relatively small native tribes living in this bleak environment.

South of the tundra the predominant vegetation consists of coniferous trees, i.e., evergreens such as fir, spruce, larch, and pine, which find the three- to four-month growing season adequate. This is the *taiga* area. In the European USSR it gradually gives way southward to a zone of broad-leaf deciduous trees such as the oak, maple, and elm. This region extends south beyond a line connecting Moscow and Kiev. It stretches east of the Volga below the latitude of Moscow. In these regions are the grey podsol soils, which cover about half the territory of the Soviet Union, including the great bulk of Soviet Asia. Podsol soils are usually stony, sandy, or clay-like, and are excessively acid; crops can be grown on them, but they are far from ideal for the purpose.

Over the centuries roughly half the forest area in North and Central European USSR has been cleared and replaced by settled agriculture, though the soil is relatively poor. On the other hand, rainfall is relatively adequate here compared with that in other agricultural areas. At Moscow the average annual rainfall is over 20 inches, as compared with 15 inches at Saratov on the Volga and 6 inches at Astrakhan, where the Volga enters the Caspian Sea.

The USSR still possesses enormous forest areas, particularly in the northern parts of European Russia and throughout Northern Siberia. Within the Soviet boundaries as of January 1, 1939, there were about 1,500,000,000 acres of forests, approximately one third of all USSR territory at that time; they composed about 20 per cent of all forest areas in the world.[2] The exploitation of these forests is one of the most important industries of the USSR, providing not only a basic raw material for the domestic Soviet economy but also one of the most important export commodities. In addition, these forests abound in numerous fur-bearing animals, which are trapped or shot in large numbers annually, thus providing furs for domestic consumption and for export, particularly to the United States.

The steppe area, which is separated from the forest region by a transitional forest steppe belt, dominates the southern region of the USSR and covers about 14 per cent of the country. It extends from the Ukraine in the west through the Volga valley south of Kazan into Siberia, beyond Novosibirsk but north of Lake Balkhash and the Aral Sea. In the north this region is a mixture of trees and grassland, but farther south grassland reigns supreme, the rainfall and ground moisture being inadequate for tree growth.

Much of the steppe consists of the richest soil in the world, the *chernozem*, or black earth, a somewhat alkaline soil with high humus content most favorable to crop growth. Variation in rainfall from year to year produces marked variation in the volume of crops grown in this area. With adequate rain, rich crops are gathered; but droughts occur every few years, resulting in partial or complete crop failure in this region of most fertile soil. Grass and crop growth are less luxuriant in the brown and chestnut soil areas immediately south of the black earth region, since rainfall is even sparser in these areas; the humus content of the soil is lower; and mineral salt concentration in the earth is higher.

In Central Asia, including Kazakhstan, desert and semidesert regions predominate; but where irrigation is employed, rich crops of cotton, rice, and other plants are grown. In parts of this area two and sometimes three crops a year can be grown on the same ground.

Besides Central Asia, there are only a few, very limited sections of the USSR, having long periods of warmth and abundant moisture, in which semitropical crops can be grown. One such area is in the Georgian

[2] *Ibid.*, pp. 67–68.

Republic and the adjoining territory on the southeastern shore of the Black Sea, where tea, citrus fruits, and products requiring similar climatic conditions are raised. Since World War II the Soviet government has sponsored expansion of citrus and eucalyptus plantings in other southern areas of the European USSR. In the Soviet Far East, the Amur and Ussuri River valleys have semimonsoon climates characterized by hot summers with abundant rainfall, permitting the raising of rice, soy beans, and corn, among other crops.

Livestock-raising is an important part of Soviet agriculture and is widely practiced over the USSR. Western Siberia's climate and soil have permitted the development of a large-scale dairy industry. In the black earth regions, particularly in the Ukraine, hog-raising has been well developed, though this industry was set back sharply by the German destruction during World War II. Sheep and goats are abundant in the Kazakh Republic and other areas with large regions of mountain pasture.

To combat frequent droughts in a vast area stretching from the Caspian Sea and the southern Urals to the Ukraine, the Soviet government in 1948 announced a large scale afforestation program scheduled to last almost two decades. By planting trees on almost 15,000,000 acres of farm fields, ravines, gulleys, and sand, as well as by planting eight giant continuous shelter belts of trees running north to south, it is hoped to check the hot drying winds from west of the Caspian and to permit greater retention of moisture in the soil. Other parts of this program include the building of ponds, the institution of crop rotation, and the large-scale planting of grasses, in order to create the agricultural regimen best suited for farming this large area of insufficient or barely sufficient rainfall. Fundamentally, the Soviet hope is so to change the climate of the area as to assure high and stable crop yields in the future.

In August and September 1950, the Soviet government announced a new series of projects aimed at combating the obstacles to a highly productive agriculture in these important areas with deficient or uncertain rainfall. Between 1950 and 1957 it is planned to provide water for and irrigate well over 50,000,000 acres in the Volga River Valley, the area north and west of the Caspian Sea, the Southern Ukraine, and Crimea. At Kuibyshev and Stalingrad on the Volga, the USSR plans to build two of the largest hydroelectric stations in the world, along with

dams, canals, and other installations to permit diversion of Volga River water for agriculture on both sides of the river. In the Turkmen Republic east of the Caspian, the Chief Turkmen Canal is to be built over a distance of almost 700 miles, so as to divert part of the Amu Darya from its present course to the Aral Sea and provide water for irrigation. This, it is hoped, will permit the conversion of a large area, now arid and infertile, into rich crop and livestock pasture land. In the Southern Ukraine, a new Dnepr hydroelectric power station is to be built at Kakhovka, along with dams and canals permitting irrigation of a large area of fertile soil in the Ukraine and the Crimea, where rainfall is often deficient. Since these projects are all intended for completion long before the afforestation program discussed above, they are obviously aimed at providing aid before 1960 to the agriculture in the areas where these water supply and irrigation facilities are to be built. In addition, the newly announced projects will provide needed water for farming in these regions even if the major climatic changes hoped for from the afforestation program are not realized.[8]

TABLE 1. Average Wheat Yield in the USSR and Other Major Wheat-Producing Countries, 1930–34.

Country	*Yield* (BUSHELS PER ACRE)
USSR	10.0
United States	13.5
France	23.0
Germany	32.1
Italy	20.9
China	16.7
India	10.7
Argentina	13.8
Canada	13.6

Source: *Agricultural Statistics 1947*, p. 12.

By these enormous efforts, the Soviet government hopes to overcome for all time some of the major natural obstacles to improved agricultural production so that it will no longer be true that Soviet grain yields, especially, are among the lowest and most variable in the world.

[8] The texts of the four government decrees on these matters were printed in the Soviet press August 21, August 31, September 12, and September 21, 1950.

Resources for Industry

The most spectacular feature of Soviet economic development since the Bolshevik revolution of 1917 has been the extremely rapid increase in the output of industry. Tractors, railroad locomotives, machine tools, and similar commodities are now produced in quantities permitting the USSR to rank as one of the foremost manufacturing nations of the world, clearly outdistanced only by the United States.

This rapid industrialization has been based in large part upon the availability within Soviet borders of large quantities of fuel and raw material resources required by industry. Almost every significant mineral used in modern production is to be found in the USSR. Soviet supplies of many major metallic and nonmetallic raw materials are among the largest in the world. This fact, together with the abundance of water power and forest reserves, makes the Soviet Union comparable to the United States with respect to richness and variety of natural resources. And as we shall see later, this abundance of resources has permitted close approximation to the Soviet ideal of maximum self-sufficiency with respect to raw materials.

Much of our present knowledge of Soviet natural resources is of comparatively recent origin. During the 1930's the Soviet government sponsored numerous geological surveys all over the country, but particularly in the area from the Urals to the Pacific. These studies revealed large and numerous mineral reserves whose extent had formerly been unsurveyed, and many of these have already begun to be exploited for Soviet industry and agriculture. By the beginning of 1945 about 73 per cent of Soviet territory had been geologically studied. Further intensive work of a similar nature is continuing, and it seems possible that additional important resources may be found in the future.

In the pages following we shall discuss the major industrial resources of the Soviet Union: their extent, location, and importance.

Water Power. The harnessing of swift-flowing streams to provide hydroelectric energy has been a significant source of the electrical power upon which Soviet industry has been built. In 1940 about 5 billion kilowatt hours of electrical energy were generated by hydroelectric stations, 10 per cent of the Soviet total; the Fourth Five-Year Plan provided that in 1950 about 12½ billion kilowatt hours, 15.2 per cent of the anticipated Soviet total, should be obtained from this source.[4] More

[4] *Bolshevik*, No. 6 (1946), p. 75.

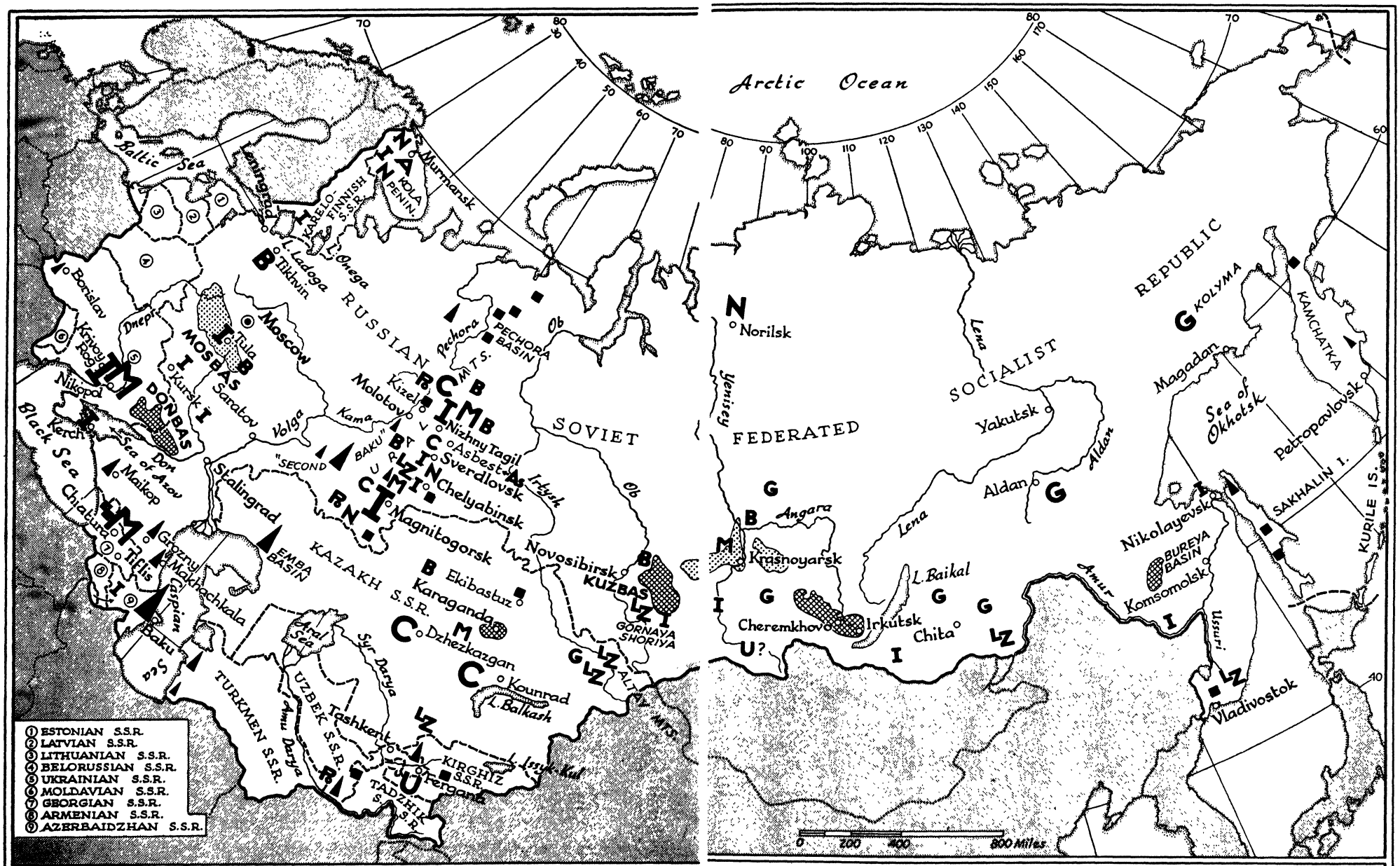
than a quarter of all new electrical generating capacity scheduled to be installed during 1946–50 was to be based on water power.

The water power resources of the USSR are among the world's largest. In 1937 it was estimated that the potential capacity of possible Soviet hydroelectric sources was 280 million kilowatts, as against only about 82 million kilowatts in the United States.[5] A very small percentage of this potential has ever been realized—less than 5 per cent by the late 1940's, in fact. Large capital investments are required for major hydroelectric projects, as American experience with the Tennessee Valley Authority and the Columbia River project has shown.

Under the Soviet regime, the utilization of hydroelectric resources has been developed rapidly. Probably the most famous and the largest hydroelectric power station built by the Soviet regime has been that on the Dnepr River, near the city of Zaporozhe; before World War II this station had a capacity of well over 500,000 kilowatts. Other important power plants built before the war were at Volkhov and on the Svir River, both near Leningrad; at Shcherbakov and Uglich on the Volga; at Chirchik and on the Chu River in Central Asia; on the Tuloma, Niva, and Suna rivers in Karelia and the Kola Peninsula, in the northwest; and elsewhere.

Plans for future Soviet hydroelectric projects are most ambitious and will add very substantially to the USSR's power resources if and when completed. Many of these will permit sharp expansion of industrial output in areas of relatively minor importance at present. Among the most significant projects now under way or proposed for the future are the following: By 1955, the largest hydroelectric power station in the world is to be completed at Kuibyshev on the Volga River, a station with a capacity of 2,000,000 kilowatts and an average annual output of 10,000,000,000 kilowatt-hours; by 1956 the Stalingrad power station on the same river is to be in full operation, with a capacity of 1,700,000 kilowatts and an average annual output of 10,000,000,000 kilowatt-hours; the hydroelectric station to be built at Kakhovka on the lower Dnepr River is to have a capacity of 250,000 kilowatts and an average annual production of about 1,200,000,000 kilowatt-hours; three small hydroelectric stations to be built in conjunction with the Chief Turkmen Canal will have a total capacity of 100,000 kilowatts; on the Angara River west of

[5] Y. A. Ioffe, compiler, *Ekonomicheskoye Sorevnovaniye Sotsializma i Kapitalizma*, p. 22. Leningrad: Ogiz, 1939.



III. MINERAL RESOURCES OF THE USSR

Lake Baikal in Southeastern Siberia, it is planned eventually to have eight power-generating stations with a capacity of 9 million kilowatts; the Mingechaur power station on the Kura River in the Azerbaidzhan Republic was scheduled to be completed by late 1950; on the Zanga River draining Lake Sevan in Armenia, it is hoped to build power stations eventually generating almost 2½ billion kilowatt hours annually.

Coal. Soviet coal resources are among the greatest in the world, reserves of this fuel in the USSR being estimated in 1937 at the astronomical figure of 1,654 billion metric tons, adequate at present levels of production for over six thousand years. This and other Soviet estimates of mineral reserves must be treated with caution, however, since they are not always comparable with similar estimates made for other countries and include resources of very low quality as well as of rather roughly estimated extent.

Coal reserves are widely distributed over the USSR, being found in many small and large deposits. The most important coal-production centers in the USSR today are the Donets Basin (often referred to as the Donbas), mainly in the Ukraine north of the Sea of Azov, and the Kuznetsk Basin (Kuzbas), east of Novosibirsk in Southern Siberia. Each of these is estimated to have 13 per cent of the economically usable coal reserves of the country, though the total coal deposits of the Kuzbas far exceed those of the Donbas. Other important coal basins that have been greatly developed under the Soviet regime are at Karaganda in Kazakhstan (4 per cent of economically usable reserves); in the neighborhood of Moscow, where large quantities of lignite and other low caloric content fuel abound (2 per cent); in the Urals, including the Kizel and Chelyabinsk fields, where coal quality is also comparatively poor (over 3 per cent); and the Pechora basin, northeast of Leningrad in the Arctic (over 3 per cent). Some of the largest deposits of economically usable coal are in basins whose large-scale exploitation has not yet proceeded very far, as in the Cheremkhovo basin near Irkutsk which has 8 per cent and in the Ekibastuz basin in Kazakhstan and the Bureya basin in the Far East, each of which has 7 per cent of economically usable reserves.[6]

In 1940 Donbas coal output was slightly more than half of all Soviet

[6] *Bolshaya Sovetskaya Entsiklopediya, Soyuz Sovetskikh Sotsialisticheskikh Respublik,* col. 245. Moscow: 1947. (Hereafter cited as *Entsiklopediya.*)

production. By 1946, as the result of damage during the war, this area produced only about 48 million metric tons, half as much as in 1940. Soviet plans for 1950 provided for Donbas production of 88 million metric tons and Kuzbas coal output in excess of 30 million metric tons, in a total Soviet production envisaged at 250 million metric tons.[7]

From the point of view of iron and steel production, coking coal, i.e., coal of sufficiently high quality to be converted for coke, is most important. Good coking coal should have low moisture, ash, sulphur, and volatile matter content. Before 1931 the Donets basin in the Ukraine was the sole Soviet source of this important type of coal, but since then supplies have been obtained from the Kuznetsk basin, Karaganda, the Kizel basin in the Urals, the western slopes of the Bureya mountain range along the Bureya river near Komsomolsk in the Far East, the Pechora basin in the European north of the USSR, and the Tkvarcheli and Tkvibuli deposits in Georgia. Karaganda coal tends to be high in ash content; Kizel coal has a high sulphur content, ranging up to almost 4 per cent, as well as a high ash content.[8]

Iron Ore. Soviet iron-ore supplies of all kinds and grades are large, and the USSR claims to have had in 1938 53.5 per cent of all world iron ore reserves, including poor ores. This important raw material has been found at about 600 locations in the Soviet Union, of which about 100 have been exploited to some extent.[9] Total Soviet iron ore reserves as of January 1, 1938, were estimated to be about 10,900,000,000 metric tons, of which almost 4,500,000,000 tons consisted of reserves computed relatively accurately and available for immediate or not-too-distant future use as required (the so-called A and B grades of reserves).[10] The chief ores used industrially are hematite, containing anhydrous ferric oxide (Fe_2O_3); magnetite, a magnetic ore containing ferrosoferric oxide (Fe_3O_4); and various so-called brown ores, containing hydrous ferric oxides, particularly limonite ($2Fe_2O_3 \cdot 3H_2O$). Soviet ores vary widely in richness of iron content and in kinds and amounts of impurities they contain. Both because of historical factors and because of the different

[7] Harry Schwartz, *Russia's Postwar Economy*, pp. 30–31. Syracuse: Syracuse University Press, 1947.

[8] M. Gardner Clark, *Some Economic Problems of the Soviet Iron and Steel Industry*, pp. 129–35. Cambridge: Harvard University Ph.D. thesis, March 1950 (hectographed).

[9] *Entsiklopediya*, cols. 249–50.

[10] Clark, *op. cit.*, pp. 122 and 165.

technical characteristics of different ore bodies, the actual distribution of iron-ore mining differs rather sharply from the distribution of iron ore, as illustrated by the data below.

TABLE 2. Geographic Distribution of Better Grade (A and B) Iron Ore Reserves in the USSR, January 1, 1938, and Distribution of Iron Ore Production in 1937.

	A and B Reserves		*Production*	
Region	MILL. METRIC TONS	PER CENT	THOUSAND METRIC TONS	PER CENT
NORTHWEST				
Komi ASSR	1		—	
Karelian ASSR	26	0.6	—	
Leningrad Province	107	2.4	—	
CENTER				
Tula Province	143	3.2	677.2	2.4
Gorky Province	2			
Kirov Province	7		26.2	0.1
Voronezh Province	103	2.3	710.2	2.5
Kursk Province	175	3.9	—	
SOUTH				
Crimean ASSR	1,638	36.5	771.2	2.8
Ukrainian SSR	668	14.9	16,414.1	59.0
Krasnodar Kray	15	0.3	—	
Kabardino-Balkar ASSR	22	0.5	—	
Stalingrad Province	148	3.3	—	
URALS				
Orenburg Province	98	2.2	85.6	0.3
Bashkir ASSR	71	1.6	176.4	0.6
Chelyabinsk Province	579	12.9	7,152.2	25.8
Sverdlovsk Province	395	8.8	1,247.5	4.5
WESTERN SIBERIA				
Novosibirsk Province	64	1.4	509.4	1.8
EASTERN SIBERIA				
Krasnoyarsk Kray	47	1.1	—	
Irkutsk Province	63	1.4	—	
Chita Province	2		—	
Far Eastern Kray	15	0.3	—	
Yakutsk ASSR	5			
Azerbaidzhan SSR	175	3.9	—	
Kazakh SSR	11	0.2	—	

Source: M. Gardner Clark, *Some Economic Problems of the Soviet Iron and Steel Industry*, p. 165.

Before World War II, the most important source of Soviet iron ore was the Krivoy Rog area in the Eastern Ukraine, which accounted for more than half of the USSR's output. Though badly devastated during World War II, this region has again become a major source of iron ore

since then. Hematite, the chief ore here, has been exceptionally rich in iron content. The Ural Mountains have numerous scattered iron ore deposits, of which the most important and most intensively worked to date are those in the Magnetic Mountain at Magnitogorsk. In 1940[11] over 22 per cent of all Soviet iron ore was produced here, and the area has undoubtedly grown in importance since that time. Ores are mined here by the relatively cheap open-pit method, and both basic and acid ores are found with iron content that has averaged in the past between 50 and 60 per cent. As we shall see later, the rich Magnitogorsk ores were the initial bases for the rapid development of the Soviet iron and steel industry in the Urals and Western Siberia during the early 1930's. Other important deposits in the general Urals area are at Bakal in Chelyabinsk Province, in the Komarovo district of Bashkiria, and in the Tagil-Kushvinsk region in Sverdlovsk Province in the Central Urals. There are also numerous other less important deposits. On the Kerch Peninsula in the Crimea, large quantities of iron ore are found, mainly composed of brown ores that contain usually between 30 and 40 per cent iron content, but with numerous harmful impurities that make the exploitation of these ores in iron and steel production relatively difficult and expensive. Other iron ore deposits significant for the current Soviet economy are in the Gornaya Shoriya area of Western Siberia, near the Kuznetsk coal basin; at Dashkesan in the southern Trans-Caucasus, not far from Lake Sevan; in the Kola Peninsula northwest of Leningrad; in the neighborhood of Tula and Lipetsk near Moscow; and at Nikolayevsk near the mouth of the Amur river in the Far East.[12] The Kursk area south of Moscow is the location of the so-called Kursk Magnetic Anomaly containing tremendous amounts of quartzite, which are apparently scheduled for intensive future exploitation.

Although Soviet iron ore reserves are abundant and widely distributed, their utilization has presented serious problems for more than a decade because of the rapid depletion of the richest ores. This has forced the USSR to resort to various costly expedients, among them the use of poorer-grade ores; preliminary processing of ores so as to concentrate iron content, agglomerate fine ores, and eliminate harmful impurities; and the reworking of large quantities of waste in dumps of low-grade ore

[11] *Entsiklopediya*, col. 250.
[12] Clark, *op. cit.*, pp. 144–64.

previously not considered worth using. The latter practice has been particularly resorted to at Magnitogorsk, where the higher-quality ores have been wastefully mined since 1747. In the 1920's at Krivoy Rog the USSR was able to restrict its consumption almost exclusively to high-grade ores averaging over 60 per cent iron content. More recently this area has been producing ore with as little as 48 per cent iron content. The postwar expansion in the use of Kerch ores, despite their poor chemical and physical properties, seems also dictated in large part by the depletion of better-grade reserves, although other factors also play a part.[13]

Petroleum. Soviet oil reserves, too, are believed to be among the largest in the world. Because of the complexity of petroleum geology, numerical estimates of reserves are most uncertain, but one such figure calculated in the late 1930's approached 5 billion metric tons. These reserves, which are only a small fraction of all Soviet fuel resources, are, however, highly localized in particular areas of the Soviet Union. As far as is known today, large regions of the USSR have no petroleum whatsoever, unlike the situation with respect to coal and iron ore.

Most oil production during the Soviet era has come from the Apsheron Peninsula on the southwest shore of the Caspian Sea adjoining the city of Baku. About 70 per cent of the 31 million metric tons of oil produced in the USSR during 1940 are believed to have been obtained in this region.[14] During World War II, however, production dropped considerably in this area, since the Baku region was threatened by German forces and new development was sharply curtailed. Renewed development of the area began after the war, and it continues to be the most important single supply region. Wasteful exploitation of Baku oil resources and inadequate geological prospecting during the 1930's created serious difficulties here in World War II and afterward. In recent years much energy has been devoted to sinking oil wells off shore under the Caspian Sea in the effort to raise output.

North of the Caspian Sea is the so-called "Second Baku," an oil-production area second in importance only to the Apsheron peninsula, and one whose output grew considerably during World War II. Petroleum is obtained here over a relatively large area extending roughly along a

[13] *Ibid.*

[14] A. D. Perejda, "Russia in the Oil Age," *American Review on the Soviet Union*, August 1946, p. 6.

diagonal from Saratov in the southwest to Molotov in the northeast. Production in this area is believed to have reached almost three million metric tons in 1945, almost 15 per cent of total Soviet output.

The Emba basin, stretching northeast of the Caspian Sea in Western Kazakhstan is also increasingly important. Its reserves are estimated as second only to those of the Baku region. Other significant oil-producing areas are Maikop and Grozny in the Caucasus northwest of Baku, Sakhalin Island in the Far East, the Pechora basin in the north of European Russia, the district southeast of Krasnovodsk in Turkmenistan, the Fergana Valley and the basin of the upper Amu Darya in southern Central Asia. There is petroleum in the Drogobych-Borislav area of the Western Ukraine, and oil was discovered during World War II near Makhach-Kala in the Dagestan area of the North Caucasus near the Caspian Sea.

Manganese. The Soviet Union is the leading source in the world for this vital steel-making element. More than 90 per cent of all Soviet industrial reserves are at Chiatura in the Georgian Republic and at Nikopol in the Ukraine. The loss of the Nikopol mines to German forces during World War II led to expansion of manganese output in Sverdlovsk Province in the Urals, though these ores are poorer. About 90 per cent of all Soviet manganese production in 1945 came from these three sources—more than half the total from Chiatura.[15] Smaller amounts are mined in Kazakhstan and in the Krasnoyarsk Territory in Eastern Siberia. Soviet manganese ores have relatively rich metal content, sometimes exceeding 50 per cent. In the past they have been an important factor in supplying the manganese needs of other nations, including the United States. The abundance of manganese in the USSR permits its use in place of other ferro-alloys, such as molybdenum, which either are not available domestically or are relatively expensive.[16]

Copper. About half of all Soviet copper reserves are in Kazakhstan, the most important sources being at Dzhezkazgan and Kounrad, west and north of Lake Balkhash respectively. Significant quantities of copper are also found in the Urals, particularly in Sverdlovsk Province and the Bashkir Republic, as well as in the Monchegorsk area of Murmansk Province northwest of Leningrad and in the Norilsk region of Krasnoyarsk Territory in Eastern Siberia. In 1942 about 46 per cent of all

[15] *Entsiklopediya,* col. 254.
[16] Clark, *op. cit.,* p. 120.

Soviet copper output was in the Urals, primarily in Sverdlovsk Province, and about 40 per cent came from Kazakhstan.[17]

Lead and Zinc. Lead and zinc often occur together and in combination with other metals in complex polymetallic ores. About half of all Soviet reserves of these metals are in Kazakhstan, with the Altay region being particularly important. Other important reserves exist in the Asiatic USSR, including the Maritime Territory in the Far East, the Altay Territory, Chita Province, and Kemerovo Province in the Kuzbas. The Urals have important zinc reserves, particularly in Sverdlovsk Province.

Bauxite. This is the major raw material from which aluminum is extracted. Before the war about half of all Soviet bauxite came from Tikhvin, east of Leningrad. During World War II deposits in Sverdlovsk Province were intensively exploited. At the beginning of 1945 about 75 bauxite sources were known in the USSR, including reserves in the northern and central Urals, in the Bashkir, Uzbek, and Kazakh Republics, in Tula, Novosibirsk, and Kemerovo Provinces, and the Altay and Krasnoyarsk Territories. In 1945 over 96 per cent of all Soviet bauxite came from deposits in the eastern regions of the country, particularly from Sverdlovsk Province. These areas will continue to be exploited, although the Tikhvin area will undoubtedly recover much of its prewar importance.

Nickel. This important steel-making alloy is found in both sulfide and silicate ores in the USSR at a number of different points. The largest volume of Soviet nickel reserves are in the Norilsk region of Krasnoyarsk Territory in Eastern Siberia, followed by deposits at Monchegorsk in Kola Peninsula, and in the southern and central Urals. There are also important deposits in the Pechenga area of the Kola Peninsula, as well as in complex iron-chrome-nickel ores in the Kabardin ASSR in the North Caucasus. The great wealth of Soviet nickel resources and the progress made in their exploitation have made the USSR one of the very largest nickel producers in the world.

Uranium. This mineral, whose great importance has become evident only in the last few years, is found in a number of places in the Soviet Union, including Tyuya Muyun in Central Asia's Fergana Valley and several other points in the same region, all within 250 miles of Tash-

[17] *Entsiklopediya,* cols. 255–58.

kent.[18] Uranium may also be available in the Tannu Tuva area, north of Mongolia, incorporated in the USSR in 1944. The inadequacy of Soviet domestic resources is suggested by the intensive efforts made since World War II to obtain uranium from Eastern Germany and Czechoslovakia.

Gold. The Soviet Union is one of the world's largest producers of gold, although statistics on this output have not been published for many years. Two of the most important gold-mining regions in the USSR are in the Aldan Plateau in Eastern Siberia, southeast of the city of Yakutsk, and in the Kolyma area northeast of Yakutsk. Significant gold deposits are also found at other points in Asiatic Russia, including the Maritime Territory in the Far East, Kazakhstan, Buryat-Mongolia, and Irkutsk and Chita Provinces.

Other Metals. Soviet tin resources have not been plentiful in the past, requiring heavy reliance upon imports. Important new deposits have been discovered since 1933 and are being or will be exploited. The main tin deposits are found in Chita Province, on the upper reaches of the Kolyma River in Siberia, in the Maritime Territory of the Far East, Yakutsk, and in the Kirgiz and Kazakh republics. Tin is found in polymetallic ores located on the northeast coast of Lake Ladoga and in the North-Osetian ASSR in the Caucasus. Reports of Soviet imports of tungsten and molybdenum suggest that domestic production is inadequate. Ores of these important ferro-alloying elements occur in a number of places in the USSR, including the North Caucasus, Kazakhstan, Chita Province, and the Buryat-Mongolian ASSR, among others. The USSR produces a significant amount of silver annually, but precise data have not been available for many years. Among the areas with major silver deposits, usually in polymetallic ores, are Kazakhstan, the Urals, the North Caucasus, and the Maritime Territory. The USSR claims to hold first place among nations with respect to platinum reserves and produces relatively large quantities of this metal annually, in part from the Urals area near Nizhny Tagil. It is one of the world's major producers of chromium, at times exporting significant quantities abroad. Chromium ores are concentrated almost exclusively in the Urals and in Aktyubinsk Province in Kazakhstan. Mercury, antimony, bismuth, cobalt, arsenic,

[18] D. B. Shimkin, "Uranium Deposits in the USSR," *Science*, January 21, 1949, pp. 58–60.

and various rare metals are mined in many different locations scattered over the USSR.

Nonmetallic Minerals. The USSR has varied and rich resources of important industrial nonmetallic minerals, including among others asbestos, corundum (for abrasives), potassium salts, apatite (for fertilizers), phosphorites, borates, sodium chloride (common salt), and kaolin. Among the outstanding sources are the immense apatite works in the Kola peninsula, beyond the Arctic Circle; the Solikamsk potassium region, north of the city of Molotov on the western slope of the Urals; and the asbestos-producing city of Asbest, in Sverdlovsk Province. Large deposits of peat are found in many parts of the Northern European USSR. Although of low caloric value, this fuel is used for many power stations, especially in the industrial region around Moscow. Oil shales are found in significant quantities in the Volga region and in Northeast Estonia. A shale-gas pipe line has been laid from the latter region to Leningrad, to provide that city with gas fuel. Although natural gas is not a mineral, the deposits of this fuel in the Carpathian foothills and in the Saratov region are worth mentioning. Gas pipe lines have been laid from these deposits to Kiev and Moscow, respectively, so as to provide gas supplies for industry and household uses in those cities.

Population and Its Distribution

The human beings who constitute it are the primary natural resource of any society. In the USSR in early 1950 it is estimated that there were over 200,000,000 persons, this estimate being based on the number of election districts created for selection of members of the Supreme Soviet, the USSR's legislature. This vast mass of human beings was composed of persons from many different cultural groups, speaking many different languages, and spread in most unequal densities over the vast expanse of Soviet territory. In the 1926 census members of more than 150 different ethnic groups are indicated as being citizens of the USSR, ranging from the major Slavic, Turkic and Finnic groups to obscure and almost unknown peoples of a few thousand members each.[19] The distribution of the major national groups in the USSR in 1940 is indicated in Table 3.

[19] Frank Lorimer, *The Population of the Soviet Union: History and Prospects*, pp. 55–61. Geneva: League of Nations, 1946.

TABLE 3. Estimated Size of Major Groups in the Soviet Population in 1940.

Group	*Millions*	*Group*	*Millions*
Great Russians	100.0	Georgians	2.3
Ukrainians	36.0	Estonians	2.3
White Russians	8.5	Lithuanians	2.2
Jews	5.0	Armenians	2.2
Uzbeks	5.0	Latvians	1.6
Tatars	4.5	Mordovians	1.5
Kazakhs	3.2	Chuvashi	1.4
Moldavians	2.5	Tadzhiks	1.3
Azerbaidzhans	2.4		

Source: Based primarily upon data in *Entsiklopediya*, col. 60.

This distribution was probably changed significantly, however, by the great mortality suffered during World War II by some peoples, particularly the Great Russians, Ukrainians, and Jews.

Even in the small number of groups shown in Table 3, there are major differences of religious background, economic history, language, and culture. To accomplish its goals, the Soviet regime has had to change radically the traditional modes of life of many of these and other ethnic groups as well, and to weld them together by requiring study of the Great Russian language by all peoples in the USSR.

A most important characteristic of the population change over most of the USSR's history has been the rapid natural increase achieved. The census of 1939 listed 170,467,000 persons within the boundaries existing at the beginning of that year, an increase of almost 23,500,000 persons over the 147,028,000 listed by the 1926 census. This not inconsiderable natural increase took place despite the famine of the early 1930's. It represents not only the high birth rates characteristic of rural areas in the USSR as well as elsewhere, but also the sharp excess of births over deaths in many Soviet cities. In 1938, for example, Moscow had 195 births for every 100 deaths, and Minsk—probably an extreme, unrepresentative example—had 252 births for every 100 deaths.[20]

By territorial acquisitions between 1939 and 1945, the USSR took over an area of 670,000 square kilometers, inhabited before World War II by 24,300,000 persons. This region included the Baltic States, Eastern Poland, the Carpatho-Ukraine of Czechoslovakia, Bessarabia, Southern

[20] *Entsiklopediya*, cols. 49–50.

Sakhalin, among others.[21] If the population of the USSR within the previous boundaries had remained stable at the figure reached by the 1939 census, these acquisitions would have raised the Soviet population to almost 195,000,000 persons. Actually, of course, between 1941 and 1945 the Soviet Union incurred tremendous casualties, both military and civilian, as the result of the struggle with Germany and Japan. Yet so great was the recuperative power of its people that by early 1950 the government set up election districts in such numbers as to indicate a total population of more than 200,000,000 inhabitants.[22]

One of the major factors explaining the reproductive vigor of the Soviet population considered as a whole is its relatively youthful composition. This factor also has important economic and military significance. In early 1939, for example, about 61,500,000 persons in the USSR, 36 per cent of the total, were under fifteen years of age. About 81,000,000 persons, almost half the total, were in the 15 to 44 age group. About 29,000,000 persons or about 17 per cent of the total population, were 45 years or more old.

TABLE 4. Estimated Distribution of USSR Population, by Age and Sex, January 17, 1939.

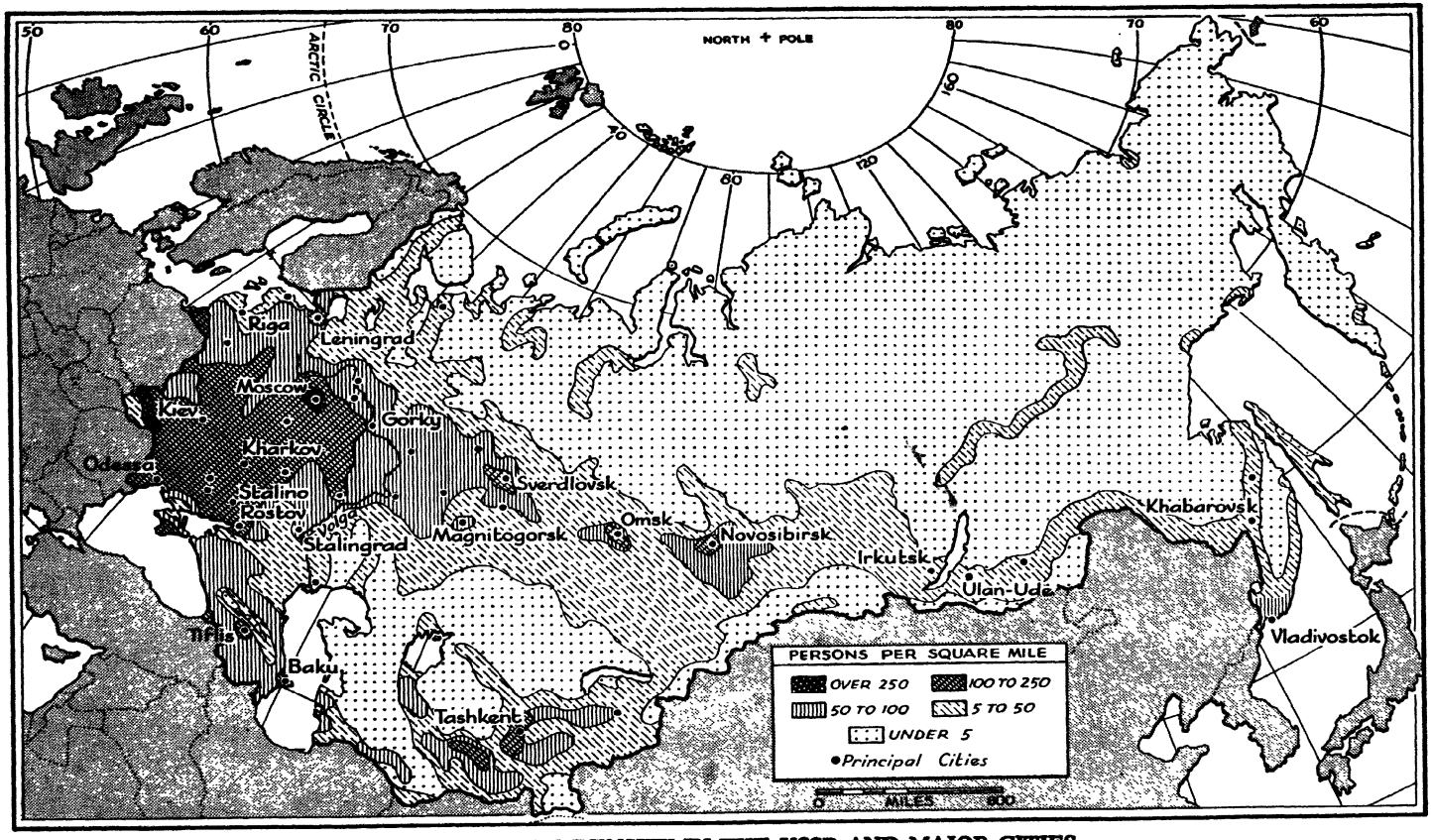
Age	*Male*	*Female*	*Total*
0–9	19,764,850	19,543,013	39,307,863
10–19	18,564,267	18,840,758	37,405,025
20–29	15,100,740	15,719,003	30,819,743
30–39	11,870,386	13,612,016	25,482,402
40–49	6,733,299	8,592,423	15,325,722
50–59	4,924,984	6,006,518	10,931,502
60–69	3,085,551	4,053,350	7,138,901
70–79	1,372,403	2,011,427	3,383,830
80+	248,501	423,697	672,198

Source: Adapted from Frank Lorimer, *The Population of the Soviet Union: History and Prospects*, p. 143.

The Soviet Union's population is distributed most unequally over its large land mass. The 1939 census, for example, found that 48 per cent of the USSR's population lived on 6 per cent of its territory. Conversely, only 6 per cent of its population lived on two thirds of its territory. The

[21] Balzak, *op. cit.*, p. 544.

[22] *Pravda*, January 12, 1950. According to the Soviet Constitution, each district for the Council of the Union is to include 300,000 persons. The population estimate is obtained therefore by multiplying the number of districts by 300,000.



IV. POPULATION DENSITY IN THE USSR AND MAJOR CITIES

most densely populated area then was found to be roughly the southern half of the European USSR, from the upper reaches of the Volga to the shores of the Black Sea, an area throughout which the average density was no lower than 25 persons per square kilometer. In the most heavily populated heart of this area, stretching from the Donets Basin to the neighborhoods of Moscow and Ivanovo, population density varied from 50 to 100 persons per square kilometer, sometimes even exceeding the latter figure. On the fringes of the basic southern European area, population density usually declined to between 10 and 25 persons per square kilometer. Beyond these fringes, substantially lower densities were encountered. Thus in Archangel and Murmansk Provinces in the north, the 1939 census found densities of 1.8 and 2.1 persons per square kilometer, respectively, much of this population being concentrated in cities. In 1941, just before the Nazi attack on the USSR, there was only 9 per cent of the Soviet population in the Asiatic portion of the Russian Soviet Federated Socialist Republic beyond the Urals, a territory constituting 56 per cent of all Soviet land area. Here population was concentrated primarily in a few major areas, such as the Kuznetsk basin and along the Trans-Siberian Railroad. Northern Asiatic Russia has a very sparse population, as indicated by the fact that density in the Yakut Republic was only .13 persons per square kilometer. In Kazakhstan and Central Asia there is a very uneven distribution of population. Large areas of desert and semidesert territory in this region have very few inhabitants. The bulk of the population is concentrated about oases, major industrial installations, and along the northern, eastern, and southern boundaries of Kazakhstan. In the Caucasian republics, population density is high in the river valleys and industrial cities but very thinly distributed in the large mountainous areas.[28]

During World War II, major population movements took place as large numbers fled eastward before the Nazi invaders and much industry was relocated from western to eastern sites. After the war, it seems likely, some offsetting migrations took place as many people returned to their former homes. It is probable that the eastern portions of the USSR have retained much of their wartime population gains vis-a-vis the west. On the other hand, it also seems likely that the basic elements of the prewar population pattern still remain much the same; i.e., people are still

[28] *Entsiklopediya,* cols. 56–59.

distributed most unequally throughout different parts of the Soviet Union, and the bulk of the population is still concentrated in the European portions of the USSR, particularly in the area between the Black Sea and the upper reaches of the Volga. Events since the invasion of June 1941 have not destroyed the basic climatic, soil, and economic factors that lay behind this basic pattern of population location.[24]

With the increasing industrialization that has featured Soviet economic development, there has been a steady trend toward urbanization of the population. This movement of people from rural areas to the cities was apparent in the last decades of the Czarist regime, also a period of relatively rapid growth of industrial production and capacity. Though reversed during the chaotic civil war years following the 1917 Bolshevik revolution, the former trend toward growth of urban communities resumed in the early 1920's and has persisted since. As a result, both the absolute size and the percentage importance of the urban population in the total figure has risen sharply. This is illustrated by the data below, which apply to the boundaries of the USSR as of January 1, 1939. They show the pace of the movement that has been converting this once overwhelmingly rural nation into an urbanized country, though even in 1939 over two thirds of the population was still rural.[25]

	Millions of Urban Population	*Per Cent of Total Population*
Census of Feb. 9, 1897	15.8	14.8
Estimate for Jan. 1, 1914	24.7	17.7
Census of Dec. 17, 1926	26.3	17.9
Census of Jan. 17, 1939	55.9	32.8

In 1939 the proportion of the Soviet population living in urban areas, roughly one third, was somewhat less than the corresponding proportion for the United States in 1890. The 1926 percentage for the USSR was less than the percentage of persons living in communities of 2,500 or more in the United States in 1860.[26] During and since World War II, urban population has continued to increase still further, except perhaps in the Western USSR during the period of German occupation. As Soviet industry, commerce, and transportation activity increase in the future, the trend toward urbanization seems likely to continue.

[24] This inference seems supported by the election district data in *Pravda, op. cit.*
[25] *Entsiklopediya,* col. 62.
[26] Lorimer, *op. cit.,* p. 147.

Migration from rural to urban areas accounted for 62.5 per cent of the increase in city and town population in the USSR from 1926 to 1939. The rest was accounted for by natural increase, i.e., the excess of births over deaths, and by the reclassification of rural villages into urban communities as the result of their growth or changed economic functioning.[27] The result was that in 1939 there were 174 cities with populations in excess of 50,000, as against only 90 such communities in 1926. There were 28 cities in 1939 with over 250,000 persons, as against only 9 in 1926.[28]

The fifteen largest cities of the USSR in 1939 are listed in Table 5, together with their populations as determined by the census in 1926 and 1939 and as estimated for 1950 on the basis of election district data.

TABLE 5. Population of the 15 Largest Soviet Cities in 1926, 1939, and 1950.

City	*1926*	*1939*	*1950*
		(thousands of persons)	
Moscow	2,029	4,137	5,100
Leningrad	1,690	3,191	3,300
Kiev	514	846	900
Kharkov	417	833	under 900
Baku	453	809	over 600
Gorky	222	644	over 600
Odessa	421	604	under 600
Tashkent	324	585	under 600
Tiflis	294	519	under 600
Rostov	308	510	under 600
Dnepropetrovsk	237	501	over 300
Stalino	174	462	over 300
Stalingrad	151	445	about 300
Sverdlovsk	140	426	under 600
Novosibirsk	120	406	under 600

Sources: Lorimer, *The Population of the Soviet Union: History and Prospects*, p. 250, and calculations based on election district data in *Pravda*, January 12, 1950.

The great rise in the population of cities in the Urals and east of the Urals during and since World War II is indicated, not only by the increases shown in the table above for Sverdlovsk and Novosibirsk, but also by 1950 data for the city of Omsk. In 1939 Omsk had only about 281,000 inhabitants, but by 1950 election district data indicated it had about 600,000 persons, roughly double the 1939 total. The same trend is

[27] *Entsiklopediya*, col. 63.
[28] *Ibid.*, col. 64.

indicated by data given Henry Wallace during his 1944 visit to Soviet Asia.

Table 6. Growth of Cities in Soviet Asia, 1939–44.

City	*1939*	*1944*	*Increase*	*Per Cent Growth*
Komsomolsk	71,000	127,000	56,000	79
Khabarovsk	199,000	250,000	51,000	25
Chita	103,000	170,000	67,000	65
Ulan-Ude	129,000	150,000	21,000	16
Irkutsk	243,000	300,000	57,000	23
Krasnoyarsk	190,000	300,000	110,000	59
Novosibirsk	406,000	600,000	194,000	48

Source: Henry A. Wallace, *Soviet Asia Mission*, p. 64.

No comprehensive data on the degree of urbanization in the USSR have been made available since 1939. But such clues as are available, particularly the sharp growth of industrial production since 1945, suggest that by 1950 the USSR's population was substantially more urban than in 1939. Soviet cities and towns in 1950 may well have housed 40 per cent or more of the USSR's citizenry as against 32.8 per cent in 1939.

CHAPTER II

THE HISTORICAL BACKGROUND

From the historical point of view the present Soviet regime of the USSR is still very young in comparison with the state that preceded it. For hundreds of years before first Kerensky and then Lenin seized power in this area, the Russian Czars held sway. Under their dominion the tiny Moscow principality of the Middle Ages expanded into the massive geographical area inhabited by many diverse peoples that the Bolsheviks took over. The political, economic, and social institutions that evolved and changed over time during the centuries the Czars ruled created the setting in which Soviet power became possible, as well as the background for all subsequent development. Lenin and Stalin have built on the foundation that existed before them. Any understanding of what they have done is impossible without insight into the nature of the society and the economy from which they emerged.

The economic growth of Czarist Russia will be the focus of attention here, a growth that influenced and was influenced by political, social, military, and other noneconomic developments. Three factors may be singled out as particularly important in this evolution. These are, first, the frequent wars in which the Russian state was engaged; second, the tremendous expansion of the Russian territory and the Russian population; third, the relative isolation of this nation from the West, which led to its lagging behind Western Europe technologically, politically, and socially. These factors were themselves the results of many complex forces working over the centuries, but we single them out because they operated with great persistence over all or most of the time from before

the beginning of the Romanov dynasty (in 1613) to its downfall in World War I.

War and the threat of war were frequent throughout the history of Czarist Russia, playing an important role in shaping its institutions and economy. Feudalism and its accompanying serfdom were in large part the products of early wars, which required an organization of society that would provide military manpower, permit satisfactory rewards for those who served as military commanders, and facilitate the transfer to the state of taxes required to pay the cost of these conflicts. Later, in the nineteenth century, the debacle of the Crimean War provided convincing proof that this form of societal organization had outlived its usefulness, thus helping to lay the groundwork for the historic reforms of the early 1860's. Military requirements for guns, ammunition, and ships provided much of the impetus for industrialization, particularly the development of metallurgy, mining, and related branches of production. Czarist Russia's military defeats in World War I and the accompanying disruption of its domestic economy set off the immediate chain of events that ended the Romanov dynasty.

The territorial growth of the Russian state from the fifteenth to the nineteenth centuries was the product both of successful wars against neighboring powers—the Tartars, Poles, Lithuanians, Swedes, Turks and others—and of relatively peaceful colonization eastward to the Pacific that met varied opposition from the more primitive Asiatic peoples of Siberia. Most of this expansion took place in the sixteenth, seventeenth, and eighteenth centuries, but significant additions were also made in the nineteenth century, particularly in Poland, the Caucasus, Central Asia, and the Amur River basin of the Far East. Czarist dominion was thus extended over a host of different peoples with varied cultural backgrounds and at sharply contrasting stages of economic development. These conquests added rich new resources to the Russian Empire, but many of them remained unexploited until the Soviet period, in part because of the harshness of climate in Siberia and the lack of good transportation facilities between the European and Asiatic portions of the Czar's realm up to almost the end of the nineteenth century. These territorial gains, however, extended Russian power to the Pacific, to the Baltic, Caspian, and Black Sea coasts, and well into Eastern Europe, providing better access to markets in Europe, Asia, and the Near East.

In the eighteenth and nineteenth centuries the population ruled by the Russian Czar increased almost ten-fold. In 1725 about 13,000,000 people are believed to have been within Peter the Great's realm.[1] Less than two centuries later the census of 1897 listed over 125,600,000 people in the Russian Empire.[2] In part, of course, this population increase was the result of territorial expansion that had brought many new peoples under the Czar's rule. But the same period also saw a very rapid growth of the basic Russian peoples (including Ukrainians and White Russians as well as Great Russians). Their numbers rose from about 17,900,000 in 1724, some of them outside Peter's realm, to about 94,300,000 in 1897, more than a five-fold increase. Along with this increase there occurred a major redistribution of this Russian population, as here defined. In 1724 about 63 per cent lived in Northern and Central European Russia, but in 1897 only 32.5 per cent lived there. The trend of migration during these two centuries was to Southern and Southeastern European Russia as conquest of the Black Sea coast, the shores of the Caspian, the lower Volga basin, and the North Caucasus opened rich new territories for settlers. Only 35 per cent of the Russian population had lived in these southern regions in 1724; over 60 per cent lived there in 1897. There occurred also a significant though numerically less important movement to Asiatic Russia, which had only 400,000 Russians, 2 per cent of the total, in 1724, but almost 7,000,000 Russians, over 7 per cent of the total, in 1897.[3]

The reasons for Czarist Russia's relative technological and cultural isolation from the West are many and varied—the frequent wars after a long period of Mongol domination and the enmity of the Poles and other nations immediately to the west of Russia are among the major reasons usually given. Equally many and varied were the consequences. Absolute monarchy and feudal serfdom persisted in Russia long after they had vanished in England, France, and even Germany. Though many individual Russians contributed brilliantly to the progress of science—including such giants as the chemist Mendeleyev and the mathematician Lobachevsky—Russia did not enter into the main stream of the indus-

[1] Cited from Miliukov in Witt Bowden, Michael Karpovich, and Abbott Payson Usher, *An Economic History of Europe since 1750*, p. 288. New York: American Book Company, 1937.

[2] Frank Lorimer, *op. cit.*, p. 10.

[3] *Ibid.*, and Bowden, *et al.*, *op. cit.*, pp. 288–90.

trial and agricultural revolution of the seventeenth to nineteenth centuries until comparatively late. When she did participate, it was largely under the influence of foreigners, who brought their technology—and in the late nineteenth century their capital—to help end the earlier isolation. Yet, curiously, the nobility of Russia prided itself upon being familiar with Western culture, particularly that of France; and Catherine the Great's court included at times many of the outstanding thinkers of her age, including Voltaire, Diderot, and Euler. But the advanced ideas of the West did not percolate down to the masses until comparatively late, and those who sought to spread them were often exiled and their writings suppressed. The breaking down of this isolation in the late nineteenth and early twentieth centuries played a large part in setting the stage for the revolutionary overturns that followed.[4]

Against this brief background we shall attempt to trace the development of agriculture, industry, trade, and transport in greater detail, though here again it must be borne in mind that for most of the period under consideration we are dealing with a large area with relatively poor transportation and communication conditions. At no time were patterns uniform over the whole territory and for all its inhabitants, so that at most we can hope to sketch only the most typical and prevalent institutions and relationships, each subject to many exceptions under the influence of varied local conditions.

The Development of Agriculture

Agriculture was the chief occupation of the vast majority of people in Russia. It was agriculture based primarily upon the cultivation of grains —rye, wheat, barley, and oats, chiefly—and conducted with little change in technique and organization from at least the fourteenth and fifteenth centuries to the freeing of the serfs during our own Civil War, and even afterward. The technique and implements employed were relatively primitive; livestock were comparatively few;[5] and the yields per acre were almost uniformly low. Famine was an all too common occurrence.

[4] The penetration of Western ideas into Russia and their effect and modification there are well summarized in Sir John Maynard, *Russia in Flux*, pp. 50–139. New York: Macmillan, 1948.

[5] P. I. Lyashchenko, *Istoriya Narodnogo Khozyaistva SSSR*, vol. 1, p. 242. Moscow: 1947. An English translation of an earlier edition of this work has been published as *History of the National Economy of Russia to the 1917 Revolution*. New York: Macmillan, 1949. All references here are to the Russian edition cited.

Most frequently the system of cultivation employed was that known as the three-field system, the common primitive mode of cultivation under feudalism throughout Europe. Peasants lived together in small villages, forming communities known at various times as the *obshchina* or *mir*. In the classical three-field system, the land available is divided into three roughly equal parts. The first year, one field is planted in winter rye and winter wheat, another in spring crops, and the third is left fallow in order to permit it to accumulate moisture and regain fertility. Crops are shifted annually from field to field, and roughly one third of the land is left idle each year in a regular rotation.[6] Even more primitive agricultural organization in many areas was based upon a two-field system, in which each plot of ground was used for several years to grow small grains and then was left fallow for several years. Under this system, of course, an even larger fraction of the available arable land was left idle each year.[7]

Usually, the land was further subdivided into many small strips. Each peasant family's work area consisted of a number of strips scattered at random over all the fields. The number of strips worked by each family varied, depending usually upon the size of the family. For long periods in many areas there were periodic redistributions of the strips so as to adjust the amount of land each family had to its size or to the number of workers it had available. This system of scattered strips was inefficient, since much time was lost as workers went from one strip to another. The motivation for this distribution of the land was the desire to assure each family of having, on the average, the same quality of land as its neighbors. If each family's land had been concentrated into one area, the quality would have varied from family to family, with resultant bitterness and discontent.[8] Two foreign observers, Wallace and Haxthausen, commented on the great accuracy of the land division achieved by illiterate peasants, and the latter noted that in some areas unequal amounts

[6] N. S. B. Gras, *A History of Agriculture in Europe and America*, pp. 28–29. New York: Crofts, 1940.

[7] Lyashchenko, *op. cit.*, pp. 240–41, 439. V. P. Timoshenko, *Agricultural Russia and the Wheat Problem*, pp. 45–46. Stanford University: Food Research Institute, 1932.

[8] A good description of how the land was divided is given in D. M. Wallace, *Russia*, pp. 136–37. New York: Holt, 1877. The comments of an earlier observer, Haxthausen, are reprinted in W. B. Walsh, *Readings . . . in Russian History*, pp. 274–75. Syracuse: Syracuse University Press, 1948.

of land were given to different families, in compensation for the unequal qualities of different plots.

In this system of agriculture and community life, the *mir* played a most important role. It acted as an organizing agency of the peasantry, coordinating their farming activities by setting the dates at which sowing, harvesting, and other major crop operations were to be undertaken, and seeing to it that all followed the common crop pattern. Wallace noted that "the Communal land thus resembles to some extent a big farm. . . . A family may sow what it likes in the land allotted to it, but all families must at least conform to the accepted system of rotation. In like manner, a family cannot begin the autumn plowing before the appointed time, because it would thereby interfere with the rights of the other families, who use the fallow field as pasturage."[9]

As early as the fifteenth and sixteenth centuries the members of the peasant commune or *mir* were bound together by a common obligation to the state for taxes. Officers elected by the commune apportioned the total tax burden among its members, allotted land to new settlers, and represented the locality before courts and other government bodies. If some members of the community left it, the tax burden they escaped had to be met by the rest.[10] Throughout the history of Czarism the collective group of farmers was one of the major institutions of the country.

In the fifteenth and sixteenth centuries, the land was tilled both by free peasants and by various categories of bondsmen. The distinguishing characteristic of the free peasant was his right to till the land whenever he made what he considered a satisfactory agreement with its owner, and to leave when he became dissatisfied. The earliest restrictions on this freedom aimed at preventing him from leaving his land in the middle of the crop year, forcing him to stay until the crop had been gathered. In some areas in the fifteenth century he could leave only on the fourteenth of November. Laws passed in 1497 and 1550 named the period in which he could leave as the week before and the week after St. George's Day (November 26).[11]

The three major landowners in this period were the Czar himself,

[9] Wallace, *op. cit.*

[10] James Mavor, *An Economic History of Russia,* vol. I, pp. 49–52. London and Toronto: Dent, 2nd Edition, 1925; Geroid T. Robinson, *Rural Russia Under the Old Regime,* pp. 10–12. New York: Macmillan, 1949.

[11] Lyashchenko, *op. cit.,* p. 260.

the *pomeshchiki* (the landholding nobility), and the monasteries. The *pomeshchiki* played the major role in creating the pressures that led to the mass enslavement of the agricultural population; yet in theory they themselves were the serfs of the Czar. They had received grants of land from the Czar as a reward for and contingent upon their remaining "serving people," i.e., functioning in one capacity or another at the royal court; or in return for providing and leading fully equipped troops as required in time of war or other emergency. The estates granted to these "serving people" reverted to the Czar when they ceased to fulfill their obligations toward the sovereign, and were not intended to be the *pomeshchik's* property in the modern sense of that term. Ownership of an earlier form of Russian estate, the *vochina*, was not contingent upon service; such an estate was inherited from one generation to the next. In the fifteenth and sixteenth centuries, however, this distinction tended to become ever less important, and by the beginning of the eighteenth century the two types of estate had been fused into one. The noble owned his land in the sense that he could bequeath it, but both he and his heir were bound to give service; if the heir was a woman, she took a husband to serve the Czar.[12]

As successive and successful wars extended Moscow's domain, more and more land at the outskirts of the realm became available for bestowal upon the nobility, contingent upon their providing properly equipped soldiers in proportion to the size of their land grants. To till their land and secure the soldiers they were obligated to provide, the new groups of landowners needed peasants who would also perform military service as needed. To get these tenants they had to turn to the older areas nearer Moscow. Thus arose a competition between the older and the newer nobility, the latter trying to tempt peasants away from the former, who struggled to keep them.

Although the free peasant had the right to leave, even if only at a particular time of the year, this right was conditional upon his satisfaction of all obligations and indebtedness to his old master. But indebtedness was the normal state of the free peasant, since his obligations were heavy. He had to pay taxes to the state. He had to pay rent to the landowner, either in money or in farm products—the so-called *obrok* payment—or in a certain amount of labor each week on the noble's fields

[12] Mavor, *op. cit.*, p. 40.

—the so-called *barshchina.* The low crop-yields in most years and the all-too-frequent crop failures not only prevented many peasants from reducing their past debts—incurred often for seeds, implements, livestock, and even for food to keep the family alive in the spring and early summer before the harvest—but resulted in these debts mounting. Fortunate indeed was the peasant who could add to his poor earnings from the land by other employment. The burden of debt was often so great that peasants sold themselves into personal bondage to cancel their debts and to get themselves off the tax rolls.

In these circumstances few peasants could meet their debts and leave. Sometimes those landowners who needed new settlers would offer to pay the accumulated obligations of those who would settle their land, and would make advances to enable the new settler and his family to live until their first crop had been gathered. More often, peasants and their families fled illegally, seeking to escape the crushing burden of debt upon them and make a new start. Sometimes they were aided and even enticed by their would-be new lords. Not infrequently, pitched battles occurred between the enticers and those whose peasants they were seeking to obtain. Peasants were sometimes terrorized or chained to make sure they would stay; often they retaliated by taking their master's valuables with them when they fled.[13]

The Czar and his government became increasingly concerned over this situation for a number of reasons. The flight of peasants from village communities in the older areas concentrated the debt burden upon an ever decreasing population. These remaining peasants could not pay the taxes, and by the end of the sixteenth century it seems likely that their obligations were completely beyond their ability to meet them. The reduction in tax payments that resulted was aggravated when the most debt-oppressed of the peasantry voluntarily entered slavery, for by their doing so the number of taxpayers was further reduced. Added to these reasons for the state's concern was the agitation of the nobility for aid in securing the return of those who had fled.

An outstanding contemporary Soviet economic historian believes that the legislative enslavement of the free peasantry began about 1580, when so-called "forbidden years" were set up, during which peasants were simply forbidden to leave the land they occupied, even if they had

[13] *Ibid.*, pp. 62–64. Robinson, *op. cit.*, pp. 12–17.

paid their debts. The first such "forbidden years," he believes, were 1581–86; they were reinstituted in 1590–95, "after which the prohibition of departure had actually become a permanent measure."[14] Other historians believe that the first stage of enslavement was the *Ukaz* (decree) of 1597, which provided that if a peasant ran away from land he had settled after September 1, 1592, and the landowner brought suit, the courts had to authorize the compulsory return of the runaway debtor. The law apparently gave landowners no ground for action if a peasant had run away before 1592 and no suit had been entered before then.[15] Whatever the legality of the situation, however, it seems clear that by the beginning of the seventeenth century the heavy indebtedness of the great bulk of the peasantry had reduced large numbers to serf or near-serf status. Moreover, the legal machinery had been created to facilitate the return of those who had left illegally, as well as to hinder peasant procurement by labor-short nobles and monasteries.

The state further helped strengthen the nobility's legal position as serf-owners when it conducted censuses for tax purposes in 1627–28. A worker temporarily employed on an estate and registered as such by the census takers automatically became a registered taxpayer and had to stay there. In taking the census of 1646 the government promised that all landed and landless peasants and their families registered in the census would be considered as bonded upon the estate where they were recorded and would be subject to return without any restriction. This promise was finally redeemed by a decree of 1649, which is usually regarded as one of the final legal steps in the establishment of serfdom. Thus the state sought to guarantee that its taxes should be paid and its nobility have cultivators of the soil as well as fighting men when the need arose.[16] Even if a peasant should run away and remain unapprehended, the decree protected the state's rights by requiring the landowner to pay the runaway's tax until the next census of his peasants for tax purposes.

During the eighteenth century the whole trend of law, custom, and practice tended to make the distinctions between different groups of slaves and serfs extremely tenuous. Serfs could be bought or sold, with or without the land they worked, like slaves. Legal differences and rights

[14] Lyashchenko, *op. cit.*, pp. 260–261.
[15] Mavor, *op. cit.*, p. 56.
[16] *Ibid.*, pp. 84–89. Robinson, *op. cit.*, pp. 19–20.

tended to become ever more submerged, since the enforcement of law on the estates was in the hands of the owners, the very persons who had most to gain from the bondage of their peasants and the abrogation in practice of any rights distinguishing them from slaves.[17] But, as might be expected, the creeping imposition of serfdom did not go unresisted, and peasants continued to flee as the opportunity arose. Mavor notes: "Towards the end of the seventeenth century there were epidemics of flights, 'Everyone was running.' . . ."[18] And periodically there were minor or major peasant revolts, the most noted of which was that led by Pugachev in 1773, when 30,000 armed rebels were rallied to show the serf's discontent with his unhappy lot.

In considering the situation of the agricultural serf, it must be remembered that he was primarily a small farmer who either tilled his strips of land full time and surrendered part of his produce to his master, or tilled his own strips part of the time and worked on the master's land the rest of the time. This was a different situation from that of the Negro slave in America, who was employed primarily as an agricultural laborer on his owner's land, producing some valuable crop such as cotton. There were landless serfs in Russia who were employed full time on land recognized as the master's, but they were not in the typical pattern.

Perhaps the final perfection of the serfdom organization of agriculture came in 1762, when a royal decree abolished the service requirements that had formerly been the justification for the nobility's landholding. This decree left unchanged the bondage of the peasantry until its final abolition a century later.

Mavor estimates that at about this time (1762–66) some 14,800,000 out of 19,000,000 persons living in the Russian Empire were serfs. Of these, almost 40 per cent were peasants belonging to the state itself; over 53 per cent belonged to *pomeshchiki.* Almost 80 per cent of the population lived in bondage.[19] The state peasants paid poll taxes, furnished recruits, and paid rent for the land they tilled. They were governed by the Czar's appointees, whose power resembled that of the landlords and was sometimes even more oppressive.[20]

What were the consequences of the institution of serfdom? First, it

[17] Mavor, *op. cit.*, pp. 92–93.
[18] *Ibid.*, p. 93.
[19] *Ibid.*, p. 192.
[20] Robinson, *op. cit.*, p. 29.

degraded the great bulk of the nation's people, keeping them in a subservient status and preventing most of them from rising above the illiteracy and blind adherence to tradition characteristic of this system of human relations. Second, it hindered improvement and experimentation in agricultural production. Bolder and more imaginative spirits among the peasants could not break the hold of the commune and primitive technique upon production, but had to follow the same pattern and practices as their less enterprising neighbors. Third, it bred ever increasing dissatisfaction among the serfs, most of whom had no hope of attaining freedom and resented bitterly having to share their meager produce with masters who often made no obvious—sometimes not any—contribution to production. Serfdom permitted the existence of a largely parasitic class of land- and serf-owners, while keeping the great mass of the population in abject poverty and alienating them from existing institutions. Little wonder the peasants believed firmly that the land was theirs by right and looked forward eagerly to the time when justice would be done them.

The Abolition of Serfdom

These and other deficiencies of serfdom were quite clear to many in the ruling circles of Russia. Even well before 1800, many government officials and intellectuals pondered the problem of how a more satisfactory organization of society could be achieved. How should the peasants be freed: by direct government order, or more slowly by government encouragement, making it easier for serfs to buy their freedom? Should the peasants simply be freed—as the Negroes were freed in the United States—or should provision also be made to assure them of some land? How were the serf-owners' interests and property rights to be treated in any project for mass liberation? Many proposals came up for consideration, and government committee after government committee struggled with the problem. All knew that serfdom had to end some day, but how could it be ended while maintaining the equilibrium of the state and—most important—preventing the peasantry from resorting to mass violence and bloodshed to gain revenge for past wrongs? A beginning was made as early as 1816–19, when the serfs in the Baltic provinces of Estonia, Kurland, and Livonia were freed, though they got no land and were forbidden to migrate from the rural areas.[21]

[21] Mavor, *op. cit.*, pp. 324–25.

There were economic factors pressing for liberation. Some landowners in the first half of the nineteenth century found that they could work their land more profitably if they used hired labor. A free man worked much more satisfactorily than the unwilling serf, who did his duties perfunctorily and was often quite willing to get into a quarrel rather than obey orders properly. In bad years when crops were poor, landowners had to purchase bread for their serfs at high prices, in order to keep them alive. In the 1840's some landowners liberated their peasants rather than meet this obligation. In some areas, land on which no serfs were settled sold for higher prices than land inhabited by serfs. But in other areas, of course—for example, where labor was still scarce, economic conditions were such as to make the landowner favor continued serfdom.[22]

The final blow to serfdom was the disastrous Russian defeat in the Crimean War (1854–56). In the highest ruling circles and among the most influential intellectuals, this military catastrophe was recognized as primarily the result of the economic and political backwardness of Russia compared with the victors, England and France particularly. The leading element in this backwardness was recognized to be the outmoded institution of serfdom. Five years after this defeat, the peasants were emancipated; the institution that had met military needs in the sixteenth century had failed to meet them in the nineteenth.[23]

The reform of 1861 that deprived the nobles of their serfs, and the additional reforms in the next few years that freed the even larger number of state peasants, fell far short of meeting all the hopes of the peasantry. But these reforms were far more generous than many groups of landlords had wished. They represented compromises between the conflicting interests of the groups involved. The landlords in the black earth regions sought to keep as much of their land as possible; those in the less fertile northern regions sought maximum compensation for the profits they had made from serf labor. The peasants wished freedom and land without cost to themselves. Their expectations and hopes knew no bounds.[24]

The leading objective of the reforms of the 1860's seems to have been

[22] *Ibid.*, pp. 370–79.

[23] Lyashchenko, *op. cit.*, pp. 578–79. V. P. Timoshenko, "The Agrarian Policies of Russia and the Wars," *Agricultural History*, October, 1943, pp. 192–94.

[24] Bowden, *et al.*, *op. cit.*, pp. 599–600.

to create a new free class of peasants working the same amount of land they had worked before being freed, but leaving the landlords in possession of the land that had been worked for them by serfs doing *barshchina* or by landless agricultural laborers. To take account of the diverse conditions on different estates, maximum and minimum norms were set in different areas. Where actual serf holdings exceeded the maximum norms, landlords could demand that the excess remain their property. Where serfs had no land at all or less than the minimum norms, they were to be allotted additional land. In practice, however, the former serfs got little or no additional land, while losing perhaps as much as 20 per cent of the land they had worked before the reform, much of this loss taking place in the fertile black soil areas of the Ukraine and the middle Volga. Worst off from the point of view of land holdings were the more than half million peasants who chose to accept the so-called "beggarly allotments," equivalent to one fourth the maximum norm, in order that their land might not be encumbered by any landlord claims for dues, services, or land payment.

The land allotted to the peasants was not a gift. It was to be paid for over a period of forty-nine years through redemption payments made to the state, which compensated the former landowners with redemption bonds immediately after the reform took place on each estate. Joint responsibility for meeting these payments was placed upon the members of the commune, and it was the commune, rather than the individual peasants, which was given title to the new lands. Members could not leave the commune without its permission, a measure aimed at preventing peasants from fleeing their obligations to redeem the land. Under the new laws the commune became an even more formal unit of administration. It became a basic component of the police system. It continued to levy taxes for local needs and, often, to redistribute land periodically in order to take account of the changing size and work force of each peasant family.

From the peasants' point of view, one of the worst features of these reforms was that the prices received by landlords for their land were often far above its true market value. This gave many landlords a concealed but nonetheless real payment for the loss of their serf property, though the law had specifically forbidden such compensation. Thus from the very beginning large numbers of former serfs found themselves

with inadequate amounts of land for which they were heavily indebted, hardly an auspicious beginning for their freedom.[25]

The reforms of the 1860's did not solve Russia's peasant problem, as is evidenced by the prominent role of the peasantry in the disturbances of the second half of the nineteenth century and in the revolutions of 1905 and 1917. After the reforms the plight of millions of peasants grew steadily worse, as their debts piled up—the result of the complete inadequacy of their land allotments to provide income sufficient for the redemption payments, government taxes, and subsistence needs. As early as the 1870's the government began to be alarmed about the mounting arrears in peasant payments and sent investigators to the areas of greatest delinquency. These investigators found the peasantry often near the edge of starvation. The world-wide fall in grain prices during the last two decades of the nineteenth century greatly worsened the situation;[26] moreover, the rapid growth of population in this period intensified peasant distress and made the inadequacy of their land holdings ever more apparent.

Not all Russian peasants were poverty-stricken, however. By 1900 significant differentiation had arisen among them. The most enterprising, those with better land, larger allotments, and a favorable market situation, had become more prosperous and were raising themselves above the mass of their fellows. They were buying or leasing additional land and employing workers outside their families. Lenin estimated in 1905 that 10.5 million poor peasants had on the average about 19 acres each; 1 million "middle peasants" averaged about 40 acres each; 1.5 million farms, owned by the richest peasants and by capitalist entrepreneurs, averaged about 126 acres.[27] (The average-sized farm in the top group was, of course, of only moderate size by United States standards.) Lenin estimated too that 30,000 *pomeshchik* estates averaged over 6,200 acres apiece and had as much land in the aggregate as all the 1.5 million upper farmers, and almost as much land as the 10.5 million poor peasants, taken together.

The growth of peasant landholdings after the reform is summarized by comparing the approximately 300,000,000 acres they got originally

[25] Timoshenko, *op. cit.*, pp. 194–96, and Bernard Pares, *A History of Russia*, pp. 353–55. New York: Knopf, 1944.
[26] Lyashchenko, *op. cit.* vol. II, pp. 66–70.
[27] *Ibid.*, p. 84.

in the early 1860's with the 500,000,000 acres they held on January 1, 1917.[28] In part this growth of peasant land was aided by the Peasant Bank, founded by the government in 1882, which lent money for land purchase and later was allowed to buy up estates for resale to peasants on easier terms.

Until the early years of the twentieth century, however, the commune often obstructed differentiation among the peasantry. This institution stood for equality of landholding in terms of manpower, an equality imposed by the periodic redistribution of land among members. And to the extent that the village community could force the observance of common crop patterns and cultivation practices on the strips of the three-field or the two-field system, it hindered technological improvement and higher agricultural production. The differentiation sanctioned by the *mir* was that resulting from the different sizes of peasant families. It is significant that the wealthiest 20 per cent of peasant families in the 1890's had 26 to 30 per cent of the peasant population.[29]

After 1860 Russian agriculture became increasingly commercial. More and more it produced for market sale rather than for peasant consumption and payment in kind to meet serf obligations. On the one hand, the peasants needed relatively large amounts of cash to meet their redemption payments and taxes. On the other, both domestic and foreign markets were expanding. From 1860–1914 industry grew rapidly, with consequent expansion in urban populations, for whom food had to be provided. The growth of the internal railroad network provided the means for moving food and agricultural raw materials from farms to urban markets and, most important, to seaports. This was the era in which Russian grain exports mounted sharply and became a major factor in international trade. The growth of these markets stimulated the development of large-scale production both on estates and on the holdings of the peasantry. The demand for sugar beets, dairy products, flax, hemp, and other agricultural raw materials stimulated expansion of the acreage devoted to them and consequently their production.

The unsuccessful Russo-Japanese War of 1904–05 and the accompanying revolutionary disturbances, both in the cities and the countryside, marked the next turning point in the development of Russia's agricultural institutions. The violently expressed resentment of the

[28] A. N. Antsiferov, *et al.*, *Russian Agriculture during the War*, pp. 20, 22. New Haven: Yale University Press, 1930.

[29] Lyashchenko, *op. cit.*, p. 77.

peasantry against the remaining large landholdings of the nobility raised the specter of more successful revolution in the future, the same specter that had played a potent part in the deliberations preceding 1861. Clearly the problem of making the peasantry, or at least a large section of it, a bulwark of Czarist rule rather than an opponent of it had not been solved.

In 1906 a new and radically different agrarian policy, the so-called Stolypin reforms, was adopted to accomplish this end, but important steps had been taken even earlier. In 1903 the collective responsibility for redemption payments had been ended, and in 1905 the redemption payments had been entirely wiped out, to quiet the revolutionary mood of the countryside. The Stolypin reforms went further. They aimed at ending the communal nature of Russian agriculture and substituting for it an agriculture composed of consolidated, individually owned farms on which modern farm technology could most easily be applied. On these the most enterprising and able could forge ahead, unhindered by the dead hand of traditional practice and egalitarianism as expressed in the *mir*.

To accomplish its objectives, the decree of November 9, 1906, divided all rural communities into two groups: those in which land had been redistributed among peasant families since the ending of serfdom, and those in which such redistribution had not taken place. Peasant allotments in the second group of communities were recognized as being the private property of the various peasant families involved. In those communities where redistribution had taken place, any member was permitted to leave the community when he wished. The community, upon his demand, was obligated to give him his land, not in the customary scattered strips, but, so far as possible, in one continuous piece. The regulations governing the breakup of communities by vote of members were revised so as to make such dissolution easier. The individual farms emerging from this reform could be sold or bequeathed to the owner's heirs. In some areas peasants were encouraged to move out of the old common villages into new homes, the so-called *khutors*, on the new consolidated areas they owned.[30]

These reforms obviously met a real demand from a significant section of the peasantry. Between 1907 and 1915, about 2.5 million peasants in European Russia, about 24 per cent of the total, were confirmed as in-

[30] Lyashchenko, *op. cit.*, p. 265, and Mavor, *op. cit.*, vol. II, pp. 340–46.

dividual owners of their own farms, a total area of about 45 million acres. In some parts of the Ukraine as much as 50 per cent of all peasant holdings had been turned into privately owned farms by 1915; but in areas where agriculture was less dependent upon market sale, the relative importance of this movement was much less. It was in the areas of commercialized agriculture that farmers were most apt to be dissatisfied with the hampering effects of *mir* control and to be aware of the possibilities in improved agricultural technique.[31]

In an effort to minimize peasant discontent in areas where the growth of population had intensified rural poverty, the Russian government encouraged migration to its Asiatic lands, subsidizing it in part and taking the responsibility of preparing land for new settlers. Between 1905 and 1914 alone, about 3 million persons moved from European to Asiatic Russia, thus practically completing the agricultural colonization of Siberia for several decades. The migration to Asia from 1906 to 1913 drained off about half the natural increase of the rural population in those parts of European Russia that were overpopulated.[32]

What the Stolypin reforms, the government-encouraged migration out of European Russia, and other steps taken by the Czarist regime to ease the peasant problem might have accomplished in time, we shall never know. The outbreak of World War I in 1914 required the concentration of energies upon other matters. In 1916 the Stolypin program had to be suspended because of fears among the soldiers that their interests at home might be damaged by its operation while they were away. Military defeats and peasant dissatisfaction helped overthrow first the Czar and then the moderate government that succeeded him. Thenceforth the development of Russian agriculture and of peasant organization were to be the concern of the new Bolshevik rulers. Thus history expressed its verdict that the reform of 1861, Stolypin's legislation, and the other steps taken by the Czarist regime had all fallen into the category of too little and too late.

Industry, Trade and Transport

Before 1860—and even decades later—the Russian village, like other preindustrial societies, met most of its own needs. The overwhelming

[31] Lyashchenko, *op. cit.*, pp. 266–67.
[32] Timoshenko, *op. cit.*, pp. 202–03.

majority of the population was engaged in agriculture, and the primal economic problem of most families was to produce enough food to feed its members and pay the required dues to the lord and the state. To a large extent each family was a self-contained unit, baking its own bread, making much of its own clothing, building and repairing its own abode, and otherwise meeting its own needs. A village typically had a few craftsmen and artisans—weavers, carpenters, blacksmiths, cobblers, and the like—who produced those items that the individual peasant family could not conveniently make itself. The number and variety of these craftsmen varied from village to village, both being greatest in those communities adjacent to a *pomeshchik* estate or a monastery. Here the greater demand and greater means for purchase enabled more craftsmen to make a living. To a very large extent, therefore, the needs of most people were met locally through their own and their neighbors' production.[33]

But even in the thirteenth and fourteenth centuries, when this picture was most typical, a certain amount of industry and trade for comparatively large markets was carried on. In Moscow and other cities the number and variety of handicraftsmen and their products were much more extensive than in the peasant villages, and even those villages had to rely upon outside sources for salt, iron, wine and other goods. The cities needed food for their inhabitants, which they obtained from the peasants, supplying in return weapons, clothing, shoes, and other products of urban production. As elsewhere in Europe, fairs, conducted annually or more often, brought buyers and sellers together to exchange products produced over a wide area. Intercity and interareal trade were hindered by the poor condition, or complete absence, of roads, but goods were carried for long distances over the rivers of the Russian plain. Monasteries, princes, and large landowners often played important roles in this trade, either carrying it on directly with the help of agents located at widely distant points, or financing and protecting merchants engaged in this activity.[34]

The needs of war furnished a particularly important impetus for industry and trade in these years. Toward the end of the fifteenth century Ivan III called in foreigners to help inaugurate the production of artil-

[33] Lyashchenko, *op. cit.*, vol. I, pp. 201–04.
[34] *Ibid.*, pp. 204–13.

lery weapons for the Moscow state, thus hoping to end the earlier dependence of Russian armies upon imports of such heavy and relatively complex weapons. In general the needs of Russian armies for weapons, munitions, means of transport, and other commodities were on a scale that could not be easily satisfied by the production of the individual handicraftsman or by small groups. This development gave an important impetus to the development of larger-scale industry.[35]

As the Moscow state expanded territorially from the fifteenth to the seventeenth century, it offered an ever-expanding domestic market for the products of industry and mining and an ever larger area for trade. Its cities grew both in size and in number, while the requirements of its armies rose too, as their numbers increased and military operations became more complex. In the sixteenth century the cities of the Moscow state had about 200 different types of artisans. Moscow and Novgorod had over 2,000 such workers each, while hundreds were to be found in smaller cities such as Mozhaisk and Tula. Bakers, fishermen, winemakers, leatherworkers, hatmakers, metal workers of diverse types, these were among the most important groups of artisans. Large-scale entrepreneurs and traders sprang up, organizing the production of varied commodities and trading over large areas. In the enterprises of the Stroganov family alone, 10,000 free workers and 5,000 serfs were employed.[36] In the seventeenth century the feudal lord Morozov had a large-scale potash works, as well as shops producing iron implements, leather, bricks, and other commodities. His own serfs composed a large part of his labor force, their work being the *barshchina* payment to him. He owned about 300 villages and tens of thousands of bondsmen, combining the activities of a large-scale landowner, industrialist, and trader.[37] During the sixteenth and seventeenth centuries the state owned mines, shops, and other enterprises, which supplied it with the weapons, currency, and other commodities it required. These production units employed state peasants directed by foreign technicians. About 1650 foreigners built glass, stationery and iron-fabricating factories in Moscow and elsewhere. Foreign trade became an appreciable factor in the country's economy. Commerce with England and Holland flowed

[35] *Ibid.*, p. 273.
[36] *Ibid.*, pp. 267–72.
[37] *Ibid.*, pp. 318–19.

through the Barents Sea into Archangel and through non-Russian Baltic ports. Trade with Germany and Poland went overland through the Ukraine; and trade with Persia, China, and India, through Siberia and over the Caspian Sea.[38]

Peter the Great's Contribution

The reign of Peter the Great (1682–1725) saw the most concentrated and rapid progress in expanding industry achieved up to that time. Others before him had sent out prospectors to find mineral deposits; he sent out a veritable army of them, and was well rewarded by their findings. Two centuries before him, Ivan III had brought in an Italian cannonmaker, and small numbers of other foreign experts were brought in from time to time after that; Peter brought in foreign experts in wholesale lots and made his embassies throughout Europe virtual employment agencies. Moreover, he imported not only technicians but mathematicians and other scholars to teach in his schools. He himself had visited Western Europe and England, learning at first hand the advanced nature of Western technology, and absorbing the mercantilist ideas of state economic policy prevalent at the time.[39]

In large part the motivation for Peter's economic policy was the desire to meet adequately the needs of his large armies and of the navy he hoped to build. His determination to build his new capital, St. Petersburg (now Leningrad), on the swamps where the Neva River joins the Gulf of Finland created additional great needs for commodities of the most diverse sort. Peter realized Russia's enormous resources and potentialities, and desired to make them actualities so far as he could. As absolute ruler of his country, he had the power to commandeer its wealth for the realization of his projects, much as the absolute rulers of the contemporary Soviet Union have been able to utilize the same nation's resources for their own ambitious goals.

To build a large-scale industry, one needs raw materials, technical knowledge, capital, and labor. For the first Peter could draw upon the varied agricultural and forest output of his realm, as well as upon the old and newly discovered mineral resources within it. Thus he intensively exploited the iron resources of the Ural Mountains. Almost

[38] *Ibid.*, p. 310.
[39] Mavor, *op. cit.*, pp. 116–19.

30,000 short tons of pig iron were smelted in Russia in 1718; England, usually regarded as the home of the industrial revolution, produced less than 20,000 short tons of iron in 1740. As a result of the beginnings made under Peter, by the middle of the eighteenth century Russia was the world's largest producer of iron and copper.[40]

Peter turned to the West, as we have seen, to obtain the most skilled technicians he could hire. These were brought to Russia under generous contracts, not only to work at their specialties, but also to teach Russians the new skills and methods that had been developed in France, Holland, England, and other Western countries. Moreover, Peter sent many young Russians abroad to study in the schools and the workshops of Western Europe, thus further adding to the technically and professionally trained personnel at his disposal. More general, but not unimportant in its cumulative effect, was Peter's enthusiasm for education and his efforts to insure that at least the children of the "serving people" got an education. He required that they pass an examination before being admitted to public service.

Some of the most thorny problems Peter had to contend with were related to the obtaining of capital for starting new factories, mines, and other enterprises he desired to carry out. Much of this capital was provided by the state treasury, which initiated some productive units and partially subsidized others. Such financing of capital expansion was expensive, of course. Peter's wars and standing armed forces drained the treasury even more heavily and created a serious fiscal problem. To raise money for his treasury, Peter and his subordinates resorted to many devices. Not only were new taxes imposed upon the already heavily burdened peasantry, but excise taxes of every imaginable kind proliferated rapidly—beards, chimneys, water, baths, and cucumbers being a few of the things taxed. The state monopolized the production of many essential commodities such as salt, tobacco, fish, oil, oak coffins, and other items, and doubled or quadrupled their prices. Salt, for example, became a luxury, and poverty-stricken peasants died because they could not afford it. Peter ordered many of the country's church bells to be melted down to make cannon. In 1701 he confiscated the in-

[40] *Ibid.*, p. 129, and Lyashchenko, *op. cit.*, p. 405. The pig-iron figure for Russia given here is cited by Lyashchenko as the conclusion of recent investigations invalidating the higher figure cited by Mavor. Cf. also Bowden, *et al.*, *op. cit.*, pp. 301, 385.

comes from the large monastery estates. And like many another impecunious medieval ruler, he reduced the silver content of his currency. By the end of his reign the country had token money rather than a currency that was intrinsically valuable because of its silver content.[41]

Peter's exactions from his countrymen to pay for his military and economic activities served to reduce a low standard of living still further—again reminding us of the policies followed by the current masters of the USSR; like them he abstained from obtaining foreign loans and other external financing that might have limited his freedom of action. Peter's generation, like Stalin's, paid for their country's progress by their own privation.

But treasury funds were not the only source of capital during this period. Substantial capital accumulations existed in the hands of the landowning gentry and the rich merchant families. Tax exemptions, subsidies, high tariff protection, monopolistic privileges—these and other incentives were offered to those who would invest their means in enterprises as diverse as moose hunting in the forests of the north and silk manufacturing. The stick as well as the carrot was used to obtain such investment, and merchants were informed of their obligation to create industrial production units. Wealthy interests seeking to evade this "public duty" transferred their funds to England, Holland, and Italy, while others hoarded gold and silver. Many a potential entrepreneur was apparently frightened away by the close and arbitrary control exercised by the government over economic activity of any significant size. Those who invested did so because of the prospect of great profits, but their inexperience and incompetence often brought them to financial disaster, their enterprises collapsing unless additional government aid could be obtained.[42]

Since Russia, at the beginning of the eighteenth century, had no large body of free workers seeking employment for wages, the problem of recruiting an industrial labor force had to be solved primarily by the use of serfs belonging to either the state or the gentry. When the government set up factories, it typically assigned the residents of nearby villages on state land to work in them. In 1721 merchants owning factories were permitted to buy entire village populations, thus gaining

[41] Mavor, *op. cit.*, pp. 131–35.
[42] *Ibid.*, pp. 127–28.

the formerly denied right of owning serfs. These latter were associated with the enterprise and might not be diverted to other work. This was the origin of the class of "ascribed" or "possessional" peasants, who formed an important portion of Russia's nonagricultural labor force till the 1860's. Not all the industrial workers of this time were unfree, however. There were relatively small groups of urban free men—former handicraft workers, tradespeople, children of soldiers, beggars, and the like—who were recruited in such numbers as available. But the pressing need for a rapidly expanded labor supply could only be solved in this period by the use of forced labor, primarily that of the bonded peasantry, but also including convicts. Significantly, eleven years after Peter's death a decree of 1736 declared all freemen working in factories, together with their families, to be henceforth bondsmen attached to the factories "forever." Russia's industrial proletariat, therefore, began as an unfree group, subject to the same disabilities as the serfs of the countryside, from whose ranks most of these new proletarians were rudely taken by government fiat.[43]

Of the 195 largest factories established during Peter's reign, 26 produced linen and silk fabrics as well as cloth; 5 produced leather; 4, paper; and 3, weapons. In addition there were factories producing canvas for sails, about 20 iron and other metallurgical refineries, and other assorted enterprises.[44] Some of these production units employed well over a thousand workers each; others, several hundred. But these must not be thought of in terms of modern centralized factories, all of whose employees tend machinery in one building. Some of these "factories" were little more than organizations that united and coordinated the activities of hundreds of domestic workers, each in his own home, or small numbers working together in tiny workrooms. This tended to be the pattern in weaving and other branches of textile manufacturing. In metallurgical shops, on the other hand, the very nature of the production technique required that a fairly large number of workers be concentrated in one place. Their work was characterized by a fairly high division of labor, and some of them used machinery run by water power, bellows, furnaces, and the like, though many used only the simplest of tools, such as hammers. For some products, the manufacturing process

[43] *Ibid.*, pp. 125–26, and Lyashchenko, *op. cit.*, pp. 389–91.
[44] Lyashchenko, *op. cit.*, pp. 403–04.

involved both operations done in the central building and others done by artisans in small workrooms or at home.[45]

After Peter's death, industrial development continued, though at a slower pace for a time. In mining, for example, in 1719, 31,383 ascribed peasants belonged to the work force. By 1741–43, the number had grown to 87,253; and 50 years later, in 1794–96, the number of these serf miners was 312,218, a tenfold growth within a century.[46] The growth of manufacturing was not nearly so rapid, however. Data for 1770, covering manufacturing plants outside of St. Petersburg that reported to the manufacturing collegium, show only 190 factories, employing a total of only 34,316 ascribed and possessional peasants.[47] The growth thereafter was rapid, however, as is indicated by the following data:

TABLE 7. Number of Factories and Number of Workers in the Manufacturing Industry of Russia during Selected Years, 1770–1860.

Year	*Number of Factories*	*Number of Workers (000 omitted)*
1770	over 190	about 60
1804	2,399	95.2
1811	2,421	137.8
1820	4,578	179.6
1830	5,453	253.9
1840	6,863	435.8
1850	9,843	501.6
1860	15,338	565.1

Source: Rashin, *Formirovaniye Promyshlennogo Proletariata V Rossii*, p. 23.

The above data include many small enterprises of less than ten workers as well as larger plants, so they must be interpreted with care. In addition they reflect, not only the growth of old industries, but also the introduction and development of new ones over this period.[48] Despite the qualifications that must be attached to these data, the figures make it abundantly clear that industrial production grew significantly, and at times rapidly, in the century before the ending of serfdom. The Napo-

[45] *Ibid.*, pp. 392–94.
[46] A. G. Rashin, *Formirovaniye Promyshlennogo Proletariata V Rossii*, p. 71. Moscow: 1940.
[47] *Ibid.*, p. 18.
[48] *Ibid.*, p. 24.

leonic wars cut Russia off from imports of English goods, stimulating the domestic production of substitutes; machinery of all kinds was slowly but steadily imported from abroad after 1800, so that Russia participated in part in the alteration of production methods that went on so rapidly in Western Europe, and particularly England. Cotton cloth production, based largely on the use of imported cotton, forged ahead very rapidly after 1830, as new technical developments made such cloth by far the cheapest clothing material and thus opened up a wide domestic market for its use. The government prohibited the import of many kinds of goods and put high tariff rates on many others, hoping to stimulate some industries by protecting them wholly or in part from the competition of cheaper production abroad. This protectionist policy lasted from 1822 to 1850, after which there was a turn toward freer trade.[49]

But although the economic development during the first half of the nineteenth century was appreciable, it was relatively slow compared to the almost explosive increase of production elsewhere in Europe. Pig iron provides a striking, though not entirely representative, case in point. In 1800 Russia's pig-iron output was about the same as England's. By the 1850's Russia's production, which had much less than doubled, was far behind England's which had increased ten times over. By 1860, Russia stood in eighth place among the producers of pig iron, behind even Austria and Prussia.[50]

Such relative slowness of growth is not surprising in view of the political, social, and economic structure of the country at the time. Since the majority of the population consisted of poverty-stricken bonded peasants, mass markets existed for relatively few commodities. The existence of large areas of monopolized production hindered the increase of output that might have followed competitive price reductions. Effective Russian contributions to the rapid growth of industrial technology were few. The importation of more modern technology was hindered both by efforts of advanced powers to monopolize their discoveries—England's policy in the case of some types of textile machinery is illustrative—and by inertia and lack of mass markets in Russia. Not least important, the continuing importance of unfree labor in large segments

[49] Lyashchenko, *op. cit.*, pp. 462, 492.
[50] *Ibid.*, p. 537.

of Russia's nonagricultural economy hindered technical advance, since such workers could be relied upon to do only the simplest and least responsible tasks.

The inadequacies of an unfree labor force began to be realized soon after the introduction of automatic machinery and other displacement of simple hand methods in production. Thus in 1837 a group of manufacturers in Moscow Province wrote the Minister of Finance complaining that possessional peasants could not be used where thought and judgment, as well as mere physical exertion, were required. Moreover, they complained, these ignorant workers were an increasing burden, since they and their children had to be fed, regardless of their productive contribution.[51] Such sentiments were general and were acted upon by manufacturers. Data for most Russian industry, excluding mining and some food-processing branches, show that the proportion of free workers in the factory labor force rose from 32 per cent in 1770 to 50 per cent in 1812 and 87 per cent in 1860. As early as 1825, almost 95 per cent of all cotton textile workers and 93 per cent of leatherworkers were free, as were the great majority of workers in linen and silk manufacturing. Possessional peasants and serfs of the gentry formed the great bulk of the labor force in mining, in metallurgical manufacture, and in the branches of the textile industry controlled by the nobility, who used their own subject workers to process the flax, hemp, and wool their estates produced.[52] Long before serfdom was ended by the Czar's decree, much of Russian industry had learned that slavery and advanced technology were incompatible and made an unprofitable combination.

The term "free workers" as used above should not be interpreted in the modern sense, for the great majority of these were serfs too. But they had been given passports by their owners permitting them to travel and look for work under conditions that they negotiated with their employers. From their earnings they paid *obrok* money to their lord, keeping the remainder to provide for themselves. Their wages were low, far below the level of foreign workers'. Nevertheless these serfs—and state peasants who could not find employment in agriculture—were termed a free labor force: they were relatively free compared to those who worked under usual feudal conditions. Moreover, as we have noted, the

[51] Quoted in Rashin, *op. cit.*, p. 62.
[52] *Ibid.*, p. 71, and Lyashchenko, *op. cit.*, pp. 535–36.

traveling serf-workman had an incentive to raise his earnings, and therefore his productive abilities, because he was permitted to retain the excess of his wages over the required *obrok* payment.[53]

Development after the End of Serfdom

The year 1861 marks a fundamental turning point in the history of the nonagricultural sectors of the Russian economy. The freeing of the serfs opened the way for recruitment of a free labor force on a scale never before known. For most peasants, the desertion of agriculture for other occupations was hindered by the collective obligations for land-redemption payments and the necessity for those so bound to obtain passports. But even in the first years of the postreform period, several million peasants found themselves with little or no land, and with no obligations for redemption payments. They were free to shift to other occupations.

The land-redemption bonds issued the nobility by the government provided an important source of capital, since they could be liquidated at the owners' pleasure, though often only at a substantial discount. This capital could be, and often was, invested in the development of trade, industry, and transport. The land-redemption requirement, moreover, brought the mass of peasantry, more intimately than ever before, into a monetary economy, placing greater pressure upon them to raise crops for sale and, for many, creating a most potent incentive to earn money in occupations other than agriculture. In these and other ways the reform created a ferment and activity with the most momentous consequences.

The Russian revolutions of 1917 came, not at the end of a long period of stagnation and decay, but rather after more than a half century of the most rapid and comprehensive economic progress. The average annual rate of growth of industrial output in Russia between 1885 and 1889, and again between 1907 and 1913, substantially exceeded the corresponding rates of growth during the same period in the United States, Great Britain, and Germany. Between 1890 and 1899, industrial production in Russia grew on the average over 8 per cent each year.[54]

[53] Rashin, *op. cit.*, pp. 79–82.

[54] A. Gerschenkron, "The Rate of Industrial Growth in Russia since 1885," *The Journal of Economic History*, Supplement VII (1947), p. 156.

In roughly two out of every three years between 1868 and 1919, 1,00(kilometers (621 miles) or more of railroad lines were completed. Ir 1908, 8,390 kilometers were finished; in 1899, 5,257 kilometers; in 190(and 1901, over 3,000 kilometers each year. By the outbreak of the firs World War, Western Russia was covered with a relatively dense net work of railroad lines designed to serve both strategic military purpose and the domestic and foreign trade activities of the country.[55] More over, the Trans-Siberian Railroad had been completed, connecting Mos cow and St. Petersburg with Vladivostok on the Pacific Ocean, and run ning through the heart of Siberia. This rapid development of industry and transportation did not proceed unchecked, of course, and was held back from time to time by crises and depression, as in 1873 and 1882 but the whole period 1861–1914 had rapid development as its key fea ture. The tempo of increased production of major commodities is shown in Table 8.

TABLE 8. Production of Selected Commodities in Russia, 1860–1913.

Commodity	*Unit*	*1860*	*1870*	*1880*	*1890*	*1900*	*191*
Coal	mil. puds*	18.3	42.4	200.9	367.2	995.2	2,21
Petroleum	mil. puds	—	1.8	34.0	241.0	632.0	56
Pig Iron	mil. puds	19.6	20.7	26.1	55.2	176.8	28
Iron and Steel	mil. puds	12.4	14.5	35.3	48.4	134.4	24

* One pud equals 36.1 pounds avoirdupois.

Source: Lyashchenko, *op. cit.*, vol. II, pp. 151, 152, 410.

During the last half century of Czarist rule, the figures above clearly indicate, Russia went a good way toward ending its former economic backwardness. In this period was laid much of the foundation upon which the Soviet Union was later to build its own rapid economic ex pansion. The very rapidity of this movement created tensions and strains that produced social upheaval. But even the progress made by 191 had far from closed the gap in economic development between Russia on the one hand and Western Europe and the United States, on the other.

What were the major factors behind this great unleashing of Russian energies? Among the most important were the expansion of domestic

[55] Edward Ames, "A Century of Russian Railroad Construction: 1837–1936," *The American Slavic and East European Review*, December 1947, *passim.*

and foreign markets for Russian products, and the deliberate policy followed by the Russian government in consistently encouraging economic development in every way possible. Market expansion was in turn the product of many forces: the rapid rise of Russian population; the unifying of the country by railroad lines, which helped break down the old local barriers and created a true national market for the products of many industries; the continued weakening—though not elimination—of peasant village self-sufficiency under the impact of increased participation in a money economy and increased contact with urban living patterns; the particularly rapid growth of urban population, i.e., of people accustomed to purchase the bulk of their food and consumer goods; the requirements for rapid capital development of railroad lines, factories, shipbuilding, and other facilities, which, in turn, of course, represented a response in part to earlier market expansion. The growth of Russian exports, particularly of grain, was facilitated by the increasing industrialization of Central and Western Europe and the corresponding sharp increase of industrial populations seeking food at the lowest cost.

Government policy was most important in this development. Abolition of serfdom, itself, was perhaps the greatest single contribution, but other contributions were more direct. The state treasury itself financed much of the railroad building and factory construction, while the state bank helped other enterprises of nongovernment origin. A consistent policy of encouraging and facilitating foreign capital investment, and the import of technicians and technology from abroad, brought rich returns. To pay for heavy treasury expenditures the government kept the tax burden oppressive. This had the additional effect of forcing the peasantry to sell more grain and other agricultural products than they otherwise might have done, which in turn facilitated the grain exports that made it possible for Russia to have a favorable balance of trade and maintain interest payments on its huge capital imports. "Let us starve but export," was Finance Minister Vyshnegradsky's slogan[56] almost 50 years before Stalin let Ukrainians starve while shipping grain abroad to pay for American farm machinery. Through tariffs and other restrictions on international trade, the government sought on the one hand to protect domestic industry and on the other to cut down un-

[56] Gerschenkron, *op. cit.*, p. 149.

necessary imports that might endanger the favorable balance of trade needed to maintain the confidence of foreign investors. But this was not a policy of blind protectionism, and in the early years of railroad expansion, before the mid-eighties, the vast metallurgical and machinery requirements for this purpose were permitted to come in from abroad almost unhindered.[57]

Without the aid of foreign capital, technicians, and technology, this rapid development of productive forces and production could not have been attained. As early as 1890, over one third of all capital in Russian joint-stock companies was from foreign sources. By 1900 the ratio had risen to half the total. Of the more than 2.2 billion rubles of foreign capital so invested in 1916–17, 32.6 per cent came from France, 22.6 per cent from Great Britain, 19.7 per cent from Germany, 14.3 per cent from Belgium, and 5.2 per cent from the United States. In the mining industry the proportion of foreign capital was 91 per cent; in the chemical industry, 50 per cent; in metal fabricating, 42 per cent; in woodworking, 37 per cent; and in the textile industry, 28 per cent.[58] In addition a large part of the cost of railroad construction was financed by foreign loans, particularly from France. Moreover, the foreigners did not merely content themselves with investing money to earn dividends and interest; they also provided the managerial, engineering, and other skills required for this development, as well as much of the modern machinery for Russia's new factories and railroads. The rapid development after 1870 of the Donets coal basin and Krivoy Rog iron mines for steelmaking and other purposes was to a large extent the result of the activities of the English entrepreneur John Hughes. Similarly, the Swedish firm of Nobel, backed by English and French capital, was responsible for the rapid increase in the production of oil at Baku, which soon became Russia's leading petroleum source, just as the Donbas–Krivoy Rog area became Russia's primary supplier of coal, iron, and steel. In the textile industry, Ludwig Knoop, a German, built and financed much of the rapid expansion that took place, utilizing many English technicians from Lancashire.

Along with the great expansion of industrial and mining output from 1860 to 1913 went a sharp increase in the labor force employed in these

[57] Mavor, *op. cit.*, vol. II, pp. 381–82.
[58] Lyashchenko, *op. cit.*, pp. 161, 378.

branches of the economy. In 1860 more than 800,000 workers were engaged in manufacturing and mining; in 1913 over 3,000,000 were so employed, a rise of almost 400 per cent.[59] In addition, Russia had over 1,000,000 construction workers about 1910,[60] and well over 400,000 railway employees of all kinds after 1900.[61] In total, therefore, over 4,500,000 Russians were engaged in the major branches of the nonagricultural economy before World War I.

Even in the last years of Czarist rule, however, the work of individual craftsmen, or small groups of artisans, working at home or in small village workshops, continued to play an important role in meeting the daily needs of the peasantry, who still constituted the bulk of Russia's population. Household utensils of all kinds, shoes and other leather products, some types of textiles, wood products and other commodities were made on a wide scale throughout the country for predominantly local markets. The number of persons engaged in these occupations, either full time or in the off-season after the harvest, is not accurately known, but one estimate—which may be much too high—is that seven or eight million such *kustar* workers were active about 1900.[62]

In the years after 1861 the workers in large-scale manufacturing came primarily from the peasant population. Large numbers of them shuttled annually between city and country, working in the fields at times of peak labor-need and in the cities at other seasons. But the trend in the last two decades before World War I was strongly in the direction of the formation of an urban proletariat permanently settled in the cities and towns near their places of employment. In studies made before 1917 only about 20 per cent of factory workers investigated were found to have land and to carry on agricultural production with the help of members of their families.[63] Nevertheless, it is also clear that family and other ties connected a very large proportion of industrial workers with the peasant villages, so that when the need came during

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[59] Rashin, *op. cit.*, pp. 23, 47, and 154.

[60] *Ibid.*, p. 169.

[61] Mavor, *op. cit.*, p. 386.

[62] L. C. A. Knowles, *Economic Development in the Nineteenth Century*, p. 182. London: Routledge, 1947. Lyashchenko, *op. cit.*, pp. 98–102, argues that such small-scale household production declined considerably in the later years of the Czarist period as large-scale manufacturing conquered ever wider markets with cheap machine-made products.

[63] Rashin, *op. cit.*, p. 417.

the years 1917–20 many urbanites were easily able to leave the cities and return to familiar areas in the countryside.

The conditions of worker employment and daily life in the last decades of the Czarist regime were usually poor. Hours of work were long. Before 1897 men, women, and children often labored 12 or more hours daily, though later the 10-hour day became common. Wages were low and permitted workers to enjoy little more than a subsistence livelihood. Housing was markedly inadequate, with great overcrowding the rule rather than the exception. Proper medical facilities and adequate safeguards against industrial accidents were all too often lacking. The conditions of the Russian proletariat in these years, in short, were not unlike those of the corresponding group in England during the first half of the nineteenth century.[64]

Occasionally, progressive employers provided better conditions, but these were not typical. The government from time to time sought to improve matters by legislation. As early as 1866 an act required employers to provide a minimal amount of free hospital and medical care. A decree of 1862 prohibited the work of children under 12 and limited the hours of work for adolescents. Night work in textile factories by persons under 17 years of age was forbidden in 1885, and a year later another law required that wages be paid at least once a month, while banning payment in kind. In 1897 a decree limited factory work to 11½ hours in the daytime and to 10 hours at night, while prohibiting work on Sundays and holidays. Beginning in 1882 a system of periodic factory inspection was set up to enforce these laws, and it achieved some important results, particularly in reducing the number of child workers. Legislatively, the Czarist state was one of the pioneers in providing protection for workers. Inadequate enforcement, however, vitiated the actual benefits resulting from these laws, and after 1897 some of the most "extreme" protective legislation was nullified by repeal or amendment under pressure from employers.[65]

The prevailing poor working and living conditions created much resentment among those affected, but the legal expression of this discontent through the formation of unions was forbidden for a long time.

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[64] Mavor, *op. cit.*, pp. 389–409.

[65] *Ibid.*, pp. 408–12. Manya Gordon, *Workers Before and After Lenin*, pp. 18–24. New York: Dutton, 1941.

Before 1900, however, bitterly contested strikes had taken place, and trade unions had had to be repressed through arrests and other coercion. Worker discontent expressed itself fiercely during 1903–05 in many strikes, some of which, in 1905, were general strikes and carried the threat of leading to revolutionary overthrow of the regime.[66] Despite both concessions and periodic repression during 1905–14, the union movement and consciousness of solidarity among workers grew stronger, as did the influence of the Social Democratic Party, whose aim was the end of Czarism and the institution of socialism. In each of the years 1912, 1913, and 1914, there were well over 2,000 strikes. The annual number of strikers approximated 1,000,000, or over 20 per cent of the number of workers estimated above as engaged in manufacturing, mining, railway transport, and construction. Most ominous for the Czarist state was the fact that a large number of these strikes—two thirds of them, in 1914—had political as well as economic objectives.[67]

On the eve of World War I the tensions and strains in Russia's social and economic organization were obviously great. The stage was set for the world-shaking events that were to follow.

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[66] Mavor, *op. cit.*, pp. 443–571.
[67] Lyashchenko, *op. cit.*, p. 405.

CHAPTER III

THE IDEOLOGICAL BACKGROUND

THE SOVIET UNION has been led from its inception by men who have proclaimed their belief that they were wiping out a hateful order of society and building a new civilization in which all men could enjoy abundance and security without oppression or injustice. This combination of condemnation for the old ways of human organization with their many defects and of assurance that a new and better world can be built is the essence of the dynamic ideology of communism today, giving it an appeal that has won it millions of adherents in all countries. This ideology has been one of the important elements whose interaction has produced the contemporary Soviet economy.

The communist ideology, usually called Marxism or Marxism-Leninism, after its principal formulators, is by no means the first doctrine men have composed to expose the iniquities of existing society and to show the way to a better future. The philosophers of Ancient Greece, the Biblical prophets, Thomas More and the long line of Utopian Socialists who succeeded him—all these and others attacked the injustices of their times, and many of them drew more or less detailed outlines of a future society. In contemporary times, however, it is Marxism that has won the greatest following among all revolutionary and reform movements and that inspired the Bolsheviks, who set up the Soviet regime.

The body of doctrine that we call Marxism is the composite work of two men, Karl Marx (1818–83) and Friedrich Engels (1820–95). Marx was born in Trier, Germany, the son of a far-from-proletarian Jewish lawyer who converted himself and his family to Christianity when his

famous son was but six years old. After an early career as a student, journalist, and revolutionary organizer in Germany, France, and Belgium, Karl Marx settled in London, where he spent long years in research, writing his epoch-making works and exerting an important influence upon the developing socialist and union movements of the nineteenth century. Engels was also a member of the bourgeoisie, the scion of a wealthy textile-manufacturing family, who ran cotton mills in England for much of his life. He earned the income to support not only himself, but also Marx and his family, making possible the latter's long years of financially unremunerative research in the British Museum. But Engels' contribution to Marxism also included important additions to its doctrine.

The most influential single statement of socialist doctrine ever written, *The Communist Manifesto,* was the joint product of Marx and Engels in 1848. Within brief compass it contains the core of the ideas that they propagandized throughout their lives and developed in much longer works. The monumental structure of Marxian economic doctrine is most fully elaborated in the three-volume work, *Capital,* by Marx, the first volume of which appeared in 1867. The second volume, in 1893, and the third, in 1894, were published posthumously under Engels' editorship. Engels' most important work is generally conceded to be his *Anti-Dühring,* or more fully, *Herr Eugen Dühring's Revolution in Science,* first issued in 1878. Here, in the process of demolishing an intellectual opponent's comprehensive system of thought, Engels elaborated what has now become canonical Marxism on many topics that were relatively slighted in Marx's own writings. Both men wrote a large number of other books as well, and carried on a voluminous correspondence; their collected works fill many volumes. The two wrote so much, indeed, that different varieties of socialists have found support for many variants of the basic ideology in passages scattered through their works, a fact that reflects also the changes in their views over the almost half century of their active, adult years.

At the risk of some injustice to its abundant and complex content, Marxism may be divided into four interrelated branches: a general philosophy of all phenomena; a theory of human history; a critique of capitalism; and a vague forecast of the future development of human society into its ultimate perfection. We shall treat the first three of

these briefly and center our attention on the fourth, since official Soviet ideology maintains that the Soviet Union is in process of realizing the ideal future foreseen by Marx.

Dialectical Materialism

Marxian philosophy centers about the concept of *dialectical materialism.* The dialectics portion of this concept was borrowed from the German philosopher Hegel. It conceives of the world and all phenomena in it as in constant process of change and motion according to a certain tripartite pattern. As Engels says, "Dialectics is nothing more than the science of the general laws of motion and development of Nature, human society, and thought."[1] The dialectical pattern was defined by Hegel as consisting of thesis, antithesis, and synthesis of the original thesis and its antithesis. Engels illustrates the pattern by reference to elementary mathematics. If we take a quantity a as our thesis, its antithesis is—a. The synthesis, or negation of the negation as he calls it, is obtained, he claims, by multiplying $-a$ by itself to get a^2, which he terms "The original positive magnitude, but at a higher degree . . . ."[2] Just why the negation of the negation should be obtained by such multiplication—and not, for example, by dividing $-a$ by itself or subtracting $-a$ from itself, and so on—is not explained.

The materialism aspect of dialectical materialism was used by Marx and Engels to differentiate their philosophic system from the idealistic dialectics of Hegel. According to Marx:

> My dialectical method is not only different from the Hegelian, but is its direct opposite. To Hegel the life-process of the human brain, i.e., the process of thinking, which, under the name of "The Idea," he even transforms into an independent subject, is demiurgos of the real world, and the real world is only the external, phenomenal form of "The Idea." With me, on the contrary, the ideal is nothing else than the material world reflected in the human mind and translated into forms of thought.[3]

According to Engels, " . . . materialism conceives nature as the sole reality," and believes that "Nature exists independently of all philosophy. . . . Nothing exists outside nature and man, and the higher beings our

[1] Friedrich Engels, *Herr Eugen Dühring's Revolution in Science,* p. 155. New York: International Publishers, 1939.

[2] *Ibid.,* p. 150.

[3] Karl Marx, *Capital,* vol. I, p. 25. Chicago: Kerr, 1906.

religious fantasies have created are only the fantastic reflection of our own essence."[4]

Dialectical materialism, therefore, would seem to be the doctrine that the world of our senses is "the sole reality," and that all things in it are in constant development and change in the dialectical pattern of thesis, antithesis, and synthesis. In the Soviet Union today this philosophic view is the only correct one, with important repercussions upon the views scientists are permitted to hold regarding even the subject matter they study. Elsewhere, where men have the right to reach independent conclusions, dialectical materialism has some supporters, including even a few noted scientists, but is rejected by what is probably the large majority of philosophers and scientists.

Historical materialism is the name usually given to the Marxian theory of history, which applies dialectical materialism to uncover what are claimed to be the laws of development of human society. Engels gave this definition:

> The materialistic concept of history starts from the proposition that the production of the means to support human life and, next to production, the exchange of things produced, is the basis of all social structure; that in every society that has appeared in history, the manner in which wealth is distributed and society divided into classes or orders is dependent upon what is produced, how it is produced, and how the products are exchanged. From this point of view the final causes of all social changes and political revolutions are to be sought, not in men's brains, not in man's better insight into eternal truth and justice, but in changes in the modes of production and exchange. They are to be sought, not in the *philosophy,* but in the *economics* of each particular epoch. [Engels' italics.][5]

In much of the later discussion it has been assumed that the Marxian theory was one of pure economic determinism, i.e., an insistence that all human phenomena were directly caused by economic factors. A notable clarification, therefore, is one made by Engels in a letter written in the last years of his life:

> According to the materialist conception of history the determining element in history is *ultimately* the production and reproduction in real

[4] Friedrich Engels, *Ludwig Feuerbach,* p. 28. New York: International Publishers, 1935.

[5] Friedrich Engels, *Socialism Utopian and Scientific,* p. 54. New York: International Publishers, 1935.

> life. More than this neither Marx nor I have ever asserted. If therefore somebody twists this into the statement that the economic element is the *only* determining one, he transforms it into a meaningless, abstract, and absurd phrase. . . . We make our own history, but in the first place under very definite presuppositions and conditions. Among these the economic ones are finally decisive. But the political, etc. ones, and indeed even the traditions which haunt human minds, also play a part, though not the decisive one.[6]

The historical mechanism through which the material conditions of life result in dialectical change of human organization is the class struggle, the conflict between the exploiters and the exploited in every society. This is how *The Communist Manifesto* states the matter:

> The history of all hitherto existing society is the history of class struggles. Freeman and slave, patrician and plebeian, lord and serf, guild master and journeyman, in a word, oppressor and oppressed, stood in constant opposition to one another, carried on uninterrupted, now hidden, now open fight, a fight that each time ended, either in a revolutionary constitution of society at large or in the common ruin of the contending classes. . . . The modern bourgeois society that has sprouted from the ruins of feudal society has not done away with class antagonism. It has established new classes, new conditions of oppression, new forms of struggle in place of the old ones. Our epoch, the epoch of the bourgeoisie, possesses, however, this distinctive feature; it has simplified the class antagonisms. Society as a whole is more and more splitting up into two great hostile camps, into two great classes directly facing each other: Bourgeoisie and Proletariat.

Capitalism, *The Communist Manifesto* argues, served the world well for a time, having "created more massive and more colossal productive forces than have all preceding generations together." Admiringly, Marx and Engels ask," . . . what earlier century had even a presentiment that such productive forces slumbered in the lap of social labor?" But true to the dialectical process, capitalism in its triumph had forged the weapons for its own destruction and formed the men who would "wield those weapons—the modern working class—the proletarians." Marx and Engels conclude this section of the *Manifesto* with the brave words, "What the bourgeoisie therefore produces above all, are its own grave diggers. Its fall and the victory of the proletariat are equally inevitable."

It was the conviction of Marx and Engels that they had for the first

[6] *Marx–Engels Selected Correspondence*, p. 475. New York: International Publishers, 1935.

time uncovered the laws of historical development and could predict, therefore, the inevitable future development. This conviction led them to call their socialism "scientific" in contrast to the "utopian socialism" of others. Ultimately, however, their own system was based on an alleged insight into "eternal truth" of a sort not qualitatively different from the alleged insight of others whom they ridiculed. And as prophets their record is not too impressive. They looked to the proletariat of Western Europe to lead the way to socialism, but it was in overwhelmingly agrarian and peasant Russia that their followers first seized state control. In more recent times it has been in the farming districts of China that the communist movement gained the strength that finally enabled it to capture the great cities in which the bulk of the Chinese proletariat lives. They wrote in 1848 as though capitalism had exhausted its capacities for growth and progress, and the revolution were near at hand. The Bolshevik revolution did not come until seventy years later, and the achievements of capitalism in raising standards of living in the century after 1848 make the achievements the *Manifesto* praised so seem modest indeed. Few scholars would deny that the materialist conception of history helped increase our insight into the importance of the economic forces among the *entire complex of forces* that have shaped man's destiny. But the subsequent record would hardly seem to justify the grandiose claims for this doctrine advanced by Marx and Engels, and later by their followers to this day.

Marxian Economic Theory

Marx's critique of capitalism is contained in the elaborate economic theory worked out in the three volumes of *Capital.* His conclusion that labor was exploited and must eventually act to end capitalism had been stated long before this work was written, in *The Communist Manifesto* and other writings. In *Capital* he attempted to supply the missing proof for his conclusions. In this major work, therefore, he worked out what he regarded as a complete deductive theory of the nature and internal operations of the capitalist economy. He supported his theoretical propositions by reference to the abundant literature available in the mid-nineteenth century on the abuses suffered by workers during the early stages of the English industrial revolution. For his starting point, he took the labor theory of value as propounded by David Ricardo and earlier English economists, but elaborated this theory along quite differ-

ent lines, lines more suitable to the revolutionary views he held at the initiation of his studies.

The main points of Marx's economic theory may be summarized briefly: The exchange value of a commodity, i.e., how much a given amount of cloth, say, will be exchanged for in terms of other commodities, is determined by the amount of socially necessary labor required for its production. The qualification "socially necessary" is added because obviously a commodity that is made inefficiently is not more valuable than the same commodity made with the most modern technique. Marx recognizes that different grades of labor are employed in production, but says that, by applying suitable coefficients, the value of each superior grade of labor relative to common unskilled labor may be obtained; consequently he claims that his argument need only be carried out in terms of the latter type of labor.[7]

Having established this proposition to his satisfaction, Marx argues that the typical feature of capitalistic economic activity is the use of money to buy commodities that are in turn sold for a larger amount of money; or, in Marx's notation, the process is M-C-M′, where M′ is the larger sum at the end. Marx asks where this excess of M′ over M comes from.[8] After arguing at length that all the usual explanations for this phenomenon are false, he presents his own solution: The businessman is able to buy a special commodity, *labor power*, or a worker's capacity to work, which, when consumed (i.e., employed), produces more value than is paid for it. Labor power, in other words, is a worker's ability to work, and this is what the employer pays wages for. The worker in working produces commodities that obtain value because his labor—i.e., work already done, something Marx distinguishes sharply from labor power—is embodied in them. The businessman gains, or makes *surplus value* in Marx's terminology, because the value of the product turned out by the worker and obtained when goods are sold is greater than the value of the labor power the employer has paid for in wages. The value of labor power, Marx says, "is the value of the necessaries required to produce, develop, maintain, and perpetuate" that labor power.[9] By the last requirement, Marx allows also for the cost of raising children to replace the worker later. The secret of surplus value, there-

[7] Marx, *Capital*, vol. I, pp. 41–48, 51–52.
[8] *Ibid.*, p. 173.
[9] Karl Marx, *Value, Price and Profit*, p. 40. New York: International Publishers, 1935.

fore, is that the capitalist for whom a worker labors, say, ten hours, pays him a value equal only to what he produces in, say, five hours, retaining the production of the remaining five hours for himself as surplus value. Obviously such a theory is finely contrived to "prove" the necessity and inevitability of exploitation of worker by employer.

It is in surplus value that Marx sees the origin of all capital. In his view the thirst for additional surplus value is the driving motivation of capitalism. To increase surplus value employers may lengthen the work day or they may increase the efficiency of their workers so that the latter can produce the value of their wages in a shorter amount of time, leaving a larger residue of surplus value to be pocketed by the employer.[10]

Marx and Engels discerned that the simple theory as outlined above produced conclusions that varied from the fact of real life. All other things being equal, it would appear from the above, industries using relatively large amounts of labor and relatively small amounts of machinery and other capital should make more surplus value or profit than industries using relatively small amounts of labor and relatively large amounts of machinery and other capital. Yet it is a well-known fact that businessmen always seek to invest their money where the most profit is to be made. At any one time the tendency is for all industries to make roughly equal rates of profit, rather than markedly unequal rates according as they use relatively much or relatively little labor power. To get around this difficulty, Marx, in volume III of *Capital,* abandoned the notion that commodities actually change in proportion to the amount of labor contained in them, and substituted, without proof, the following proposition: "the sum of all the prices of production of all commodities in society, comprising the totality of all lines of production, is equal to the sum of all the values."[11] This in effect abandons all effort to explain the actual market exchange rates in terms of labor, since it implicitly recognizes that commodities sell for more or less than their value, as Marx defined it. Consequently it destroys much of the justification for the theory of surplus value as the sole explanation of the internal workings of capitalism.

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[10] Marx, *Capital,* vol. I, pp. 342–45.

[11] *Ibid.,* vol III, p. 188. By "price of production," Marx means the actual cost price plus the average rate of profit prevailing.

On the basis of this theoretical foundation, Marx reaches a number of important and interesting conclusions:

1. *The Doctrine of Increasing Misery of the Working Classes.* One version of this doctrine offered by Marx follows:

> All methods of the production of surplus value are at the same time methods of accumulation; and every extension of accumulation becomes again a means for the development of these methods. It follows therefore that in proportion as capital accumulates, the lot of the laborer, be his payment high or low, must grow worse. . . . Accumulation of wealth at one pole is, therefore, at the same time accumulation of misery, agony of toil, slavery, ignorance, brutality, mental degradation, at the opposite pole.[12]

The increase of real wages, educational opportunity, and length of life, together with the decrease in hours worked in industry during the long period since Marx wrote, hardly seems to confirm this pessimistic forecast. One recent study, for example, estimates that the average real earnings of nonfarm workers in the United States approximately doubled between 1890–94 and 1945–46, and that even in the none-too-prosperous period of 1935–39 average real earnings were 15 per cent above those in 1890–94. They were almost 25 per cent above the base period in 1925–29.[13]

2. *The Doctrine of the Industrial Reserve Army.* As the use of machinery and other fixed capital rises, the amount of total capital increases, but the proportion used to pay wages decreases. Hence the number of workers available for employment increases more rapidly than the opportunities for employment. Thus arises the industrial reserve army of unemployed, whose representatives at every factory gate, vainly seeking employment, always help the capitalists keep wages down to the subsistence level. As Marx says:

> The industrial reserve army, during the periods of stagnation and average prosperity, weighs down the active labor army; during the periods of over-production and paroxysm, it holds its pretensions in check. Relative surplus-population is therefore the pivot upon which the law of demand and supply of labor works.[14]

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[12] *Ibid.*, vol. I, p. 708.

[13] Stanley Lebergott, "Earnings of Non-Farm Employees in the U.S., 1890–1946," *Journal of the American Statistical Association*, March 1948, p. 75.

[14] Marx, *Capital*, vol. I, p. 701.

If Marx's statement is interpreted simply as a prediction that capitalism is often characterized by the presence of a significant number of unemployed persons, he has often been correct, though the United States and other countries have had substantial full employment at various periods in their history. It is quite true, however, that the problem of assuring full or nearly full employment is still one of capitalism's major dilemmas. What Marx did not foresee here, and elsewhere in his writings, was the rise of strong mass unions and the institution of various types of unemployment insurance, which have tended often to insulate wage rates from the decreases that would otherwise have been brought about by increased unemployment and keener competition for jobs.

3. *The Law of the Falling Rate of Profit.* Marx argued that the tendency under conditions of increasing capitalist accumulation was for the rate of profit to fall, except as counteracted by various factors. This argument arose from his view that the ratio of the amount of surplus value (which, according to him, can arise only from labor), or profit, to the total amount of capital also fell. The decline could be counteracted, however, by increasing the intensity of exploitation, by getting cheaper raw materials from abroad, by depressing wages below the real value of labor power, and by other measures.[15]

4. *Marx's Theory of Crises.* Marx regarded the crisis or depression as an inevitable feature of capitalist development, and one that would help cause its eventual collapse. His explanation for this phenomenon, however, is somewhat ambiguous, containing different strands, so that even his followers are not sure which one, among the different factors he discussed, he considered most important.[16] At least two important ideas, however, seem basic in his thinking. First, there is the notion that crises are the result of the falling rate of profit and that the events during the depression phase of the business cycle lay the groundwork for future revival by making possible later increases in the rate of profit.[17] Quite another view is given in this passage from *Capital:*

> The last cause of all real crises always remains the poverty and restricted consumption of the masses as compared to the tendency of capitalist production to develop the productive forces in such a way

[15] *Ibid.*, vol. III, ch. XIII.

[16] Paul M. Sweezy, *The Theory of Capitalist Development*, pp. 147–48. New York: Oxford University Press, 1942.

[17] See the quotation cited in *ibid.*, pp. 152–53.

> that only the absolute power of consumption of the entire society would be their limit.

Here the emphasis is upon the inadequate purchasing power of the exploited masses as compared with the boundless productivity of capitalist production. But despite the lack of an integrated, clear theory of crises in Marx's work, it should be recognized that he was one of the first to emphasize many elements in the explanation of business cycles, particularly their depression phases, which have been later developed by other writers, both Marxists and non-Marxists.

We may summarize Marx's views as follows: The essential feature of capitalism is the robbery of surplus value by employers from their workers. The accumulation of surplus value permits the increase of the productive powers of society through the building of more factories, more machinery, and so on. But in turn this accumulation tends to create an ineradicable and often increasing army of unemployed whose pressure on wage rates contributes to the increasing misery of the masses. Moreover, the very accumulation of capital tends to work against the capitalists by forcing the rate of profit to go down, or by requiring ever greater exertion to prevent such decline. Further, the very pace and nature of capitalist development prevents it from being an even process, bringing on frequent depressions in which the lot of the masses becomes worse and the value of much previously accumulated capital vanishes. As this process continues over time, society is more and more divided into two classes, a small group of incredibly wealthy capitalists and the remainder of the population, which has been forced into the proletariat. At the end the great mass of the population will dispossess their exploiters and take over the reins of economic control and political power themselves, in order to do away with the misery caused by the inexorable functioning of capitalism. Here, certainly, is a comprehensive indictment of the existing order, calculated to hasten its doom. The propaganda effectiveness of this theory is best indicated by the millions of converts it has won, despite the fact that many of its forecasts have been proved wrong over time.

The Future Society

When we turn to the writings of Marx and Engels for information regarding the nature of the society they expected would inevitably sup-

plant capitalism, we find relatively little, compared to the huge volume of material denouncing capitalism. Perhaps as a reaction against the extremely detailed descriptions of future ideal societies given by Fourier and other utopians, Marx and Engels give in general only vague indications of the kind of human organization they so vehemently argued had to come. Almost all these indicated are contained in a few passages of *The Communist Manifesto* and in a letter written by Marx in 1875 to a German socialist, commenting on the proposed program of the German Worker's Party at that time. In all their voluminous writings, there is apparently not even a single independent pamphlet, by either Marx or Engels, treating at all systematically the questions that were to become all-important when their supporters gained power.

In order to comprehend the specific details given, however, we must first remember that Marxist theory views the state in capitalist society as merely the organization by which the bourgeoisie oppress the workers. In the words of *The Communist Manifesto,* "The executive of the modern State is but a committee for managing the common affairs of the whole bourgeoisie," and "Political power, properly so called, is merely the organized power of one class for oppressing the other." The *Manifesto* made clear the communists' objective of overthrowing "bourgeois supremacy," i.e., the existing state, and achieving "conquest of political power by the proletariat." In 1875 Marx wrote:

> Between capitalist and communist society lies the period of the revolutionary transformation of the one into the other. There corresponds to this also a political transition period in which the state can be nothing but *the revolutionary dictatorship of the proletariat.* [Marx's italics.][18]

As early as 1852, Marx had used the phrase "dictatorship of the proletariat" in a letter, and had added, "this dictatorship itself only constitutes the transition to the *abolition of all classes and to a classless society.*" (Marx's italics.)[19]

A somewhat different view of the transformation is given by Engels:

> *The proletariat seizes the state power, and transforms the means of production in the first instance into the state power.* But in doing this, it puts an end to itself as the proletariat, it puts an end to all class

[18] Karl Marx, *Critique of the Gotha Programme,* p. 18. New York: International Publishers, 1938.
[19] *Marx-Engels Selected Correspondence,* p. 57.

> differences and class antagonisms, it puts an end also to the state as the state. . . . As soon as there is no longer any class of society to be held in subjection . . . there is nothing more to be repressed which would make a special repressive force, a state necessary. The first act in which the state really comes forward as the representative of society as a whole—the taking possession of the means of production in the name of the society—is at the same time its last independent act as a state. The interference of the state power in social relations becomes superfluous in one sphere after another, and then ceases of itself. The government of persons is replaced by the administration of things and the direction of the processes of production. The state is not "abolished," *it withers away.* [Engels' italics.][20]

It seems likely from the above quotations, one of which does not even mention the dictatorship of the proletariat in describing the transition, that Marx and Engels thought of this transitional period as relatively short and perhaps were even somewhat naive in their thinking regarding the difficulties of this transitional period. The state and the alleged dictatorship of the proletariat have continued to exist in the Soviet Union for more than thirty years now, with no end in sight. Stalin, speaking in 1939, made this extremely significant comment on the quotation from Engels above:

> . . . Engels' general formula about the destiny of the socialist state in general cannot be extended to the partial and specific case of the victory of socialism in one country only, a country which is surrounded by a capitalist world, is subject to the menace of foreign military attack . . . consequently, must have its own state, strong enough to defend the conquests of socialism from foreign attack.
>
> We have no right to expect of the classical Marxist writers, separated as they were from our day by a period of forty-five or fifty-five years, that they should have foreseen each and every zigzag of history in the distant future in every separate country. It would be ridiculous to expect that the classical Marxist writers should have elaborated for our benefit ready-made solutions for each and every theoretical problem that might arise in any particular country fifty or one hundred years afterwards, so that we . . . might calmly doze at the fireside and munch ready-made solutions. . . . we now have an entirely new, socialist state without precedent in history and differing considerably in form and functions from the socialist state of the first phase.
>
> But development cannot stop there. We are going ahead, towards communism. Will our state remain in the period of communism also?

[20] Engels, *Herr Eugen Dühring's Revolution in Science,* pp. 306–07.

Yes, it will, unless the capitalist encirclement is liquidated, and unless the danger of foreign military attack has disappeared. Naturally, of course, the forms of our state will again change in conformity with the change in the situation at home and abroad.

No, it will not remain and will atrophy if the capitalist encirclement is liquidated and a socialist encirclement takes its place.[21]

The Communist Manifesto gives the following program for the transformation of society once the proletariat has won power:

The proletariat will use its political supremacy to wrest, by degrees, all capital from the bourgeoisie, to centralize all instruments of production in the hands of the state,—that is, of the proletariat organized as a ruling class; and to increase the total productive forces as rapidly as possible. Of course, in the beginning, this cannot be effected except by means of despotic inroads on the rights of property, and on the conditions of bourgeois production; by means of measures, therefore, which appear economically insufficient and untenable, but which in the course of movement outstrip themselves, necessitate further inroads upon the old social order, and are unavoidable as a means of revolutionizing the mode of production.

These measures will of course be different in different countries. Nevertheless in the most advanced countries the following will be pretty generally applicable:

1. Abolition of property in land and application of all rents of land to public purposes.
2. A heavy progressive or graduated income tax.
3. Abolition of all right of inheritance.
4. Confiscation of property of all emigrants and rebels.
5. Centralization of credit in the hands of the state, by means of a national bank with state capital and exclusive monopoly.
6. Centralization of the means of communication and transport in the hands of the state.
7. Extension of factories and instruments of production owned by the state; the bringing into cultivation of waste lands, and the improvement of the soil generally in accordance with a common plan.
8. Equal liability of all to labor. Establishment of industrial armies, especially for agriculture.

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[21] J. Stalin, "Report on the Work of the Central Committee to the Eighteenth Congress of the C.P.S.U. (B)," *The Land of Socialism Today and Tomorrow*, pp. 47–51. Moscow: Foreign Languages Publishing House, 1939.

9. Combination of agriculture with manufacturing industries; gradual abolition of the distinction between town and country by a more equable distribution of the population over the country.
10. Free education for all children in public schools. Abolition of children's factory labor in its present form. Combination of education with industrial production and so forth.

It is interesting to note, however, that much of the program has been peacefully realized in nonsocialist countries. Free public education and a heavily progressive income tax are commonplace in the United States and Western Europe. The right of inheritance in the upper brackets has been sharply limited by high inheritance taxes. Most advanced nations have a central bank that exercises a high degree of control over their credit structure; and many governments own all or much of their communication and transportation systems. Government ownership of factories is now common—even in this country the state owns important arms-manufacturing plants, as well as the multibillion dollar atomic energy industry—as is government support of measures to improve and expand agriculture. The progress of transportation and the spread of radios, telephones, and mail-order catalogues have done much to lessen the difference between town and country. There seems to be no evidence in the *Manifesto* that its authors felt that their objectives could be gained without fundamental and revolutionary changes, although this has actually happened in large part. In a preface to the 1872 edition of the *Manifesto,* however, Marx and Engels indicated that they would have altered this prescription if they had been writing it for the first time then.

Marx's anticipations with regard to the economics of the future society were stated in the 1875 letter mentioned above. Here he pointed out that even when capitalism is overthrown workers will not receive directly the value of all they produce. From the "total social product," he argues, must be deducted: (1) an allowance for replacement of means of production used up in current output; (2) amounts set aside to permit expansion of production, i.e., an increase in capital; (3) allowances for insurance or reserves for protection against poor harvests, natural catastrophes, and the like; (4) an allowance for the general costs of administration; (5) an allowance for those unable to work. The first three deductions Marx calls "an economic necessity"; presumably they must

be provided in any economic system. Only that which is left over from the total social product, he points out, is available for distribution among the workers, and this he terms the "diminished proceeds" of the community's work.[22] Since Marx defined surplus value as the difference between what the worker produces, in value terms, and what he is paid, it is apparent from the above that Marx envisaged the continued existence of such a difference or surplus value even after capitalism had been overthrown.

How are these "diminished proceeds" to be distributed among the workers when they are the masters? Marx's answer is this:

> . . . the individual producer receives back from society—after the deductions have been made—exactly what he gives to it. What he has given to it is his individual amount of labor. For example, the social working day consists of the sum of the individual labor hours; the individual labor time of the individual producer is the part of the social labor day contributed by him, his share in it. He receives a certificate from society that he has furnished such and such an amount of labor (after deducting his labor for the common fund), and with this certificate he draws from the social stock of means of consumption as much as the same amount of labor costs. The same amount of labor which he has given to society in one form, he receives back in another.[23]

But Marx makes clear that the system of distribution outlined above is not that for the eventual ideal society; it is only that which is to prevail in the transition period. For, he points out, the rewards of different workers under this system would be unequal, since individuals differ in talents and abilities to contribute to production. Moreover, the needs of different workers vary, since one may be single and another married, with ten children to support; yet these varying needs are not taken into account in the above distribution system. He regards these features as "defects" that "are inevitable in the first phase of communist society as it is when it has just emerged after prolonged birth pangs from capitalist society." The ultimate distribution system and the prerequisites for its attainment he describes in this key paragraph:

> In a higher phase of communist society, after the enslaving subordination of individuals under division of labor, and therewith also the antithesis between mental and physical labor, has vanished; after labor, from a

[22] Marx, *Critique of the Gotha Programme*, pp. 6–8.
[23] *Ibid.*, p. 8.

> mere means of life, has itself become the prime necessity of life; after the productive forces have also increased with the all-round development of the individual and all the springs of cooperative wealth flow more abundantly—only then can the narrow horizon of bourgeois rights be fully left behind and society inscribe on its banners: from each according to his ability, to each according to his needs![24]

What is perhaps most noteworthy about this quotation is the stringency of the prerequisites set up for the final attainment of the "higher phase of communist society." The division of labor and the differences between mental and physical work must be done away with; people must come to have an attitude that requires them to work voluntarily rather than because they have to earn a living; and social production must be so enormously productive that all needs can be satisfied—the word "needs" being left undefined, thus raising all sorts of questions as to whether the worker's needs in such a society would be determined by him or would be more in the nature of some arbitrary subsistence, or more than subsistence, standard set by society. Certainly there seems to be enough vagueness in this prescription to justify almost indefinite postponement of its attainment after capitalism has been overthrown, as in the Soviet Union. It leaves unanswered the basic question of whether such changes in human nature are ever attainable at all, merely assuming that they will occur. Here again Marx shows himself to have been far more influenced by the despised "utopians" than one would judge from his and Engels' diatribes against them.

Some additional clues regarding the system of distribution of the future are given by Engels when he argues that the higher wage paid for "compound labor," i.e., the work of persons with special education, in bourgeois society arises from the fact that such training has to be paid for by these workers or their families and is therefore part of the cost of labor power met by wages. But, Engels writes, "In a socialistically organized society, these costs are borne by society, and to it therefore belongs also the fruits, the greater values produced by skilled labor. The laborer himself has no claim to extra payment."[25] Marx, we saw above, recognized that in the first stage of the postcapitalist world individuals with different natural endowments would be paid differently,

[24] *Ibid.*, p. 10.
[25] Engels, *Herr Eugen Dühring's Revolution in Science*, p. 222.

and Engels here argues that so far as differences are the results of training or education, they should not be paid for differentially.

Marx's sneering reference above to "the enslaving subordination of individuals under division of labor" seems clarified by further material in Engels' writings:

> . . . distribution, in so far as it is governed by purely economic considerations, is regulated by the interests of production, and production is most encouraged by a mode of distribution which allows *all* members of society to develop, maintain and exert their capacities in all possible directions. It is true that, to the mode of thought of the educated classes which Herr Dühring has inherited, it must seem monstrous that in time to come there will no longer be any professional porters or architects, and that the man who for half an hour gives instructions as an architect will also push a barrow for a period, until his activity as an architect is once again required. It is a fine sort of socialism which perpetuates the professional porter![26]

Important revisions in the doctrines summarized above have been made by Stalin since he became factual head of the USSR in the 1920's. Thus Marx spoke of the inequalities of return to different workers in the first stages of communist society—the stage of socialism, as it is now called in the USSR—as being "defects," whereas current Soviet practice glorifies such inequalities as the most desirable and important essence of Soviet distribution. Marx, according to a statement cited above, apparently believed that money would not exist after the overthrow of the bourgeoisie, but that workers would receive "certificates" from society to enable them to exchange the diminished proceeds of their labor for the products of the labor of others. The Soviet Union has a complex monetary credit system resembling in most respects that of capitalist countries, rather than any crude certificate or voucher system such as Marx seems to have had in mind. Engels' views on equal payment for trained and untrained workers, cited above, have also been rejected, on the ground that higher pay for skilled laborers is essential to stimulate their interest in acquiring and utilizing complex skills. Engels' forecast that specialization would disappear after capitalism's demise has also been rejected, on the ground that science and technology have become so complex that it requires all an individual's lifetime to obtain proper mastery of them, and the "experience of socialism shows the impos-

[26] *Ibid.*, p. 221.

sibility of destroying specialization."[27] Though adhering tenaciously to other portions of Marxism attacking capitalism, Soviet leaders have not hesitated to abandon the doctrines of Marx and Engels where the actual needs of the Soviet Union have seemed to dictate other policies.

Marxism Penetrates Russia

How did Marxism, a doctrine elaborated in Western Europe and Great Britain and based upon the experiences of relatively industrialized countries, penetrate into and win a following in overwhelmingly rural and despotic Czarist Russia? The main initial channel seems to have been through Russian students and exiles in Western Europe, particularly in Switzerland, who were in contact with the rising socialist movement there and became acquainted with Marxian doctrine. These expatriates translated Marx's writings into Russian so as to make them available for readers in the Czar's domain. They spread the doctrine themselves when they returned home personally, forming, at first, discussion and education groups and, later, after they had gathered strength, the Social-Democratic Party.

The spread of Marxist ideas in Russia started slowly at first but then picked up in intensity. Mikhail Bakunin published a Russian translation of *The Communist Manifesto* in the early 1860's, and in 1872 the first Russian translation of *Capital* appeared. George Plekhanov published the first systematic exposition of Marxist ideas in Russian in two books, which appeared in 1883 and 1884; and by 1894 Peter Struve's book on Marxism had been passed by the Russian censor, the first volume in support of Marxian doctrines to be legally published. As early as 1887, one writer maintains, the Russian translation of *Capital* was the book most widely read by Russian students.[28]

During the 1880's and 1890's the Russian Marxists, both in and out of the country, busied themselves with propaganda aimed at spreading the master's ideas. They formed study groups for intellectuals and workers, spread literature, and engaged in polemics with those who

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[27] These Stalinist revisions of Marx's and Engels' teachings on the future nature of socialism are discussed by G. Kozlov, "Lenin i Stalin Sozdateli Politicheskoi Ekonomi Sotsializma," *Voprosy Ekonomiki*, No. 1 (1948), pp. 5–23. Quotation from p. 17.

[28] Maynard, *Russia in Flux*, pp. 118–28. Mavor, *An Economic History of Russia*, vol. II, p. 153.

held opposed political and economic views. In the 1890's, after the police had permitted publications supporting Marxism, books and journals appeared to popularize the doctrine, and groups of Marxists began to function effectively in various cities throughout the country. The increasingly rapid industrialization of Russia in these years provided ever more fertile soil for their propaganda, as the number of factories and workers increased and made the relevance of Marx's concern with the proletariat more obviously apparent. As the number of Marxists increased, divisions of opinion appeared among them. Some, the so-called "Economists," emphasized the importance of fighting for the improvement of workers' conditions. Plekhanov's "Emancipation of Labor" group emphasized primarily that the working class must be organized to take over political power, rather than merely to struggle for short-term gains in its working conditions. A third group, headed by Lenin, wished to create an organization to overthrow Czarism, based on a conspiratorial nucleus or "general staff" directed in highly centralized fashion and providing leadership for the workers as they became more restive. But all trends of Marxist thinking united at Minsk in March 1898 to form the "Russian Social Democratic Working Men's Party."[29]

It was on the subject of party discipline that the Social-Democratic Party split into two groups, Mensheviks and Bolsheviks, at its second Congress in 1903. Lenin won control of the party and backing for his view that what was required was, in the words of Maynard, "a disciplined order of devoted adherents more nearly resembling the Society of Jesus than any of the lax aggregations of political sympathisers to which we are accustomed to apply the name of political party."[30]

In this way was formed the Bolshevik group, which seized power in November 1917 and laid the groundwork for the USSR of today. Since Lenin provided its leadership both before and for the first few years after the revolution, it is his doctrines that we shall examine now to gain some insight into the preconceptions of those who formed the Soviet regime.

Lenin and Leninism

Vladimir Ilyich Ulyanov (1870–1924)—better known to history as

[29] Mavor, *op. cit.*, pp. 143–61. Bertram D. Wolfe, *Three Who Made a Revolution*, pp. 99–117. New York: Dial Press, 1948.
[30] Maynard, *op. cit.*, pp. 128–29.

Nikolai Lenin—spent most of his life as a professional revolutionary and revolutionary leader, though born the son of a minor Czarist school official in Simbirsk on the Volga River. Along with Karl Marx, he is credited by the Soviet Union with being the co-founder of the Marxism-Leninism that is the official ideology. Though Lenin wrote no one major work such as *Capital,* the total volume of his writing is tremendous, ranging from brief newspaper articles and polemical tracts to scholarly studies of economic and philosophic subjects based on intensive research.

Lenin built his doctrines on the foundations laid down by Marx and Engels, applying the notions of Marxism to the analysis of the international political and economic situation of his time, and also emphasizing certain aspects of Marxism that had tended to be obscured in the development of the Social-Democratic movement after Marx's death. Stalin's well-known definition of Leninism emphasizes some key points:

> Leninism is Marxism of the era of imperialism and of the proletarian revolution. To be more exact, Leninism is the theory and tactics of the proletarian revolution in general, the theory and tactics of the dictatorship of the proletariat in particular.[81]

We shall consider here briefly Lenin's contribution to the critique of capitalism and his views on the nature of the postrevolutionary workers' state as he expressed them before the Bolshevik Revolution. The development of his views on the socialist state as he encountered the practical problems of heading the Soviet Union after attaining power will be considered in later chapters.

Lenin's view—as expressed in his pamphlet *Imperialism*—is that by about 1900 the capitalism of Europe and America had entered a new stage, that of imperialism or monopoly capitalism, which had replaced the relatively free competition of about 1860–70. Production had become highly concentrated in a relatively small number of enterprises having great quantities of capital. A financial oligarchy controlled the complex structure of production through its hold over the banks, which kept the purse strings and determined the distribution of capital and credit, granting them to some producers and denying them to others. Concrete bank control of industry is exercised through corporation directors, who represent the financial oligarchy. In this stage of finance

[81] Joseph Stalin, *Problems of Leninism,* p. 2. Moscow: Foreign Languages Publishing House, 1940.

capital there is pronounced separation between the *rentier*, who provides capital and lives off the unearned income, and the *entrepreneurs* who actually use and manage this capital.

Because of the uneven development of capitalist countries, he argues, imperialism is marked by the great export of capital from highly developed countries, where rates of profit are relatively low, to backward countries, where profits are high because land, wages, and raw materials are cheap. The export of commodities is greatly facilitated by these capital exports, since loan agreements often stipulate that money may be spent only in the country where capital has been obtained. In this period world markets are characteristically divided into spheres of executive influence by the huge corporations of the advanced powers. By the time Lenin wrote, in the early twentieth century, he believed that the partition of the world between the major advanced capitalist nations had been completed, and that in the future only repartition could take place, as the result of armed struggles inspired by each capitalist power's desire for a larger share of the world to dominate. Under this view imperialism is therefore necessarily the era of imperialist wars between the nations that are exploiting the rest of the world.

One result of this situation, Lenin argued, was the existence of an upper stratum of workers who had been corrupted by being allowed to share in the profits of the rentier class and in those arising from exploitation of backward nations. It is this bribed group of workers who give rise to social reform movements that seek to divert the energies of the working class from the revolutionary overthrow of capitalism.[82]

Lenin emphasized the necessity of a violent revolution, to be followed by a dictatorship of the proletariat, a new state succeeding the smashed capitalist state and existing for the purpose of putting down the former oppressors. He argued most vigorously against those who drew the conclusion from Engels' words about the withering away of the state that the dictatorship of the proletariat would exist for only a short time, writing:

> . . . we have a right to speak solely of the inevitable withering away of the state, emphasizing the protracted nature of this process and its dependence upon the rapidity of development of the *higher phase* of Communism; leaving quite open the question of lengths of time, or

[82] V. I. Lenin, *Imperialism, the Highest Stage of Capitalism*, pp. 105–07. New York: International Publishers, 1939.

> the concrete forms of withering away, since material for the solution of such questions is *not available*. (Lenin's italics.)[33]

Lenin lays great stress upon Marx's teachings in the *Critique of the Gotha Programme* in formulating his own statement of the shape of the postrevolutionary society, particularly Marx's distinction between the first and the higher phases of communism. The state will only disappear, he maintains, in the higher phase, when the prerequisites set down by Marx, such as the transformation of work into a first necessity of life, and so on, have been realized. Lenin notes that ". . . the great Socialists in foreseeing its [the higher phase's—H.S.] arrival, presupposed both a productivity of labor unlike the present and a person not like the present man in the street, capable . . . of demanding the impossible." But until the far-off time comes:

> . . . the Socialists demand the *strictest* control, *by society and by the state*, of the quantity of labor and the quantity of consumption; only this control must *start* with the expropriation of the capitalists, with the control of the workers over the capitalists, and must be carried out, not by a state of bureaucrats, but by a state of *armed workers*. [Lenin's italics.][34]

Here was foreshadowed the actual severe control of labor and income distribution—and therefore of consumption—that has taken place in the USSR.

Lenin's ideas on the internal organization of the economy of a victorious socialist state are of particular interest, both for later comparison with what has actually been done and because they were publicly expressed in a pamphlet finished in August 1917, i.e., almost on the very eve of his seizure of power. Because of their importance we shall present Lenin's views, in his own words, at some length:

> . . . capitalism, as it develops, itself creates prerequisites for "every one" *to be able* really to take part in the administration of the state. Among such prerequisites are: universal literacy, already realized in most of the advanced capitalist countries, then the "training and disciplining" of millions of workers by the huge, complex, and socialized apparatus of the post-office, the railways, the big factories, large scale commerce, banking, etc., etc.

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[33] V. I. Lenin, *State and Revolution*, p. 79. New York: International Publishers, 1932.

[34] *Ibid.*, p. 80.

With such *economic* prerequisites it is perfectly possible, immediately, within twenty-four hours after the overthrow of the capitalists and bureaucrats, to replace them, in the control of production and distribution, in the business of *control* of labor and products by the armed workers, by the whole people in arms. (The question of control and accounting must not be confused with the question of the scientifically educated staff of engineers, agronomists, and so on. These gentlemen work today, obeying the capitalists; they will work even better tomorrow, obeying the armed workers.)

Accounting and control—these are the *chief* things necessary for the organizing and correct functioning of the *first phase* of Communist society. *All* citizens are here transformed into hired employees of the state, which is made up of the armed workers. *All* citizens become employees and workers of *one* national state "syndicate." All that is required is that they should work equally, should regularly do their share of work, and should receive equal pay. The accounting and the control necessary for this have been *simplified* by capitalism to the utmost, till they have become the extraordinarily simple operations of watching, recording, and issuing receipts, within the reach of anybody who can read and write and knows the first four rules of arithmetic. The whole of society will have become one office and one factory, with equal work and equal pay.

But this "factory" discipline, which the proletariat will extend to the whole of society after the defeat of the capitalists and the overthrow of the exploiters, is by no means our ideal, or our final aim. It is but a *foothold* necessary for the radical cleansing of society of all the hideousness and foulness of capitalist exploitation, *in order to advance further.*

• • •

For when *all* have learned to manage, and independently are actually managing by themselves social production, keeping accounts, controlling the idlers, the gentlefolk, the swindlers and similar "guardians of capitalist traditions," then the escape from this national accounting and control will inevitably become so increasingly difficult, such a rare exception, and will probably be accompanied by such swift and severe punishment (for the armed workers are men of practical life, not sentimental intellectuals, and they will scarcely allow any one to trifle with them), that very soon the *necessity* of observing the simple, fundamental rules of every-day social life in common will have become a *habit.*

The door will then be wide open for the transition from the first phase of Communist society to its higher phase, and along with it to the complete withering away of the state. [All italics by Lenin.][88]

[88] *Ibid.*, pp. 83–85.

Lenin's anticipations on this subject seem so clearly expressed above that little comment is necessary, except to point out that he grossly underestimated the actual difficulties he and his comrades were to face when they seized power, shortly after these words were written. True, those difficulties were greatly aggravated by the civil war and the foreign intervention that followed the November revolution. These were perhaps extraneous factors, though the civil war at least might have been anticipated. But even without these military factors, taking control and operating even a relatively simple economy, such as that of Russia in 1917, is a far more complex job than Lenin's reference to "the first four rules of arithmetic" suggests. This lesson had to be learned the hard way, in practice, but has been well learned, as we shall see below.

Lenin's mention of equal pay for all is a puzzling point, since at first sight it seems to contradict Marx's assertion that in the first phase of communism individuals with unequal natural endowments would be compensated unequally. But elsewhere in the same pamphlet Lenin remarks on the socialist principle, "for an equal quantity of labor, an equal quantity of products."[36] Consequently, what he may have had in mind was equal pay for the same unit of labor, defined in some fashion, which would not preclude unequal earnings among individuals, because some can work longer, i.e., earn more units of labor, or work more intensively, than others, as Marx noted in his original formulation of this thesis.

In the above review we have presented the main features of Marxist and Leninist theory, as they had been developed up to the eve of the Bolshevik revolution, which seem pertinent to our interests. Some of the later revisions made by Stalin have also been noted. But the further development of communist theory and practice, after the communists had gained power and were faced with the responsibility of organizing and operating the Soviet state and economy, is the theme of the chapters that follow.

Stalin's writings in the area of economic theory before 1917 do not appear to have been very influential then. In recent years, however, one early theoretical contribution by him has been stressed by Soviet commentators. This has been his assertion that even in the final stage of communism, though the state has decayed, there will still remain the necessity for centralized coordination of economic activities, collection of economic statistics, and the like.[37]

[36] *Ibid.*, p. 78.

[37] Cf. for example, Stepanyan's article in *Izvestia*, August 8, 1950.

CHAPTER IV

SOVIET ECONOMIC DEVELOPMENT

THE PURPOSE of this chapter is to present a bird's-eye view of the development of the leading features of the Soviet economy, from the Bolshevik revolution to the end of the Fourth Five-Year Plan in 1950, a period of thirty-three years. In this summary treatment, the emphasis will be upon the most important events and the most permanent trends.

Our concern here is with the chain of events and policies that transformed the Soviet economy from the chaos and weakness of November 1917 to its present situation, in which its strength is second only to that of the United States. Much of this history is the account of the destruction of the capitalistic institutions and property relations of old Russia as they had developed during the fifty-six years following 1861. The other side of the story is that of the introduction of new institutions and new relationships, and of the ways in which new forms of economic organization were tested and modified over more than thirty years of Soviet rule.

It will be helpful to begin by pointing out the chief features of the Soviet economy at the beginning of the 1950's. First, we may note the economic predominance of the state, which owns all land and other natural resources and owns and operates virtually all industry and means of communication and transport; all banks and other financial institutions; most urban retail and wholesale distribution facilities, housing, and municipal utilities; and a relatively small but significant portion of all farms, as well as the postal system, military installations, and other

facilities that are customarily in state possession even in capitalist countries.

Second, the only owners or operators, other than the state, of significant amounts of means of production are cooperatives, organizations that are completely under the state's domination, with little freedom of action. Such cooperatives are most important in agriculture, where in the form of collective farms they produce most Soviet farm produce on land belonging to the state. Industrial producers' cooperatives, including cooperatives of invalids, exist in towns and cities throughout the country. They are significant mainly as producers of consumer goods or suppliers of miscellaneous services. Cooperative consumers' organizations dominate wholesale and retail trade in the countryside. State property and cooperative property are legally considered merely different forms of socialist property.

Third, purely private property consists in the main of personal possessions such as clothing and household utensils. Private ownership of means of production is limited to such implements, instruments, and livestock as are needed by an independent craftsman or by a peasant working a small plot of land with his own and his family's labor. Many small homes are owned by their occupants. The right to transmit personal possessions (including savings) through inheritance is recognized.

Fourth, virtually all economic activity of the country is coordinated through the government plan, which sets future production objectives for all major commodities and directs the growth of the economy with a view to attaining the objectives set up.

Fifth, all able-bodied citizens of the USSR are required to work, in accordance with the principle "He who does not work, neither shall he eat." In practice this seems to be interpreted to mean that no one may live solely on the basis of unearned income, such as interest on government bonds. But a wife may be supported by her husband. The Soviet Union today is legally regarded as being a socialist society operating in accordance with the slogan "From each according to his ability, to each according to his work." An individual must work for himself alone, for a cooperative organization, or for the state. The employment of workers for the private profit of another individual is forbidden.[1]

[1] The economic features of the Soviet state are laid down in articles 4–12 of the Soviet constitution.

What is this Soviet state that exercises such all-embracing economic power, far exceeding that of the Czarist regime in, say, 1914, or of any single capitalist or group of capitalists before the Bolshevik revolution? The Soviet constitution declares that the USSR "is a socialist state of workers and peasants," and that "all power in the USSR belongs to the working people of town and country as represented by the Soviets of Working People's Deputies." (Articles 1 and 3.)

Nominally, according to the constitution, "the highest organ of state power in the USSR is the Supreme Soviet of the USSR." (Article 30.) This legislature consists of two chambers, the Soviet of the Union and the Soviet of the Nationalities, members of which are elected by popular vote. (Articles 33 and 34.) The Supreme Soviet performs certain functions of a legislative body when it is in session, and elects a Presidium of 33 members that acts for it between sessions, i.e., most of the time. (Articles 48 and 49.) Executive and administrative power is in the hands of the Council of Ministers, composed primarily of the heads of the various government ministries, which "issues decisions and orders on the basis and in pursuance of the laws in operation, and verifies their execution." (Articles 64 and 66.) This is the organizational structure of the national government of the USSR. Each of the sixteen constituent republics, such as the Ukraine, has a similar organization. (Articles 57–63.)

The sixteen Soviet republics are the Russian Soviet Federated Socialist Republic (RSFSR), the Ukrainian Soviet Socialist Republic (Ukrainian SSR), the Belorussian SSR, the Uzbek SSR, the Kazakh SSR, the Georgian SSR, the Azerbaidzhan SSR, the Lithuanian SSR, the Moldavian SSR, the Latvian SSR, the Kirgiz SSR, the Tadzhik SSR, the Armenian SSR, the Turkmen SSR, the Estonian SSR, and the Karelo-Finnish SSR.

To get at the real locus of Soviet power, however, we must look at Article 126, which states that "the most active and politically conscious citizens in the ranks of the working class and other sections of the working people unite in the Communist Party of the Soviet Union (Bolsheviks), which is the vanguard of the working people in their struggle to strengthen and develop the socialist system and is the leading core of all organizations of the working people, both public and state."

In practice the Soviet state is a dictatorship of the Communist Party, which in turn is completely dominated by the Political Bureau (Polit-

buro) of its Central Committee, headed by Stalin. The basic decisions of Soviet policy are made by the Politburo and then put into effect by government action. Important economic decrees are often promulgated jointly by the Council of Ministers and the Central Committee of the Communist Party,[2] but sometimes the most important ones are promulgated solely by the Central Committee.[3] There is internal democracy neither in the Soviet state nor in the ruling Communist Party.

This rule of the state by the Communist Party is made possible in large part by the fact that the most important state offices are usually reserved exclusively for party members, throughout all levels of the complex governmental hierarchy. Government and other officials who are not party members hold their posts at the sufferance of the Communist Party and may be removed whenever the appropriate party group so decides. Moreover, party groups and members have extraordinary powers to intervene in state matters, directing or criticizing the work of governmental or economic organizations as may be required. Stalin has described this party direction in these terms:

> The Party verifies the work of the organs of government and the organs of authority, correcting unavoidable mistakes and shortcomings, helping them develop the decisions of the government and trying to guarantee them support of the masses; and *not a single important decision is taken by them without corresponding directions of the Party.*[4] (My emphasis—H.S.)

Recalcitrance, protest, or revolt against the party's decisions in economic or political matters is punished according to the severity of the offense, punishments ranging from mere reprimands to imprisonment in forced labor camps for long periods and, at times, in the past, even death. As in all dictatorships, it is the coercive power of the regular police, secret police, and armed forces that assures the ultimate execution of the party's commands.[5]

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[2] For example, the three-year plan for livestock development; *Pravda*, April 19, 1949.

[3] This was the case with respect to the comprehensive program for expanding agricultural production in the postwar era; *Izvestia*, February 28, 1947.

[4] Quoted in Andrei Y. Vyshinsky, *The Law of the Soviet State*, p. 160. New York: Macmillan, 1948. Cf. also Julian Towster, *Political Power in the USSR 1917–1947*, pp. 119–20. New York: Oxford University Press, 1948.

[5] Abundant evidence on the use of such coercion will be found in J. Gliksman, *Tell the West*. New York: Gresham, 1948; *The Dark Side of the Moon*. New York: Scribner's, 1947; and Victor Kravchenko, *I Chosen Freedom*. New York: Scribner's, 1946.

The Problem of Motivation

Against the background we have sketched earlier, the most obvious motivation for the economic policies of the Soviet regime has been the desire to remold the old Russia into the new pattern called for by Marx and Lenin. *The Communist Manifesto* of 1848 had called for the abolition of private landownership; nationalization of credit, transport, and communications; extension of state-owned factories; and equal liability of all to labor. Marx had pointed out that for the final stage of communism to be reached, the "productive forces" must be increased so that "the springs of cooperative wealth flow more abundantly," thus pointing the way to a policy of intensive development of agricultural and industrial output. Other hints for policy were available elsewhere in the classics of Marxism-Leninism.

But these ideological imperatives alone are inadequate to explain the pattern of development, and what is more, at times the suggestions made in Marxist literature have even been ignored: *The Communist Manifesto,* for example, calls for "abolition of all right of inheritance," but inheritance exists in the USSR today. The true importance of the prerevolutionary blueprints is that they provided the leaders of the Soviet state primarily with objectives; on the vital questions of tactics, forms of organization, and rate of development they gave little or no guidance. Lenin and his successor, Stalin, were therefore ideologically free to choose among their many options on a wide range of questions.

For more adequate insight into the motivations of Soviet policymakers, we must turn to the problem that has been their basic preoccupation since they took power: the problem of insuring the continued existence of the Soviet state and therefore of their own rule. Lenin was able to seize power and retain it during the first critical months because he adopted the un-Marxist slogan "All Land to the Peasants!" and actively supported the "Black Partition" that raged in the countryside as the peasantry took over the lands of the nobles and wealthier farmers.[6] But what the peasantry had given it could take away. Throughout the 1920's, the Soviet government struggled with the problem of enabling a proletarian-oriented regime to retain power in a primarily agrarian, small-peasant nation. Aside from the potential threat of the peasants,

[6] Alexander Baykov, *The Development of the Soviet Economic System,* pp. 16–18. New York: Macmillan, 1947.

the Soviet regime has been constantly haunted by the fear that it would be overthrown by force of arms. Shortly after its birth, it had to struggle for survival against the armies of Czarist sympathizers and the military intervention of foreign powers, including England, Japan, and the United States. After the new state had won its right to exist by military victories, its leaders continued to believe that they were surrounded by a hostile capitalist world that would sooner or later attempt to crush them. To obtain the means to resist such invasion successfully, they built up Russia's economic strength at frantic speed and high cost. Thus they obtained the resources that—together with American Lend-Lease aid and other outside help—enabled the USSR to absorb the first Nazi onslaughts in World War II and later to push on from Stalingrad to Berlin. From 1928 on this economic preparation for war was a leading element in Soviet policymaking, and it has been evident in the strained international atmosphere since World War II.

The Soviet fears that they might be defeated by foreign military intervention were clearly expressed by Stalin in 1931, addressing a group of business executives:

> To slacken the tempo would mean falling behind. And those who fall behind get beaten. But we do not want to be beaten. No, we refuse to be beaten! One feature of the history of old Russia was the continual beatings she suffered for falling behind, for her backwardness. She was beaten by the Mongol Khans. She was beaten by the Turkish beys. She was beaten by the Swedish feudal lords. She was beaten by Polish and Lithuanian gentry. She was beaten by the British and French capitalists. She was beaten by the Japanese barons. All beat her—for her backwardness: for military backwardness, for cultural backwardness, for political backwardness, for industrial backwardness, for agricultural backwardness. She was beaten because to do so was profitable and could be done with impunity. . . . In ten years at most we must make good the distance we are lagging behind the advanced capitalist nations.[7]

The problem of historical motivation is always complex, and the specific case of the Soviet Union considered here is no exception. The desire to strengthen the economic base of Soviet military strength has played a role throughout the history of the USSR, but the specific force of this factor has varied from time to time in accordance with changes in the international situation. Soviet policymakers have also realized that

[7] Stalin, *Problems of Leninism*, p. 365.

internal discontent was a factor to be reckoned with, one that could be at least partially alleviated by raising the standard of living. The emphasis upon consumer-goods industries has therefore shifted from time to time, depending upon both the internal and the external situation. The sense of rivalry with capitalist powers abroad has also played a significant role, as Soviet leaders have sought to equal and surpass the economic power of Germany, Great Britain, and the United States. In short many elements have a part in the motivation of Soviet economic policy, but the preservation and expansion of communist power has been the dominant theme.

When ideology and the need for survival clashed, it was the former that gave way throughout this era. We have noted before Stalin's remarks that the state could not "wither away," despite Engels' prediction, because the Soviet Union faced the threat of war. In 1921 Lenin gave way before peasant opposition and instituted the New Economic Policy, whose concessions insured a period of relative domestic tranquility, though at the cost of temporarily strengthening capitalist elements in the countryside and city. And even the concern for the proletariat, so central a feature of Marxist ideology, did not deter Soviet leaders from holding down their people's standard of living while concentrating resources in capital investment and the increase of military-economic strength.

The Spread of State Control

At the very outset of Bolshevik rule, Lenin does not seem to have intended any immediate widespread nationalization of the economy. The existing disorganization of normal life and production was already great. His preoccupation was to insure the smoothest operation possible, under the circumstances, of remaining industrial and transport facilities. Moreover the Bolsheviks knew that they had nowhere nearly enough technically trained people to replace the old managers and directors of the economy, despite Lenin's earlier brave words about the simplicity of modern control and accounting. Dobb has described the policy contemplated as "a controlled or directed Capitalism, steered by such measures of economic control as had come to be the common stock-in-trade of belligerent governments."[8]

[8] Maurice Dobb, *Soviet Economic Development since 1917*, p. 83. London: Routledge and Kegan Paul, 1948.

But the Bolsheviks had rather natural suspicions about the extent to which they could trust the owners and managers of industry, whose sympathies were likely to be with the old regime. On November 14, 1917, a decree was published providing for Worker Control, or, more accurately, participation, in the direction of industry. Factory committees were given the right to supervise management, to determine minimum production levels, and to have access to all correspondence and accounts, but the right of proprietors to give orders was explicitly upheld. In this way the Soviet government sought to continue to use the knowledge and skill of production managers, while keeping them under the scrutiny of workers' groups, which, presumably, would seek to guard against sabotage.[9] On December 5, 1917, another decree was published setting up a Supreme Council of the National Economy, which had the function of providing centralized coordination for the economy. Direct nationalization was still regarded as a minor element of policy, for use in special cases only.

The current of events, however, pushed the government ever further along the path of nationalization. On December 27, 1917, for example, banking was made a state monopoly, and all existing banks and their assets were merged into the state bank. Lenin declared that he had wished to permit the private bankers to continue their activity, provided they cooperated with the regime, but that their hostility prevented this.[10] More ideological in its inspiration was the decree of February 19, 1918, nationalizing all land, since the practical impact of this order upon actual events in the countryside was slight. An earlier decree on the second day of the Soviet regime, November 8, 1917, had abolished land ownership by estate owners without compensation and had ordered all such land and the agricultural capital on it to be held in custody of local peasant committees. But before and after these decrees, the peasantry simply took over by force of numbers, taking the land and livestock of the estates and distributing them among the members of the peasant communities.[11] With regard to foreign trade, a system of import and export permits was first introduced, but on April 23, 1918, a government monopoly of foreign trade was instituted.[12] In domestic trade, it was

[9] *Ibid.*; Baykov, *op. cit.*, p. 5.

[10] Arthur Z. Arnold, *Banks, Credit, and Money in Soviet Russia*, pp. 58–61. New York: Columbia University Press, 1937.

[11] Baykov, *op. cit.*, pp. 16–18.

[12] Alexander Baykov, *Soviet Foreign Trade*, p. 8. Princeton: Princeton University Press, 1946.

first intended to permit private merchants, checked by workers' control committees, to co-exist alongside a state monopoly of trade covering only the important goods. Such monopolies—covering successively farm machinery, textiles, food, matches, candles, and so on—were set up in late 1917 and early 1918, as goods shortages created more and more distribution difficulties. On November 21, 1918, finally, nationalization of all trade was decreed.[13] Most of the country's railroad lines, it may be noted, had been built by the state or nationalized under the Czarist regime and were therefore automatically taken over upon the Bolshevik assumption of power.[14]

In industry the policy was initially to nationalize only particular large firms, either because of their importance or because of sabotage by owners who refused to continue production or work under the system of workers' control. By June 1918, some 521 large factories had been taken over by the state, most of them by order of local authorities in various areas rather than by order of the central government. During this period the situation became ever more anarchic, as increasing shortages of materials, transport disorganization, and currency chaos made their effects felt on production. In addition strong syndicalist tendencies became evident at many factories, where workers acted under the impression that under the new regime they could take over the factories and operate them as they saw fit for their own benefit. The functioning of such privately owned enterprises was becoming increasingly impossible, and the resulting production decline harmed and endangered the new state. The result was the decree of June 28, 1918, nationalizing all large-scale industries. After it had become evident that the operation of the nationalized plants depended on the functioning of small enterprises, these latter were also nationalized by a decree of December 29, 1920. Direction—and weak direction it was at first—of these new state industries was entrusted to the Supreme Economic Council, which was thus transformed from a coordinating and planning group into an operating agency with greatly expanded functions and personnel.[15]

This period of attempted direct state control and operation of the entire nonagricultural economy, usually termed the era of War Com-

[13] Baykov, *The Development of the Soviet Economic System*, pp. 24–25.

[14] Margaret S. Miller, *The Economic Development of Russia, 1905–1914*, p. 208. London: King, 1926.

[15] Baykov, *op. cit.*, pp. 4–7; Dobb, *op. cit.*, pp. 82–96.

munism, lasted from 1918 to 1921. Market relationships virtually ended. Food was requisitioned forcibly from the peasants, often with little or no payment of any kind. Connections between different segments of the state-operated economy were maintained by means of orders and allocations. Inflation mounted steadily throughout the period, while production fell precipitously. Money lost much of its significance, both for exchange and economic calculation. Administration was inept and haphazard, as the untrained and inexperienced personnel of the Supreme Economic Council sought to operate the economy on the basis of inadequate and often faulty information. Yet somehow enough was produced to supply the Red Army with essentials and to keep the economy behind the lines functioning, though at minimal levels. But the shortages of food and consumer goods, the arbitrary and often brutal requisitioning techniques, and the confused economic administration had their inevitable effect: peasant dissatisfaction mounted, breaking out even in armed rebellion. In the cities industrial discipline declined, while absenteeism, strikes, and even anti-Soviet sentiment rose. The Kronstadt naval rebellion against Bolshevik rule in early 1921 showed the temper of the people and the peril to the Soviet regime.[16]

To save the Soviet regime the New Economic Policy (NEP) was initiated. It sought to appease the peasantry and to revive the economy by permitting the legal activity of private entrepreneurs in specific fields. Instead of the former ruthless requisitioning—often amounting simply to confiscation—of peasant grain, a new tax was introduced: one that required farmers to surrender only part of their produce to the state, leaving them free to sell the remainder on the open market for any price they could get. The tax rate was fixed so as to obtain for the state only about half the amount formerly requisitioned, being calculated on the basis of the amount needed to feed the Red Army and workers in the vital government enterprises. Private trade was once again permitted, and a new class of retail merchants sprang up immediately in all areas of the economy, quickly dominating retail distribution and playing a very important role as wholesalers. Illegal private trade had existed during War Communism, when thousands of "bagmen" trudged between city and country, bartering food for consumer goods and playing a significant role in what limited exchange of goods took place. During

[16] Dobb, *op. cit.*, pp. 112–24.

1922–23, about 75 per cent of the retail trade volume of the Soviet Union was accounted for by private merchants; state and cooperative stores did only about 15 and 10 per cent of the business, respectively.[17] In industry, too, the state relinquished some of its former primacy, keeping the largest and most important factories and branches of industry, but leasing many smaller plants to cooperatives and private operators and restoring others to their original owners. Foreign concessionaires were allowed to take over some enterprises. A few others were given over to companies based on both state and private capital investment. A study published in 1923 found that only 8.5 per cent of all industrial enterprises in the USSR belonged to the government; but these employed over 84 per cent of all industrial workers, indicating clearly the small and often minuscule size of cooperative and privately run enterprises.[18]

Thus was instituted a "mixed economy," in which the state held firmly to the "commanding heights" through its continued control of the government, large industry, the credit and banking machinery, transport, and all foreign trade, as well as part of the domestic trade network. In agriculture, on the other hand, the pattern consisted overwhelmingly of millions of small farms operated on anything but socialistic principles. In the cities private enterprise flourished in retail and wholesale trade, and in small-scale manufacturing units, many of them consisting of no more than an artisan and his assistant. Even financial exchanges were organized in Moscow and several other cities to provide a market for buying and selling government bonds and foreign currencies.[19] Trade, of course, meant the reinstitution of markets for all commodities and an end to the old system of moneyless transactions between state organizations, which were later completely reorganized. Industry remaining in government hands was divided into 486 trusts, each with the legal status of an independent economic entity operated for profit and free to buy from and sell to all customers, including other state organizations and private businessmen.[20] Lenin termed this new economic system "state capitalism," but said that it was a state capitalism that had never before been envisaged because it existed in a state ruled by the proletariat. He recognized that there were dangers implicit in this new economic or-

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[17] Baykov, *op. cit.*, p. 65.
[18] *Ibid.*, pp. 106–107.
[19] Lancelot Lawton, *An Economic History of Soviet Russia*, vol. I, p. 197. London: Macmillan, 1932.
[20] *Ibid.*, pp. 193–94.

ganization, because of the potential strengthening of hostile capitalist elements within Russia. But he felt confident that it was "capitalism which we shall know how to restrict and to which we shall be able to set limits."[21]

Lenin's confidence proved to be justified. Within a decade private trading and industrial production based on the use of hired labor had been virtually wiped out. Against the traders who had proliferated so quickly after the NEP was announced the government proceeded on two fronts. It made the need for such private enterprise ever less pressing by encouraging and achieving a tremendous expansion in the state and cooperative wholesale and distribution networks, rapidly increasing the number of buying and selling points of these organizations and augmenting their personnel as required. Conversely, it discouraged private traders by imposing high taxes on their profits, sharply restricting the commodities they could buy from state enterprises, and making it difficult or impossible for them to move their goods over the state-owned railroads.[22] The results were soon apparent. From about 75 per cent in 1922–23, the share of private traders in retail volume fell to 22.5 per cent in 1928, 5.6 per cent in 1930, and became negligible thereafter.[23] In 1932 private trading by merchants was forbidden. A provision of the Criminal Code adopted that year provided prison terms of five years or more for those guilty of "speculation," i.e., buying or reselling goods for private profit.

Private industry—confined largely to small-scale handicraft production, except for a few large concession enterprises operated by foreign investors—succumbed similarly within a decade after the beginning of NEP tolerance. Denied raw materials and credit, discriminated against in use of transport facilities, taxed far more heavily than their state-supported competitors, these small independent producers rapidly gave up at the end of the 1920's. In 1925–26 they accounted for 19.9 per cent of all industrial production; by 1930, only 5.6 per cent; and by 1932 an infinitesimal 0.5 per cent.[24] By 1931 the state and its subservient cooperatives were in complete control of all Soviet industry and trade and the NEP concessions had been ended.

[21] Quoted in Baykov, *op. cit.*, p. 50.

[22] L. E. Hubbard, *Soviet Trade and Distribution*, pp. 19–23. London: Macmillan, 1938.

[23] *Sotsialisticheskoye Stroitelstvo SSSR*, p. 607. Moscow: 1936. Hereafter cited as *Sot. Stroi.*

[24] Baykov, *op. cit.*, pp. 124–25; *Sot. Stroi.*, p. xlii.

In agriculture the transformation to complete state control was largely accomplished in the early 1930's, but strong resistance had to be overcome at heavy cost. There were almost 26,000,000 separate peasant farms in the Soviet Union in 1928.[25] To the Soviet leaders it was obvious that such an unwieldy mass of individual small producers was incompatible with the centrally directed, large-scale industrial economy they hoped to build. So long as the peasant remained his own master, the state would have to meet his terms if it wished to get the grain required to feed the city masses. To meet those terms, the state would have had to be in a position to deliver the abundant supply of consumer goods farmers wanted. This would have put serious brakes on the state's goals for capital investment and rapid heavy industrial expansion. Only by smashing the peasants' independence could the state regain its freedom of action.

The first few years of the NEP period, however, were years of appeasement. The Soviet leaders were trying to renew the *smychka* or union between the proletariat and the peasantry—particularly the poor and middle peasantry—that had been so brutally destroyed by the grain confiscation policies of the preceding period. The shift to a grain tax and peasant freedom to sell surplus production, mentioned above, created a sharp incentive for increased farm production. These moves once again linked the peasant's welfare to the volume of his output. As elsewhere private enterprise was given greater freedom, and peasants were permitted to lease land, farm machinery, and other items of production capital as well as to hire a limited number of workers per farm. Soon differentiation made itself evident among the peasantry, as the more enterprising and those with above-average capital took advantage of the new opportunities. In 1927 the Soviet government estimated that there were about 5,000,000 poor peasants, 14,300,000 middle peasants, and 896,000 labor-employing farmers. Few even of the upper group would have been regarded as anything but poor in the United States, but in a country where millions had to eke out a living on farms of 10 acres or less, the ownership of a few head of livestock or the capital adequate to permit hiring of machinery or labor were enough to classify a farmer as an affluent *kulak*.[26]

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[25] Baykov, *op. cit.*, p. 135.

[26] *Ibid.*, pp. 135–38. There were also 2,560,000 very small farmers classified as belonging to the rural proletariat.

Before it had had a chance to become cemented, however, the alliance between workers and peasants that the Soviet regime sought to attain during the 1920's was almost wrecked, as a result of the famous "scissors crisis" of late 1922 and 1923—i.e., the sharp reversal of price relationships that took place at that time.

Both 1922 and 1923 were years of general inflationary price rises. Superimposed upon the general rise in prices during the first half of 1922 was a relative rise of agricultural prices and a relative decline in industrial prices. By May 1, 1922—when this gap was widest—the purchasing power of agricultural commodities in terms of industrial commodities was much greater than it had been in 1913. The "terms of trade" between city and country had shifted in favor of farmers, in part as a result of the frantic dumping of industrial goods on the market by industrial organizations desperate for working capital. After May 1922 industrial prices increased much more rapidly than did farm prices so that by August 1, 1922, the ratio of agricultural to industrial prices was virtually the same as in 1913. This reverse movement continued for another year, however, with the result that through most of 1923 industrial goods were far more expensive in terms of agricultural commodities than they had been in 1913. The "terms of trade" had shifted violently against the rural population. When these price changes are plotted on a graph, the shifting relationship between the two price curves suggests the blades of an open pair of scissors. This is the origin of the name by which this phenomenon is known.

The price disparity against agriculture in 1923 had serious consequences. Peasant demand for high-priced urban consumer goods fell off sharply, producing serious gluts and overstocked warehouses in the cities; however, monopolistic price control by industrial trusts prevented prices from falling. The decline in peasant purchases carried along with it the threat of a decline of peasant sales of food and industrial raw materials, with consequent disastrous results for the urban population and industry dependent upon these supplies. The government might have solved the crisis by resorting once again to compulsory requisitioning and by abandoning a market economy, but this would have removed any hope of attaining the worker-peasant cooperation aimed for by government policy. Instead of using force, therefore, the government moved to lower industrial prices and raise agricultural prices. The ability of industry to hold goods off the market and raise prices monopolis-

tically was attacked by reducing bank credits so as to force the goods-hoarders to unload. Maximum selling prices were set for some goods. On the other hand the government altered its grain purchase policy so as to raise prices paid farmers. The result was a substantial closing of the relative disparity between industrial and agricultural prices, as measured against their 1913 relationship. But the entire gap was never closed. Throughout the remainder of the 1920's, the peasantry enjoyed a less favorable position vis-a-vis industry than they had before the outbreak of World War I.[27]

Despite the vigorous measures that alleviated the 1923 "scissors crisis," the government experienced increasing difficulty during the middle and late 1920's in getting the agricultural supplies it required. Of central importance here was the fact that the percentage of the total grain supply sold shrank sharply in the 1920's, being only 13.3 per cent in 1926–27 as against 26 per cent before World War I. The key factor was that the poor and middle peasants, who produced 85.3 per cent of all Soviet grain in 1926, marketed only 11.2 per cent of their output. The *kulaks,* whose fields gave only 13 per cent of the harvest, sold 20 per cent of their grain; while the relatively unimportant state and collective farms, which produced only 1.7 per cent. of all grain, marketed 47.2 per cent of their grain.[28] In 1927 and 1928 sharp difficulties again began to be encountered by the government in its efforts to secure adequate grain. Once more it had to resort to emergency measures such as confiscating grain from rich peasants who refused to deliver it at prices fixed by the state. The government's needs for grain had increased with the increase in urban population, while the peasants were becoming less eager to grow and sell grain, at the government-fixed price, since other crops could be raised more profitably. It was also more profitable to feed grain to livestock and sell the resulting meat and dairy products than to sell grain itself at the state price. Yet the government could not adequately raise its price for grain. It did not want to increase peasant purchasing power when it had no intention of correspondingly increasing the supply of manufactured goods—mainly consumer goods—available for peasant purchase.[29]

Three major lines of development merged in determining the final

[27] Dobb, *op. cit.,* pp. 149–76, 215–16; Baykov, *op. cit.,* pp. 54–61.
[28] Stalin, *Problems of Leninism,* p. 208.
[29] L. E. Hubbard, *The Economics of Soviet Agriculture,* pp. 105–09. London: Macmillan, 1939.

outcome of this struggle. First, the government need for grain increased rapidly in 1928 and 1929 as its program of rapid industrialization got under way, with a corresponding increase in industrial and construction workers who had to be fed from government-controlled supplies. With even greater supplies to be required in the future as industrialization proceeded still further, the pressure for a solution satisfactory to the regime mounted sharply.

Second, the government regarded the struggle as primarily one against the *kulaks*, the wealthier farmers, who, as we saw earlier, had relatively large surpluses of grain. They were the peasants, moreover, who were most concerned with maximizing their money income by shifting their production from grain to nongrain crops or by feeding grain to livestock. To combat the growing influence of the *kulaks*, the state had reversed its earlier tolerance, raising taxes imposed upon them sharply during the late 1920's. But these measures were not enough, and in 1929 the government, in Soviet phraseology, "passed from the policy of restricting the exploiting proclivities of the *kulaks* to the policy of *eliminating* the *kulaks* as a class."[30]

Third, as early as March 1919, the Eighth Congress of the Communist Party had laid down the policy that the eventual organization of Soviet agriculture would be based upon two institutions: large-scale state farms, owned and operated by the government; and collective farms, formed by amalgamating the lands of many peasants, who would then work the larger area cooperatively.[31] Both these types of farms were of only minor importance in the 1920's. As late as 1929 they accounted for less than 7 per cent of all sown acreage. In 1928 and 1929, however, the formation of new collective farms and the entrance of peasants into them increased sharply, as the poorest farmers, destitute of virtually all capital required for production, were attracted by promises of generous government aid, including credit, machinery, and technical assistance. The higher rates of collectivization prevailing in these years is indicated by the fact that whereas in November 1927 there were only 14,832 collective farms with 195,000 peasant members, by June 1, 1929, there were 57,000 such farms with 1,003,000 families.[32] Being dependent upon the government for subsidies and other aid, these collectives provided

[30] Stalin, *Problems of Leninism*, p. 323. Stalin's italics.
[31] *Entsiklopediya*, col. 842.
[32] *Sotsialisticheskoye Stroitelstvo SSSR (1933–1938 gg.)*, p. 96. Moscow-Leningrad: 1939. Hereafter cited as *Sot. Stroi.* (1933–38). Baykov, *op. cit.*, p. 191.

the regime with a much higher percentage of the grain they produced than did individual peasants. From the government's point of view, therefore, this organizational form was much preferable. The state farms, on the other hand, had proved disappointing because of their high costs. Moreover the Soviet leaders realized that the bulk of the peasantry would not take kindly to any government effort to convert them into out-and-out hired hands on such "factories in the field." All these considerations were influential in persuading the government in the late 1920's that its only way out of the ever more menacing grain crisis was the collectivization of the great bulk of Soviet agriculture and the wiping out of the independent *kulaks.*[33]

The actual process of mass collectivization in early 1930 was one of the most concentratedly tempestuous periods in Soviet history. A decision of the Communist Party Central Committee in November 1929 ordered that 25,000 trusted industrial workers be sent to the countryside to lead the campaign. Plans were set in motion to build large-scale farm machinery plants to supply the large new collective farms that were to be formed. Regional and provincial authorities were empowered to use "all requisite measures to fight the *kulaks,* including the total confiscation of *kulak* property and their deportation beyond the boundaries of individual districts and regions (provinces)."[34] The tempo of collectivization was ordered speeded up far beyond that originally envisaged in the First Five-Year Plan.

Events moved rapidly thereafter. On February 20, 1930, there were 59,400 collective farms with about 4,400,000 families, already a very considerable increase over the preceding spring. Six weeks later, in March, there were reported to be 110,200 collective farms with almost 14,300,000 peasant households, 55 per cent of all peasant families. The most rapid agricultural transformation in history had apparently been accomplished.

But the reality behind these swiftly mounting figures was something quite different. Collectivization was often literally jammed down the peasants' throats by the urban workers sent to the countryside together with party and government functionaries. Instead of winning the peasants' voluntary consent to the merger of their property and land, these overenthusiastic collectivizers often simply informed the peasants that

[33] A. Yugow, *Russia's Economic Front for War and Peace,* pp. 61–62. New York: Harper, 1942.

[34] Quoted in Baykov, *op. cit.,* p. 194.

they had been collectivized willy-nilly, or threatened them with dire punishment if they did not vote to form collectives. *Kulaks* and others who resisted were shot, beaten up, or deported to forced labor camps. Those who opposed this new reign of terror responded by killing their livestock and destroying other assets that would otherwise have gone to the hated collective farm. The struggle and disaffection so roused in the countryside assumed such proportions that they threatened to disrupt the whole 1930 spring-sowing campaign, with disastrous results for the crop of that year.[35]

Stalin sounded the alarm with a famous statement, titled "Dizzy With Success," published in *Pravda*, March 2, 1930. He asked: "Who benefits by these distortions, this bureaucratic decreeing of a collective-farm movement, these unseemly threats against the peasants? Nobody, but our enemies. What may these distortions lead to? To the strengthening of our enemies and the discrediting of the idea of the collective-farm movement."[36] To ease the tension, peasants were allowed to withdraw from collective farms imposed upon them. As a result, between March 1, 1930, and May 1, 1930, the number of collective farms dropped from 110,200 to 82,300, while the number of member peasant households declined from about 14,300,000 to about 5,800,000.

But this temporary retreat did not mean that the government had dropped its collectivization campaign. The regime had merely changed its tactics. Greater emphasis was placed upon special privileges, such as exemptions from taxation, given collective farms. They were aided also by being given machinery, seed, and credit, while the burdens on individual farmers were increased. The struggle against the *kulaks* was also continued energetically. Moreover, many of the peasants who withdrew from the collectives got back only a small fraction of their original capital. In the end the government had its way. By July 1, 1931, there were 211,100 collective farms, including over half of all peasant households and embracing two-thirds of the peasant-sown acreage. Two years later, 64.4 per cent of the peasantry and over 83 per cent of the peasant-sown area had been collectivized. By 1936, almost 90 per cent of the peasantry and virtually all the peasant-sown area were included in 245,700 collective farms.[37]

The government had won. But the cost had been heavy, being es-

[35] Dobb, *op. cit.*, pp. 228–29; Baykov, *op. cit.*, pp. 192–97; Yugow, *op. cit.*, p. 45.
[36] Stalin, *Problems of Leninism*, p. 336.
[37] *Sot. Stroi.*, p. 278.

timated by one competent observer to have included the loss of half the nation's livestock, much of its other agricultural capital, and a demoralization of agriculture that helped bring on the poor harvests of 1931 and 1932 with their accompanying famine. Perhaps as many as five million *kulak* families may have been deported to Siberia and the Far North for their resistance.[38] Only by importing large numbers of American tractors was the Soviet government able partially to replace the large number of horses slaughtered during its struggle with the peasants.

With this victory over the independent peasantry, the Soviet state won complete control of the economy of the USSR, a control that has not been seriously challenged since. When Eastern Poland, Latvia, Lithuania, Estonia, Bessarabia, and Northern Bukovina were annexed during 1939–41, private trade and industry in these areas were liquidated, and a land reform was carried through that broke up all farms above a modest maximum. After Soviet control was regained in these areas during and after World War II, a new campaign for collectivization was begun and rapid progress was made in 1948 and 1949.[39] By 1950 the economies of these areas had been transformed into the same pattern as the remainder of the USSR.

The Planning System

Every economy of any significant size rests on the everyday cooperation of many individuals and groups of individuals engaged in both production and consumption. Such cooperation is not at random, but is coordinated in some fashion through a mechanism that decides or helps to decide such basic questions as: What commodities and services shall be produced? How much of each shall be produced? How shall the community's total production be distributed among its individual members? How much of the community's total production shall be consumed for current needs, and how much shall be set aside to increase production capacity and provide reserves against emergencies or future needs? In an economy such as that of the United States these questions are answered—and economic activity is thereby coordinated—on the basis

[38] Hubbard, *The Economics of Soviet Agriculture*, pp. 117–19.

[39] Cf., for example, the data on the Baltic States in *Pravda* and *Izvestia*, July 21, 1949. On the methods employed, see the letter from a Latvian journalist in *The New York Times*, August 23, 1949.

of decisions made by many individuals and groups of individuals acting under the guidance of signals given by the behavior of prices set in the many markets for different commodities, as well as on the basis of other information. In the Soviet Union such coordination is achieved primarily on the basis of decisions made by a relatively small group of persons at the head of the government and incorporated in a central economic plan that has the effect of law in guiding the economic activities of the citizens of the USSR. This is what we mean when we say that the Soviet Union is a "planned economy." We do not thereby imply—as is sometimes mistakenly argued—that other economies are "unplanned" and therefore chaotic; we imply merely that other economies achieve coordination through some kind of market mechanism rather than by a centrally determined and imposed plan.

The contemporary type of Soviet economic plan, whether it covers the next five years, or the next year, or some shorter future period, is a directive to the different parts of the economy to produce certain quantities of different commodities—250,000,000,000 tons of coal or 500,000 automobiles, or 2,000,000 tons of cotton, and so forth. Commodities and resources available to the USSR—labor, machinery, raw materials—are allocated to the different parts of the economy in amounts intended to permit fulfillment of state goals. Paralleling the plans expressed in physical units of different commodities and resources are financial plans, which help coordinate the planned production program in terms of the monetary measurement of value. Soviet economic plans, therefore, are extremely complex documents resting upon a very detailed and extensive factual knowledge of the existing productive mechanism and its future possibilities in operation. How did this come to be?[40]

Lenin wrote in 1917 that society would become "one office and one factory," a statement implicitly assuming that the economic system of the future would be operated in accordance with one centralized set of objectives, i.e., a plan. The Supreme Economic Council, formed shortly after the Bolshevik revolution, was at one time regarded as the body that would produce a unified economic plan, but its energies were soon mainly absorbed in the work of administering nationalized industry. Actual coordination of the Soviet economy during the years of War

[40] Questions of how plans are prepared and how they operate in practice will be discussed in a later chapter on planning and the planning system.

Communism seems to have been practically accomplished through the activities of the Council of Defense. This body did not issue carefully calculated documents, but solved urgent problems as they arose by concentrating all available resources upon their solution. Many of the government economic bureaus of the period had their planning groups, which produced detailed plans for their own sectors, but there was no one over-all directing plan coordinating the economy.[41]

The first approach to a comprehensive Soviet plan was the work of the GOELRO (State Commission for Electrification) group founded in March 1920 to prepare a program for the electrification of the Russian Soviet Federated Socialist Republic. This plan, as presented to and adopted by the Eighth Congress of Soviets, in December 1920, presented a list of goals in the production of different commodities to be achieved over a ten- or fifteen-year period, during which some thirty electric power stations were to be constructed in different parts of the country. Among the objectives set were the output of 62.3 million tons of coal, 19.6 million tons of iron ore, 8.2 million tons of pig iron, 6.5 million tons of steel, and the raising of all industry to a level of output 80 to 100 per cent above the prewar level.[42] Both in scope and in adequacy of the factual data upon which it was based, this initial effort had little in common with the complex plans of today.

In February 1921 the State Planning Commission, or *Gosplan,* was set up, the organ that is still today the chief planning agency of the USSR. The *Gosplan* was charged with working out a unified economic plan for the country, together with the means and order of its realization; with reviewing plans drawn up by various departmental and areal authorities; and with carrying out studies required for the realization of the plan. The GOELRO plan was to be the basis of its work.[43] Initially *Gosplan* consisted of 40 economists, engineers, and other personnel. By 1923 these had increased to 300, and by 1925 a network of subordinate planning offices had been set up throughout the Soviet Union. Many planning groups also existed in the various People's Commissariats (now called Ministries) and individual enterprises of the country. In its earliest years *Gosplan* confined itself largely to making studies and reports

[41] Dobb, *op. cit.,* pp. 313–14; *Planovoye Khozyaistvo,* No. 1 (1946), pp. 37–39.

[42] A. Rothstein, *Man and Plan in Soviet Economy,* pp. 16–18. London: Muller, 1948.

[43] *Planovoye Khozyaistvo,* No. 1 (1946), pp. 27–28.

on particular problems, such as reconstruction of the Donbas coal basin, while it slowly gathered the information and personnel required to enable it to draw up a comprehensive plan. It also tried to coordinate the activities of different departments by acting as an umpire in deciding between their rival claims for resources, but this was hardly planning in the true sense.[44]

A closer approach to a comprehensive plan came with the publication of the annual Control Figures for 1925–26. These set up approximate goals for the major areas of the economy, based on an over-all view of the resources available and the possibilities for further progress. These were followed by similar Control Figures for 1926–27 and then for 1927–28, each year's effort being based on better and more comprehensive data. The first two sets of Control Figures were rejected by the government; the goals set were bitterly resisted by the various economic divisions, which wished to proceed in accordance with their own conceptions. Moreover, the Control Figures were found to be faulty in important respects, some of their most strategic components being based upon faulty and inadequate statistical information, particularly with regard to agriculture. The work of drawing up these goals and the criticism they received at the hands of party officials and economic leaders contributed, however, to improving the planning work and making possible further progress.

A historic controversy took place in this period that was to have major importance for the future development of Soviet planning. A number of the chief economists in *Gosplan* viewed planning as essentially an effort at forecasting the *probable future development* of the economy. These economists regarded the most essential task of economic planning as the maintenance of the equilibrium between supply and demand on the market. They believed that the growth of the Soviet economy was essentially limited by the preponderant importance of agriculture, that area of the Soviet economy in which individualism reigned supreme at the time and in which the planned direction of the government was least effective. In addition they believed that once the Soviet economy had made good the losses of World War I and the civil war that followed it, the rate of growth of the economy as a whole would necessarily decline. These economists were very much influenced by

[44] Dobb, *op. cit.*, pp. 316–18.

the techniques of economic forecasting and business cycle analysis then in vogue among economists in capitalist countries, and these they tried to apply to the problems of the Soviet Union. Such an approach, which denied the possibility of rapid economic development as desired by the leaders of the Soviet state, was naturally most unacceptable to the government. In addition these economists warned against government efforts to secure grain from the peasantry by coercive methods. They argued that state attempts to get increasing quantities of grain while keeping grain prices relatively low could lead to a diminution of farm output with disastrous consequences for the economy. These warnings too were unpalatable to the ruling group. A thorough purge of *Gosplan* and associated bodies was conducted to remove these economists and their sympathizers, who were accused of being "wreckers" and "opportunists" trying to sabotage the Soviet economy. This controversy helped focus attention upon the absolute necessity for the Soviet government to overcome the individualism and lack of planned control of agriculture if economic progress was to proceed at the rate desired.[45]

Speaking in May 1928 of the difficulties encountered by the government in securing adequate grain, the central problem of the time, Stalin described the root of the Soviet government's difficulties, and the relative importance of planning at the time, in these words:

> At the first glance it might appear that our grain difficulties are of a fortuitous nature, the result merely of faulty planning, the result merely of a number of mistakes committed in the sphere of economic co-ordination. But that might appear so only at the first glance. . . . To attribute everything to faulty planning and chance mistakes would be a gross error. It would be a still greater error to exaggerate the part played by the planning principle, in the belief that we have already reached a stage of development when it is possible to plan and regulate everything. It must not be forgotten that in addition to elements which lend themselves to planning there are elements in our national economy which do not as yet lend themselves to planning; and that, apart from everything else, there are hostile classes which cannot be overcome simply by the planning of the State Planning Commission.[46]

Only when agriculture had become completely collectivized could it be

[45] *Ibid.*, pp. 320–30; Baykov, *op. cit.*, pp. 431–35; Boris Brutzkus, *Economic Planning in Soviet Russia*, pp. 118–25. London: Routledge, 1935.

[46] Stalin, *Problems of Leninism*, p. 205.

brought more adequately within the sphere of Soviet planning and control, apart of course from the vagaries of nature and the resultant fluctuations in harvests, always a source of difficulty for economic planners in all countries.

In December 1927 the Fifteenth Congress of the Communist Party directed that a five-year plan for the development of the Soviet economy be prepared. Even earlier, in January 1927, a draft of such a plan, putting major emphasis upon the growth of heavy industry, had been prepared by the Supreme Economic Council. *Gosplan* had also been working on a similar project, one in which the possible goals for the future were viewed rather cautiously, in line with the reasoning described above. A great deal of public debate took place about the several variants of the Five-Year Plan released by *Gosplan*, the final choice put before the government being between the "minimal" and the "optimal" variants. The latter was the bolder program, premised on such uncertain assumptions as that there would be no crop failure during the five years and that foreign trade with the outside world, as well as foreign credits to the USSR, would increase sharply. It was the "optimal variant" that was finally adopted in April 1929 by the Sixteenth Communist Party Congress, though execution of the plan had been begun in late 1928.[47]

The period of execution of the First Five-Year Plan had originally been set as the five years following September 30, 1928; but it was officially announced as completed in four and one quarter years, i.e., as of December 31, 1932. Several of the basic assumptions behind the "optimal variant" were far from realized during these years. The crops of 1931 and 1932 were poor; the Soviet Union did not receive extensive foreign credits. Nevertheless, during these years, substantial progress was made, but it was very uneven progress. Behind the reported fulfillment of the plan was the fact that while in terms of ruble value output of machinery and electrical equipment in 1932 was 157 per cent of the 1932–33 goal, that of heavy metallurgy was only 67.7 per cent, and that of consumer goods only 73.5 per cent, of their goals.[48] Where the plan had envisaged that less than 25 per cent of all peasant households would be collectivized by its end, the actual percentage in 1932 was over 60.

[47] Dobb, *op. cit.*, pp. 231–36.
[48] Baykov, *op. cit.*, p. 166.

The plan had provided that, in 1932, 106,000,000 metric tons of grain would be produced; actual output was less than 70 million tons. Steel production in 1932–33 was to be 10,400,000 tons; in 1932 it was under 6,000,000 tons.[49] Many other similar examples might be cited, but the basic situation is clear: The First Five-Year Plan may be considered to have been fulfilled, if one defines fulfillment solely in terms of some over-all indicator that balances failures in one area with unexpectedly good performance in another. In retrospect, however, there can be no doubt but that the First Five-Year Plan gave only a poor forecast of what actually did happen after its adoption, except, in the most general sense, that the plan did call for an intensive program of capital investment and greater socialization in all major areas of the economy.

To understand the real significance of a Soviet plan, one must abandon any notion that such a plan is a device for securing orderly economic growth, that it is at all analogous to a railroad timetable, for example. Such a timetable predicts that a certain sequence of events will happen at certain times. Those who work on the railroad attempt to make the trains leave and arrive on time. If a train is late, that is considered a violation of the timetable; but so is the arrival of a train well ahead of schedule. An engineer who brought in a train from a five-hour journey in three hours might well be disciplined for skipping stops en route, for exceeding safe speeds, and for endangering lives by being out of step with the rest of the railroad. Not so with the Soviet plan. The objective of such a plan is primarily to secure the maximum possible rate of development of the economy in a given time period. If a branch of the economy progresses more rapidly than originally envisaged, i.e., overfulfills its plan, its managers and other personnel are rewarded. It is only when progress lags behind the plan that the directors of the Soviet economy become concerned.

Oscar Lange, now a leading official of the communist-dominated Polish government, expressed the point in this way several years ago:

> In a truly planned economy the output of different industries and plants as well as the inter-temporal structure of the investment program must

[49] Goals for the First Five-Year Plan are given in State Planning Commission of the USSR, *The Soviet Union Looks Ahead.* New York: Liveright, 1930, *passim.* A convenient source in English for data on Soviet economic conditions in 1932 is State Planning Commission of the USSR, *The Second Five-Year Plan,* p. 545 ff. New York: International Publishers, n.d.

> be balanced against each other and coordinated with each other. Thus overfulfillment of the plan, not less than underfulfillment, must be considered as a disturbance which upsets the plan. This argument, however, holds true only if the military objectives of economic planning are left out of account. The Soviet economy was planned not for the harmony of its different branches, but for one single purpose, namely the most rapid industrialization and preparation of effective national defense. The industrialization program was considered by the Soviet government as a race against time. . . . The fact that overfulfillment of the production plans is regarded as a virtue, instead of as an upsetting of the general economic plan, shows clearly that Soviet economic planning did not serve the objectives of a harmonious socialist welfare economy, but served political and military objectives to which all other aspects of economic planning were sacrificed.[50]

From this point of view, it is clear that the plan is a set of goals or a forecast; it is not an end in itself, but merely the means to an end. If conditions change, the plan is changed, as was the case with regard to collectivization in the early 1930's. Moreover, the Soviet leaders regard the actual formulation of a plan as only the first step in real planning. Supervision of the execution of the plan is the major task, they believe. The day-to-day development of the economy must be watched so as to avoid bottlenecks, foresee impending difficulties and avert them, and modify the plan in accordance with the actual experience of the earlier work in achieving its goals.

The Second Five-Year Plan, covering the years 1933–37, was adopted at the Seventeenth Congress of the Communist Party in early 1934. The railroad portion of this plan was announced as fulfilled in four years, and the industrial portion in four and a quarter years.[51] But again this fulfillment was of a curiously uneven kind, though somewhat more even than the fulfillment of the First Five-Year Plan. In 1937 output of steel was 4 per cent above the amount planned for that year, but pig iron production was 10 per cent below; petroleum output 30 per cent below; and woolen textiles 50 per cent below.[52]

The Third Five-Year Plan, originally intended to cover the years 1938–

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[50] Oscar Lange, "The Working Principles of the Soviet Economy," in *USSR Economy and the War*, p. 43. New York: Russian Economic Institute, 1943.

[51] *Planovoye Khozyaistvo*, No. 1 (1946), pp. 57–61.

[52] Cf. the interesting and more extensive comparison between plan figures and actual accomplishment in W. W. Leontief, Sr., "Soviet Planning: The Problem of Economic Balance," *The Russian Review*, Autumn 1946, pp. 28–29.

42, was adopted by the Eighteenth Congress of the Communist Party in March 1939. This plan showed the influence of the direct threat of war existing in the late 1930's. As its execution proceeded, it was more and more modified to take account of the increasing possibility of Soviet involvement. This plan was, of course, rudely interrupted by the Nazi invasion of the USSR in June 1941. A week after the invasion a "mobilizational economic plan" for the third quarter of 1941 was adopted by the government. In August 1941 the Soviet government adopted the "war economic plan" for the last quarter of 1941 and for 1942.[53] Other plans were subsequently adopted for the later years of the war, through 1945. The Fourth Five-Year Plan, originally presented as covering the years 1946–50 and providing a program for the reconstruction and development of the Soviet economy after World War II, was adopted as a law by the Supreme Soviet of the USSR in March 1946. Debate over this comprehensive program was most perfunctory, being limited to a small number of speeches by members of the Supreme Soviet—most of the speeches devoted simply to praising the plan completely—after a long explanatory and summary speech by N. A. Voznesensky, head of the *Gosplan* which had made up the document. In early 1950, V. M. Molotov announced that the Fifth Five-Year Plan was being prepared.

The five-year plans discussed above are of course not the only kinds of Soviet plans. The Control Figures issued first in 1925–26 were an initial attempt to formulate annual economic plans for a year ahead, plans that could be more concrete and specific than the longer-range five-year plans. Control figures continued to be issued annually for a time after the beginning of the First Five-Year Plan, but in 1931 these guides were dropped. Instead it became the practice, beginning with that year, to prepare a comprehensive annual economic plan, in which developments that had occurred since the formulation of the original five-year plan could be taken account of.[54] For the most important branches of the economy, as well as for individual enterprises, quarterly, monthly, and

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[53] N. A. Voznesensky, *The Economy of the USSR During World War II*, pp. 20-22. Washington: Public Affairs Press, 1948 (mimeographed).

[54] A. Kursky, *Sotsialisticheskoye Planirovaniye Narodnogo Khozyaistva SSSR*, p 20. Moscow: Gosplanizdat, 1945.

sometimes even bimonthly or ten-day plans are also prepared, so as to get the greatest maneuverability of economic direction over the year.

Longer-range planning for periods in excess of five years has been relatively slow to develop, though the first GOELRO plan had looked ahead ten to fifteen years. Some work on such longer-range planning was apparently done in 1938 and early 1939. Stalin, in his report to the Eighteenth Communist Party Congress, referred to the necessity of reaching a pig-iron output of 50 to 60 million tons in order to exceed the per capita United States output of pig iron in 1929, obviously a matter of several five-year plans.[55] Writing in 1940, a Soviet economist gave detailed figures showing that a considerable amount of thinking had been done about major objectives to be reached by the Soviet economy by 1947 or 1952, i.e., at the end of the Fifth or Sixth Five-Year Plan, had there been no World War II.[56] That such interest in long-range planning has been carried over to the postwar period was indicated by Stalin in February 1946. He spoke then of tripling Soviet prewar industrial production and reaching specified output goals for pig iron, steel, oil, and coal, far beyond the 1950 goals of the Fourth Five-Year Plan. Stalin's tentative time schedule—and the period over which long-range planning was probably being carried—was indicated by his statement, "That will take three more Five-Year Plans, I should think, if not more. But it can be done and we must do it."[57]

The Growth of Production

No aspect of Soviet economic development has been more spectacular than the rapid growth of production in all fields during the 1920's and 1930's. This growth was interrupted by the Nazi invasion in June 1941, which resulted in great losses of industrial and agricultural capital, with consequent sharp declines in production. But a revival followed after 1945, when sights were set for output levels exceeding any achieved before. The statistical picture of the growth and variation of Soviet output in terms of over-all Soviet statistics is given below:

[55] Stalin, *Problems of Leninism*, pp. 633–34.
[56] *Planovoye Khozyaistvo*, No. 10 (1940), pp. 30–43.
[57] Quotation from the translation of his speech issued by the Soviet Embassy.

TABLE 9. National Income, Gross Industrial Output, and Gross Farm Output of the USSR for Selected Years, Based on Soviet Data.

Year	*National Income**	*Gross Output of Industry*	*Gross Farm Output*	*National Income*	*Gross Output of Industry*	*Gross Farm Output*
	BILLIONS OF RUBLES IN 1926–27 PRICES			PER CENT OF 1913		
1913	21.0	16.2	12.6	100	100	100
1921	8.0	†	†	38.1	†	†
1926	21.7	16.0‡	†	103.3	98.8	†
1929	28.9	25.7	14.7	137.6	158.6	116.7
1932	45.5	43.3	13.1	216.6	267.3	104.0
1937	96.3	95.5	20.1	458.5	589.5	159.6
1940	128.3	138.5	23.2	611.0	854.9	184.1
1942	†	103.0	†	†	635.8	†
1945	†	127.5	†	†	787.0	†
1946	†	105.5	†	†	648.1	†
1949	174.5	195.3	†	831.0	1,205.6	†
1950 goal	177.0	205.0	29.5	842.9	1,265.1	234.1

* National income is a net output concept and is therefore not the sum of the gross output of various branches of the economy.

† Not available.

‡ 1926–1927.

Sources: Data taken from or calculated on basis of Soviet statistical handbooks published in the 1930's; writings and speeches of N. A. Voznesensky; and postwar official Soviet statements.

The official data in the table above indicate that, up to about 1926, the Soviet Union was engaged in recovering from and restoring the damage and production loss caused by World War I and the following Civil War. These conflicts had reduced national income to 38 per cent of 1913, agricultural output to probably about half the prewar level, and industrial output to 20 per cent or less of 1913 figures.[58] Between 1926 and 1940, the official data above indicate, national income increased about sixfold, largely the result of an almost ninefold rise in industrial output.[59] Agricultural output in 1940 apparently had increased less than twofold over the level of 1913. Moreover, it had actually decreased significantly during the early 1930's as the result of peasant resistance to collectivization, drought, and related factors. In the first year or two of World War II, Soviet industrial production dropped 25 per

[58] The statements on industrial and agricultural production are based on *The Soviet Union*, pp. 69, 76. Washington: Soviet Union Information Bureau, 1929.

[59] The Soviet definition of national income, it should be borne in mind, includes primarily only material production, excluding many services whose value is included in the definition of national income employed in the United States and other Western countries.

cent or more, while agricultural production probably dropped much more sharply, since the USSR lost much of its most fertile area. By the end of the war industrial production had regained much of the lost ground, as had agricultural output. The first full postwar year, 1946, saw a significant decline in nonagricultural output as the result of reconversion to peacetime patterns of work, while agriculture suffered a serious drought, which set back its recovery markedly. Thereafter official reports indicated that both industrial and agricultural production climbed steadily through the first half of 1950. By 1950, the Fourth Five-Year Plan hoped to achieve levels of national income, industrial output, and farm production never before attained in the USSR.

The advance of industrial production under Soviet rule has not been an even one. On the contrary, the pattern of development during the late 1920's, the 1930's, and World War II was one of most rapid expansion for capital goods of all kinds, machines, transport equipment, industrial raw materials, and the like. But output of consumer goods, even as reflected in official data, has lagged behind. This is the essence of what Stalin has called the Communist Party's industrialization policy. In his words:

> The Party knew that a war was looming, that the country could not be defended without heavy industry, that the development of heavy industry must be undertaken as soon as possible, that to be behind with this would mean to lose out. . . . Accordingly the Communist Party of our country . . . began the work of industrializing the country by developing heavy industry.[60]

The sharp divergence between the rates of growth of means of production output and consumer-goods output is clear from the official Soviet data. By 1940, these figures indicate, heavy industry was producing almost sixteen times as much goods as in 1913, while light industry was turning out not quite five times as much consumer goods. During the years of World War II heavy industry forged ahead still further, while consumer goods output fell drastically below the 1940 level. In 1913, only about one third of industrial output consisted of means of production, while two thirds consisted of consumer goods. By 1940 the proportions were virtually reversed, and output of capital goods accounted for almost two thirds of gross industrial output.

[60] Speech of February 9, 1946.

Deficiencies of Soviet Statistics

Up to this point our discussion of Soviet production growth has been in terms of the official Soviet statistics, which have been implicitly accepted as valid. Unfortunately, however, there are grave doubts whether these Soviet figures represent the actual situation, so that the statistical conclusions drawn above are extremely questionable. There is no doubt that Soviet industrial production, particularly with regard to means of production, has been far above that of Czarist times. The amounts and percentages of increase claimed by official data, however, seem patently exaggerated, both because of technical defects in the construction of the production indexes and because these basic economic indicators have been manipulated with an eye to making them most valuable for propaganda purposes. The fact of sharp industrial production expansion under Soviet rule is indubitable; the rate and amount of this increase shown by the data above appear magnified far beyond reality. The growth of agricultural production indicated, though much more modest than that of industrial output, also appears to have been exaggerated. The exaggeration referred to here is only in part that resulting from the extension of Soviet rule over Eastern Poland, the Baltic States, the Carpatho-Ukraine, Bessarabia, and other areas, though to the extent that the output of these areas is included in Soviet production figures for 1940 and afterward, those figures are really not comparable with the data for the more limited territory of earlier years.

The basic technical factor resulting in the exaggeration of the growth of the physical volume of production in the official Soviet data arose from the rapid development of the Soviet economy after 1926–27, the year whose prices are nominally taken as constant weights in measuring production. Already by 1930, and in much greater degree thereafter, the USSR was producing many products never before made in the country, as well as improvements and new models of goods made in 1926–27 or earlier. In measuring production as a whole, prices had to be assigned for valuing these new products, improvements, and new models, since they had not been produced in the USSR in 1926–27. Very often these new items were valued at the price they sold for in the first year of their large-scale output, 1930, or 1932, or other years. Because of Soviet price inflation after 1926–27, fixed quantities of labor and other economic resources usually cost much more in the 1930's and after than they had in 1926–27. New goods, valued at later prices in measuring industrial

production, received a much higher weight than if the labor and raw materials used to make them had been obtained in 1926–27. Thus the more new products turned out in the USSR and the farther the Soviet economy progressed from the base year, 1926–27, the greater was the inflationary bias imparted to the official index for measuring the physical volume of production. After 1935, some effort was made to curb this source of statistical inflation, but the available evidence suggests that the attempt was inadequate.

With regard to consumer goods, an additional influence toward exaggeration arises from the fact that the output of small, private production was inadequately measured in the 1920's and earlier. It was extremely difficult to count and evaluate the output of many small producers scattered over the country. In the late 1920's these producers had great incentive to hide the volume of their output from government statistics gatherers. Thus in discussing a Soviet census of small business in late 1929, a Soviet statistical source speaks of the "tendency of private producers to hide the actual volume of their production. . . ."[61] As a result it seems clear that part of the increase in consumer-goods production recorded in statistics for the 1930's was not a real increase. It reflected mainly the growth of output in large government factories and state-sponsored cooperatives, while neglecting to take account of the counterbalancing decline in production of consumer goods caused by the extinction of many small individual producers or groups of producers who had formerly turned out a very large fraction of this production. Furthermore, the quality of much factory-made Soviet consumer goods has been very poor, yet it is dubious that anything like adequate allowance has been made for this fact in official calculations. Finally, with the increased urbanization of the Soviet population, there has been a significant shift of production from the home to the factory. Whereas a peasant family normally bakes its own bread and makes its own clothing, a city family usually expects to buy these and other goods ready-made in bakeries and other workshops. But whereas bread baked or clothes made in the home do not enter statistical records of production, the same goods made commercially outside the home do. The very process of urbanization results in an *apparent* rise in consumer-goods output though there has been no real increase, only a transfer in function. For

[61] *Narodnoye Khozyaistvo SSSR Statistichesky Spravochnik 1932*, p. 647. Moscow-Leningrad: 1932.

these and other reasons, the fivefold rise in consumer-goods output by 1940 shown in official Soviet statistics is a very misleading clue as to actual changes in the standard of living in the USSR, which was probably little if any improved over that of the late 1920's.

Measures of agricultural production have been artificially inflated by shifting the accounting of crop output from a net basis, i.e., omitting losses in harvest and transport, to a gross basis, where such losses—which are quite significant in the USSR—are counted in crop production as though they were available for consumption of any kind.[62]

The Soviet government itself recognized the obsolete—and implicitly the misleading—character of 1926–27 prices in a decree issued July 28, 1948. This decree ordered abandonment of the old price system as a means of evaluating production and its replacement by a new system of current wholesale or accounting prices, employing quotations introduced first in 1949. Beginning with that year, those engaged in planning and cost accounting started to plan gross output and labor productivity in terms of the new prices. Up to the summer of 1950 there had been no announcement to indicate whether Soviet statements regarding gross industrial output of the USSR for 1949 and afterward were still based on the old index in terms of 1926–27 prices or whether they were based on a new index utilizing the new prices.

One Soviet author has indicated that the USSR intends to create a new index of industrial production reflecting changes in physical volume by first calculating an index of industrial production in terms of current prices in the form $\frac{\Sigma q_1 p_1}{\Sigma q_0 p_0}$. This would then be deflated by a price index of the form $\frac{\Sigma q_1 p_1}{\Sigma q_1 p_0}$ to give a measure of the physical growth of industrial production of the form $\frac{\Sigma q_1 p_0}{\Sigma q_0 p_0}$. The latter formula, of course, is

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[62] For further discussion of problems connected with Soviet production statistics, see Harry Schwartz, "On the Use of Soviet Statistics," *Journal of the American Statistical Association*, September 1947; Alexander Gerschenkron, "The Soviet Indices of Industrial Production," *Review of Economic Statistics*, November 1947; Naum Jasny, "Intricacies of Russian National Income Indexes," *Journal of Political Economy*, August 1947. For a contrary point of view, see Maurice Dobb, "A Comment on Soviet Statistics," *Review of Economics and Statistics*, February 1948, pp. 34–38.

simply an index of industrial production using base period prices as weights. The Soviet author adds that compilation of the proper price index for this work "is a complex problem whose solution requires careful preparation." He gives no clue to the base year that will be chosen for the new index, nor to when the new measure of industrial output is scheduled to be introduced.[63]

Other Approaches to the Problem

The noted statistician Colin Clark has made an attempt to get around some of the difficulties mentioned above by measuring Soviet production at average American prices in 1925–34. He concludes that Soviet national income regained the 1913 level in 1928 and rose 50 per cent by 1938, rather than the 500 per cent indicated by official USSR statistics.[64] There is no assurance, however, that Mr. Clark's conclusions are closer to the truth than those of the Soviet statisticians, since he may err in the other direction.

Another approach toward overcoming the difficulties created by the deficiencies of Soviet statistics presented in terms of 1926–27 is represented by efforts to calculate Soviet national income and gross national product for particular years in terms of the prices current in those years. Paul A. Baran has analyzed the data for 1940 in this manner,[65] and Abram Bergson has made a most detailed analysis of the materials for 1937.[66] If a complete time series of Soviet national income and gross national product in the prices of each year were available, together with an accurate index of Soviet prices, the growth of the USSR's economy could be analyzed more satisfactorily than is presently possible. But even the data prepared in this way for two years permit important insight to be gained into the structural relationships within the Soviet economy, though neither Bergson nor Baran would claim complete accuracy for his computations.

For the year 1937, Bergson found that Soviet gross national product—

[63] D. V. Savinsky, *Kurs Promyshlennoy Statistiki*, pp. 86–88. Moscow: Gosplanizdat, 1949. Cf. also *Voprosy Ekonomiki*, No. 8 (1948), pp. 30–32.

[64] Colin Clark, "Russian Income and Production Statistics," *Review of Economic Statistics*, November 1947, p. 216.

[65] Paul A. Baran, "National Income and Product of the USSR in 1940," *ibid.*, pp. 226–34.

[66] Abram Bergson, "Soviet National Income and Product in 1937," *Quarterly Journal of Economics*, Part I, May 1950; Part II, August 1950, *passim*.

i.e., the value of all goods and services produced—equaled 221,900,000,000 rubles in current prices, after allowing for the distorting effects of the turnover or general sales tax. This total was divided among different uses as follows:

Use	*Billion Rubles*	*Per Cent*
Consumption of households	119.0	53.6
Communal services	23.5	10.6
Government administration, including NKVD	6.9	3.1
Direct military expenditures	16.5	7.4
Gross investment	56.0	25.2

One of the most significant facts that emerges from the data above is that in 1937 almost one third of all Soviet output went for gross investment and defense, the proportion of nonconsumption expenditures exceeding one third if we take account also of administrative costs. To obtain a perspective on the significance of these figures, Bergson points out that other studies have indicated that per capita Soviet national income about 1937 was so low that one must go back to the decade of 1869–78 to find the American parallel. In that decade, gross investment in the American economy was about 18.9 per cent of gross national income, surprisingly close to the Soviet 1937 percentage. But American defense expenditures in that decade were only about one per cent of gross national product, so that gross investment and defense together accounted for less than 20 per cent of all output, as against almost one third in the USSR in 1937. This is a most striking indication of the difference between the two economies at somewhat similar stages of their development.

Baran, using a somewhat different method and translating his data finally into American dollars at 1940 prices, reached this conclusion:

> Out of gross national product of about 44.4 billion dollars, about 14.1 billion dollars were spent in 1940 on investment and military preparedness. Thus about 30.3 billion dollars worth of goods and services were available for the civilian population. It is estimated that the population of the Soviet Union in 1940 consisted of 198 million people. The per capita current civilian outlay amounted thus to 153 dollars annually. The roughly corresponding figure for the United States for the same year is about 600 dollars. This distressingly low level of welfare has to be borne in mind when the magnitude of the sacrifice demanded by the industrialization effort is considered.[67]

[67] Baran, *op cit.*, p. 231.

The Sources of Soviet Economic Expansion

The economic expansion and development achieved by the USSR since 1928 was made possible by the creative drive and organizing power contributed by the communist leadership. Capital investment of the sort that took place on such a large scale during this period consists essentially of the application of labor and other resources for purposes that are not immediately productive of goods for consumption. Even when one builds a shoe factory, for example, one does not obtain any shoes from it during the period of construction. In the case of the Soviet Union, of course, it was not primarily shoe factories that were being built, but rather installations for increasing the "roundaboutness" of production. In oversimplified fashion one might say that steel mills were constructed to provide the steel to make machine tools that would be used to make tractors that would finally be applied in agriculture to increase food output; or machine tools to make weapons for the armed forces.

In any economy where all resources are being fully employed at a given time, an increased rate of capital investment requires diversion of resources from output of current consumption goods and services and thus must lead at least for a time to reduced consumption.[68] The case is different in an economy where large quantities of labor, factories, machinery, raw materials, and other resources are unemployed or only partially employed. These can be applied to capital investment purposes without reducing the previous total of goods and services being made available for consumption. When the five-year plans were begun in 1928, there were significant reserves of unemployed or only partially employed resources, particularly in agriculture. Some additional capital investment could therefore have been obtained without extracting significant sacrifices from the population's consumption. But the volume and the tempo of the capital investment program desired by the First Five-Year Plan and its successors were so great that they more than took up the slack in the economy provided by available unemployed resources. They required in addition significant diversion of employed resources from production of consumer goods and services, with consequent sacrifices imposed upon the population. Thus private trade and private industrial production were wiped out during the First Five-

[68] Assuming, for simplicity's sake, that there are no reserves to cushion the shock of resource diversion.

Year Plan. During the same period, too, large quantities of grain were exported abroad to pay for new machinery and technical aid, though food was rationed in the cities and famine stalked the Ukraine and adjoining areas. The fact that there were great losses of agricultural capital, particularly livestock, during this period as the result of the struggle over collectivization added to the deprivations suffered.

To the extent that resources needed for capital investment can be obtained from abroad in the form of loans or other aid, the immediate domestic diversion of resources for a given volume of investment can be lessened. But, as we shall see below, such external aid played only a minor role in Soviet economic development before World War II.

In the paragraphs below we shall consider in turn the sources of capital, labor, technical knowledge, and raw materials employed by the USSR in its rapid industrialization after 1928.

Capital. Almost all the capital expended for Soviet economic development has been obtained internally, i.e., by restricting the consumption of the Soviet people below what it might have been and devoting an extraordinarily large percentage of their national income for investment purposes, such as building new factories, new railroad lines, and the like. Since the peasantry has been the dominant group in the Soviet population until comparatively recently, this element has borne the brunt of the burden. Once the farms had been collectivized, the government was able each year to get a large fraction of the agricultural produce, particularly grain, at very low prices. This was then resold, in original or processed form, at much higher prices. Putting the matter more generally, the Soviet government during most of its existence has imposed very high rates of taxation on foods and consumer goods, thus obtaining a large amount of income that it could and did convert into investment funds for use throughout the economy. This so-called turnover tax—similar to our sales and excise taxes—also cut down the consumption of the urban population by forcing its members to pay the relatively high prices that resulted from the inclusion of this tax in the prices of goods they bought. From 1931 to 1940 this source accounted for between half and two thirds of all Soviet government income annually.[69] The Soviet government also levies income and other taxes on the population and sells billions of rubles worth of bonds annually, all providing it with ad-

[69] Baykov, *op. cit.*, p. 397.

ditional funds that can be and are used for capital investment and other purposes.

In such years as 1933, over 60 per cent of Soviet government expenditures went for the financing of the national economy.[70] Of course, as the national income increased following earlier heavy state investment, it became possible to loosen somewhat the restrictions upon consumption while still diverting huge sums for capital expansion. Thus, while strict rationing had to be resorted to in the early 1930's to supplement financial means used to reduce consumption, this rationing was ended in the middle 1930's and not resumed till the invasion of the USSR in 1941. In the late 1930's increasing military expenditures were added to the desire for further investment as motivations for restraining the population's consumption and the growth of its standard of living. Military requirements were dominant, of course, during World War II and continued to be a very significant drain upon the national income after 1945, as the result of the tense international situation.

Before 1941, Soviet acquisitions of capital from abroad were relatively minor. During the 1920's the USSR did permit foreigners to obtain concessions to operate mining, manufacturing, trading, and other enterprises; and as of June 1, 1928, over 97 foreign concessions were in operation. About $30,000,000 was invested in 39 concessions operating in July 1927;[71] this sum was estimated to be less than one per cent of all the capital invested in the USSR. As late as 1929 the Chief Concessions Committee of the USSR was seeking to interest foreign investors in building such important projects as the Magnitogorsk and Taganrog metallurgical works.[72] But foreign capitalists could hardly be expected to be enthusiastic about investing their money in the economic development of the USSR, a country whose leaders made no secret of their opposition to world capitalism. It is not surprising that no really significant influx of foreign capital voluntarily reached the Soviet Union. By

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[70] *Ibid.*

[71] *The Soviet Union*, pp. 170–71.

[72] Cf. the references to the publications listed in Harry Schwartz, *The Soviet Economy: A Selected Bibliography of Materials in English*, p. 38. Syracuse: Syracuse University Press, 1949. *The Soviet Union*, issued in 1929, lists over 150 concession possibilities drawn up by the State Planning Commission to fit in with the First Five-Year Plan. As late as September 1928 the Soviet government announced a policy of extending and liberalizing the conditions on which concessions were granted. Cf. *ibid.*, pp. 173–74.

about 1930 the Soviet government had decided to accept the hardships of financing its capital expansion from domestic sources, except to the extent it could get credits abroad for the purchases of various products it required. In 1931 it owed about $1,400,000,000 to foreign governments and exporters for goods bought, but by April 1938 these debts had been wiped out.[73]

When the Soviet government annexed Eastern Poland, the Baltic States, and other areas during 1939–46, it took over the capital and other resources of these areas. When Soviet troops occupied Eastern Europe, Eastern Germany, Eastern Austria, Manchuria, and Northern Korea at the end of World War II, they seized large quantities of machinery, livestock, and other capital, which were moved to the USSR on the ground that they were war booty, reparations, and property stolen from the USSR. These capital acquisitions have undoubtedly facilitated the rebuilding of the war-devastated areas of the country. During World War II the USSR received machinery, equipment, and other capital goods from the United States, Great Britain, and France, under the Lend-Lease and Mutual Aid Programs. These acquisitions of capital from abroad during the past decade far exceed the value of foreign investments in the USSR during the 1920's.

Labor. The rapid expansion of production, particularly industrial production, during most of the period of Soviet rule would have been impossible without drastic changes in the size and distribution of its working population. In part the increased number of workers required came from the rise in population. Thus the 1926 census recorded about 147,000,000 individuals in the USSR; the census of January 1939 found almost 170,500,000 living within the same boundaries. The areas annexed by the Soviet Union during 1939–40 are estimated to have had about 22,000,000 inhabitants, so that by 1940 approximately 193,000,000 persons lived under Soviet rule, a rise of more than 30 per cent as compared with 1926. From the point of view of recruitment of industrial labor, the most important phenomenon has been the shift of millions of persons from agricultural to nonagricultural employment to provide labor for the rapidly growing number of factories, mines, transport lines, construction projects, and government agencies. Such a shift of labor, with-

[73] M. V. Condoide, *Russian-American Trade*, p. 63. Columbus: Ohio State University, 1946.

out perilous reduction of agricultural production, was possible because of the rapid rate of increase of farm population before World War II, because much of the farm population had previously been far from fully employed, and because collectivization and mechanization of Soviet agriculture in the 1930's helped further reduce farm labor requirements.

The restoration of the labor force for large industry is indicated by data for so-called census industry. This branch of production had employed 2,885,000 workers in 1913 but was down to 1,602,000 by the beginning of 1922, when some degree of stability had been regained. By 1928 census industry exceeded the 1913 mark and employed almost 3,100,000 workers.[74] A more general indicator of the early growth of the nonagricultural labor force is provided by data showing that the number of persons employed outside agriculture increased from 5,843,000 in 1923–24 to 9,545,000 in 1928.[75]

It was after 1928 that the great expansion of the nonagricultural labor force occurred, as the tremendous construction and production activity of the five-year plans pushed ahead. By 1938 the number of workers and employees in the national economy—a term roughly equivalent to the number of persons employed outside of agriculture—had increased to 27,800,000, almost three times the approximately corresponding figure for 1928.[76] By 1940, after the annexation of Eastern Poland, the Baltic States, and parts of Rumania, the number of workers and employees in the Soviet national economy reached 31,200,000. This number fell sharply during the first years of World War II, to 19,300,000 in 1943, recovering in 1945 to 27,200,000 and to the new high of 33,400,000 in 1948.[77] These totals increased further in 1949 and 1950.

Technology. As had been done so often before in earlier Russian history, the leaders of the Soviet Union turned to the West for many of the technically trained personnel and much of the advanced machinery

[74] *Narodnoye Khozyaistvo, SSSR*, pp. 112, 113, 410, 411.

[75] *Ibid.*, p. 411.

[76] Figure cited by Abram Bergson, "A Problem in Soviet Statistics," *Review of Economic Statistics*, November 1947, p. 236. The term workers and employees in the national economy includes also government employees in agriculture, such as those on state farms, but these are believed to be less than 10 per cent of the total. Cf. the discussion in Harry Schwartz, "A Critique of 'Appraisals of Russian Economic Statistics,'" *Review of Economics and Statistics*, February 1948, p. 40.

[77] Harry Schwartz, "Soviet Labor Policy 1945–1949," *The Annals of the American Academy of Political and Social Science*, May 1949, p. 75.

they required in the vital first stages of their economic development program. During most of the 1920's and 1930's, large numbers of American, British, French, German, and other foreign technicians were brought to the USSR to superintend the construction of new plants, mines, and dams, or the introduction of new production processes, as well as to teach Russians their technical skills. The great Dnepr River hydroelectric system, for example, was built under the supervision of the American engineer Hugh Cooper, and received its original basic equipment from the General Electric Company's plants in Schenectady, N. Y., and elsewhere. Such examples could be multiplied.[78] A significant number of Russians were sent abroad, as in the time of Peter the Great, to study in foreign schools and to work in foreign factories and other enterprises where they could learn the advanced technology of the West. Many of the Soviet Union's major new plants erected in the late 1920's and early 1930's were equipped with foreign-made machinery, for in many cases such equipment had never been made in the USSR before. Russia's agriculture, threatened with a catastrophic shortage of draft power when peasants slaughtered their horses and cattle in the period of forced collectivization, was substantially aided by imports of tens of thousands of tractors during 1929–31, before Soviet tractor plants had come into full operation. It seems correct to say that every or almost every major branch of the Soviet productive system received substantial technical aid from abroad and had much of its rapidly expanding corps of native engineers and technicians of all kinds trained directly or indirectly by foreigners.

The above should not be interpreted to mean that the Soviet Union could not have forged ahead economically without this help from abroad. Even in 1928 the USSR had a significant corps of technically competent personnel of all kinds; and if the need had arisen, these might have struggled alone with the tasks set by the central government, and perhaps eventually fulfilled them. But the progress achieved under such conditions could not have been nearly so rapid as that actually attained.

Since the late 1930's the USSR has employed relatively few foreign technicians, except for Germans brought eastward after World War II. In part this has been the result of the fact that those who worked in the

[78] Much valuable material on the American contribution to the Soviet Union's technical progress is provided in Hans Heymann, *We Can Do Business With Russia, passim.* Chicago: Ziff Davis, 1945.

USSR earlier did their work well and trained a tremendously enlarged army of Soviet citizens who could take over their tasks. Also, the beginnings had been well made in most areas where the USSR had originally been backward. In part, however, the cutting of direct ties with Western specialists resulted from the political tension and international distrust that affected all areas of Soviet policy after the purge trials of the late 1930's in which many of the outstanding Soviet political and military figures were condemned as foreign agents. In the postwar period, the role of foreigners in stimulating the growth of the Soviet economy before World War II has been systematically ignored, while the virtues and preëminence of Soviet science and technology are boasted about at all opportunities. Nevertheless the Soviet Union still keeps sharp watch upon the advances in technology in other countries so that it may appropriate them, as well as the advances made by its own citizens, for its future economic growth.

Raw Materials. In an earlier chapter, we have noted the great natural wealth of the USSR, and particularly its large-scale resources of most major industrial raw materials. Much of the present knowledge of this wealth has been obtained in detail only during the Soviet era, during which large numbers of geologists, prospectors, and related personnel have been sent forth to find all possible deposits of useful metals and minerals. As we shall see in more detail later, where the USSR did not have needed raw materials in adequate quantity, vigorous steps were taken to remedy the situation so far as possible. Long before the United States undertook its wartime synthetic rubber production program, the USSR had gone in for such production, as well as for the growing of rubber-bearing plants such as kok-sagyz in order to make up for the deficiency of rubber trees in the USSR. Raw cotton, long one of the major imported raw materials of the Soviet and pre-Soviet Russian economies, is now for the most part obtained from domestic production, as the result of sharply expanded plantings of this crop in Central Asia and elsewhere.

The examples cited above illustrate one of the most important aspects of Soviet economic policy both before and after World War II—the effort to obtain maximum self-sufficiency. This attitude, of course, was born as the result of the Soviet preoccupation with what they regarded as the certainty of future war, one that they have felt might see the en-

tire noncommunist world arrayed against them. Under these circumstances shortages of key raw materials could lead to the same fatal consequences as technological backwardness or inadequate industry. Spurred on by this motivation, the Soviet leaders have been willing to bear the higher costs of producing at home commodities that could be bought more cheaply abroad.

The Making of Major Decisions in Economic Policy

At the beginning of this chapter, it was pointed out that supreme power in the field of economic policy—as in all areas of Soviet policy—is today in the hands of Joseph Stalin and his Politburo colleagues. It is they who make the fundamental decisions regarding the direction and tempo of Soviet economic development. Whatever disagreements and debates may take place among them are carefully kept from the outside world, which is presented merely with the decisions reached, decisions from which no dissent is permitted. Since the later 1920's, therefore, we know little of the actual course of argument behind the making of economic policy, though we know the broad factors—such as the fear of war—that must have been vital determinants. At the present time, much economic policy is baldly presented to the world as wholly the result of Stalin's inspiration and suggestion, with little or no credit for others.

Matters were not so, however, in the first decade of the Soviet regime. Debate was vigorous, and opinion varied publicly among Soviet leaders in those early years. Their disputes were conducted in public congresses and by means of polemics in the press and in pamphlets or books. At various times in those early years, the "Right" faction lead by Bukharin and others urged that the solution of the Soviet government's economic problems be sought by means of greater concessions to the wealthy peasantry to induce them to increase their production and make it available to the government voluntarily, even if such concessions slowed down the pace of industrialization. A "Left" faction headed by Trotsky argued that the concessions made to the *kulaks* and the peasantry in general were already excessive and should be revoked, urging in the mid-1920's that an intensive program of rapid industrialization be undertaken, the means to be procured through exploitation of the peasantry. These debates were only in part arguments about economic policy, for paralleling them were titanic struggles for the leadership of

he Communist Party after Lenin's death. Stalin, who won this bitter ;ontest and became the unchallenged ruler of the Soviet Union, headed ı faction whose policy varied between the "Right" and "Left" extremes, ınd he himself conducted notable polemics against Trotsky, Bukharin, ınd other outstanding proponents of differing economic and political policies. Once Stalin had achieved a clear-cut victory over his opponents, the five-year plans were carried out in a way most reminiscent of the policy sought by Trotsky and his supporters several years earlier. Maurice Dobb, the noted English student of the Soviet economy, who is an admirer of Stalin, argues that while Trotsky's policy was wrong in 1925 when he fought for it, it was correct under the different conditions of 1928 when Stalin began putting it into effect.[79]

But these debates belong to the historical record only, so far as our public knowledge goes. For the past two decades Soviet economic policy has been decided in secret and then approved in public after only the most cursory and superficial semblance of debate, so far as essentials are concerned. But it would seem contrary to human experience to assume that such debates no longer go on, even if only within the inner circle.

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[79] Maurice Dobb, *op. cit.*, pp. 206–07. A summary, but also somewhat partisan, review of these debates is given in this book, ch. 8. Cf. also Alexander Ehrlich, "Preobrazhenski and the Economics of Soviet Industrialization," *Quarterly Journal of Economics*, February 1950, pp. 57–88.

CHAPTER V

THE NATIONAL ECONOMIC PLAN

THE NATIONAL ECONOMIC PLAN is the central coordinating mechanism of the Soviet economy. This plan outlines the tasks to be accomplished during the period it covers and directs the allocation of all resources toward the achievement of the assigned goals. On the production side, it prescribes the total national income objective and the physical volume of production for all major commodities. The plan specifies the division of the national income between investment and consumption and assigns the relative share in consumption to be enjoyed by each significant group of the population. The volume and composition of both internal and foreign trade are governed by the plan, as are the prices of most commodities bought and sold. All money in circulation is taken into account in this document, which takes into account how much of the population's income will go for purchases of consumer goods, for bank savings, for buying government bonds, and for direct taxes. The annual government budget is an important component of the financial portions of the plan. In short, the Soviet economic plan is a gigantic, comprehensive blueprint that attempts to govern the economic activities and interrelations of all persons and institutions in the USSR, as well as the economic relations of the USSR with other countries. To the extent that the plan actually controls the development of events, all the manifold activities of the Soviet economy are coordinated as if they were parts of one incredibly enormous enterprise directed from the central headquarters in Moscow.

The Soviet Union uses several different types of national economic plans. Once these are adopted by the Communist Party's leadership and the government, they have the force of law and must be carried out,

or exceeded, except as changes in original plans are made by the proper authorities. The most widely publicized have been the five-year plans, which chart the major lines of future economic development for that period, and cover the entire national economy. Similar comprehensive plans looking fifteen years or more into the future are believed to have been prepared, though they have never been published in detail. Each year the State Planning Committee prepares an annual plan in extremely great detail to govern economic development during the twelve months ahead. Quarterly plans and monthly plans for major areas of the national economy are also prepared, based upon the annual and five-year plans covering each period but taking account of developments since formulation of the original programs.

Besides plans for the national economy as a whole, development programs are drawn up for each significant sector and region of the USSR's productive machine. Most of these are merely part of a five-year or one-year plan and are prepared as part of the work on drawing up the comprehensive document. But from time to time special plans have been drawn up providing that extraordinary attention be given to some particularly important sector of the economy. Such special plans may cover a span of several five-year-plan periods, as in the case of the long-range afforestation program announced in 1948, or may begin in one five-year-plan era and end in the next, as in the case of the three-year livestock development plan published in the spring of 1949. Such extraordinary partial plans are presumably woven into the fabric of annual and five-year plans for the national economy after their adoption.

Despite the fact that they have the force of law, Soviet economic plans are not regarded as inflexible, but rather as subject to such change as is found necessary during the period of their operation. The classic formulation of this attitude was given by Stalin:

> For us, for bolsheviks, the five-year plan is not something finished and given once and for all. For us the five-year plan, like any other plan, is only a plan accepted as a first approximation, which must be made more exact, changed, and completed on the basis of experience. . . . No economic plan can take into account all the possibilities which are hidden in the depths of our society and which are discovered only in the course of work, in the course of realizing the plan at the factory, at the mill, in the collective farm, in the state farm, in the county, etc.[1]

[1] Quoted in G. Sorokin, *Sotsialisticheskoye Planirovaniye Narodnogo Khozyaistva SSSR*, pp. 35–36. Moscow: 1946.

Stalin might have added that Soviet plans are changed to take account of new developments in the field of foreign relations and to meet problems caused by unforeseen domestic events, such as the poor harvest of 1946. His admission that Soviet planners have neither perfect foresight nor perfect insight should be borne in mind in considering the material that follows.

Over the years since the beginning of organized planning, Soviet plans have become progressively more complete and detailed. The GOELRO plan accepted in 1920 covered only about 15 industries, while the First Five-Year Plan promulgated less than a decade later set targets for some 50 industries, as well as for agriculture and the major aspects of the country's financial system. The Second Five-Year Plan covered about 120 branches of industry and had a much more detailed construction program, while providing for agricultural development in terms of specific crops. Only rather sketchy outlines of both the Third and Fourth Five-Year Plans were published, but it seems likely that the basic unpublished documents reflected improvement over the earlier efforts. One indication of this improvement is the fact that during the last war planning authorities allocated the most important commodities directly to 120 major claimants. They prepared quarterly supply plans every three months, each containing over 30,000 separate planned figures.[2]

Since the first beginning of Soviet planning efforts, the amount of information upon which the planners could draw has increased many times, while they have accumulated a large fund of valuable experience. A very complete and complex statistical reporting mechanism has been built up that provides current data on the progress of work in every part of the economy, as well as basic data for further planning.[3] Scientists and technicians of every specialty have been enlisted in the work, so that the fund of specialized knowledge drawn upon in planning work goes far beyond the aggregate capabilities of the State Planning Committee's own large staff. As required, conferences of scientists, managers of enterprises, economists, engineers, and others are called to consider major problems of planning and future development. Soviet propaganda often emphasizes the participation of large numbers of or-

[2] *Ibid.*, pp. 38, 46, 60.

[3] Tsentralnoye Statisticheskoye Upravleniye Gosplana SSSR, *Slovar-Spravochnik Po Sotsialno-Ekonomicheskoi Statistike*, pp. 5, 6. Moscow: 1944.

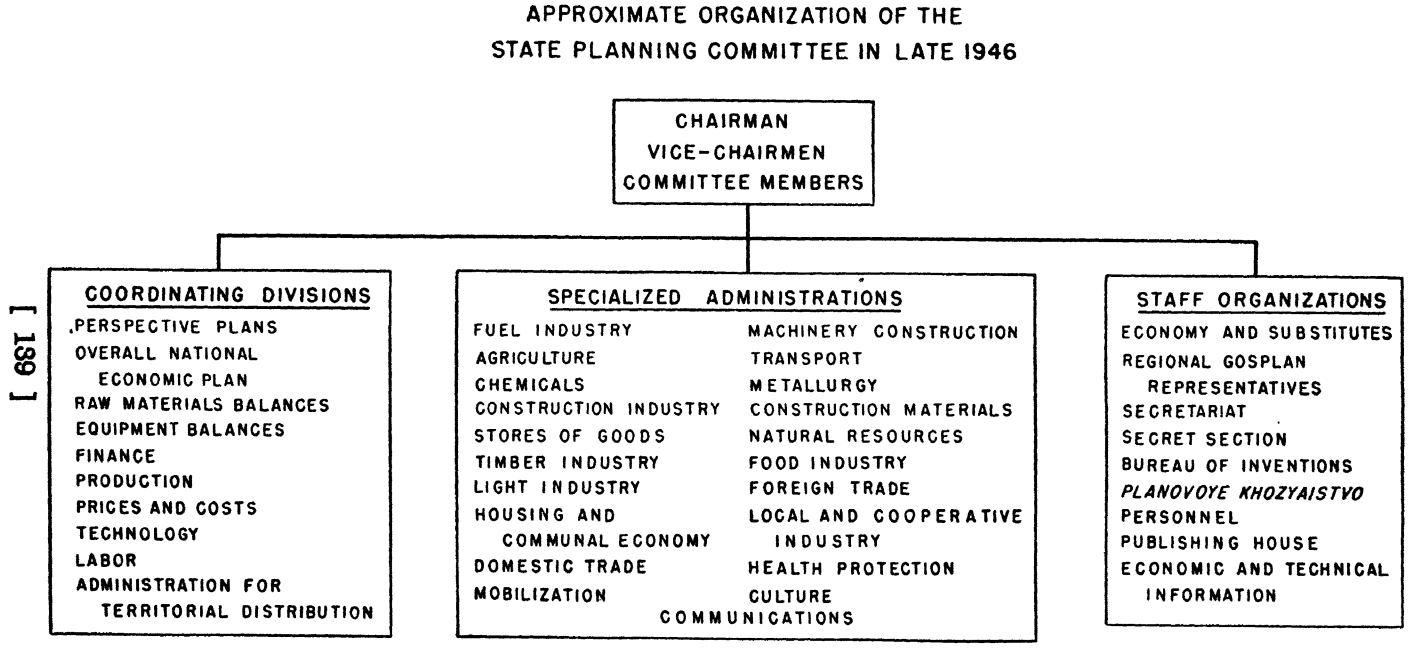


FIGURE 1. *Organization of the State Planning Committee.*

dinary workers and farmers in planning activity through the so-called "counter plans," by which the workers in a particular enterprise have in the past vowed to exceed their planned assignment. It is clear, however, that since the fundamental characteristic of Soviet planning is its centralized character, such "grass roots" planning can be suggestive at most, and by its very nature must operate at the fringe of the limits set down by the Moscow planners. In September 1937 the Soviet government had to go so far as to condemn the practice of setting up plans for individual enterprises that exceeded the established government assignments.[4] Individual enterprises and entire branches of industry still announce from time to time their determination to exceed their productive assignments in the present postwar period, but there seems little doubt that such announcements have at least been cleared with the planners so that they can be taken into account in running the entire economy. It is not at all unlikely that such "spontaneous" announcements reflect merely government decisions to raise output in these industries, their "grass roots" character being purely nominal.

But the quality of Soviet planning should not be overestimated. An adequate estimate of the efficiency of this work cannot be reached by non-Russians because of the secrecy surrounding detailed planning activity and the execution of plans. In late 1940, a noted Soviet economist, L. Maizenberg, wrote, "We still have no current economic plan and the necessary guarantee of its fulfillment," adding, "Our planning work to this time is still to a great extent bureaucratic-statistical, separated from economic practice, and it lacks concrete knowledge of the actual situation in the different branches of the economy." He referred also to "the inability in time to prevent penetration of disproportions in the development of different decisive branches of material production."[5] In this and other comment that has come forth from Soviet sources at various times are strong hints that behind the complex calculations and enormous tables of Soviet plans there may be strong elements of ignorance and confusion.[6]

In evaluating Soviet planning, it must be borne in mind that no single

[4] *Planovoye Khozyaistvo*, No. 10 (1940), p. 23.

[5] *Ibid.*, p. 12.

[6] On this point cf. *Pravda*, April 18, 1940, and N. A. Voznesensky, "Stalin's Three Five-Year Plans," Bolshevik, No. 1 (1940). Russian text.

blueprint could encompass all the economic activities of the 200,000,000 people spread over that country's vast area. Economic planning is most detailed and most influential in those branches that the government considers most important, particularly heavy industry. It is less detailed and less influential in many parts of the economy serving consumers or producing for them, e.g., local and cooperative industry. The problem of making the far-flung agriculture of the USSR completely subservient to planned direction of production activities is probably still far from entirely solved. Moreover, the plan must be translated into reality by human beings, not automatons. An energetic factory manager, for example, may take the risk of breaking out of planned restrictions if he thinks it necessary in order to attain his assigned goals. If he has powerful friends in the Communist Party, government, or economic hierarchies, he will have more freedom of action and more opportunity to exercise initiative than another official with less powerful connections. Corruption and graft are not unknown in the Soviet economy, and those who profit by such malfeasance often do so at the expense of, or by evading, planned assignments. Soviet novels and plays, often sources of valuable insight into the realities of life in the USSR, have shown time and again that the interrelationships between economic plans and those whom they direct are complex rather than simple.

The Nature of Soviet Economic Plans

To understand the nature and objectives of Soviet economic plans, it is helpful to visualize a complex economy in operation during some period of time, say a year. At the end of this time a complete recording of these operations would note the following factors:

First, physical production of goods would have been carried out and these goods would have been utilized or stored in different ways. Let us take the case of steel. The total supply of steel would obviously consist of the steel in storage at the beginning of the year plus the production during the year plus any imports. At the end of the year it would be found that there was a certain amount of steel in storage while the rest of the steel had been consumed in various ways or exported. A complete accounting of steel would have to account both for the total supply and for its utilization, as in the following equation:

Supply		*Utilization*
Amount in storage at the beginning of year + Production + Imports	=	Amount in storage at end of year + Amount consumed in the steel industry itself + Amount consumed in the tractor industry + Amount consumed in construction + Amount consumed in making locomotives + Amount consumed in making freight cars + (and so on for all the many industries using steel) + Exports.

This equation can be stated more simply in symbols if we call the amount in storage at the beginning of the year S_o, the amount in storage at the end of the year S_e, production P, exports E, imports I, and the amounts consumed in different industries, c_1, c_2, c_3, . . . c_n, where n is simply the number of different industries using steel. We then have the above equation in words translated into the symbolic form:

$$S_o + P + I = S_e + c_1 + c_2 + c_3 + c_4 + c_5 + \ldots + c_n + E$$

If there were 100 industries using steel, there would be 100 different c quantities; if 1,000 industries, 1,000 c's; etc. The equation above simplifies the actual situation for steel considerably. Steel is stored in many different places; in any one industry it will be used at different plants; and it may be exported to many different countries. If the above equation were written out in its full complexity, each term would have to be replaced by the various terms of which it is composed. Thus the amount in storage at the beginning of the year, S_o, might be replaced by $S_o' + S_o'' + S_o''' + S_o''''$ and so on for as many terms as there are steel storage centers. To write down the equation above in full detail for a country like the Soviet Union would undoubtedly require thousands of terms.

Even the detail suggested in the preceding paragraph does not really represent the situation fully, since it implicitly assumes that steel is a homogeneous commodity, which it is not. For example, ordinary low-grade carbon steel cannot be used where stainless steel is required. In actuality there are many different kinds of steels, meeting different needs, each of which would have to be accounted for separately if we required complete detail. Thus even the simplified form of the general steel equation above would have to be broken down into a series of different equations, at least several hundred in number, each one showing the supply and distribution of each different kind of steel. And if these equations were to be written in the detailed form suggested above,

a full description of the production and distribution of steel would require several hundred equations, many of which would have hundreds and thousands of terms.

It should be clear, however, that the number of equations required to represent the equality of the total amount of steel available and the total amount distributed between storage, consumption, and exports will depend upon the degree of precision and detail desired. On this factor too will depend the number of terms explicitly contained in the equation. But even in the simplest form, a summary statement, such as the first equation above stated first in words and then in symbols, must rest upon a complete accounting of all stocks, production, international trade, and consumption. The complexity described is inherent in the nature of the steel industry, its widespread geographic distribution, and its many customers; this complexity cannot be escaped.

But steel, or rather each variety of steel, is only one commodity. A similar supply and distribution equation would have to be prepared for each commodity in the economy, and considerations similar to those suggested for steel above would apply. A full accounting for all production would have to include supply and distribution equations for tractors, shoes, ball bearings, bread, sugar beets, printing presses, paper, and so on. This would require thousands of equations, which, if presented in the full detail outlined above, would include millions of terms. Even the simplest formulation, based on groups of commodities, such as all kinds of steel taken together, all kinds of motor vehicles taken together, and so forth, would require at least several hundred equations containing many thousands of terms.

An important feature of such an accounting record is the fact that if it were available we should be able to see in detail all the commodities utilized in the making of each product. For the automobile industry, for example, the system of equations described above would supply us with the information on the steel, copper, rubber, leather, gears, spark plugs, and other materials and parts utilized in the manufacture of automobiles. The kinds and amounts of these different commodities so employed would of course be determined by the types of cars being made and the technology of their production. For any product, the relationship between the volume of output of that product and the amounts of different complementary goods required to produce that output is

termed the *production function.* The system of equations we have described above, therefore, would supply us with the production functions of different industries or products, depending upon whether the consumption items in those equations applied to industries or to individual products. Obviously, for fullest detail, the *c*'s in our equation should be the consumption of each material in the making of a particular product.

Analogous to the equations we have been discussing for commodities would be one showing the supply of human labor available in that economy during a particular year, and its distribution among different employments. For full precision, such an accounting of labor resources would have to take into account the fact that a carpenter cannot be used where a skilled machinist is required. The full record would have to contain a large number of equations showing the supply and utilization of all the many different types of skilled, semiskilled, and unskilled workers. Moreover, since human beings grow old and retire, or die, our accounting record would have to show what progress was made during the period studied in training new workers for all the different kinds of jobs that must be done. Service workers of all kinds, from barbers to doctors, would also have to be included in this accounting of labor use.

So far our discussion of this accounting of an economy's operation has been conducted in purely physical terms, and our equations have involved tons of steel, thousands of tractors, millions of nails, and numbers of workers. But if we confined our records to this material, we should have a very inadequate knowledge of what had happened during the period studied, because we should have ignored the fact that goods are bought and sold for money. Even in the Soviet economy, both consumers and producers make decisions regarding what to buy or sell, at least in part, in the light of the prices of different goods and the amount of monetary resources they have available. Thus the full accounting would have to include a series of financial equations.

We can see their form if we recall our remarks about the automobile industry and its purchase of many different goods and labor services for use in production, using this term broadly to cover all activities of the industry. In any given period, the automobile industry has an income derived from the sale of cars. This income is equal to the cost of production plus profit or minus loss, as the case may be. To state this relationship symbolically, let us suppose for the sake of simplicity that all cars sell

at the same price, p, and that q cars have been sold. Income during our period will then be simply the product pq. Let us suppose that in the various supply and distribution equations for different products discussed above, c_4 in each case represented the amount of that product going to the automobile industry. Let us use a system of primes to denote different materials. Thus c_4' might be the amount of steel, c_4'' the amount of rubber, c_4''' the amount of leather, and so on. And let us suppose that the unit prices of these commodities are p', p'', p''', and so on, respectively.[7] Then the total cost or expenditure of the automobile industry can be represented as the sum of the products of each c multiplied by the corresponding p. If we introduce the quantity D, defined simply as the difference between income and cost, the relationship between the industry income and cost can be expressed in equation form. We then have:

$$pq = p' c_4' + p'' c_4'' + p''' c_4''' + \ldots + p^k c_4^k + D$$

Here $p^k c_4^k$ represents simply the cost of the kth or last commodity purchased. It will be seen from this equation that if D is zero, income equals cost. If D is positive, income exceeds costs, and a profit has been made that can be used for savings or other purposes. If D is negative, costs have exceeded income. This loss may simply be due to uneconomic management or other factors. But costs may exceed income too if they include the expenses of new investment in the making of automobiles, such as the building of new factories or the expansion of old ones.

The hypothetical accounting record we have been discussing would contain a similar cost-income equation for each product or industry in the economy—for the making of tires, the growing of grain, the production of motion pictures, and so on. Since there are hundreds of industries and thousands of products, the number of such cost-income equations would be large and the number of terms in these equations enormous. The financial aspects of capital-construction projects could be handled as above by substituting the amount allocated for each project instead of the income term, pq.

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[7] Depreciation can be fitted into this scheme by defining a unit of depreciation as that amount worth one dollar, so if the industry's depreciation allowance is $1,000,000, it may be said to have used 1,000,000 units of depreciation (the c in our formulation) at the price of one dollar each. Here as elsewhere in this discussion the writer has leaned heavily upon the exposition of Prof. W. W. Leontief in his *The Structure of the American Economy 1919–1929*, pp. 33 ff. Cambridge: Harvard University Press, 1941.

The discussion above has been in terms of the costs and income of a product or an industry, but the concepts involved are more general. Our hypothetical record would contain an equation showing the sources of income of the government and its expenditures for different purposes. Since the Soviet Union has national, provincial, and local governments, the number of such governmental financial equations could easily reach several thousand. A similar tabulation would presumably be available for the money incomes and expenditures of the population as a whole, and for major groups in the population, such as urban dwellers, farmers, and other groups.

The most summary data of our hypothetical record would show the total value of all goods and services (the gross national product, or the national income, or some similar over-all measure), and the breakdown of this production between consumption, investment, and reserves. The record would show too all the investment projects inaugurated, continued, or ended during the year, including all new factories, railroads, roads, houses, schools, and so forth. If any human mind could encompass all these data, it would have a bird's-eye view of all economic activity in the nation during the period studied.

The above discussion has been in terms of a quantitative history of economic activity *after* the period in which this activity has taken place. Economic planning, on the other hand, is the effort to prepare such a detailed scheme of economic activity *before* a particular period, and then to assure that the economy actually follows the path blueprinted by the planners. With regard to Soviet economic planning, it must be added that in the course of executing the plan the authorities have often altered the original blueprint in order to facilitate the fulfillment or overfulfillment of certain goals of major importance, even at the expense of nonfulfillment of other goals that are regarded as less important. Such alteration of original plans is the result either of poor planning that failed to provide for a future course of economic activity compatible with the real possibilities, or of the appearance of new factors affecting over-all policy—such as a major change in the state of international tension—which requires the substitution of new goals for those sought when the original plan was drawn up. Even in their most elaborate form, however, economic plans do not attain the most detailed and comprehensive coverage suggested above.

In an economy dominated by private enterprise, there is little or no organized, collective effort made *in advance* to fix the equations of physical production and financial equilibrium for the entire economy, at least during peacetime.[8] The economic activity that takes place in such a society is the resultant of the activities and decisions of many different individuals and groups of individuals who act on the basis of current economic information and their anticipations regarding future prices, supply, and demand. These individuals and groups of individuals are free to attempt to maximize their profits, or to serve other ends, so long as their activities remain within the legal framework provided by the laws governing contracts, prohibiting certain types of monopolies, regulating wages and hours, and so on. Our economy relies upon the *force of competition* among the participants in economic activity to assure that the welfare of the community will be served. Our government acts to help certain groups assumed legally to be too weak to fend for themselves, and it intervenes from time to time in an effort to help maintain or restore competition. But the rights of private property and the right to seek private profit through economic activity are still fundamental to our way of life, despite some important peripheral modifications in our ideas on these subjects in recent years.[9] Increasingly in the past two decades the United States government has become a direct participant in economic activity through such agencies as the Atomic Energy Commission and the Reconstruction Finance Corporation. These and other instruments of government action have important influences upon many different markets for goods and services, but they do not replace markets in peacetime as the major coordinating agencies of our economy.

Soviet planners are in a completely different situation. All economic activity is legally subservient to the plan and must be performed in ac-

[8] In the United States, one exception, however, is the government budget, which is prepared in advance in an effort to anticipate and govern future government revenues and expenditures. And presumably in the present strained postwar situation, the National Securities Resources Board keeps sharp watch over supplies and utilization of the most important raw materials, but such activity, before the Korean conflict, was mainly observational and was not planning in the sense used above. A closer approach to economic planning was begun in this country after United States involvement in the Korean conflict and subsequent stepped-up mobilization.

[9] Thus it is forbidden by law today to profit by employing children in many industries, by paying less than a certain minimum, by employing workers for more than 40 hours a week without paying them at premium rates, and so on.

cordance with its instructions. In carrying on their work, therefore, Soviet planners make in advance the decisions—such as the division of national income between consumption and investment—that in a free enterprise society are simply the resultants of the independent decisions of competing individuals and groups. The equations discussed above in our hypothetical sketch of quantitative economic history are explicitly formulated in advance by Soviet planners, who call them "balances"—natural balances if they are expressed in commodity terms, synthetic balances if they are financial equations or deal with labor distribution. The composition of these advance balances is one of the most important steps in the drawing up of Soviet plans, since it is at this point that the problems of economic coordination are explicitly faced. Each figure in these balances—amounts stored, produced, imported, exported, consumed, and so on—is the subject of consciously planned decisions. In a capitalist economy, prices are fixed in the market and act as among the most important indicators and guides for economic activity. In the USSR, prices are fixed by Soviet planners, and the entrepreneurs of the Soviet economy are explicitly instructed that the plan's instructions, not price or profit considerations, are to guide their activities whenever there is conflict between the two.

The difficulties of constituting consistent balances are clear. The discussion above has pointed out how large must be the number of different quantities to be set by the planners, even if the number of balances is restricted by consolidating related commodities. Balancing the economy in advance requires both prediction of future outputs, i.e., the setting of attainable ever increasing goals, and the allocation of commodities produced. For example, the amount of sulphuric acid to be made in a year is determined and is then divided among its different uses. But the making of sulphuric acid must be assigned enough raw materials, labor, machinery, and financial means to make possible the production of the amount set as the goal. In turn, the amount of sulphuric acid allocated to the making of fertilizer, for example, must be sufficient to meet that industry's needs for this chemical in order that the production objective for fertilizers may be met. The consistency of the production function for each product or industry must be assured in advance, for the output of any commodity is limited to the amount made possible by the supply of the most scarce complementary good required. The plan-

ners may have provided enough steel, copper, rubber, and other materials for 500,000 automobiles. But if they have allocated only enough bearings for 100,000 cars, only 100,000 properly working automobiles can be produced. The planners' problems are further complicated by the fact that the output of some commodities is highly variable and outside their control to a large extent. A bad harvest can work havoc upon the best-made plan, unless reserves of food and agricultural raw materials are large enough to cushion Nature's niggardliness effectively.

But mere consistency of the natural and synthetic balances in a plan—even though a difficult enough goal to achieve—is far from enough. A properly operated economy should employ its resources efficiently, getting the maximum return from its inputs of labor, raw materials, and other resources. The planners must strive to insure that their balances and plans provide for production at minimum expenditure of these inputs. But how is such minimum expenditure to be measured in the USSR? Money costs do not necessarily reflect real costs there, since most prices are set arbitrarily by planners and have remained fixed for long periods at a time, though the underlying supply and demand conditions for the commodities involved changed markedly.[10] Economists have long debated whether it is possible for a socialist state to be managed rationally. Those who have denied this possibility have done so precisely on the ground that arbitrary prices in such an economy would offer no guide for intelligent choice among alternatives. Many of the economists who have affirmed the possibility of rational use of resources in a socialist state have done so on the premise that a meaningful price system would be set up and that prices would *not* be set arbitrarily.[11] This consideration must be kept in mind in considering Soviet planning. The

[10] At the beginning of 1949 a general revision of wholesale prices for the products of heavy industry and of railroad freight rates took place, the first since before the Nazi invasion of the Soviet Union in 1941. These prices had remained constant all through the war years and immediate postwar years, though the structure of costs for these commodities and the level of costs had changed considerably. *Voprosy Ekonomiki*, No. 8 (1948), pp. 30–32. Many of these prices were lowered at the beginning of 1950.

[11] Cf. F. A. Hayek, ed., *Collectivist Economic Planning*. London: Routledge, 1935; and the essays by Oscar Lange and Fred M. Taylor in Benjamin E. Lippincott, ed., *On the Economic Theory of Socialism*. Minneapolis: University of Minnesota Press, 1938. A sharply different third point of view, however is that of Maurice Dobb, *Political Economy and Capitalism*, ch. VIII, especially pp. 271–76. New York: International Publishers, 1945.

USSR's price system will be considered in more detail later in this volume.

Drawing Up the Plan

The information available to foreigners on how the plan is actually drawn up in detail is rather scanty. Citizens of countries other than the Soviet Union have not in general been encouraged to visit the State Planning Committee and study its activities from the inside, nor does that committee usually publish its detailed worksheets or other essential material. It seems desirable, therefore, to present what is essentially a Soviet economist's account of how a Soviet plan is drawn up. The material that follows is largely based on, and sometimes translated from, a Soviet planning textbook issued in 1946.[12] Other Soviet sources are used as well, as indicated. The vagueness of part of this discussion is typical of that encountered in many Soviet expositions of this topic.

Four stages may be distinguished in working out a national economic plan: preparing directives for the plan; composing a proposed plan on the basis of the directives and making a balanced check of the proposed development of the branches of the economy; approval of the plan by the government; organization and control of plan fulfullment. In organizing the composition of the plan, the *Gosplan* (now known as the State Planning Committee[12a] of the Council of Ministers) works out a system of indices, i.e., a list of tasks during the planned period for ministries, republics, territories, and provinces, and also a list of measures aiding fulfillment of the planned tasks.

The economic plan includes first the production tasks of each branch of industry and agriculture, and also technical-economic conditions of production, such as indices of quality, technological organization, and norms for expenditure of materials and labor. It usually contains a very voluminous construction program aimed at increasing facilities for expanding production and meeting public needs.

The plan provides for the distribution of the total output, on the following scheme: from the total output is drawn, first, resources to cover expenditures for restoring means of production that have been used up. Second, part of the product goes for new investment. Third, there is

[12] Sorokin, *op. cit.*, pp. 61 ff.

[12a] *Gosplan* was formerly known as the State Planning Commission.

formed a reserve or insurance fund against unexpected contingencies. Besides this there are formed funds for administration, for maintaining the armed forces, for meeting social needs (schools, sanitary institutions, and so on). The remaining part of the total output is available for purchase by consumers. The plan also defines the magnitude and means of the circulation of goods as well as the work of transport and mercantile organizations.

Measures in the field of labor form an important part of the plan. These include the distribution of the work force among branches of the economy, efforts to raise labor productivity through appropriate wage policy and mechanization of work, and expansion of the skilled labor force. The plan also allocates resources for housing, education, medical care, and other facets of consumption.

Finally the plans contain a financial program (budget, credit, measures regarding monetary circulation). The financial plan reflects the activity projected in production, distribution, and consumption. A system of financial incentives actively aids the entire process of economic activity.

A more concrete list of the plan's divisions follows:

1. Summary division, including basic indices of economic development.

2. Industry, including gross and marketed production in value terms, physical production, technical economic indicators.

3. Agriculture, including data on sown area, tractor work, agronomic measures, yields, number of livestock, indicators of livestock productivity.

4. Transport and communications, including average daily traffic, work of all kinds of transport, repair and utilization of rolling stock, the development of communications.

5. Capital investment, including the volume of capital construction; the program for putting new productive capacity, new houses, and other capital projects into use; development of the construction industry; geological and prospecting work.

6. The technical plan, including the plan for introducing new techniques into the national economy.

7. The plans for supplying branches of the economy with raw materials, fuel, and equipment.

8. Plans for cultural and welfare construction, including children's institutions, health centers, schools, universities, movies, theaters, municipal utilities.

9. Labor, including the number of workers, their productivity, wages, and the training of specialists and supervisory workers.

10. Domestic trade and the requisitioning of agricultural products.

11. The plan for lowering costs in branches of the economy.

12. The state budget, credit, monetary circulation.

13. The plan for development of the economies of the union republics and major economic regions.

14. Foreign trade plans providing for exports and imports.

The plan and its indicators must be maximally exact, concrete, and directed specifically toward those individuals charged with each responsibility. They must expose the links between economic branches and regions of the country and specify the measures necessary for guaranteeing fulfillment of the plan. As a result of these requirements, the plan or its most important divisions are worked out in branch and interbranch sections in breakdowns according to forms of property, ministries, and regions. The branch breakdown includes the tasks assigned to industry as a whole, agriculture as a whole, all machine construction industries, all woodworking industries, and so on. The interbranch functional breakdown of the plan consists of the program for guaranteeing the economy with labor, equipment, metals, fuel, construction materials, and other necessities; the program for lowering costs and organizing savings; and so on.

Building the plan up by sections into a whole permits solution of certain general problems. Do the tempos of development of branches of consumption in the economy correspond to each other? What are the links between the branches with regard to raw materials, fuel, labor, monetary resources? It is impossible, for example, to say whether all construction projects will have equipment if there is no summary plan for machine construction. The problem of guaranteeing the population bread and livestock products is solved through the summary production plan for all collective farms, state farms, and other subordinate

agricultural producers. The plan for supplying the national economy with fuel may be constructed only by taking into account the production of all kinds of fuel by all producers.

Consistency among the requirements of different branches for equipment, fuel, raw materials, labor, and financial means from state resources is attained by planning inter-branch linkages on the basis of the corresponding balances and distribution plans that have been worked out.

The economic plan starts out from the existence of two forms of socialist property, state property and collective farm-cooperative property. The production of state enterprises and the wages of their employees are fully regulated by the national economic plan. The distribution of collective farm products is only partially covered by the state plan, since part of this production is disposed of at the farmers' discretion, including sale of some products on the free market at prices prevailing there. The plan takes account of the differences between state and cooperative enterprises.

The organizational breakdown of the plan has great significance. Thus assignments for producing machines are distributed among the factories of the ministries producing machines, such as the Ministry of Heavy Machine Construction, the Ministry of Machine and Instrument Construction, the Ministry of Transport Machine Construction, and so on. The grain-production goal is distributed between the Ministry of Agriculture and the Ministry of State Farms. The organizational or ministerial breakdown of the branch plan guarantees that the plan will give direct assignments to those who are responsible for each production task, thus bestowing on the plan an operative character. All tasks of the national economic plan are distributed by ministries. The 1945 plan gave industrial production assignments to more than 100 government organizations.

The plan for each ministry is part of the general national plan. Indicators and indices are the same for all ministries, a fact that gives these indices a great unifying role. Thus the indicators for the plans for industrial production are basically the following: gross production, formerly in terms of 1926–27 prices and since 1949 apparently in terms of current prices; marketed production in wholesale prices; physical output of the most important products; capital repair; expansion and

new construction of enterprises; the number of workers and labor productivity; wages fund; provisions for guaranteeing enterprises raw materials, fuel, and semifabricated products; estimates of expenditures and incomes; costs of production; estimates of profits. Besides fixing the list of indicators, the *Gosplan* establishes exact definitions of them, so as to avoid confusion and inconsistency in their calculation. The indices of the national economic plan are used by the ministries as the basis for establishing the indices on which to plan the activities of individual enterprises within their jurisdiction.

Regional Planning

The national economic plan is also broken down geographically, by regions. Goals for industry and agriculture, construction plans, and the work of transport cannot be determined exactly if they do not take into account the actual territorial distribution of the productive forces. The regional breakdown of the plan contains specific measures for proportional development of productive forces, for eliminating economic and cultural backwardness of some national republics, for special development of some regions in accordance with the interests of strengthening the defensive powers of the country. Territorial breakdown of the plan is needed to guarantee the complete complex development of economic regions. Only a plan broken down geographically can give specific assignments as regards what to build, what to produce, and what organization is responsible for construction and production. Territorial breakdown not only is obligatory for the general government plan, but must be carried further. In each province the plan must be broken down by administrative districts, by villages, and by enterprises. The plan for the country as a whole is broken down into tasks for union republics; and inside them for autonomous republics, administrative territories, and provinces. Such administrative and territorial division is extremely necessary to make the plan operative; otherwise much of it would lose practical significance.

As late as November 1940, a Soviet economist wrote: "It is necessary to note that up to recently almost all attention in the work of the *Gosplan* and the People's Commissariats has been paid to planning in terms of branches of industry. But the division of regional planning of the *Gosplan* did not comply with the work of territorial planning. . . .

It is necessary to emphasize that until this time there has been no careful analysis of the distribution of each branch of industry, no analysis of inter-regional connections. Therefore there is also no clearly worked out material regarding the distribution of the different branches of the national economy and regarding the perspective complex development of the economic regions of the country. . . ." He indicated further that great confusion, duplication, and bureaucratic incompetence existed in the whole area of regional planning and geographic distribution of economic activity.[18] It seems likely, however, that strong measures were taken in 1940 and afterward to improve this aspect of Soviet planning.

For each republic or administrative province, the following basic plan indicators are worked out: output of industrial production (with separate indication of local industrial production not included in the output of all-union ministries); size of sown area; number of livestock; a titular list of new construction projects; volume of trade turnover and requisitions of agricultural products; network of schools, education, and medical institutions; municipal and housing economy; budget.

Not only is the plan worked out in a breakdown based on administrative-territorial units (province, territory, republic); it is also broken down on the basis of a series of large regions that do not coincide with administrative boundaries. In planning the coal industry, separate blueprints are drawn up for the southern coal region (Donbas), the central region (Mosbas), the Urals region, Kazakhstan, Siberia, and so forth. Planning by coal basins permits the definition of the zones of influence of each basin, of the rational boundaries for consumption of coal from specific minor local sources, of locations of new mines, of points for geological investigation. In planning the iron and steel industry, each of the following regions is examined separately: South, Center, Urals, Siberia, and Far East. Planning on the basis of such enlarged regions not only facilitates rational distribution of metal consumption but makes it possible for each region to solve the problems of metallurgical raw materials, fuels, types of output, and so forth.

Complete complex regional planning permits the fullest and most economical utilization of regional resources. It helps provide for the development of production so as to satisfy local needs in maximum de-

[18] *Planovoye Khozyaistvo*, No. 11 (1940), pp. 39–46. Quoted material is on pp. 40–42.

gree and to permit the ending of unnecessary transport of raw materials, fuel, and consumer goods over distances. The Eighteenth Congress of the Communist Party gave directives for the complex economic development of basic major economic regions. It showed the necessity of organizing in these areas the output of fuel, cement, alabaster, chemical fertilizers, glass, and consumer goods in amounts meeting local requirements. The *Gosplan* does this planning for such enlarged regions. In working out the majority of problems of territorial distribution of production in the Third Five-Year plan, all the union republics were taken as major economic regions, but the RSFSR was divided into the following areas: European North, Northwest, Center, Volga, North Caucasus and Crimea, Urals, Western Siberia, Eastern Siberia, Far East.

The system of accounting indices is built on the basis of indices employed in the plan. Statistics and accounting in the USSR are at the service of plan fulfillment. The organs of accounting and statistics systematically report to the government and also to the *Gosplan* on the course of realization of planned tasks by ministries, enterprises, and provinces.

Directives on Composing the Plan

The detailed working out of the national economic plan is preceded by the drawing up of directives for the plan, defining the basic line of economic development for the forthcoming period. These directives come from the directing party and Soviet organs. The Politburo of the Communist Party is presumably the highest authority in making the decisions regarding these directives.

In the making of plan directives, all the concrete possibilities of the plan period are considered. These appear upon study of the existing level of internal productive development, the relationships of classes in the USSR, and the international situation. Analysis of the existing level uncovers future possibilities regarding such matters as tempos for production growth, reserves for raising labor productivity, increased utilization of existing equipment, introduction of new techniques, reserves for reducing costs. Analysis of the existing level uncovers bottlenecks, disproportions, defects in economic work, which must be removed. Thus the analysis of the existing level gives a controlling point for the composition of the plan.

Since the Soviet economy has been a planned economy for most of its existence and one plan period follows another, the analysis of the existing level for the composition of a new plan is primarily the analysis of the execution of the plan of the preceding period.

The directives for composing the plan formulate the basic political tasks during the planned time segment. To these political tasks all plan goals are subordinate, and from them they flow. Further directives distinguish the leading branches of the national economy. Determining the leading branches, the directives establish their tempos of development and the levels of production of individual products.

The problem of tempos is decided in directives by taking account of all the complications of social-economic conditions. In general Soviet leaders seek to attain the highest levels of production increase practicable in each given period, as determined by the existing condition of the productive apparatus.

Formulating the general tasks of the future period, the directives for plan composition predetermine the development of the leading branches of the national economy. They contain instructions regarding the direction of planning the remaining branches and regarding the basic measures for guaranteeing plan fulfillment (principles of labor organization, price policy, and so on). Thus directives determine the plan's basic profile. They compose its skeleton and organize the work of the planning system.

In prescribing the basic outlines of future economic development, the plan directives also establish policy on the nature and amount of future capital investment. The decisions in this area are in part based upon political and military considerations, which frequently have priority over purely economic factors. Insofar as these decisions are economic in nature, they are based on a large amount of staff work and research concerning the national economy, its needs and its possibilities. The volume of capital investment desired in a particular field, say steel, is decided by comparing the volume of production desired at some future date—frequently the last year of a five-year-plan period—with the volume of production to be expected at that date from existing plants and from plants under construction at the time the decision is being made. The difference must be made up by building new capacity, taking account of the drain this new investment imposes upon current production. One

of the most important functions of the long-range plans stretching fifteen years or more into the future is presumably to provide production targets for guiding long-range capital investment policy. At the beginning of each five-year plan's composition, very detailed studies are made of the makeup of existing capital and of the highest level of existing technique. The technical experience of foreign countries is studied carefully, with a view to applying their experience to the Soviet economy. It is on the basis of this enormous amount of staff work, presumably, that the members of the Politburo and other decision-making officials of the USSR reach their conclusions, taking into account, often, noneconomic as well as economic factors.[14]

Mere determination of the volume of capacity that must be built in a future period does not exhaust the problems in a given field. Thus if 10,000,000 tons of steel-making capacity must be constructed in a given period, it could be provided by two plants of 5,000,000 tons capacity each, or by 10 mills of 1,000,000 tons capacity each, or by some other combination of plants of varying capacities. If a railroad must be built between two points, there are frequently several different alternative routes it can follow, each with its own advantages and disadvantages. Should the railroad be electrified, or should it use diesel or steam locomotives? These questions are typical of the kinds of major decisions that must be made in planning capital investments. The rational bases on which such decisions should be made so as to secure most effective utilization of resources have been a subject of warm debate among Soviet economists.[15] The problem is further complicated for Soviet planners by the fact that they reject the appropriateness of taking into account interest on capital investments, a theoretical position that corresponds to the practice followed by the state in not charging interest to enterprises given funds for long-term investment. A private entrepreneur in a capitalist economy can make such decisions by comparing the expected rate of return from an investment (more precisely, the marginal efficiency of capital) with the interest rate that he has to pay for borrowed capital or that his own capital could earn if invested elsewhere.

[14] *Planovoye Khozyaistvo*, No. 9 (1940), pp. 51–67.

[15] Cf., for example, *Voprosy Ekonomiki*, No. 6 (1949), pp. 78–95 and 96–115, or the translations of these articles in *The Current Digest of the Soviet Press*, February 18, 1950, pp. 3–11, and March 4, 1950, pp. 12–19.

This private entrepreneur will seek to invest his capital in such a way as to get the highest rate of return (or marginal efficiency of capital). In any case he will not invest his capital in a project where it is expected to earn less than the rate of interest. This type of explicit use of the rate of interest in making decisions is barred to Soviet economists by their ideological opposition to the concept and employment of interest.

For many years, however, Soviet economists have employed a rather analogous procedure, using different terminology and somewhat different methods of calculation. In railroad transport, for example, the concept of Coefficient of Relative Effectiveness was much used until at least the middle or late 1940's. To illustrate the use of this device, let us suppose that in building a new railroad the problem of electrification versus steam traction is being considered. Let us assume that to electrify the road might cost 90,000,000 rubles and that annual operating expenses thereafter would be 2,500,000 rubles; to use steam power would require a capital investment of only 70,000,000 rubles but would result in annual operating expenses of 5,000,000 rubles. In comparing the two alternatives, therefore, it is seen that a saving of 2,500,000 rubles annually in operating expenses can be obtained by a larger initial capital expenditure of 20,000,000 rubles. Dividing the annual economy in operating costs by the additional capital expenditure, we find the coefficient of relative effectiveness of the more expensive capital investment to be 12.5 per cent. In practice, apparently, Soviet economists have made decisions by setting an arbitrary minimum coefficient of relative effectiveness—10 per cent was customarily employed in railroad planning before World War II—and comparing this with the coefficients obtained from sets of alternatives. In the example cited above, the 12.5 per cent coefficient obtained would have indicated that it was wise to go ahead with the more expensive capital investment project, electrification, if the arbitrary criterion employed had been 10 per cent. On the other hand, if the arbitrary criterion employed had been 15 per cent, steam traction would presumably have been employed, since the relative effectiveness of electrification, 12.5 per cent, would have then been less than the criterion. The formal analogy of this technique with the use of the interest rate in capitalist economy is obvious, but the criterion employed is so arbitrary that it can be only a crude guide at best. Moreover the technique is essentially based on average costs and

returns, so that it is inferior in precision to techniques based on marginal notions.[16]

This procedure and others similar to it were roundly denounced in the late 1940's on the ground that this is merely using rate of interest under a new name,[17] and the issue has been widely discussed among Soviet economists. By early 1950 no definitive solution seems to have been reached, those participating in this discussion usually suggesting that decisions may be made by considering many different relevant factors rather than one particular mechanical measure of the relative effectiveness of different alternatives.[18] But while this discussion raged, Soviet planners continued to make capital investment decisions, their practice presumably reflecting the confusion and differences of opinion expressed by those discussing the issue in published articles.

The Method of Balances in Planning

The goals given in directives regarding rates and levels of production for the most important branches of the economy permit the calculation of tempos of expansion and the level of production of the national economy as a whole. All branches of labor, as the result of earlier assigned levels of technique, are connected by definite relationships. Thus, for example, in the iron and steel industry we have these relations among branches: for a ton of ingot steel, 0.6 to 0.7 tons of pig iron and about 1 ton of other materials are required; for one ton of pig iron, about 1.7 to 1.8 tons of iron ore, 0.9 to 1.1 tons of coke, and so forth. These kinds of technical and labor proportions, along with the existence of assigned tempos for the leading branches of production, permit calculation of the required volume of production of these branches. The plan of development for industry in the main predetermines the program of agricultural production. In correspondence with the preassigned standard of living for the workers, there is worked out the plan for goods turnover, the plan for development of health protection, the plan for housing and municipal utilities.

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[16] Holland Hunter, "The Planning of Investments in the Soviet Union," *The Review of Economics and Statistics*, February 1949, pp. 54–62.

[17] *Voprosy Ekonomiki*, No. 10 (1948), pp. 34–48; J. M. "Some Recent Developments in Soviet Economic Thought," *Soviet Studies*, October 1949, pp. 119–27.

[18] *Current Digest of the Soviet Press*, February 8, 1950, pp. 3–11, and March 4, 1950, pp. 12–19.

The program for preparation of skilled personnel occupies an important place in the measures for development of education. The necessary growth of the productive apparatus and of the capital funds of social and cultural institutions forms the plan of capital construction. The production plan, the territorial organization of production, and the plan for goods turnover form the basis for the transport program. From the blueprints for production, construction, merchandise turnover, transport, and social-cultural construction grows, further, the financial plan. Thus the directives have a concrete reflection in the plans of the branches of the national economy.

The method of balances helps determine the quantitative relations between different branches of the economy, in particular the amounts of their material needs arising from the tasks posed them during the given planned period by the party and the government. In correspondence with the decisive tasks of socialist planning, particular significance in practice attaches to the balances of ferrous and nonferrous metals, fuels, electric power, equipment, chemicals, grains, cotton, leather, and semifabricated commodities, as well as to the balances of the labor force, specialized personnel, monetary incomes and expenditures of the population, incomes and expenditures of the state budget, national income. The complete system of balances is utilized for the solution of questions of interbranch linkages in the plan.

The following schematic arrangement was used in making the economic plan for 1950:[19]

Total Supply	*Total Utilization*
1. Production listed by producing agencies	1. Production requirements
2. Imports	2. Construction requirements
3. Supplies from state reserves	3. Supplies utilized in the production of that commodity itself
4. Supplies in the hands of distributors at the beginning of the period, listed by distributors	4. Supplies for retail sale
	5. Exports
	6. Additions to state reserves
	7. Supplies in the hands of distributors at the end of each period, listed by distributors

For 1950 material balances of this sort were apparently prepared for all funded commodities, i.e., those directly allocated by the government, more than 1,500 in all. These included many different kinds, shapes,

[19] *Planovoye Khozyaistvo*, No. 2 (1950), p. 50.

and forms of metals, electric power, coal, peat, lumber, all basic types of petroleum products, many different kinds of machinery and equipment, the most important construction materials, basic chemicals and rubber products, other basic industrial and food commodities, and agricultural raw materials.[20]

In making up the balance of a particular type of steel, for example, the requirements of the machinery industries and of capital construction are carefully checked. Special attention must be paid to economizing on metal by reducing the amount of waste production and by introducing more economical norms of metal expenditure per unit of product, through replacing metals by other materials. In making up the distribution part of the balance there must first be guaranteed the satisfaction of the needs of those branches of the economy that are most important at the given moment.

An extremely important task in composing the balance of rolled metals is the formation of state reserves, which permit the government to increase the supplies of one industrial branch during the year without destruction of the plan for supplying metal to other branches.

The economy's metal requirements must be satisfied chiefly from production. Thus the balance of metals is most directly connected with the determination of the production program of metallurgical enterprises. The balances of metals and other commodities are termed material (natural) balances. There are also balances that expose more complex proportions in the economy, as, for example, the relation between supply and demand, between savings and consumption; these are called synthetic balances. An example is the balance of money incomes and expenditures of the population, which is built thus:

Income	*Expenditures*
A. CITY	A. CITY
Wages and money incomes like wages	Purchase of goods
Incomes from bonds and savings	(*a*) in state stores
Other incomes	(*b*) on collective farm market
Reserves from past years	Noncommodity expenditures
Total Income	(taxes, transport and mail expenditures, etc.)
	Savings (bond purchases, deposits in savings banks)
	Total Expenditures

[20] *Ibid.*, pp. 46–47.

B. RURAL	B. RURAL
Money incomes from work on collective farms	Purchase of goods
Incomes from collective farm trade	Noncommodity expenditures (taxes, transport, mail, etc.)
Incomes from renting horses and seasonal work	Savings (bond purchases, deposits in banks)
Incomes from bonds and savings	Total Expenditures
Other Incomes	
Reserves from past years	
Total Income	

The balance of money incomes and expenditures is needed first of all to establish proportionality between demand and supply, for planning the volume of merchandise turnover. At the given level of prices, savings, and noncommodity expenditures, the volume of retail trade turnover must correspond to the money incomes minus noncommodity expenditures and savings. In other words, supply must equal the planned demand. The balance of money incomes and expenditures is also needed for making the financial plan. At a given level of expenditures for goods, there may be determined what part of the monetary means of the population may be mobilized through financial institutions (government bonds, savings in banks, taxes). The balance of money incomes and expenditures is necessary also for planning and regulating monetary circulation.

Other major financial plans that are coordinated with the other parts of the national economic plan are the state budget, which is essentially the financial balance of government expenditures and incomes, and the cash and credit plans of the State Bank. Financial plans balancing incomes and expenditures are prepared for all economic ministries. These are linked with the production programs of the ministries as expressed in physical terms, as regards both quantities of output and quantities of labor, materials, and other input. The financial balance for each ministry is further broken down at a later stage into balances for each of its major divisions and enterprises.[21]

Labor balances similar to the above are worked out with a view to insuring that all requirements for workers, both for all workers as a

[21] N. N. Rovinsky, *Gosudarstvenny Byudzhet SSSR*, pp. 78–86. Moscow: Gosfinizdat, 1944.

whole and for different types of specialized workers, will be covered by the supply. These balances take into account the needs of different branches of the economy, the number of persons being trained in vocational and technical schools of all kinds, the possibilities of recruiting persons not actually employed outside their households, and so on. A similar balance is made up separately for labor on the collective farms, with the aim of determining the number of workers who can be shifted from agriculture to nonfarm occupations without endangering fulfillment of agricultural production goals.[22]

The National Balance as a Whole

Full linkage of all the different parts of the economy can be attained by working out a balance of the national economy as a whole. Such a balance must reflect all the most important aspects of expanded socialist reproduction in the planned period. It must expose all resources for strengthening the tempo of economic development, while simultaneously safeguarding the plan from bureaucratic maximalism. The chief components of the balance of the national economy must be the balance of labor, of social product and national income, of national wealth, and of finances.

The labor balance shows the distribution of the chief productive forces of society between branches of production and regions of the country, the productivity of labor in the planned period, and the preparation of skilled workers. The balance of social product and national income shows the size of the social product produced and the directions in which it is distributed; it shows how the national income is divided between saving and consumption. The balance of national wealth shows how, during the productive cycle, the masses of fixed capital, working capital, reserves, and consumption funds are increased. The financial balance exposes the movement of financial resources, reflecting the corresponding movement of material resources and labor force. The balance of the national economy does not replace the system of partial balances described above, but on the contrary is based on them and caps them all.

The balanced working out of a plan makes more exact and some-

[22] A. Kursky, *Sotsialisticheskoye Planirovaniye Narodnogo Khozyaistva SSSR*, p. 45.

times modifies the initial projections in the fields of production and distribution, depending upon the requirements that have been ascertained for the national economy and also upon the available resources.

A noted Soviet economist, S. Turetsky, has summarized the final coordination problem faced in making up the national economic plan as follows:

> The final balanced links and checks of planned proposals are the last stages of work over composing the plan. True, already in the very directives and limits for composing the plan the bases for balanced links have been laid down. In the very process of working over plans before the final balanced linkage of different parts, it is necessary to work out a series of different rough balances. In the process of working out plans it is impossible to establish full linkage of all indexes at once. On the basis of established directive limits work unfolds simultaneously over different partial plans, each of which is part of a unified whole. It is impossible to represent the matter as being that first one part of the plan is worked out, then work goes over to the following, and so on. The unity of work over the plan is guaranteed by directives and limits for composing the plan. But the limits give only basic indicators and orientation, since they themselves in the very process of planning often undergo a series of stages from rough orientating drafts to final balanced plans. A simple sum of blueprints for different parts of the national economy (metal, coal, fuel, machine building, objects of individual consumption, etc.) worked out simultaneously on the basis of directives still does not give one a unified national economic plan, does not by itself guarantee balanced connections. In the process of working out different parts of the plan it is often necessary to work out, to compose several variants for guaranteeing balanced connections in the national economic plan. These variant approximations are worked out from the point of view of a unified economic plan. A change in any one indicator requires changes in numerous indicators, since in a plan we have to deal with a unified system of indicators. If in the process of working out a plan we make more exact the volume and structure of machine construction output, then it is necessary to make corresponding changes in the blueprints for metallurgy, coal, etc.; in determining the assortment of cotton textiles there is required the more exact specification of the proposed raw material base and on the reverse: the blueprints for trade turnover are corrected which changes the proposals for consumption; making proposed prices more exact introduces corresponding changes in the financial plan, etc.[28]

[28] *Planovoye Khozyaistvo*, No. 2 (1936), pp. 159–60.

Even this discussion oversimplifies the problems involved in making sure that changes, sometimes radical changes, in one part of the plan correspond with the rest of the plan. The balance equations may be compared to a complex electrical network, a change in any part of which alters the balance of forces throughout the network. A change in the tractor-production program makes itself felt in the balance for every one of the many materials going into the making of tractors and in the labor balance, and then reciprocally has its effects upon the agricultural program, which was drawn up on the assumption that the initial number of tractors planned would be produced. In turn these secondary changes require other changes in a complex and ever widening series of chain reactions upon the entire plan. The difficulties involved when there are so many equations and variables are truly stupendous, and it is questionable whether more than rough allowance can be made throughout the system of balances. The difficulties involved are suggested by W. W. Leontief in discussing a related matter:

> While in the case of partial analysis, which operates simultaneously with only two or three variables, the interrelations among these few elements can often be perceived directly, such intuitive inference becomes practically impossible as soon as the number of variables increases up to four or five, not to say ten or twenty. A doubtful reader of these lines can ascertain the limitation of his own commonsense intuition by trying to hazard at least an approximate solution of a system of three simple linear equations with three variables; or after having found the right answers mathematically, by trying to guess out intuitively what effect a change in one of the constants would have on the value of all three unknowns.[24]

The system of Soviet economic balances, it may be added, involves hundreds of variables, not any mere ten or twenty.

During the years of the five-year plans, the methodology of working out balances has improved significantly. In working out the distribution side of material balances, technically based norms are employed. Regional breakdowns are widely applied in projecting natural and synthetic balances. A regional breakdown of the labor balance permits a properly based plan for recruitment of workers; a regional breakdown of the balance of the population's money incomes and expenditures

[24] Leontief, *op. cit.*, p. 34.

helps set up a plan for the distribution of merchandise by provinces; the regional balances of production and consumption give materials for forming rational transport plans, cutting down cross hauls and superfluously distant carriage of freight.

Together with the working out of the projection of the national economic plan, work is carried on in other directions: the technical profile of the plan and measures for introducing advanced technique are determined. Norms for utilizing equipment, for expenditure of raw materials and labor, and for labor productivity are established, being based on the experience of outstanding workers; there are calculated estimates of production, plans for lowering costs, financial plans. The results of these calculations are utilized for correcting the balances; on the other hand, the balance data determine the direction of work regarding norms. For example, the strain of the fuel balance requires every possible rationalization of the fuel expenditure norms.

Some Observations on Soviet Planning

We have now concluded the description of Soviet planning procedure, based almost entirely upon Soviet sources. Certain matters ignored or glossed over in this description now require comment.

First, we may point out the nondemocratic nature of this planning, the complete absence of what has come to be called "consumers' sovereignty." Plans are drawn up on the basis of directives from the leadership of the Communist Party, which also controls the government. These directives reflect the judgment of these leaders as to the relative importance of different economic ends attainable during the period for which the plan is being formulated. If these leaders decree that the rapid development of transport is the most important task of a given year, that will be given top priority, regardless of consumer wishes or needs for food, clothing, shelter, or luxuries. The needs of consumers set limits upon the discretion of planners, however, since consumers are also producers, and if the people are not fed, clothed, and housed at or above minimal requirement levels, this will react upon production. As a general principle, Soviet leaders have always avowed their interest in raising the standard of living of their people, and such interest can be granted even if only because such a rise in the standard of living would minimize domestic political tension and disaffection. But the

crucial point is that within the wide limits set by the minimal quantities required to permit workers to keep on working and to keep dissatisfaction within controllable bounds, those who frame the plan directives can largely give second priority to consumer wishes.

Second, the principle of concentration on the most important objectives of each period emerges as the basic principle of Soviet planning. All the balance calculations are subordinated to the "leading links" set by the directives. In 1935, for example, the development of transport was set as the primary objective. In that year, consequently, a much greater percentage of Soviet metal consumption was permitted railroads than had been true in 1932.[25] Thus it would appear that the Soviet economy progresses in a series of fits and jerks, as different areas of it are successively made the "leading link" for each period while the others are forced to get along as best they can on what is left over after the full needs of the top priority branches have been met. For the most part branches of heavy industry have enjoyed top priority, while consumer-goods production has had to get along on the resources left over.

Third, in predicting future output, i.e., in setting goals for such output, a congeries of factors must be considered. On the one hand, estimates of future output, outside of agriculture, can be made by taking account of existing capacity of plants and by assigning resources adequate to keep these plants operating at 100 per cent, or at some other fraction, of capacity. This will be the dominating factor for short-run prediction. In the longer run, account must be taken of new capital investment, the period it requires, and the speed with which the new facilities will come into operation. The capital investment program and medium- and long-range production goals are therefore intimately connected. But even in the short run, important complications must be taken into account. Plant capacity is not an eternally fixed constant, but will vary depending upon labor productivity, coefficients of utilization of machinery, adequacy of raw material supply, and other factors. Soviet planners, in making their short-run goal determinations, presumably have information regarding these factors in the latest plan period and make provision for improved performance. But actual realization of that improved performance depends in turn upon progress made in improving the standard of living, the effectiveness of prop-

[25] *Planovoye Khozyaistvo*, No. 2 (1936), p. 163.

aganda for higher labor productivity, smoothness of the work of transportation, and other factors. In view of these complexities Soviet planning must require a large degree of guesswork, with all the inaccuracy that even the best guesswork implies.

Fourth, the arbitrary nature of Soviet prices, which frequently in the past have failed to reflect the supply and demand situation of each commodity, imposes many crudities and inefficiencies upon Soviet planning and operation of the economy. In seeking to decide between alternative investment possibilities, Soviet planners can only grope in deciding which is the most economical, because comparisons of money costs and returns are probably of questionable validity in many cases, as a result of the arbitrary character of Soviet prices. Thirty-two years after the Bolshevik revolution Soviet planners have still been unable to find a satisfactory technique for making investment decisions, although they are keenly aware that the techniques they have employed have been unsatisfactory. Another result of this confused price structure is that Soviet managers often find it profitable, in terms of the costs and prices with which they are faced, to disobey the assignments given by the plan and to produce products that differ in quality, amount of production, and other characteristics from those set by the planners. We shall go into this point in more detail later.

Fifth, it should not be thought that the State Planning Committee is the sole agency concerned with planning. The *Gosplan* has its representatives in the organizations of all different branches of the Soviet economy as well as at key places throughout the USSR. They work with ministerial and provincial (or other geographical unit) planning groups as well as with economic and government administrators in preparing the partial plans for each sector of the economy or each area of the country. These partial plans are submitted to *Gosplan* for integration into the master plan and for necessary revision. In the process of give and take between *Gosplan* and various sectional or branch interests, there is probably a good deal of heated conflict, as each particular interest seeks to secure the maximum resources for its own development. As is inevitably the case in such situations, the outcome must often reflect the relative bargaining skill of the different participants rather than the actual pattern of economic needs. The fact that consumers' wishes impose no final check upon the arbitrariness of most economic

decisions facilitates the dominance of such bureaucratic higgling in the making of plan decisions. It is noteworthy that even in the areas of consumer-goods production the Soviet press often finds it necessary to complain bitterly of bureaucratic disregard of the population's wishes by the managers of production there.

Execution of the Plan

In Soviet ideology, drawing up of an economic plan is considered only the first step in planning. Supervising the execution of this plan is considered the decisive test. Such supervision consists of checking on the way in which different industries are meeting their assignments, anticipating and preventing materials shortages or other developments that may interrupt production, finding possibilities for increasing output above that actually planned for, and making such changes in the original plan as are called for by domestic or foreign developments after the preparation of the initial document. Such supervision is done by a great number of agencies and persons. *Gosplan* and the Central Statistical Administration both keep tabs on output data and prepare regular reports for higher authorities on the progress being achieved and the difficulties being met. Each unit of the economic administration watches the performance of the production units under its jurisdiction and takes such action as it deems necessary from time to time to correct deviations from the plan. Communist Party units all over the country exercise similar watchfulness and are expected to intervene and order changes made where performance is poor. The government maintains its own separate control and inspection personnel to check on plan fulfillment; through the system of criticism and self-criticism, ordinary workers, farmers, and other citizens are expected to help show up inadequacies by speaking out in open meetings, writing letters to newspapers, reporting to government authorities, and so on.

As indicated earlier, difficulties often do arise in the execution of economic plans, causing them to be changed materially and often to be fulfilled in lopsided fashion. The guiding principle in such changes seems often to be an extension of the "leading link" notion used in planning, i.e., where goals on top priority objectives are in danger of not being fulfilled, still further concentration of resources upon these objectives is often ordered. It is this type of plan revision that helps to ex-

plain the frequent failure of Soviet production to attain goals set for consumer-goods output, although objectives in heavy industry have often been attained or even more than attained.

Since planning is all-pervasive throughout the Soviet economy, we shall have frequent occasion in the following chapters to refer to the role of planning and economic plans in different sectors of the Soviet economy.

CHAPTER VI

ORGANIZATION AND OPERATION OF SOVIET INDUSTRY

INDUSTRIAL PRODUCTION in the Soviet Union is carried on by three types of enterprises: those owned by the state, industrial cooperatives, and individual artisans working alone. Of these the state factories and mines are by far the most important, producing the overwhelming bulk of all industrial commodities. Cooperative production is significant only in the output of consumer goods. Individual artisans, who are prohibited under Soviet law from employing even one assistant, produce only an infinitesimal fraction of all Soviet goods.

The state-owned and -operated industry of the USSR is the largest single centrally-directed productive apparatus in the world, far dwarfing such individual giants of American industry as United States Steel or General Motors. It is composed of thousands of factories and mines of every description, spread throughout the vast territory of the Soviet Union. Well over twenty million persons are employed in these state enterprises. They produce a tremendous variety of commodities, ranging from tanks and jet airplanes to buttons and soft drinks.

The organization and operation of such a vast productive mechanism obviously presents difficult problems. The Soviet government has attempted to solve these problems so as to secure an organizational structure and operating technique that would insure maximum production at minimum cost. The history of the Soviet government's efforts to secure the most efficient organization and operation of its industry is a long and complex one. We shall be concerned here primarily, however, with the current situation, referring to earlier arrangements only in so far as they help to illuminate and explain the existing situation.

Organization of State Industry

The highest executive body of the Soviet government, the Council of Ministers, is also the apex of the organizational pyramid of Soviet industry. The Council of Ministers supervises the over-all work of Soviet industry and issues such orders as are required from time to time to improve the work being accomplished. This body approves the annual and quarterly economic plans directing the operations of Soviet industry during each period of time. The members of the Council of Ministers are the ministers who head each major section of the Soviet government. Some of these sections, such as the Ministry of Foreign Affairs, deal primarily with noneconomic matters, but most of them are economic ministries supervising and operating a major branch of Soviet production. In the last analysis, of course, the Council of Ministers is subordinate to the Politburo of the Communist Party. The Politburo makes the fundamental decisions that are executed by the Council of Ministers and other organs of the Soviet state. Most of the members of the Politburo are also leading members of the Council of Ministers. In early 1950 Joseph Stalin was chairman of that body, while V. M. Molotov, G. M. Malenkov, L. P. Beriya, K. E. Voroshilov, A. I. Mikoyan, N. A. Bulganin, L. M. Kaganovich, A. A. Andreyev, and A. N. Kosygin were deputy chairmen. Kosygin was also Minister of Light Industry.[1]

Within the Council of Ministers is a small super cabinet consisting of Stalin, the chairman, and the thirteen deputy chairmen, most of them members of the Politburo. This group has major coordinating functions, each of the deputies apparently supervising related areas of ministerial activity. Mikoyan, for example, apparently coordinates domestic and foreign trade. The group as a whole makes general policy and coordinates the areas of work allocated among them.[2] In the past this group has been known as the Economic Soviet, a body that screened plans of individual ministries before submitting them to the full Council of Ministers; checked fulfillment of plans; made decisions on prices and wages; and prepared decrees and directives as necessary. During World War II, a very small inner cabinet of Politburo members called the State

[1] *Pravda*, February 19 and 20, 1950.

[2] Merle Fainsod, "Recent Developments in Soviet Public Administration," *Journal of Politics*, November 1949, p. 687.

Committee of Defense functioned as the supreme directing and coordinating body of the Soviet war effort.

Attached to the Council of Ministers and reporting to it are a number of subgroups. The most important of these are probably the Central Statistical Administration and the State Planning Committee (*Gosplan*), but other major groups are the State Committee on Material-Technical Supply of the National Economy, and the State Committee on Construction Affairs. Other groups deal with the Northern Sea Route, Civil Aviation Fleet, Hydro-Meteorological Services, Producers and Consumers Cooperatives, Weights and Measures, Radio and Broadcasting, and so on.[3]

The everyday, detailed operation of Soviet industry is organized and supervised by individual ministries, each directing a major segment of production. In the early years of the Soviet regime, virtually all industry was directed by one central body, the Supreme Economic Council. During the 1930's this council was broken down successively into a large number of individual ministries. Since World War II, however, the trend has been toward greater consolidation, with a number of new ministries being formed by consolidating several old ones. In June 1950 the following all-union economic ministries functioned:

Aviation Industry
Automobile and Tractor Industry
Armaments
Machine and Instrument Construction
Metallurgical Industry
Petroleum Industry
Industries of Means of Communication
Municipal Construction
Agricultural Machinery Construction
Machine Tool Construction
Heavy Machine Construction
Building and Road Machinery Construction
Construction of Enterprises of Machine Construction
Construction of Enterprises of Heavy Industry
Foreign Trade
Labor Reserves
Food and Material Reserves
Requisitions
Transportation
Sea Fleet
Communications
Coal Industry
Ship Construction Industry
Transport Machine Construction
Chemical Industry
Electrical Industry
Electric Stations

The above are the so-called all-union ministries, i.e., the ministries that direct economic affairs in their particular segments of the economy directly, without regard for the internal administrative lines of the Soviet

[3] *Izvestia*, June 18, 1950. Fritz Morstein Marx, *Foreign Governments*, p. 471. New York: Prentice-Hall, 1949.

Union. In addition, however, there are a series of union-republican ministries, which have a dual organization. They consist of an over-all union ministry in each case, under which are republican ministries organized in each of the different republics of the Soviet Union. The union-republican economic ministries in mid-1950 were:

State Control	Construction Material Industry
Moving Picture Industry	Agriculture
Light Industry	State Farms
Forestry	Trade
Wood and Paper Industry	Finance
Meat and Dairy Industry	Cotton Growing
Food Industry	Fish Industry[4]

The minister in charge of each ministry has power to issue orders to all plants and organizations in his jurisdiction and to appoint or dismiss the major officials subordinate to him. While the organization of each ministry differs somewhat from that of others, ordinarily a ministry will have technical, planning, finance, supply, sale, construction, manpower, and accounting divisions. These help the minister coordinate and direct the activities of the production units under his supervision.[5] Each minister is undisputed chief of his organization, though he consults regularly with his collegium, an advisory group composed usually of his chief assistants.

The chain of command within each ministry, from the minister at the top to the individual plant or mine doing the actual production, depends on conditions and problems in that ministry. A complete organizational chart of Soviet industrial organization would be extremely complex therefore, since there are many different patterns in chains of command in the different ministries. Fundamentally, however, there are three types of subdivisions below the ministerial level. The first is the *chief administration* (*Glavk*, plural *Glavki*). The chief administration is a sort of subministry, controlling plants in a given area producing a given type or types of products, as the case may be. Under the chief administration there may be either a *trust* or a *combine*. Each of these is usually a group of plants combined in one administrative organization. Typically, a combine consists of a group of related plants and other enterprises produc-

[4] *Pravda*, June 21, 1950.

[5] G. Bienstock, S. M. Schwarz, and A. Yugow, *Management in Russian Industry and Agriculture*, p. 7. New York: Oxford University Press, 1944.

ing one or a group of related products. Thus, the Magnitogorsk Combine is in charge of iron mines, steel mills, and coke chemical plants in and near the city of Magnitogorsk. In the past decade the trend in Soviet industrial organization has been towards simplification and elimination of intermediate administrative organizations between the ministry and the final enterprise actually engaged in production. As a result, many of the most important plants in the USSR are directly subordinate to and controlled by the corresponding ministry. In many other cases, however, plants are subordinate directly to a chief administration, or to a trust, which is in turn subordinate to a chief administration. The proliferation of administrative links can be even more complex in some cases.[6]

The ultimate Soviet production unit, from the administrative point of view, is the enterprise, which may be a trust, a combine or simply an individual factory. The enterprise is headed by a director who has full power of administration and control over it, within the limits set by higher authority. The enterprise is a legal entity that may sue or be sued in the courts. It operates on the basis of a separate charter registered with the government and approved either by the appropriate minister or by the Council of Ministers. Each enterprise operates on the basis of cost accounting and has certain fixed capital, i.e., buildings, machinery, and so on, conferred upon it by the government, as well as its own supply of working capital in the form of raw materials and of money in the bank, also received originally from the state. In addition, each enterprise has its own production plan. It has a separate account in the State Bank. It has an individual accounting existence, i.e., an independent balance sheet and profit-and-loss statement. The State Treasury is legally free of any liability for an enterprise's debts, though these enterprises are all state-owned and -operated.[7]

Throughout the hierarchy of Soviet industrial administration, the principle of one-man control is paramount, though each head is expected to consult with his collegium. The principle of organization is production-territorial, i.e., by production units in a specific area, not along functional lines. Functional activities at each level are subordinate to the over-all head, who directs orders down and reports up the ladder of command.

[6] V. Gsovski, *Soviet Civil Law*, vol. I, pp. 403–05. Ann Arbor: University of Michigan Law School, 1949.

[7] *Ibid*, Savinsky, *Kurs Promyshlennoy Statistiki*, p. 38.

An Organizational Example

The general schemata of Soviet industrial organization within a ministry sketched above may be illustrated by reference to the postwar organization of the Ministry for Ferrous Metallurgy before its consolidation with the nonferrous metallurgical industry. At the top level was the minister, assisted by some twenty-eight functional groups. Among these were twelve functional chief administrations, handling such matters as personnel and pay, purchase of production supplies (*Glavsnab*), labor force procurement (*Glavurs*), sale of ferrous metals produced (*Glavmetallosbyt*), capital construction, industrial equipment, electric power, transport, geological research, scrap-metal procurement and processing, and schools. In addition there were sixteen smaller functional groups, dealing with planning, finances, bookkeeping, housing, legal problems, archives, office administration, metallurgical journals, and so on.

Production units immediately subordinate to the ministry fell into three groups: (1) chief administrations for Metallurgical Industry of the South and Center; special steels; steel pipe; Urals metallurgy; ferroalloys; metal articles; construction of ferrous metallurgical machinery; firebrick; iron ore; coke; and timber for ferrous metallurgy. (2) A special production department directly under the minister included the nine most important plants in the ministry immediately after World War II, including the Magnitogorsk and Kuznetsk combines among others. This production department was essentially the most important chief administration in the ministry. (3) Production trusts for ferrous metallurgical timber (Moscow); ferrous metallurgical electric power; Donets Basin water; ferrous metallurgical timber in the south.

Of the twelve chief administrations listed above, all but two—those for iron ore and metallurgical timber—directly operated all enterprises subordinate to them. These ten illustrated a three-link chain of command: ministry—chief administration—enterprise. The Chief Ore Administration had five major production trusts under it, for Urals iron ore, Krivoy Rog iron ore, Chiatura manganese, Nikopol manganese, and USSR fluor spar. Each of these trusts had mine administrations as the enterprises under it, so that in this case the four-link chain of command was: ministry—chief administration—trust—enterprise. A similar pattern existed in the Chief Administration for Ferrous Metallurgical Timber,

which consisted of six trusts: one for metallurgical woodworking and five for timber production. Under these trusts were enterprises such as timber camps, woodworking factories, and mechanized timber centers, the bottom units in a similar four-link chain of command.[8]

The organizational structure sketched above is that of an almost completely integrated iron and steel industry under one management, producing, except for coal, almost all its significant basic raw materials, iron ore, manganese, ferro-alloys, fluor spar, coke, timber, and so on, as well as much of the machinery required for its operations. The ministry provided housing for its workers and sold them consumer goods in enterprise stores. It operated newspapers, trained technicians, and carried out numerous other varied activities contributing in one way or another to final output of all types of iron and steel products. It was an empire in itself, with the minister at the top holding undisputed sway over this vast complex of activity spread throughout the Soviet Union.

Other Types of State Industry

The Ministry of Ferrous Metallurgy sketched above is an example of an all-union industry. Other types of industry in the USSR are organized on a republic or local basis, or are operated incidentally to the major activities of a nonindustrial ministry or other organization. Republican industry includes primarily ministries producing consumer goods, food, and construction materials. Republican governments, say in the Ukraine or Uzbekistan, play important roles in directing these branches of industry, though ultimate control and coordination still remain in Moscow. Soviet local industry consists of small enterprises in particular localities, serving the needs of consumers in that region by processing raw materials obtainable there. Thus a small coal deposit may be worked by a unit of local industry to supply the needs of a nearby town, or a group of workers may turn timber obtained nearby into furniture sold only locally. There is a Minister of Local Industry in each union republic (but none at the national level) who supervises the operation of these many small enterprises in his area. There is a hierarchy of control going down to each lower territorial level. At each stage (province, territory, city, village, or small district) the local industry there

[8] A. Arakelian, *Industrial Management in the USSR*, pp. 108–09. Washington: Public Affairs Press, 1950.

is subordinate both to the appropriate official or government department and to the local government as a whole in a system of dual subordination to functional and administrative-territorial authorities. Nonindustrial ministries' industrial operations include such enterprises as the flour mills of the Procurement Ministry and the repair shops of the Transport Ministry. These subordinate industrial enterprises produce about 10 per cent of all output of state industry.[9]

Control Mechanisms

While primary responsibility for everyday operation and supervision of Soviet industry is in the hands of the appropriate ministries and their subordinate bodies, a large number of other control organizations are constantly active. The State Planning Committee, through its representatives throughout the country, keeps constant check on the fulfillment or lack of fulfillment of the industrial output plans. The Ministry of Finance, through the State Bank and its tax collection officials, also constantly checks the financial aspects of industrial operations, and through them the actual conduct of enterprises. The Communist Party, at all levels—from the Politburo to the local party group in a factory—is constantly engaged in similar checking, and frequently intervenes to order changes or even to replace unsatisfactory personnel. The higher Communist Party bodies, such as republican, provincial, and city party committees, frequently have elaborate organizations paralleling the ministerial organizations to keep constant check on the course of output.

Not least important among these control mechanisms is that directly subordinate to the Central Committee of the Communist Party. The Production Departments of the Committee's "apparatus" make special investigations of industrial operations and coordinate the activities of subordinate party groups in exercising economic controls.[10]

The Ministry of State Control "exercises a general watchdog role over state property and administration. Like the Ministry of Finance, it is charged with strict control over expenditures of state funds, and it also has a broader mandate to check the fulfillment of all governmental decisions." Its organization parallels that of the state administration, and it

[9] *Ibid.*, pp. 104, 110–11.

[10] Louis Nemzer, "The Kremlin's Professional Staff . . .," *The American Political Science Review*, March 1950, pp. 64–85.

has control personnel in all important factories, warehouses, and other units. These controllers have the right of access to all administrative records and may undertake documentary audits. The ministry may issue reprimands, levy fines up to the amount of three months' salary, order the removal of offending personnel, or submit charges against administrative personnel before courts. The ministry works closely with Communist Party groups at all levels.

The secret police of the Ministry of State Security (MGB) also exercise important control functions. Secret police agents permeate the entire fabric of Soviet society, with representation in all enterprises and at all levels of industrial administration. The secret police apparently not only make arrests where necessary, but also try and sentence individuals to banishment from particular localities or to serve sentences at forced labor in "correctional labor camps." The secret police also work closely with the Communist Party organization, and their members are usually required to be party members.[11]

An informal but frequently important type of control is that known as criticism and self-criticism (*kritika i samo-kritika*). In theory all persons in the Soviet Union are encouraged to complain publicly about derelictions of duty, poor work, violations of government orders, and so forth. These complaints may be voiced in shop meetings, in letters to the newspaper or to a government organization, or in other ways. Newspapers frequently print articles of criticism based on information gathered by their reporters in a particular factory or ministry. Those criticized are expected to defend themselves and to acknowledge their errors preliminary to correcting them if the charges are true. This criticism and self-criticism, however, are limited to revealing defects in the way in which government orders are being executed. Basic government policy and the highest officials in the Politburo are immune to such state-approved criticism, and any effort by subordinate personnel to subject them to it publicly would meet with swift punishment as sedition. The salutary effect of this criticism and self-criticism is tempered, however, by the fact that those who engage in it—say ordinary workers in a factory—expose themselves to the vengeance of those they have attacked. Frequently, study of the Soviet press suggests, those who attempt to avail themselves of this privilege suffer grievous consequences, though the

[11] Fainsod, *op. cit.*, pp. 701–11.

government tries to protect them if it becomes aware of such illegal punishment. Sometimes, too, there is collaboration between party, government, and industrial officials in an area to protect one another against the barbs of criticism and self-criticism.

It is clear from the above that those who direct Soviet industry (as well as other sections of the Soviet economy and society) are constantly under surveillance from many quarters and are under extreme pressure to fulfill the orders they receive from above, no matter what the obstacles. Punishment for wrong-doing is severe, and mere failure to fulfill one's plan—even because of factors beyond the control of the "culprit"—may be punished by superiors who refuse to recognize what are sneeringly referred to as "objective" causes. In the 1930's failure to achieve production plans was sometimes interpreted as sabotage, and dire punishment was administered to those found guilty. Since World War II there have been no such publicized sabotage trials, but reports have been published from time to time saying industrial chiefs have been sent to prison for various offenses, particularly for production of poor-quality goods.[12] The heads of Soviet industry at all levels undoubtedly work under great tension and strain, as a result of the multiple checks upon them and the possible penalties they may incur. They undoubtedly transmit the impact of this tension upon all those working under them, so that it affects all engaged in production.

The fear of punishment in case of failure to meet government plans is so great that industrial managers, not infrequently, are driven to perform grossly illegal acts so as to meet their plans or to cover up their failure. Thus many reports have been published of officials' having illegally required workers to work overtime or to work on their days-off at the end of a month so as to meet the production plan. Managers sometimes falsify their reports to the state on production and reserves in an effort to hide their failure.[13] Many managers apparently try to secure minimal production plans, to hoard scarce materials and labor, or otherwise to serve their own or their organizations' immediate ends at the expense of the economy as a whole. They put their own bureaucratic and sectional interests first to avoid punishment for failure and to gain rewards for accomplishment.[14]

[12] Cf., for example, *Moskovskaya Pravda*, April 9, 1950.
[13] *Pravda Ukrainy*, November 11, 1949; *Pravda*, November 23, 1949.
[14] *Bolshevik*, July 15, 1949, p. 4.

Enterprise Organization and Operation

The organization of an industrial enterprise will depend upon its size and complexity. The basic chain of command is from the director to the shop chiefs to the foremen to the brigade leaders. The director has a number of functional departments—for planning, finance, payroll, personnel, technical control, supply and sales, and so on—and a number of assistants, of whom the most important is the chief engineer. The latter is directly in charge of production and has under him such functionaries as the chief designer, chief mechanic, and chief electrician. The enterprise is divided into a number of workshops, each with its own chief. Under him is a shop planning and dispatching bureau, a technical bureau, a shop mechanic, shop office manager, bookkeeper, and others. The bureaus are headed by assistant shop chiefs. Small workshops have less complex organizations. Foremen have messengers, order-bearers, and instructors under them.[15]

In theory, the enterprise director has complete charge of all activities and personnel under him. This nominal position he enjoys is the result of a long, complex development and is not always true in practice. In the 1920's and early 1930's a brisk conflict was waged over the best method of control in Soviet industry. For a time there was a triumvirate in charge, consisting of the plant manager, the plant's Communist Party chief, and the plant's trade-union head. But this three-man control was done away with almost two decades ago. In part this dissolution of "triangle" control was the result of the complete subordination of the Soviet trade-union movement to the Soviet drive for production. Union leaders do not now usually try to protect the interests of workers too strongly where the possibility exists that such action might interfere with the growth of production. The problem of the relationship between the plant manager and the local communist cell in his plant or the local Communist Party authorities in his area is, however, still far from adequately solved. Readers of the Soviet press find frequent articles dealing with this subject. These articles sometimes berate communists in a given plant or area for interfering excessively with the operation of particular industrial plants or mines. At other times these articles attack local factory or other communist units for not keeping close enough check on economic activity and not acting sufficiently vigorously to help

[15] Arakelian, *op. cit.*, pp. 126–27.

or force plant managers to end deficiencies. Undoubtedly Communist Party officials still play important roles in the direction of production at many enterprises.[16]

Within the limits of the directives sent down by higher authorities, the management of each enterprise works out the so-called technical-industrial-financial plan for that enterprise (*tekhpromfinplan*). This technical-industrial-financial plan covers the following matters in great detail for each enterprise: estimated number of workers to be employed; estimated payroll; production cost plan; estimated requirements for fuel, electric power, raw materials, semifinished products, and equipment; norms for utilization of plant equipment; organizational and technical measures to be employed for most efficient utilization of plant resources; and the financial results to be sought by the management during the annual, quarterly, or monthly period covered by the particular technical-industrial-financial plan. In addition, this plan covers such matters as the distribution of the plant's products, introduction of new processes, details of plant expansion, production other than that of the main items turned out at the plant, cooperation with other enterprises, and other matters. The program for cooperation of an enterprise with other enterprises is based upon information supplied it regarding the availability of supplies it needs and the requirements of the enterprises to which it sells its products. The technical-industrial-financial plan for each enterprise is submitted to higher authorities. When approved by them it becomes the concrete program of action guiding the management of that enterprise. In the course of working out this plan, the management of each enterprise has an opportunity to suggest changes in the directives given it by higher authorities. These changes are welcomed particularly if they permit greater production or lower-cost output.[17]

Most Soviet industrial enterprises operate in accordance with the principles of economic accountability (*khozraschet*). By economic accountability is meant essentially that each enterprise is considered as an independent, quasi-corporation endowed with certain resources. The enterprise must use its resources in accordance with its plan and with the objective also of attaining maximum profit within the framework of the plan's goals. Relationships between enterprises are commercial re-

[16] Bienstock, Schwarz and Yugow, *op. cit.*, pp. 35–38.
[17] *Ibid.*, pp. 53–54.

lationships, i.e., they are sales or purchases for money at prices fixed by higher authorities. Each enterprise is empowered to enter into legally binding contracts with other enterprises. It may be sued in court and made to pay damages for nonfulfillment of a contract. All transactions entered into by a plant are measured in money terms as well as in units of physical product. The over-all success of a plant or enterprise is judged in terms of its ability to fulfill or overfulfill its production goals and to lower its material and money costs. The legal fiction of the independence of each enterprise is maintained, though each such enterprise is purely a creature of the state. The transactions in which it engages with other state-owned enterprises are really in the nature of bookkeeping transactions.[18]

It is clear from the above that a Soviet enterprise resembles in some respects an ordinary commercial production unit in our society. An American company, like its Russian counterpart, buys and sells; has only a limited amount of resources with which to work; is legally responsible for observance of contracts; may borrow from the banks for additional working capital needs; and so on. But there are also important differences. A Soviet plant director, for example, cannot, in general, sell any important part of his fixed capital—a building, a machine, or the like —without specific instructions or permission from higher authorities. He may not sell at prices other than those set by his superiors, even if selling at those prices requires him to take a loss. He is not expected to adjust his production so as to emphasize the output of most profitable items and minimize the output of the least profitable items. Instead, he is required to produce an assortment of goods in the quantity and quality called for by his plan. From time to time the Soviet press complains that directors of enterprises in the USSR have violated these prohibitions, i.e., have sold items of fixed capital or adjusted their production so as to maximize profit in violation of the plan. Persons guilty of such offenses are liable to dismissal or more severe punishment, including imprisonment.[19]

In his direction of everyday activity, the enterprise head is very

[18] A. V. Venediktov, *Gosudarstvennaya Sotsialisticheskaya Sobstvennost*, pp. 513–16. Moscow-Leningrad: 1948.

[19] Some interesting examples of cases where Soviet plant directors have attempted to act like the owners of capitalist enterprises by selling items of fixed capital are given in *ibid.*, pp. 405–08.

severely limited. The prices he may charge; the unit expenditure of materials, fuel, electric power; the total number of workers he may employ; the total amount of payroll he may pay out; and other key facets of the economic environment are set for him by higher authorities, and he must stay within those limits. Usually he is not responsible for buying the equipment and materials he needs, or for the sale of the commodities he produces, all these important functions being performed by organs of the ministry or chief administration superior to him. All these restrictions limit most seriously his area of discretion and the flexibility with which he can use the resources put at his command for productive purposes.[20]

The need to give enterprise directors greater powers, so that they may have more flexibility in their operations and more opportunities to exercise their initiative has been recognized by the Soviet government. Thus, in 1940, *Pravda* published a letter by four Leningrad plant managers complaining of the restrictions put on them that prevented them from using their resources to best advantage.[21] *Pravda* and other periodicals responded sympathetically to these complaints and denounced the excessively strict control exercised by chief administrations and ministries over subordinate bodies. The Soviet government and Stalin himself have complained about the excessive instability of directors and engineers, who have often been shifted from post to post before they could really get started running their enterprises.[22] Presumably progress has been achieved in giving these supervisory enterprise officials more power and greater stability in their positions. Yet it is significant that in May 1950 a Leningrad factory director still found it necessary to complain in these terms:

> . . . It is impossible to evade the question of the rights of the director, which has long been a sore point. The existing control by ministries and chief administrations now binds enterprise directors hand and foot. The director's activities are bounded by all kinds of limitations, often contradictory ones. He does not have the right to strengthen one part of the work at the expense of another. He must strictly maintain the official staff table of organization, which is long since obsolete and by its very nature is distinguished by its inertia, failing to correspond to the

[20] Bienstock, Schwarz, and Yugow, *op. cit.*, pp. 9, 10.
[21] *Pravda*, September 10, 1940.
[22] Bienstock, Schwarz, and Yugow, *op. cit.*, p. 11.

> dialectical character of production, which is always changing and putting forward new requirements. The director may not deviate by an iota from the general sum of wages and even within its limits he may not reward, for example, the most talented constructors or technologists.[23]

Another important means of control over the activities of the manager of an enterprise or higher organ in the industrial hierarchy is the so-called "control by the ruble" exercised by the Soviet banking system. All enterprises are compelled to have accounts in the State Bank, and virtually all short-term credit available to them comes from this source alone. In the case of a purchase or a sale by an enterprise or other production unit, the financial transaction is handled by the State Bank. The bank credits the account of the seller and debits the account of the purchaser after the purchaser has accepted the goods or otherwise given specific authority for payment.

Short-term credit is extended to an enterprise only for strictly determined goals, usually set down in advance by the enterprise's credit and financial plan. These objectives are primarily the financing of goods in transit, financing seasonal processes of production, and financing the accumulation of seasonal reserves of raw materials, fuel, finished products, and so on. Loans are usually made for three-month periods, and interest is paid on them. Credit is extended outside that provided for in an enterprise's financial plan in the event of emergencies creating unforeseen credit needs. Banks also supervise strictly the number of workers employed by individual enterprises and the payment of wages. In general, the banking system acts as the state's financial overseer, insuring that financial discipline is maintained by a plant. This includes seeing to it that the plant's expenditures are kept within its plan and making sure that it meets its obligations to other plants in other parts of the economy. The fact that enterprises are forbidden to make settlements of any significant size between each other by means of cash payments helps a good deal in assuring the adequacy of this bank control of financial discipline.[24]

The Leningrad factory director quoted above on the limitations of directors' powers complained at the same time about the mechanistic,

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[23] *Leningradskaya Pravda*, May 12, 1950.

[24] *Finansy SSSR Za XXX Let*, pp. 119–20. Moscow: 1947. Arnold, *Banks, Credit, and Money in Soviet Russia*, pp. 375–79. Bienstock, Schwarz, and Yugow, *op. cit.*, pp. 89–90.

bureaucratic way in which the State Bank controlled enterprises' funds. An enterprise can fulfill or overfulfill its production plans, yet it may fall into serious financial difficulties and have trouble buying raw materials or meeting its bills because its customers are delinquent in their payments. In such cases, he added, bank officials should take account of the peculiarities of the situation rather than operating purely on the basis of the financial picture presented by the enterprise's bank account.

The other side of the picture in the controversies between enterprise directors and their superiors or controllers is often presented by complaints in the Soviet press. It is not unusual, for example, to read denunciations of plant managers who regard themselves as the "boss" of their establishment and who refuse to take advice or suggestions from any source, even the local Communist Party group. Many managers, apparently, also care about little but meeting their production goals and are indifferent as to how they achieve this end. In many branches of Soviet industry it is apparently common practice each month to work at a leisurely tempo during the first ten days, speed up a bit in the middle of the month, and then work frantically in the last ten days to meet the month's output objective.[25]

Purchase and Sale

Purchases and sales of industrial commodities are handled through a complex set of organizations directed by an annual distribution plan prepared by the State Planning Committee and approved by the Council of Ministers. The organ of procurement for each ministry is usually a Chief Administration of Supply (*Glavsnab*), which has regional offices and local agencies. There are also supply divisions in individual enterprises. The chief organ of sale in each ministry is usually the Chief Administration for Sale of Products (*Glavsbyt*). This body usually also has local offices and affiliates that work with the sales divisions of individual enterprises. In general, the Chief Administrations of Supply and Sale have primary responsibility for purchasing or selling the commodities required or produced by the plants subordinate to them.

The activities of these organizations are particularly important with regard to the most scarce commodities, the so-called "funded" commodities and "quota" commodities. Funded commodities are not sold

[25] Cf. the typical complaints in *Moskovskaya Pravda*, August 3, 1950 and *Planovoye Khozyaistvo*, No. 4 (1950), p. 88.

by their producers directly, but are distributed by direct orders of the central government under strict allocation. These allocations specify the amount of each such commodity to be supplied each particular user. Such strict allocation is deemed necessary because of the great scarcity and importance of these funded commodities. Quota commodities are supplied by the ministries producing them to any individual user, provided that the quota allocated to the user's industry or area in the procurement plan has not all been used up. The third major group of commodities brought by Soviet plants are obtained by the so-called "decentralized" purchases. These are largely agricultural raw materials and products of local industrial plants, such as building materials. They are bought locally throughout the country by the local offices of Chief Administrations of Supply, as well as by the purchasing officers of individual enterprises.

The Chief Administration for Supply or Sales of each ministry exercises rigid control over the enterprises and offices subordinate to it and keeps detailed accounts of their activities. That these organs do not operate with maximum efficiency is suggested by the frequent complaints in the Soviet press regarding the proliferation of needless procurement and sales agencies throughout the country. These apparently often duplicate each other's efforts and, striving to justify their existence in any way, sometimes go far beyond the activities nominally allocated to them by their home organizations.[26]

Despite the great abundance of organizations devoted to arranging for the flow of materials and parts, complaints in the Soviet press suggest that the industrial supply system does not operate satisfactorily. In the summer of 1950, the central press carried articles denouncing the fact that parts for plants in the Urals, for example, are obtained from supply sources in all parts of the country and have to be moved great distances. Failure to integrate production of parts and raw materials properly with the work of assembly plants results in work interruptions or the necessity of resorting to airplane delivery to keep plants operating. On May 10, 1950, *Moskovskaya Pravda* denounced the poor organization for consumer-goods plants in and around Moscow. It revealed that a class of unofficial middlemen had sprung up. These make a living, apparently, by searching out plants that have surpluses and deficits of different ma-

[26] Bienstock, Schwarz and Yugow, *op. cit.*, pp. 58–65.

terials and arranging barter deals among them, receiving fees or commissions for their work. Some of these deals are reported to be quite complicated, requiring exchanges among four or five different plants at one time. All this is quite illegal, but is apparently resorted to by enterprise managers because of the failure of conventional supply channels to meet their needs. These deficiencies should not be overestimated, of course; much of the supply mechanism does operate satisfactorily. Nevertheless, these and similar complaints indicate that far from all problems have been solved in this important area of industrial operation.

The Industrial Price System

In a free-enterprise economy, prices are sensitive barometers of supply and demand, changing in response to bids and offers on the market and also in response to more general factors, such as the supply of money. They are among the primary determinants of decisions by producers and consumers. In the Soviet economy, prices have played a secondary role, and the basic decisions embodied in economic plans have often been based on other considerations, such as the government's desire to attain a given level of production or the physical availability of different raw materials. Nevertheless, within the circumscribed area in which industrial managers or consumers are free to make decisions, prices play an important role. The enterprise director is expected to produce at lowest cost and make maximum profit consistent with the plan; and where he has freedom of choice he will seek to buy at the lowest price and sell at the highest one.

To the extent that prices do not reflect underlying demand and supply conditions, they tend to produce changes that worsen a given situation. Thus in the postwar period immediately after 1945, petroleum was in very short supply in the USSR. In a freely competitive economy this would have resulted in a price rise to the point where demand was reduced to the available supply. This apparently did not happen in the USSR, and the Soviet government was obliged to apply other pressures to induce enterprises of all types to convert from petroleum to other fuels and to exercise maximal economy in utilizing gasoline, lubricating oils, and other petroleum products. Moreover, apparently, the price pattern before 1949 was such as to encourage overproduction of some commodities in excess of planned quantities and underproduction of

others, as unscrupulous enterprise directors sought to maximize their profits by producing the most advantageous commodities in terms of cost-price relationships. Complaints appeared frequently in the Soviet press that enterprises were violating their orders regarding the assortment and relative proportions of different items in their output, although exceeding their production plan in terms of the value of total production.

For planning purposes, Soviet enterprises and other organizations used three different sets of prices before January 1, 1949. These were the constant 1926–27 prices, officially fixed wholesale prices, and so-called current planning prices. The character and deficiencies of 1926–27 prices have been discussed earlier. The fixed wholesale prices are those at which goods are actually bought and sold between enterprises. The current planning prices seem to be closely linked with the wholesale prices and would perhaps be the same except for state subsidies. They are used in planning the volume of investment in the national economy.[27]

The utilization of these different sets of prices introduced difficulties in planning work, both because of the deficiencies of the 1926–27 quotations and because of the significant differences in the relative proportions of the prices for different commodities from one set of prices to another. Thus (to take an example from the petroleum industry), in terms of 1926–27 prices, petroleum coke of the second grade was more than seven times as expensive as fuel oil. In terms of 1948 wholesale prices, petroleum coke of the second grade was only little more than twice as expensive as fuel oil. In terms of the third set of 1948 prices—labeled "new corrected prices"—this grade of coke was only about two thirds as expensive as fuel oil![28] Such discrepancies must undoubtedly have resulted in much confusion before planning was shifted entirely to a current wholesale price basis, beginning in 1949.

For our study of Soviet industrial organization and operation, the most important prices are those actually employed in transactions, the wholesale prices. These are set on the following basis: The government estimates total planned cost, i.e., the costs of raw materials, wages, and other items, set at the level desired by the state. To this is added the

[27] M. C. Kaser, "Soviet Planning and the Price Mechanism," *Economic Journal*, March 1950, pp. 84–86.

[28] *Ibid.*, p. 88n.

planned profit allocated to that firm, whatever it may be. Finally, where applicable, there is added the turnover tax (a sales tax applied to many commodities). The sum of planned costs, planned profit, and turnover tax, if any, is the final price. It will be noted that the planned costs set need have no relation to the actual costs of a given plant. Planned costs may even be uniform for all plants in a given branch of industry, though these plants may have sharply different actual costs. The function of a plant manager may be defined in part as the maximization of profit from his sales at government fixed prices by lowering his costs as far below the planned costs as possible. It is only in this sense that maximization of profit is a primary goal of Soviet industrial management. This is obviously a much more limited sense than that in which the same notion of profit maximization is used in our own and other capitalist societies.[29]

Data published in the June 1950 issue of *Voprosy Ekonomiki* shed important light on the difficulties facing Soviet price fixers because of the great variations in costs among different plants producing the same product. In the third quarter of 1949, for example, the actual cost of producing pig iron was 70 per cent greater in Ukrainian metallurgical plants than at Magnitogorsk. Similarly in the case of petroleum the cost of obtaining one ton of petroleum from Baku in 1941 was 16.6 rubles. At the same time in the Syzran oil field the equivalent cost was 39.7 rubles, more than twice as much. In the case of coal, data for 1940 show that the cost of production in the eastern regions of the USSR was 58–71 per cent less than the average cost for the entire country. The cost differential was even wider when comparison was made between the low cost eastern areas and the very high cost Donbas region. These prewar differentials were apparently broadened in the postwar period. To meet this problem of sharply differing costs, Soviet planners have apparently set markedly different prices for similar products at least in some cases. Thus in 1940 the wholesale price of a ton of coke made from Kuznetsk coal was 47 rubles 80 kopeks, while Donets coke was priced at 67 rubles per ton. This differential has apparently been preserved as late as 1950.

Soviet planners consider that the power of fixing prices is one of the most important weapons in their hands, permitting them to stimulate

[29] *Planovoye Khozyaistvo*, No. 6 (1945), p. 60.

attainment of the objectives of maximum production at constantly decreasing costs. By reducing planned costs they apply pressure on enterprise directors to lower the actual costs of production in order to make a profit. Moreover, the Soviet government has sometimes adjusted prices in order to stimulate the growth of various parts of the economy. Thus, in the early 1930's the government maintained extremely low prices for coal, wood, ores, metals, and a number of other products. These low prices were intended to make possible the rapid development of the machinery industries buying these raw materials on which prices were kept down below cost. The losses sustained by the industries whose prices were thus kept down were made up through direct subsidies from the government budget. As the machinery industries succeeded in reducing their own costs substantially, so that they could begin to make a profit, the government, beginning in 1936, adjusted prices of raw materials and other products upward so as to bring them more closely into line with their actual costs. The objective throughout, however, was to maintain a price structure that would stimulate growth of production. Once this growth of production had been achieved, prices began to be brought into line with costs, in order to encourage greater efficiency and economy in the use of resources.[30] It is evident that sometimes the Soviet government plans prices so as actually to make what we may term a planned loss, i.e., it deliberately orders goods sold at a net price below their cost of production. The rate of profit or loss planned for different industries or products may vary widely, the available evidence indicates. Thus, in 1937 it was planned for the oil industry to make over 27 per cent profit, and for the cement industry to lose more than 7 per cent, other branches of heavy industry having profits or losses in between the two.

Rates of profit on individual commodities also vary widely. Thus, in early 1938, spare parts for autos were bringing the automobile industry about 39 per cent profit, while spare parts for tractors were bringing the tractor industry a profit in excess of 150 per cent. Rubber shoes were bringing in an average profit of about 200 per cent, but auto tires were being sold at an average loss of 30 per cent. Some farm machines were sold for 25 per cent over cost; others were sold at a loss. In the cotton textile industry, some products were sold for profits of 20 to 30

[30] *Planovoye Khozyaistvo,* No. 10 (1938), p. 60; and No. 1 (1939), p. 118.

per cent, while others were sold at losses ranging up to 10 or 15 per cent. A Soviet economist, commenting on these vagaries in the prices and profits set by the Soviet government, urged that economically unjustified differences in profits be eliminated. He did not go so far, however, as to urge that one uniform level of profit be set throughout all state industry, arguing merely that profits be adjusted in each branch to the situation and needs existing there.[31]

During World War II the Soviet government apparently maintained most prices for raw materials, fuel, industrial equipment, and other goods at constant levels, despite the fact that many of these industries suffered increased costs due to the dislocations and changes of wartime. Prices were altered somewhat so as to establish comparatively high profits for some urgently needed goods, such as spare parts and some instruments. In these cases the government established prices at twice the normal rate for deliveries in excess of the plan. Increased prices were also established where it was necessary to stimulate production of products requiring relatively large amounts of labor. In the iron and steel industry, for example, the government established differential profits for different groups of products, based on the laboriousness of their production. On the whole however, the effort was made to keep industrial prices stable or to reduce them, as in the case of war-equipment items, whose output rose tremendously while their costs fell during the conflict.[32]

This policy was apparently continued in the early postwar years. A necessary consequence of it, however, was the fact that many branches of heavy industry lost substantial sums and had to be reimbursed through government subsidy. Not until 1948 did many of these plants begin to become profitable, as government pressure was exerted for lower costs and improved operation under more normal peacetime conditions. On January 1, 1949, a new price system was put into effect for a number of branches of heavy industry. This provided increases in the wholesale prices of metals, fuel, electricity, timber, cement, and bricks, as well as in railroad freight rates, in order to help eliminate the losses being suffered and to remove the need for government subsidies. As one Soviet economist explains the matter:

[31] *Ibid.*, No. 10 (1938), pp. 57–64.
[32] *Ibid.*, No. 6 (1945), pp. 61, 62, 67.

> The system of government subsidies which was necessary in the years of the patriotic war and in the conditions of postwar reconstruction of the economy, became a hindrance to the path of further development of the national economy. It destroyed the basis of economic accountability--the coincidence of expenditures and the results of production, the guaranteeing of expenditures through the means of enterprises themselves. The system of government subsidies tends to make enterprises live from government budgetary subsidies, it weakens the stimulus to struggle for lower costs, and it contradicts the task of strengthening the Soviet ruble.[33]

In the new prices set in 1949, account was apparently taken of the disproportions between prices of different commodities and their relative cost, supply, and demand situations. This is suggested by a comment in *Ugol*, the coal industry journal: "The new prices have been fixed to reflect grades and quality. . . . These differences will make sorting work worth while and make the coal industry directly interested in supplying the national economy with those types and grades it most needs."[34]

At the beginning of 1950 general reductions were announced in wholesale prices for metals, machines and equipment, chemicals, electric power, lumber materials, and paper; and in railroad freight rates.[35] It will be noted that this list excludes fuel, cement and bricks, items on which prices were raised at the beginning of 1949. The list does include machines and equipment, major categories of commodities that went unmentioned in the list of 1949 price increases. On July 1, 1950, prices for building materials and construction equipment, and freight rates on these commodities, were lowered in a government move aimed at reducing construction costs by 25 per cent.[36]

The frequency with which wholesale prices of many industrial commodities were changed in 1949–1950 is in sharp contrast with the great rigidity and infrequent changes of prices in the two preceding decades. The more recent practice suggests that the experience of Soviet planners has impressed them with the importance of a meaningful price system as an aid in carrying out their economic plans and securing most efficient utilization of resources. But even the apparently changed policy since 1949 leaves Soviet wholesale prices far more rigid than the corre-

[33] *Voprosy Ekonomiki*, No. 8 (1948), p. 31.
[34] Quoted by Kaser, *op. cit.*, p. 90.
[35] *Pravda*, April 27, 1950.
[36] *Pravda*, June 14, 1950.

sponding quotations in a free-enterprise economy. Moreover the accuracy with which Soviet planners can adjust prices to supply and demand conditions is open to question. The question cannot be answered because of the almost complete secrecy surrounding actual Soviet price quotations. The new Soviet practice is apparently in line with the ideas of economic theorists in the non-Soviet world, who have suggested that in socialist economies prices could be used as guides to production if planning authorities changed them periodically, lowering them where supply exceeded demand and raising them where demand exceeded supply.[37] But unlike these theorists, Soviet planners still do not put their main reliance upon prices, using them only as important secondary aids and stimuli to realization of the specific production goals ordered in economic plans.

The present philosophy behind Soviet industrial price policy is summarized by this statement of the principles on which the price changes of 1949 and 1950 were based:

> *a.* The new wholesale prices must guarantee that enterprises will work without losses. They must give practical possibilities for doing without subsidies and guarantee the receipt of profits according to plan.
>
> *b.* Prices must be established so as to stimulate increased output of deficit or especially necessary products and simultaneously limit their consumption in production.
>
> *c.* Changes in rates must be directed toward guaranteeing railroad operation without loss, stimulating transport by waterways, combating baseless distant transport of freight, and promoting better utilization of rolling stock.[38]

These principles are obviously at sharp variance with those that inspired the practice of the early 1930's and most of the 1940's.

Profit-Sharing in Industry

Along with coercive controls aimed at securing compliance with its production plans, the government of the USSR also uses incentives, one of the most important of which is a form of profit-sharing known as the Director's Fund.

In both 1939 and 1940, about 60 per cent of all the profits realized

[37] Cf. Lippincott, ed., *On the Economic Theory of Socialism, passim.*

[38] *Izvestia Akademii Nauk SSSR Otdeleniye Ekonomiki i Prava,* No. 3 (1950), p. 170.

by Soviet industry were returned to the Soviet government as part of its budgetary income.[39] These government receipts from industrial profits were mingled with the general incomes of the Soviet treasury and then expended for the various purposes provided in the budget, including the expansion of fixed and working capital of Soviet industry. The profit remaining in industry went for a number of purposes. Part of it went for the expansion of capital investment and working capital within the enterprises and ministries that had realized the profits. In addition, however, part of this profit, then and at present, goes to the Director's Fund.

The Director's Fund was inaugurated in 1936; suspended during World War II; and revived after 1945. In the early years after the war, industries were divided into three groups, by regulations governing contributions to Directors' Funds. One group, comprising mainly consumer-goods industries, formed its Director's Fund by contributions to it of 2 per cent of planned profits and 75 per cent of profits in excess of plan. The other two groups contributed 4 per cent, or 10 per cent, of planned profits and 50 per cent, or 25 per cent, of profits above plan, respectively. In 1950 the Soviet press revealed that a new set of percentages was in effect for the Director's Fund. Coal, metal mining, petroleum, metallurgical production, and other labor-intensive industries allocate 5 per cent of their planned profit and 45 per cent of their unplanned profit to this Fund. A second group of industries, including machinery and textiles, allocates 2 per cent of planned profits and 30 per cent of unplanned profits. Most consumer goods industries put in 1 per cent and 15 per cent, respectively.[40]

The Director's Fund is expended in the following ways: Fifty per cent of it must be spent for expanding production and for constructing and repairing housing for the plant's workers in amounts above the planned capital investment. The rest is spent for the improvement of living conditions of workers, for bonuses to outstanding employees, for financing vacations and trips for outstanding workers, and for related uses.

The Director's Fund is primarily a means of sharing any excess profits or savings with those responsible for the achievement of these above-

[39] A. K. Suchkov, ed., *Dokhody Gosudarstvennogo Byudzheta SSSR*, p. 86. Moscow: Gosplanizdat, 1945.

[40] Venediktov, *op. cit.*, p. 519. Gsovski, *op. cit.*, vol. I, pp. 385–87. *Trud*, May 26, 1950. *Trud*, Sept. 16, 1950.

plan financial gains. In this way the Soviet government seeks to increase the personal interest of workers and managers in the individual productive units to attain greater reductions in costs than originally envisaged by their plans.

Cooperative Industry

Three main types of cooperative industry exist in the USSR: industrial cooperatives, consisting of artisans and handicraft workers; cooperatives of invalids, consisting of disabled war veterans and other handicapped persons; and the subordinate industrial cooperatives of some consumer cooperatives. In addition there are industrial cooperatives ancillary to hunting and fishing cooperatives, which produce commodities needed in these activities. There are also industrial cooperatives on some collective farms, composed of members of those farms. The industrial cooperatives first listed above are by far the most important group, producing over 80 per cent of all cooperative industrial production.[41]

These cooperatives produce a wide variety of consumer goods. Furniture, kitchen equipment, boots and shoes, barrels and baskets, textiles, toys, leather goods, artistic wood and iron work, pottery, and similar goods are their chief products. During World War II, industrial cooperatives, like other parts of the Soviet production apparatus, concentrated primarily on the output of goods required by the war effort. The number of workers employed in these cooperatives was about two million in 1931 and about a million and a half at the end of the 1930's.[42]

Cooperative industry is considered a form of socialist industry in the USSR because all means of production are owned in common by the members, all of whom participate in the joint enterprise. A Soviet citizen may join and work in an industrial cooperative by paying admission dues and buying a share of the enterprise. These dues and share payments go into the capital fund used to provide the fixed and working capital of the organization. The cooperative is governed by a charter that defines its activities and organization. The highest authority in the organization is the general meeting of members, who are also the workers. The general meeting elects an administration, which directs

[41] Arakelian, *op. cit.*, p. 111.

[42] One of the most comprehensive descriptions of Soviet industrial cooperatives is given in Sidney and Beatrice Webb, *Soviet Communism: A New Civilization?* vol. I, pp. 219–33. New York: Scribner's, 1936.

the enterprise between general meetings. Cooperative workers are paid wages, which are their primary source of income. In 1946 a government decree permitted distribution of up to 20 per cent of a cooperative's profits among members. If there are losses, these are taken out of the members' share payments.[43]

These cooperatives operate in a fashion generally similar to that of the state-owned industrial plants. Their work is governed by the master plan drawn up for the nation as a whole by the State Planning Committee. Administratively the cooperatives of the USSR are under a special Chief Administration of Producers and Consumers Cooperatives attached to the Council of Ministers. In the different republics and provinces of the USSR, the cooperatives of each local area are subordinate to the central authorities of that area. The Fourth Five-Year Plan provided that the production of industrial cooperatives in each republic of the Soviet Union be governed by the Council of Ministers of that republic, who decide what share of the cooperative output should remain within the republic for sale there, and what share could be sent outside to other republics of the USSR.[44]

Industrial cooperatives purchase equipment and raw materials from state enterprises and are also expected to meet as much of their material needs as possible through local purchases. Waste products of state industry are sold to them for further processing and sale. They can receive short- and long-term loans from government banks to finance their activities. In November 1946 the Soviet government adopted a decree to stimulate cooperative production of consumer goods, ordering that superfluous machinery and tools of state enterprises be turned over to them and instituting some reductions in taxes on their income. The same decree ordered the expansion of both the number of producers' cooperatives and of the number of stores through which they sell their products to the state. In January 1948 industrial cooperatives, together with invalids' cooperatives, operated 3,288 stores; 12,717 stalls, kiosks, and the like; 1,336 restaurants; and 3,236 refreshment stands. These had a total retail sales volume of 7,650,000,000 rubles.[45]

Cooperatives of invalids were first set up legally in 1921 to permit

[43] Arakelian, *op. cit.*, p. 114. Schwartz, *Russia's Postwar Economy*, p. 44.
[44] *Planovoye Khozyaistvo*, No. 4 (1948), p. 50.
[45] Arakelian, *op. cit.*, pp. 119–20. *Planovoye Khozyaistvo*, No. 4 (1948), p. 52.

the utilization of disabled persons in productive activity. Their number expanded over the years, increasing greatly as a result of the large numbers incapacitated in World War II. In 1946, the RSFSR alone had 2,500 such cooperatives, employing 245,000 workers. These cooperatives are active in providing repair services, such as for sewing machines, typewriters, watches, as well as in direct commodity production. Ministries of Social Security of different Soviet republics and their local agencies direct and aid these cooperatives. Local cooperatives are combined in republic, provincial, and city unions. The administration of each cooperative is elected by the general meeting of members, while the heads of republican, provincial, and city cooperative unions are elected by representatives of local cooperatives.[46]

Though their organizational form differs from that of state-owned industrial enterprises, the industrial cooperatives and newer invalids' cooperatives are both completely under the control of the state. They operate only in accord with the directives of the state. At times, however, the government has been sharply concerned because of the efforts of various individuals to engage in private entrepreneurial production and trade, using the mask of cooperatives to hide their profit-seeking activities, which are punishable under Soviet law.[47]

[46] Arakelian, *op. cit.*, p. 117.
[47] *Planovoye Khozyaistvo*, No. 4 (1948), p. 58.

CHAPTER VII

THE GROWTH OF INDUSTRIAL PRODUCTION

THE MOST SPECTACULAR aspect of Soviet economic development has undoubtedly been the growth of industrial production. Starting from the extremely low level to which industry had been reduced by the civil war and the confusion and disorganization of 1917–21, the USSR regained and exceeded the 1913 volume of industrial output by 1928, the beginning of the First Five-Year Plan. Soviet official statistics claim that gross output of industry grew 650 per cent between 1928 and 1940, production of heavy industrial goods increasing some ten times and production of consumer goods four times during this period. During World War II German occupation of the important western areas of the USSR in 1941 and 1942 produced at first a very sharp decline in industrial output. But in the later years of the war production rose greatly, as relocated factories resumed work in the unoccupied eastern regions and new enterprises built during the conflict began to operate. Official Soviet statements indicate that by 1945 the Soviet index of gross output of industry was only slightly below the 1940 mark. The year 1946 apparently saw some decline again, as the result of reconversion of many plants—though far from all—to peacetime production. Thereafter industrial output increased rapidly again. The destruction in the west was repaired. Expansion of old plants and building of new ones continued in the eastern regions, which had never come under occupation. In October 1949, it was officially announced, gross industrial output of the USSR was 50 per cent more than the average monthly level of 1940; and in the preceding month, industry in the formerly occupied western areas had regained the prewar rate of output.[1]

[1] *Pravda*, November 7, 1949.

It was pointed out in Chapter IV that the Soviet measure of the growth of the physical volume of industrial production in terms of 1926–27 prices has been so constructed that it exaggerates this growth. Nevertheless, reference to data or estimates regarding production of individual commodities such as will be given throughout this chapter makes clear certain major conclusions:

1. Soviet industrial production has grown very sharply over most of the years since the Bolshevik revolution. This growth has been made possible by the construction of literally thousands of new factories, power stations, and mines using modern machinery and techniques. The Soviet Union of 1950 had many times the production and the production capacity that it had in 1928 or that Czarist Russia had in 1913. The chief characteristic of Soviet industrial development has been the growth of heavy industry, i.e., the increase in facilities for and output of industrial raw materials, machinery of all kinds, industrial chemicals, electric-power generating and transmission facilities, armaments, transportation equipment, and so on. The factory production of consumer goods has increased appreciably, too, but a major part of this rise has been simply the replacement of manufacture by artisans or in peasant households. It is illustrative of the nature of Soviet industry that manufacture of motor vehicles in the USSR consists primarily of truck production. Passenger-car output is only a relatively small fraction of the whole, a situation the reverse of that in the United States automotive industry.

2. Along with the rise in physical *volume,* the *variety* of goods produced by Soviet industry has increased greatly. Complex machine tools, automatic production machinery, jet airplanes, many types of chemicals, rare metals, and other products never made in the USSR before 1928 or 1930 have been brought into production. Subsequent expansion has made the Soviet Union one of the world's leading producers of many of these new commodities. Much of Soviet industrial development has been activated by the desire to build up the nation's military strength through achieving maximum self-sufficiency as well as maximum output. Hence, frequently, the relatively high cost of domestic manufacture compared to the price of imported commodities has been ignored. The development of a synthetic rubber industry in the USSR in the early 1930's—a decade before World War II forced the United States to construct this industry—is indicative of the length to which Soviet leaders have gone to attain their objective of autarky.

3. The Soviet Union's industry has been technologically transformed, so that by 1950 it was among the most advanced in the world, though probably still far behind the technological level of the United States. Manufacturing and mining processes employed in the USSR in 1928 were generally primitive and backward. Much of the existing industrial equipment was old, obsolete, and in poor shape. In the years since that time modern techniques and processes of all kinds have been introduced on a wide scale, while obsolete equipment has been replaced by far superior machinery. This technological progress has not proceeded at an even rate in all industries, and even by 1950 not all of Soviet backwardness had been eliminated. But the distance traveled in the two decades following 1928 is indicated by the fact that in 1949 the Soviet Union was able to achieve an atomic explosion, apparently using plutonium, thus duplicating the American feat accomplished first in 1945. True, much of this technological advance has been scored by taking over gains made in other countries—sometimes through purchase or other commercial fashion and sometimes through military or economic espionage—but the evidence suggests strongly that these borrowings have been assimilated by large numbers of workers and technicians who can apply them effectively. Frequently, however, this mechanization has been most uneven, being concentrated mainly on direct production operations. Subsidiary service functions in many plants, including such important work as loading and unloading of products and internal plant transport, are often mechanized only poorly or not at all, requiring large numbers of manual laborers working at low levels of productivity.

4. The geographic distribution of all Soviet industries—manufacturing, mining, electric-power generation, and others—has undergone a most radical change in the past quarter century. In the early years of the Soviet regime, industry was overwhelmingly concentrated in the western areas, particularly in the Ukraine and Moscow and Leningrad provinces. As late as 1930 these three regions together accounted for from 60 to 80 per cent of all Soviet electric power, coal, iron and steel, machinery, iron ore, and basic chemicals. At this time the Western Siberian Territory produced large quantities of none of these commodities. The Urals produced insignificant quantities of electric power, coal, and machinery, and only a quarter or less of all Soviet iron and steel, iron ore, and basic chemicals.[2] The geographical distribution of industrial produc-

[2] *Narodnoye Khozyaistvo SSSR Statistichesky Spravochnik, 1932,* pp. 76–83.

ion did not change drastically during the 1930's. The great bulk of this output continued to be produced in the area west of the Urals, though very striking and most important gains were also made in the Urals, Siberia, and Central Asia. The data in the following table show the change in the distribution of large-scale industrial production between 1913 and 1937.

TABLE 10. Gross Output of Large-Scale Industry in the USSR by Regions, 1913 and 1937.

Region	Output Million 1926–27 Rubles 1913	1937	Per cent of Total Output 1913	1937	Ratio of 1937 to 1913 Output
WESTERN AREAS					
European North	201	1,624	1.8	1.8	8.0
Northwest and Central Regions	5,568	45,343	50.6	49.6	8.1
North Caucasus and Crimea	464	4,736	4.2	5.2	10.2
Ukrainian SSR	2,226	16,152	20.2	17.7	7.2
Belorussian SSR	119	1,733	1.1	1.9	15.4
Volga Region	687	4,809	6.3	5.3	7.0
WESTERN TOTAL ..	9,265	74,397	84.2	81.4	8.1
EASTERN AREAS					
Urals and Western Siberia	675	7,726	6.1	8.5	11.5
Eastern Siberia and Far East	211	2,928	1.9	3.2	13.9
Azerbaidzhan SSR ..	398	2,297	3.6	2.5	5.2
Georgian SSR	53	909	.5	1.0	17.0
Armenian SSR	17	214	.2	.2	12.6
Turkmen SSR	35	264	.3	.3	7.6
Uzbek SSR	284	1,512	2.6	1.7	5.4
Tadzhik SSR	1	157	*	.2	157.0
Kazakh SSR	60	841	.5	.9	14.0
Kirgiz SSR	1.2	139	*	.2	116.0
EASTERN TOTAL ..	1,735.2	16,987	15.8	18.6	9.8

* Less than one-tenth of one per cent.

Source: Adapted from Balzak, *et al.*, *Economic Geography of the USSR*, p. 206.

World War II brought a far more drastic change in the geographic pattern of industrial production. As German forces occupied the area west of the line connecting Leningrad-Moscow-Stalingrad, some 1,300 plants were evacuated eastward. During the war these were put into operation at new locations, while other factories and mines in the east were expanded and new industrial installations were built. When the

western areas were regained by Soviet forces, most factories, mines, and electric-power installations were ruined or damaged. These wartime changes have had long-run as well as short-run effects, for though the western areas' economy has been and is being rehabilitated, further expansion has also taken place in the east, and most of the evacuated plants are remaining there. By late 1949, it may be estimated, almost 80 per cent of the industrial production of the USSR came from the regions east of the line of furthest German penetration during World War II, i.e., roughly east of the Leningrad-Moscow-Stalingrad line. Only about 20 per cent came from the formerly enemy-occupied west.[3] In 1940 the latter area was responsible for about one third of all Soviet industrial production.[4]

But this new relationship must not be misinterpreted. Though precise data are not available, it seems likely that by 1950 well over half of Soviet industrial production came from the European portion of the USSR. The output of the Asiatic regions was clearly well above that of 1940 in absolute and percentage terms, but its relative importance had fallen sharply as compared with 1945.

Capital Investment

The industrial progress achieved under the Soviet regime has been made possible by huge capital investments devoted to building and equipping factories, mines, and other productive installations. Complete data are not available for the entire period since 1928. The published figures that are available are somewhat misleading, since they are in terms of current prices and hence reflect the price inflation that has taken place. In the table below an effort is made to show the growth of industrial capital investment in the 1930's in terms of current prices and in "real" terms. Deflation of the data in current prices has been accomplished by use of an index of construction cost and must be considered as only roughly accurate, since this index may not adequately reflect the changing cost of industrial equipment.

[3] Estimated on the basis of data in *Pravda,* November 7, 1949, taking account of the fact that if the formerly occupied regions of the USSR reached their prewar industrial production in September, 1949, this production amounted to about 3.8 billion rubles; while if the USSR as a whole was 50 per cent over the average 1940 monthly output in October, 1949, total production must have been over 17 billion rubles. Subtraction gives the volume of output in the never-occupied regions.

[4] *Bolshevik,* No. 21 (1946), p. 15.

TABLE 11. Capital Investment in Industry in the USSR 1928–38, in Current Prices and in "Real" Terms.

Year	*Investment in Current Prices* (BILLION RUBLES)	*Index of Cost of Construction* (1929 = 100)	*Investment in "Real" Terms* (BILLION 1929 RUBLES)
1928	1.9	111	1.7
1929	2.6	100	2.6
1930	4.1	98	4.2
1931	7.4	106	7.0
1932	10.4	161	6.5
1933	8.9	187	4.8
1934	10.6	218	4.9
Average for 1934–1938	14.6	294	5.0

Source: Investment in current prices from *Sot. Stroi.*, p. xxxiv and *Sot. Stroi.* (*1933–38*), p. 113. Index of cost of construction from M. Gardner Clark's Ph.D. thesis, *Some Economic Problems of the Soviet Iron and Steel Industry*, p. 49. The figure for the 1934–38 average is estimated on the basis of Clark's 1935 figure, modified in light of his remarks on cost rises in 1936 on page 50.

There is a striking discrepancy between the figures in current prices and those in "real" terms. The former show that the money value of investment in current prices increased more than sevenfold between 1928 and the average of 1934–38. If our deflating index is at all accurate, however, it would seem that the physical volume of resources devoted to industrial investment reached its peak for the period considered in 1931, at a level little more than four times that in 1928. It fell slightly in 1932 and then over the years 1933–38 declined to a stable level less than three times the 1928 volume. The most rapid application of capital to expansion of industry, apparently, took place in 1931 and 1932, years of rationing for urban consumers and of hunger in some major areas of the countryside.

The allocation of industrial capital investment between heavy industry producing means of production and light industry producing consumer goods in the mid-1930's greatly favored the former. Heavy industry received about 83 per cent of the total investment from 1934 to 1938; consumer goods industries only about 17 per cent.[5]

Shaping Industrial Development

In planning industrial development since 1928, Soviet leaders have had to answer a number of key questions, the answers arrived at play-

[5] *Sot. Stroi.* (*1933–38*), p. 113.

ing major roles in shaping the character of this development. What volume of production should be aimed at for each major commodity? What should be the rate of increase in output sought? Where should new plants and new industries be located? How large and how specialized should these new plants be? Put in other terms, the crucial decisions have been those regarding future volume, speed of growth, locational pattern, specialization, and scale of operation. During the rehabilitation period before 1928, the Soviet regime had attempted to restore production to the highest levels attained before World War I. But thereafter they were striking out into new ground, and required other models and experience to guide them.

In all these matters they were profoundly influenced by the economic history of the leading capitalist nations, particularly the United States and Germany. Questions of volume were apparently decided with the aim of reaching and surpassing the total output of key industrial commodities in France, Germany, and England. Later, per capita outputs in some of these countries were regarded as goals for Soviet per capita output. In 1939, at the Eighteenth Congress of the Communist Party, both Stalin and Molotov discussed comparisons of per capita Soviet output with that in other countries, indicating their desire eventually to surpass the highest American per capita output up to that time, that of 1929.[6] On questions of the rapidity with which increases could be achieved, Soviet leaders initially could probably do little more than guess. But as their experience increased and they accumulated basic data for future projections, they could make realistic estimates that were more likely to be attained, at least in the field of heavy industry, to which they were willing to sacrifice the interests of light industry whenever necessary.

In determining the geographical pattern of Soviet industry, the USSR's planners had to take many considerations into account. Some of these were economic. Soviet leaders were aware of the desirability of establishing industry at locations and in locational patterns that would help to minimize production costs. Nearness to raw materials and to markets, availability of labor and transportation, costs of utilizing different sources of the same raw material, these are illustrative of the economic

[6] *The Land of Socialism Today and Tomorrow*, pp. 22, 23, 114–16. Moscow: Foreign Languages Publishing House, 1939. Clark, *Some Economic Problems of the Soviet Iron and Steel Industry*, p. 15.

factors involved. Among the noneconomic considerations taken into account, two seem to have been most influential: the desire to lessen the vulnerability of the USSR's industry to destruction by attack from the west, and the desire to provide additional industry in particularly backward areas, such as Central Asia. In this locational planning, the force of noneconomic factors seems often to have overridden that of the cost considerations, a situation apparently aided by the consistent underestimation of transport costs during much of the 1930's. In particular, much of the development of the Urals and Western Siberia during the 1930's resulted in the construction of plants far from consumer markets. Moreover, the most celebrated feature of this eastern development—the marriage of Magnitogorsk iron ore with Kuznetsk coal as the basis of integrated iron and steel industries at both locations—required large shipments of bulky commodities over a distance of more than 1,300 miles, at high real cost. It is significant that Soviet transport authorities protested against the Magnitogorsk-Kuznetsk combine in the early stages of its planning, but were overruled by the industrial management authorities, who secured subsidies in the form of especially low freight rates for this development.[7]

The disproportions that arose because of the decisions taken may be illustrated by the following comparison of the cost of producing a ton of pig iron in different parts of the USSR, in terms of freight haulage required and actual man days of labor.[8]

Region	*Cost* (TON-KILOMETERS OF FREIGHT HAULAGE)	+	(MAN DAYS)
Ukraine and other Southern Plants	700	+	2–3
Central European USSR	900	+	3½–4
Magnitogorsk and Kuznetsk	4,500	+	2
Urals Charcoal Works	100	+	12

This example represents an extreme case of the results to which underestimation of transport costs led in the early and mid-1930's. It does not fully expose these unfortunate results, however, because it does not take into account the very long hauls required for much of Magnitogorsk and Kuznetsk steel production in order to bring it to consumers. It cannot be entirely unrepresentative, however, for since the later 1930's there has been a violent swing in the other direction. Soviet industrial location

[7] Clark, *op. cit.*, pp. 207–08.
[8] Cited in *ibid.*, pp. 218–19.

policy now apparently takes the minimization of transport requirements as a basic desideratum. Molotov, reporting to the Communist Party Congress in 1939, put this new policy in these terms:

> In keeping with the best interests of the state, industry should be brought nearer to the sources of raw material and the consuming districts. This will help to do away with irrational shipments and shipments carried over inordinate distances. It will also be instrumental in the further advance of the economically less developed districts of the USSR. In the *main economic districts* of the Soviet Union we must secure a comprehensive economic development, which means that in each of these districts we must organize a fuel industry and the production of commodities like cement, plaster of Paris, chemical fertilizer and glass, as well as mass consumption goods of the light and food industries in sufficient quantity to meet the needs of these districts. . . . We must strictly forbid the construction of new plants in Moscow, Leningrad, and a number of other major industrial centers.[9]

In keeping with this policy, the utilization even of poor-quality raw materials—such as the inferior Moscow and Urals coal and the troublesome Kerch iron ore—has been and is being greatly expanded. To the extent that regional self-sufficiency can be attained, of course, the vulnerability of the USSR to industrial disruption from military attack will be lessened, and there will be benefits resulting from the diminution of demands made on railroad transport. A striking example of what has been accomplished along these lines is provided by the Kuznetsk iron and steel combine, once totally dependent on Magnitogorsk iron ore. In 1949 it was meeting 70 per cent of its iron ore requirements by employing locally produced material, though this was acknowledgedly poorer than that of Magnitogorsk. In 1940 the percentage was only 32.6.[10]

It should not be inferred from the above discussion that all Soviet industrial location during the 1930's, before the change in policy, ignored transportation considerations and emphasized development in the east. As Table 10 above has indicated, great development took place in the older industrial regions as well, building on the abundant raw material, labor, and transport resources there. Locational planning resulted from a tug of war between those who favored still more rapid development of the western areas, particularly the Ukraine, than actually occurred and those industrial leaders who wished large amounts of resources di-

[9] *Land of Socialism Today and Tomorrow*, p. 134.
[10] *Pravda*, June 12, 1950.

verted to the Urals, Siberia, the Far East, and Central Asia. The former group's arguments, about 1930, emphasized the force of transport and related factors whose full importance was not taken into account in policy-making until almost a decade later.[11]

With regard to problems of specialization and scale of facilities, the Soviet development during the 1930's was similar to that in the area of location policy. Soviet policymakers tended to base themselves upon American and German experience, but to ignore the significant differences between their situation and that of foreign countries. The USSR was poor in capital and skilled labor compared with the United States and Germany, and also had a much smaller consumer market at the time. Soviet economists and planners at first tended to ignore or underestimate the importance of the law of diminishing returns and to be contemptuous of the "bourgeois" theory of the optimal size of firm or plant. Here, too, underestimation of the importance of transport costs played a significant role.

The result of this attitude was that much of the industrial development during the 1930's took the form of building large-scale and very specialized plants for different products. There was relative neglect of small and medium-sized plants and of plants producing a wide variety of related commodities, such as different types and forms of steel. An extreme example of this policy is the production of rolled-steel wheels for railroads, of which virtually all Soviet production in 1938 was concentrated at one mill in Dneptropetrovsk Province in the Ukraine. From there the wheels had to be shipped to railroads all over the vast expanse of the USSR. Similar lengthy hauls for other products also resulted, helping to intensify the railroad distress, to which locational policy had also contributed. Large specialized plants, appropriate for the United States with its large and rich markets in many areas, were uneconomic under Soviet conditions, where the output of one or two plants of each commodity or small group of commodities had to be shipped all over the country.

Recognition of the mistake made came in 1938. A decree of February 26, 1938, declared that "the biggest shortcoming in planning and construction is gigantomania." The policy of overspecialization was now

[11] Clark, *op. cit.*, pp. 205–07. Cf. also Dobb, *Soviet Economic Development Since 1917*, pp. 386–406, for a fuller discussion of Soviet industrial location policy, from a somewhat different point of view than that adopted here.

blamed on "the enemies of the people, the Trotskyite-Bukharin and bourgeois nationalistic diversionaries and spies." Sometimes the very men who had championed this policy attacked it, after the change of policy, as a mistake born of the application of "the principles of capitalist economy." Only by such vituperation, which would protect the "infallible" Stalin and his colleagues, could a mistake be recognized publicly and a reversal made. The extent of the change in policy was indicated by Molotov in the 1939 speech referred to above:

> Lastly, in the construction of new factories and mills we must prohibit such narrow specialization as would make the whole country dependent upon one special factory for the supply of any given product. Our plans still err in this respect. We must resolutely put an end to this absurd schematism in construction plans.[12]

Military considerations may also have played a part in this policy shift. If the USSR were dependent for the supply of a vital product upon the output of a single plant only, it could be deprived of that commodity by the capture or destruction of one plant, with serious consequences for all users of the particular product involved.

Study of the way in which industrial development took place in the 1930's seems to indicate clearly that over-all planning in that period fell far short of providing proper centralization and coordination of the numerous decisions made. Regional planning was most deficient, leading to irrational location of plants. Many particular people's commissariats and chief administrations made decisions in the light simply of their own departmental interests, ignoring other branches of the economy. The coordination sought was frequently that which would serve the purpose of making the best record for the particular agency involved, even though this might be at the expense of the transport system or of some other economic administration.[13]

It seems clear that Soviet economic development in the 1930's—and more recently as well, though less material is available on which to base judgments—was a frenzied process, in which many costly mistakes were made. The sacrifices imposed on the Soviet people in terms of material deprivation and personal discomfort were huge. Yet it must be realized

[12] *Land of Socialism Today and Tomorrow*, p. 134. The preceding discussion of specialization and scale has been based on Clark, *op. cit.*, Part II, pp. 56–114. Though this discussion by Clark deals specifically only with the iron and steel industry, the principles discussed are general, and applied to other branches of heavy industry developed during the period.

[13] *Planovoye Khozyaistvo*, No. 1 (1939), p. 62; and No. 11 (1940), pp. 42–44.

that those who directed this development had enormous human and material resources with which to work. Even employing them at far less than 100 per cent efficiency, much could be and was accomplished. In the material that follows, we shall trace briefly the development of the more important Soviet industries, in order to obtain a clearer and more detailed picture of the progress achieved. The specific industries we shall consider are those producing raw materials—electric power, coal, iron and steel, nonferrous metals, and chemicals—and machinery, armaments, and consumer goods.

Coal

Soviet coal production is by far the most important single component of the USSR's fuel supplies. Its increasingly predominant position among Soviet fuels is indicated in Table 12.

TABLE 12. Relative Importance of Major Fuels in the Centralized Consumption of the Soviet Union.

Fuel	*1932*	*1940* (PERCENTAGE)	*1950 Goal*
Coal	59.4	71.9	75.6
Wood	19.9	13.9	9.7
Peat	3.7	6.2	6.2
Oil Fuel	17.0	7.9	6.3
Natural Gas	—	—	1.4
Shale	—	.1	.8

Source: *Planovoye Khozyaistvo*, No. 2 (*1946*), p. 101.

The over-all growth of Soviet coal production is indicated by the following data:[14]

Year	*Production* (MILLION METRIC TONS)
1913	29.1
1920	7.2*
1927–28	35.5
1934	93.9
1940	166.0
1945	149.3
1949	236.9
1950 goal	250.0

* Census industry

[14] Data for 1913, 1927–28, and 1934 from *Sot. Stroi.*, pp. 100–01. Data for 1920 from *Narodnoye Khozyaistvo SSSR v. Tsifrakh*, p. 67. Data for 1940 and for 1950 goal from the Fourth Five-Year Plan. Figure for 1945 calculated from data in *Trud*, March 20, 1949, and annual government economic reports for 1948, 1947, and 1946. Estimate for 1949 derived on the basis of *Trud*, March 20, 1949, and 1949 economic report.

In 1913 the Donets Basin produced almost all the coal of the area that is now the USSR, about 25 million tons of the 29.1 million ton total. During the Czarist era and the early years of the Soviet regime, therefore, Donbas coal had to be shipped over long distances to most of the industrial areas of the country, even as far as Turkestan in Central Asia, at great expense.[15] The opening up of new coal fields and the expansion of the Donbas and other old fields were therefore an indis-

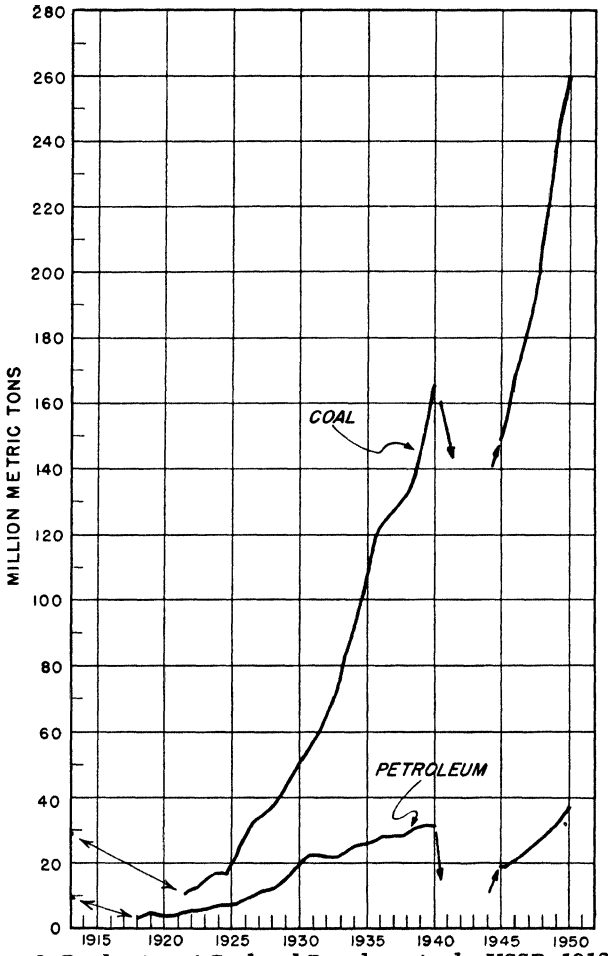


FIGURE 2. *Production of Coal and Petroleum in the USSR, 1913–40.*
Sources: Official Soviet publications and author's estimates.

[15] J. S. Gregory and D. W. Shave, *The USSR: A Geographical Survey*, p. 288. London: Harrap, 1944.

pensable prerequisite for the general growth of industry and for the development of new industry in the eastern regions. Fortunately for the USSR, high-quality coal deposits were available in the Kuznetsk Basin in Western Siberia, in the Karaganda Basin in Kazakhstan, and in other places. The large brown-coal deposits of the Moscow Basin are rather poor because of their low heat and high ash content per unit weight, but this area too has been rapidly developed because of its nearness to many of the major coal-consuming plants and power stations of the USSR.

During the Fourth Five-Year Plan, the coal industry made very substantial progress. The Moscow coal basin achieved its 1950 goal in 1948 and then got a new program for still greater expansion.[16] The Donets Basin, which produced only about half its prewar volume of coal in 1945, exceeded 80 per cent of the 1940 output in 1948,[17] and in the fourth quarter of 1949 reached the average 1940 quarterly production.[18] The Karaganda Basin's coal output in 1949 was 45 per cent over that of 1945 and equaled the desired rate for 1950 by July 1949.[19] G. M. Malenkov reported in March 1950 that in the last quarter of 1949 the Ministry of Coal Industry's mines had reached the level planned for 1950.[20] Since this ministry produces the overwhelming amount of coal mined in the USSR, this would indicate that output in the last quarter of 1949 was equal roughly to the average level planned for 1950, i.e., 62,500,000 metric tons, as compared with the 41,500,000 metric tons produced quarterly on the average in 1950.

The expansion of coal production in major areas is indicated in Table 13.

The rapid rise of Urals coal production during the war is one of the most striking features of Table 13. This rise was undoubtedly motivated in part by the desire to restrict the load on the transport system that would otherwise have resulted if the sharply expanded coal needs of Urals industry, particularly for armaments and metallurgy, had had to be met from Kuznetsk and Karaganda. In the late 1930's coal production in the Urals met only half of that area's needs.[21] Even after the

[16] *Moskovsky Bolshevik*, February 9, 1950.
[17] *Planovoye Khozyaistvo*, No. 1 (1949), p. 56.
[18] *Pravda*, March 10, 1950.
[19] *Ibid.*, April 30, 1950.
[20] *Ibid.*, March 10, 1950.
[21] Balzak, *et al.*, *Economic Geography of the USSR*, p. 214.

TABLE 13. Growth of Coal Production in Major Soviet Coal Basins, 1913–50.

Year	*Donbas*	*Kuznetsk*	*Moscow*	*Urals**	*Karaganda*	*Others*	*Total*
1913	25.3	.8	.3	1.2	—	1.5	29.1
1921–22	7.3	.9	.6	1.0	—	1.5	11.3
1929	31.0	3.0	1.3	2.1	—	2.7	40.1
1934	61.5	11.5	4.6	5.5	1.8	9.0	93.9
1940	85.5	19.0†	10.2†	12.0	6.5†	32.8†	166.0
1945	36.7	27.0†	18.0†	26.1†	11.0†	30.5†	149.3
1949	80.0†	‡	26.5†	‡	15.9†	‡	236.9
1950 goal	88.0	31.9†	24.6†	31.6†	15.1†	58.8†	250.0

* Includes Kizel, Chelyabinsk, and other Ural coal fields.
† Estimated.
‡ Data unavailable.

Sources: 1913–1934–*Sot. Stroi.*, pp. 100–01, and *Sot. Stroi.* (*1933–38*), p. 47; 1940–1950–Firm data and estimates based on data in Fourth Five-Year Plan, both general and republican sections; *Planovoye Khozyaistvo*, No. 2 (1946); *Izvestia*, May 23, 1946, and Jan. 1, 1947; N. A. Voznesensky, *The Economy of the USSR During World War II*, pp. 26-27; *Trud*, March 20, 1949; *Moskovsky Bolshevik*, Feb. 9, 1950; *Pravda*, Dec. 28, 1949, and April 30, 1950; *Izvestia*, May 19, 1950; Schwartz, *Russia's Postwar Economy*, p. 30.

expansion in Urals coal production during the 1940's, Magnitogorsk still depended heavily upon Kuznetsk and Karaganda coal in 1949.[22] Similar transport considerations are undoubtedly behind the very rapid development of the Moscow coal basin, situated in the heart of the Central Industrial Region. This region imported 15,000,000 tons of Donbas coal annually in the late 1930's. The expansion of Moscow production during World War II and the first years thereafter was apparently inadequate to meet the Central Industrial Region's needs fully. A further increase in this output, to 50 per cent over the 1948 level, has been ordered for the years 1949–53.[23] Since 1948 output of this basin was about 24 million metric tons, this indicates a 1953 goal of about 36 million tons.[24] To meet the needs of Leningrad and its surrounding industrial area, long a major importer of Donbas coal before World War II, the Pechora coal basin in the north received intensive development during and after that conflict. In the future the Pechora basin is planned to be the source of coal for a large metallurgical industry in the Leningrad region. Throughout the USSR emphasis is being placed upon development of local coal deposits to meet local needs, so far as possible.

Along with the rise in production and its rapid geographic spread, coal output under the Soviet regime has undergone a major technical

[22] *Pravda*, October 4, 1949.
[23] *Ibid*, December 7, 1948.
[24] *Planovoye Khozyaistvo*, No. 1 (1949), p. 56, gives basic percentage data for this estimate.

revolution. In the 1930's, primitive methods of coal mining relying heavily on manual labor gave way to mechanization, as large numbers of new coal-mining machines were installed in both old and new shafts. By 1938, the USSR claimed that 99.1 per cent of its coal was mined by mechanical methods, principally coal-cutting machines and related equipment. Much of this machinery in the Donbas was destroyed during the general destruction of this area's major industry during World War II, but after the war Soviet writers claimed that the mines were being rebuilt with even more modern equipment than before, including many coal-digging combines with far greater productivity than the older machinery. On the other hand, much of the work of cutting new tunnels, loading, hauling, and other laborious aspects of coal mining continues to be done manually, requiring the employment of large numbers of workers, who could be replaced by machinery.[25] Immediately after the war, material in the Soviet press indicated that much of the coal-mining equipment in use in such important areas as the Kuzbas and Karaganda fields was worn out and remained idle much of the time because of lack of spare parts. As Soviet industry returned to production of coal machinery of all types after the war, large numbers of new machines were produced, both to replace worn out equipment and to mechanize operations formerly done by primitive methods. All this permitted a significant improvement in coal-mining productivity, but Soviet officials continued to complain that much machinery was used poorly and that certain types of key operations were still done by hand.[26] In late 1949, the head of the Soviet coal industry commented:

> It must be recognized that what has been done in the field of mechanization is only the beginning of the great work which lies ahead of us to be fulfilled in the years immediately ahead in order to equip the coal industry with new, still more finished machines and mechanisms, and to achieve full mechanization of all processes of coal mining at all mines.[27]

A significant development in Soviet coal mining in recent years has been the rapid growth of open-cut coal mining from coal deposits on or near the surface, as compared with the older system of underground shafts. Such open-cut coal production began in Russia in 1913, but in

[25] *Ibid.*, No. 2 (1946), p. 103.
[26] *Ibid.*, No. 1 (1949), pp. 56–59.
[27] *Pravda*, September 1, 1949.

1940 only 3.8 per cent of all Soviet coal, or only about 6 million tons, was obtained in this way. By 1945, 11.9 per cent, or almost 18 million tons, of all Soviet coal was produced in this manner, a threefold growth during the war years. Most of the increased supply of open-cut coal came from the Urals during the war years, particularly the major Volchan site in Sverdlovsk Province. Later, two large open-cut coal sites were opened at Karaganda and one in the Khabarovsk territory in the Far East. The great advantages of this mode of mining are the increased productivity, lower cost of production, and the greater speed with which open-cut works can be built as compared with conventional mines. Soviet experience indicates that labor productivity in open cuts is roughly three times that in mines, while the cost of a ton of coal obtained in this fashion is approximately one third that of a ton mined conventionally.[28] In the future, Soviet utilization of this technique is to grow more rapidly than the general growth of coal mining. In 1954 or 1955, output of open-cut coal is planned to be two to two and one-half times the 1950 level.[29] This goal in absolute terms is probably equal to about 60 million metric tons, since the 1950 planned output of open-cut coal was 27 million tons.

The future perspectives of the Soviet coal industry are indicated by Stalin's statement in 1946 that by about 1960 the USSR plans to produce 500 million tons of coal annually, somewhat more than twice the actual output in 1949. The Fourth Five-Year Plan laid the groundwork for this expansion by requiring the surveying of 765 sites for mines and open cuts with a total annual output of 361 million tons. In late 1949 the head of the Soviet coal industry declared that, to achieve Stalin's goal on schedule, the USSR would have to raise the annual increment in coal output by at least 50 per cent over that of the preceding years. By about 1960, therefore, it seems likely that the USSR hopes to have an annual increase in coal output of 30 million tons or more, as against the roughly 20 million ton annual increase, on the average, achieved during 1946–49.[30]

While seeking to raise their coal output rapidly, Soviet authorities are keenly conscious of the need to raise the quality of their product. The Fourth Five-Year Plan provided for a large-scale program of constructing coal-concentration plants, and declared that "all newly-built

[28] *Planovoye Khozyaistvo*, No. 4 (1948), pp. 37–40.
[29] *Ibid.*, No. 2 (1950), p. 26.
[30] *Pravda*, September 1, 1949.

pits must have concentration and screening installations," so as to eliminate rock and other impurities and provide more uniform sizes and qualities of coal. But the continuance of complaints regarding poor quality of coal, lack of uniformity in grades, and the need for further reduction of ash content of coal suggests that this work of quality improvement is far from completed.[31]

Petroleum

The history of Russian petroleum as an industry in the modern sense started about 1870, when foreign interests—first the Nobel brothers and then the Rothschilds—began developing the Baku and nearby Caucasian oil fields. From a maximum of 42,000 tons annually before 1870, oil production rose to a prerevolutionary peak of 11,500,000 tons in 1901, a year in which Russia produced over half the world supply and exported more than 1,000,000 tons. The rich Baku area was a focal point of international intrigue and struggle immediately after the Bolshevik revolution, and not until 1920 did the Soviet government finally seize complete control of the area. From the low point reached at the beginning of the 1920's, Soviet petroleum output expanded rapidly until the outbreak of World War II. During these years production rose rapidly at Baku, Grozny, and Maikop, the chief sources of oil in Czarist times, and at major new petroleum fields opened for exploitation east and north of the Caspian Sea. Production dropped sharply during World War II, but increased rapidly after 1945. The statistical picture of production growth follows:[32]

Year	*Output* (MILLION METRIC TONS)
1913	9.2
1921	4.0
1927–28	11.5
1934	24.2
1940	31.0
1945	19.4
1949	33.3
1950 goal	35.4

[31] Cf., for example, the complaints of the director of Magnitogorsk's metallurgical combine in *ibid.*, October 4, 1949.

[32] Data for 1913, 1927–28 and 1934 from *Sot. Stroi.*, p. 113. Data for 1921 from *Narodnoye Khozyaistvo SSSR*, p. 6. Data for 1940 and 1945 from Abram Bergson, James H. Blackman, and Alexander Ehrlich, "Postwar Economic Reconstruction and Development in the USSR," *The Annals*, May 1949, p. 56. Data for 1949 estimated from figures in *ibid.*, on the basis of the report of the Central Statistical Administration of the Council of Ministers of the USSR for 1949.

The geographic pattern of production and its changes over the years are shown in Table 14.

TABLE. 14. Major Sources of Soviet Petroleum Production, 1913–50.

	1913	*1927–28*	*1940**	*1945**	*1950 Goal**
		(MILLION METRIC TONS)			
Azerbaidzhan†	7.7	7.7	21.8	11.3	17.0
Grozny	1.2	3.7	5.1	.1	4.0
Maikop	.1	.1		1.3	
Kazakhstan‡	.1	.25	.7	1.0	1.2
"Second Baku"§	—	—	1.9	2.9	9.0
Uzbekistan	‖	‖	.2	.4	1.1
Turkmenistan	.1	‖	.6	.7	1.1
Other	‖	‖	.7	1.7	2.0
Total	9.2	11.75††	31.0	19.4	35.4

* Estimated. † Primarily from Baku. ‡ Primarily from Emba Basin. § Includes sources in the Bashkir ASSR and Kuibyshev, Molotov, and Chkalov Provinces. ‖ Very small. †† Includes 277,000 tons of gas.

Sources: Data for 1913 and 1927-28 from *Sot. Stroi.*, p. 113. Data for 1940, 1945, and 1950 goal estimated on basis of information in the Fourth Five Year Plan; *American Review on the Soviet Union*, August 1946, p. 6; *Planovoye Khozyaistvo*, No. 2 (1946), pp. 70, 85; and No. 8 (1946), pp. 12–19.

The rapid increase in Baku's output was the outstanding feature of Soviet oil development during the 1930's. This increase was accomplished by opening rich new oil areas, drilling new wells, and improving the technology of production. Nevertheless, exploitation of Baku petroleum resources during this period was wastefully and poorly done. Geological prospecting and drilling of exploratory wells was at a rate well below that required to insure continued high production in the future. Reliance was placed almost entirely upon natural underground pressure to force up petroleum. When this pressure declined, wells were permitted to become inactive, though more oil could have been obtained by modern techniques of artificially increasing underground pressure. The importance of small producing wells was underestimated, and repair work on them was neglected, so that 8,000 to 10,000 fewer tons of oil were obtained from these wells annually than might have been. Directors of oil-producing enterprises tended to focus their resources primarily upon achieving their current production goals, neglecting work necessary to maintain or increase their output in the future.[88] These deficiencies of exploitation technique in the 1930's were

[88] *Planovoye Khozyaistvo*, No. 1 (1947), pp. 44–45.

important contributory causes to the subsequent sharp decline of Baku output during World War II.

In the same period substantial beginnings were made in developing production in the "Second Baku" as well as in the Emba Basin and other Eastern sources. But even in 1940 the western areas of the USSR accounted for 88 per cent of all oil produced.

During World War II, Baku's output fell catastrophically. Large numbers of skilled personnel and trucks and tractors were taken by the army. New drilling virtually ceased for several years, and production of many wells was halted, in part because of the need to "cannibalize" parts from some wells to replace parts worn out on others. All petroleum machinery factories in Baku were shifted to producing military supplies and armaments, so that newly produced equipment and spare parts became unavailable. Not until 1943 was drilling and prospecting renewed at Baku, and not until after the end of 1944 was the production of oil machinery in this area fully restored. Despite the efforts taken to repair some of the earlier damage, Table 14 indicates that in 1945 Baku output was only about half that of 1940.[34] Such expansion of production as took place during the war occurred in the eastern regions, particularly in the "Second Baku," but the output rise there only partially offset the Baku decline. Since 1946, however, production has increased rapidly both at Baku and at newer petroleum centers, so that by 1949 the prewar volume of production was probably exceeded. In the last quarter of 1949, Soviet oil output was at an all-time high, nearly 9,000,000 metric tons.[35]

Although the geographical dispersion of Soviet oil production increased sharply before 1941, the great predominance of Caucasian oil among Soviet petroleum resources imposed heavy transport costs on the USSR. With the expansion of industry and the use of machinery throughout the country's vast territory, petroleum products were required throughout this area, and most of them had to come from the Baku-Grozny-Maikop triangle. The average length of haul for oil products increased sharply as a result, the average distance for such hauls by rail rising from under 400 miles in 1913 to over 700 miles in 1937. In the late 1930's and even a decade later, the Soviet oil-transportation

[34] *Ibid.*, pp. 39–41.

[35] Calculated on basis of data in Malenkov's speech, reported in *Pravda*, March 10, 1950.

system was far inferior to that of the United States, being much more dependent upon railroads and using relatively cheap pipeline movement comparatively little, as shown below:[36]

Means	*Percentage of Oil Transport* UNITED STATES	USSR
Railroad	2.2	42.7
Water	26.6	45.9
Oil pipeline	71.2	11.4

Only two pipelines existed in Czarist Russia. The number of such lines and their carrying capacity have been sharply increased under the Soviet regime, particularly in the "Second Baku" and other eastern fields since the mid-1930's. The sharp change in the relative importance of different oil fields brought about by World War II and later developments have done much, probably, to make the geographical pattern of petroleum output coincide somewhat better with the pattern of consumption, so as to reduce the average transport haul for each ton of this product and its derivatives.

The oil industry went through a technical revolution during the 1930's. Improved methods of drilling were introduced, along with better tools and much more extensive use of electric motors. These and other changes are reported to have cut drilling costs to half the 1913 level by the early 1930's.[37] Methods of oil extraction were also sharply improved. Pumping of oil from under the ground replaced bailing, and electricity replaced steam power, so that oil-extraction costs dropped to less than half their former level. Nevertheless, even in 1946, a Soviet petroleum industry head complained that oil-extraction technology was behind that of the United States and was not yet applying sufficiently modern scientific techniques for maximizing the percentage of petroleum reserves obtained and lowering costs.[38]

Helped significantly by American petroleum technicians and modern American machinery, the USSR greatly modernized and expanded its oil-refining industry between 1928 and 1940. In 1928 the USSR did not have a single petroleum-cracking unit for refining purposes and de-

[36] Balzak, *et al., op. cit.*, pp. 220–21.

[37] Alcan Hirsch, *Industrialized Russia*, pp. 145–46. New York: Chemical Catalog Co., 1934.

[38] *Ibid.*, pp. 146–47. *Planovoye Khozyaistvo*, No. 3 (1946), pp. 12–19.

pended primarily upon direct distillation to obtain gasoline, lubricating oils, and other valuable components of crude petroleum. By 1937 almost 60 per cent of the USSR's greatly expanded production of gasoline was obtained by the cracking process. This technical progress has continued since then, so that the USSR is now able to produce high-octane aviation gasoline and other important petroleum products, employing the hydrogenation process and other modern refining techniques.

Detailed data on the production of gasoline, fuel oil, lubricants, and other products in the postwar period have not been published. It seems clear, however, that with the increasing number of automobiles, tractors, and machines operating in the USSR since 1945, the need for petroleum products has mounted rapidly. This factor, along with the great diminution of Soviet oil output during the war, has resulted in a great postwar shortage of petroleum and its derivatives. Large-scale petroleum exports, which once earned important quantities of foreign exchange for the USSR in England and other markets, have not been resumed. On the contrary, the USSR has apparently drawn heavily upon the petroleum output of its satellites in Eastern Europe. Domestically every effort has been made to secure economy in use of petroleum products by such means as large-scale conversion of trucks and tractors from gasoline consumption to reliance upon hard fuels. The excess of Soviet petroleum needs over its available supply is unlikely to be overcome for some years, even if the USSR makes good progress toward the goal of 60,000,000 tons of petroleum announced by Stalin in 1946. The outlook on the demand side is for continued rapid growth of domestic gasoline, lubricating oil, and related requirements.

Electric Power

From the very beginning of the Soviet regime, the rapid development of electric-power production has been a primary objective. The GOELRO plan adopted in 1920 looked forward to the development of Soviet industry and transportation on the basis of a rapid rise in the available supply of electric power. To Lenin and other Soviet leaders, electricity appeared almost as a magic instrument, which would permit them to free their country from its technological backwardness and would enable the Soviet Union to achieve high levels of industrial pro-

duction and efficiency. They looked with disdain upon the comparatively puny electrification achieved in Czarist Russia, where even in 1913 the availability of electric power was concentrated mainly in a few large cities, particularly Leningrad and Moscow.

The objective of a rapid increase in electric power capacity and energy production has been achieved during the Soviet regime. The statistical record of that achievement is given in Table 15.

TABLE 15. Electric Power Generating Capacity and Production in the USSR Since 1913.

Year	*Capacity* (MILLION KILOWATTS)	*Production* (BILLION KILOWATT-HOURS)
1913	1.1	1.9
1921	1.2	.5
1928	1.9	5.0
1934	6.3	21.0
1940	11.3	48.3
1945	10.7*	43.2*
1949	16.0*	74.8*
1950 goal	22.4	82.0

* Estimated.

Sources: 1913–1934–*Sot. Stroi.*, pp. 82–83; 1940–1945–Abram Bergson, *et al.*, *op. cit.*, p. 56; 1949–Estimated on basis of *ibid.*, and data in the Soviet economic report for 1949. 1950 goal–Fourth Five-Year Plan.

The rapid development of electric-power generating capacity and production between 1928 and 1940 completely altered the former character of the Soviet electrical economy. As late as 1926, two thirds of all Soviet electric power was produced in small municipal and industrial power plants serving small areas, only one third coming from large plants. By 1935 these proportions had been more than reversed, and over three quarters of all electrical energy was produced by large regional power stations and major industrial power plants. In 1926, large generating plants had produced only about 1.2 billion kilowatt hours; in 1935 they produced 19.5 billion kilowatt hours. In the late 1930's a reaction occurred against such super stations. Their builders were denounced as guilty of "gigantomania," and were told to give more emphasis to small and medium-sized stations.[89]

A revolution was worked in the nonagricultural areas of the Soviet economy as the ever increasing availability of electric power provided

[89] *Planovoye Khozyaistvo*, No. 10 (1939), pp. 26–33.

the essential foundation for creation of new industries and technical reconstruction of old ones. Electrical drives replaced mechanical drives on a large scale, and electro-thermal and electrolytic processes began to be employed far more frequently than ever before. The extent of the transformation in different branches of the economy may be indicated by comparing their electric-power consumption in two years less than a decade apart.[40]

	1926	*1935*
	(MILLION KILOWATT-HOURS)	
Industry	2,430	17,970
Transport	90	570
Municipal and household use	660	3,760
Agriculture	30	190

It is clear from the above that industry was by far the main beneficiary of this rapid electrification process, though transport employment of electricity rose sharply, as did urban consumption for lighting and other uses. Up to the present, agriculture has been least affected and benefited by electric power, though energetic efforts have been made in the postwar period to increase the employment of this energy in rural production and consumption. Since World War II the application of electrochemical methods in industry has risen sharply, permitting substantial increases in aluminum, magnesium, and other production.

It has been estimated that electric-power generating capacity of 5,000,000 kilowatts, 44 per cent of the 1940 Soviet capacity, was destroyed during World War II.[41] Nevertheless, so energetic was the construction of new generating capacity in the unoccupied eastern area and so quickly was part of the damaged western capacity rehabilitated that by the end of 1945 both capacity and production had virtually regained prewar levels. In the postwar period there has been intensive further development of electric-power capacity in all parts of the Soviet Union, so that each year has seen new production records set. Reports in 1948 and 1950, however, complained of the lag of new electric-station construction behind planned schedules. Shortages of materials, construction equipment, and engineering personnel were cited as the chief causes, particularly in the case of the Mingechaur hydroelectric station, whose scheduled initial operation in 1950 was threatened.[42]

[40] *Electric Power Development in the USSR*, p. 31. Moscow: 1936.
[41] Bergson, *et al.*, *op. cit.*, p. 54.
[42] *Izvestia*, December 19, 1948. *Pravda*, June 18, 1950.

A major feature of Soviet electrical development has been the rise of a number of large regional power systems combining the power generated by a number of different stations located within a given area. The Moscow system, for example, produced in 1936 more than 5 billion kilowatt-hours, and is one of the largest and most powerful electrical systems in the world. Other major power systems in the USSR at the end of the 1930's included the Leningrad, Gorky-Ivanovo, Dnepr, Donets Basin, Baku, Urals, and Kuzbas power systems. Most of these major concentrations of electric-power capacity and production exceeded individually in 1938 the total capacity and production of prewar Russia. In addition, the USSR has developed many smaller, localized high-voltage power networks for less important individual areas. The eventual goal of the Soviet regime is the creation of one unified national power system, so that electric power can be shifted from area to area in response to the varying requirements imposed by changes in supply and demand in different parts of the country.[43] An indication of the postwar growth of Soviet regional electric-power systems is given by the fact that the Moscow system at the end of 1949 had one third more capacity than in 1940.[44]

In the construction and operation of electric-power stations, great emphasis has been placed upon supplying them with local sources of fuel. Depending upon which is available locally, coal, fuel oil, and peat are widely used. The USSR has already achieved important progress in developing hydroelectric power stations. In 1940 about 10 per cent of all electric power generated in the USSR, or about 5 billion kilowatt-hours came from hydroelectric sources. By 1950 it is planned to have 15 per cent of the much greater total hoped for then come from this source. This would mean a 1950 production of hydroelectric power exceeding 12 billion kilowatt-hours, a more than 100 per cent rise over 1940, despite the destruction of the war years in the early 1940's.

In the future hydroelectric power is to increase in importance very rapidly. This seems indicated by the announcement in mid-1950 of the projected construction of mammoth Kuibyshev and Stalingrad hydroelectric stations on the Volga, as well as of plans for smaller stations at Kakhovka in the southern Ukraine and of three others in the Turkmen

[43] Balzak, *et al.*, *op. cit.*, pp. 234–36.
[44] *Moskovskaya Pravda*, February 21, 1950.

Republic. Together these stations are scheduled to produce annually over 21,000,000,000 kilowatt-hours of electric power. Both the Kuibyshev and Stalingrad stations will be far larger than the Dnepr power station built in the 1930's. Much of their power will be moved at high voltage over a long distance to Moscow. In their case, at least, the former policy on "gigantomania" has apparently been reversed.)

Iron and Steel

Iron and steel are in many ways the foundation metals of our industrial civilization, being used widely for many different purposes, including construction, machinery, transport equipment, and so on. In time of war, of course, steel is absolutely essential for the production of guns, munitions, tanks, and other military essentials. It is not surprising, therefore, that a major Soviet objective throughout the industrialization period has been the development of iron and steel production.

The statistical record of iron and steel production under the Soviet regime is shown in Table 16.

TABLE 16. Iron and Steel Production in the USSR since 1913.

Year	*Pig Iron* (MILLION METRIC TONS)	*Steel* (MILLION METRIC TONS)
1913	4.2	4.2
1920	.1	.2
1927–28	3.3	4.3
1934	10.4	9.7
1940	15.0	18.3
1945	9.2*	11.2*
1949	17.0*	21.3*
1950 goal	19.5	25.4

* Estimated.

Sources: 1913–1934–*Sot. Stroi.*, p. 133; 1940 and 1950–Fourth Five-Year Plan; 1945–Bergson, *et al.*, *op. cit.*, p. 56; 1949–Estimated on basis of data in *ibid.*, and in the government economic report for 1949.

Expansion of iron and steel production during the prewar five-year plans was accomplished both by the reconstruction and expansion of the old plants built in pre-Soviet times, particularly in the southern region, and by building new plants in various parts of the USSR, particularly in the Urals and Siberia. In 1940 more than 80 per cent of the total production of ferrous metals in the USSR came from plants entirely reconstructed or built during the Soviet regime. Among the

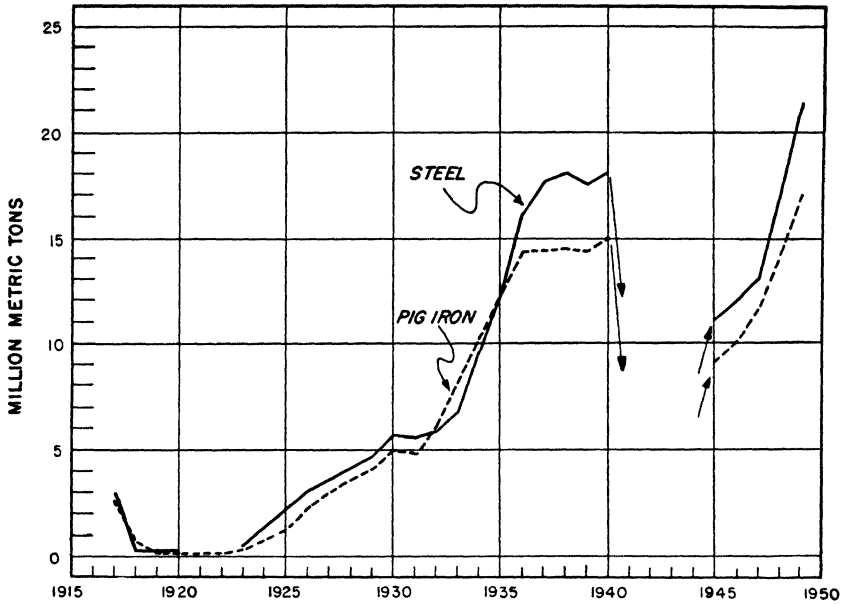


FIGURE 3. *Production of Pig Iron and Steel in the USSR, 1917–49.*

Sources: Official Soviet publications and author's estimates.

largest new steel plants built in the 1930's were those at Magnitogorsk and Novo-Tagil in the Urals, at Kuznetsk in Siberia, and at Zaporozhe in the Ukraine; the Elektrostal plant in Moscow; and others. Many of the new iron and steel plants, as well as those reconstructed and expanded, are really large metallurgical and chemical combines. They engage not only in the output of iron and steel but also in the production of coking coal and of chemicals that are by-products of the coking process. In 1936 the Magnitogorsk plant produced 1,557,000 metric tons of pig iron and the Kuznetsk combine turned out 1,363,000 tons. Since then the capacity and output of both establishments have increased substantially.

From the locational point of view, the most striking development of the 1930's was the creation of a giant modern iron and steel industry in the east—at Magnitogorsk and elsewhere in the Urals, in the Kuznetsk basin of Western Siberia, and at Komsomolsk in the Far East. We have noted above that the Kuznetsk-Magnitogorsk development was originally founded on the basis of an exchange of coal and iron ore over the long distance separating the two areas. The subsequent tendency has

been for each of these giant combines to become less and less dependent on each other, utilizing, more and more, nearby supplies, as well as coal from the intermediate Karaganda Basin in Kazakhstan. In the 1930's, the eastern metallurgical base did not produce a complete rounded assortment of iron and steel products, so that even in 1940 large amounts of steel products had to be shipped to the Urals and beyond from the western areas, while other eastern steel products were cross-hauled in the opposite direction. The changing geographic distribution of the total pig-iron and steel output of the USSR since 1913 is shown by the data in Table 17.

TABLE 17. Regional Distribution of Iron and Steel Production in the USSR in Selected Years.

Region	*1913*	*1927–28*	*1940*	*1945*	*1950 Goal*
		PIG IRON (MILLION METRIC TONS)			
Southern	3.1	2.4	9.9	2.6	10.4
Central	.2	.2	.9		.7
Eastern	.9	.7	4.2	6.6	8.4
		STEEL			
Southern	3.2	2.5	11.2	2.1	9.4
Central	.1	.8	1.2		3.6
Eastern	.9	1.0	5.9	9.1	12.4

Sources: 1913 pig iron figures and 1927–28 data from *Sot. Stroi.* (*1933–38*), pp. 56–57. Other data estimated on basis of information in Fourth Five-Year Plan; *Planovoye Khozyaistvo*, No. 2 (1946), pp. 89–99, and *Pravda*, July 29, 1948.

The data in Table 17 indicate that from a percentage point of view the distribution of iron and steel production changed only relatively slightly from 1913 to 1940, much less than is perhaps generally recognized, in view of the great publicity given the eastern development. World War II was the period during which decisive changes occurred in the locational pattern. The Germans were responsible for the destruction of 62 blast furnaces and 213 open hearth furnaces in the area they occupied. In the eastern area, during 1943 and 1944, however, 13 blast furnaces capable of producing 2,300,000 tons of pig iron, 70 steel furnaces capable of producing 2,800,000 tons of steel, and 28 rolling mills with an annual capacity of 1,700,000 tons of finished steel began operation. These developments completely altered the old geographical production pattern. In the postwar period, the Soviet government has sought to rebuild the devastated iron and steel industry of the west while simultaneously further expanding the eastern region's output and extending

the industry into Central Asia and the Caucasus. During 1946 to 1950 there were scheduled to be put into operation 45 blast furnaces, 15 large converters, and 90 large electric furnaces, with a total capacity of 16,200,000 tons of steel, plus 104 rolling mills with a capacity of 11,700,000 tons of rolled steel. By 1950, therefore, the new geographical pattern of iron and steel output was distinctly different from that of either 1940 or 1945, intermediate between them and more balanced from the point of view of the country as a whole.[45]

Coincident with the expansion in the amounts of pig iron, steel, and rolled metal produced, there occurred a great diversification in the assortment of output. By 1940 the USSR supplied itself with virtually all types of carbon and alloy steels, as well as a wide variety of steel shapes and forms. Thus the Soviet iron and steel industry was able to meet the increasingly diverse and severe demands of the rapidly expanding machinery, construction, and other industries. One indication of this increasing technological self-sufficiency is the fact that the USSR's ferrous metals imports fell from about 1,200,000 metric tons in 1931, 22 per cent of the country's consumption at that time, to 97,300 tons in 1940, only .7 of one per cent of consumption.[46] But as noted above, this greater variety of output was not properly distributed over the country, leading to transport difficulties.

The efforts being made by the USSR to achieve a more rational distribution of the output of finished steel products may be illustrated by the data below for steel-tubing output in different areas as a percentage of the national total:[47]

Region	*1940*	*1950 Goal*
Ukraine	71.9	44.0
Caucasus	—	18.0
Center	20.3	13.0
Eastern	7.8	25.0

Great strides have been made in the technological level of Soviet iron and steel production since 1928. As new plants were built and old ones reconstructed, Soviet leaders sought to introduce the most advanced equipment and techniques available. One of the most significant trends

[45] Clark, *op. cit.*, p. 243. *Planovoye Khozyaistvo*, No. 2 (1946), pp. 90–91.
[46] I. P. Bardin and N. P. Banny, *Chernaya Metallurgiya v Novoy Pyatiletke*, p. 9. Moscow-Leningrad: 1947.
[47] *Ibid.*, p. 123.

has been toward increasing the size of basic production units such as blast furnaces and open-hearth furnaces. An illustration of the changes that have resulted may be given by citing the fact that in 1900 Russia had 302 small blast furnaces, which produced 2,900,000 tons of pig iron. In 1940 the USSR had 92 blast furnaces, which produced 15,000,000 metric tons of pig iron. During the whole period, 1928 to 1940, the average productivity of a Soviet blast furnace increased fivefold.[48] Similarly, intensive work has been done on making it possible for all stages of iron and steel production to be automatically regulated; on introducing modern methods of rolling, including the continuous strip mill technique; and not least, increasing the relative importance of scrap iron and steel in the industry's raw material base. In the past the Soviet Union has been badly deficient in scrap metal, so that pig-iron output often exceeded steel production. As late as 1935 the USSR produced 12,500,000 tons of pig iron and only 12,400,000 tons of steel. Progress in the direction of freeing steel output from pig-iron requirements was already substantial in 1940, however, and in 1950 steel output was hoped to be 25,400,000 tons, as against pig-iron production of only 19,400,000 tons.

In the postwar period, material published in the Soviet press has indicated that the eastern iron and steel mills are meeting their production schedules far better than the older areas in process of reconstruction. Thus, the Magnitogorsk, Kuznetsk, and Urals steel industries all fulfilled their five-year-plan production goals well before 1950, while similar reports of early fulfillment of the 1950 goals by the southern steel industry were conspicuous by their absence. Nevertheless, by the end of 1948 the Soviet press could and did announce that the USSR was producing more metal than ever before in its history.[49] From 1946 to 1950, it seems clear, a great deal of progress had been made toward achieving the long-term goals of 60 million tons of steel and 50 million tons of pig iron annually, set by Stalin for 1960 or later.

In the future, the geographic distribution of the Soviet steel industry is intended to be even wider than heretofore. Large steel-producing facilities are being built in the Georgian Republic, and intensive work is going on to develop an iron and steel industry in Leningrad, to be

[48] *Ibid.*, p. 71–72.
[49] *Pravda*, December 31, 1948.

based upon Pechora coal and other raw materials north and east of the major Soviet city. On the other hand, future expansion must reckon with the fact that some of the most important and best raw-material sources of the iron and steel industry, such as the high-grade Magnitogorsk iron ores, are nearing exhaustion, so that poorer-quality ores must be employed, requiring the solution of complex technical problems and probably necessitating higher costs in steel production.

Nonferrous Metals

The nonferrous metal industry of the USSR is engaged in the mining and refining of copper, lead, zinc, aluminum, tin, and other metals. To the extent that some nonferrous metals occur together in complex polymetallic ores, such as those containing lead, zinc, silver, and other metals, various parts of the nonferrous metal industry are intimately related with one another. Other branches, on the other hand, such as the aluminum industry, which produces its final metallic product from bauxite and other ores, are independent.

Quantitatively, each of the nonferrous metals is produced in only relatively small amounts, and even the aggregate of their production is far below that of pig iron or steel. These metals, however, play a vital part in modern industry. The rapid industrialization of the USSR during the late 1920's and thereafter brought with it a sharply increased need for these metals. Most important nonferrous metals had been produced only in relatively small quantities during the Czarist era or not at all, as in the case of aluminum and tin. Before 1930 a high percentage of Soviet requirements was met by relatively large imports from abroad.

Determined to make the Soviet economy independent of other nations in this as well as other fields, Soviet leaders projected and carried through a very large expansion of the production facilities and actual output of these metals. One indication of the success of this effort is the fact that between 1929 and 1935 the total imports of six major nonferrous metals—copper, nickel, aluminum, tin, lead, and zinc—dropped from about 117,000 metric tons to less than 79,000 metric tons. This drop occurred as the result of rising production, which more than made up for the increased Soviet need for these metals. But even in the late 1930's the USSR was still not completely independent of foreign nonferrous metals. Large imports of nonferrous metals were secured by the

USSR under the Lend-Lease and Mutual Aid programs of World War II. In the postwar era this need continues.

The German successes in World War II in occupying so much of the western region of the Soviet Union resulted in heavy destruction of and loss by the Soviet nonferrous metals industry, particularly the aluminum, zinc, and manganese branches. A number of the major mines and refining works of this industry were located in the area occupied by the Germans, so that their production was lost for part of the war. Presumably, these facilities were severely damaged or destroyed before the Soviet Union regained them. In the postwar period a major effort is being made to increase sharply the production of these metals. Expansion is taking place in the never-occupied areas, which had already increased production substantially during World War II. In addition much of the destruction in the formerly occupied territory is being repaired, and production is increasing there. In the account that follows there will be relatively little statistical information, since data on this area of Soviet production are extremely scarce.

Copper. Copper production began in Russia during the era of Peter the Great, being concentrated in the Urals. By the middle of the eighteenth century, Russia was one of the world's great copper producers and had become a major exporter. In the late nineteenth century, Urals production was supplemented by that in the Caucasus, where new copper deposits were exploited through the efforts of foreign investors. Copper production in Russia in 1913 consisted of about 31,000 metric tons of blister copper and 16,700 tons of electrolytic copper. By 1929 this had increased to 35,500 tons of blister copper and 22,800 tons of electrolytic copper. Less than ten years later, in 1938, production of blister copper had increased just about threefold, to 103,200 tons, while electrolytic copper output had risen to over four times that of 1929, to 97,800 metric tons.[50]

In 1937 over 84 per cent of all copper smelted in the USSR was smelted in the Urals; almost 10 per cent in Kazakhstan; and 6 per cent in Armenia. This distribution of smelting was far from proportional to the distribution of reserves. The Urals had less than 16 per cent of all Soviet copper reserves at that time, while Kazakhstan had more than 50 per cent of Soviet reserves. The rapid expansion of copper production in

[50] Balzak, *et al.*, *op. cit.*, p. 257; and *Sot. Stroi (1933–38)*, p. 62.

Kazakhstan was a major objective of the Third Five-Year Plan, begun in 1938.

Since none of the major Soviet sources of copper was located in the area occupied by the Germans, this industry may not have experienced the sharp drop in production that so many other Soviet industries did. It seems not unlikely, however, that some reduction in copper output resulted at the beginning of the war because of the calling up of workers and specialists for military service. An important change that had taken place by 1942 was the increased importance of the Kazakh copper production as compared with that in the Urals. In 1942 Kazakhstan accounted for 40 per cent of all copper mined in the USSR; in the same year the Urals accounted for 46 per cent, a sharp change from the ratios prevailing in 1937. The amount of copper smelted at the Balkhash Copper Refinery in Kazakhstan doubled during the war.[51] The provisions of the Fourth Five-Year Plan called for the output of copper in 1950 to be 60 per cent above that in 1945. This plan required increase in the capacity of copper mines, concentration plants, and refineries. It called for completion of the first section of a new copper refinery in the southern Urals. It also provided for the erection of a new electrolytic copper plant, location unspecified.

Lead. Lead smelting began in Russia in 1704, during the reign of Peter the Great, in the Nerchinsk region of Eastern Siberia. By the end of the nineteenth century, however, the usable lead reserves in this area were exhausted, and dominance passed to the North Caucasus, where the Sadon deposit was most important. In 1913 the North Caucasus produced 96 per cent of all Russian lead, and the Urals virtually all the small remainder.[52] Only 1,500 tons of lead were smelted in Russia in 1913.[53] Lead production fell sharply after 1913, as a result of World War I and the civil war. In 1923 only 300 metric tons were produced in the USSR.

Data on lead production during the Soviet regime are sparse, but it is known that the goal for 1937 output was 115,000 metric tons.[54] That this goal was actually reached by that date seems dubious, in view of

[51] *Entsiklopediya,* cols. 256–57, 828.
[52] Balzak, *et al., op. cit.,* p. 258.
[53] *Entsiklopediya,* col. 257.
[54] *Second Five-Year Plan,* p. 208.

complaints that in 1935 the lead-production plan was fulfilled by only 72 per cent.[55] Nevertheless, it is clear that by 1940 very substantial advances had been made in lead production, as compared with the paltry 1,500 tons output of 1913. Soviet efforts to increase lead production have emphasized development of Kazakhstan, where 74 per cent of all Soviet lead was smelted in 1937. The Chimkent lead plant in southern Kazakhstan was apparently the largest single producer in the USSR in 1937, followed by the Ridder plant in the Altay mountain region of east Kazakhstan. The North Osetian Republic in the North Caucasus, and the Maritime Territory in the Soviet Far East also produced more than 10 per cent of all lead smelted in the USSR in 1937.[56] The Fourth Five-Year Plan provides that by 1950 Soviet production of lead shall be 2.6 times as great as in 1945.

Zinc. Zinc production is closely allied with that of lead, because both metals frequently occur together in polymetallic ores. In 1913, Russian zinc production was only 2,900 metric tons, and Russia imported over 28,000 metric tons from abroad.[57] In 1923 only 200 tons of zinc were mined in the Soviet Union.[58]

Zinc production expanded in the Soviet period much as did lead output. The Second Five-Year Plan set a zinc-production goal for 1937 of 90,000 tons. It is not known whether this was realized, although substantial progress was undoubtedly made. In 1937, 42.5 per cent of all Soviet zinc was extracted in the Kazakh Republic, and over 23 per cent in Novosibirsk Province in Siberia. The North Osetian Republic in the Caucasus, Chelyabinsk Province in the Urals, and the Maritime Territory in the Far East, each contributed more than 10 per cent of all Soviet zinc mined. In North Osetia, where 15.5 per cent of all zinc ore was mined in 1937, about 36 per cent of all ore was smelted, much of it from distant regions such as the Altay mountains. In the late 1930's a large zinc distillation plant operated at Konstantinovka in the Ukraine, using zinc concentrates from the Far East and the Altay mountains, hauled over thousands of miles. In Novosibirsk Province the newly constructed Belovo zinc distillation plant used raw materials from the Salair

[55] *Narodnokhozyaistvenny Plan na 1936 god,* p. 117. Moscow: 1936.
[56] Balzak, *et al., op. cit.,* pp. 262–63.
[57] *Entsiklopediya,* col. 257.
[58] Balzak, *et al., op. cit.,* p. 258.

polymetallic deposits. Electrolytic zinc was produced at the Chelyabinsk plant from waste products of the Urals copper-smelting plants.

The Konstantinovka plant in the Ukraine was presumably lost during the German occupation of that area in World War II, and the Caucasian zinc output in North Osetia must have been seriously affected as well. Zinc production in 1950 was scheduled by the Fourth Five-Year Plan to be two-and-a-half times that in 1945.

Aluminum. Aluminum production in the USSR is entirely a product of the Soviet era, and as late as 1929 this metal was not produced in that country. By 1933, 7,000 metric tons of aluminum had been produced; and in 1938 production had reached almost 57,000 metric tons.[59] The 1938 output, however, was still substantially below the 80,000 metric ton goal for 1937, which had been set by the Second Five-Year Plan.[60]

The first Soviet aluminum was produced in 1933 at the Volkhov aluminum plant near Leningrad, which used bauxite from Tikhvin and electric power from the Volkhov hydroelectric power station. A second aluminum plant was built at Zaporozhe, using Tikhvin bauxite and electric power from Dneprstroi. Availability of electric power is extremely important for aluminum production, since the output of one ton of aluminum requires only two tons of aluminum oxide, the raw material, but up to 20,000 kilowatt-hours of electric power. In the late 1930's a new large aluminum plant was built at Kamensk-Sinarsk, in the Chelyabinsk Province of the Urals, to utilize the large Urals bauxite deposits. Other aluminum plants were scheduled to be built during the Third Five-Year Plan period, i.e., by 1942, in the Kuzbas and at Kandalaksha in the Kola peninsula. The latter plant was scheduled to operate on a new aluminum raw material, nepheline. Large quantities of nepheline are available in the Kola peninsula, as the result of the extensive production of apatite there—nepheline is a waste product of apatite-processing.

Both the Volkhov and Dnepr plants were lost during the German invasion early in World War II. As a result, the center of gravity of Soviet aluminum production shifted to the Urals and Sverdlovsk Province. In 1945 the Urals accounted for 96 per cent of all bauxite produced in the USSR. The Fourth Five-Year Plan called for the doubling of aluminum

[59] *Sot. Strot.* (*1933–38*), p. 62.
[60] *Second Five-Year Plan*, p. 208.

production in 1950 as compared with 1945. It also provided that bauxite mines, two aluminum plants, and an alumina plant (alumina is aluminum oxide, an intermediate product derived from bauxite and required for the final production of aluminum) were to be restored during the Fourth-Five-Year-Plan period. Two new aluminum plants were to be built. The capacity of aluminum plants in the North Urals and in the Kuznetsk Basin was to be increased, while the first section of an alumina plant in the Azerbaidzhan Republic was to be finished and put into operation.

According to one source, Soviet aluminum production in 1940 was 59,900 metric tons. During the war, Voznesensky has revealed, more aluminum was produced in the Urals and Western Siberia in 1943 than in the entire USSR in 1940. By 1945, therefore, Soviet aluminum production may have reached perhaps 70,000 or 75,000 tons. If so, the goal set for 1950, at twice the 1945 level, may have been equivalent to an absolute figure of perhaps 140,000 to 150,000 metric tons.[61]

The Chemical Industry

A wide variety of products is produced by the Soviet chemical industry. Among them are basic chemicals such as sulphuric acid, nitric acid, chlorine and soda ash, as well as agricultural fertilizers and insecticides, synthetic rubber and rubber products, plastics, artificial fibers, photographic materials, aniline dyes, paints, varnishes and other protective coverings, and numerous pharmaceutical and medical preparations—from aspirin and bicarbonate of soda to penicillin.

The chemical industry of Czarist Russia before World War I was extremely backward, producing only a small number of chemical products and relying heavily upon imported raw materials. Plants producing heavy chemicals, such as acids, alkalis, and salts, were small and for the most part used antiquated apparatus unsuitable for large-scale production. Many of these plants were destroyed or worn out at the end of the civil war, so that the Soviet government had to start almost from scratch in building up the chemical industry.[62]

Development of Soviet chemical production during the past three

[61] Ch. Bettelheim, *L'Économie Soviétique*, p. 144. Paris: Recueil Sirey, 1950. Voznesensky, *The Economy of the USSR During World War II*, p. 27.

[62] Hirsch, *op. cit.*, pp. 57–60.

decades has been built on the discovery and exploitation of the USSR's vast deposits of basic chemical raw materials, the building of many new plants using modern techniques and equipment for chemical production, and the initiation and growth of many important branches of this industry that did not exist at all before the Soviet era. In this process American, German, and other foreign technicians played an important role, as did large imports of machinery and equipment during the late 1920's and early 1930's.

Official Soviet data claim an almost fifteen-fold growth in the physical volume of chemical production between 1913 and 1938, most of which occurred after 1928. These conclusions are drawn from output data calculated in 1926–27 prices and probably exaggerate this growth, particularly because of the great importance of new products introduced after 1926–27. Nevertheless substantial gains were undoubtedly made in this period, as the data in Table 18 indicate.

TABLE 18. Gross Production of the USSR's Chemical Industry and Output of Selected Products, 1913–38.

	Unit	*1913*	*1929*	*1933*	*1938**
Gross Output	million 1926–1927 rubles	457	645†	2,301	6,809
Soda Ash	thousand tons	160	231	325	532
Sulphuric Acid	thousand tons	110	265‡	627	996‖
Fertilizers§	thousand tons	§	247§	715§	2,610§
Aniline Dyes	thousand tons	4	13	16	35
Synthetic Rubber	thousand tons	–	–	2	26‖
Plastics	thousand tons	–	–	4	8‖
Iron Pyrites	thousand tons	76	301	415	978
Tires	thousands	19	142	672	3,548

* 1938 data preliminary. † 1928. ‡ 1928–29.

§ Includes superphosphates, ammonium sulphate, and potassium chloride. Figure for 1929 is 1927–28 actual, for 1933 it is 1932 actual, and for 1938 is 1938 preliminary. Data for 1913 unavailable. ‖ 1935.

Sources: *Sot. Stroi.*, pp. 175–79. *Sot. Stroi. (1933–38)*, p. 67; Jasny, *The Socialized Agriculture of the USSR*, p. 495; *Entsiklopediya*, cols. 819–20; Hirsch, *Industrialized Russia*, p. 70.

Before 1935 the USSR had already instituted a number of major branches of chemical production that had never existed in Czarist times. These included output of the following major commodities: synthetic ammonia and related chemicals, including nitrates and nitric acid; coke by-products; resin and turpentine; synthetic resins; rayon; potassium salts; phosphate fertilizers from apatite; methanol; butanol;

acetone; synthetic rubber; many pharmaceuticals; and so on.[63] Since then other important new branches of chemical production have been initiated, as the Russians have striven to keep abreast of modern technology and attain maximum self-sufficiency. Among the more recent branches of chemical production are the manufacture of sulfa drugs and anti-biotics such as penicillin, and the whole field of radioactive chemistry.

Soviet determination to achieve self-sufficiency in chemical—as well as other—products is probably best exemplified by the history of Soviet synthetic rubber production. As early as 1925, the Soviet government announced a contest open to scientists of all countries. Contestants were asked to produce a five-pound sample of synthetic rubber, to explain the process by which it was made, and to furnish data from which a factory to manufacture this rubber might be planned. The objective sought was the best method for commercial output of synthetic rubber. Professor Lebedev, of the USSR, and an assistant won the contest with a process based on passing ethyl alcohol over a catalyst so as to produce butadiene, the so-called divinyl process. By 1929 a small pilot plant was producing over two pounds of rubber daily, and on July 7, 1932, the first large Soviet synthetic rubber plant began production. The subsequent progress was rapid. Synthetic rubber output reached 26,000 metric tons by 1935, and was vastly increased thereafter. At the beginning of 1950, annual Soviet output of synthetic rubber was estimated to be above 200,000 metric tons, second only to that of the United States, whose synthetic rubber industry had been built up feverishly during World War II.[64]

Chemical plants have been built in many parts of the Soviet Union, frequently near sources of raw materials. Production of ammonium sulphate, benzol, toluol, and other coke by-products was integrated with the Soviet metallurgical coke industry at various iron and steel plants, particularly that at Magnitogorsk. The latter, for example, has a series of Koppers coking batteries with 69 ovens to a battery, as well as a large and up-to-date by-products plant and facilities for manufacturing 2,100 tons of ammonium sulphate monthly.[65] Synthetic-rubber plants using

[63] *Ibid.*, p. 71.
[64] *Ibid.*, pp. 95–7. *New York Times*, January 6, 1950.
[65] Louis Ernst, "Inside a Soviet Industry," *Fortune*, October 1949, p. 118.

the Lebedev process were located in potato-growing areas, since the basic alcohol employed is made from potatoes. Before World War II such plants were built at Yaroslavl, Voronezh, Yefremov in Tula province, and Kazan. Another synthetic-rubber-producing establishment, making "Sovpren," a synthetic rubber based on limestone as the initial raw material, was built at Yerevan, capital of the Armenian Republic.[66] Among the major fertilizer plants built in the 1930's were those at Voskresensk in Moscow Province and at Konstantinovka in the Donbas, and the Neva Chemical Combine in Leningrad, producing superphosphates; the Solikamsk potassium works in the Urals; and the nitrogenous fertilizer plants producing ammonium sulphate in the major iron and steel centers of Donbas, Kuzbas, Magnitogorsk, and other areas.[67] The plastic industry, producing bakelite, celluloid, and other plastics, was more consumer-oriented in its location, and was concentrated before World War II in and around Moscow, Leningrad, Vladimir, and Kalinin. Pharmaceutical production of all kinds, before 1940, took place for the most part in Moscow, Leningrad, Kharkov, Kiev, Baku, and Chimkent, the latter being in Kazakhstan.[68]

World War II wreaked heavy damage upon the chemical industry. Many chemical plants were located in German-occupied areas and were destroyed or seriously damaged, though some of those most important for armaments output were successfully evacuated eastward. What remained of the chemical industry was concentrated virtually exclusively upon meeting military needs. The nitrogen industry, producing ammonia and nitric acid for explosives, received the greatest development. As a result, 252,000 metric tons of concentrated nitric acid were produced in eastern areas in 1942 and 342,000 tons in 1943, as compared with 232,000 tons produced in the entire USSR in 1940.[69] Fertilizer output was one of the chief casualties of the conflict, production having fallen to 20 per cent less than the 1938 level in 1940 and to probably less than one third of 1938 output at the lowest point of the war.[70] Large quantities of pharmaceuticals and other chemical products had to be

[66] Balzak, *et al.*, *op. cit.*, pp. 289–90.
[67] *Ibid.*, pp. 285–87.
[68] *Ibid.*, pp. 291–92.
[69] Voznesensky, *op. cit.*, p. 44.
[70] Jasny, *The Socialized Agriculture of the USSR*, pp. 495–96. *Pravda*, April 3, 1947.

imported from the United States, Great Britain, and Canada under the Lend-Lease and Mutual Aid programs.

The Fourth Five-Year Plan called for extensive development of the chemical and rubber industries during 1946–50. By the latter year chemical production was scheduled to be 50 per cent above that of 1940, while prewar output of synthetic rubber was to be doubled. Fertilizer production was to be restored to prewar levels and then raised substantially above them to 5,100,000 metric tons in 1950. Destroyed chemical plants were ordered rebuilt; new aniline dye, paint and varnish, and plastics works were scheduled for construction; new branches of organic synthesis to process coal and use oil refinery by-products were to be established; and synthetic rubber production was to be so developed as to reduce the share of rubber produced from food materials such as potatoes to 62 per cent of the total. Though specific information on the progress of this program has been scanty, there seems little doubt but that much of it was accomplished in the period up to 1950.

The Machinery Industries

Since 1928 the development of Soviet machine-building industries of all types has been the central facet of industrial growth in the USSR. Measured in 1926–27 rubles, machinery output in 1940 was 54 times as great as in the Russia of 1913, though gross production of large industry increased only 12 times.[71] In 1913 the value of all machinery built was 900,000,000 rubles at 1926–27 prices, less than 6 per cent of gross industrial output. In 1940 the production of machinery was valued at about 45 billion rubles in 1926–27 prices, or almost one third of all gross industrial output.[72] Even after allowing for the inflationary bias of the 1926–27 ruble valuation and for the fact that these figures probably include the value of armaments, it is clear that this branch of the Soviet economy has been developed tremendously. In the late 1920's and early 1930's the USSR had to import large quantities of machinery of all types for installation in the new plants, mines, and railroads being built, as well as for use on collective farms. Since the late 1930's, however, the USSR has become much more independent of foreign ma-

[71] *Planovoye Khozyaistvo,* No. 4 (1946), pp. 4 and 18.
[72] Calculated on the basis of preceding data and *Sot. Strot. (1933–38),* p. 22.

chinery supplies and has provided the great bulk of its requirements through its own manufacture. By 1950 the Soviet Union had become a significant exporter of machinery required by its satellites in Europe and Asia, though the quantities involved were probably not very large. Even in 1950, however, the USSR would have probably been glad to purchase large quantities of some types of machinery and equipment in the United States and other Western nations, if the latter had been willing to permit such exports in the quantities and types desired.

In this section our attention is focused upon the wide range of civilian and indirect military types of machinery and equipment whose production has been greatly expanded or initiated during the Soviet era. These include, among others, machine tools of all types; electric motors; precision instruments and control apparatus; boilers and other power-generating equipment; motor vehicles; tractors and other farm machinery; production equipment for many different industries, such as mining, chemicals, metallurgy, printing, textiles; construction machinery; and rolling stock for railroads and other transport equipment. As in the case of chemicals, the history of production development in this area of the economy has been marked by growing diversification of output and continued striving for technological improvement, based upon the results of domestic and foreign experience and research. The production of machine tools offers a graphic example of this trend. During the Second Five-Year Plan, 1933–37, about 200 types and sizes of machine tools were produced in the USSR. By 1940 there were 500 types and sizes. During the Fourth-Five-Year-Plan period, 1946–50, the USSR was scheduled to produce about 2,300 different types and sizes of machine tools.[73]

In the First Five-Year Plan, American and other foreign industry not only supplied much of the machinery for hydroelectric, steel, aluminum, and other major production units, but also much of the foundation for Soviet machine-building. Hundreds of American machine tools went into the first great Soviet tractor factories, a number of which were planned by an American firm. The Ford Motor Company and other American concerns gave the USSR the technical assistance it required to build the major automobile and truck factory at Gorky. Foreign engineers served as technical advisors and supervised construction and

[73] *Planovoye Khozyaistvo*, No. 4 (1946), p. 22.

operation of many new machinery plants, frequently modeling them after the most efficient plants abroad.[74] But as Soviet machine tool and machinery factories increased their output and as Soviet engineers mastered advanced foreign technology, the USSR's imports of machinery and technicians from abroad could be and were reduced.

The Soviet machinery industry was profoundly affected by World War II. Many important plants were destroyed or badly damaged in the occupied western areas, though the equipment of others was successfully evacuated eastward. Factories were converted, so far as possible, to the production of direct military supplies—tanks, planes, guns, and the like. A major factor that permitted this conversion to go as far as it did was the receipt by the USSR of large quantities of machinery of many different types from the United States and Great Britain during the war. This equipment aided materially in permitting the opening of new factories, mines, and power stations in the unoccupied part of the country. Soviet output of arms would have been materially lower if the USSR's factories had had to turn out the trucks, ships, machine tools, and similar complex equipment obtained from the Western allies.

At the end of World War II, faced with the necessity of re-equipping large numbers of devastated productive installations as well as building new ones, the USSR required large quantities of new machinery. Part of this need was satisfied by large-scale seizures of equipment of all types in areas occupied by the Red Army. The machinery industry was partially reconverted to peacetime production, but in the early postwar period its output in many branches climbed only slowly toward prewar output marks. The USSR desired to make important purchases of machinery abroad to supplement that available from the first two sources, but the amount actually obtained was well under that wanted, as the result of high domestic demand in the United States followed by the imposition of a virtual boycott on machinery exports that could increase the USSR's military potential.

Since World War II, great efforts have been made to incorporate technical production advances achieved in building military equipment during that struggle into the practice of the nonmilitary machinery industry. Mass-production techniques involving the use of assembly lines and conveyor belts have been introduced into many different branches

[74] Heymann, *We Can Do Business With Russia*, pp. 8–61.

of machine-building that before the war operated on more primitive levels. Serious efforts have been made to encourage development of the specialized manufacture of parts and semifabricated products so as to create integrated systems of plants, consisting of suppliers and final assembly units.

Much progress has apparently been made in these directions, but serious difficulties have also appeared. Assembly-line techniques, for example, require a smooth flow of all component parts and materials in pace with the speed of assembly. Such finely articulated cooperation is difficult to achieve under any circumstances and has been particularly difficult under the strains and shortages of the Soviet economy since 1945. As a result frequent stoppages and interruptions have occurred in assembly-line output because of the uneven rhythm of material and parts supply.[75]

Proper specialization, and cooperation among different plants producing related products, have also encountered difficulties of a serious order. Plants asked to make nonstandard parts for others frequently tend to give such output low priority on their work schedules, regardless of the effect upon the purchasing plant. Factories turning out standard parts required by plants belonging to different industries and chief administrations frequently tend to favor plants in their own administrative organization, and to show bureaucratic disregard of the requirements of plants in other ministries or chief administrations.[76] The poor geographical distribution of specialized producers of parts and semifabricated products frequently requires, apparently, shipment of such items as stampings, forgings, gears, and other items over long distances. Thus one Urals machinery plant was reported in mid-1950 as receiving forgings and stampings from Barnaul, 1,200 miles away. This seems a somewhat extreme, but by no means unusual, case.[77] Unable to find adequate suppliers for parts and semifabricated products they require, many Soviet assembly plants find it necessary to manufacture for themselves relatively small quantities of such essential products, even though such manufacture is usually done in a primitive manner and at far higher cost than in specialized plants. In May 1950 one Leningrad plant direc-

[75] Cf. the typical example cited in the description of the Kolomna Locomotive Works in the *Current Digest of the Soviet Press*, April 8, 1950, pp. 41–42.

[76] *Planovoye Khozyaistvo*, No. 5 (1949), p. 42.

[77] *Pravda*, July 19, 1950.

tor complained bitterly in a newspaper article that his plant had to produce its own optical instruments, electric lamps, electric motors and transformers, and steel forgings, although the city was well supplied with specialized plants producing these items, which did not always work at capacity.[78] Such complaints of poor coordination among plants and their suppliers were very frequent in 1946 and 1947, when Soviet industry was in the difficult throes of reconversion. Their persistent continuance as late as 1950 suggests that very much remains to be done in modernizing and improving the work of machinery construction industries.[79]

In the paragraphs below we shall consider briefly the development of production and the geographical distribution of plants in some of the chief branches of Soviet machine-building.

Farm Machinery. Soviet production of tractors, combines, tractor and horse-drawn implements, and other items of farm machinery grew very rapidly in the early and middle 1930's, as many large new plants were built and put into operation. In the late 1930's production of tractors, and probably some other major items, was sharply reduced, as some of this industry's plants were converted to military production well before the German invasion of the USSR. Soviet production of new farm machinery during World War II seems to have been very small, the result both of losses of plants in the western area and the almost complete military conversion of those remaining under Soviet control. In the postwar period there have been many complaints about the slow pace of recovery of Soviet farm machinery output, recovery of which has apparently lagged far behind the needs of the USSR's agriculture. The statistical picture of tractor and combine production is shown in Table 19.

TABLE 19. Output of Tractors and Combines in the USSR.

Item	*1913*	*1927/28*	*1936*	*1940*	*1945*	*1949*	*1950 Goal*
			(THOUSANDS)				
Tractors	0	1.3	116.1	31.0	7.3	83	112
Grain Combines ...	0	0	42.6	10.0	.3	29	*

* Data unavailable.

Sources: 1913 and 1936–*20 Let Sovetskoy Vlasti*, p. 27. 1928–*Sot. Stroi.*, pp. 160, 162. 1940, 1945, and 1949–Estimated from material in Voznesensky's speech of March 15, 1946; in *Voprosy Ekonomiki*, No. 5 (1950), p. 42; and in Bergson, *et al.*, *op. cit.*, p. 56.

[78] *Ibid.*, and *Leningradskaya Pravda*, May 12, 1950.

[79] Schwartz, *Russia's Postwar Economy*, pp. 35–40.

These data are representative of the fluctuations in output of modern types of farm equipment in the USSR, though plants producing simpler devices than tractors and combines may not have had their production lowered so drastically between 1936 and 1940.

Among the major farm machinery plants built in the USSR during the 1930's were the tractor factories at Stalingrad, Kharkov, and Chelyabinsk; the combine plants at Zaporozhe, Rostov, Saratov, and Lyubertsy (Moscow Province); and the giant agricultural machinery factory at Rostov. Much of the equipment of the Kharkov plant was moved eastward to Rubtsovsk in Altay Territory, where a new tractor plant was built during the war. Other new postwar tractor plants have been built or are being built at Lipetsk, Vladimir, and Minsk; and the ruined Stalingrad and Kharkov factories have been restored and put into operation again. Similar expansion and rehabilitation have taken place in other farm machinery factories, so that by 1950 the USSR's productive capacity in this area probably substantially exceeded that of 1940. The lag in production behind the highest marks of the 1930's, however, suggested either that part of this capacity was being employed for military rather than farm output or that shortages of materials and parts were keeping output down.

In the postwar period, Soviet farm machine builders have increased the variety of machines made, introducing new and improved types of diesel and crawler tractors, self-propelled combines, cotton pickers, sugar beet harvesters, and a wide range of other new equipment.

Motor Vehicles. Data on production of motor vehicles in the USSR will be considered in more detail in the chapter on Transportation and Communications. We may note here, however, that Soviet motor vehicle output increased from about 1,400 in 1929 to over 200,000 in 1938, probably the prewar peak. Truck production accounted for the great bulk of this output. Only about 20,000 passenger cars were produced in 1938, as against almost 180,000 trucks. The prewar peak of automobile and truck production was regained and exceeded in the late 1940's. The main Soviet passenger cars, the small *Moskvich,* medium *Pobeda,* and the large, luxurious *ZIS,* are largely modeled after foreign cars such as the German Opel and the American Chevrolet and Packard. During the late 1920's the small AMO assembly plant in Moscow was renamed the Stalin plant and greatly expanded. Other major automobile plants were built at Yaroslavl, Gorky, and Rostov.[80]

[80] Balzak, *et al., op. cit.,* pp. 280–81.

In the postwar period, automobile plants in Moscow, Gorky, Yaroslavl, and Miass (in the Urals) are being or have been expanded; and new plants are being built at Dnepropetrovsk, Kutaisi, Ulyanovsk, Minsk, and Novosibirsk. Postwar truck models are scheduled to have carrying capacities varying from 2 tons (GAZ–63) to 5 to 7 tons (YAZ–200), and will have either diesel motors or more efficient gasoline engines, though there are also some gas generator models using hard fuels. Among new automobiles the *ZIS–110* is to have 140 horsepower and a top speed of over 80 miles an hour. The *Pobeda* is to have a 50 horsepower motor and a top speed of over 60 miles an hour. The small *Moskvich* has a 23 horsepower motor and a top speed of under 60 miles an hour.[81]

Machine Tools. The production of metal-cutting machine tools of all types has been one of the most actively developed branches of machinery construction, because of the fundamental importance of these products for creating and maintaining modern industrial output. In 1928 the USSR produced about 1,800 machine tools; but ten years later, in 1938, about 53,900 were produced, and a goal of 70,000 had been set for 1942. The latter goal was apparently never reached, because of the German invasion in 1941; but in the postwar period there has been a renewed drive to make up the losses suffered during the war. Production of machine tools in 1950 was scheduled to be 74,000, of which 12,300 were planned to be aggregative and special types. By that year the USSR was scheduled to have in operation a total of 1,300,000 machine tools.[82]

Before World War II machine tool plants were built in Moscow and Leningrad, and in the Ukraine and the Urals, where skilled labor and high-grade metal were available. Turret lathes were made in Moscow, milling machines in Gorky, gear-cutting tools and combination lathes in Sverdlovsk, automatic machine tools in Kiev, and so on.[83] During the years 1946–50 eighteen machine tool plants destroyed in the formerly occupied western areas were scheduled to be rebuilt. In addition, five new plants, two making heavy machine tools and three aggregate and special types, were also scheduled for construction.[84]

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[81] *Planovoye Khozyaistvo,* No. 4 (1946), pp. 23–24. Full technical data on Soviet motor vehicles of all kinds are given in V. A. Korobov. *Traktory Avtomobili i Selskokhozyaistvennyye Dvigateli, passim.* Moscow: 1950.

[82] *Ibid.,* p. 22.

[83] Balzak, *et al., op. cit.,* p. 273.

[84] *Planovoye Khozyaistvo,* No. 4 (1946), p. 23.

Other Machinery. In addition to the products discussed, Soviet machinery plants produce a large variety of power, transport, and industrial equipment. The growth of this output has roughly paralleled that of the commodities discussed above. The number of locomotives produced, for example, increased from 479 in 1927–28 to 1,214 in 1937, while the 1950 goal was 2,720 railroad locomotives. Plants producing industrial equipment were distributed about the country, usually in close proximity to the industries they served. The major centers for all types of machine building were in the Ukraine, the Urals, and in and near Moscow and Leningrad. In the postwar period the relative importance of machinery plants in the Volga area and further east is considerably above what it was in 1940, though many of the plants destroyed in the west, particularly in the Ukraine, are being or have been restored to production. New plants built since the war have been located in many different parts of the country, including the Baltic States and other western areas incorporated in the USSR since 1939, with the object of securing a more widely dispersed location pattern for this industry.

The Armament Industry

In keeping with its policy of secrecy regarding military matters, the USSR has released extremely little information about all branches of its armament industry. It has made no secret of the fact that it sought to create modern plane, tank, gun, munitions, and other related factories during the 1920's and 1930's, as well as to build up the ship construction industry required to produce various types of naval vessels, including both surface ships and submarines. Much of the industrial development since 1928 has been aimed at providing the raw materials and machinery needed to equip and supply this armament industry from domestic sources alone. When the great test of these preparations came, during World War II, the losses of western plants proved so great that domestic Soviet arms production—even though expanded through conversion of many factories formerly making civilian equipment—proved inadequate, and large shipments of military items were required from abroad. Nevertheless there seems little reason to doubt that the USSR produced the great bulk of its World War II arms and munitions itself.

A few figures have been released regarding production of some items during World War II. In the last three years of the conflict, Soviet industry manufactured an annual average of over 30,000 tanks, self-propelled guns, and armored cars; about 40,000 planes; almost 120,000 artillery pieces of all calibres; nearly 450,000 light and heavy machine guns; over 3,000,000 rifles; and about 2,000,000 sub-machine guns. During 1942–44 an average of 100,000 mortars was produced annually. In 1944 over 240,000,000 shells, bombs, and mortar shells, as well as 7,400,000,000 cartridges, were produced.[85] Most of these figures are averages, so that they hide the actual sharp growth of output during the war, which is revealed by the following Soviet statement:

> During the war years airplane production in the USSR grew 4 times, tank production 7–8 times, artillery 6–7 times, mortar armament almost 8 times, military supplies almost 4 times. To the end of the Patriotic War the quantity of weapons in our army increased more than 5 times in comparison with the beginning period of the war, the quantity of airplanes 5 times, the quantity of tanks of contemporary models 15 times. . . .[86]

These high rates of growth taken in conjunction with the averages cited above suggest that at its peak during World War II Soviet industry probably turned out in one year more than 50,000 planes, 40,000 tanks, and 150,000 artillery pieces.

An official summary of the tempo of growth of Soviet armaments production during the 1930's is provided by the following statement:

> During 1933–1938 the military industry of the USSR increased by 286 per cent; the production of the aviation industry rose 5.5 times during five years.
>
> During the period from 1930 to 1939 the Red Army's supply of tanks increased 43 times, of airplanes 6.5 times, artillery equipment 7 times, tank and anti-tank artillery 70 times.[87]

Prof. M. G. Clark has made a careful study of the distribution of Soviet iron and steel consumption by different industries in the 1930's and has concluded that all munitions production is concealed in these statistics under the title "Miscellaneous Machine Building." On the basis of this analysis the data indicate that as early as 1932, production of

[85] *Entsiklopediya*, cols. 827–28, and text of Fourth Five-Year Plan.
[86] *Voprosy Ekonomiki*, No. 5 (1950), p. 15.
[87] *Planovoye Khozyaistvo*, No. 1 (1946), p. 63.

arms and munitions of all types consumed almost 22 per cent of all Soviet iron and steel, and that this had increased to over 29 per cent by 1938. The absolute amounts used for that purpose rose in the same period from 1,646,600 metric tons to 4,986,200 metric tons. Steel used for munitions construction rose from 252,000 metric tons in 1932 to 880,000 tons in 1938. In 1932 munitions plants accounted for almost 46 per cent of all iron and steel used in construction of machine tool plants. By 1938 virtually all other machinery plant construction must have ceased, for iron and steel used in munitions construction accounted for 94.3 per cent of all that consumed in machine-building construction.[88]

Prof. Clark's statistical conclusions on the growth of Soviet munitions production from 1932–38 are presented in Table 20.

TABLE 20. Consumption of Iron and Steel in Munitions Industries of the USSR, 1932–38.

	1932	*1933*	*1934*	*1935*	*1936*	*1937*	*1938*
Total tonnage, Thous. Met. Tons	1646.6	1378.1	2204.6	2667.9	2873.3	4019.1	4986.2
Munitions as % of Machine Building	40.4	32.6	38.2	38.0	35.4	47.1	57.5
Munitions as % of All USSR Consumption	21.8	17.5	17.5	19.3	17.4	23.2	29.2
Munitions as % of Machine-Building Construction	45.8	65.9	72.8	73.4	82.5	84.5	94.3
Munitions as % of All USSR Construction	17.1	12.8	11.3	13.5	21.8	24.7	30.6

Source: M. G. Clark, *Some Economic Problems of the Soviet Iron and Steel Industry*, p. 42.

No similar information on production of armaments and munitions or consumption of materials for this purpose is available for the years since 1945. In view of the strained international situation, it seems likely that such output has been maintained at a level relatively high, compared to that in the late 1930's. Estimates of such production that have appeared in the press from time to time are essentially guesses of unknown reliability. The high quality of new Soviet weapons used by North Korean forces in 1950 suggested the great emphasis being given to manufacture of weapons in the USSR in the years after World War II.

[88] Clark, *op. cit.*, pp. 41–42.

Consumer-Goods Industries

By consumer goods is meant here all commodities purchased by consumers for their own use, including durable consumer goods, clothing and clothing materials of all types, and manufactured food products. Durable consumer goods such as automobiles, refrigerators, washing machines, and the like are produced in small or negligible quantities, and only a small percentage of the Soviet population has ever had them available. This discussion will be largely restricted, therefore, to the other two categories.

As noted earlier, consumer-goods output has been the neglected area of Soviet economic life, being slighted in comparison to the enormous resources devoted to expansion of all branches of heavy industry. Official statistics that purport to show greatly increased output of these commodities as compared to Czarist times or to the late 1920's are suspect because of the frequent noncomparability of data. The large fraction of this production that was once turned out by individual craftsmen and their assistants does not appear to be taken adequately into account, and much of the increased production shown nominally by published data reflects merely the shift from artisan output to production in large government plants. In addition, the rapidly increasing urbanization of the Soviet population has resulted in a shift from household production of commodities such as bread to factory production, and the former type of output is not reflected in the data. It may well be that in the best periods of Soviet consumer goods production, a larger total was turned out than in 1913 or 1928. But whether any such increase was proportionally much greater than the population rise is difficult to determine with the inadequate and unsatisfactory data available.

Consumer-goods production in the USSR takes several forms: output of large-scale state industry under the Ministry of Light Industry, the Ministry of Meat and Dairy Industry, and other ministries; output of industrial and consumer cooperatives; and output of small-scale republic and local industry. In 1937 about one third of the output of consumer goods came from light industry, more than one third from different branches of the food industry, and somewhat less than one third from industrial cooperatives manufacturing a wide variety of food and

nonfood products.[89] While large-scale plants predominate in some branches of this section of the economy, others consist primarily of small and medium-sized work shops that seek to utilize such local materials as are available or base their operations upon waste products of heavy industry. Also, some fraction of consumer-goods output is accounted for by heavy industrial plants, which may produce such commodities as household utensils as small sidelines of their main production.

Over the years since 1928, consumer goods have usually been in none-too-abundant supply, and the usefulness of products available has been diminished by the low quality frequently characteristic of such Soviet output. Readers of the Soviet press in the 1930's and 1940's learned time and again of dresses that shrank catastrophically in the first rain, of shoes that fell apart after brief wearing, and of similar trials suffered by Soviet consumers. In the conditions of shortage that have been characteristic during most of the Soviet regime, many managers of consumer-goods plants and enterprises have apparently felt little compulsion to meet consumer desires as regards quality and variety of output.[90] The low priority given these branches of production has also resulted, in all probability, in their getting the least desirable workers and managerial personnel on the whole, for rewards to talented persons have been higher in heavy industry. The fact that in May 1950, when heavy industry had reached an all-time output peak, it was difficult to buy furniture in Moscow is indicative of the situation in this area.[91] Shortages of consumer goods were most severe in the early 1930's and during World War II. The virtually complete concentration of output upon military needs during the latter period created clothing and food shortages and other difficulties of the most extreme sort. Improvement from the lowest levels took place in the middle 1930's and after 1945, but even the best conditions ever enjoyed by Soviet consumers would be considered deplorable by one accustomed to American standards, even during World War II. The level of material abundance at which Soviet citizens live is suggested by the fact that throughout the Soviet regime annual produc-

[89] Balzak, *et al., op. cit.*, p. 308.

[90] Cf. the typical complaints on this subject in *Izvestia,* August 4, 1949, and *Pravda,* September 13, 1949.

[91] *Moskovskaya Pravda,* May 8, 1950.

tion of leather shoes has never appreciably exceeded one pair per person, and has frequently been far below that poor level.

Data on production of some major types of consumer goods are shown in Table 21.

TABLE 21. Production of Some Consumer Goods in the USSR, 1930–50.

Commodity	*Unit*	*1930*	*1935*	*1940*	*1945*	*1949*	*1950 Goal*
Cotton Cloth	mil. meters	2,515	2,612	4,005	1,674	3,682	4,786
Woolen Cloth	mil. meters	100.6*	86.1†	119.8	56.9	153 6	168
Leather Shoes	mil. pairs	75.4§	85.5§	230.0	60	156.0	240
Hosiery	mil. pairs	208.0‡	353.7	480.0	83.0	340.3	580

* 1928–29.
‡ 1932.
† 1933.
§ Large industry only.

Sources: Data taken from or estimated on basis of *Sot. Stroi.*, pp. 204, 206. *Sot. Stroi. (1933–38)*, p. 73. Bergson, *et al.*, *op. cit.*, p. 56. Harry Schwartz, *Russia's Postwar Economy*, p. 23. *Pravda*, March 10, 1950. *Legkaya Promyshlennost ot VI k VII Syezdu Sovetov*, p. 26.

Cloth. Cotton cloth is by far the most important textile in the USSR and the primary clothing material of the country. In Czarist times most cotton and other textile production was overwhelmingly concentrated in the Central Industrial area, the largest centers being Moscow, Ivanovo, and St. Petersburg (Leningrad), which received their raw materials from domestic sources such as Central Asia or from abroad. Soviet government development of cloth production was based upon intensive efforts to increase domestic cotton and other raw-material output so as to reduce or eliminate the need for large-scale imports from abroad. Old factories were reconstructed and a number of new factories were built, but the latter tended to be very large enterprises that took a long time to construct, typical of the "gigantomania" that afflicted Soviet industrial planning before the late 1930's. An effort was made to achieve a more even geographical pattern of production by building new plants in Western Siberia, particularly at Barnaul, and in Central Asia near the major cotton-growing areas. In the development of the 1930's, however, a serious disproportion arose between spinning and weaving capacity, the shortage of the former preventing the utilization of all Soviet cotton output as well as the operation of weaving and hosiery mills at full capacity. During this period the cotton-textile industry consistently failed to achieve its production plans, a situation

blamed officially on "saboteurs" and "wreckers," but probably more properly attributable to poor planning and the low priority of this industry.[92]

During World War II, about 33 per cent of all Soviet spindles and 20 per cent of the country's looms were probably destroyed, while in unoccupied areas production was stopped in many plants to conserve manpower, fuel, and other resources.[93] The relatively small volume of output that continued to be produced probably was designed for the most part to meet military needs. In the postwar period, reconstruction of textile production was pushed by the government; but data available in the middle of 1950 suggested that cotton-cloth production that year would be only about 3.9 billion meters, well below the 4.8 billion meters projected for 1950 in the Fourth Five-Year Plan.[94]

While cotton-cloth production in 1950 may have been below or at best equal to that of 1940, woolen-cloth production was probably well above prewar levels. In 1949 output of both wool and silk cloth was well above that of 1940.[95]

Some indication of the postwar geographical concentration of textile output is given by the report of the Minister of Light Industry, in early 1950, that 52 per cent of all cotton cloth and 70 per cent of all linen cloth were being produced in Ivanovo, Kostroma, and Vladimir provinces near Moscow.[96]

Clothing and Knitwear. Before the Bolshevik revolution clothing and knitwear production in Russia was mainly on a handicraft basis, the work being done mostly by artisans, individually or in groups. Factory production was concentrated mainly in and around Moscow and St. Petersburg (Leningrad), near the sources of cloth and thread. Development under Soviet rule in the 1920's and 1930's consisted of a substantial shift from artisan to factory production, as new plants were built in many parts of the country, though the old concentration of output was not entirely ended.[97] Development of these industries was hindered, however, by the low priority given them in the securing of

[92] *Land of Socialism Today and Tomorrow,* pp. 365–66. Balzak, *et al., op. cit.,* pp. 311–12.

[93] Bergson, *et al., op. cit.,* p. 55.

[94] Estimate derived by using figures on increased output in first two quarters of 1950 in conjunction with 1949 production figure given earlier in text.

[95] *Pravda,* February 12, 1950.

[96] *Moskovskaya Pravda,* March 9, 1950.

[97] Balzak, *et al., op. cit.,* pp. 317–18.

new capital and additional labor. The result was that output lagged far behind demand, and that quality of production was low. Indicative of the inadequate production was a government survey, made in 1936; it found that demand of consumers was for 967 million pairs of hosiery and 231 million pieces of knitted underwear. Planned production for that year, however, was for only 420 million pair of hosiery and 96 million pieces of knitted underwear, less than half the demand in each case.[98] The quality of Soviet output in this field is perhaps best indicated by this 1939 statement of Politburo member A. I. Mikoyan:

> Are not the leaders of light industry ashamed when, for instance, a woman cannot wear a good pair of stockings without people saying they must be imported? Why can't we produce more good stockings? Or take ties—if they are attractive, people say they must be imported. . . . Why should not good stockings and good ties be Soviet-made, not imported; why should not consumer goods be on a par with or superior to the best foreign make?[99]

Few output figures for clothing and knitwear are available for the years since 1940, but inasmuch as this type of production is dependent upon the development of cotton and other textiles, it seems likely that its development has been similar to that described in the preceding section. Even if the 1950 planned figure for hosiery output, 580 million pairs, was achieved—which seems unlikely—it would still provide less than three pairs of stockings or socks per capita. And this is probably not an unrepresentative example.

Shoes. Before World War I, Russian shoe production was concentrated mainly in the hands of artisans working individually or in groups; shoe-manufacturing factories produced only about 8 million of the 50 to 55 million pairs produced annually.[100] The industry depended upon foreign sources for much of its raw materials and machinery. Development in the USSR before World War II was in the direction of building shoe factories; the private handicraft industry was wiped out. In addition, all branches of leather production were developed, in an effort to make the country independent of foreign supplies. The inadequacy of domestic leather supplies could not be remedied, however, because of the inadequate size of Soviet livestock herds, particularly after the great

[98] *Trikotazhnaya Promyshlennost,* No. 6 (1936), pp. 1–3.
[99] *Land of Socialism Today and Tomorrow,* p. 369.
[100] *Vestnik Kozhevennoy Promyshlennosti i Torgovli,* No. 11 (1927), pp. 399–401.

losses of the early 1930's. To make up this deficiency, production of leather substitutes as raw materials for shoes has been pushed vigorously. The old shoe-production factories in Moscow and Leningrad were rebuilt and expanded, and new ones were built in different parts of the country.[101] Like other branches of consumer-goods production, shoe output fell catastrophically in the years of World War II. Even if the 1950 goal of 240 million pairs was achieved, which seems unlikely, this would do little more than provide one pair of shoes per capita for the Soviet population. At no time in the Soviet regime, in all likelihood, has consumer demand and need for shoes ever been adequately met. Moreover, the quality of much of the output that was achieved has been poor and unsatisfactory.

Cooperative and Local Production. As noted above, production of consumer goods by local state industry and by industrial cooperatives covers a wide range of commodities. Enterprises in this category can be thought of as the Soviet equivalent of the old handicraft and domestic industries of Czarist Russia. The government's intention in sponsoring this decentralized type of organization is presumably to permit maximum flexibility in adjusting production to demand and to encourage local initiative in developing output on the basis of local raw materials and the wastes and surpluses of large plants in other fields. But this type of organization also probably reflects government unwillingness to sponsor the growth of consumer-goods output with the same high capital investment as has been devoted to heavy industry. Cooperative and local industry production before World War II was concentrated in Moscow, Leningrad, Kiev, and Kharkov, while such output was small or insignificant in the area from the Volga River to the Pacific.[102] In the postwar period, the same concentration of local industry and industrial cooperatives has persisted. In 1947 almost half of all production by local industry in the RSFSR came from Moscow, while production in the regions of the Volga, Urals, Siberia, and the Far East was only 13 per cent, equal to only about one quarter of the output in Moscow alone.[103]

During World War II, these small consumer-goods enterprises were either wiped out or converted entirely to subcontracting for military

[101] Balzak, *et al., op. cit.*, pp. 318–19.
[102] *Planovoye Khozyaistvo,* No. 9 (1939), p. 113.
[103] *Ibid.,* No. 4 (1948), p. 56.

production. Apparently disturbed by the slow revival of state-operated consumer-goods plants, the Soviet government took decisive action in late 1946 to stimulate industrial cooperatives toward much greater production of consumer goods, giving them the incentives and privileges discussed in the previous chapter. The 1947 goals set for these enterprises included production of about 30,000,000 pairs of shoes; 40,000,000 pairs of hosiery; 54,000,000 meters of cotton cloth; and so forth.[104] The government drive to encourage cooperative production apparently had some significant results, but as late as mid-1949 the record for the first half of that year was summarized in this fashion:

> Enterprises of industrial cooperatives substantially underfulfilled production plans for construction materials, iron, enamel and glass utensils, shoes, linen and silk cloth. The quality of a significant part of goods produced is still unsatisfactory, the assortment is limited, and prices are high in a series of cases.[105]

In addition, however, such cooperative output was reported to exceed prewar levels and to have improved considerably over earlier postwar years.[106] A lengthy description of the very important local industry in Moscow Province as of May 1950 painted a picture of chaotic disorganization, great shortages of material, poor planning, failure to utilize capacity fully, and inadequate production.[107]

Since World War II, the Soviet government has also attempted to increase the output of some consumer goods, particularly household utensils of all kinds, by having large factories in heavy industry establish subsidiary shops to produce them from plant scrap and waste products. The size of the output obtained from this source has not been clearly indicated, but reports in the Soviet press suggest that the experiment did not work out too happily. Enterprises in heavy industry apparently disliked this assignment, since it diverted labor and materials from the types of output on which their production was judged by higher authorities. In consequence these plants often tried to discontinue this sideline consumer-goods production, or to reduce it, despite official orders for expansion.[108]

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[104] Schwartz, *Russia's Postwar Economy*, p. 44. *Izvestia*, November 12 and 14, 1946. *Pravda*, December 29, 1946.
[105] *Izvestia*, August 6, 1949.
[106] *Ibid.*, June 1, 1949.
[107] *Moskovskaya Pravda*, May 8, 10, 12, and 17, 1950.
[108] *Pravda*, May 19 and October 5, 1948.

CHAPTER VIII

THE ORGANIZATION OF AGRICULTURE

As THE EARLIER CHAPTERS have indicated, the present organization of Soviet agriculture is the product of a long process of evolution and revolution. Behind the collective and state farms today stand the specters of serfdom and feudalism, of the Emancipation of 1861 and the Stolypin reforms, of the "black partitions" and peasant uprisings. The Bolsheviks seized and retained power, in part, by promising the land to those who tilled it. They retreated before the peasants' anger in 1921 when it threatened the end of their rule. Throughout the 1920's the existence of well over 20,000,000 independent farms was in glaring contradiction to the increasing dominance of the centralized socialist state in the nonagricultural economy. Even more important, the freedom of action of the wealthier and middle peasants, who had food surpluses to dispose of, threatened to disrupt the government's plans for the future. A costly and bitter struggle took place in the early 1930's before the government mastered the peasantry by collectivizing the great majority of them. But even this victory did not conclude the struggle between the state, interested in exploiting agriculture for its own ends, and the farmers, anxious to serve their own interests. Changed in form by the triumph of collectivization, the conflict between the state and at least a substantial section of the peasantry has continued into the period since World War II, a smoldering fire under the surface of events that neither government concession nor further repression has been able to extinguish entirely.

The Agricultural Plan

Like other parts of the Soviet economy, agriculture is directed by the national economic plan, but the extent and effectiveness of planned control are significantly weaker here than in other productive areas. Nature bows not to the planner's dictum. The fluctuations of climatic conditions produce unpredictable fluctuations in harvests. The very nature of agriculture is such that the human beings engaged in it are dispersed over large areas. Control over them, even on a collective farm, is far more difficult than similar control over workers concentrated by the hundreds or thousands in the limited area of a factory. These and other differences between farming and other occupations have not been adequate to prevent a significant degree of planned control and development in Soviet agriculture, but the hopes of the planners have often been frustrated by nature or by the recalcitrance of the human beings ordered to turn plans into reality.

Agricultural objectives set down in the five-year plans cover such matters as acreages to be planted in different crops, average yields to be attained for each crop, the growth of livestock herds, expansion of farm machinery, the extent of irrigation projects, and so on. Similar but more detailed national objectives, prepared by the ministries concerned with agriculture and the State Planning Committee, are set down in the plans for each year. Special plans governing particular aspects of agricultural activity are published from time to time as need arises. The long-range program for afforestation and other antidrought measures, published in the fall of 1948, is an example of this more specialized type of state planning.

The comprehensive national programs are broken down through the chain of geographical administrative units, first the Union Republic, then the province and smaller areas, until finally the plan influences the activity of each farm and other productive unit in Soviet agriculture. In this way the transition is made from the national goal to plant, for example, 100 million hectares[1] in grain and the final decision by a particular farm to sow 100 hectares of its land in various grain crops. It is no simple task to allocate correctly the national agricultural objectives

[1] A hectare is approximately 2½ acres.

among different areas. Errors in such allocations cause difficulties at times, suggesting that the problems involved are by no means all solved.

The actual work of raising crops and livestock is carried on by three kinds of farms. The most important are the collective farms (*kolkhozy*), which produce the great bulk of agricultural output. The state farms (*sovkhozy*) produce a much smaller fraction of farm produce but are extremely important in some specialized products. Least important are the few remaining small peasant farms, which produce only a very small portion of all Soviet food. A fourth major unit important in production is the machine tractor station (MTS), which works closely with the collective farms.

Most of Soviet agriculture relating to collective farms is directed by the Ministry of Agriculture, which has an elaborate central organization in Moscow and an extensive field apparatus. Its agents are to be found in every part of the Soviet Union. The ministry and its agents supervise the execution of the collective-farm plan and the day-to-day progress of agricultural activity. It collects a huge volume of agricultural statistics, almost none of which, however, are made public. Not the least of the ministry's functions is its research activity, carried on in almost a thousand agricultural research institutions of many kinds.[2]

Most state farms are directed by the Ministry of State Farms, which exercises complete control over these state-owned and -operated units. But in April 1950 all functions and component organizations relating to cotton production were transferred from the Ministry of Agriculture and the Ministry of State Farms to the new Ministry of Cotton Growing. The jurisdiction of the latter ministry covers all phases of growing, government purchase, and primary processing of cotton, including control of such installations as cotton-growing state farms, irrigation projects in cotton areas, and cotton gins. All three of these ministries are in the union-republican category, so that subordinate ministries of the same title exist as appropriate in the different Soviet republics.

In agriculture, as elsewhere, the Communist Party also plays an important role in providing direction, inspection, and, often, final authority. Local party units exist on many collective and state farms. In rural areas,

[2] Eric Ashby, *A Scientist in Russia*, pp. 30–34 and 212–15. New York: Penguin Books, 1947.

local party heads exercise much influence over the activities both of farmers and of government organizations dealing with agriculture.

The Collective Farm

In theory a collective farm is a democratic, cooperative association of farmers who have pooled their land and capital to form a large enterprise, which they operate in common, sharing its net proceeds in proportion to the quantity and quality of work they do. It is claimed that these large farms make for more efficient and bountiful production, since they avoid the inefficiencies and wastes of small peasant farming. In addition it is said that only by their formation was it possible to secure the use of modern agricultural techniques, particularly those associated with the use of tractors and other agricultural machinery. In the United States, however, machinery and scientific techniques are employed on family farms much smaller than the average collective farm.

Initially, during the 1920's, three major types of collectives were experimented with: the *toz*, the *artel*, and the *commune*. Today the *artel* is the standard type of collective farm.[8] The *toz* or "Society for Joint Land Cultivation," was simply a production cooperative. Farmers joined together to work their land and to buy and use expensive machinery. Each owner retained his rights to his own plots of land and to the harvest on this land, as well as to his livestock and tools. The *commune* was at the other extreme. All production capital—livestock, machinery, implements, barns, and so on—was owned by the group, whose members used them cooperatively in working the land. Members lived in community dormitories; their food was cooked in community kitchens; and their children were cared for in community nurseries. It is not surprising that the poorest peasants, who had no or virtually no private property, composed the bulk of commune members.

The *artel* is intermediate between those two forms. In it, most production is carried on collectively, and most means of production are owned by the *kolkhoz* (singular of *kolkhozy*); but some private production is carried on separately by each member family. Each farmer owns some

[8] In 1933, 96.3 per cent of all collectives were *artels;* 1.9 per cent *toz;* and 1.8 per cent *communes.* Cf. Naum Jasny, *The Socialized Agriculture of the USSR*, p. 320. Stanford, California: Stanford University Press, 1949.

agricultural capital such as livestock and simple tools. But he also shares in the result of the collective work in which he has participated. He thus receives both a collective and a private income, which he and his family can consume as they wish. Obviously this is a compromise between fully socialistic and fully individualistic production. As we shall see, many of the problems of *kolkhoz* agriculture have arisen from the instability of this compromise.

The Kolkhoz *Charter*

Each collective farm has a charter, or constitution, which defines its organizational structure, the responsibilities of collective farmers, and similar important matters. The present charter is largely the same as that drawn up by the government in 1935, which modified earlier practices. The description of collective farm organization that follows is based upon that charter and subsequent changes made in it.[4]

The collective farm's land is an aggregate area to be used for the profit of the collective farm as its needs dictate. The land itself belongs to the state, but the *kolkhoz* has the right to permanent use, a right confirmed by a government certificate that also indicates the boundaries of this area. This land may not be sold, bought, or leased. Each peasant family belonging to the *kolkhoz* has the right to a garden plot, varying in size in different areas from one quarter of one hectare to one hectare, which the members of the peasant family may cultivate as they see fit. None of the *kolkhoz* land may be given to a member who withdraws, and the area is, in general, inviolate.

Despite these charter provisions, the later history of collective farms has revealed many instances in which *kolkhoz* land has been alienated illegally: by *kolkhozniki* (collective farmers) wishing to expand their private gardens beyond the legal maximum, by government organizations wishing to raise foodstuffs for their employees, and so on. At various times—as in 1939 and 1946—the government has had to step in to restore large areas to the collective farms.

The *kolkhoz* owns all means of production save large machinery required to operate its enterprise. The means include cattle, simple implements, farm buildings, flour mills and other initial processing equip-

[4]An English translation of the charter is given in Hubbard, *The Economics of Soviet Agriculture*, pp. 131–47, and Gsovski, *Soviet Civil Law*, Vol. 2, pp. 441–62.

ment, seed, fodder, and the like. The *kolkhozniki* may use privately, i.e., own, their dwelling houses, garden tools, private livestock, and the buildings necessary to house these livestock. The number of animals a peasant household may own is rigidly limited, the actual quantity depending upon the area. In regions primarily devoted to crop-raising, for example, the limits are one cow, two calves, one or two sows (depending upon the discretion of the farm administration) and their progeny, up to ten sheep or goats, an unlimited number of poultry and rabbits, and up to twenty beehives.

The *kolkhoz* is obligated to carry on its work on the basis of an annual operating plan. This plan is drawn up by taking into account the government agricultural plan and the collective's obligations to the state under it. Farm operations must be carried on properly, and the farm must be operated so as to maximize production and conserve *kolkhoz* assets. It is the obligation of the collective also to improve the technical proficiency of its members and to provide them with amenities such as newspapers, books, barber shops, and clean streets.

Under the charter the general meeting of members is the highest authority on the collective farm. It elects all officers; decides on the acceptance of new members and the expulsion of old ones; and approves all budgets, plans, and other basic documents and decisions prepared by the administrative officers. Between general meetings, management of the farm is in the hands of the managing committee, consisting of five to nine committeemen (depending upon the collective's size), elected by the members at the general assembly. The highest official in the collective farm is the chairman, who is also, in theory, democratically elected by the general assembly.

With a few exceptions all collective farm work must be done by its members. Specialists may be hired if needed, and extra help may be taken on during harvest or other rush seasons. Otherwise the *kolkhozniki* and members of their families are the entire labor force of the farm.

Labor organization on each *kolkhoz* is obtained by means of division of the membership into a number of brigades. Each brigade is in theory composed of 50 to 100 members assigned to work in it for a period of time equal to the period of the crop rotation involved, i.e., three or more years in most cases. The brigade is equipped with the necessary machinery, livestock, and other equipment to perform its task. It is headed

by a brigadier, who is in complete charge of its activities. Many brigades are further subdivided into small work squads, usually composed of a dozen or fewer persons. This work squad is called a *zveno,* or link. A major problem of collective farm organization over the past two decades has been the turnover in membership of brigades and links. For best results the Soviet government has sought to obtain relatively constant membership in these organizations from year to year. The thought behind this has been that workers who do the same task and work on the same ground or livestock for several years will become most proficient at their task. Moreover, as we shall see below, this problem of constant membership of work teams, whether brigades or links, is closely connected with the question of increasing the incentive of collective farm members for maximum production. Although collective farm charters have provided for constant membership of these work teams since 1935 at least, this problem is still a matter of concern at the present.

Labor on the collective farm is measured in terms of an arbitrary unit, the work day. A work day is not a chronological day. Rather, it is a measure applied to the performance of a certain norm of work. For example, a worker who weeds an acre of onions may be given one-half a work day credit for his activity. On the other hand, a cotton harvester who has picked two acres may be given two-and-a-half work days credit. Under a reform adopted by the Soviet government in early 1948, there are nine different work-day rates for different tasks. These range from one-half a work day, the compensation for the least skilled and least arduous type of work, to two-and-a-half work days, the compensation for the most skilled and most arduous type of work. By use of this measure the Soviet government attempts to obtain a means of payment that reflects both the quantity and the quality of the work of each collective farmer. In particular, in the postwar period, the work-day method of payment has been modified to obtain a measure of payment related to the output received for the work expended. Each brigade and link receives a one per cent addition to the number of work days it has earned for each per cent by which its production exceeds the planned output. Conversely, for each per cent by which its crop or livestock outputs falls below the plan, one per cent of the work days it has earned is deducted, with a maximum deduction of 25 per cent. The intention here is obviously to reward those workers who do the best work and to

penalize slackers. It is clear that such bonuses and deductions can only be applied effectively if the same workers are responsible all through the crop year or the livestock period for a particular portion of the work. It is for this reason that the Soviet government is now extremely anxious to obtain constancy in the membership of brigades and links engaged in collective farm work.

The similarities between this method of compensation for agricultural work and industrial wage rates are clear. The work-day unit permits the application of piece rates to agriculture. In addition, the rewards and deductions dependent upon amount of output permit greater inequality between workers—inequality, of course, determined by their production. All this is the application in agriculture of principles that have for a long time been dominant in the payments to industrial workers.[5]

The annual production and income of a collective farm are disposed of in a rather complicated fashion. The state has first claim upon production and receives a large share of all crop and livestock products. Most of the state's share is obtained in three ways. The first is the tax in kind, levied on all farm production. For grains, oil-seeds, potatoes, vegetables, and certain other crops, this tax is computed as a delivery quota of a certain amount per unit of arable land. For cotton, sugar beets, flax, and some minor crops, contracts are drawn up between government agencies and collective farms indicating the amounts to be delivered. Obligatory livestock product deliveries are calculated on the basis of fixed amounts per unit of all agricultural land. These tax deliveries are paid for by the government, but usually at very low prices per unit, amounts far less than the same products could be sold for in the open market. Delivery quotas vary among regions and farms, depending upon differential fertility. Although the Soviet government nominally does not charge collective farms rent for their land, the state's profit on these obligatory deliveries is clearly an analogous type of income.[6] An important economic consequence of this tax in kind is the shifting of the full burden of crop and livestock output fluctuations resulting from bad weather, insect infestation, disease, and so on to the collective farm, since the tax must be paid regardless of rises or falls in production. If crops are poor, the collective farm and its members get less, because the state's demands are

[5] *Sotsialisticheskoye Selskoye Khozyaistvo,* July 1948, p. 8.
[6] Jasny, *op. cit.,* pp. 367–71.

usually unaltered. If crops are very good, the state usually gets more than originally planned, paying somewhat higher prices for above-plan deliveries. Collective farmers are constantly admonished that their "first commandment" is to provide the state with obligatory deliveries to meet this tax. Great pressure is exerted to assure that they do so and to guard against any holding back or concealment of products demanded by the state.

In addition to the tax in kind, the state receives another significant fraction of crop production as payment for the services performed by the equipment of Machine Tractor Stations. Third and relatively minor are the repayments each year of seed loans and other borrowings in kind from the government.

After the government's demands have been met, various portions of the farm's production are reserved for seed, for fodder, for reserve against future crop failure, and for funds for special purposes, such as that for subsistence of those unable to work—i.e., invalids, the aged, and others.

The remaining production of the farm is divided into two parts, on the basis of the decision of the general assembly of collective farm members. One part is sold, either to the government, to cooperative organizations, or on the open market. It is from these sales that the farm usually receives the bulk of its monetary income. A relatively small amount of produce sold freely in this fashion brings in much more income usually than a much larger amount of produce delivered in payment of the tax in kind to the government. The prices received are highest on the free markets, where sales are made directly to consumers, but production may not be sold on these markets until all obligations for delivery to the state are met.

The rest of the collective farm production is distributed among the members as payment in kind. The work days earned by all members during the year are totaled and then divided into the output to get a value per work day for each type of production. Thus a work day on a particular farm may be found to be worth two kilograms of grain. A farmer who has earned 150 work days during the year will therefore get 300 kilograms of grain as part of his earnings for the entire year. In computing the number of work days, percentage adjustments upward and downward are made to allow for overfulfillment or underfulfillment of output plans, as indicated above.

The disposition of the grain crops raised by collective farms during 1937, 1938, and 1939 is shown in Table 22.

TABLE 22. Distribution of Grain Crops of Collective Farms in the Soviet Union, 1937–39.

Item	*1937* %	*1938* %	*1939* %
A. Deliveries to the state:			
1. Obligatory deliveries	12.2	15.0	14.3
2. Payments in kind to M.T.S.	13.9	16.0	19.2
3. Return of seed loans	1.5	2.0	4.0
Total	27.6	33.0	37.5
B. Sales to the state and on free markets	4.8	5.1*	4.0
C. Collective requirements and reserves:			
1. Seed requirements and reserves	16.3	18.6	18.2
2. Feed requirements and reserves	12.7	13.6	13.9
3. Reserve for aiding those in need	1.1	0.8	0.8
4. Other expenditures	1.6	2.0	2.7
Total	31.7	35.0	35.6
D. Distributed to collective farmers on the basis of "work days" worked	35.9	26.9	22.9
Grand Total	100.0	100.0	100.0

* A statement was made that the 1.0 per cent designated for sale was unsold at the "beginning of the year," presumably of 1939.

Source: Lazar Volin, "The *Kolkhoz* (Collective Farm) in the Soviet Union," *Foreign Agriculture*, November–December 1947, p. 150.

It is worth noting in Table 22 that the government took a much larger fraction of the crop in the relatively poor production years, 1938 and 1939, than in the very good year, 1937. The diminution of the amount of grain distributed among collective farmers in 1938 and 1939 as compared with that they received in 1937 was thus accentuated far beyond the drop resulting merely from the decrease in production.

The monetary income of the collective farm is divided in rather similar fashion. The state income tax on collective farms has first claim upon this income. Money must be used also to pay for insurance on the property of the collective farm. Between 10 and 15 per cent of the money income must be set aside for inclusion in the indivisible fund, i.e., the capital fund, of the collective farm, which is used to finance capital construction and repair on the *kolkhoz*. Monetary income is also used to pay for any outside labor, services, and materials that a collective farm buys during the year. The remaining monetary income is divided among collective farmers, in proportion to the number of work days earned.

Postwar Organizational Developments

In early 1950, there were 254,000 collective farms in the USSR.[7] This figure represented an increase of 32,000 over the number reported in April 1947.[8] This increase was attributable mainly to the rapid collectivization of peasant farms that took place during 1948 and 1949 in the Baltic States, Eastern Poland, the Carpatho-Ukraine, and other areas annexed by the USSR since 1939. Most of these areas had gone through a land reform that had broken up large estates and parceled their land and property out among many peasant families. The beginnings of collectivization had been made in these areas before World War II, but were wiped out during that conflict so that the process had to begin anew after 1945. The pace of this collectivization may be illustrated by the case of Estonia, which had 47 collective farms in April 1948,[9] and over 3,000 a year and a half later in November 1949.[10] That such speedy transformation of the agricultural structure in these areas could have taken place without considerable government coercion and pressure, similar to that which took place in the USSR in the early 1930's, seems most unlikely.

The progress achieved in collectivizing the formerly independent areas is indicated by Table 23.

The number of peasant families belonging to all collective farms in 1940 was 19,200,000.[11] Later data have not been published. The corresponding number in 1950 may have been approximately the same if, as is perhaps not unlikely, wartime losses of collective farm population had been offset by postwar collectivization in the newer Sovietized areas. In 1938, collective farms had almost 90 per cent of the sown area of the USSR and accounted for almost 85 per cent of all gross agricultural production. By 1950 the corresponding percentages may not have been very different.

The average size of collective farms has varied widely among different areas of the USSR in the past, but recent trends have been toward achieving greater uniformity by combining small collective farms into larger aggregates. In the USSR as a whole in 1938, the average collec-

[7] *Pravda*, March 11, 1950.
[8] *Ibid.*, April 11, 1947.
[9] *Izvestia*, April 20, 1948.
[10] *Ibid.*, November 25, 1949.
[11] *Problemy Ekonomiki*, No. 1 (1941), p. 35.

TABLE 23. Collectivization in Soviet Territories Acquired since 1939, Based on Data for Late 1949 and Early 1950.

Area	*Number of Collectives*	*Number of Peasant Families Collectivized*	*Per Cent of Peasant Families Collectivized*
West Ukraine	over 7,000	1,200,000	95
West Belorussia	4,000	200,000	*
Latvia	4,035	*	over 95
Estonia	3,015	*	80
West Moldavia	1,743	*	over 80
Lithuania	6,300	*	over 75
Kaliningrad Province	452	*	*
South Sakhalin	69	*	*
Tannu Tuva	100	*	*

* Data unavailable.

Sources: West Ukraine—*Pravda Ukrainy*, March 7, 1950; West Belorussia—*Pravda*, October 30, 1949; Latvia—*Bolshevik*, No. 20 (1949), and *Pravda*, June 19, 1950; Estonia—*Izvestia*, November 25, 1949; West Moldavia—*Pravda*, December 6, 1949; Lithuania—*Pravda*, January 28, 1950; and June 16, 1950; Kaliningrad Province—*Pravda*, February 26, 1950; South Sakhalin—*Komsomolskaya Pravda*, August 2, 1949; and Tannu Tuva—*Izvestia*, October 11, 1949.

tive farm had 78 families working about 3,800 acres of land, of which about 1,200 acres were sown to crops.[12] This average of about 15 acres sown to crops per peasant family is of course several times smaller than the corresponding sown acreage per farm family in the United States and is indicative of the greater pressure of population on the arable land in the USSR.

Dr. Lazar Volin, of the U. S. Department of Agriculture, has summarized the regional variation in collective farm size before World War II in these terms:

> The *kolkhozy* in the different regions of the country vary in the number of households and land per *kolkhoz*. Analysis of the data . . . suggests a division into four broad regions: (1) In the northern and central regions of European Russia, with their forests, lakes, and marshes and inferior soils, the *kolkhozy* are small, measured in terms both of the number of peasant households and of seeded area. (2) In the fertile, densely populated regions of the Central Black Soil area and the Ukraine, there are many families per *kolkhoz*, but the proportion of seeded area per family is low. (3) On the treeless steppes of the eastern and southern parts of the country, the *kolkhozy* are large in terms of both people and land. (4) In the extreme southeast, and the mountainous districts and irrigated oases, the *kolkhozy* include many families but little seeded area per family.[13]

[12] Lazar Volin, "The *Kolkhoz* (Collective Farm) in the Soviet Union," *Foreign Agriculture*, November–December 1947, p. 158.

[13] *Ibid.*, pp. 158–59.

The variation in the size of collective farms in the USSR before World War II is also strikingly indicated by data for January 1, 1938, regarding the distribution of farms by number of peasant families. About 25 per cent of the *kolkhozy* had 30 or fewer families; almost 43 per cent had between 31 and 80 families; and little more than 20 per cent had between 81 and 150 families. The remainder, about 10 per cent of all collectives, had over 150 families each, though only 2 per cent had more than 300 families.[14]

Different population densities and agricultural conditions in different areas accounted for these variations. Collective farms were often formed on the bases of existing villages, which in turn traced their origin and size back to the serf villages of the feudal area. In many areas, therefore, the collective farm pattern before 1950 reflected historical influences that had determined the earlier pattern of rural settlement, rather than any planning by Soviet authorities. In the late 1920's some Soviet authorities, impressed by the possibilities of mechanized agriculture, had looked forward to creating giant farms, some of them with as much as 250,000 acres in crops.[15] But lack of sufficient equipment and experienced and trained personnel, and the rapidity of collectivization in the early 1930's, all combined against any experimentation with a significant number of extraordinarily large collective farms at that time. On the contrary, many small and moderate-sized collective farms continued to exist throughout the 1930's and 1940's. In early 1950 in Moscow Province, for example, two thirds of all farms had less than 500 acres of arable land, and 45 per cent of them had 30 or fewer peasant families.[16]

The gross inequality of size between different collective farms before 1950 is most vividly illustrated by available data for 1939 on the distribution of *kolkhozy* in terms of arable landholdings. These data are probably typical of the size distribution that prevailed from the mid-1930's to early 1950. They are shown in Table 24.

Perhaps the most striking comparison of the inequalities shown by these data may be made if the first three and the last three categories are considered separately. Almost 60 per cent of all collective farm arable land was owned by the 20 per cent of all *kolkhozy* having 1,000

[14] Jasny, *op. cit.*, p. 319.
[15] *Ibid.*, pp. 26–29.
[16] *Pravda*, April 25, 1950.

TABLE 24. Distribution of Soviet Collective Farms in 1939 by Size of Arable Land Area.

Area (HECTARES)	*Percentage of All Collective Farms*	*Percentage of Total Arable Land*
50 or less	3.2	0.6
51–100	8.8	1.0
101–200	18.4	4.1
201–500	29.6	14.5
501–1,000	20.0	21.2
1,001–1,500	9.3	16.8
1,501–3,000	8.1	24.4
over 3,000	2.6	17.4
Total	100.0	100.0

Source: *Voprosy Ekonomiki*, No. 5 (1950), p. 48.

hectares or more (roughly over 2,500 acres). The smallest 30 per cent of all collective farms had less than 6 per cent of all arable land. In 1940 about 72,000 collectives were in this smallest group, having no more than 200 hectares (under 500 acres) of arable land each. They were concentrated mainly in the central, northwestern and northern regions of the USSR. Half of them were not served by Machine Tractor Stations and their equipment.

The Communist Party and Soviet government moved against small farms in early 1950, instituting a national campaign to combine them into larger units having thousands rather than hundreds of acres. Great pressure must have been placed upon collective farmers to decide "voluntarily" to amalgamate their farms with neighboring ones, for the pace was swift. In Moscow Province, there were 6,069 *kolkhozy* at the beginning of 1950. By June 20, 1950, these had been amalgamated into 1,668, fewer than one third the original number.[17] In Leningrad Province the number of farms was reduced from over 2,000 at the beginning of 1950 to 600 four months later. The number of collectives in Novgorod Province fell from 3,653 to 792. In Belorussia, a progress report revealed, 9,782 collective farms had been combined into 3,480, though the task of unification had not been completed at the time of the report. The enlarged Belorussian farms averaged over 1,000 hectares of plowland each, three times the average of the farms from which they had been formed.[18] The initial impact of this drive at the beginning of 1950

[17] *Ibid.*, June 23, 1950. An indication of how pressure for farm unification was exerted in Moscow Province is given in *Bolshevik*, No. 12 (1950), p. 49.

[18] *Leningradskaya Pravda*, April 23, 1950, and August 10, 1950. *Komsomolskaya Pravda*, August 4, 1950.

was felt in the Moscow-Leningrad area, where farms tended to be smaller than elsewhere, but by late spring and summer the drive had obviously become national in scope. Not until this campaign was well under way was it publicly revealed that it had been initiated by a government decision ordering amalgamation of small farms in provinces, territories, and republics having a significant number of them.[19]

The nominal reasons behind the 1950 campaign to enlarge collective farms were stated to be the following. Large farms use resources more efficiently than small farms, particularly because mechanized equipment can be employed more economically on them. Farms of several thousand acres and several hundred families can economically construct and utilize barns, warehouses, and other productive or communal structures that are beyond the financial capacities or effective use of small farms. Relatively, administrative expenses of large farms are lower than those of small farms. Government propaganda stressed statistics comparing highly productive and highly profitable large collectives with relatively unprofitable and rather unproductive small *kolkhozy*. It revealed that many small farms had more labor than they could use, while others had too few workers. By merging collective farms, large numbers of chairmen, bookkeepers, and other administrative officials could be released for field work or for transfer from agriculture, it was argued. Large collective farms could easily engage in efficient specialization requiring large amounts of capital. Some of these arguments are undoubtedly correct up to a point, but the propaganda involved strikingly ignored the real problems of the economics of the scale of agricultural enterprises and failed to suggest that there might be some optimum large size beyond which diseconomies outweighed economies. Politburo member N. S. Khrushchev, who spearheaded this campaign, admitted publicly that cases could be found where small collectives had done well and large ones had done poorly. Instead of trying to analyze the factors behind these "exceptions," however, he dismissed them, saying that they had no great significance.[20]

It seems likely that an important supplement to the stated reasons

[19] *Pravda*, June 18, 1950.

[20] *Moskovskaya Pravda*, April 25, 1950. An abridged version of Khrushchev's speech, omitting some significant points, appeared in *Pravda* the same day and is available in English translation in the *Current Digest of the Soviet Press*, June 10, 1950, pp. 3–6.

for this major reform was the fact that it permitted strengthening Communist Party and government control of the collective farms. In part this resulted from the substantial reduction in the number of collective farms achieved by the reform. Moreover, press reports indicated that in territories affected by this campaign the percentage of farms having Communist Party units increased sharply. Where Communist Party members had formerly been scattered in small numbers on many small farms, the effect of the reform was to create large farms having enough members to form an effective working unit.

By early October 1950, fragmentary data appearing in the Soviet press indicated that at least 35,000 small collective farms had been eliminated as organizational units by amalgamation with or consolidation into other farms. This must have reduced the total number of *kolkhozy* to below 220,000. Press comment indicated that great difficulty was being experienced because of the frequent inability of officials selected for the new large farms to cope with the complex problems they faced. To counter this, a very definite effort was apparently being made to end the tradition of selecting collective farm chairmen from among the farms' members. The method was to replace them by agricultural specialists recruited from elsewhere. There were some hints of resentment and resistance by farmers who attempted to carry on former practices despite the nominal incorporation of their farms into larger units.

In early 1950, too, the same trend toward enlarging the size of basic agricultural work units showed itself in a change in the government attitude toward internal collective farm labor organization. In the postwar period until then, government policy had clearly favored the development of the small *zveno,* or link, work teams, in the effort to link each worker's reward as closely as possible to his own production. Working in small groups whose work-day credits were raised or decreased percentagewise in proportion to their overfulfillment or underfulfillment of the production plan, collective farmers belonging to links approximated most closely the individual piece-work wage system used in most of Soviet industry. This type of government encouragement, plus the great shortage of farm machinery on Soviet farms during and immediately after World War II, led apparently to widespread superseding of the large-brigade system of organization by the smaller link teams, the latter often being assigned to no more than 10 to 25 acres.

This government policy was dramatically reversed in February 1950 with the publication in *Pravda* of an article attacking Politburo member A. A. Andreyev for supporting the use of links rather than brigades. Though the article cited Kursk Province only, to show the allegedly evil effects of the link system, later material in Soviet newspapers indicated that this was a national phenomenon. *Pravda* argued that small work teams were completely unsuitable for large-scale mechanized agriculture, particularly in grain production, by far the most important area of Soviet farming. It accused Communist Party and government officials who had fostered the system of organization by links of having an anti-machine attitude and of being complacent toward the resulting idleness of equipment that accompanied the division of farms into *zveno* plots tended by small groups of farmers. In typical Soviet style, the editorial was apparently followed by a swift campaign over the country to break up the links as the basic unit and to reinstate large-scale brigades of 50 to 100 or more workers, with their own equipment and large plots of land, as the primary form of collective farm labor organization. In the ensuing reaction, collective farmers were for the first time permitted to complain that local authorities had forced the link system on them against their will.[21] The link system was apparently retained for some industrial crops.

Study of the *Pravda* editorial and the subsequent reaction to it suggests that there was another reason beside that cited for the sudden and dramatic shift in farm labor organization policy. In Kursk Province, for example, complaints were voiced that the link system had led to increases in private incomes from collective work.[22] The link system clearly tended to divide a collective farm in effect into a number of small farms, each worked by a few individuals, whose incomes were basically determined by the output from the small acreage they cultivated. This must have often seemed to the peasantry as a masked revival of the old peasant farming. With few or no machines to aid them, their technique of cultivation during and immediately after World War II must have deteriorated to the old peasant standard, except that far fewer horses were available on farms in the 1940's than in the 1920's. Such speculation cannot be adequately confirmed with the scanty materials avail-

[21] *Pravda,* February 19 and March 22, 1950; *Sotsialisticheskoye Zemledeliye,* March 29, 1950; *Sotsialisticheskoye Selskoye Khozyaistvo,* No. 4 (1950), pp. 3–14.
[22] *Pravda,* March 22, 1950.

able in the press, yet it seems strongly supported by the violence of the government's counter-measures, as well as by some of the fragmentary published material on the subject. The discussion below will indicate in more detail other aspects of the government's struggle against peasant anti-collective-farm sentiment or practice.

Problems of Kolkhoz *Operation*

The basic problem in the operation of the collective farm arises from the poverty of these farms and the low incomes that work in the collective fields gives the collective farmers. The low level of these earnings is indicated by an estimate prepared by Dr. Naum Jasny. This estimate indicates that in the years 1937 and 1938, the average payment per work day received by a collective farmer was 20 cents. This amount includes allowance, not only for the *kolkhoznik's* money income, but also for the value of income in kind received for his work in the collective fields.[23] The same writer describes the collective farmer's return also in these terms:

> In the last prewar years his daily reward averaged roughly six pounds of grain, a few pounds of potatoes and vegetables, and a little forage (mostly straw), and the equivalent of about one kilogram of coarse bread or half a kilogram of white bread in money. By 1946 it had dropped to possibly half this.[24]

The reasons for these low incomes are many and varied: the low yields generally received in Russian agriculture; the significant percentages of crop and livestock production taken by the government at very low prices; and so on.

The result of these low incomes is twofold. First, most collective farmers are forced to work their individual garden plots intensively in order to meet even the minimum needs of themselves and their families. Second, because any excess production from the garden plots and from the privately owned livestock of the collective farmer can usually be sold on the open market at relatively high prices, a great incentive is created for the farmer to slight his duties on the collective land in favor

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[23] Naum Jasny, "The Plight of the Collective Farms," *Journal of Farm Economics*, May 1948, p. 315.

[24] Naum Jasny, *The Socialized Agriculture of the USSR*, p. 37. One kilogram is approximately 2.2 pounds.

of work on the small plot and the few livestock permitted him under the *kolkhoz* charter.

By 1939 the practice of doing little or no work for the collective farms had become so widespread that the Soviet government felt it necessary to end the pretense of universal voluntary participation in the *kolkhoz.* It issued a decree instituting an annual obligatory minimum number of work days on collective farm crops or livestock that must be earned by all members. The minima were raised in 1942 to between 100 and 150 work days annually, the number depending upon the region. The 1942 order established a required minimum of 50 work days for collective farm youngsters 12 to 16 years old. The same decree required that *kolkhozniki* must work at least a minimum number of days during each season of the year. The latter provision aims at preventing evasion of the objective of the act through concentration of all compulsory work time in one season, leaving the farmer free to work his own acres the rest of the year. A collective farmer who fails to work the required minimum time for the *kolkhoz* must be punished under the law by being forced to work for six months on his collective. During this period 25 per cent of his earnings are forfeited.[25] These provisions have remained in effect in the postwar period.

Dr. Naum Jasny has attempted the most detailed calculation of the relative returns to a collective farmer between work on the collective fields and work on his own small plot. He concludes, for the late 1930's: ". . . the income of the *kolkhozniki* from work on their own farm enterprises returned 125–130 kopeks per day. This is . . . about two-and-one-fourth times as much as their total receipts per work day from their *kolkhozy.*"[26]

The relatively low returns from work on the collective farm fields explain many defects in collective farm operation that are frequently denounced in the Soviet press. Thus many farmers apparently seek to make money by evading or violating collective farm rules. Products owned by the *kolkhoz* are often not sold on the free market for the farm's account, but are sold instead to collective farmers at extremely low prices. The farmers then sell these products for much higher prices in the free market and pocket the profit. In both 1939 and after World

[25] Gsovski, *op. cit.*, vol. 2, pp. 484–86.
[26] Jasny, *The Socialized Agriculture of the USSR*, p. 699.

War II, investigation by the Soviet government revealed that hundreds of thousands of farmers were illegally cultivating larger plots of garden land than permitted them by the kolkhoz charter. In each individual case, the amount of excess land cultivated privately was usually small, but in the aggregate appreciable amounts of land were involved. The techniques used to evade regulations were thus described in a 1939 state decree:

> The diversion and dissipation of the collectively held fields of collective farms for the benefit of the individual farming of the members includes various kinds of unlawful additions to house-and-garden plots which increase them beyond the size provided for in the Charter, [such as] where a household fraudulently obtains an additional house-and-garden plot for members of the family who pretend to be separated. . . . In a number of collective farms the practice is in reality to transform the house-and-garden plot into a private property of the household. . . . There is a large number of pretended collective farmers who either do not work at all in the collective farms or do only sham work and spend most of their time on their own personal farming . . . . [which] results in an artificial shortage of labor on the collective farms although in reality there is a surplus of labor in the majority of regions of the USSR.[27]

Soviet collective farms are of course by no means all poverty-stricken, and there is great variation of income and wealth among the quarter of a million such enterprises. One clue to this variation is given in a recent article by a Soviet agricultural economist. He cites a farm in the Uzbek Republic that had a monetary income in 1947 of almost 9 million rubles. This must have been one of the wealthiest farms in the USSR. On the other hand, he points out that in the same year, in Omsk Province, many collective farms had money incomes of less than 25,000 rubles. The variation is obviously very great.[28] Data for 1937 confirm this view. In that year more than half, 55.3 per cent to be exact, of all *kolkhozy* had money incomes of 30 thousand rubles or less. One third of all these farms had money incomes of between 30 thousand and 120 thousand rubles. In other words, almost 90 per cent of all collective farms in that year had money incomes of less than 120 thousand rubles. At the other extreme, three tenths of one per cent of all Soviet farms—about 650 in all—that

[27] From the May 27, 1939 decree of the Central Committee of the Communist Party and the Council of People's Commissars.

[28] *Sotsialisticheskoye Selskoye Khozyaistvo*, April 1949, pp. 26 and 29.

year had money incomes in excess of one million rubles.[29] By and large the wealthier farms tend to be those producing specialty crops, such as cotton, silk, flax, and sugar beet, whose production the government is particularly anxious to encourage and for which it pays relatively high prices. The great bulk of Soviet collective farms, however, raise grain as their basic crop, and for this and other major food crops and livestock products the government's price is low indeed.

In considering these data, however, it must be borne in mind that they may be misleading if account is not taken of the size of the farm as well as of the size of its total income. To say that a farm has a total income of one million rubles means one thing if the collective has 100 members and another if it has 1,000 members. The mere amalgamation of collective farms that has taken place since early 1950 will sharply increase the number of "millionaire" collective farms automatically, though without any necessary real change in the prosperity of those belonging to the *kolkhozy* involved.

The variation in the incomes of collective farmers is probably even greater than the variation of collective farm incomes. At least four factors determine the *kolkhozniki's* returns: the number of work days they earn each year, the value of the work day on their collective farm, the amount of production they can secure from their own garden plots, and the opportunities they have of selling their own production—plus part of their incomes in kind from the collective farm—at high prices. In addition some collective farmers work part time at lumbering, fishing, and other nonfarm jobs to augment their incomes.

Data are lacking on many of these points, but some information is available. In 1937 over 20 per cent of all collective farmers earned 50 or fewer workdays, while the highest 20 per cent earned over 300 work days.[30] The great variation of the value of a work day on different farms is clearly indicated by the data above on the variation of incomes received by different *kolkhozy*. Few figures are available on the amount of production in the private enterprises of *kolkhozniki*, but these perhaps tend to counteract the inequality suggested by the factors cited earlier, since some of the collective farmers who earn few work days more than make up for this by intensive private production. High prices

[29] A. Yugow, *Russia's Economic Front for War and Peace*, p. 68.
[30] Volin, *op. cit.*, p. 152.

prevailing on urban free markets provide substantial additional income for those able to sell their produce in these markets. Collective farms and farmers nearest to large cities are in the most favorable positions, but many *kolkhozy* are very distant from such lucrative markets and must accept far lower prices for their surplus production.

In 1939 the average money income of a collective farmer from sources other than the collective farm, i.e., primarily earnings from sales of the farmer's own produce, was only 1,132 rubles. The lowest 20 per cent of *kolkhozniki* averaged 488 rubles that year, while the top .2 of 1 per cent averaged 4,882 rubles, about ten times as much as the lowest group. The actions taken by the Soviet government in 1939 to discourage private farming by these peasants were felt most fully the next year, with the result that the corresponding 1940 money incomes were appreciably lower. This is indicated by the following percentage distribution of collective farmers' money incomes from noncollective farm sources in 1939 and 1940.[31]

Income Group RUBLES	*1939* %	*1940* %
0–700	21.8	29.1
701–1,000	19.8	23.0
1,001–2,000	51.2	44.7
2,001–3,000	6.3	2.8
3,001–4,000	.7	.3
4,001 and over	.2	.1

The data cited above suggest that while the great mass of collective farmers are very poor, a small fraction of them do have relatively high incomes—from either their collective farm work or their private enterprises or both. This is confirmed by isolated reports in the Soviet press of collective farmers' buying automobiles, motorcycles, and other articles far out of reach of the average peasant.

The most recent major study of Soviet agriculture argues that differentiation among the peasantry today is greater than ever:

> In 1927 only 3.9 percent of all peasant households were classed as *kulaki* (well-to-do). . . . Moreover, the wealth and income of this group were considerable only in comparison with the distressing poverty of the bulk of the peasantry. In consequence of the thorough reorganization of agriculture, the percentage of persons in agriculture with higher incomes than that of the ordinary peasant was greatly increased.

[31] Data from A. K. Suchkov, ed., *Dokhody Gosudarstvennogo Byudzheta SSSR*, pp. 139–43. Moscow: Gosfinizdat, 1945.

> The former *kulaki,* actually the more energetic, harder-working peasants, are now replaced by the army of chairmen of the *kolkhozy,* tractor drivers, combine operators, and the like. These workers both number and earn relatively more than did the *kulaki.* The increase was particularly large in the number of persons with incomes several times that of an ordinary *kolkhoz* peasant. . . . The incomes of the rank-and-file peasants were below the average by only 3 percent before collectivization and by about 15 percent around 1938.[32]

The great amount of planning and bookkeeping necessary for the proper conduct of a collective farm requires a significant expenditure of resources on clerical and other administrative personnel. Since office work is in general easier and pleasanter than work in the fields or with the livestock, it is not surprising that there has been a constant tendency for growth of nonproductive office personnel. Time and again the Soviet government has had to take steps aimed at reducing the number of bookkeepers, clerks, and similar nonfield workers on the staffs of collective farms. The government has tried to do this sometimes by setting a maximum limit upon the percentage of labor—work days—that may be expended for administrative personnel and sometimes by directly ordering the transfer of such personnel from office to field work. The lengths to which the Soviet government has been forced to go in order to combat this problem are indicated by the fact that in 1948 it issued a decree requiring that all administrative workers, with the exception of the collective farm chairman and a few immediately below him, be required each year to put in at least 25 per cent of the work days in the field required of the ordinary collective farmer. If the number of such nonproduction workers were correctly adjusted for the work required of them, of course, there would be no need for such measures. The economy that could be achieved in administrative expenses and personnel was one of the major justifications cited for the 1950 drive to combine small collective farms into large ones.

"Democracy" on the Kolkhoz

The collective farm is in theory a democratic association of farmers governed by elected officers, with ultimate authority for farm policy resting in the general meeting of members. There is abundant evidence that the reality behind this façade is far different. Much material pub-

[32] Jasny, *The Socialized Agriculture of the USSR,* p. 75.

lished in the Soviet press, particularly in the fall of 1946 when the government put special emphasis upon the problem, indicated that very frequently collective farm officials were appointed or removed arbitrarily by local Communist Party or government officials. Government exposés told of large numbers of farms where general membership meetings were not held for long periods, or, if held, were confined merely to approving arbitrary decisions of farm officials or of party or government officials. In many areas during and immediately after World War II, local authorities often regarded collective farms as sources of wealth to be looted for their own personal benefit, sometimes openly, sometimes in crudely veiled fashion. Theft of money, livestock, food, and other property was apparently common, while collective farmers were powerless to defend their interests against predatory officials. The major campaign initiated against such practices in September 1946 may well have been inspired by government fears regarding the consequences of this situation upon farmers' morale and productive effort.[83]

To combat these and other abuses the government in the fall of 1946 created the Council for Collective Farm Affairs, headed by Politburo member A. A. Andreyev. This body was to exercise continuing supervision of collective farm operation, to report abuses, and to suggest additional legislation required. Concurrently all collective farms were required to hold general membership meetings by February 15, 1947, to elect officials and set policies. These and other moves undoubtedly improved matters greatly, but the persistence of the basic problem was evidenced frequently, even after this major effort, in press reports from different parts of the country complaining of abuses precisely similar to those exposed in 1946.[84]

The abuses complained of by the state and the efforts directed against them by it must be understood in proper perspective. Mass collectivization was instituted in a totalitarian fashion against the wishes of large numbers of those affected; collective farms must operate as directed by the government plan regardless of members' wishes; collective farm administrations are expected to follow the "suggestions" and "advice" of the Communist Party in operating their farms. The collective farm system, in short, is anything but democratic, and the scope of collective

[83] *Pravda*, September 20, 1946; Volin, *op. cit.*, p. 155; Jasny, *op. cit.*, pp. 329–34.
[84] Cf. the typical complaints in *Pravda*, March 27 and May 11, 1950; *Izvestia*, April 28 and May 6, 1950; *Pravda Ukrainy*, March 21, 1950.

farmers' free choice is small. The government's campaign has not been directed toward altering these basic characteristics. Rather, it has sought to end corruption that robbed farms without enriching the state, and it has sought to eliminate the most flagrant and crude types of intervention by party and government officials in collective farm life. The state has chastised local party units that have arbitrarily named collective farm chairmen, for example, but collective farmers have no right to elect chairmen who will actively combat the party and press for farm independence against state orders. Put most simply, the government campaign against undemocratic practices on collective farms has aimed at putting a velvet glove on the iron fist of party control. The brusque rapidity of the twin organizational revolutions in 1950—one suddenly amalgamating thousands of collective farms and the other drastically changing the internal labor organizations of tens of thousands of collectives—are eloquent evidence of how undemocratic the Soviet idea of farm "democracy" is in practice.

A proper appreciation of the Soviet collective farm system must comprehend at least the following major elements: (1) This organizational form has given the government dominance over the peasantry and permitted it to extract large quantities of produce at low cost. (2) The inability of Soviet agriculture organized in collective farms to give large numbers of the peasantry a satisfactory income has resulted in clandestine but vigorous opposition to the collectives, expressed in such forms as illegal expansion of private acreage, efforts to evade work for the collective, illegal appropriation of collective farm property by collective farmers, and other ways. (3) The collective farm system has provided an organizational framework in which modern techniques of mechanized agriculture could be applied more efficiently and more quickly than on the numerous small peasant farms of the 1920's. This facet will be considered in more detail in the next chapter. (4) The continued operation of the collective farms during the 1930's and 1940's has required increasing application of state coercion, such as the laws imposing the requirement of minimum work days for members, as well as greater efforts to secure higher standards of performance by making the rewards of farmers correspond ever more closely to the actual quantity and quality of their output.

The Machine Tractor Station

The Machine Tractor Station works closely in conjunction with the collective farm in the production of most Russian agricultural output. These stations own most of the tractors, combines, and other complex agricultural machinery used in the Soviet Union. The use of these machines on the collective farm is governed by the terms of a contract signed between the *kolkhoz* and the MTS. These contracts provide for the types of work to be done by the machinery, the time at which each operation is to be performed, qualitative indices to be maintained, and, not least important, the payment to be made for rental of the machinery. This payment, as noted above, is a share of the crop, the precise percentage being determined by government decree. In 1940, 7,069 Machine Tractor Stations served 200,000 collective farms, their machines working 110,700,000 hectares of sown land, or 94 per cent of the 117,600,000 hectares sown that year by all collective farms.

In part, the reason for the existence of these Machine Tractor Stations is purely technological, i.e., the machinery they own can be used advantageously to cultivate several collective farms. It is therefore more economical to have a central point from which these machines can be dispatched to their areas of work. At this central point, moreover, can be maintained the workshops and the technicians required to keep this machinery in good operating condition. In early 1950, there were approximately 8,100 Machine Tractor Stations.[35] Before the amalgamation of small collective farms into large ones in that year, each MTS, on the average, took care of the needs of about 30 *kolkhozy*. The average number of farms served, however, varied sharply from area to area.

The technical aspects and advantages of the Machine Tractor Stations are, however, by no means the only explanation for their existence. Perhaps even more important is the fact that these stations provide the Soviet government with an exceedingly important instrument for the control of the collective farms and their activities. This control is exercised in a number of ways. In the first place, any attempt by the collective farm to deviate from its plan and from the government's wishes can be easily observed and checked by the Machine Tractor Station directors who supervise the plowing, sowing, cultivation, and finally the harvesting for the great majority of *kolkhozy* in the Soviet Union. Secondly, the

[35] *Voprosy Ekonomiki*, No. 5 (1950), pp. 40, 42.

government, of course, wishes to make sure above all else that it receives its share of the crop first. Since the Machine Tractor Station's harvesting machines gather much of the collective farm crop, the government has an accurate check on how much has been harvested and is available for delivery.

During much of the 1930's and the 1940's, large numbers of MTS personnel were government political representatives in rural districts. In the middle 1930's this task was performed by the so-called political division of the Machine Tractor Station, staffed primarily by loyal urban communists sent to the countryside for that purpose. After World War II, this function was performed by the so-called deputy director of the Machine Tractor Station for the political section, a functionary perhaps best compared to the political commissars who have from time to time been attached to Soviet military units. Political matters in the Soviet Union, Hubbard points out, can be made to cover almost anything. As a result these personnel of the Machine Tractor Stations have sometimes had supreme power in their individual districts, fully able to override the decisions and wishes, not only of the collective farm members, but of the collective farm officials and even of local government and party bureaucrats.[36]

The system of payment for use of MTS tractors, combines, and other equipment varies from area to area in the USSR, but is usually based upon a sliding scale of quantities per hectare, the lowest amount being received for the lowest yields, and higher amounts for higher yields. The amounts and percentages of the crop to be paid for performance of different operations are set by government order. In the 1930's the Machine Tractor Stations were paid between 10 and 20 per cent of the grain crop on land plowed, seeded, cultivated, and harvested, depending upon the size of the crop.[37] Amounts paid the MTS are less if operations are performed late than if they are done on time, the objective being to give directors of these stations an incentive to assure that work is done on schedule. This differentiation is small, however.[38]

Machine Tractor Stations are headed by a director appointed by the Minister of Agriculture. Their staffs include administrative personnel, agronomists, and mechanics, as well as operators of more complex equip-

[36] Hubbard, *The Economics of Soviet Agriculture*, p. 157.
[37] *Ibid.*, p. 150.
[38] Jasny, *op. cit.*, pp. 290–91.

ment such as combines and threshers. The basic work unit of an MTS is the tractor brigade, consisting of the personnel required to operate several tractors, including the brigadier, the fuel controller, drivers, and assistants. These workers are paid in part by the government and in part by the collective farms they serve. They earn a certain number of work days per shift norm, the number depending upon the job classification, just as do collective farmers. For each work day they are paid by the collective farms, being guaranteed at least 3 kilograms of grain if planned output is reached, but only 2 kilograms if planned yields are not obtained. They receive at least 2.5 rubles per work day earned, this sum being paid by the MTS.[89]

The collective farms are at the mercy of the Machine Tractor Stations, inasmuch as it is to them that the farms must look for the bulk of their plowing, for much of their cultivating, and for a large fraction of their harvesting. If the Machine Tractor Stations do their work on schedule and do it properly in terms of quality, it is an immense aid in securing a good harvest. On the other hand, if a Machine Tractor Station does the plowing or the harvesting too early or too late, the yield received by the collective farm may diminish very sharply. Two collective farms lying side by side, having similar soil and climatic conditions, may therefore receive quite different harvests, if one has been properly served by its Machine Tractor Station and the other has been less fortunate. This fact makes all the more significant the complaints frequently voiced in the Soviet press that many Machine Tractor Stations observe their obligations under the contracts with the *kolkhozy* very poorly. Often, apparently, operations are done late. Often, too, plowing is superficial rather than deep. Easy operations are done first and more thoroughly than necessary, while more difficult operations are slighted. Having no machinery appropriate for these tasks themselves, the collective farmers can do little or nothing to remedy the situation created by such poor work. Much of this poor work by Machine Tractor Stations, however, probably results from the inadequacy of their machinery; this lack of equipment was particularly severe during and immediately after World War II.

The Soviet government has recognized this situation. Increasingly in recent years it has made the compensation of Machine Tractor Station

[89] *Ibid.*, pp. 283–85.

employees and directors more and more dependent upon the volume of harvest received by the farms serviced. Nevertheless, the fact that these complaints continue and recur indicates that the measures that have been taken may have relieved and improved the situation but have by no means made the Machine Tractor Stations institutions that work at full or nearly full efficiency and punctuality.[40]

The size of Machine Tractor Stations and their importance are indicated somewhat by the fact that at the end of 1937 their employees numbered over 1,400,000. Of these about half were tractor drivers. Almost 100,000 persons were engaged in administrative work; 82,000 were combine operators; and 99,000 were employed permanently in repair shops.[41]

The Soviet government frequently claims that the Machine Tractor Station method of utilization of mechanical equipment is more efficient than that employed in the United States, since machinery is used for a longer period during the year. On the other hand, much of the Soviet equipment is handled by several persons for a job one man does in the United States. In addition, it frequently breaks down and is out of use for long periods at a time because of poor handling and poor preventative maintenance work during its period of use. One result of this situation is that each winter the repair and overhauling of tractors and other mechanical equipment belonging to the stations is a major task. The failure of all such equipment to be ready by the time it is needed in the spring or fall is one of the difficulties that has been encountered by Machine Tractor Stations in recent years.

State Farms

A state farm, or *sovkhoz,* is entirely the property of the Soviet government, which operates it with hired labor directed by managers responsible to the government ministry having control of the particular farm. These farms are literally "factories in the field," being operated in the same spirit and with as close adherence to the government plans—subject to the idiosyncrasies of natural conditions—as any urban factory in the Soviet Union. Like the collective farms, the *sovkhozy* are usually large by American standards—frequently exceeding 5,000 acres in size.

[40] *Ibid.,* pp. 287–89.

[41] Cited by Lazar Volin, "Machine Tractor Stations in the Soviet Union," *Foreign Agriculture,* April 1948, p. 82.

Administrative direction of the state farms has varied from time to time. In 1950 most of them were under the control of the Ministry of State Farms, though some were under the direction of the Ministry of Food Industry or the Ministry of Foreign Trade. Some other Soviet ministries also had a few such farms under their control.[42]

In 1938, almost 4,000 state farms had 12,400,000 hectares under cultivation, roughly 10 per cent of all the sown area in the USSR.[43] Their importance to the government is indicated by the fact that in 1937 state farm deliveries accounted for 30 per cent of the milk, over 25 per cent of the wool, and 24 per cent of the meat obtained by the state from all Soviet agriculture.[44] They supplied smaller percentages of the government's supply of grain, sugar beets, and cotton as well.

Over much of Soviet history the state farms have been particularly favored by the regime. Very large amounts have been invested in them, and during the early 1930's they were receiving tractors and other farm machinery more rapidly than the collective farms; by the end of that decade virtually all basic crop operations capable of being done by machinery were being so performed. All this equipment belonged to each state farm on which it was used, and the *sovkhozy* were not dependent on Machine Tractor Stations.

As owner and operator of the farms, of course, the government receives all their net production, so that a very high percentage of their output goes to the state. In the late 1930's, for example, over 75 per cent of the grain production on state farms specializing in this crop went to the state,[45] as against the one third of the collective farm crop taken over by the government. On the other hand, the government naturally had to meet all expenses of state farm production, including wages, so that by no means all the production delivered to it represented net gain.

If agriculture were operated as is industry, almost all agricultural production would be conducted by state farms rather than predominantly by collective farms, as is actually the case. At various times the Soviet government and important figures in it have considered the possibility

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[42] *Pravda,* May 26, 1949. A good description of the development of the state farms during the 1920's and 1930's is given in Wolf Ladejinsky "Soviet State Farms," *Political Science Quarterly,* March and June 1938, pp. 60–82 and 207–32.

[43] A. Yugow, *op. cit.,* pp. 46 and 58.

[44] *Bolshevik,* No. 5 (1947), p. 24.

[45] *Ibid.,* pp. 23–24.

of making the state farm the dominant or exclusive production unit in agriculture, but the history of these farms has not been so bright as to encourage the implementation of this policy.

State farms have gone through several quite different periods of development. During the first decade of the Soviet regime, these farms were organized primarily on the basis of large estates that had previously belonged to private, church, or state owners. These were usually very specialized—like, for example, the sugar-beet state farms—and were intended, in part, to act as model farms for the education of the surrounding peasantry. During this decade many of these farms worked at a loss, and during the middle 1920's their area was considerably reduced.

The second major period of their development stretches roughly from 1928 to the early 1930's. This period began when the Soviet government experienced extreme difficulty in making necessary grain collections from the individual peasants. In a speech in 1928 Stalin proposed, not only that collectivization be extended much more widely than it had yet been, but also that large numbers of huge state farms be formed in order to increase the amount of grain produced for the government itself. Between 1928 and 1932 the number of state farms increased from 1,400 to 4,337, while the sown area of these farms rose from 1,700,000 hectares to 13,400,000 hectares.

The high hopes held by those who had sponsored this rapid expansion were not fulfilled, however, for while production on the farms increased sharply as the result of the rise in their numbers and acreage, the gains to the state in terms of delivered grain were not nearly so great as had been hoped for. It was found, moreover, that production on the state farms was extremely expensive. Large numbers of them operated at substantial losses. These difficulties arose because they were often far too large for efficient management, and too specialized to permit proper agricultural technique to be applied. Many of them had been established in relatively unpopulated areas with inadequate labor available, and where there were also difficulties because of the lack of water supply. For these and other reasons, the experiment was abandoned. In the middle 1930's the size of many state farms was reduced drastically. A large number of the most unprofitable ones were liquidated, and their land and property often transferred to collective farms. By 1938 the number of state farms had dropped below 4,000, and the sown area was

1,000,000 hectares less than in 1932. After the annexation of Eastern Poland and other western areas after 1938, however, state farms were formed there. By 1949, there were about 5,000 *sovkhozy* in the USSR; their acreage may have been well above the 12,400,000 hectares of the late 1930's.[46]

Since the late 1930's, an effort has been made to operate the state farms along more nearly conventional lines, to diversify their operations and to make a profit with them. The war dealt them a serious blow, however, reducing their supply of machinery, their sown area, and their livestock herds. In early 1947 A. A. Andreyev criticized the state farms sharply in his report to the Central Committee of the Communist Party. He castigated the one-sided character of many of them and their overspecialization, and reported that a high labor turnover rate continued to plague them and to reduce their efficiency. To remedy the latter difficulty, the government announced that each worker on a state farm would be permitted to have one half hectare of ground for a garden plot that he might cultivate himself. Government credit was made available at low interest to finance building a home.[47] Andreyev's report and the subsequent resolution of the government ordered that first priority be given to increasing the livestock holdings of the grain and other crop-raising state farms. The expansion of crop-raising activities on those state farms that had hitherto specialized in the raising of livestock was also ordered.

Two years later, official decrees of the Soviet government indicated that not all the difficulties enumerated in 1947 had been solved, revealing that the work of making the farms better-rounded enterprises was not going so well as desired. In early 1949, it was ordered that most of the livestock state farms belonging to the Ministry of Meat and Milk Industry be transferred to the Ministry of State Farms, in order to improve the administrative direction of these enterprises. The Minister of State Farms, N. A. Skvortsov, reported in both 1949 and 1950 that many state farms continued to operate poorly and unprofitably, although he was able to report successes in overall crop and livestock output, made possible by the priority given these farms in the receipt of farm machinery of all kinds.[48]

[46] *Sotsialistecheskoye Selskoye Khozyaistvo*, No. 11 (1949), p. 11.
[47] *Pravda*, February 28 and March 7, 1947.
[48] *Izvestia*, March 13, 1949, and *Pravda*, June 19, 1950.

The organization of labor on state farms somewhat resembles that on collective farms, i.e., the work to be done is distributed among several brigades, each of which is headed by a brigadier or foreman. Payment of labor on the state farms, however, is on the basis of straight piece-work wages, with the hectare the basic unit of crop-work measurement. As has been true in other areas of Soviet wage policy, the trend has been increasingly toward adjusting the wages and earnings of state farm workers so that they reflect to the maximum extent possible the variation between good and bad results. Workers who get the best harvests and the most production from their livestock have the highest incomes, and conversely.

The labor problem on the state farms has been a serious one. It has been one of the chief factors making for more diversified farms. On the specialized state farms producing, say, grain or sugar beets, specialization has resulted in a labor demand curve having sharp peaks at certain times during the year. To satisfy the requirements imposed by this curve, the Soviet government has had to provide large numbers of temporary laborers for the period of peak need. On the other hand, since the number of permanent workers cannot be adjusted simply to the minimum needed during the farm year, there has been much idleness among workers on these farms during the wintertime, although these workers were still paid by the government. A more diversified pattern of crop and livestock enterprises on one farm helps to iron out the peaks and troughs of labor demand and thus to eliminate or at least substantially ease this problem of labor force. During much of the 1930's the labor force employed on state farms aggregated about one and a half million.

Great persistence has been shown by the Soviet government in maintaining the state farms despite the unsatisfactory experience it has had with them. To some extent, perhaps, this persistence is explained by their usefulness as demonstration farms and as experimental units. But a more fundamental consideration seems involved too. The stated Soviet objective is to put rural life on a parity with that in the cities. Clearly the nominally cooperative character of collective farms is sharply at variance with the employer-employee relationships of urban branches of the economy. The state farms, therefore, may well represent the ultimate universal pattern planned for all Soviet agriculture. The amal-

gamation of small collective farms in 1950 may well have been a significant step in this direction.

Peasant Farms

By the beginning of 1938 the number of uncollectivized individual peasant farms in the USSR had been reduced to 1,300,000. These constituted only 6.5 per cent of all peasant households at that time, and they cultivated under 2,500,000 acres of crop land, an amount less than 1 per cent of the Soviet total. But the government found the number and "wealth" of these remaining nonconformists still too high for its comfort, and acted against them in both 1938 and 1939. In the former year, very heavy taxes were levied on horses owned by such peasants. (Only one in three even owned a horse.) In 1939, the maximum amount of land that could be occupied by such a farm was decreed to be under three acres generally, and less than that in special areas. The upper limit in irrigated regions was less than half an acre.[49]

The acquisition of the Baltic States, Eastern Poland, Bessarabia, Northern Bukovina, and other areas by the Soviet Union after the outbreak of World War II brought large numbers of peasant farmers under Soviet rule again. Initially the Soviet regime acted in these areas to liquidate the larger landowners and others assumed to be against its rule, carrying out a widespread land reform to divide large and medium-sized holdings among small peasants and those who had no land. Soviet control of these areas was wrested away for a time by Nazi occupation, but after reoccupying these territories the Soviet leaders began once again to shape the agricultural organization there as they saw fit. In 1946 over 3,000,000 peasant farms existed in the USSR, most of them in the area annexed after January 1, 1939.[50] In late 1948 and throughout 1949 vigorous collectivization drives were carried on in these western areas, and by 1950 the great majority of these formerly individual peasants had been collectivized and forced into the same mold as almost all other Soviet farmers. The individual farmer had become once again a rare and almost negligible element in the Soviet farm economy, except in a few special areas.

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[49] Jasny, *The Socialized Agriculture of the USSR*, p. 314.

[50] G. Maryakhin, "Selskokhozyaistvenny Nalog v 1947g," *Sovietskiye Finansy*, No. 3 (1947), p. 21.

CHAPTER IX

AGRICULTURAL PRODUCTION DEVELOPMENT

Technologically, the peasant agriculture of the Soviet Union in 1928, on the eve of the period of mass collectivization, was far behind that of Western Europe and the United States. The two- and three-field systems of medieval farming were still widely employed, and the authority of the village community exercised great influence upon what millions of farmers grew and the timing of their crop operations. Habit, custom, and tradition were strong forces among the overwhelming mass of illiterate and semiliterate rural folk, to whom the doctrines of modern scientific agriculture were little known, if at all. But even if these doctrines had been known, few, if any, of the peasants would have been able to apply them in practice. Without significant amounts of capital, and tilling only small plots, the great bulk of these millions had little choice but to continue employing an agricultural regimen based upon the horse as the main source of draft power and natural manure as the main or only source of fertilizer. It is true that in the last years of the Czarist regime there had ben rapid advances in the introduction of simple farm machinery, use of selected seed, and employment of chemical fertilizers. But after the setback of World War I and the civil war that followed it, Soviet agriculture had had little opportunity to progress beyond those beginnings. And the *kulaks,* the wealthier farmers who might have accumulated enough capital to make significant advances in their technology, knew in the late 1920's that the NEP period of grace was drawing to a close. They had no great incentive for investment in productive machinery or the like. A horse pulling a wooden plough

might well be considered symbolic of Soviet farm technology in this period.[1]

The mass collectivization of the early 1930's had as one goal the abolition of the antiquated technology of the peasant agriculture it destroyed. Soviet leaders looked forward to the creation of enormous farms, operated with the help of tens or hundreds of machines and producing vastly increased amounts of crop and livestock output. Farms were to become agricultural factories, running in accordance with government plans and utilizing scientific techniques much like steel mills or coal mines, except for the nominal cooperative nature of *kolkhozy*. Battling against enormous opposition from the peasantry, mass destruction of agricultural capital, and shortages of trained personnel, by 1941 the Soviet government had nevertheless worked great changes in the technology of farming. Though the results of the enormous investment made here had fallen far below expectations, yet considerable progress had been achieved and high hopes were held for the future.

World War II dashed these hopes for the time being. Major areas of the richest farmland in the country were occupied by German armies and then looted of agricultural capital before being devastated by fire and shells. In the unoccupied areas of the country, little or no new farm machinery became available, while old equipment broke down and spare parts were scarce or nonexistent. Millions of farm workers went into the armed forces or the mines and factories, leaving women, old men, and children to operate the farms.[2] Under these conditions most of the technological gains achieved in the 1930's must have vanished, and much of the peasantry must have reverted to the practices if not the forms prevalent before 1930. It was against this background that reconstruction of agriculture began in 1945, a reconstruction whose objective is far to exceed the best prewar levels of technology, output, and productivity. In the process, much that was done in the 1930's had to be duplicated in the late 1940's, but the road was easier because the active opposition that had blocked the way in 1930–32 no longer existed. Moreover the peasantry now appreciated from experience the gains and losses the technological revolution of the 1930's had given it.

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[1] Timoshenko, *Agricultural Russia and the Wheat Problem*, pp. 196–240.
[2] Voznesensky, *The Economy of the USSR During World War II*, p. 50.

Farm Mechanization

The most publicized aspect of changes in farm production techniques during the Soviet era has been the mechanization of certain crop-production operations. Mechanization of livestock-raising and exploitation—milking cows, preparing feed, delivering water for livestock, and so on—has been little developed up to the present. In large part the disproportionate emphasis upon the mechanization of crop production reflects the much greater importance of this aspect of agriculture in a country as poor as Russia. In addition, many of the most important devices needed to mechanize livestock work require electricity, a power source available on only a small percentage of all Soviet farms.

The most striking feature of farm mechanization in the USSR in the 1930's was the rapid and widespread displacement of the horse as the primary source of power and transport for agricultural production by tractors, trucks, and other sources of mechanical power. This displacement is summarized below:[3]

Year	*Horses* (MILLION)	*Tractors* (000)	*Trucks* (000)
1928	33.5	26.7	.7
1933	16.6	210.9	26.6
1938	17.5	483.5	195.8

By 1940 the number of tractors in the country had risen to 523,000.[4] The picture presented by the data above was by no means entirely a planned development, however. Much of the reduction in the number of horses between 1928 and 1933 was the result of the slaughter of horses by peasants fighting or fearing collectivization or of the poor care of horses during the first confused period when collective farms had been set up wholesale. One student of the situation estimates that between 1928 and 1933 the total amount of power available to Soviet agriculture had only about reached the 1928 level. But in 1938, 57 per cent of this power was accounted for by mechanical sources; in 1928 only 2 per cent of the total power supply had come from these sources.[5]

The mechanization of grain harvesting during the 1930's was sought

[3] *Sot. Stroi.* (1933–38), p. 88. *Sot. Stroi.*, pp. xxiv–xxv.

[4] N. A. Voznesensky, *The Growing Prosperity of the Soviet Union*, p. 25. New York: Workers Library Publishers, 1941.

[5] Jasny, *The Socialized Agriculture of the USSR*, p. 458. *Planovoye Khozyaistvo*, No. 12 (1940), pp. 49–67.

through the large-scale introduction of combines, which both cut and thresh cereal crops, to replace the simpler tools, the sickle, and the scythe, used earlier. In 1928 the USSR had practically no such combines, but by 1940 it had 182,000.[6] Large numbers of tractor-pulled cultivators, seeders, plows, and related implements were provided to agriculture during this decade. In 1928 only 1 per cent of spring plowing was accomplished by tractor-plows; by 1938 71.5 per cent of the work was done by these tools. In 1928 only .2 per cent of all spring grain was seeded by tractor-drawn equipment; by 1938, 56.7 per cent of this work was so done.[7] Similar rapid shifts from the use of hand tools and horse-drawn equipment to tractor-drawn and other machinery took place throughout most major branches of Soviet crop-raising, though animal husbandry, as we have noted before, was much less affected. But even in 1940 many important crop operations, such as picking cotton and harvesting sugar beets, were still being done manually in the main, because satisfactory machinery for performing these tasks had not yet been developed.

There is much evidence that initially, at least, there was a good deal of naivete in Soviet leaders' expectations of the benefits to be derived from mechanization.[8] There is nothing about a tractor that makes tractor plowing, for example, necessarily cheaper or more conducive to high yields than plowing with a horse-drawn implement. In the North Caucasus in the early 1930's the German farm concession firm, Drusag, found it more economical to plow with oxen rather than tractors, because wages and animal costs were so low.[9] Tractors *will* help produce higher yields if they permit agricultural operations to be done at the right time and if they permit higher quality of work than other means. But if the tractor seeds too late or plows too superficially—as is too often the case in the USSR, Soviet papers frequently complain—then low yields will result. Under the proper conditions of wages and prices, mechanization of farm operations can do much to cheapen farm costs, but for this there must be an adequate number of machines, a labor force competent to use the equipment and keep it in good repair, and the appropriate conditions of soil and climate. Throughout most of the

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[6] Voznesensky, *The Growing Prosperity of the Soviet Union, op. cit.*

[7] *Sot. Stroi. (1933–38)*, p. 92.

[8] Jasny, *op. cit.*, pp. 26–30; and L. E. Hubbard, *The Economics of Soviet Agriculture*, pp. 260–63.

[9] Hubbard, *op. cit.*, p. 260.

past two decades the USSR has not had enough farm machinery; it has only slowly developed the necessary technically qualified operating and mechanical personnel in the agricultural areas; it has incurred huge costs because of poor use of the farm machinery; and it has often attempted to use mechanical equipment under inappropriate conditions. As a result the gains of such mechanization in terms of output and of reduction in labor needs and costs have been far more modest than was expected when this agricultural revolution began.[10]

Farm mechanization in the USSR has had at least two clear and major effects, however, which must be noted. First, it has drastically altered the structure of agricultural costs and greatly increased the dependence of farmers upon the nonagricultural sector of the economy. Instead of relying primarily upon horses produced on the farm and fed from farm-grown produce, mechanized farms must pay for industrially produced machinery and spare parts, and for petroleum products that fuel and lubricate the machinery. In the total financial balance sheet of agriculture, fixed overhead costs play a prominent role. The individual collective farm, of course, does not buy the machinery the government turns over to the Machine Tractor Stations, but those who direct the economy as a whole take into account the cost of this equipment initially and the cost of its maintenance thereafter in setting the amounts to be charged by the Machine Tractor Stations for its use. Second, as we have noted before, the fact that the collective farms are dependent upon the Machine Tractor Stations for the equipment required to till their fields places them at a disadvantage. It permits the latter to exercise a powerful influence upon the actual conduct of farm operations and to help assure that the government actually receives its high share of farm produce immediately after harvest.

During World War II, the level of mechanization of Soviet agriculture dropped sharply. Large numbers of tractors and trucks were requisitioned for the armed forces; much machinery was destroyed or stolen in the areas occupied by the Germans; virtually no new farm equipment was produced in the USSR and little was imported from abroad. Soviet agriculture emerged from the struggle with much less mechanical equipment than it had had at the beginning, a situation aggravated by the fact that virtually all the machinery available was obsolete and badly worn.

[10] Jasny, *op. cit., passim,* especially chs. xviii and xix.

It could be used further only by dint of expensive repair work between harvest and spring time, and by large-scale replacement of parts that had worn out or broken.

In both the Fourth Five-Year Plan of 1946 and the special three-year agricultural plan adopted in early 1947, special emphasis was put upon maximally rapid expansion of farm-machinery production in order to meet the tremendous needs of Soviet agriculture. Lack of spare parts alone kept 30,000 to 40,000 tractors idle during all or part of 1946, 20,000 to 30,000 of these being unusable even at the height of the agricultural field work.[11] During 1945–50, Soviet agriculture was originally scheduled to get at least 325,000 tractors, to permit the replacement of a large fraction of the tractors it had lost or worn-out, as well as the mechanization of the farm economy of the western areas annexed by the USSR in 1939 and afterward.[12] During 1946–49 inclusive, Soviet agriculture probably received only about 150,000 tractors, i.e., fewer than one third the 523,000 machines it had had in 1940.[13] The situation was probably similar with respect to most other complex types of farm machines, such as combines, so that even in mid-1950 Soviet agriculture was still dependent to a significant degree upon equipment produced before World War II and had probably not yet regained the prewar level of mechanization in terms of the numbers of machines available. But substantial progress had been made since 1945 both in replacing equipment and in providing new types of machinery such as cotton harvesters, small garden tractors, self-propelled combines, and the like.

Electricity as a source of light and power has increased greatly in importance on Soviet farms since the end of World War II. It was a negligible factor in Soviet farming in 1940, when only 10,000 collective farms—only about 4 per cent of the total—and 2,500 Machine Tractor Stations had electricity available to them.[14] World War II brought a setback in this field too, and by 1945 even fewer agricultural production

[11] *Pravda,* February 28, 1947, and March 7, 1947.

[12] *Planovoye Khozyaistvo,* No. 2 (1946), p. 28. Soviet tractors produced during the first postwar five-year plan were scheduled to be equal in power capacity to 720,000 tractors of 15 horsepower each. In the past Soviet farm tractors have averaged about 30 horsepower each.

[13] Estimated on basis of material in following sources: A. Bergson, *et al.,* "Postwar Economic Reconstruction and Development in the USSR," *The Annals of the American Academy of Political and Social Science,* May 1949, p. 56. *Pravda,* March 10, 1950.

[14] *Sotsialisticheskoye Zemledeliye,* May 31, 1950.

units could avail themselves of electricity. During 1946–49, however, development of small rural electric stations of all kinds was carried on at a brisk pace, bringing electric power to large numbers of farms and other installations. At the beginning of 1950, about 30,000 collective farms and 6,200 Machine Tractor Stations were electrified, i.e., only about 12 per cent of all farms and over 75 per cent of all Machine Tractor Stations.[15] In the spring of 1950, all farms and Machine Tractor Stations in Sverdlovsk Province in the Urals had electricity, while the situation was almost as bright in Moscow and Leningrad provinces and in Armenia. Elsewhere in the USSR, rural electrification was still the rare exception for the most part.[16] Farms employ electricity, not only for illumination, but also for a wide variety of important productive tasks, including milking cows, preparing livestock feed, running threshing machinery, and so on. Experiments have also been made with electric-powered field equipment, such as tractors.

Fertilizers

A sharp increase took place in the amount of chemical fertilizers utilized on Soviet farms in the 1930's. The amount of phosphatic, nitrogenous, and potassium fertilizers used rose more than twelvefold, from 259,000 metric tons in 1927–28 to over 3,200,000 tons in 1938. Counterbalancing this, however, was the sharp drop in the amount of manure available. This drop resulted from the great decline in livestock during the early 1930's. Jasny has estimated that the annual loss between 1928 and 1938 from this cause amounted to 225,000 tons of nitrogen, potash, and phosphoric acid, equivalent in plant-food value to almost 1,000,000 tons of commercial fertilizers.[17] Chemical fertilizers have been applied primarily to increase yields of sugar beets, cotton, and flax, and the amounts employed for these crops far exceed the quantities used in the era of peasant agriculture. On the other hand, relatively little has been applied on the vast areas north of the steppe, where grain and potatoes are the chief crops and where the loss of manure was felt severely.

The Soviet chemical industry began its conversion to war work rela-

[15] *Izvestia Akademii Nauk SSSR Otdeleniye Ekonomiki i Prava*, No. 3 (1950), p. 156.
[16] *Sotsialisticheskoye Zemledeliye*, May 31, 1950.
[17] Jasny, *op. cit.*, pp. 495, 497.

tively early. By 1940 the output of chemical fertilizers appears to have dropped about 20 per cent from the 1938 level. During the war itself, fertilizer production fell very sharply. Even in 1946 little more than 1,000,000 tons of the basic fertilizers were produced, only about one third of the 1938 level. Production was scheduled to reach 2,200,000 tons in 1947 and 3,130,000 tons in 1948. If achieved, such output would have made available a somewhat smaller quantity of fertilizer for the enlarged postwar territory of the USSR than was actually used on the smaller area under Soviet rule in 1938. The 1950 goal for fertilizer application set by the Fourth Five-Year Plan is 5,500,000 tons, a record high if realized, but there is no certainty that it was. This 1950 goal, it may be noted, was less than the goals set in each of the first three five-year plans, none of which was ever attained.[18] The Fourth Five-Year Plan indicated that use of chemical fertilizers was confined primarily to cotton, hemp, flax, sugar beets, rubber-bearing plants, and other industrial crops.

Many expedients have been employed to increase the area of usable crop land: irrigation of arid regions, drainage of swamps, and clearing of cut-over and lightly wooded areas have been resorted to. Over 6,000,000 acres, primarily in Central Asia, were irrigated between 1928 and 1941, but large areas were abandoned during World War II because they had become too saline or had been reduced to swamps. The Fourth Five-Year Plan called for restoring deteriorated irrigated land and irrigating new areas totaling about 1,500,000 acres. About 20,000,000 acres were made available for agriculture between 1928 and 1938 by clearing land in the forest areas and draining swamps, the latter primarily in White Russia. Significant losses of reclaimed land took place in the latter area during the war, when it was occupied by the Germans. The Fourth Five-Year Plan required that about 1,500,000 acres be drained between 1946 and 1950, much of this being land once reclaimed that had become swamp again during the conflict.

With a view to raising yields of grain and other crops, the Soviet government has sought to improve the farming practices of the collective farms. Some of the measures urged by the state are of undoubted value, but others are more questionable. The quality of seed sown improved greatly during the 1930's. It declined sharply during World War II and

[18] *Ibid.*, p. 496, and *Pravda*, April 3, 1947.

immediately thereafter, when there was shortage of any seed at all for planting. Great stress was laid upon introducing complex crop-rotation systems in different areas during the late 1930's, with particular emphasis upon the inclusion of grass crops in rotations. The gains made in this area during the 1930's appear to have been largely lost during the war that followed, so that the work has had to be redone to a large extent in the postwar period. The government has sought to have the ground prepared for seeding as well as possible. It has urged that fallow be carefully cultivated to remove weeds, that plowing be deep, and that as much land be plowed in the fall as possible, since the draft power available has usually been inadequate to plow all the land for spring seeding in the early spring. Prof. T. D. Lysenko's yarovization technique of treating seeds to speed up ripening has been widely applied with government aid, though foreign experts have found it of extremely limited value. Perhaps more important than any specific measure has been the government's provision of a large force of agronomists throughout the countryside to help farms solve their technical problems.

Combating Drought

Many of the USSR's major agricultural regions are periodically subject to drought. The problem of finding ways and means of combating such calamities has received a great deal of attention from Soviet scientists and the Soviet government. The planting of forest shelter belts and the accumulation of snow were employed in the 1930's to help conserve moisture in dry land areas. From 1931 to 1937 collective farms planted trees on 1,500,000 acres to aid moisture retention, but the mortality rate among trees planted was high. World War II brought combat destruction in the western areas and gave other matters higher priority, so that large losses of forest land and shelter-belt area took place.[19] The major drought of 1946 immediately after the war re-emphasized the gravity of the problem and undoubtedly played a major role in prompting the comprehensive program of antidrought measures announced by the USSR in late 1948.[20]

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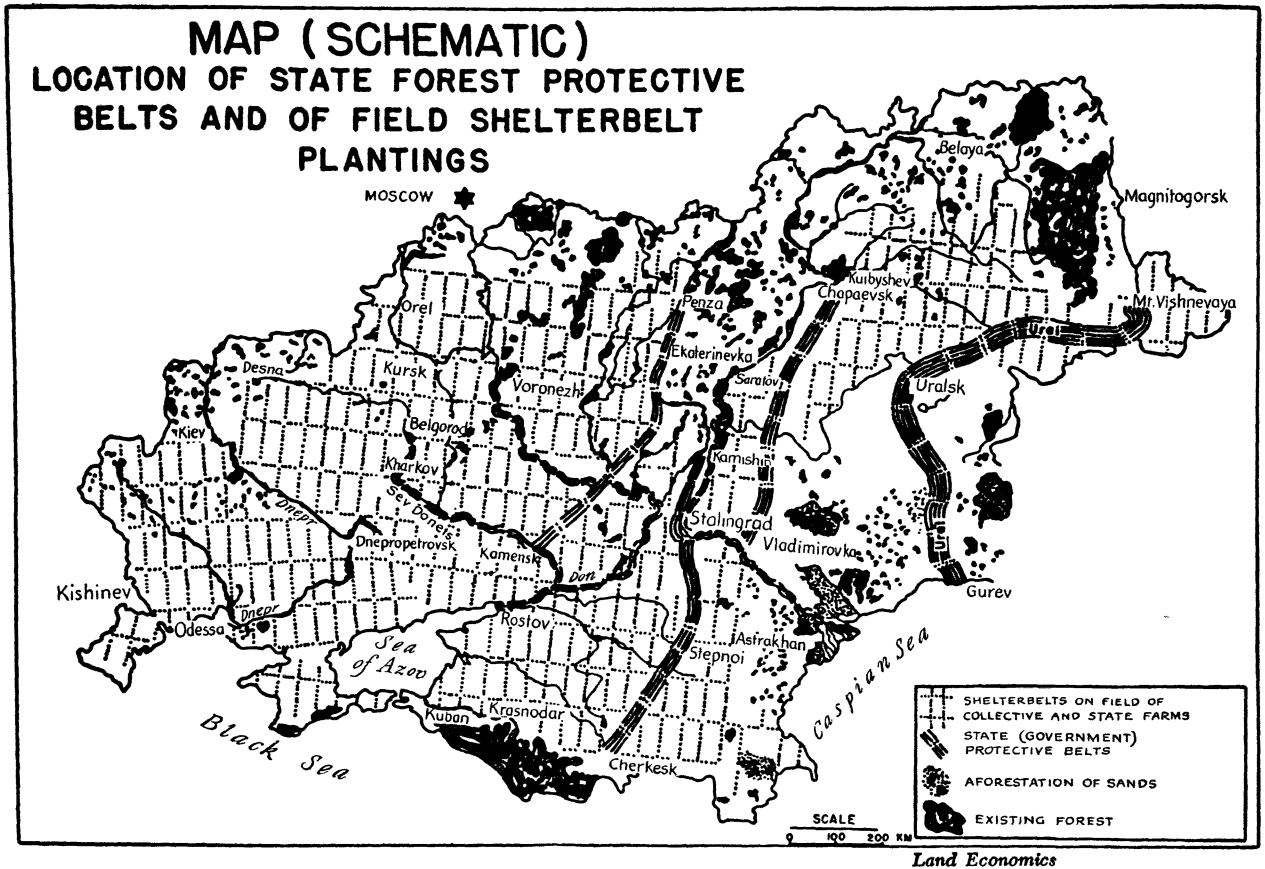
[19] Jasny, *op. cit.*, pp. 489–90.

[20] *Pravda*, October 24, 1948, gives the full text of this decree.

This comprehensive plan for combating drought is to be carried out from 1949 to 1965. It provides for the planting of eight huge state forest shelter belts and of great numbers of trees around the fields of 80,000 collective farms and 2,000 state farms. The area covered by this huge program stretches from the western borders of the USSR to the Ural Mountains. It is south of a line drawn from Kiev to Moscow to Magnitogorsk and is roughly equal to the combined size of England, France, Italy, Belgium, and Holland. The Soviet government will create major forest shelter belts along the banks and on the watersheds of the Volga, Don, Northern Donets, and Ural rivers. These will extend almost 3,300 miles, and their total area will be almost 300,000 acres. The bulk of new trees planted, however, will be on the collective farms, which, together with state farms, are scheduled to create windbreak tree plantings covering about 14,000,000 acres. To aid this work the Soviet government is scheduled to create 570 forestry stations having 22,000 tractors and 5,000 specialized machines for planting seedlings and taking care of them. Most of the work involved will be done by collective farmers, who will be paid in work days, i.e., with a share in the output of the crops on the farms to which they belong. This will require the collective farms to finance this capital investment program out of current earnings, though the benefits, if any, of the program will presumably not be felt for some years. Ten-year loans to collectives are provided for to help them bear the burden of this work. Along with the afforestation aspects of the program, the plan provides for the creation of 44,000 ponds and water reservoirs on collective and state farms during 1949–55. It also calls for the introduction by 1955 of crop rotations emphasizing use of grass for restoration of fertility on 77,509 collective farms and all state farms in the area. By these colossal measures the Soviet government hopes to retain moisture in the soil; curb the hot drying winds blowing west from the Caspian, which have frequently played so much havoc with crops; raise yields very substantially; and check soil erosion.[21]

If carried through, this gigantic program may well contribute toward alleviating some of the most pressing drought and erosion problems of

[21] For further details on the plan, see the original text, *ibid.* A useful summary of some major features is summarized in the *Current Digest of the Soviet Press*, June 7, 1949, pp. 11–15, and following. For two opposing evaluations of the plan, cf. Solomon M. Schwarz's articles in the *New Leader*, January 1 and 8, 1949, and William Mandel, "Remaking our Planet in Fifteen Years," *Soviet Russia Today*, December 1948, pp. 10–11, 29–30.


MAP (SCHEMATIC)
LOCATION OF STATE FOREST PROTECTIVE BELTS AND OF FIELD SHELTERBELT PLANTINGS
MOSCOW
Orel
Kursk
Voronezh
Belgorod
Kharkov
Desna
Kiev
Dnepr
Sev. Donets
Dnepropetrovsk
Kamensk
Don
Kishinev
Dnepr
Odessa
Rostov
Sea of Azov
Kuban
Krasnodar
Black Sea
Cherkesk
Penza
Ekaterinevka
Saratov
Kamishin
Stalingrad
Vladimirovka
Astrakhan
Stepnoi
Caspian Sea
Kuibyshev
Chapaevsk
Belaya
Magnitogorsk
Mt. Vishnevaya
Ural
Uralsk
Gurev
SCALE
0 100 200 KM
SHELTERBELTS ON FIELD OF COLLECTIVE AND STATE FARMS
STATE (GOVERNMENT) PROTECTIVE BELTS
AFORESTATION OF SANDS
EXISTING FOREST

the steppe and forest steppe areas. That it will actually succeed in ending the drought menace entirely and permanently raising yields very substantially seems more dubious. Solomon M. Schwarz has put one aspect of the matter succinctly:

> Shelterbelts mitigate the effect of drying winds, delay the melting of snow, slow down the water course, diminish evaporation from the soil, and thus contribute to a more even and complete use of the available water resources. But they cannot increase the resources. Moreover, forests, too, consume and evaporate considerable amounts of water. According to American experts, woods do not normally grow where precipitation is below 15 inches. . . . A glance at the precipitation map of the USSR shows that a considerable part of the territory envisaged by the plan for forest planting does not meet this demand. In particular, in the lower course of the Volga, from Stalingrad down, and in the greater part of the basin of the Ural river . . . it is perhaps possible to create shelterbelts right along the rivers partly at the expense of the flowing water. But at some distance from the rivers the creation is a dubious project, and the large expenditures of money and labor may go with the wind.[22]

The head of the USSR's Chief Administration of Erosion Control Forestation has pointed out that a large proportion of Soviet tree seeds do not sprout and acclimate themselves. At the extreme only 11 per cent of pine plantings survive. To plant the billions of oaks required for this program and have them survive, hundreds of tons of a special fungi-bearing earth are required, and no such amounts of this earth are available as yet. Other major technical problems must be solved too, he points out.[23] The rotation systems emphasizing the use of perennial grasses, which this program envisages introducing throughout the affected area, have not been successful in tests on dry land areas in the United States. There would seem reason to wonder whether these rotations will prove adequate on such land in the Soviet Union.[24] In short, the basic question is clearly that of whether the huge effort to be exerted and the great expenditures of resources to be made for fulfillment of this program will be justified by the perhaps only moderate benefits it will bring. It is characteristic of the Soviet system that the program placing such

[22] *New Leader*, January 1, 1949, p. 15. Cf. also the symposium on this subject in *Land Economics*, November 1949, pp. 333–64.

[23] *Current Digest of the Soviet Press*, June 7, 1949, p. 11.

[24] Jasny, *op. cit.*, pp. 490–91.

obligations and costs upon the peasantry was imposed upon them by the state, without any public discussion or debate in which their opinions could have been stated.

Measures for the Future

In August and September 1950, the Soviet Regime announced a number of major projects aimed at further combating the impact of drought upon Soviet agriculture. These included a complete reconstruction of the existing irrigation system and the creation of vast new irrigation and water supply systems in the desert area east of the Caspian Sea, in the areas east and west of the Volga River, in the Southern Ukraine and in Northern Crimea.

The order for revamping the existing irrigation system, which was published August 18, 1950, revealed that the USSR had about 11,000,000 acres of irrigated land, including almost 4,000,000 acres in the Uzbek SSR; about 1,500,000 acres in the Kazakh SSR; and about 1,250,000 acres in the Kirgiz SSR. This decree condemned the existing irrigation system on these grounds: excessive density of canals resulted in nonutilization of 4 to 12 per cent of the land available; small fields common in irrigated areas hindered proper use of farm machinery, resulting in the loss of up to 5 per cent of output on these fields; existing irrigation canals were often focal points of weed and insect infestation with resultant damage to crops on adjacent land; cleaning of the dense canal network required high labor costs annually.

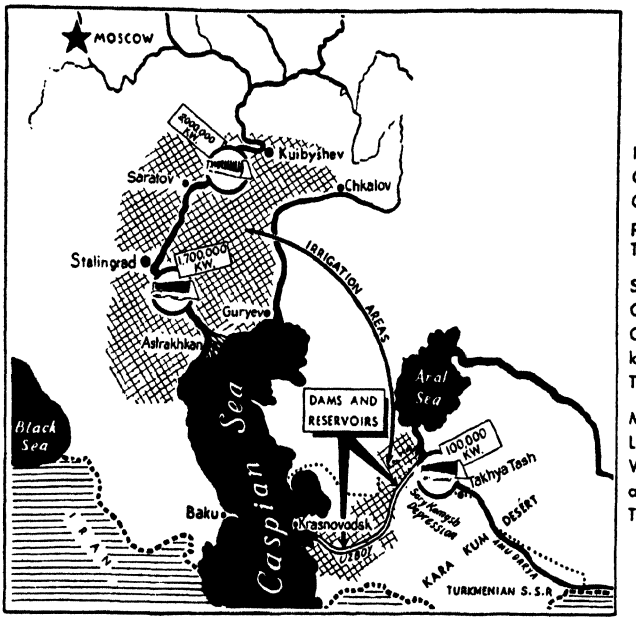
To remedy these difficulties, the decree ordered that by 1953 the existing networks of permanent feeder canals be filled in. After this is done, new temporary feeder canals will be dug each spring and filled in after the harvest is gathered each year, though main irrigation canals will be maintained permanently. In setting up temporary canals, attention is to be focused upon minimizing their number and increasing the average size of fields so as to facilitate the use of farm machinery and to increase the amount of land available for crop use. The government ordered the provision of large numbers of earth-moving machines for this work. Collective farms in affected areas will pay 60 per cent of the cost, the government paying the remainder.

The drastic measures ordered by this decree suggest strongly that the irrigation system in the areas affected, built up laboriously over many

years, must have operated very poorly. Digging and filling in temporary canals each year in the future will obviously be very expensive and have to provide substantial improvements in output to justify the cost. The available evidence is inadequate to permit conclusions regarding the economic wisdom of this revolution in Soviet irrigation, but certain political aspects of the matter are apparent. Once the new system of temporary canals has been established, farmers will be completely dependent upon the government stations controlling the digging machinery, for unless these provide new canals each spring there will be no harvest. Thus the government's domination over farmers of Central Asia—the chief area affected—will be increased sharply. Moreover the dislocation of customary patterns of land use that this new system requires will probably be utilized by the government to root out anticollective farm practices—such as excessive private plots for *kolkhozniki*—that may exist in these areas. Here again a measure profoundly affecting the welfare of large numbers of people was promulgated without consulting them.

Even more ambitious are the new irrigation and water supply projects announced in August and September 1950. From the point of view of agriculture, one of the most significant is the Chief Turkmen Canal, to be built from Takhia-Tash on the Amu Darya through the Kara Kum Desert, terminating at Krasnovodsk on the Caspian Sea. This 700-mile canal will divert a large part of the Amu Darya from the Aral Sea, and, together with its branch canals, is planned to provide water for irrigation of about 3,200,000 acres. Most of this land scheduled for irrigation will be devoted to cotton, turning what is now a great waste area into one of the world's major cotton-production regions. In addition, water provided by the Chief Turkmen Canal is to make possible utilization of over 17,000,000 acres in the Kara Kum Desert and adjoining areas as pasture land.

Irrigation and water supply are also among the major objectives of the hydroelectric power developments scheduled at Kuibyshev and Stalingrad on the Volga, and at Kakhovka on the Dnepr River in the Southern Ukraine. The Kuibyshev station, scheduled for full operation in 1955, is to provide electricity for irrigating about 2,500,000 acres in the Trans-Volga area. In connection with the Stalingrad project, there is scheduled to be built by 1956 a gravity-flow canal and water supply system providing water to about 15,000,000 acres of land in the Caspian depression



Kuibyshev Power Station
Capacity..2,000,000 kw.
Output..10,000,000,000 kw-hr. per year.
To be completed in 1955.

Stalingrad Power Station
Capacity..1,700,000 kw.
Output..10,000,000,000 kw-hr per year.
To be completed in 1956.

Main Turkmenian Canal
Length..683.5 miles.
Will irrigate 3,212,300 acres.
To be completed in 1957.



Kakhovka Power Station
Capacity..250,000 kw.
Output..1,200,000 kw-hr. per year.
To be completed in 1956.

South Ukrainian Canal and North Crimean Canal.
Combined Length..
341.7 miles.
Both canals will irrigate....
3,706,500 acres
and water an additional...
4,200,700 acres.
To be completed in 1957.

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between the Volga and Ural Rivers. Electric power from the new Stalingrad hydroelectric station is to operate irrigation systems serving almost 4,000,000 acres of land between the Volga and Ural Rivers, north of the region served by the water supply system mentioned earlier. In addition, canals and water supply systems are to be built to irrigate and bring water to about 14,000,000 acres of land in the Sarpinsk Depression, the Nogaisk Steppe, and the Black Lands area. In the Southern Ukraine and Northern Crimea, future irrigation plans are bound up with the Kakhovka hydroelectric project. They envisage the building of the South Ukrainian and North Crimean canals. Almost 4,000,000 acres in the Southern Ukraine and Northern Crimea are to be irrigated, and another area of over 4,000,000 acres will be provided with water supply facilities. Cotton production is to be expanded substantially on much of the Ukrainian land scheduled for irrigation.

These are obviously very large and impressive projects with great potentiality for improving agricultural production. They will require huge capital investment and an enormous amount of labor. Not least significant is the fact that many of the new irrigation and water supply facilities to be provided in the future, if these plans are realized, will be in the areas included within the shelterbelt program discussed above. These Soviet plans are implicit admission that the shelterbelt program by itself cannot solve the problem of drought in the vast area west and north of the Caspian Sea. They seem impressive confirmation of the objections raised by Solomon Schwarz in the quotation above.

Total Agricultural Production

Any attempt to evaluate the influence upon production of the institutional and technical changes wrought by the Soviet regime in the agriculture of the USSR is made difficult by the untrustworthiness of the data published by that regime. Data have been suppressed for some years. There have also been changes in definition of what is being measured and in methods of computation, so as to make comparisons over time misleading if they do not allow for these changes.

In measuring total agricultural production, the Soviet government prepares a statistical series that purports to represent changes in the physical volume of farm production by valuing all crop and livestock products at average prices prevailing in 1926–27 over the USSR as a

whole.[25] The picture presented by these data for the years in which they have been published is given in Table 25.

TABLE 25. Gross Production of Agriculture in the USSR for Selected Years.

Year	*Total**	*Crops*	*Livestock Products*
	(BILLIONS OF RUBLES AT 1926–27 PRICES)		
1913	12.6	8.0	4.6
1929	14.7	9.1	5.7
1930	14.0	9.6	4.4
1931	13.9	9.9	4.1
1932	13.1	9.8	3.3
1933	14.0	11.1	3.0
1934	14.6	11.3	3.3
1935†	16.1	12.2	3.9
1937	20.1	15.1	5.1
1940	23.2	‡	‡
1950 plan	29.5	‡	‡

* Some total figures do not add up to sum of crops and livestock products because of rounding.
† Preliminary. ‡ Unavailable.
Sources: 1913 and 1937—*Sot. Stroi. (1933–38)*, p. 84. 1929 to 1935—*Sot. Stroi.*, p. 232. Figures for 1940 and 1950 calculated from percentages in N. A. Voznesensky's speech of March 15, 1946.

Taken at face value, the data in Table 25 indicate a rather remarkable growth in the physical volume of all agricultural production. By 1940 this production is indicated as being almost twice the 1913 level. Crop production is shown to have been at almost twice the 1913 volume by 1937. Livestock production is indicated to have been very sharply cut during the early 1930's, but then to have almost regained its 1929 level by 1937. These official data cannot however be accepted as giving a full picture of the fluctuation of agricultural production under the Soviet regime for a number of reasons:

1. No comparable data have been published for the bulk of the years of the 1920's; nor for the years 1936, 1938, and 1939, when there is good reason to believe that crops were relatively poor compared with 1935 or 1937; nor for the war and postwar years through 1949. It seems obvious that in the past two decades, at least, these statistics have in general been issued only when they did not present too bad a picture of farm production, i.e., propaganda objectives have governed and still govern their availability.

2. The data for different years in Table 25, though often freely compared by Soviet officials, are not comparable, since they cover different

[25] This claim is made specifically in *Slovar-Spravochnik po Sotsialno-Ekonomicheskoi Statistike*, p. 105. Moscow: 1944.

territories. The USSR was significantly larger in 1940 than in 1937, having absorbed Eastern Poland, the Baltic States, and smaller areas. After World War II it added the Carpatho-Ukraine of Czechoslovakia, part of East Prussia, southern Sakhalin, and other small areas. Between 1939 and 1945 the USSR gained 670,000 square kilometers of territory, with a prewar population of 24,300,000 persons and a substantial agricultural production.[26]

3. There have been important changes in the definition of agricultural production and the coverage of these indexes. Until 1933, the grain crop was reported on the basis of what had actually been harvested and put into the barns, i.e., exclusive of substantial losses in harvesting and moving crops from the fields. Beginning in 1933, the grain crop was calculated on the basis of what had grown in the fields—the so-called "biological crop"—usually minus some inadequate small discount for losses. Beginning either in 1937 or 1939, all discounts for losses were ended, so that what is reported is substantially greater than what is available for use, since it includes waste and losses of all kinds. In July 1939 this method of accounting was extended to the principal nongrain crops, so that in the case of cotton, for example, the cotton production reported and included in the index of total farm production includes all cotton harvested, all cotton that fell on the ground, and all cotton that remained on the plant! By this device the output of agriculture was increased at the stroke of a pen, though no more and no less physical volume of crops became available for use.[27] Additionally, in 1937 and after, the output of farm products raised in the "victory gardens," as we should call them, of urban workers was included in the figures on total agricultural production. In 1937 this source accounted for almost one billion rubles worth of farm production, about 5 per cent of the total. In more recent years this figure has probably increased sharply, because of the great expansion of food-raising by urban workers that occurred during the war and postwar years.[28]

An effort to overcome these statistical deficiencies has been made by Dr. Naum Jasny, who has calculated the value of Soviet agricultural

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[26] Balzak, *et al.*, *Economic Geography of the USSR*, p. 544.

[27] Cf. the full discussion of this matter in Jasny, *op. cit.*, Note G, pp. 725–36.

[28] *Sot. Stroi.* (1933–38), p. 84, shows explicitly that such production was not earlier included in the index. The subsequent inclusion of this output is testified to by *Slovar-Spravochnik po Sotsialno-Ekonomicheskoi Statistike*, p. 105.

production in 1928, 1932, and 1937, in the same prices as the official index but taking account of that index's deficiencies. He has also calculated what output might have been expected to be in 1938 and 1940 on the pre-1939 territory of the USSR if the weather had been normal. Throughout these calculations he has accounted for production on the basis of the crops actually harvested, i.e., without the waste and losses now included in Soviet calculations. His results follow:[29]

Year	*Weather*	*Vegetable Products*	*Animal Products*	*Total*
		(BILLIONS OF RUBLES AT 1926–27 PRICES)		
1928	Almost normal	9.5	6.0	15.5
1932	Almost normal	8.7	3.3	12.0
1937	Excellent	13.4	5.1	18.4
1938	Assumed normal	12.1*	5.3*	17.4*
1940	Assumed normal	12.4*	5.4*	17.8*

* Estimates of what the value of production might have been with normal weather; *not* estimates of actual production.

The same writer has also attempted to compute the income available from agriculture, i.e., the value of gross production as given above minus depreciation charges and the value of materials of nonfarm origin used in farming. Both depreciation charges and the value of nonfarm commodities used in agriculture increased sharply over the 1930's because of increased capital investment in this area of the economy and because of the vastly greater expenditure for gasoline and other fuels, lubricants, fertilizers, insecticides, and so on. Dr. Jasny's conclusions on the income from agriculture follow (in billions of rubles at prices of 1926–27):[30]

1928	9.2
1932	6.9
1937	10.5
1938	9.5*
1940	9.7*

* Estimates of what the value of income from agriculture might have been with normal weather; *not* estimates of actual income.

If Dr. Jasny is correct in his calculations—and the evidence suggests that his figures are much nearer the truth than those officially published

[29] Jasny, *op. cit.*, p. 673. A slightly revised set of total values is given on p. 682, but without the breakdown between vegetable and animal products.

[30] *Ibid.*, pp. 676–82.

by the Soviet government—then the net income of agriculture in the USSR fell about 25 per cent between 1928 and 1932. By 1937 it was about 15 per cent above 1928. In 1938 and 1940, if weather had been normal, it would have been little more than in 1928. Dr. Jasny's estimates of the development of gross agricultural production given earlier suggest that the rise in this output that did occur between 1928 and 1940 (about 2.3 billion rubles, assuming normal weather in 1940) was almost entirely eaten up by the rise in depreciation charges and the cost of nonfarm production materials for agriculture during the twelve-year period. The increase in the net contribution of agriculture to the economy over this turbulent and revolutionary period was very slight, unless, of course, one includes the additional output of areas annexed in 1939 and 1940.

Dr. Jasny adds this melancholy information regarding the course of Soviet production during World War II:

> A marked decline in farm output followed directly upon the first shot; one can even rightly speak of "collapse." The decline in the uninvaded territory during the whole war (including 1945) was probably more than three times as large, in percentage terms, as the decline in Russian farm output during the war of 1914–18.[31]

As we shall see below, the output of a number of the most important Soviet crops in 1945 was half that of 1940 or less. In 1946 Soviet authorities announced that the country had been hit by the worst drought in fifty years, so that the production of grain, sunflower seeds, and sugar beets declined appreciably below that of 1945 though cotton production in 1946 did rise substantially over that of the preceding year. An emergency program to improve the quality of farm work and increase the amount of machinery and other resources available to agriculture was adopted by the Central Committee of the Communist Party in February 1947. In 1947, 1948, and 1949, official communiques reported increased agricultural output in each of those years for particular crops, and—in 1949—for livestock products, but no summary data on over-all farm production had been released through the end of 1949.[32]

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[31] *Ibid.*, pp. 69–70.

[32] Cf. the communiqués of the State Planning Committee and later the Central Statistical Administration of the Council of Ministers of the USSR released quarterly during 1947, 1948, and 1949. The brightest report on agricultural output was made public in the communique published in the Soviet press on October 15, 1949.

Grain Production

Grain production is the most important section of Soviet agriculture, since bread and cereal products provide by far the overwhelming bulk of calories available to the Soviet people. Grain is also most important as a livestock feed. Soviet statistics of grain production include primarily wheat, rye, oats, corn, buckwheat, millet, barley, rice, and dry legumes. Grain crops are produced throughout all the major agricultural areas of the country and occupy the great bulk of the USSR's total crop area. In recent years few data have been published regarding acreage, yields, and production of individual grain crops, so that the analysis below will be primarily in terms of grain production as a whole.

TABLE 26. Acreage, Yield, and Production of Grain in the USSR as Indicated by Official Statistics and Statements for Selected Years.

Year	*Acreage* (MILLION HECTARES)	*Yield* (TONS PER HECTARE)	*Production* (MILLION METRIC TONS)
1913	94.4	.85	80.1
1928	92.2	.79	73.3
1932	99.7	.70	69.9
1935	103.4	.87	90.1
1937	104.4	1.15	120.3
1938	102.4	.93	94.9
1940	111.0*	1.07	119.0
1945	85.3*	.78	66.5
1946	†	†	61.0
1947	†	†	97.0
1948	†	†	115.0
1949	†	†	124.0
1950 goal	105.8*	1.20	127.0

* Enlarged post 1939 territory.
† Not available.

Sources: 1913—*Sot. Stroi.*, pp. xxiv, xxv. 1928–38—Jasny, *op. cit.*, p. 793. 1940—*Planovoye Khozyaistvo*, No. 2 (1946), p. 125. 1945—Calculated on the basis of percentages in *Pravda*, March 7, 1947. 1946–49—Estimated on the basis of statements and percentages in official Soviet economic communiqués, 1947–49. 1950 goal—Fourth Five-Year Plan.

As indicated in the discussion above, these data must be interpreted with great caution, both because of the increase in the area of the Soviet Union since 1939, and because of the changes in the method of calculating yields and production since 1933. Much of the apparent increase in yield and production shown above from 1928 to 1937, in 1938, and in 1940 is attributable to these two factors, rather than to any great improvement in agricultural efficiency brought about by collectivization and mechanization. Dr. Jasny has estimated that to make the production data for the late 1930's comparable with those of 1932 and earlier,

when only the crop actually put into barns was counted, deductions of 20 per cent and more must be made from reported grain yield and production figures for those years given in Table 26 above. The year 1937 was one of exceptionally good weather, and resulted in peak output that has never been equaled since. A comparison of the official figures and Dr. Jasny's corrected figures throws this light on production progress.[33]

Grain Production
(MILLION METRIC TONS)

Year	*Official*	*Jasny*
1928	73.3	73.3
1937	120.3	96
1938	94.9	76
1939	106.5	82

If these corrected estimates represent the situation adequately, then grain production in the late 1930's in the USSR was about 15 per cent higher than in 1928, most of this increase being accounted for by the rise of about 10,000,000 hectares, or over 10 per cent, in the area sown to grain.

The data for 1945 above show vividly the impact of war upon Soviet grain-raising, even though production in 1945 was probably much higher than in earlier war years. Between 1940 and 1945 acreage declined almost 25 per cent, and yield fell almost 30 per cent, so that total output was only little more than half that of 1940. The drought of 1946, the lack of farm manpower and other production essentials, the organizational weaknesses of the collective farms, which had mounted during the war—all these reduced grain output even below that of the previous year. The Soviet government claimed a 58 per cent rise in grain production in 1947 over 1946, a rise so sharp as to be almost unbelievable. It seems likely that the new system of government crop inspectors introduced that year to check acreage and yield figures prevented the under-reporting of production that had taken place earlier and resulted in more over-reporting than usual even in modern Soviet crop statistics.[34] In 1949, the Soviet government claimed that 1940 production of

[33] Jasny, *op. cit.*, p. 548.

[34] Cf. *ibid.*, p. 736, and *Sotsialisticheskoye Zemledeliye*, July 11, 1947, for an account of the new system of government supervision over determination of crop acreage and production.

grain had been exceeded.[35] If this was actually accomplished, then recovery of Soviet agriculture from its 1946 lows must be reckoned a remarkable feat, a tribute both to the hard work of the peasantry and the organizational skill and pressure of the regime. Nevertheless in 1949 the production of grain in the enlarged USSR of that time was little over the output achieved in 1937, on a smaller area, for the feeding, directly or indirectly, of perhaps 30 million fewer people. Even this increase may be illusory, since the 1949 figure may be relatively more inflated than that for 1937. Grain output in 1950 was announced as having been at the same level as in 1949.

Little information has been made public since the late 1930's regarding the composition of the Soviet grain production. In 1937, food grains —wheat, rye, millet, rice and so on—composed about two thirds of all grain output, and feed grains—barley, oats, corn, and so on—accounted for almost all the remaining third. Wheat alone made up 39 per cent of the total, followed by rye with 24 per cent, oats with 18 per cent, and barley with almost 9 per cent of all grain production.[36] Wheat production apparently suffered particularly sharp losses during World War II, for the 1947 government decree on agricultural rehabilitation ordered special emphasis upon rapid increases in acreage devoted to spring and winter wheat. Expansion of corn acreage has also received high priority in the postwar period, though even in 1949 it was certainly much below wheat, rye, and oats in importance.[37]

The pattern of grain utilization showed important changes in the late 1930's as compared with the years before World War I. If one compares the pattern of 1913 with 1938, the most striking shift is the great reduction of grain exports and the increase in the amount of grain consumed for food, the latter phenomenon being primarily the result of increased population. On the other hand, use of grain for livestock feed was less in 1938 than in 1913, even though it was already well above the low point of 1932 following the heavy loss of livestock during the great collectivization struggle.[38] If any substantial improvement is to be achieved in the diet of Soviet citizens in the future, livestock products—meat, milk, eggs, and so on—must be consumed in greater quantity. To produce one pound of meat usually requires feeding of five to ten

[35] *Pravda,* October 15, 1949.
[36] *Entsiklopediya,* cols. 891–92.
[37] *Pravda,* February 28 and March 7, 1947.
[38] Jasny, *op. cit.,* p. 794.

pounds of grain. Hence improvement in the Soviet peoples' consumption of livestock products obviously will require substantial increases in the amount of grain fed to livestock, increases that are out of the question unless a substantial rise is achieved in grain output as a whole.

Perhaps the most striking change in the pattern of grain distribution under the Soviet regime before World War II was the increased share of the crop procured directly by the state and distributed by it. From the 73,300,000 metric tons of grain produced in 1928, the Soviet regime obtained 10,800,000 tons, or less than 15 per cent. The 1939 grain crop, on a comparable barn basis, is estimated by Jasny to have been 82,000,000 metric tons. Of this the state obtained 35,000,000 tons, or over 40 per cent.[39] Most of this grain obtained by the state, as pointed out in the previous chapter, was secured at prices far lower than it could have been sold for in the free market. Only the government's complete domination of the peasantry through the collective farm system made this sharp change in the amount of grain obtained possible. In consequence, the government had sufficient grain in the late 1930's, not only to feed the rapidly rising urban population and the armed forces, but also to export about 1,000,000 tons of grain annually. Most important, the high government grain procurements in this period before the German invasion of June 1941 probably permitted the accumulation of a substantial grain stockpile, which proved invaluable when production was cut drastically after that invasion. Jasny indicates that the Soviet government's grain stockpile may have increased by 10,000,000 tons in the late 1930's.[40] Other estimates have put the figure substantially higher. In the postwar period there have been indications that the Soviet government has followed the same practice of requiring high grain deliveries to the state to build up its food stockpile against war or other emergencies.

Industrial Crops

The Soviet Union produces a wide variety of industrial crops to meet food, fibre, and other needs. These include cotton for textiles and cottonseed oil; sugar beets, which provide almost all the country's sugar; flax for fibre, oil, and export; sunflower seeds for vegetable oil; hemp; soy beans; tobacco; kok-sagyz and other rubber plants; and so

[39] *Ibid.*
[40] *Ibid.*, p. 560.

on. The production of most of these crops was highly localized before World War II, each being produced chiefly in a few areas. During and since that conflict there has been significant further dispersion of the growing areas for these crops. Nevertheless even in 1950 each of these crops tended to be concentrated mainly in a few areas where climatic and soil conditions were particularly favorable for it. In considering the data of Table 27, the qualifications mentioned earlier must be borne in mind in evaluating changes in yield and output.

Cotton. Cotton is the most important textile fibre of the Soviet Union, as well as the source of much cottonseed oil. Before the Soviet revolution about half of the cotton utilized in Russian textile mills was imported from abroad. Imports exceeding 100,000 tons annually were also required during the 1920's. Determined to make themselves independent of foreign supplies of this important raw material, Soviet leaders ordered acreage expanded sharply during the 1930's. Increased fertilizer supplies helped raise yields significantly. Domestic production rose quickly, permitting imports to be slashed from 115,000 metric tons in 1929 to 58,000 tons the following year and only 16,500 tons in 1938.[41] In 1937 the USSR was a net exporter of over 40,000 tons of cotton. In later years before World War II the Soviet Union was able to stockpile large amounts of the important fibre, though the textile needs of the Soviet people had not been fully met.[42]

Cotton-raising requires a warm climate and abundant moisture. Most Soviet cotton is raised on the irrigated land of Central Asia, particularly in Uzbekistan, which accounted for 60 per cent of all USSR cotton output in 1937. Large investments in irrigation works have been required for expansion of cotton-growing in these areas. During the 1930's Soviet leaders also sponsored the expansion of cotton-growing into new, unirrigated areas, including the southern Ukraine, the Crimea, and the North Caucasus, where the plant grows relatively far north and with relatively little moisture, so that yields have been quite disappointing. These new areas accounted for 23.9 per cent of all land sown to cotton in the USSR in 1937, but produced only 9.1 per cent of the gross production.[43]

World War II wrought enormous damage upon cotton production. In the nonirrigated western areas, production dropped catastrophically

[41] Baykov, *Soviet Foreign Trade,* Appendix Table VI.
[42] Jasny, *op. cit.,* p. 567.
[43] *Entsiklopediya,* col. 903.

TABLE 27. Official Data on Acreages, Yields, and Production of Major Industrial Crops for Selected Years, 1913–50.

Year	*Acreage* (MILLION HECTARES)	*Yield* (TONS/HECTARE)	*Production* (MILLION METRIC TONS)
	UNGINNED COTTON		
1913	.688	1.08	.74
1928	.971	.85	.82
1932	2.172	.59	1.27
1937	2.09	1.2	2.58
1940	2.1	1.29	2.7
1945	1.2	1.03	1.2
1946	1.3	1.28	1.6
1947	1.467†	*	1.9
1949	*	*	over 2.7
1950 goal	1.7	1.84	3.1
	SUGAR BEETS		
1913	.649	16.8	10.9
1928	.770	13.2	10.1
1932	1.538	4.3	6.56
1937	1.193	18.3	21.86
1940	1.2	17.5	20.9
1945	.8	10.6	8.9
1946	.938	*	*
1947	1.058†	*	*
1949	*	*	under 20.9
1950 goal	1.4	19.0	26.0
	FIBRE FLAX		
1913	1.0	.33	.33
1928	1.4	.24	.32
1932	2.5	.20	.50
1937	2.1	.27	.57
1940	2.1	.27	.57
1945	*	*	*
1946	.9	*	*
1947	1.3†	*	*
1950 goal	2.0	.40	.80
	SUNFLOWER SEED		
1913	.969	.76	.74
1928	3.9	.54	2.1
1932	5.3	.43	2.3
1937	3.3	.64	2.1
1940	3.5	.94	3.3
1945	2.9	.63	1.8
1946	3.0	*	*
1947	3.1†	*	*
1949	*	*	3.8
1950 goal	3.7	1.0	3.7

* Data unavailable. † Planned goal.

Sources: Table compiled mainly from data in *Sot. Stroi.*, pp. xxiv, xxv, 280, 339, and 345; Jasny, *The Socialized Agriculture of the USSR, passim; Itogi Vypolneniya Vtorogo Pyatiletnego Plana*, pp. 92–94; N. Anisimov, *Selskoye Khozyaistvo v Novoy Stalinskoy Pyatiletke*, pp. 39–53; *Pravda*, February 28 and March 7, 1947, and April 10, 1946; and *Sot. Stroi. (1933–38)*, pp. 95–98.

or vanished entirely under the impact of German occupation. In the irrigated areas of Central Asia, large sections of cotton land were diverted to the growth of grain crops, which provided needed food and required less labor. Cotton cultivation declined in quality and was without the aid of any large quantities of commercial fertilizer, so that yields fell sharply.[44]

After the war the Soviet government took energetic measures again to expand cotton production rapidly, offering farmers special inducements in the form of more grain, consumer goods, and priority upon fertilizers and farm machinery to increase their output. Cotton farms were also relieved of indebtedness to the state arising from past failure to make required deliveries of farm produce.[45] Nevertheless production improved only slowly in the early postwar years, and the Soviet press complained that much of the irrigation system was being used improperly, crop rotation was being introduced unsatisfactorily, agronomical requirements were being violated, and so on.[46]

Apparently dissatisfied with the progress achieved in cotton production through 1948, the Soviet government issued a new decree on February 4, 1949, to speed the expansion of cotton output. To increase farmers' interest in growing cotton, despite high labor requirements, delivery prices paid by the government were more than doubled.[47] Cotton growers were permitted to buy bread at special low prices and were given other economic advantages. Uzbekistan's farmers were told that if they met the government's 1949 cotton delivery plan they would receive over 5,000,000,000 rubles, as compared with only 2,000,000,000 rubles for 1948 deliveries. In addition this decree provided for increased delivery of machinery to cotton growers, expansion of irrigation works, and development of the cotton-ginning industry.[48]

This decree seems to have been at least partially successful, for the 1949 crop was later announced to be greater than that harvested in 1940. In early 1950, the government gave another indication of the high priority it attached to expansion of cotton-growing by forming the Ministry of Cotton-Growing, which has control over all phases of raising

[44] Jasny, *op. cit.*, p. 568.
[45] Schwartz, *Russia's Postwar Economy*, p. 59.
[46] *Pravda*, April 3, 1947.
[47] *Pravda*, March 3, 1949.
[48] *Sotsialisticheskoye Zemledeliye*, March 22, 1949.

and primary processing of that crop. The Soviet press reported in June 1950 that Uzbekistan was scheduled to double its cotton output by 1955, a feat to be made possible by increasing irrigation works very substantially.[49] The rate of increase being planned for cotton production is also indicated by the fact that cotton output in Tadzhikistan is scheduled to reach 500,000 metric tons in 1953, though only about 178,000 tons were produced in 1937.[50] By 1955 the Soviet Union may be planning to have reached a level of cotton output of over 4,000,000 metric tons and perhaps as much as 5,000,000 tons. As indicated above, the major irrigation projects announced in 1950 for Turkmenistan and the Ukraine are aimed at raising cotton acreage greatly. Cotton production in 1950 was reported to be 40 per cent over that of 1940, i.e., about 3,800,000 metric tons.

Sugar Beets: Virtually all the sugar consumed in the Soviet Union is obtained from sugar beets. Production of this crop before World War II was largely concentrated in the Ukraine, where almost three quarters of all production was raised in 1935. The bulk of the remaining production came from Kursk and Voronezh provinces north of the Ukraine. The rest of the output was scattered in small amounts over the rest of the country.[51]

By 1928 the Soviet sugar-beet industry had exceeded the prerevolutionary acreage but was still below it in yield and total output. Sugar-beet production was hit very hard by the disorder of the collectivization period and the forced expansion of sown acreage. In 1932 one third of the sharply higher acreage went unharvested, and total output was much less even than in 1913.[52] By 1937 substantial improvement had taken place as the earlier confusion was ended and more fertilizer and other resources were available. During the 1930's too, production was extended eastward into the Volga Valley and Asia.

The war brought about a catastrophic decline in Soviet sugar output. Almost all major Soviet sugar-beet-growing areas, including the Ukrainian Republic and Kursk and Voronezh provinces, were occupied by the Germans and held for a considerable period of time. By 1945 sugar-beet production, even when accounted for on the inflated biological

[49] *Pravda*, June 17, 1950.
[50] *Sotsialisticheskoye Zemledeliye*, March 22, 1949.
[51] *Sot. Stroi.*, p. 346.
[52] Jasny, *op. cit.*, p. 583.

crop basis, was well below that of either 1913 or 1928, while acreage was one third below that of 1940.

In 1946 drought sent production down even below that of 1945, so that the actual amount of sugar beets available may have been approximately as low as in 1932, though the 1946 population of the USSR was far above that of a decade and a half earlier. Energetic measures taken to increase the supply of fertilizers and machinery and to organize production more effectively succeeded in improving the situation substantially, so that in 1947 the production of sugar beets increased 190 per cent over the very low level of 1946.[53] This probably raised production above the 1928 level but still left it well below the 1940 mark. It seems significant that the government economic report for 1949 made no claim that the prewar level of sugar-beet output had been equaled or exceeded. Sugar-beet production in 1950 was officially announced as having been 2,500,000 metric tons more than output in 1940. This is obviously equal to about 23,400,000 metric tons, almost triple the crop grown in 1945, but below the 1950 goal of 26,000,000 tons.

Sunflower Seed: Sunflower seed is one of the USSR's most important sources of vegetable oil for food, soap, and other industrial uses. In the mid-1930's most of this crop was grown in the Ukraine, North Caucasus, and adjoining areas, though output in Kazakhstan and Western Siberia was on the increase. The acquisition of Bessarabia from Rumania before USSR entry into World War II added an important sunflower-growing region to the USSR.

Production of sunflowers grew sharply in the 1920's, before collectivization of Soviet agriculture. A large increase in acreage also took place between 1928 and 1932, but was accompanied by a significant decline in yields, so that output as a whole increased little. By 1940 a record amount of sunflower seed was reported produced, in part because of the acquisition of Bessarabia and in part because of the artificial increase in reported production resulting from the shift to accounting in terms of "biological crop." Sunflower acreage in 1945 was much nearer 1940 levels than in the case of other major industrial crops, but the yield had fallen a third, so that output was below that of 1928. By 1949, the Soviet government claimed, sunflower output had recovered to such an

[53] *Pravda,* January 18, 1948.

extent that it was 14 per cent above the 1940 mark, thus apparently also exceeding the 1950 goal.[54]

Fibre Flax: The USSR has long been one of the world's major producers of long fibre flax, the raw material for the important linen industry and at times a major export item. In 1938 about half the acreage of this crop was concentrated in the western and northwestern areas, from Kalinin Province to Belorussia. There was also significant acreage in Molotov Province in the Urals and in Western Siberia.[55] Fibre flax production requires a great deal of manual labor, though machinery has been developed and introduced in recent years to reduce the hand labor needs. Acreages devoted to this crop in the 1930's were usually twice as great as in 1913, but the yield per hectare obtained was sharply lower, as the data of Table 27 show. Because of its high labor requirements and the great food shortages of the war years, both acreage and yield of this crop were catastrophically low in 1945, so that the Soviet government was faced with a very difficult task of rehabilitating production. Many complaints appeared in the Soviet press during the first few postwar years regarding the poor quality of work being done in rehabilitating this branch of agriculture. High losses in harvesting, poor quality of product, and unwillingness of farmers to participate in harvest work were among the deficiencies publicly condemned.[56] To provide greater incentives for increased production and improved quality, a government decree, apparently adopted in early September 1948, made a number of significant concessions to growers. Instead of being one of the crops farmers must deliver for extremely low prices in fulfillment of tax obligation to the state, flax became one of the crops delivered to the state under the contract system, presumably under much more advantageous price terms. Farms delivering flax also were guaranteed the right to purchase quantities of wheat and textiles under advantageous conditions and in proportion to amounts delivered, with bonuses for deliveries in excess of plan. Similar changes were effected in the delivery system for hemp, apparently also to stimulate higher production.[57] This may have helped overcome previous backwardness, for

[54] Jasny, *op. cit.*, pp. 576–78, and *Planovoye Khozyaistvo*, No. 2 (1950), p. 64.
[55] *Entsiklopediya*, column 906.
[56] *Pravda*, September 17, 1948; *Izvestia*, August 10, 1949; *Sotsialisticheskoye Zemledeliye*, August 13, 1949.
[57] *Izvestia*, September 15 and October 2, 1948.

the 1949 output of flax was announced to have exceeded prewar levels.[58] But in the spring of 1950 it was indicated that much still remained to be done in the field of flax production, both in raising output and in improving quality. Future expansion of flax acreage in the Baltic States, particularly Lithuania, was also indicated.[59]

Other Crops

The USSR produces many other crops beside those mentioned or considered in detail above. Potatoes are important for food, animal feed, and alcohol output, and are produced widely throughout the country, both on farms and in small "victory gardens" worked by millions of urbanites each growing season. A wide variety of vegetables is grown in the USSR, as well as fruits and berries of all kinds, though the consumption of these supplementary foods per capita is far below that customary in countries with higher-quality diets. Tea-growing has been traditionally concentrated in Georgia, along with citrus-fruit-raising, but efforts have been made in the postwar period to expand the numbers of areas in which such specialty crops are grown.

The fact that 18 to 19 million urban workers have had to cultivate potato and vegetable gardens in the postwar period is a revealing indication of the inadequacy of farm production of these foods to meet the country's needs. The importance of this type of output is indicated by the fact that urbanites produced over 14 million metric tons of potatoes and vegetables in 1948. The number of such "victory gardens" grew from 5 million in 1942 to 19 million in 1948.[60] Far from being a temporary measure of the war and immediate postwar periods, mass gardening by millions of Soviet urbanites has been put on a long-time permanent basis. A Soviet government decree issued February 24, 1949, provides that workers be permanently assigned garden plots on unoccupied land in and near cities and towns. Workers receiving this land, however, must commit themselves to remain employed at their place of work for five years thereafter. Workers are being encouraged even to plant fruit trees, which do not begin to bear until after several years, as well as to plant potatoes, green vegetables, and other food crops.[61]

[58] *Pravda*, January 18, 1950.
[59] *Sotsialisticheskoye Zemledeliye*, April 6, 1950.
[60] *Trud*, March 4 and September 3, 1949.
[61] *Professionalniye Soyuzy*, September 1949, pp. 16–18.

Livestock

As a consequence of the poverty of their agricultural production, the Soviet Union's people feed primarily upon grain foods and other vegetable products. The number of livestock per capita in the USSR is relatively small, and the productivity of these livestock, in terms of meat, milk, wool, eggs, and other livestock products, is rather low. Soviet per capita consumption of the major foods and raw materials obtained from livestock is very low compared to the United States or other countries having high standards of living. An increase in livestock numbers and improvement of their productivity have been among the major goals of Soviet agricultural plans for two decades and more, but these plans have often gone unrealized. In actuality, the number of livestock in Soviet herds has fluctuated very violently, in response to the giant forces that have acted upon Soviet agriculture in the past three decades and more. This is indicated in Table 28.

TABLE 28. Numbers of Horses, Cattle, Hogs, and Sheep and Goats in the USSR for Selected Years, and Goals for the Future.

	Horses		*Cattle*		*Hogs*		*Sheep and Goats*	
	JAN. 1	JULY 1	JAN. 1	JULY 1	JAN. 1	JULY 1	JAN. 1	JULY 1
Year				(MILLIONS OF HEAD)				
1913		35.5		60.3		20.3		112.0
1928		33.5		70.5		26.0		146.7
1932		19.6		40.7		11.6		52.1
1934	15.4	15.6	33.5	42.4	11.5	17.4	36.5	51.9
1938	16.2	17.5	50.9	63.2	25.7	30.6	66.6	102.5
1941	20.5		54.5		27.5		91.6	
1946	10.5		47.0		10.4		69.4	
1947	10.8		46.8		8.6		69.1	
1951 goal ...	15.3		65.3		31.2		121.5	

Sources: 1913—A. Yugow, *Russia's Economic Front for War and Peace*, p. 52. 1928–38—Jasny, *op. cit.*, p. 797, and *Sotsialisticheskoye Stroitelstvo SSSR*, pp. xxiv–xxv. 1941—*Entsiklopediya*, column 934, and Harry Schwartz, *Russia's Postwar Economy*, p. 13. 1946, 1947, and 1951—Fourth Five-Year Plan, or computed from data in it and in *Pravda*, February 28, 1947.

The data above are presented in two variants, for January 1 and July 1, because the times at which livestock censuses have been taken in the USSR have varied. It will be seen clearly from the figures for 1934 and 1938 that data for these different times cannot be compared directly because of the great seasonal variation in livestock numbers during each year.

Comparing the figures for July it can be seen that, by the eve of

mass collectivization in 1928, herds of cattle, sheep and goats, and hogs had been increased well above the 1913 levels, despite the heavy losses of World War I and the civil war following it. By the middle of 1932, however, the struggle over collectivization and the confusion reigning on the hastily organized *kolkhozy* had resulted in the loss of roughly 40 per cent of all horses, over 40 per cent of all cattle, over half of all hogs, and almost two thirds of all sheep and goats, an agricultural catastrophe without parallel in peacetime. By 1938 the number of hogs had recovered to more than the 1928 level, but the numbers of horses, cattle, and sheep and goats were still far below precollectivization levels. This recovery was the result of the consolidation of the collective farm system and of the permission given to the individual collective farmer to own and raise livestock.

The data for 1940 and afterward are not comparable with those for earlier years because they cover the expanded territory of the USSR. World War II resulted in huge numbers of livestock being destroyed, and though some recovery took place in 1944 and 1945, the data for the beginning of 1946 show that the number of horses was only about half the prewar total;[62] and the number of cattle was about 15 per cent, the number of hogs some 60 per cent, and the number of sheep and goats 25 per cent, under the 1941 totals. By early 1946, too, significant numbers of livestock seized in the areas of Eastern and Central Europe occupied by the Red Army had arrived in the USSR and were included in the totals, so that these figures understate the degree of war loss.

The bad grain harvest of 1946, which lowered feed grain supplies particularly, and the postwar disorganization of Soviet agriculture were both reflected in the failure of livestock herds to increase at all during 1946. Cattle, horse, and sheep and goat numbers dropped slightly during the year, and the number of hogs—animals particularly dependent upon grain feed—dropped by almost two million, or over 15 per cent, to a figure close to the worst in all Soviet history. The three-year program for agricultural development adopted in February 1947 by the Central Committee of the Communist Party set up new detailed goals for the expansion of livestock numbers and the increase of meat, milk, wool,

[62] But this may exaggerate the decline in the total number of horses in the USSR, since these figures do not include army horses, whose numbers were probably substantially higher in early 1946 than in early 1941.

and other livestock product output. The goals set up by this plan are shown in Table 29.

TABLE 29. Livestock in the USSR on January 1, 1941 and 1947, and Goals for 1948–49.

Year	*Cattle*		*Hogs*		*Sheep and Goats*	
	ALL FARMS	COLLECTIVE FARMS	ALL FARMS	COLLECTIVE FARMS	ALL FARMS	COLLECTIVE FARMS
	(MILLIONS OF HEAD)					
Jan. 1, 1941, actual ...	54.5	20.1	27.5	8.2	91.6	41.9
Jan. 1, 1947, actual ...	46.8	15.8	8.6	2.4	69.1	39.1
Jan. 1, 1948, goal	52.0	18.4	13.4	4.6	84.7	46.0
Jan. 1, 1949, goal	56.1	21.2	20.3	6.3	97.8	53.7

Sources: Table 28 and *Pravda*, February 28, 1947.

The analysis of the livestock situation presented by the Central Committee before it adopted the program of Table 29 emphasized the lack of feed on many farms, the carelessness in handling much of the livestock, the low rate of natural increase among the livestock, and the large number of animals slaughtered to provide meat for collective farmers. The latter phenomenon was blamed in large part upon the fact that a significant number of collective farmers did not even have a cow, so that their needs for meat, milk, and other livestock products had to be met from the animals belonging to the collectives as a whole.[63]

Livestock numbers increased sharply in 1948. The planned goals set for attainment by the beginning of 1949 were not attained, however, although collective farms did exceed the prewar numbers of cattle and sheep and goats. A decree of the Soviet government published in April 1949 presented this analysis of the livestock situation:

> . . . as a result of underestimation by local party, government and agricultural agencies of the need to develop collectivized animal husbandry, the increase in livestock and its productivity lags behind the requirements of the national economy. Thus far not all collective farms have provided themselves with cattle and sheep divisions, and a large number of collective farms do not have hog or poultry divisions. The fixed minimum number of livestock for the collective farms at present is insufficient and retards the further development of communal animal husbandry . . . [many] collective farms are not taking the requisite measures for further growth of the collective herds. In addition, col-

[63] Cf. Politburo member A. A. Andreyev's speech in the Soviet press, March 7, 1947.

> lectivized livestock suffer large losses annually from murrain and barrenness of the breeding stock, and have low productivity as a result of poor feeding and upkeep of the stock in many collective farms and also poor care for the animals . . . much poorly-fed stock is slaughtered so that collective farms give up too large a number of head of livestock in fulfilling the obligatory deliveries of meat to the state and thereby undermine the possibility for quicker growth of livestock numbers. To this time violations of the charter of the agricultural artel are still allowed in collective farms and the practice of squandering livestock from the cattle farms of the collectives has not been overcome. An excessively large number of collectivized animals in the collective farms is used for so-called internal needs.

This decree ordered that energetic measures be taken to end these deficiencies. It declared that the primacy of collective and state farms in the livestock must be assured by increasing the number of their livestock and raising these animals' productivity. Existing legal minimum numbers of livestock must be raised, and all collective farms were required to have cattle, sheep, hog, and poultry divisions.[64] On collectives failing to attain the minimum numbers of livestock and to organize the livestock-raising divisions required by this decree was imposed a 10 per cent rise in obligatory meat, milk, and wool deliveries to the state, beginning in 1950.[65] Other provisions called for rapid expansion of feed-growing on collective farms; a greatly increased rate of mechanization of farm operations connected with livestock, such as feed preparation, milking, sheep-shearing, water supply, and so on; and the building of great numbers of barns and other livestock buildings. The increase of livestock on collective farms provided by this decree is indicated in Table 30.

During 1949 collective farms increased their livestock holdings substantially. By January 1, 1950, they had about 25,500,000 cattle; 9,500,000 hogs; and 60,300,000 sheep and goats.[66] These figures indicated that they had exceeded the goal figure for that date with respect to cattle but had fallen substantially below the objectives for hogs and for sheep and goats. Reports published in the Soviet press told of substantial progress in creating livestock divisions on collective farms and

[64] Except for collective farms not raising grain, which need not raise poultry, and others having unsuitable conditions for hogs.

[65] The quotation and these provisions are from the decree published in the Soviet press, April 19, 1949.

[66] Calculated on basis of data in *Pravda*, March 24, 1950.

TABLE 30. Livestock Holdings of Collective Farms, January 1, 1949, and Goals for 1950, 1951, and 1952.

Year	Cattle	Hogs	Sheep and Goats	Poultry
		(MILLIONS OF HEAD)		
Jan. 1, 1949, actual	20.9	5.3	50.7	unknown
Jan. 1, 1950, goal	24.0	10.0	62.4	65.0
Jan. 1, 1951, goal	28.0	13.0	73.0	120.0
Jan. 1, 1952, goal	34.0	18.0	88.0	200.0

Sources: Goal figures from *Pravda*, April 19, 1949. January 1949 data calculated on basis of figures in *Pravda*, March 24, 1950.

in building barns and other structures required for animals. Many complaints were voiced, however, that progress was slow in creating the feed base necessary for increasing livestock numbers, and that much improvement was still required in the future to permit attainment of the goals for 1951 and 1952. It should be noted that part of the increase in collective farm livestock registered in 1949 represented merely the fact that many individual peasants in the western areas of the USSR were collectivized during that year. The actual net increase of livestock on these farms, therefore, was probably substantially less than is indicated merely by a comparison of the 1949 and 1950 data.

One of the most important pieces of information released in the decree of April 19, 1949, was a set of statistics on the livestock holdings of various groups of private individuals. Since similar data exist for the number held by these groups on January 1, 1938, in the smaller territory included in the USSR then, a conditional comparison can be made—as in Table 31.

TABLE 31. Livestock Holdings of Collective Farms and Groups of Private Owners in the USSR, January 1, 1938, and January 1, 1949.

Group	Cattle		Hogs		Sheep and Goats	
	1938	1949	1938	1949	1938	1949
			(MILLIONS OF HEAD)			
Collective Farms	14.8	20.9	6.3	5.3	22.8	50.7
Collective Farmers ...	25.1	19.1	12.8	3.7	30.7	18.5
Individual Farmers ...	1.5	3.9	0.6	1.9	2.4	2.8
Nonfarm Persons	4.2	7.0	1.9	1.6	2.4	5.2

Sources: Table 30, decree of April 19, 1949, and *Sot. Stroi. (1933–38)*, p. 103.

These data show conclusively that the outstanding feature in the changing pattern of livestock ownership from 1938 to 1949 has been the tremendous decline in the livestock holdings of the collectivized peas-

antry, particularly in hogs. Simultaneously the collective farms have increased the number of cattle and sheep and goats they own very substantially, while suffering only a relatively nominal drop in the number of hogs. If it is remembered that there were probably close to 3,000,000 individual peasants in the USSR on January 1, 1949, the figures above are put in proper perspective. The increase registered for this category between 1938 and 1949 reflected only the addition to the USSR of these peasants from the western areas annexed after 1938. The growth of the cattle and sheep and goats owned by nonfarm persons is explained by the great growth of urban "victory gardens" and related farm activities resulting from the food stringency of the war and postwar years. The number of hogs owned by such persons on January 1, 1949, was less than the number owned by this category on January 1, 1938, when such large cities as Lwow, Tallin, Vilna, and Riga were not in the USSR.

The poverty of the individual livestock holdings of collective farmers may be seen if the figures given in the table above are divided by the number of such farmers. On the average, it would seem likely that each collective farmer may have had about one head of cattle and one sheep or goat; only one in four or five had a hog. Of course, some collective farmers had more than one head of cattle or more than one sheep or goat, suggesting that at the beginning of 1949 many others had no livestock at all, not even a cow to provide milk for their families. This situation was in part the result of war losses, but even before the war, in 1939, the government had begun to follow actively a policy of reducing the individually owned livestock of collective farmers by requiring them to sell large numbers of animals to the collective farms. In the postwar period the government continued this policy of favoring collective farm livestock herds over individual collective farmer ownership. It is noteworthy that the decree of April 19, 1949, provides for compulsory sales of collective farmers' cattle to collective farms. The objective of this policy is clearly to prevent the livestock holdings of the *kolkhozniki* from rising to the extent of permitting them to get appreciable income from this source and tempting them to withhold their labor from the collective farms in favor of working with their own livestock. The Soviet government announced that in 1949 the livestock holdings of collective farmers had risen, but gave no figures, thus suggesting that the rise was not impressive.[67]

[67] *Pravda*, January 18, 1950.

Livestock Products

As the result of the sharp variations of livestock numbers in the USSR over the past several decades, the output of meat, milk, eggs, leather, and other livestock products has also fluctuated very much. This is indicated by the data in Table 32.

TABLE 32. Production of Meat, Milk, and Eggs in the USSR in Selected Years.

Year	*Meat* (MILLION METRIC TONS)	*Milk* (MILLION METRIC TONS)	*Eggs* (BILLION)
1927–28	3.6	30.1	10.5
1929–30	4.5	28.0	°
1933	1.7	18.8	3.6
1934	1.5	20.2	4.2
1938	3.3†	28.9†	8.5

° Unavailable.

† Preliminary. Jasny believes that milk production in 1938 could not have exceeded 26 million tons.

Source: Jasny, *The Socialized Agriculture of the USSR*, p. 798.

Table 32 indicates that the struggle over collectivization reduced Soviet output of the major livestock foods to little more than one third of the 1927–28 level in the case of eggs, and to about half of the 1927–28 level in the case of meat and milk. Even by 1938 the precollectivization production levels had not been reached, although there had been a significant rise in population over the decade. The 1938 egg production, it may be noted, would have permitted on the average a consumption of about one egg weekly by each citizen of the Soviet Union. The meat production would have permitted average per capita Soviet meat consumption of less than one pound a week.

Not only did the Soviet Union pay a heavy price in the loss of livestock as the result of the collectivization struggle, but it has continued to suffer because of the poor handling and feeding of the remaining livestock. One indication of this is the decline in average slaughter weight per animal slaughtered. In 1925–26, the average weight of each head of cattle slaughtered was 376 kilograms; in 1938 it was only 275 kilograms. For hogs, weight declined from 104 kilograms to 89 kilograms, while for sheep it fell from 37 to 36 kilograms over the same period.[68] To get the same amount of meat, therefore, more animals had to be

[68] Jasny, *op. cit.*, pp. 640–42, 798.

slaughtered, a factor that consequently hindered the growth of the size of herds.

World War II sharply reduced the supply of livestock products available for domestic consumption, a fact confirmed by the large amounts of American meat, dairy products, eggs, and related commodities taken by the USSR under Lend-Lease—about one billion dollars' worth of animals and edible animal products were sent to the USSR from the United States during 1941–44.[69] Accounts published in the Soviet press during February and March 1947 gave clear evidence that yields of milk, meat, and other products from Soviet livestock were far below prewar levels because of the shortage of feed and the poor handling of stock.[70] Jasny estimates that perhaps 2,000,000 tons of meat may have been produced in the larger USSR of 1946, one third less than was produced in 1938 within the narrower borders and for the smaller population of the Soviet Union at that time. The production would have been even lower that year if the shortage of feed had not forced the slaughter of animals that could not be fed over the winter of 1946–47.[71]

The growth of collective farm livestock during 1947 and 1948 permitted substantial increases in deliveries of meat, milk, and milk products to the state, so that by the beginning of 1949 prewar deliveries of milk and butter had been exceeded and the 1940 level of meat deliveries almost equaled.[72] Egg supplies were probably far below the prewar figures because of the low number of poultry in collective farm flocks. The fact that deliveries of meat and milk to the state had equaled or almost equaled prewar figures does not necessarily mean that total production of these commodities has regained 1940 levels. The sharply higher concentration of livestock in collective farm herds and the great decline in the number of animals owned by collective farmers between 1938 and 1949, shown above, suggests that consumption of meat and milk by the rural population has fallen greatly and that the latter has borne the brunt of the failure to increase livestock herds and livestock productivity to the prewar level.[73]

[69] "United States Trade with Russia (USSR) during the War Years," U.S. Dept. of Commerce, *International Reference Service*, December 1945, p. 4.

[70] *Pravda*, February 28 and March 7, 1947.

[71] Jasny, *op. cit.*, p. 647.

[72] *Pravda*, May 26, 1949.

[73] Jasny points out that in about a decade the amount of meat available for farmers' consumption fell from 2.39 million tons in 1927–28 to 1.24 million tons in

A government and party decree issued May 26, 1949, declared that "supplies of animal products still do not meet the growing requirements of the national economy." It called for the increase of deliveries of such products to the state by 50 to 100 per cent over the following three years. Quotas were set by the government providing for greatly increased deliveries by collective farms and state farms during 1949–51. Collective farms and farmers were warned that underweight animals would no longer be accepted by the government, and that they might no longer substitute other types of meat for required pork deliveries.[74] To prevent losses of leather because of careless handling of hides after slaughter on the farm, the decree prohibited barnyard slaughter in areas served by slaughtering centers. State prices on some products were raised, and additional incentives were provided for deliveries of animal products in excess of minimum requirements. Fulfillment of this plan will substantially raise the availability of meat, milk, eggs, and similar products in Soviet cities, as well as increase the supply of wool and leather for Soviet factories. But unless the supply actually produced on the farms increases adequately, such a rise in deliveries to the state can be accomplished only at the expense of still further reduction of consumption on the farms.

1938, while marketing of meat for the urban population and other groups fed by the government rose from 1.22 million tons in 1927–28 to 2.06 million tons in 1938. *Op. cit.*, p. 647. It may well be that even greater producer-abstention from meat and other livestock product consumption has been forced by government requisition policy in the postwar period.

[74] *Pravda*, May 26, 1949.

CHAPTER X

TRANSPORTATION AND COMMUNICATION

THE DEVELOPMENT OF transportation and communication facilities under the Soviet regime is closely linked with the growth of industrialization. The present economic organization of the USSR would be impossible without these means of coordinating the work of thousands of different enterprises located at many different places over the country's vast area. Kuzbas coal and Magnitogorsk iron ore are brought together to make steel for Chelyabinsk's tractor factory. The tractor in turn may be sent to the Ukraine, Central Asia, or the Far East for employment in agriculture. Each of these areas must receive petroleum products from Baku or other distant sources if the tractors are to operate. The food grown with the help of these tractors must be sent to storage warehouses and cities hundreds or thousands of miles away to feed the swollen army of Soviet industrial workers and their families. All this intricate cooperation of many different parts of the economy rests upon the existence of a transport system capable of moving the large volume of variegated freight required to hold together the complex pattern of production and consumption. Similarly, communications facilities are indispensable for the daily operation of the centrally planned economic system. Under Soviet conditions, consumer use of transport and communications facilities—for recreational travel or personal telephone chats with friends or relatives—is a very minor factor.

Lenin and his colleagues inherited the transport system of Czarist Russia, suffering at the time from the effects of three years of war. Transport facilities deteriorated further during the following years of civil war and foreign intervention, but railroads and other means of

transport recuperated rapidly during the years of the New Economic Policy in the 1920's. After 1928, however, they had to cope with the great new burdens created by the gigantic construction and production programs of the first three five-year plans. Soviet economic policy in the early 1930's treated the transport system less generously than heavy industry. It sought to minimize the allocations of new resources to railroads by sharply intensifying the use of existing equipment. When this policy threatened to paralyze the economy, it was hastily reversed. Under the leadership of Politburo member Lazar Kaganovich, capital investment in transport and the efficiency of railroads were sharply raised in the mid-1930's.

World War II brought the destruction of much of the dense transport network of the USSR in the western areas occupied by the Germans, though expansion took place in the unoccupied east during the war. The years since the war's end have been devoted to repairing the destruction of 1941–45 and to new expansion to meet the still growing needs of the economy.

Certain major fundamental factors have shaped the transport policy both of the Czarist and of the Soviet regime. Most of the Soviet Union is a relatively flat plain offering few serious obstacles to the builders of railroads. Most Soviet rivers, on the other hand, are frozen and unusable from three to nine months of the year. Moreover many of the most important are located in areas having little population. Railroads, however, can be built where needed and operate in all types of weather. Until recently, the USSR has had only a relatively small number of automobiles, trucks, and other motor vehicles, so that there has been little need for long paved highways such as are common in the United States. The overwhelming majority of its roads are still made of packed dirt. Coastal maritime traffic in the USSR is of relatively minor importance because the great bulk of population and resources is located far from the coasts. The long northern sea frontier is frozen most of the year, requiring extraordinary effort and expense to permit navigation even during the brief period of open water.

Under these conditions the markedly uneven distribution of population and exploitable natural resources over the country has created a pattern of transportation need that can be satisfied most cheaply by large-volume land transport capable of working throughout the year re-

gardless of the temperature or other climatic conditions. Railroads therefore perform the great bulk of transport service in the USSR. The predominance of railroads is clearly shown in Table 33, which measures freight volume, by far the most important single component of the service provided by the Soviet transportation system.

TABLE 33. Freight Volume of Major Forms of Soviet Transport in Selected Years.

	1913	*1922–23*	*1929*	*1932*	*1940**	*1945**	*1950* Goal*
			(BILLION TON-KILOMETERS)				
Rail	65.7	23.5	112.9	169.3	415	314	532
River	37.2	12.9	18.4	25.1	36	18.5	49
Maritime	†	†	10.4	18.2	23	†	51
Truck	†	†	†	1.1	9	†	25

* Expanded territory.
† Data not available.

Sources: *Narodnoye Khozyaistvo SSSR*, pp. 194, 216, and 443; *Sot. Stroi.*, pp. 416–17; *Sot. Stroi.* (*1933–38*), p. 107; Fourth Five-Year Plan, *Entsiklopediya*, column 951; *Second Five Year Plan*, p. 600.

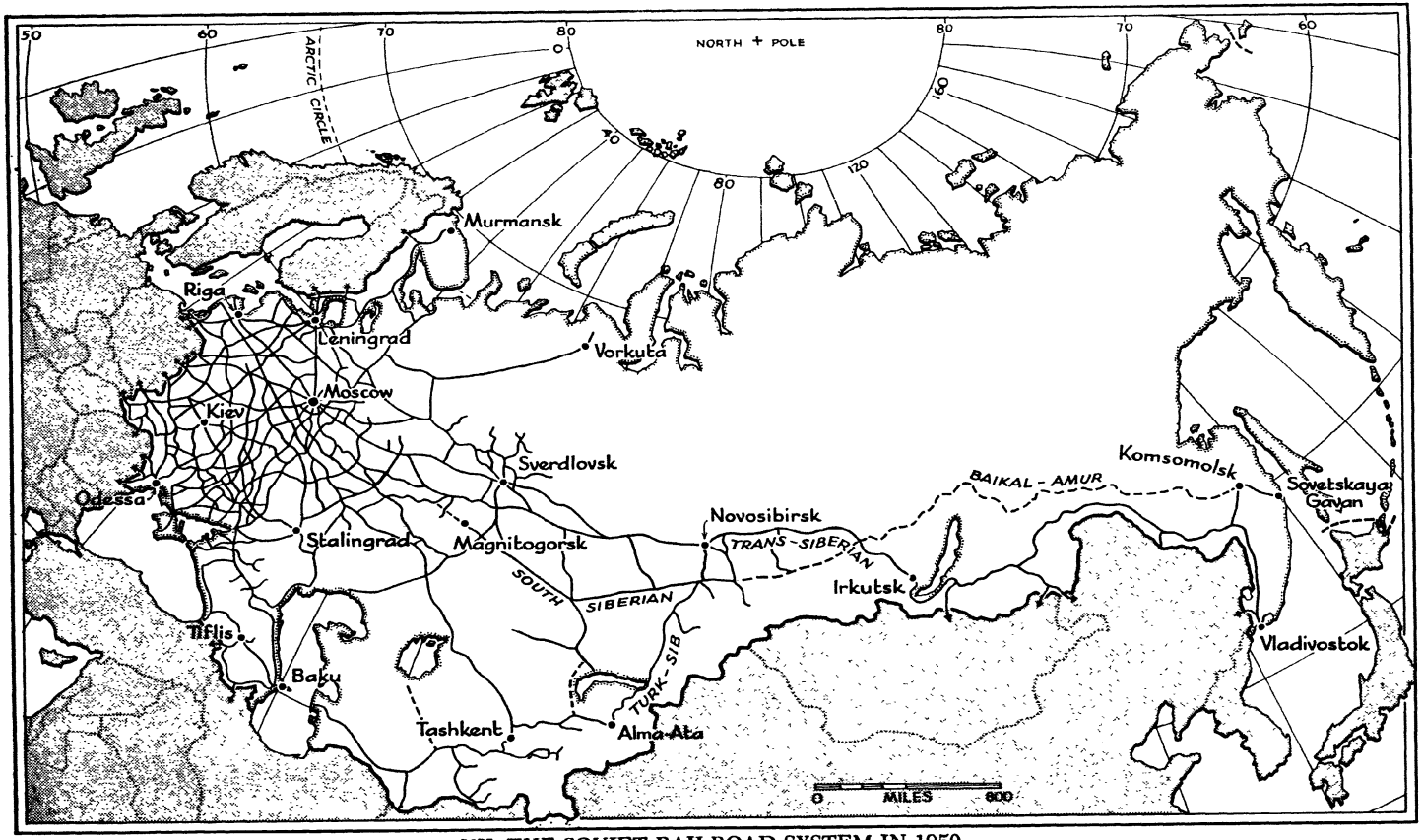
For more than two decades railroad transport has provided the great bulk of freight carriage in the USSR, usually 75 per cent or more of the total. During this period river transport has provided less than 15 per cent and maritime transport well under 10 per cent. Trucks have accounted for less than 5 per cent.

The Soviet Railroad System[1]

Study of the railroad map of the Soviet Union immediately reveals an extremely uneven distribution of this means of transportation. In the western areas of the country, particularly west of a line connecting Leningrad, Moscow, and Kharkov, the number of railroad lines is large. Eastward, between this imaginary line and the Urals, the number of railroad routes thins out but is still substantial. East of the Urals the great bulk of Soviet territory is uncrossed by railroad lines except for those leading from the southern Urals to the Soviet Far East and penetrating into Central Asia and Kazakhstan. (See map.)

The reasons for this uneven distribution of rail transport facilities are

[1] The most comprehensive study in English of the Soviet railroad system is Holland Hunter, *The Economics of Soviet Railroad Policy*. Cambridge, Mass.: Harvard University, March 1949 (hectographed). It is the source of much of the material in this section. Cf. also his "Soviet Railroads Since 1940," in *Bulletins on Soviet Economic Development*, No. 4 (September 1950), pp. 10–20.



VII. THE SOVIET RAILROAD SYSTEM IN 1950

to be found both in history and in the location pattern of Soviet population and resources. The Czarist regime built most of the many rail lines it constructed in the west, where the overwhelming majority of the country's population and the great bulk of resources being exploited were located. In addition, the building of railroads in the area west of Moscow was dictated by the desire to create optimum transport conditions for moving grain and other exports to European customers either over land or through ports on the Baltic or Black Seas. Military considerations also favored construction of an extensive network of rail lines on which troops and supplies could be shifted easily and rapidly throughout the western portions of Czarist Russia.

The Soviet Union inherited this rail network. Its energies at first were directed towards restoring the extensive sections of track and the large portions of rail equipment that had been damaged and made unusable during the years of civil war and foreign intervention. It also undertook the completion of many of the projected rail lines first laid out in Czarist times but not completed before the revolution. In the 1930's, as production grew in many areas, some of them old (such as the Donbas in the Ukraine), and others new (such as Magnitogorsk in the Urals and the Kuzbas in Siberia), the USSR built additional roads to meet new needs. About one half the increase in railroad track length between 1926 and 1935 was located in the Urals, Siberia, and Central Asia. During World War II much of the railroad trackage in the western USSR was destroyed or damaged as the result of combat and of deliberate destruction. At the same time some new roads were built in the areas immediately behind the battle lines, in order to speed the movement of troops and supplies. Some additional expansion also took place in the Urals, Central Asia, and Western Siberia, to service expanded industry there. In the postwar period the building of new lines has continued, and further work has been undertaken directed toward full rehabilitation of the railroad system damaged during the war. It should be borne in mind that, in the reoccupation of western areas as German invaders were driven out, restoration of rail lines had first priority. Upon the speed of this restoration depended the ability of the Soviet government to ease the transport problem involved in supplying and reinforcing its advancing armies.

The statistical picture of the development of the Soviet railroad system during the USSR's history is shown below:

TABLE 34. Length of Soviet Railroad System First Main Track in Selected Years.

Years	*Total*	*Urals, Siberia, and Central Asia*	*Per Cent in Eastern Area*
		(KILOMETERS)	
1913	58,549	14,540	24.9
1917	63,252	†	†
1919	31,494	†	†
1926	75,721	23,062	30.5
1935	84,367	26,839	31.8
1940	106,102*	†	†
1945	112,868*	†	†
1949 ..... Almost	118,000*	†	†
1950 goal	123,200*	†	†

* Includes lines taken over in occupied territory, including Eastern Poland, the Baltic States, etc.

† Data unavailable.

Sources: Hunter, *The Economics of Soviet Railroad Policy*, pp. 86 and 150; Hunter, "Soviet Railroads Since 1940," pp. 14, 15.

Among the most important individual rail lines built or completed by the Soviet Union have been: the five-hundred-mile route from Kazan on the Volga to Sverdlovsk in the Urals, completed in the early 1920's; the almost nine-hundred-mile Turkestan-Siberian railroad, finished in 1931, connecting the Trans-Siberian with Alma-Ata in southern Kazakhstan; a third trunk route between Moscow and the Donbas, strengthened and extended in the 1930's; and the 960-mile rail line linking the rich northern Pechora coalfields with the rest of the country, completed in 1943. Other new lines strengthened the connections between Magnitogorsk, the Kuzbas, and Karaganda, facilitating exploitation of the rich iron ore and coal deposits in the eastern USSR. Several links of a projected northern Trans-Siberian line, the BAM, or Baikal-Amur road, were finished, while the original Trans-Siberian route was made a double-track line throughout, thus substantially increasing its carrying capacity.[2]

During the First Five-Year-Plan the Soviet government sought to

[2] The present stage of construction of the Baikal-Amur Road is apparently most uncertain. Some reports from former Soviet citizens tell of its completion and operation. This is doubted by many American specialists because of the absence of references to this road in published Soviet material. Cf. *The New York Times*, August 11, 21, and 26, 1950.

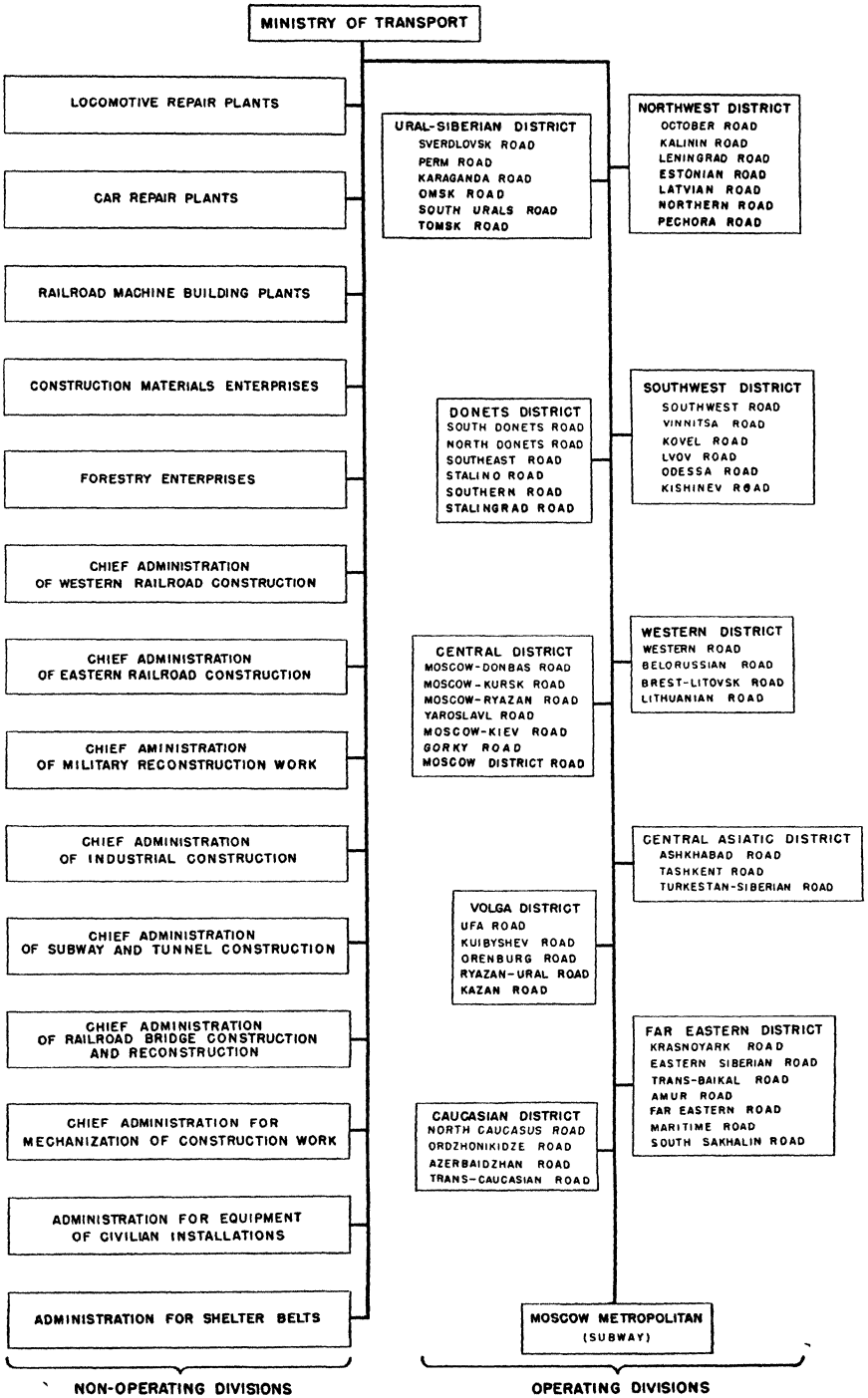


FIGURE 4. *Organization of the Soviet Railroad System in 1950.*

economize on capital investment in the railroad system. The total length of main track grew by only 7 per cent, approximately, between 1928 and 1933; the volume of freight traffic in the same period increased 82 per cent, and the volume of passenger traffic more than tripled. Much of this increase was made possible by improved operation of the railroads and more intensive use of equipment and tracks. Nevertheless the increased load exceeded the capacity of the most heavily used lines and resulted in the piling up of tremendous backlogs of freight awaiting shipment. In 1933, for example, a Soviet writer declared, "Mines, steel works and plants in the light and food industries were choked up with unshipped output . . . the railroads could not even deal with shipments of rails, fastenings, or pipe, the needs of transport itself." At the end of 1934 there were more than 3 million tons of timber awaiting rail shipment, along with 2 million tons of coal and almost 1 million tons of ore. A total of 15 million tons of cargo, altogether, awaited shipment at that time. Heavy industry alone had 650,000 freight cars piled up awaiting transportation.[3]

This inadequacy of the rail system to carry the load desired posed a serious threat to further Soviet economic expansion. To counter this peril, the government took energetic measures in the mid-1930's. Politburo member Lazar Kaganovich was put in charge of the railroad system in early 1935. The quantity of steel, labor, and other resources allocated to the railroad system was sharply increased, permitting improved maintenance of the existing railroad system and its equipment as well as better performance. In 1935, for example, over one fifth of all the iron and steel produced in Russia was allocated to the railroads, twice the amount they received in 1932. By 1937 the situation had improved to the point that the government felt itself able to remove the railroad system from the top priority list. The allocations of key resources to railroads were reduced at that time.

An important factor in increasing the efficiency and load-carrying capacity of Soviet railroads during the 1930's was the improvement of the technical characteristics of the system. Thus the number of miles of multiple-track line (line with two or more tracks) in operation increased from about sixteen thousand kilometers in 1929 to almost twenty-five thousand in 1940. About 40 per cent of the trackage was re-

[3] Hunter, *The Economics of Soviet Railroad Policy*, pp. 104–05.

equipped with heavier rails, which, however, were still lighter than those used in other European countries and the United States. More powerful locomotives and larger freight cars capable of moving heavier loads were introduced. Some particularly important stretches of track—totaling about 1900 kilometers by 1940—were electrified, making possible important fuel economies and improved service. Automatic brakes were introduced widely toward the end of the 1930's, as were automatic block-signal devices. All this significantly raised the technical level and carrying capacity of the Soviet railroad system. Yet in August of 1940 Kaganovich complained that the railroad system still had many deficiencies, pointing particularly at the low level of maintenance and the frequency of accidents. Throughout this period, too, the problems of running trains on schedule and in undiminished number under the difficult conditions created by the severe winter climate of most of the USSR were not solved satisfactorily.[4]

During the Second World War tremendous damage was done to the Soviet railroad system in the western areas. According to the official report of the Soviet government, the Germans put out of commission, entirely or partially, some thirty-four railroad lines, destroying 65,000 kilometers of track, 13,000 railroad bridges, 4,100 stations, 317 locomotive depots, and 129 repair centers, as well as thousands of locomotives and hundreds of thousands of cars. From 1941 to 1943 the length of railroad track in use in Soviet territory diminished by 40 per cent, while the total number of locomotives decreased by 15 per cent and the number of freight cars by 20 per cent. Nevertheless, by following a policy of giving first priority to restoration of railroad lines in re-occupied territories, the total length of trackage in the USSR at the end of 1945 exceeded that at the end of 1940, as seen above. This includes of course, the 11,000 kilometers of new track built during the war, a greater length than was built during the entire period 1928–39.

At the beginning of 1946, the USSR had in operation 113,000 kilometers of main track, 21,000 kilometers of second track, and some 1,700 kilometers of electrified line. The Fourth Five-Year Plan provided for reconstruction and construction of about 11,000 kilometers of main track, 12,500 kilometers of second track, almost 5,700 kilometers of electrified line, and over 10,000 kilometers of track equipped with automatic block

[4] William Mandel, "Soviet Transport, Today and Tomorrow," *The American Review on the Soviet Union*, February 1941, pp. 29–35.

protection. The most important new line is the so-called South Siberian railroad, which will create a second track south of the western end of the existing Siberian route. This line is meant to give a direct connection between Magnitogorsk and the Kuznetsk Basin, while to the west Magnitogorsk will be linked to the Volga. In addition, another line is aimed at shortening the rail haul between the Karaganda coal field and Soviet Central Asia.

Measured in terms of the volume of freight carried, the Soviet rail system recovered rapidly after the end of World War II. Thus, the total freight carried, which reached 415 billion ton-kilometers in 1940, grew from 314 billion ton-kilometers in 1945 to about 525 billion in 1949, thus exceeding the 1940 level. The average daily number of car loadings, which had been almost 98,000 in 1940 in terms of two-axle units, fell to about 43,000 in 1942, but recovered to over 105,000 in 1949.[5] It is interesting to note that the freight carried on Urals-Siberian roads in the postwar period has significantly exceeded the prewar total. Thus, in 1940 about 12,300 freight cars, on the average, were loaded daily on these roads. This figure had increased to 13,500 in 1945 and to 15,900 by 1948. In the latter year, freight traffic on the Urals-Siberian roads, measured in the same terms, was 17.5 per cent of the national total as against only 12.5 per cent in 1940. It was as high as 21.9 per cent of the national total in 1945.

Two key factors may be singled out as particularly important in making possible the rapid increase in Soviet railroad freight volume during the postwar period. First has been the USSR's ability to increase rapidly the number of freight cars in use. Professor Hunter has estimated the number of freight cars available as rising from 675,000 in 1945 to 852,000 in 1949, the latter quantity being well in excess of the original 800,000 goal for 1950. Second has been the policy of enforcing mercilessly strict discipline throughout the railroad system. Martial law for all railroad employees was introduced in 1943, during World War II, but has been continued into the postwar period. In addition, in January 1949, "Political Departments" were set up in all branches of the railroad system to intensify communist propaganda among workers and to apply additional pressure for exemplary labor discipline among the approximately 3,000,000 employees of Soviet railroads.

[5] Hunter, "Soviet Railroads Since 1940," *op. cit.*, p. 20.

The dominant theme of Soviet rail transport policy over the past two decades has been that of maximizing the volume of services provided by the railroads while devoting the minimum possible amount of resources to them. This has been accomplished by increasing the density of traffic on the most important roads far above that customary in Western Europe and the United States. Moreover, substantial government pressure has been placed upon railroad clients to plan their operations in such a way as to minimize the amount of railroad transport service required by them. Soviet industries have been directed to eliminate cross hauls, i.e., to prevent the shipment of the same material in different directions, so that steel, say, shipped from the western producing areas to the east should not cross shipments of similar steel sent from eastern producers toward the west. A deliberate effort is also being made to plan the location of industry so as to reduce the length of haul required. In this connection the decision was made in the late 1930's to base Soviet industrial location policy in the future upon the principle of making the entire economy eventually consist of a series of more or less self-contained major geographic regions. One of the strongest motives for this is the desire to reduce the amount of interregional rail transport required, and thus to reduce the over-all amount of transportation service required of the railroads. By this step the economies of regional specialization are, of course, lost to some degree, perhaps substantially. Nevertheless, Soviet leaders seem to feel that the loss of production efficiency and the increase of cost that this may entail will be offset by the lessened strain put upon the transport system, and particularly its major component, the railroad system. Between 1930 and 1938, the average length of freight haul on Soviet railroads rose from 561 to 718 kilometers, a factor which must have helped to guide the shift toward regional self-sufficiency adopted as state policy in 1939.

The volume and composition of freight carried by the Soviet railroad system in 1940 are summarized by the data in Table 35.

One quarter of the total freight volume of Soviet railroads in 1940 was accounted for by the transport of coal and coke. The very high average distance over which building timber and petroleum products had to be moved give them second and third place, respectively, when volume is measured in terms of ton-kilometers, although in actual weight the amount of each was substantially below that of grain. To reduce the

TABLE 35. Composition of Freight Volume of Soviet Railroads in 1940.

Type of Freight	*Ton Kilometers* (BILLION)	*Freight Originated* (MILLION TONS)	*Average Length of Haul* (KILOMETERS)
Total	415	592.6	700
Coal and Coke .	106.8	152.5	701
Petroleum	36.4	29.5	1,234
Ores	19.7	35.2	562
Iron and Steel .	26.2	27.1	966
Building Timber	43.6	42.8	1,019
Grain	32.8	44.6	736

Source: Hunter, *The Economics of Soviet Railroad Policy*, pp. 198, 204.

railroad load in the future it will obviously be most important to obtain petroleum, timber, and coal nearer the areas of consumption.

Adequate analysis of Soviet freight rates by a foreigner is at present impossible because of the failure of the government to publish these rates. We do know that three major reforms have been carried out in the past two decades—in 1930, in 1939, and at the beginning of 1949. The trend in all these reforms has apparently been in the direction of making the rate charged for the movement of each type of goods more and more equal to the actual cost of the transportation service performed. Inasmuch as wages and other costs in the Soviet Union have gone up substantially since 1930, the general trend of freight rates must have been significantly upward. The principle of charging freight rates on different commodities in accordance with their "ability to pay," i.e., in relation to the value of the different commodities given the same service, is obviously in disfavor in the USSR. A recent Soviet writer points with pride to the steady deviation from this principle and the closer approximation to the actual cost-of-service principle.

In general, rates are apparently now being set at levels equal to the cost plus planned profit, as is the case with prices in other branches of the Soviet economy. Some goods, however, apparently still get lower rates than would be justified by actual cost, while others are still charged some excess rates as the result of government policy aimed at encouraging or discouraging the utilization of these commodities. The structure of Soviet freight rates in relation to distance carried is said to have been planned with two ends in view. The relative cost of short transport hauls has apparently been set rather high since the beginning of 1949, with a view to encouraging shippers to shift from railroads to truck transport

for short hauls. For longer distances the rates decline, most often up to five hundred or a thousand kilometers, and increase thereafter. The purpose of this increase in rates for long-distance shipments is avowedly to discourage excessively long hauls and to encourage utilization of local or nearby resources by purchasers of commodities. The increase of rates brought about by the 1949 reform has apparently also aided the differentiation between the cost of short and very long hauls. Thus, for example, before the 1949 reform the difference in cost for moving a ton of coal one hundred kilometers, as against fifteen hundred kilometers, was twenty rubles and sixty-four kopeks. After the rates had been changed at the beginning of 1949, the difference became thirty-eight rubles and forty-four kopeks, thus almost doubling the extra cost of moving coal over fifteen hundred kilometers as against using local coal within one hundred kilometers' distance of the place of consumption.[6] At the beginning of 1950, railroad freight rates were slightly reduced.

Railroad Passenger Traffic

Passenger traffic forms a relatively small portion of Soviet railroad volume. This is true despite the fact that the Soviet Union has no such large network of bus lines and widspread ownership of personal cars as does the United States. The reason, of course, is that the average Russian does far less traveling each year than the average American. A large portion of Soviet railroad passenger traffic is accounted for by daily movement of workers living in the suburbs to and from their places of work in or near large cities. During the early 1930's the total volume of passenger traffic actually decreased for a number of years, as the government authorities limited availability of resources for this purpose in order to ease the strain on a railroad system already seriously overburdened by more important freight volume. The statistical record of the development of Soviet passenger traffic is given in Table 36.

By 1945, substantial improvement must have occurred over the lowest level of passenger traffic reached during World War II. Passenger traffic increased sharply in 1946 and actually declined slightly in 1947. It is noteworthy that the 1946 total volume of passenger traffic virtually equaled that planned for 1950 in terms of passenger kilometers. Pre-

[6] *Voprosy Ekonomiki*, No. 9 (1948), pp. 17–33.

TABLE 36. Soviet Passenger Traffic in Selected Years.

Year	Volume of Traffic (BILLIONS OF PASSENGER KILOMETERS)	Number of Passengers (MILLIONS)	Average Length of Trip (KILOMETERS)
1913	25.2	184.8	136
1923	13.9	121.8	114
1929	32.0	365.2	88
1932	83.7	967.1	87
1935	67.9	919.1	74
1940†	98.0	1,343.5	73
1945†	66.2	843	78.6
1947†	95.1	*	*
1950 goal†	98.0	1,350	72.6

* Data not available.
† Expanded Soviet territory.
Sources: Hunter, *The Economics of Soviet Railroad Policy*, p. 215, and Hunter, "Soviet Railroads Since 1940," p. 16.

sumably this was the result of the tremendous volume of passenger movement required to return soldiers demobilized from the army to their homes. The fact that the 1950 goals are roughly equivalent to the 1940 totals may indicate plans to shift more of the postwar passenger load to buses than was the case before the war. The opportunity to do this is illustrated by the fact that in 1940 suburban traffic accounted for 25 per cent of all passenger kilometers on railroads and 75 per cent of the passengers carried.

Soviet passenger train rates vary, depending upon distance traveled and the kind of accommodation employed. Some typical rates on important runs are shown below. The two columns indicate, first, rates in early 1948 and, second, rates in effect after a change took place late in that year.

Route	Accommodation	Old Rate (RUBLES)	New Rate (RUBLES)
Moscow–Leningrad	2-person compartment (international car)	718	816
	Reserved soft seat	139.1	169
	Reserved hard seat	83.8	96
Moscow–Kiev	Reserved soft seat	166.75	189
	Reserved hard seat	100.3	108
Moscow–Vladivostok	2-person compartment (international car)	2,642	3,016
	Reserved soft seat	938.5	1,075
	Reserved hard seat	559.15	643

Outside of Moscow, the average ticket on the suburban electric train system cost two rubles in early 1948, but was raised to 2.3 rubles at the end of 1948.

River Transport

River transport in the Soviet Union is used primarily for carriage of bulky freight such as lumber, coal, cement, and salt. Cargo is carried both on self-propelled boats and on rafts and towed barges. The great advantage of water-borne freight movement is its lower cost as compared with railroad carriage. On the other hand, it is much slower than rail movement, but with proper planning that defect should not overcome the substantial cost advantage. Though the volume of river-carried freight grew substantially in the 1920's and 1930's, and has also grown since 1945, the progress in this area has never been satisfactory to the Soviet authorities. The latter have sought steadily to increase both the absolute and the relative proportion of freight carried by this means, but for a variety of reasons the progress achieved has not been satisfactory. The statistical record of development of Soviet river ways is shown in Table 37.

TABLE 37. River Traffic in the USSR in Selected Years.

	1928	*1932*	*1940*	*1945*	*1950 Goal*
Length of Waterways (thousand kilometers)	71.6	77.6	105+	*	*
Freight Tonnage (million tons)	18.3	46.9	66.6†	*	91.5
Freight Volume (billion ton-kilometers)	15.9	25.1	36	18.5	49.3

* Data not available.
† 1938.

Sources: *Sot. Stroi.*, pp. 444, 462. *Entsiklopediya*, cols. 963, 983.

Before World War II about half of all the freight volume carried by the Soviet river transport system was carried on the Volga River; it consisted chiefly of lumber moved south and petroleum, grain, coal, salt, and fish moved northward. About one third of the total freight volume was carried over rivers in the northwest and northern areas of the USSR, including the northern Dvina, Pechora, and other northern waterways, over which the main commodity was lumber. About 10 per cent of the

total volume of freight traveled over the Dnepr, Don, Kuban, and other rivers of the southwest area, with the Dnepr River accounting for the largest part. About 12 per cent of the total volume of river transport was carried over the rivers of Siberia and Central Asia, including the Ob, the Irtysh, the Lena, the Amur, and others.[7]

The distribution of different types of freight over the river ways is indicated generally by data for 1935. These show that out of 64.7 million tons of freight carried, more than half, 38.1 million tons, consisted of lumber. In the same year over 7 million tons of petroleum products and almost as much mineral construction materials were transported, as well as 4.6 million tons of grain. The only other items amounting to more than 1 million tons were salt and coal, the amount of each being roughly 1½ million tons.[8]

Great seasonality marks the work of the river transport system, since freezing of the waterways prevents their employment during part of the year throughout the country and over most of the year in some areas. This may be illustrated by data for 1935 given below:

Month	*Million Tons*[9]
January	Insignificant
February	Insignificant
March	Insignificant
April and May together	13.4
June	11.3
July	11.1
August	11.0
September	8.8
October	6.8
November	2.0
December	.1

An important diseconomy of the Soviet river transport system arises from the fact that on many routes the volume of freight to be carried in one direction is far greater than the volume of freight to be carried in the other direction. As a result much of the equipment is utilized for moving freight in one direction only and must return in the other empty or only partially loaded. The differences in density of traffic upon dif-

[7] *Entsiklopediya*, col. 965.
[8] *Sot. Stroi.*, p. 444.
[9] *Ibid.*, p. 448.

ferent rivers and in opposite directions on them may be illustrated by the following data for 1935:[10]

River	*Upstream* (THOUSAND TONS PER KILOMETER OF ROUTE)	*Downstream* (THOUSAND TONS PER KILOMETER OF ROUTE)
Volga	3,794	1,820
Kama	245	1,804
Neva	123	4,032
Svir	89	3,477
Moscow	923	96
Northern Dvina	25	2,488
Southern Bug	8	94

Soviet efforts to increase the volume of traffic on the river waterways of the country during the 1930's took a variety of forms. New and more powerful ships capable of carrying greater freight loads were added to the fleet. River routes were improved through increased use of dredges to deepen waterways, and means of illumination were installed to permit traffic by night as well as by day. Important canals such as the White Sea–Baltic and Moscow–Volga were dug to make possible passage from one river system to another and thus increase the length of uninterrupted river carriage possible in key areas of the country. Port facilities and loading and unloading equipment were improved, with stress placed upon the use of more mechanical devices. In addition pressure was exerted upon directors of industrial enterprises and mines to induce them to use the river system more fully. Nevertheless the frequent complaints of the Soviet press and of Soviet leaders gave ample evidence that the progress of the river transport system, both absolutely and in relation to its success in taking part of the burden from the railroad lines, was far from satisfactory.

These difficulties with the proper functioning of Soviet river transport apparently still continue in the postwar period. Writing in early 1948, a Soviet specialist on the subject complained that many directors of enterprises who could use river transport prefer to use railroad transport, and listed the following reasons for this attitude: slower delivery of river-moved goods as compared with railroad-moved goods, made worse by the repeated failure of the river transport system even to meet their schedules; bad utilization of the river transport fleet, as a result of which

[10] *Ibid.*, p. 454.

its carrying capacity is below what it should be, making it necessary to shift goods to the railroads; lack of a sufficient effort by the Ministry of the River Fleet to attract goods for transport by its vessels; higher freight rates on some goods charged by river transport as compared with railroad transport; lack of sufficient transfer points for shifting goods from river vessels to railroads and vice versa.[11]

Transport of passengers forms only a small portion of the work of the Soviet river fleet, usually amounting to less than 10 per cent of rail passenger traffic. Between 1929 and 1938, the number of passengers on Soviet river boats rose from around 21,000,000 to 68,100,000, as compared with almost 1,200,000,000 rail passengers in 1938. In 1935, out of a total of almost 2,900,000,000 passenger kilometers provided by the river fleet, over 10 per cent was suburban and intracity ferry travel. More than a third of all passenger kilometers that year was provided by boats traveling the Volga River; another 20 per cent was accounted for by boats on the Kama River. In the area of Moscow, there were about 5,000,000 ferry-boat passengers in 1935, one fifth of all ferry-boat passengers in the entire USSR.[12]

Automobile Transport

Soviet use of motor vehicles for passenger and freight transport is relatively far less important than in the United States or Western Europe. This is the result of the proportionately small number of cars, buses, and trucks in the USSR when compared to its population and the size of its territory, as well as of the relatively primitive and undeveloped road network available. Long-distance movement of passengers or freight by motor vehicles is of negligible importance in the Soviet Union. There are no major facilities comparable to our national and regional bus and truck organizations. In many cities and their suburbs, however, local buses handle a significant proportion of passenger traffic and trucks carry a large volume of short-haul freight, thus supplementing the rail and river transport systems. Private passenger-car ownership is confined to a very small fraction of Soviet citizens, and taxicabs, too, are far less common than in the United States.

Nevertheless substantial progress has been made in developing this

[11] *Planovoye Khozyaistvo,* No. 2 (1948), pp. 29–30.
[12] *Sot. Stroi.,* pp. 450–51.

area of transportation since the Bolshevik revolution. At the end of 1937 there were about 760,000 motor vehicles in the USSR, the great majority of them trucks, as compared with about 9,000 in the Russia of 1914 and the 19,000 in the USSR at the start of the First Five-Year Plan.[13] During World War II, many motor vehicles were lost to the enemy or destroyed in combat, but the USSR received some 300,000 trucks of all kinds from the United States. At the end of the war, Soviet troops confiscated large numbers of cars in Eastern Europe and other areas they occupied and brought many of them back to the USSR. These factors, plus the recovery of domestic production of motor vehicles after World War II, suggest that by 1950 the USSR had well over 1,000,000 cars, buses, and trucks in operation, the highest number in its history. The growth of Soviet motor-vehicle production is depicted by the data below:

TABLE 38. Soviet Motor Vehicle Production in Selected Years.

	1929	*1933*	*1938*	*1940*	*1945*	*1949*	*1950 Goal*
				(THOUSANDS)			
Total	1.4	49.7	211.4	147	83	290	500
Trucks	1.3	39.5	184.4	*	*	*	428
Others	.1	10.2	27.0	*	*	*	72

* Data unavailable.

Sources: 1929–1938—*Sot. Stroi. (1933–38)*, p. 63, 1940, 1945—Bergson, *et al., op. cit.*, p. 56, 1949—estimated on basis of data in *Pravda*, March 10, 1950. 1950—Fourth Five-Year Plan.

Along with the increased output and supply of motor vehicles, the Soviet Union has added materially to its road network. This network has been and is quite inadequate—both in extent and in quality—for the needs of this huge country. New roads have been built during the Soviet regime and others improved, but the great majority remain ordinary dirt paths, entirely unpassable by wheeled vehicles because of rain or snow during large periods of the year. The paved-road network is moderately well developed in the western USSR, where many of the larger cities are connected by such all-weather links. East of the Urals the network of paved roads is grossly inadequate, so that many important areas are without adequate motor linkage. But even in the western area, most of the roads are unsurfaced.[14] The primitive character of Soviet roads is indicated by the fact that most road repair is done by millions of peasants

[13] Balzak, *et al., op. cit.*, pp. 494–95.

[14] Cf. the road maps of the USSR in *ibid.*, pp. 497, 499.

conscripted for this labor annually. In the postwar period, a start has been made toward establishing a network of road repair and construction stations equipped with modern road-building machinery.[15] The changing composition and extent of Soviet roads before World War II is shown by Table 39.

TABLE 39. Roads of the Soviet Union, 1913, 1928, and 1938.

	1913	1928 (THOUSAND KILOMETERS)	1938
Total	*	*	1,354.8
Natural-Dirt	*	*	936.4
Graded-Dirt	0	1–1.5	330.9
Hard-Surfaced	23.5	31.3	87.5

* Data unavailable.

Source: Balzak, *et al., op. cit.*, pp. 495–96.

In 1937 about 56 per cent of all freight transported in the USSR, measured by weight, was carried by trucks. But since these trucks were used almost exclusively for short distances, the total volume of freight movement by truck—measured in ton-kilometers—was only 2 per cent of the national total for that year. In 1940 trucks carried 1,000,000,000 metric tons of freight as against only 600,000,000 tons carried by railroads, but the average length of truck haul was only one seventieth of that of the average railroad haul. In early 1950, the volume of freight transport by truck was said to be twice that moved before World War II, a very sharp increase indeed.[16]

Soviet utilization of trucks and cars has been greatly hampered by the poor care given these vehicles and the great shortage of proper facilities for their repair and maintenance. In 1938, for example, only 43.1 per cent of all trucks available in the country were put to work each day. At the end of 1938 only two thirds of all machines were in movable condition, and less than half were in technically correct order. About 40 per cent of all machines required large or medium-sized repair jobs. The effects of poor current maintenance were aggravated by the lack of sufficient numbers of garages and repair shops. In 1939 there were reported to be only seven service stations in the Soviet Union, as compared with 90,000 in the United States. The lack of spare parts also crippled

[15] *Izvestia*, May 31, 1949.

[16] *Planovoye Khozyaistvo*, No. 2 (1950), p. 94.

the work of motor transport, forcing widespread "cannibalization" of trucks and automobiles to keep part of the vehicle supply moving. Scarce supplies of gasoline and lubricating oils were wastefully used.[17]

In the postwar period, the Soviet government has attempted sharply to improve all branches of automobile transport. New car, bus, and truck models, with presumably superior technical characteristics, have been put into production. An energetic road-building program has been carried out, though its accomplishments are small in the face of the country's requirements. The machinery available for road building has been greatly increased and supplemented with production of modern types of equipment that facilitate construction of new paved routes and upkeep of old ones. The beginnings of long-distance truck-freight hauling have been made by a service connecting Moscow with Leningrad, Yaroslavl, Gorky, Voronezh, and Belgorod.[18] But over the country as a whole the motor vehicle is still largely a medium of urban transport—though trucks and automobiles are being bought increasingly by wealthier collective farms in areas near cities where roads are comparatively good. The obligatory labor of farmers is still the major means of keeping the great length of primitive roads in moderately passable shape during the periods when natural conditions permit their use. For the more distant future much of the development of automobile and truck transport will depend upon the Soviet Union's success in obtaining increased petroleum production, the source of vital gasoline and lubricating oils.

Maritime Transport

Despite the long coastline of the USSR in the north, east, and south, the Soviet Union—and Czarist Russia before it—has never been a major maritime power. Many of the country's maritime ports are frozen for three to nine months each year, creating problems similar to those faced by the river transport system. In addition much of the northern and eastern coast of the USSR is far distant from any large concentration of population requiring transport service. However, the desire to become a significant maritime power has been a significant force in Soviet transport development, and the opportunities for achieving this goal have become

[17] *Ibid.*, No. 10 (1939), pp. 72–90.
[18] *Trud*, April 20, 1950.

brightest in the past decade with the acquisition of the key Baltic ports of prewar East Prussia and the former independent Baltic States.

The fragmentary record of the development of Soviet maritime transport is summarized in Table 40.

TABLE 40. Soviet Maritime Transport in Selected Years.

	Unit	*1929*	*1933*	*1938*	*1940**	*1950 Goal*
Freight volume	Billion ton-km.	10.4	24.4	33.7	23	51
Passengers	Million	1.5	3.3	3.1	†	†

* Expanded territory.
† Data unavailable.
Sources: *Sot. Stroi.* (*1933–38*), p. 107; *Entsiklopediya,* column 951.

The great bulk of freight and passenger traffic carried by the Soviet merchant marine is moved between ports of the Soviet Union. Soviet ships participate also in international maritime commerce, though their role has been minor up to the present. Trade with overseas countries is rather small. Relatively few persons travel to and from the Soviet Union at all because of the restrictive Soviet policy toward foreign travel and visitors from abroad; and ships must compete with the USSR's rail connections both with European countries to the west and through China to Asia in the Orient. The chief maritime ports of the USSR in 1935, in order of the freight volume they handled, were: Baku, Astrakhan, Makhach-Kala (an oil port on the Caspian Sea), Batumi, Leningrad, Odessa, Mariupol, Novorossiisk, Archangel, and Vladivostok, each of which handled 2,000,000 or more tons of freight that year.[19] In the postwar era, such major Baltic Sea ports as Kaliningrad (formerly Königsberg), Riga, and Tallin, which have been acquired since 1935, would probably have to be added.

In the postwar period, the USSR has pushed an extensive program of rebuilding its leading ports—particularly those in the west destroyed or damaged during the war. It has emphasized improvement of freight-handling facilities in these ports through installation of mechanical loading and unloading equipment, as well as the provision of adequate warehousing space. By 1950 the number of deep-water piers was scheduled to be 1.7 times as many as in 1940, and ship repair yards on the

[19] *Sot. Stroi.*, p. 470.

Baltic and Black Seas were to be completely restored. Ship-building facilities were to be greatly increased during 1946–50, partially through the building of two new shipyards, one on the Baltic and one on the Black Sea. The Fourth Five-Year Plan called for the building in 1950 of twice the ship tonnage constructed in 1940. The acquisition of ships from former enemy states, particularly the German liner *Patria* now called the *Rossiya,* has aided the USSR's maritime fleet in the postwar period. Much of the USSR's merchant marine freight-carrying capacity during the past decade has been provided by American vessels borrowed during World War II. The USSR has been slow to return these vessels, perhaps because of inadequate new building.

A major objective of the first postwar five-year plan has been the conversion of the Northern Sea Route into a normal waterway. This route was first developed in the early 1930's. The objective has been to provide a direct sea path from Leningrad and other northwestern ports to the basins of the Ob, Yenisey, and other Siberian rivers, as well as to the ports of the Soviet Far East. This waterway through the Arctic Ocean offers some of the greatest challenges in the world to navigators, since the period of navigation may vary from 70 to 120 days. Ice conditions in different parts of the area vary greatly and change frequently. To make this route passable, much effort and expense have been required to provide lighthouses, ice breakers, weather information, and other aids to navigation. The Third Five-Year Plan set 1942 as the time for routine functioning of this route, but the war made that goal unattainable, forcing its postponement to 1950 or later.[20]

As of January 1, 1949, the USSR had 423 sea-going ships of 1,788,000 deadweight tons, little more than the prewar figure of 1,600,000 deadweight tons. More than half the 1949 Soviet fleet was twenty or more years old, with a speed of less than twelve knots an hour. By 1950 the USSR hoped to have a maritime fleet totaling 3,200,000 tons.[21] It seems dubious that this goal will be attained.

Air Transport

Air movement of passengers, mail, and freight has grown rapidly in the USSR since the late 1920's, owing to the speed with which the great

[20] Trevor Lloyd, "The Northern Sea Route," *Russian Review,* April 1950, pp. 98–111.

[21] American Merchant Marine Institute Study reported in *New York Herald-Tribune,* July 31, 1949.

distances between major cities in European and Asiatic parts of the country can be covered in comparison with train or other surface transportation. Moreover, many important areas of the USSR are not connected by rail or by good roads with the rest of the country. For these relatively isolated regions, air transport provides an important means of communication without the necessity of investing large sums in building railroads or hard-surfaced automobile roads, investments that are as yet unjustified by the volume of passenger and freight traffic to and from these areas.

The length of route covered by Soviet air lines grew from 18,500 kilometers in 1929 to about 140,000 kilometers in 1939. It is scheduled to attain 175,000 kilometers in 1950. The volume of freight service performed grew from 400,000 ton-kilometers in 1929 to 30,300,000 ton-kilometers in 1938. The number of passengers carried increased from only 9,300 in 1929 to over 300,000 a decade later.[22] Before the war, Moscow was the single major hub of the Soviet civil air network, the major lines connecting it with all important regions of the country—the Far East, Leningrad, the Ukraine, North Caucasus, and Central Asia. More recently, apparently, Leningrad has become a secondary major hub, having connecting lines to Siberia, Central Asia, the Urals, the Ukraine, the Baltic States, and other areas. In Central Asia, Yakutia, the Caucasus, the Far East, and the Far North, areas where surface transportation is relatively poorly developed, local and regional airlines have been developed to help make up for the deficiencies of alternative transport facilities. In addition to purely domestic air routes, Soviet airlines in the postwar period maintain routes to the capitals of many of the border countries in Eastern Europe and Asia. In 1950 Soviet planes made regular flights to Poland, Czechoslovakia, Hungary, Rumania, Bulgaria, Finland, Austria, Afghanistan, China, Mongolia, and Korea.[23]

Although the airplane industry and the airlines of the USSR have made great advances technically since the late 1920's, there seems good reason to believe that they lag behind those of the United States. Not until 1948 was regular night flying introduced on a number of major air routes in the USSR, though in this country night flying—which requires

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[22] *Sot. Stroi. (1933–1938)*, p. 108, and *USSR Information Bulletin,* April 22, 1949, pp. 264–65.

[23] *USSR Information Bulletin, op. cit.*, p. 264; *Entsiklopediya,* cols. 973–74. *Izvestia,* July 18, 1950.

extensive radio installations to guide planes—was common almost a decade earlier. Formerly, too, rigorous winter conditions forced maintenance of a much more limited schedule of flights than in summer time, but in 1948 it was reported that the winter schedule would be almost as great as that of summer. The frequency of long flights has also been increased sharply. In 1948 the Moscow-Vladivostok run took place only ten times a month, but in the summer of 1949 it was being conducted daily.[24] Over 500 routes were reported operating in June 1948; a year later the number of routes and the frequency of flights were said to have been increased substantially.[25] At the end of 1949, the volume of Soviet civil air transport service was reported to be eight times that of 1940. The length of fleet route was claimed to exceed that of the United States, a claim apparently based to some extent on duplicated mileage of different routes. Soviet airlines in 1950 were also claimed to be carrying more freight than the airlines of any capitalist country.[26]

Communications

The Soviet communications system ties together the complex and geographically dispersed economy of the USSR. Without it the planned coordination and operation of this economy would be impossible. In addition, part of this communication system serves as a major vehicle for government propaganda and education. The transmission of personal messages for individuals is also part of the assignment of Soviet communications facilities, but probably a relatively smaller part than is the case in the United States because of the limited availability of telephones for general use.

Soviet writers divide their communications system into the following major branches: the postal system, the telegraph system, the intercity telephone network, intraurban telephone systems, and radio broadcasting. Radio-telegraphy, teletype transmission, wire-photo transmission, and television are also branches of Soviet communications. All this vast communications network is owned and operated by the government as

[24] *New York Herald-Tribune,* June 9, 1948; *Trud,* June 8, 1948; *Pravda,* October 6, 1948, and June 1, 1949.

[25] *Trud,* June 8, 1948, and *Pravda,* October 6, 1948.

[26] *Izvestia,* July 18, 1950; *Pravda,* July 16, 1950; *New York Herald-Tribune,* February 6, 1949.

an essential part of the over-all national economy. Most of this network is administered directly by the Ministry of Communications. A number of branches of the economy, such as railroads, airlines, and the weather forecasting service, have their own radio, telegraph, and telephone networks to meet their own needs, but the technical condition and development of these are also under the general control of the Communications Ministry. The ministry charges for the services of its facilities through the sale of stamps for postal deliveries and through the levying of telegraph, telephone, and related charges, much as in other countries.

Over the past three decades and more, the Soviet government has vigorously pushed expansion and technical improvement of communications facilities. The Czarist regime did have a mail delivery system, a telephone and telegraph system, and the beginning of radio broadcasting. In keeping with the concentration of economic activity and population in the western areas, there was a similar concentration of communications facilities in the same regions, though as early as 1861 there was telegraph service to Irkutsk near Lake Baikal. The Soviet government has done much to increase the availability of postal and electrical communications throughout the country, particularly from the Urals to the Pacific, where they were least developed before 1917. In the past two decades, there has been much effort, too, to bring the telephone and radio into the rural areas, but this has been hampered by the fact that most Soviet farms lack electricity. Battery-operated radios are therefore often used.

In 1947 there were 51,000 post-office branches over the USSR, backed by an elaborate system of automobile, train, and plane transport, with final delivery by letter carriers. Besides letters of all kinds, the postal system distributes huge numbers of Soviet newspapers—some 6,600,000,000 copies in 1940 alone. Air mail is carried on all major lines as well as on local aviation systems in areas where surface transport is poorly developed. Mechanization of the handling and sorting of mail has been pressed and continues to be emphasized in the drive for greater efficiency and speed in the postal system.[27] Occasional complaints in the Soviet press about slow delivery of letters and newspapers suggest that the mail system is still somewhat primitive and slow in some areas, despite the undoubted advances over the past several decades. The 20,000

[27] *Entsiklopediya,* cols. 992–94.

post-office branches destroyed during World War II were reported to have been all restored by the end of 1945.

About 31,500 telegraph offices operated in the USSR in 1947 as compared with 5,100 combined mail and telegraph offices operating in 1913. There were 175,000,000 telegrams sent in 1946, almost five times the 36,000,000 sent in 1913. By 1938 some 96 per cent of all cities and rural district centers had telegraphic connections with the capitals of their provinces, suggesting that the telegraph system covered virtually all the inhabited areas of the USSR. The growth of both the telegraph and telephone system of the USSR is indicated by the fact that the total length of lines for these facilities has grown from about 500,000 kilometers in 1913 to around 2,400,000 kilometers in 1938, an almost fivefold increase. Soviet specialists have introduced improved telegraph transmission systems, teletype communication, and radio telegraphy to speed this branch of communications.[28]

The USSR has a comprehensive system of telephone communications connecting Moscow with all provincial centers and, through them, with the centers of smaller regions. Similarly the capitals of each of the Soviet republics are connected with their provincial and district centers. The number of telephones installed grew from about 330,000 in late 1929 to 1,272,500 at the end of 1938. The extension of the telephone network before the war made it possible by 1940 to call Vladivostok from Moscow, as well as to establish radio-telephone communication between Moscow and San Francisco. Before World War II, the USSR had made substantial gains in raising the quality of its telephone system, installing increasingly automatic exchange equipment and other technical improvements as well as increasing the capacity and coverage of the system. Nevertheless, the number of telephones was so limited that at the end of the 1930's the Soviet Union was seventh among the countries of the world in this respect, lagging behind Canada, which has less than one tenth of the USSR's population. During World War II, most of the lines going through the areas occupied by the Germans were destroyed, so that 130,000 kilometers of telephone-telegraph wires had to be restored during 1943–45. A great deal of aid was received from the United States

[28] *Ibid.; Sot Stroi.*, p. 504. *Sot. Stroi. (1933–38)*, p. 109.

during the conflict, including more than 850,000 miles of field-telephone wire and 275,000 field telephones for the Red Army.[29]

The intra-urban and rural telephone networks of the USSR exist primarily for business purposes, the use of phones for personal business being minor. The extension of telephone service throughout the country has apparently permitted virtually all cities of any significant size to have local systems. By 1947 telephones had been provided for 75 per cent of all rural governmental units and 90 per cent of all Machine Tractor Stations. Great damage was inflicted during World War II on the local systems of all communities in the areas occupied by the Germans, stations having a capacity of 325,000 numbers being destroyed. Much of this destruction had been repaired by the end of 1946, however, and this rehabilitation has presumably been continued since that time.[30]

Soviet radio broadcasting is a major means of spreading government propaganda, news, educational material, and entertainment to the domestic audience. The USSR also has a very extensive foreign broadcasting program for propaganda purposes. By 1940 it had 126 large urban transmitters, as against only 41 in 1929. In addition there were about 2,000 local rural radio transmitters. Radio reception is provided, for the most part, through loudspeakers in homes and public places, all wired to a central receiver. In 1940, there were some 5,500,000 listening posts connected with 10,000 wired networks of this type.[31] In 1948 it was reported that there were 7,000,000 such listening points, and that the USSR had 100 large radio stations, a number scheduled to increase by 28 by 1950. Production and utilization of individual receiving sets have increased greatly in the postwar period, but they remain few in number and high in price, so that they are out of the reach of most Soviet citizens. In May 1947, individual radio sets were estimated to have numbered only 1,300,000, about 18 per cent of all receiving equipment in operation.[32] A *Pravda* editorial late in 1948 complained sharply of the lack of individual radio receivers and of the poor quality of many of

[29] *Ibid.*, and A. J. Steiger, "Communications: Railways, Highways, Air," in E. J. Simmons, editor, *USSR, A Concise Handbook*, pp. 284–85. Ithaca: Cornell University Press, 1947.

[30] *Entsiklopediya*, cols. 995–96.

[31] Steiger, *op. cit.*, p. 286.

[32] *New York Herald-Tribune*, May 7 and June 11, 1948; Alex Inkeles, *Public Opinion in Soviet Russia*, p. 251. Cambridge: Harvard University Press, 1950.

those produced. It reported a severe shortage of radio tubes and other spare parts, which, it said, kept many receiving units and some stations out of commission for extended periods.[33] Although similar complaints have been repeated frequently since then, the lack of radio parts did not prevent the USSR from inaugurating in 1949 a comprehensive program for jamming American and British broadcasts in Russia. These jamming activities indicated clearly both the high level of Soviet radio technique and the availability of large supplies of equipment and replacements.

Television broadcasting began in the USSR in 1938, but was suspended during World War II. In the early part of 1950 two Soviet television stations were operating, in Moscow and Leningrad. The Fourth Five-Year Plan provided for additional stations in Kiev and Sverdlovsk by 1950. Television sets available to the population were reported as being very expensive and having in general extremely small screens, most of them of postcard size, 4 inches by 5 inches or so. Some reports told of the inauguration of work on a coaxial cable to link Moscow, Leningrad, Kiev, and Sverdlovsk television programs.[34] In early 1950, it seemed likely that there were about 100,000 to 150,000 television sets in the USSR, as compared with well over 3,000,000 in the United States. Soviet reports have told of research on color television, but this was apparently in the laboratory stage in mid-1950.

[33] *Pravda,* November 22, 1948.
[34] *The New York Times* radio page, February 5, 1950.

CHAPTER XI

TRADE, HOUSING, AND SERVICES

THIS CHAPTER will deal with those areas of the Soviet economy that provide consumers with the goods and services they enjoy: the distributive system, the organization of housing, and municipal and other services. Earlier chapters have pointed out that satisfaction of consumer wants in the USSR's economic development has usually been secondary to the requirements of heavy industry, transport, and the armed forces. Even at the low average standard of living of the USSR, however, consumption normally takes substantially more than half of the gross national product or national income, both goods and services being included in these totals. A large and complex network of organizations is required to serve consumers. Both the size and range of functions of this network have tended to expand with the increasing urbanization and specialization of the Soviet population.

Soviet consumers form a large and heterogeneous mass of people composed of many groups, each with its own wants and needs. The requirements of a peasant family in a remote Siberian village differ sharply from those of a Moscow worker's family in which all adults have regular jobs. There are substantial income differences in the Soviet population, with corresponding sharp differentials in standards of living. A successful author may have a house in Moscow, a summer home in the Crimea, two cars, servants, and imported clothes. His way of life is an upper extreme far removed indeed from the customary consumption patterns of most Soviet citizens, yet the Soviet government has the problem of providing the goods and services high income groups expect as well as the more modest requirements of the majority.

Soviet Living Standards

Throughout Soviet history—as well as under the Czarist regime—the average standard of living in the USSR has been low compared with that in Western Europe and the United States. The Soviet diet has been predominantly composed of bread and other grain crops; meat, eggs, milk and dairy products, fruits, and most vegetables have been a minor part of it. Before World War II, after recovery had been achieved from the low levels of the early 1930's, the average Soviet citizen consumed around 2,800 calories daily, about as much as the average Bulgarian. Roughly two thirds of these calories were accounted for by bread and other grain foods; only about 10 per cent were obtained from meat and milk. In the same period the average American consumer received over 3,200 calories daily, of which well under one third were secured from grain products; meat and milk together contributed even more calories than grain products. A similar contrast is shown for this period between the Soviet diet and that of Great Britain, Denmark, Germany, Canada, Argentina, and Australia, though the differences are smaller.[1]

The general nature of the Soviet diet is indicated by the 1947 food ration schedule that prevailed in Moscow. This schedule, shown below, was supplemented by potatoes and vegetables grown by workers themselves, by restaurant meals in factories, and by food purchased outside the ration system. The level of food consumption has been better than this at other times. Nevertheless the predominance of grain products and the relatively small quantities of protein foods such as meat and fish in these rations have been characteristic of the pattern of food consumption in the USSR throughout its history.

In the field of consumer goods, a corresponding situation exists. The average Soviet citizen has little or no contact with consumer durable goods such as automobiles, refrigerators, washing machines, television sets, and the like, though phonographs, bicycles, and sewing machines are owned by an appreciable minority. Indicative of the low production of consumer goods is the fact that the Fourth Five-Year Plan's leather-shoe production goal of 240,000,000 pairs was equivalent to little more than one pair per capita. A revealing picture of the low supply of clothing

[1] John D. Black and M. E. Kiefer, *Future Food and Agricultural Policy*, p. 40. New York: McGraw-Hill, 1948.

TABLE 41. Basic Monthly Food Rations in Moscow, January 1947.

Food	Heavy Workers	Other Manual Workers	Clerical Workers	Dependents*		Children
	(POUNDS PER MONTH)					
Bread†	42.0	36.0	30.0	18.0	0	21.0
Grits	4.4	4.4	3.3	2.2	2.2	2.6
Meat and Fish	4.9	4.9	2.6	1.3	0	1.3
Fats	1.8	1.8	.9	.4	0	.4
Sugar	2.0	2.0	1.1	.9	.9	1.1
Salt	.9	.9	.9	.9	.9	.9
Tea	.1	.1	.1	.1	0	.1

* Dependents were grouped into two categories.
† 30-day month basis.
Source: *Monthly Labor Review*, July 1947, p. 29.

available to the Soviet population is provided by a January 1936 survey made by Soviet statistical authorities among 7,000 young workers in the largest enterprises of nine major Soviet cities, including Moscow, Leningrad, and Kharkov. The group surveyed was probably relatively well-to-do, but the findings are far from impressive.

TABLE 42. Clothing and Footwear Inventories of Young Workers in Nine Soviet Cities in January 1936.

Men	Average Number of Items	Women	Average Number of Items
Overcoats and Topcoats	1.3	Overcoats and Topcoats	1.8
Suits	0.9	Wool and Silk Dresses	1.2
Trousers	2.1	Cotton Dresses	3.2
Shirts	3.9	Skirts	2.4
Changes of Underwear	3.6	Jackets	0.7
Leather Shoes	1.5	Blouses	3.4
		Changes of Underwear	4.4
		Leather Shoes	1.5

Source: *Planovoye Khozyaistvo*, No. 5 (1938), pp. 84–85.

As we shall see in more detail below, inadequate and poor-quality housing has been and is one of the worst features of the Soviet standard of living. The rapid expansion of urban population during the 1930's far outstripped the growth of housing facilities, so that great overcrowding became the rule in Soviet cities. The enormous destruction of rural and urban homes in western areas during World War II forced millions to live in dugouts, caves, and similar makeshift quarters. In the eastern areas beyond the furthest limit of German penetration, city populations

increased greatly during the war, while only minimal resources were available for providing housing. Substantial progress was achieved in building new housing during the Fourth Five-Year Plan, but even in 1950 this was one of the worst areas of ordinary Soviet life.

Interesting light on the Soviet standard of living is given by the pattern of consumer expenditures before World War II shown below.[2]

Expenditures	*1934*	*1938*
	(PERCENT OF EXPENDITURES)	
Goods and Restaurant Meals	77.3	79.6
Services of All Kinds	10.5	9.6
Direct Taxes	4.2	3.2
Savings, Government Bonds, Insurance, etc.	8.0	7.6

Discussing the significance of these figures, a Soviet economist pointed out the great discrepancy between Soviet and American expenditure patterns with respect to services. Quoting an estimate that in the United States 26 per cent of consumer expenditures go for services, he declared that the Soviet figure of less than 10 per cent in 1938 was much too low, even if allowance is made for the free medical service available in the USSR.[3] Behind this statistical difference is the great paucity of service and recreational facilities in the USSR, so that it is frequently none too easy to obtain even laundry, dry-cleaning, or good shoe-repair service.

The Soviet standard of living has not been static of course, but has fluctuated sharply upward and downward at different periods since 1917. The worst years were those immediately following the Bolshevik revolution, 1917–21, during most of the First Five-Year Plan, 1930–33, and during and immediately after World War II, 1941–45. The best years from the point of view of consumers, were those around 1928, 1938, and 1950, at least up to the time this is written. Even taking these drastic fluctuations into account, however, it seems correct to say that throughout the era of the Soviet regime most Soviet consumers have been ill-fed, ill-clothed, and ill-housed by western standards. Soviet consumers, of course, have little knowledge of western standards and do not use them in evaluating their own lot. They are probably much more impressed by the ups and downs they themselves experience. Nevertheless, there

[2] N. S. Margolin, *Balans Denezhnykh Dokhodov i Raskhodov Naseleniya*, p. 9. Moscow-Leningrad: Gosplanizdat, 1940.

[3] *Ibid.*, p. 10.

is no reason to believe that they have been content with the poor standard of living the Soviet regime has been able to provide them at the best of times. It is significant that in their public utterances in peacetime, Soviet leaders have always been careful to express their determination to improve the living standards of their people.

The Distribution System

Since the outlawing and elimination of private merchants in the early 1930's, the Soviet distribution system has been composed of three sectors: the state trading network, the cooperative trading network, and the free farm markets. The organization and functioning of this distribution system have varied from time to time. From 1930 to 1935 and from July 1941 to December 1947 rationing was general throughout the USSR; from 1936 to June 1941 and since the end of 1947 nonrationed distribution has prevailed. Since 1930 the scarcity of goods has been such that a seller's market has usually prevailed, with marked effects upon the efficiency and operation of the distributive system. Both the state and the cooperative sales network are considered part of socialist trade and are governed fairly closely by the annual economic plan. In the farm markets, collective farms, collective farmers, and individual peasants may sell whatever produce is left after their government delivery obligations are met. Prices on these markets are determined by supply and demand, and planned government control over them is indirect rather than direct. In 1940 about 216,000,000,000 rubles' worth of goods were sold through the distributive system. Of this, 128,500,000,000 rubles, almost 60 per cent, were accounted for by the state distribution system; 46,600,000,000 rubles, somewhat more than 20 per cent, by the cooperative stores; and 41,200,000,000 rubles, a little less than 20 per cent, by the farm markets.[4]

The state trading system embraces a large variety of organizations at both the wholesale and the retail level. These serve the urban population primarily, as well as some special groups, such as the armed forces, whose *Voyentorg* is the equivalent of the American Post Exchange. The Ministry of Trade—a union-republican ministry—is the central organization here, but other ministries are also active in this

[4] M. M. Lifits, *Sovetskaya Torgovlya*, p. 33. Moscow: Gospolitizdat, 1948.

field, either as suppliers or as both suppliers and retail distributors, with stores selling to the population. Each year the government's economic plan determines the volume of goods to be made available to the population and the prices to be charged in government stores. For major commodities such as textiles and shoes, the quantities to be sold are determined explicitly; the same thing is true of the relatively small numbers of consumer durable goods such as automobiles and radios. In planning domestic trade an effort is made to link the planned financial resources of the population—i.e., money income from wages, pensions, sales by farmers, and so on—with the volume of goods and services that will be available, taking account of the amounts that will go for taxes, for purchase of government bonds and savings, and for other nonconsumptive uses.[5] The Ministry of Trade is the main government planning and administrative agency in the distribution field, and other ministries exercise similar control over their subordinate trading organizations. Coordination of the entire distributive system is achieved through the State Planning Committee and the Council of Ministers.

At the wholesale level, the most important state organization is probably the Ministry of Requisitions, which procures agricultural products delivered to the state by collective farms and farmers in fulfillment of their compulsory delivery obligations and also in payment for Machine Tractor Station services. The Chief Administrations for Sales of the various industrial ministries sell that portion of their product destined for retail sale to the trading organizations, the importance of such sales depending in each case upon the nature of each ministry's output. The most important of these agencies are the Chief Administrations for Light Industry, Meat, Dairy Products, Sugar, Tea, Alcoholic Beverages, and Tobacco. The Ministry of Trade has some specialized wholesale organizations, such as the one that handles jewelry of all kinds. For the most part, however, this ministry's subordinate wholesale groups are unspecialized and buy many different types of goods required by their retail outlets.[6] Actual wholesale distribution of industrial goods is organized around a large system of warehouses, the *Prombazy,* which receive goods from factories and deliver to large stores and to state and

[5] Margolin, *op. cit.,* pp. 20–23.

[6] N. Ryauzov and N. Titelbaum, *Kurs Torgovoy Statistiki,* p. 35. Moscow: Gosplanizdat, 1947.

cooperative retail trading organizations. These are independent enterprises subordinate to either a particular chief administration or to the state trading organization in a particular republic or province.[7]

The *Torg* is the main retail sales unit of the Ministry of Trade. This enterprise usually has subordinate to it a chain of stores in a particular city or locality selling a specified group of products. Each *Torg* is managed by officials appointed by the Ministry of Trade in the republic where it is located. It has staff departments for purchasing at wholesale, managing retail stores, planning, finance, and so on. A *Torg* may have under it large stores, each with its own budget and a relatively great degree of freedom in making purchases; or small stores headed by a director or manager who has little latitude in running operations. The stores within the *Torg* system supply the main bulk of necessities to most urban customers, but there are other stores that cater to demands of the higher-income groups for better quality and more diversified merchandise. The large *Univermag* or department store in each of the major cities seeks to emulate establishments such as Macy's or Gimbel's and is regarded as the pinnacle of Soviet trading establishments.[8] In addition to the retail establishments subordinate to the Ministry of Trade, there are other stores subordinate to various specialized ministries and selling their products. Drugstores are operated by the Ministry of Health. In 1944 the Ministry of Trade's retail establishments accounted for 39 per cent of all retail sales exclusive of those on the farm markets, while the stores of other ministries accounted for another 6 per cent of the total.[9] A mail-order merchandising organization, *Soyuzposyltorg*, began operation in 1949.

The organization of state trade described above is that which has existed in the periods when rationing was not in force, from 1936 to mid-1941 and since December 15, 1947. A greater complexity existed during the periods of rationing, 1930–35 and 1941–47. The bulk of goods then were sold to the urban population in accordance with ration schedules. In addition, commodities of all kinds could be bought without ration cards in so-called "commercial stores" at much higher prices than those charged for goods obtained on rations. In this way an outlet was

[7] L. E. Hubbard, *Soviet Trade and Distribution*, pp. 80–81.
[8] *Ibid.*, pp. 81–88.
[9] Ryauzov and Titelbaum, *op. cit.*, pp. 64–65.

provided for the surplus incomes of Soviet citizens. In the early 1930's there were also *Insnab* stores, which sold to foreigners only, and *Torgsin* establishments, where goods could be bought only for foreign currencies and precious metals. During both periods of rationing, goods available to the Soviet population were differentiated according to the group into which each person fell. Highest rations were given to manual workers in the most important industry—and also probably to high government officials—and the lowest rations were allocated to adults not engaged in productive work outside the household, such as housewives. During both periods a large fraction of retail trade was handled through Departments of Worker Supply (O.R.S.) attached to different factories and other enterprises. These ran factory restaurants and sold scarce consumer goods to workers, frequently obtaining food supplies by operating their own farms.[10] In 1944, O.R.S. establishments accounted for 23 per cent of all retail trade turnover exclusive of farm market sales.[11] With the improvement of supply conditions after World War II, the importance of these factory stores has apparently diminished, and many have probably been liquidated.

Cooperative Trade

Soviet cooperative trade is dominated by the large network of consumer cooperatives throughout the country, though industrial cooperatives and cooperatives of invalids also maintain stores. From the mid-1930's to 1946 the activities of consumer cooperatives were confined entirely to rural areas, while state establishments concentrated on urban markets. From late 1946 to 1949, however, notable expansion of consumer cooperative retail stores and restaurants took place in cities throughout the USSR as the result of a government order, one of whose announced objectives was to improve the operation of state stores by giving them more competition. In 1948 there were over 28,000 consumer cooperatives in the USSR with about 32,000,000 farmer members. Though little has been published on the matter, available evidence suggests that the urban consumer cooperative network was liquidated in the summer of 1949. Thereafter, apparently, the pre-1946 semi-monopoly of the state trading system in the cities was re-established, while the

[10] Hubbard, *Soviet Trade and Distribution*, p. 39.
[11] Ryauzov and Titelbaum, *op. cit.*

consumer cooperative distributive apparatus was concentrated solely upon the task of serving rural areas.[12]

All consumer cooperatives in the USSR are part of a central organization called *Tsentrosoyuz,* which performs somewhat the same functions in relation to the cooperative distributive system as does the Ministry of Trade for the corresponding state apparatus. The basic unit of *Tsentrosoyuz* is the village cooperative or *Selpo.* Different *Selpo* in a particular district are united in a district federation of cooperatives known as the *Raysoyuz,* and there is further integration into provincial and republican organizations as well as into the national *Tsentrosoyuz.* A *Selpo* may have from several hundred to several thousand shareholders, who elect the president and other officials as well as delegates to the *Raysoyuz.* The latter in turn elect delegates to the next higher body, the provincial cooperative union. In accordance with the Rochdale cooperative tradition, Soviet cooperatives are nominally democratic organizations with ultimate power in the hands of the members. But as in other Soviet institutions, the democratic façade conceals an organization that is controlled and directed by the state and the Communist Party in all essential matters.[13]

The village cooperative or *Selpo* operates the shops that supply the needs of that village, the number and character of these shops depending upon the size of the village, its prosperity, and other relevant characteristics of the community. The *Selpo* is frequently an independent enterprise that does not limit its functions to retail sales but also purchases goods from various industrial wholesale suppliers. In addition it frequently acts as an agent for its members in selling surplus farm produce to both cooperative and state purchasing organizations. The higher links in the hierarchy of the consumer cooperatives, such as the

[12] Data on the membership of consumer cooperatives in 1948 are from *Pravda,* July 3, 1948. On the liquidation of the urban consumer cooperative trade network, the following fragmentary evidence is available: *Pravda,* August 24, 1949, says editorially, ". . . it is necessary that the state trading organizations take upon themselves fully the servicing of cities, and consumer cooperatives concentrate attention upon servicing the countryside." *Kazakhstanskaya Pravda,* August 30, 1949, reports that in conformance with Decree No. 3390 of the Council of Ministers of the USSR the Alma-Ata city cooperative trade organization was being liquidated. The text of this decree is apparently unavailable in this country. A.K. Suchkov's *Gosudarstvennyye Dokhody SSSR,* printed in the USSR in October 1949, makes no mention of consumer cooperative trade in urban areas, discussing only rural trade functions.

[13] Hubbard, *Soviet Trade and Distribution,* pp. 76–77.

Raysoyuz and organs superior to it, concentrate on wholesaling functions and on supervising and controlling subordinate bodies in the administrative pyramid. The district cooperative councils, or *Raysoyuz,* often maintain stores in larger towns to which consumers from surrounding villages can turn for a larger and more diversified stock of goods than that obtainable in village stores.

The postwar reinstitution of cooperative trade in urban communities resulted in the opening of about 17,000 food stores and restaurants in cities and towns by April 1948. These served as outlets for agricultural products bought by the cooperative organizations in the rural areas and moved by them to the cities. The volume of urban business done by consumer cooperatives in 1947 and the first five months of 1948 totaled about 19,000,000,000 rubles, but these sales probably constituted only a small fraction of the state distributive system's retail turnover.[14] In 1948 about 27,000 new enterprises were added to the cooperative trade network, but in early 1949 the number of sales outlets had not yet reached the prewar level.[15] As noted above, consumer cooperative activities in urban trade were apparently ended in mid-1949.

Free farm markets exist at many points in the USSR, in cities, towns, and at railroad stations, where peasants bring their surplus produce for sale. Soviet economists term this market "unorganized" because its prices are set by supply and demand rather than by government edict. For this reason, as we shall see below, prices in these markets have been very revealing indicators of inflationary pressures on the Soviet economy in various periods. Those collective farms and collective farmers who are near an urban community or a railroad station where they can sell any appreciable amount of their produce are fortunate. The fraction of their output disposed of there is sold for far higher prices than those paid by the government for obligatory deliveries to it, or paid by Soviet institutions for their "decentralized" purchases. But many collective farms are located in areas where the lack of urban communities or the poor condition of roads makes it difficult or impossible for them to sell any surplus on this free market. Farms and farmers in such a geographically disadvantageous position relative to urban markets benefit most from the purchasing activities of consumer cooperatives. These buy surplus

[14] *Pravda,* July 3, 1948.
[15] *Ibid.,* March 21, 1949.

food and agricultural raw materials for sale in the cooperative stores or to state agencies, paying market prices prevailing in the rural localities. These quotations are usually well below urban market prices. In February 1949 a government decree stated that the goods sold on collective farm markets and through cooperative stores accounted for about 33 per cent of the total amount of commodities sold to the population annually; percentagewise, therefore, the relative importance of these markets had declined since 1940.[16]

Operation of the Distribution System

The Soviet distribution system is relatively small compared to the population it serves. In 1948 there were about 2,500,000 Soviet citizens engaged in domestic trade, serving a population of roughly 200,000,000. In the same year the United States had about 7,500,000 persons in similar occupations, serving a population numbering less than 150,000,000.[17] A similar picture emerges if we compare the number of retail outlets in both countries. At the beginning of 1938, the USSR had about 327,000 stores and retail selling points of all kinds. In 1939, the United States Census of Business found 1,770,355 retail stores in this country, almost six times the number in the Soviet Union, serving a population almost 20 per cent less than that in the USSR. The distribution system of the Soviet Union contracted substantially during World War II, and then began to expand again after the conflict. But at the end of 1949, Politburo member A. I. Mikoyan revealed, there were only 85 per cent as many food stores and only 83.3 per cent as many stores selling manufactured goods as there had been in 1940. He labeled this shortage of retail outlets a major deficiency of the Soviet postwar distributive system.[18] The relative poverty of the Soviet trading system, both in personnel and in number of outlets, undoubtedly means that consumers are put to greater inconvenience in seeking to supply their wants than they are in countries devoting relatively greater resources to this sector of economic activity. The low standard of living prevalent in the USSR,

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[16] *Ibid.*, March 1, 1949.

[17] Henry H. Ware, "Costs of Distribution in Soviet Domestic Trade," *Journal of Marketing*, July 1950, p. 26.

[18] *Pravda*, March 11, 1950. *Itogi Vypolneniya Vtorogo Pyatiletnego Plana Razvitiya Narodnogo Khozyaistva Soyuza SSR*, p. 63. Moscow: Gosplanizdat, 1938.

of course, means that the quantity of goods that has to pass through the distribution system is proportionately less than in countries where consumers are more fortunate.

On the whole, the Soviet distribution system operates at a far from satisfactory level, though examples can probably be found of almost every level of service quality. At one extreme, for example, the Central *Univermag* in Moscow is probably one of the outstanding department stores in the world. Its 2,500 employees sell an average of 4,500,000 rubles' worth of goods daily to between 100,000 and 150,000 customers, virtually every type of consumer goods made in the USSR being available there. The staff is under strict supervision in an effort to insure that it treats customers intelligently and courteously. The store makes laboratory tests on goods where necessary to check on their quality. Even the Moscow *Univermag* cannot overcome the deficiencies that characterize Soviet consumer-goods production, such as the lack of variety among products, but obviously a great effort is made here to come close to Western standards.[19]

Study of Soviet discussions of the USSR trading system, however, suggests that the above is a very unrepresentative example. Much more frequent are quite different conditions. Stores are often dirty, have limited assortments, and frequently lack even essential common goods. Personnel in stores are often poorly trained, discourteous, and have little or no knowledge of the goods they sell. The competence of even the managerial and supervisory staffs of the trading system is often assailed in the Soviet press.[20] The Soviet mail-order organization, *Soyuzposyltorg,* apparently also operates poorly, so that customers frequently cannot purchase goods that have been advertised, get products they did not order, or have to wait long periods before their orders are filled.[21]

The major inadequacy of Soviet distribution appears to be its frequent inability to supply customers with the goods they want when they want them and where they want them. Items are frequently unavailable in stores though warehouses are packed with them. When customers go to look for spring clothing, they often find only winter clothing, and

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[19] *Bloknot Agitatora,* Moscow, No. 20 (1949), pp. 31–39.

[20] Cf. for example the typical complaints in *Zarya Vostoka,* November 24, 1949; *Trud,* November 16, 1949; *Moskovskaya Pravda,* February 26, 1950; *Leningradskaya Pravda,* February 2, 1950; *Izvestia,* April 4, 1950; *Pravda Ukrainy,* March 23, 1950; *Trud,* December 19, 1948.

[21] *Izvestia,* March 25, 1950. *Komsomolskaya Pravda,* April 30, 1950.

vice versa. Selection of goods is often very limited. These and related deficiencies are apparently due to at least two factors. First, during more than half of the years between 1930 and 1950, Soviet customers were subjected to rationing. Those in charge of distribution became habituated to the relatively simple requirements of distributing goods in accordance with ration schedules, without any attention to the desires of consumers. Second, those in managerial positions in the trading system often have little knowledge of consumer demand in the areas over which they have jurisdiction, and their estimates of what will be required in each period in their localities are often wide of the mark. It is significant that more than thirty-two years after the Bolshevik revolution, A. I. Mikoyan found it necessary to declare in March 1950:

> It is necessary to organize scientific planning in trade organizations. Trade planning has its peculiarities, its specific features. This planning must take into account magnitudes which undergo frequent variations. It must take into account the relation of supply and demand, the needs of consumers, national and local peculiarities, climatic conditions.[22]

Trading officials, of course, are not responsible for all the deficiencies of their work, since what they have to sell and when they have it to sell depend upon the operation of producing organizations. As we have seen above, much consumer-goods production is of rather low quality, and this is reflected in the goods available for sale. In addition there is apparently very poor planning of production over time so as to anticipate seasonal fluctuations in consumer demand. Finally, it may be pointed out that Soviet wholesale and retail organizations have relatively little competition and enjoy in many cases monopolistic or semimonopolistic positions in relation to their customers. They do not have the spur to improvement that is provided by the sharp competition under which merchants frequently work in capitalist countries. The Soviet consumer does not have the choice of many competing stores, all seeking his patronage, that the American consumer has, and the results are apparent in the differences in operation between the two distributive systems.

Prices Consumers Pay

The price a consumer will pay for a particular product in a given locality usually depends upon where he buys it—whether in a state store,

[22] *Pravda,* March 11, 1950.

a cooperative store, or on the free farm market. During 1932–35 and 1944–47 the price paid in state stores depended upon whether the commodity was bought on rations or whether it was bought outside the ration system in a "commercial" store, which charged much higher prices. In 1947 about 40 per cent of all clothing, shoes, textiles, and other industrial consumer goods, measured in value terms, were purchased by consumers at these commercial prices.[23] The relationship among prices in these different retail outlets has varied greatly over the past two decades. Sometimes prices in all these stores have been roughly the same in a particular area. At other times there have been marked differences.

Prices charged by state stores for the most important goods are set by the government as part of its planning activity. The retail price consists of the cost of the commodity, plus the cost of distribution, plus the turnover tax, plus the planned profit of the retail enterprise. For most important food products, three price zones have existed in the USSR since 1947, prices differing from one zone to another so as to reflect transportation costs and different productive conditions in various regions. In the case of many major consumer goods, the same price is charged in all urban areas but a price usually about 10 per cent higher is charged in rural areas. Three groups of retail prices exist for goods sold in state stores: the first and largest group includes prices for the most important commodities, which are set by the Council of Ministers or the Minister of Trade of the USSR. Prices for a second group of less important commodities are set by the councils of ministers of union republics or by provincial authorities. The third group of prices covers the least important commodities, for which the government sets only wholesale prices at the manufacturing level, permitting trading organizations to add their own markup and thus determine the retail price.[24]

Prices charged by cooperative stores are in part determined by the government and in part determined by supply and demand. In rural areas, manufactured goods bought from state enterprises are apparently sold at the schedule of prices established by the government for these areas. Locally procured farm produce, raw materials, and consumer

[23] Lifits, *op. cit.*, p. 114.

[24] *Ibid.*, p. 91. Ryauzov and Titelbaum, *op. cit.*, p. 134.

goods are sold by cooperative stores at prices determined on the mar
ket.[25]

On the free peasant market all over the USSR, food prices are d
termined purely by supply and demand considerations and may chan
from day to day or even from hour to hour. The prices obtaining in the
markets are very sensitive barometers. Sellers in these markets ar
competition with the state and cooperative stores. If buyers can ob
all the food they wish in these competitive outlets, the prices cha
there will be the upper limit for prices in the farm markets, and f
may even have to reduce their quotations below the levels o
competitors to clear their produce. On the other hand, if con
cannot get all the food they want in state and cooperative stor
in the farm markets may and do rise appreciably above those
elsewhere. In times of extreme scarcity, such as during World
prices in these markets can rise enormously above state-set qu
The government's influence over the prices farmers receive
markets is indirect, but powerful. It is exerted through tw
First, the supply of goods available in state stores and the pric
for them are important factors influencing consumers' decisio
or not to buy in the farm markets. Second, the government
how much of farm production it will require for itself in
obligatory deliveries and payment for Machine Tractor Sta
Only the surplus left over after these compulsory deliver
may legally be sold at the much higher prices urban c
willing to pay. It seems likely, however, that some farmer
to evade this restriction and to sell here some of the prod
nominally go to the state.

The price policy of the Soviet government is th
structure of prices consumers pay in the USSR.
directly linked with the entire complex of politica
tives sought by the state and hence is subject to h
economic factors. Thus, if deemed necessary, p
at a time when it was felt that national morale w

[25] Henry H. Ware, "The Function and Formation
USSR," in *Bulletins on Soviet Economic Developmen*
p. 24.

triking affirmation of popular support for the regime was desired. The
atter consideration may have been behind the timing of the drastic
ice cut announced for March 1, 1950, little more than a week before
e elections for the Supreme Soviet of the USSR. Similar factors may
ve influenced the policy of maintaining prices for rationed goods un-
nged all through World War II, though great inflation was clearly
ient in prices charged for nonrationed goods in commercial stores
n the farm markets.

m the economic point of view, two sets of considerations seem
de government price policy. The first or aggregative factor is the
nship between the volume of money at the disposal of the popula-
l the value of the goods available for sale to them. After allowing
portion of the population's expenditures that will go for taxes,
, and services, the government estimates the amount available
hasing goods. It seeks to price the goods that will be on sale
given year so that the total value of these commodities will
o the amount the population is expected to want to spend for
a given time, the government may find that the expected
ods to be available during the next period is greater than the
money the population is expected to be able to spend. This
um could be corrected either by reducing prices or by raising
ion's income through wage increases or similar measures.
ibrium could also be ended by reducing the planned pro-
nsumer goods, but this solution would be politically unde-
vious reasons. The alternative case is that in which the
expected to be available for sale is less than the amount
s expected to wish to spend. The difference between the
rresponds to what in this country has sometimes been
ıary gap." It can be resolved either by raising prices,
ulation's income available for such purchases, or by
rom other uses to the production of consumer goods.
course, would require diminution of the volume of
ıe Soviet government has rarely if ever chosen that
use the first two types of measures during and
n this situation was encountered. It is in this way
f prices is decided.[26]

20–23.

The actual level of government prices for consumer goods is substantially above the level of cost to the government, including both production and distribution costs. The difference is mainly attributable to the turnover tax, a general sales tax upon food and consumer goods levied at different rates for different commodities. This device is used to equalize the total sales value of goods available for consumers and the total amount they are expected to wish to spend on goods. The magnitude of the turnover tax's role may be appreciated from a comparison between the total value of retail turnover and total government receipts from this tax. In 1940, the total retail turnover was about 216,000,000,000 rubles, while total turnover tax receipts were almost 106,000,000,000 rubles, of which probably about 90 per cent, or 95,000,000,000 rubles, was paid out of food and consumer-goods receipts. Almost 45 per cent of the value of retail turnover, therefore, was accounted for by this tax. The need for this device arises from the fact that the portion of Soviet consumer incomes diverted to nonconsumption uses such as savings and direct taxes is substantially less than the value of the resources allocated by the state for capital investment, defense, and other activities that do not contribute to the current available supply of goods and services.[27]

Whatever the general level of prices set by Soviet authorities may be, the latter still have the problem of setting prices for individual commodities. Working within the general framework discussed above, they are also influenced by a second set of factors, those relating to the supply of and demand for each commodity. As regards supply, they have for each future period estimates of the planned output and existing reserves of each major commodity. They recognize that consumers' demands for different commodities depend upon the changing level of income, the distribution of income, and relative prices. Taking these factors into account, they apparently attempt to set a price for a particular commodity at which the demand will be equal to the anticipated supply. In other words, they are aware of the concept of a demand function in which the quantity that will be bought is related to price and income factors. They also take into account the different elasticities of demand for different commodities, realizing that salt, bread, and shoe sales, for

[27] The data on the size of the turnover tax receipts and the portion coming from consumer-goods prices are taken from the following chapter on the Soviet financial system.

example, will respond differently to an equal percentage change in price. Few details have been published about how such estimates of demand are made, but apparently Soviet authorities rely upon past experience and also upon study of data regarding budgets and expenditure patterns of different groups in the Soviet population.[28] As the supply of a commodity changes, the price can be altered, regardless of whether or not its cost has changed, merely by raising or lowering the rate of turnover tax levied on that commodity. The substantial portion of the retail price of most commodities accounted for by the turnover tax makes it unnecessary for Soviet price-setters to vary prices in proportion to costs, though they presumably pay some attention to this factor in reaching their decisions. Increased efficiency of production permits not only lowered costs but also greater output from the same quantity of resources as before and thus influences prices on the supply side. All these decisions are made on the basis of data for the economy as a whole. Executives of the distribution system have the problem of trying to estimate demand in their localities at the existing set of prices at any given time. This, the complaints cited above suggest, they do only poorly.

Prices Since 1928

Since the year 1936, with rare exceptions, the Soviet government has followed a policy of minimal publicity for statistics on consumer prices. Study of the behavior of Soviet prices, therefore, must be based for the most part upon fragmentary data, particularly figures collected by foreign correspondents, diplomats, and visitors in Moscow that have been published abroad. As a result most figures available apply only to Moscow, and it is not entirely certain that the trends shown apply to the entire USSR. Serious question also exists as to the comparability of some of these data for different years. Is the suit priced in 1936 the same quality as a suit priced by someone else a decade later? This is a typical question that must be faced in evaluating much of the available information. Comparability of food price data is frequently simpler to determine because of the greater standardization, but even here there are uncertainties. Nevertheless, the volume of data available is sufficient in size and trustworthiness to permit us to draw broad conclusions about

[28] Margolin, *op. cit.*, pp. 100–07.

the main trends in Soviet consumer price behavior since the beginning of the First Five-Year Plan. An added complication arises, however, because there are several different levels of prices in the USSR—state, cooperative, and free market. Moreover during 1932–35 and 1944–47 there were two main sets of state store prices—for rationed and for unrationed goods.

The state multi-price systems that existed during both periods of rationing since 1930 were ended by roughly similar techniques. The initial situation in each case was that rationed goods sold for low prices relatively close to or equal to prices in the prerationing period, while unrationed goods sold for much higher prices. In each case the end of rationing was announced with the institution of a new unified state price system intermediate between the old ration prices and commercial store prices. Workers' wages were raised somewhat to compensate them partially for the higher level of prices as compared with the previous ration level. The adjustment was somewhat more complex in the postwar period because the degree of inflation that had taken place in the economy since 1941 was much greater than had occurred a decade earlier. Commercial store prices were lowered several times after these stores were opened in 1944. In September 1946 prices of rationed foods were roughly tripled to reduce the gap between them and commercial store quotations. At the same time workers were given a graded wage increase, the largest rises going to lowest-paid workers. In December 1947 rationing was abolished. A new price system was set up at a level close to the prices for food existing after September 1946 and intermediate between the old commercial prices and ration prices for manufactured goods. The great excess of currency that had been accumulated during and after World War II was wiped out by issuing a new currency at the rate of one new ruble for ten old rubles in cash. Savings deposits, government bonds, and other similar assets were revalued simultaneously, but at more favorable ratios. Between December 1947 and mid-1950 there have been several price decreases for many commodities, the most important and comprehensive list of reductions taking effect on March 1, 1950.

Available data are inadequate to permit the construction of an over-all index of Soviet price fluctuations since 1928. The approximate trend of state food prices in Moscow is indicated, however, by the series shown

in Table 43. This food price index has been constructed by combining two different indices, one covering 1928–39 and the other covering January 1941 to March 1950. These indices have been chained together to make a continuous series even though their internal compositions are not the same. The error introduced by this procedure would seem to be small in comparison with the over-all magnitudes of Soviet food price fluctuations, 1928–50, so that the figures shown below are believed to give a reasonably accurate, though rough, representation of the fluctuations over this period of more than two decades.

TABLE 43. Index of Moscow State Store Food Prices, 1928–50.

(1928 = 100)

Year	Index	Year	Index
1928	100	1939	919
1932	201	Jan. 1941	1180
Oct. 1935	806	Jan. 1948	2954
1936	830	March 1949	2658
1937	835	March 1950	2068
1938	858		

Source: Derived by chaining together Prokopovicz's index for 1928 to 1939 in *Russlands Volkswirtshaft unter den Sowjets*, p. 306, with the index for Jan. 1941 to March 1950 given by Kravis and Mintzes on the basis of November 1928 food expenditures in *Review of Economics and Statistics*, May 1950, p. 167.

This index minimizes the violence of food price fluctuations because it does not take into account the heights reached by commercial store and free farm market prices in the early 1930's and during World War II. Moreover, it makes no allowance for the impact of the currency and savings revaluation of December 1947. Nevertheless even this minimal depiction of the fluctuations shows clearly that great inflation of food prices has taken place since 1928. By the beginning of World War II, food prices were on the average almost twelve times as great as in 1928. In January 1948 they were almost thirty times as great, and the price reductions that took place up to March 1950 still left the average more than twenty times as high as in 1928 and almost twice as high as in January 1941.

Study of the price fluctuations of particular foods for which relatively full data are available permits us to see more fully the effects of the inflationary and deflationary forces that have acted on the Soviet economy. These data are shown in Table 44.

TABLE 44. Prices of Major Food Commodities in Moscow, 1928–50.

	Year	Market	Black Rye Bread	Potatoes	Beef	Butter 1st Grade	Lump Sugar	Eggs
			(RUBLES PER KILOGRAM OR PER EGG)					
	1928	Cooperative	.08	.085	.87	2.43	.62	.20
	1932	Ration	.125	.25	2.12	4.66	1.25	.10
	1932	Commercial	*	*	*	16–18	2.50	*
	1932	Farm	*	*	*	34.80–48.20	*	*
	1933	Commercial	2.50	*	*	42.00	15.00	*
	1936	State	.85	.30	8.00	16.00	4.10	.40
April	1940	State	.85	1.20	16.00	23.00	5.50	.85
Jan.	1941	State	1.00	*	14.00	28.00	5.50	.75
Late	1942	Farm	100.00	*	500.00	*	1000.00	15.00
Late	1943	Farm	130.00	*	*	1100.00	1100.00	20.00
May	1944	Farm	80.00	*	450.00	1100.00	800.00	27.00
Aug.	1944	Commercial	*	*	320.00	800.00	650.00	*
July	1945	Commercial	45.00	*	250.00	525.00	500.00	*
Sept. 1,	1946	Ration	1.00	*	14.00	28.00	5.50	*
Oct. 1,	1946	Ration	3.40	*	30.00	66.00	15.00	*
Nov.	1946	Farm	20.00–45.00	4.00–10.00	70.00†	180–200	80–120	5–6
Jan.	1948	State	3.00	*	30.00	70.00	15.00	1.40
Jan.	1948	Farm	*	3.5	35.00†	60.00	*	3.50
March	1950	State	2.00	.67	20.52	40.32	12.75	1.02

* Data unavailable.

† Average of several prices.

Sources: *Modern Review*, June 1948, p. 276; Baykov, *Development of the Soviet Economic System*, p. 244; Hubbard, *Soviet Trade and Industry*, p. 273; Prokopovicz, *Russlands Volkswirtschaft unter den Sowjets*, p. 305; *Review of Economics and Statistics*, May 1950, pp. 166–67; *American Economic Review*, December 1946, pp. 877–80; *Labor Abroad*, March 1950, p. 44.

The explosive rise of farm market prices during the early years of World War II is probably the most striking phenomenon shown by the data above. The tremendous gap between these prices and the commercial store prices later in the war, on the one hand, and the very low ration prices, on the other, is an illuminating indication of the degree of inflationary pressure that existed in Soviet markets during this period. Consumer incomes had increased substantially because of increased working hours, while the amount of goods available had been reduced very greatly. Moreover, rations were not only quantitatively low but were also often unfulfilled, so that hunger was a potent force inspiring the competition for the scarce amounts of unrationed food available. Only the wealthiest Muscovites could have been regular customers for this very high-priced food, while farmers who had any significant quantities of food to sell in these markets must have become very affluent.

Any effort to trace the price of manufactured consumer goods over the years since 1928 is exceedingly difficult because of the paucity of data and uncertainties regarding the comparability of prices at different times. Perhaps all that can safely be said is that a substantial rise in the prices of the most important of these items has taken place since the five-year plans began. The case of leather shoes is probably representative. A pair of men's leather shoes of unknown quality cost 18 rubles in November 1926.[29] A pair of men's leather shoes, probably of rather poor quality, cost 270 rubles at the ration price of December 1946 in Moscow.[30] About the same time, unrationed shoes bought in Moscow commercial stores varied in price from 810 rubles for the lowest quality to 1,600 rubles for the best.[31] In November 1948, state stores in Moscow sold shoes for 100, 350, and 500 rubles per pair, depending upon quality. The cheapest shoes had rubber soles and heels and poor leather tops and were poorly sewn; the best were approximately as good as standard Montgomery Ward shoes in this country.[32] A similar picture arises from comparison of prices for a man's suit. An English visitor in the USSR

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[29] Hubbard, *Soviet Trade and Distribution*, p. 270.

[30] Irving B. Kravis and Joseph Mintzes, "Soviet Union: Trends in Prices, Rations, and Wages," *Monthly Labor Review*, July 1947, p. 35.

[31] Harry Schwartz, "Prices in the Soviet War Economy," *American Economic Review*, December 1946, p. 880.

[32] Information from the Bureau of Labor Statistics, U. S. Department of Labor.

in 1934 reported that a suit of undescribed quality cost 87 rubles.[33] The ration price for a man's suit in Moscow in December 1946 was 800 rubles.[34] The commercial store price for a suit about the same time varied from 1,600 to 4,000 rubles, depending on quality. In March 1950, the uniform state store price for a man's single-breasted wool suit was about 1,100 rubles.[35] These examples are not unrepresentative, examination of other available data indicates. It is worth remarking that by 1950 prices were so high relative to earnings that, on the average, it required more than a month's earnings to purchase a man's suit or overcoat, while it probably required almost two weeks' earnings, on the average, to purchase a pair of moderately good black calf shoes. We shall go further into the subject of the real value of wages in the subsequent chapter on Soviet labor.

Against the background of the price fluctuations discussed above, the changes in the volume of retail trade may be appraised briefly. The relevant data are shown in Table 45.

TABLE 45. Volume of Soviet Retail Trade by Distributive Channels in Selected Years.

Channel	*1922–23*	*1926–27*	*1928–29*	*1932*	*1935*	*1938*	*1940*	*1947‡*
				(BILLIONS OF RUBLES)				
State	.5	2.4	3.0	14.5	63.1	99.9	128.5	251.6
Cooperative	.4	7.0	11.8	25.8	18.6	40.1	46.6	73.0
Private	2.7	5.2	2.7	†	†	†	†	†
Farm Market	*	*	*	7.5	14.5	24.4	41.2	*

* Data unavailable.
† Insignificant or nonexistent.
‡ Plan.

Sources: *Narodnoye Khozyaistvo SSSR*, p. 315; Lifits, *Sovetskaya Torgovlya*, p. 33; *Pravda*, April 21, 1947.

These data summarize the growth and changing pattern of Soviet trade over these years. They do not reflect the actual changes in the physical volume of retail trade because of the sharp price fluctuations in the two decades covered by the figures. A Soviet writer has stated that in comparable prices the volume of trade turnover grew 4.6 times

[33] Colin Clark, *A Critique of Russian Statistics*, pp. 30–31. London: Macmillan, 1939.
[34] Kravis and Mintzes, *op. cit.*
[35] Schwartz, *op. cit.*; *Labor Abroad*, March 1950, p. 44.

between 1928 and 1940.[36] This statement, however, cannot be interpreted as meaning that the volume of goods available to the Soviet people increased almost fivefold. If accurate, it probably reflects both any actual increase in the available supply of goods and the increase in the fraction of consumption goods passing through the distributive system. The increasing urbanization of the Soviet population from 1928 to 1940, as noted earlier, resulted in an important shift from household production to purchase in stores. The actual physical volume of retail sales therefore undoubtedly increased sharply. The volume of goods available for consumption, however, did not rise in proportion by any means. Both the 1940 and 1947 figures cited above are for the enlarged post-1939 USSR and are therefore not strictly comparable with the earlier data. The 1947 figures exceed the 1940 data because of the much higher prices in the postwar period. By 1950, the Fourth Five-Year Plan called for the volume of retail trade in state and cooperative stores in comparable prices to be 28 per cent higher than in 1940, so that in 1947 retail trade was probably still below 1940 by an appreciable margin, if measured in comparable prices.

The changing character of the Soviet retail distribution system is also reflected in the figures above. In the early 1920's, private merchants predominated, having been given their head by the New Economic Policy. In the late 1920's and early 1930's, the cooperative trade network accounted for the largest single volume of sales. Since 1933 the state retail distribution system has been the most important single channel.

Urban Housing

The most consistently dark aspect of the Soviet standard of living has been and is housing, particularly urban housing. Initially, after the Bolshevik revolution, workers living in slums were encouraged to seize and move into the homes of the well-to-do. This proved only a temporary palliative, however. Soviet housing conditions were poor in the 1920's, both as regards quantity of space available and the quality of accommodations. At the beginning of the First Five-Year Plan about 75 per cent of all factory workers in the USSR had less than six square

[36] *Pravda*, April 21, 1947.

meters of housing space per capita, an area little larger than a rectangle measuring three yards by two yards. Over 20 per cent of them had less than three square meters per capita. The authors of the First Five-Year Plan pointed to the deplorable state of urban housing as one of the worst features of the Soviet scene and projected an ambitious program of improvement.[37]

This improvement did not take place. In the late 1920's and the 1930's, urban populations grew far more rapidly than housing construction. Beset by shortages of materials, men, and machinery, the Soviet government cut its ambitious housing construction plans rather than divert resources from industrial and transport construction. During the Second Five-Year Plan period, 1933–37, for example, 64,000,000 square meters of urban housing space were scheduled to be made available for occupancy.[38] In actuality only 26,800,000 square meters of housing became available during these years, about 40 per cent of the planned amount.[39]

The worsening of housing conditions in the late 1920's and early and mid-1930's is clearly indicated by a comparison of the growth of urban population and urban housing space in these years. The census of 1926 found 26,314,000 people living in urban communities. At the end of that year urban housing space in the USSR aggregated 159,000,000 square meters, so that per capita housing space was roughly 6 square meters. The census of January 1939 found 55,910,000 urban dwellers in the country. The amount of housing space available then is not known, but at the beginning of 1938 it was about 221,000,000 square meters.[40] If we assume that urban population was only 50,000,000 persons in 1938, a figure probably too low, we find that per capita housing space in cities and towns was less than 4.5 square meters, a reduction of over 25 per cent from the already low figure of 1926. Behind these bare statistics

[37] *Pyatiletny Plan Narodno-Khozyaistvennogo Stroitelstva SSSR Tom II,* pp. 281 ff. Moscow: Gosplan, 1930.

[38] *The Second Five-Year Plan,* p. 50. New York: International Publishers, n.d.

[39] *Itogi Vypolneniya Vtorogo Pyatiletnego Plana Razvitiya Narodnogo Khozyaistva Soyuza SSR,* p. 63.

[40] V. L. Kobalevsky, *Organizatsiya i Ekonimiki Zhilishchnogo Khozyaistva SSSR,* p. 106. Moscow-Leningrad: Narkomkhoz RSFSR, 1940. The estimate for urban housing space at the beginning of 1938 is obtained by adding to Kobalevsky's figure of 195,000,000 sq. meters of housing space at the beginning of 1933 the 26,800,000 sq. meters put into use during 1933–37. From this, 800,000 sq. meters are deducted as an allowance for housing going out of use.

and averages is, of course, a degree of overcrowding so serious as to bring great discomfort and inconvenience to tens of millions subjected to it. Privacy was and is a rare privilege for those living in Soviet cities and towns. Under these conditions, the typical housing available for a small or medium-sized family in a Soviet city was only one room, in an apartment containing three to six families, all sharing the kitchen and bathroom, if any.[41] Millions of single workers who flocked to the great new construction projects and factories during the 1930's had to live in barracks, often under the most primitive and difficult conditions.[42] The abysmally bad housing situation in many industrial centers was one of the major factors producing worker discontent and high labor turnover during these years.

Moscow, the capital of the USSR and one of its most important industrial centers, suffered severely in this period. In 1926 the city had about 10,400,000 square meters of housing space and about 2,000,000 inhabitants. Per capita housing space then was slightly more than 5 square meters. In 1939 the city had 17,400,000 square meters of housing space, a rise of roughly 70 per cent. But its population had more than doubled, to 4,137,000 persons. Consequently per capita housing space had fallen to little more than 4.2 square meters, a drop of about 20 per cent. Moscow must have been then and probably still is one of the most overcrowded major cities in the Western world. In 1912 the city had had 1,600,000 inhabitants and 11,900,000 square meters of housing space, a per capita average of roughly 7.4 square meters. Such "abundance" of housing was unknown in Moscow after the early 1920's, though the inequality of housing accommodations that existed there in Czarist times had been tremendously reduced under the Soviet regime. In 1912, almost 40 per cent of all Moscow apartments were considered overcrowded. In 1939 virtually all must have been.[43] This deterioration was not confined to Moscow by any means. In the city of Gorky, for example, per capita housing space fell from over 6 square meters in 1923 to under 4 square meters in 1937.[44]

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[41] John N. Hazard, *Soviet Housing Law*, pp. 19–21. New Haven: Yale University Press, 1939.

[42] Cf. the picture of worker housing and life in Magnitogorsk in John Scott, *Behind the Urals, passim*. Boston: Houghton Mifflin, 1942.

[43] D. L. Broner, *Ocherki Ekonomiki Zhilishchnogo Khozyaistva Moskvy*, pp. 12, 13, 16 and 17. Moscow-Leningrad: Narkomkhoz RSFSR, 1946.

[44] Gordon, *Workers Before and After Lenin*, p. 199.

Aggravating the discomforts and hardships arising from the lack of housing was its poor quality. Defective construction and lack of repair characterized much of it. Apartment houses and homes built in the 1920's and 1930's were often put up hastily by poor workmen using faulty materials and parts. The results soon became evident in the failure of central heating and other facilities, the cracking of plaster, the leaking of roofs, and similar evidences of shoddy workmanship and materials. In the rigorous winter climate characteristic of the USSR, these defects must have contributed substantially to making housing conditions intolerable for millions of workers. Little wonder that many migrated from job to job in the First and Second Five-Year Plan periods, hopefully seeking better living quarters and subsistence.[45]

World War II brought catastrophe to the housing of Soviet citizens. In the areas occupied by Germans, more than 50 per cent of all urban living space and about a quarter of all rural dwellings were destroyed or damaged.[46] In the areas to the east of the German advance, the already tight housing situation was aggravated as millions of refugees fled there from the west. The mobilization of many farm people to replace workers entering the armed forces and to work in evacuated, new, or expanded enterprises put further strain upon the already inadequate housing in eastern cities. The growth of population in some of these cities has been pointed out in Chapter I. It is clear that under wartime conditions the expansion of housing must have lagged far behind the expansion of population, further worsening the situation.

Faced by the greatest housing shortage of its history, the Soviet government allocated unprecedented resources to new construction. The Fourth Five-Year Plan called for the government to build or restore 72,000,000 square meters of city housing during 1946–50 and planned that individuals, aided by government loans in many cases, would build an additional 12,000,000 square meters. By 1950 it was hoped to have 25 per cent more state housing than before the war. Almost half of this new housing was to be built in the areas that had been devastated during the conflict.[47] Considerable progress was achieved during 1946–50. About 90,000,000 square meters of new and restored housing space were

[45] *Ibid.*, pp. 195–98.

[46] Voznesensky, *The Economy of the USSR During World War II*, p. 87.

[47] V. P. Maslyakov, N. L. Filatov, and V. V. Barmin, *Finansirovaniye Zhilishchno-Kommunalnogo Khozyaistva*, p. 7. Moscow: Gosplanizdat, 1948.

made available in the cities and 2,500,000 houses were built or restored in rural areas.[48] This must have improved conditions tremendously, especially in the western areas formerly occupied by the Germans. In those regions 58,000,000 square meters of urban housing space had been restored by early 1950, but much remained to be done even at that date.[49] Yet it is clear that even after the very substantial progress in construction achieved by 1950, the poor condition and scarcity of housing were still among the worst facets of the Soviet standard of living. The inadequacy of the record volume of new building done since 1945 is openly recognized in the Soviet press, which frequently complains of the inadequate tempo of construction and the poor quality of much of the new housing. At the very best, average per capita housing space in the USSR at the end of 1950 may have been slightly better than in 1940, but this is dubious. There is no question but that it was still well under the level of the mid-1920's.

Precise data on the postwar housing situation in major Soviet cities are most scarce, but available figures for Moscow and Leningrad are illuminating. Moscow, at the beginning of 1950, had about 5,100,000 inhabitants according to the election district data cited in Chapter I above. The total volume of housing space in that city then was probably only about 18,600,000 square meters, equivalent to a per capita average of about 3.65 square meters. This would be more than 10 per cent below the 4.2 square meters average of early 1939. Leningrad had about 260,000 apartments in early 1950, a time when election district data indicate its population was well over 3,000,000. The average number of residents per apartment then must have been more than twelve—crowded conditions indeed.[50]

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[48] *The New York Times,* November 7, 1950.

[49] *Pravda,* March 10, 1950.

[50] The number of apartments in Leningrad is calculated from the statement in *Leningradskaya Pravda,* May 31, 1950, that 117,000 apartments in that city, housing 45 per cent of the total population, were supplied with gas. The procedure for calculating total housing space in Moscow in 1950 was as follows: According to *Pravda,* February 3, 1949, Moscow's housing space had regained the prewar level. This was approximately 18,200,000 square meters according to Broner, *op. cit.,* p. 17. When 400,000 square meters for new housing built in the city during 1949 is added, the total given in the text is obtained.

Urban Housing Administration

The organization of the Soviet housing economy has undergone many changes since the beginning of the Bolshevik revolution. The USSR has experimented with rent-free housing; small apartment houses managed by concessionaires; housing built and managed by cooperatives; and, since 1937, predominantly state-owned and -operated housing. Most Soviet urban dwellings today are state-owned and -managed, either by municipal governments or by productive enterprises and institutions. In the latter group, housing is reserved for employees of the particular enterprise or institution and must be surrendered when a worker leaves. In addition, there are privately owned dwellings and dwellings owned by the few cooperative housing groups that survived the reform of 1937. This measure ended most cooperative housing and transferred the buildings involved to the state.

In formulating its housing policy, the Soviet government has opportunity to and does exercise potent influence upon the welfare, standard of living, and incentives of its people. By giving enterprises control over a large portion of scarce housing facilities and making occupancy of this housing conditional upon continued employment in a given place of work, the government gave the directors of its plants a potent weapon against labor turnover. In the distribution of housing, preference is given to Stakhanovites and others with outstanding production records —and also, of course, to those well-connected politically. Thus one's opportunity to have decent housing, even by minimal Soviet standards, often depends upon where one works and how well one works, and is often a most potent incentive for improved productivity. On the other hand, housing space has become one of the competitive lures enterprise directors can use in attracting workers, an important weapon in a country where wage competition is frowned upon though not unknown.

Soviet propagandists have often boasted about the low rents paid by Soviet citizens, pointing with pride to the fact that rent takes a much smaller portion of urban incomes than in the United States. Viewed superficially, this argument is valid. For the USSR as a whole, rent accounted for only 7.1 per cent of the average worker's budget in 1928 and only 5.4 per cent in 1936.[51] In Moscow, the percentage importance of rent in the average worker's budget fell from 9.2 per cent in 1927 to

[51] Kobalevsky, *op. cit.*, p. 206.

2.4 per cent in 1943.[52] In 1935–36 American families with incomes of $1,750 to $2,000 spent an average of $302 for housing, or somewhat under 15 per cent of total income. At lower income levels the percentage was closer to 20 per cent.[53] Obviously, however, such comparison of the relative importance of rent in the USSR and the United States is meaningless, because of the great discrepancy in the quantity and quality of housing provided urban dwellers in the two countries. It seems not unfair to say that one has to look at the worst slum areas of American cities to find housing conditions comparable to those typical in the USSR.

The Soviet rent policy, established in 1928 and apparently continued at least to the late 1940's and perhaps even to 1950, was initially based upon the premise that rental income should cover the cost of current maintenance and amortization of housing facilities. In addition rents were planned so as to allow for differences in the qualities and conveniences of different housing facilities and so as to bear differentially upon persons receiving varying incomes. The inflationary rise in costs and wages since 1928, however, has apparently prevented the attainment of both objectives in recent years. In 1944 the cost of maintaining houses under Moscow's municipal administration was 228,700,000 rubles, while total rents received were only 142,300,000 rubles. A Soviet writer points out that during the war a worker in Moscow earning 200 rubles monthly and living with his family in a room with an area of 16 square meters paid 8 rubles and 48 kopeks monthly if the apartment had water supply and sewage facilities, and 6 rubles, 48 kopeks, if it had neither convenience, a difference far out of keeping with the worth of these facilities. Before the war in Moscow, 53 per cent of all housing was occupied by persons receiving over 400 rubles monthly, all paying the same maximum rate. This Soviet writer concluded his discussion by calling for a complete revision of what he considered to be the obsolete rental regulations, in the direction of raising them to meet actual maintenance and amortization costs as well as to permit proper differentiation of rents in correspondence with differences of housing quality and occupants' incomes.[54]

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[52] Broner, *op. cit.*, p. 104.

[53] National Resources Planning Board, *Family Expenditures in the United States*, Statistical Tables and Appendixes, p. 3. Washington, D. C.: Government Printing Office, June 1941.

[54] Broner, *op. cit.*, pp. 100–03.

Soviet rents are based upon the number of square meters occupied by a family, this measurement excluding corridors, bathrooms, kitchens, and other ancillary facilities. The basic rate per square meter of housing space may vary from 30 to 44 kopeks, as set by housing authorities. From this rate certain deductions or additions are made to take account of the quality of the facilities and conveniences available. Thus 10 per cent is deducted if there are no sewage facilities in the house, and 5 per cent if there is no electricity; while 5 per cent is added if hot water is provided, 2 per cent if there is a bath, 3 per cent if there is gas, and so on. The rate determined in this way is then differentiated in accordance with the income of the occupant. In the RSFSR, for each 10 rubles of income received monthly above 145 rubles, an additional 3.3 kopeks per square meter must be paid. The maximum monthly rental rate, however, is 1 ruble, 32 kopeks, per square meter. There are special rates for some categories of persons, including a substantially lower schedule for military personnel. In addition to rent, occupants of Soviet houses pay charges for central heating and for public utilities, including water supply, sewage, electricity, radio, and other conveniences.[55]

Public Utilities

In the area of public utilities, Soviet experience seems to have been similar to its experience with regard to housing. Large investments were made in building new water supply, sewage, trolley, gas, and electric supply systems and in expanding those that had existed before the revolution. In 1913, for example, only 215 cities had water supply systems; in 1938 this figure had risen to 411 cities. The number of cities with sewage systems was more than six times as great in 1940 as before the revolution, in the area within the pre-1939 borders of the USSR.[56]

Despite these advances, however, the availability of these and other conveniences was by no means satisfactory even in the best era before World War II. The 1939 census listed 174 cities having 50,000 or more population. Yet in 1938 only 107 cities had sewage systems and only 79 cities had trolley or trolley-bus systems. It is indicative of the way in which Soviet planning seeks to hide deficiencies behind ornate show that the USSR built the artistically beautiful and highly expensive Moscow

[55] Maslyakov, *et al.*, *op. cit.*, pp. 115–23.
[56] *Sot. Stroi. (1933–1938)*, *op. cit.*, p. 136. *Entsiklopediya,* cols. 1005–06.

subway in a period when fewer than half of its large and medium-sized cities had even trolley lines.[57] Another indication of the lack of essential utilities is provided by data on urban housing built in 1935. Of all this new housing, 32 per cent had no water supply, 38 per cent had no sewage facilities, 92.7 per cent had no gas supply, and 54.7 per cent had no central heating.[58]

The destruction and deterioration of housing during World War II was paralleled by similar blows to public utility facilities. In the list of partially or fully destroyed facilities were 251 water supply systems, 114 sewage systems, 46 trolley systems, and 362 municipal electric stations. In addition the utility systems in the never-occupied areas became more inadequate than ever to meet local needs as population rose in the cities there. The Fourth Five-Year Plan called for restoration or construction during 1946–50 of 40 water supply and 52 sewage systems. Indicative of the inadequacy of prewar facilities is the fact that this plan called for construction of water supply systems in such important eastern cities as Sverdlovsk and Chimkent, while new sewage systems were to be built in such major communities as Krasnoyarsk, Tomsk, Irkutsk, and Frunze, among others. Trolley lines were to be introduced into Krasnoyarsk, Barnaul, Tomsk, Karaganda, and Bryansk, and bus lines into Novosibirsk, Gorky, Tashkent, Minsk, Yerevan, and Sevastopol, among others. In the postwar period a great deal of work was scheduled to be accomplished in providing gas to residents in Moscow, Leningrad, Kiev, Kharkov, Lvov, Odessa, Baku, Saratov, Kuibyshev, and other cities where this useful cooking and heating fuel had formerly been available to few or none.[59] Yet even after the enormous volume of work scheduled in this area of the economy has been completed, large numbers of Soviet city and town dwellers will still have poor water, sewage, trolley, and gas facilities, or none at all.

Medical Service

In few if any areas of the Soviet standard of living have such appreciable gains been made since the Bolshevik revolution as in the field of

[57] *Sot. Stroi. (1933–1938)*, pp. 136–37.
[58] Kobalevsky, *op. cit.*, p. 109.
[59] Maslyakov, *et al.*, *op. cit.*, pp. 6–8.

medical care. Eager to have a population capable of working at top productive capacity and physically fit for combat in war if need be, the Soviet government has recognized the importance of providing medical care to all its people and has devoted substantial resources toward that objective. The bare statistics tell the impressive tale of what has been achieved. The number of doctors in the USSR increased from 19,800 in 1913 to 112,400 in 1938 and to 130,400 in the expanded area of 1941. The number of hospital beds has grown from 142,310 in 1913 to 603,823 in 1938 and 694,000 in 1946.[60] There can be little question but that the quantity of medical care received by the people of the USSR has increased enormously. Moreover, the system of socialized medicine in the USSR provides free medical service to all citizens, so that low- and medium-income families do not have the problem of the cost of medical care encountered in countries with private medical systems. All costs of sickness prevention and cure are borne by the government through the state budget, and are paid for ultimately through taxes paid by the population. In addition the government has actively encouraged scientific research on medical problems as well as the swift introduction into medical practice of new discoveries for prophylaxis and cure.

Despite the great advances made, however, it seems clear that much further progress and improvement are required to bring the quantity and quality of Soviet medical service up to the level of wealthier nations. Thus in 1938 the USSR had 112,400 doctors and 603,823 hospital beds for a population of almost 170,000,000 persons. The United States had 175,000 physicians in 1940 and 1,365,266 hospital beds in 1942 for a population somewhat in excess of 130,000,000 persons. The Soviet Union would have had to have roughly twice the number of doctors and almost three times the number of hospital beds that it did have in 1938 to have achieved the per capita availability of doctors and hospital beds enjoyed in the United States in the early 1940's.[61] The differential between the two countries as regards doctors is perhaps exaggerated by the above comparison, because the United States does not have the large number of intermediate medical personnel, known as *feldshers,* who are employed in the Soviet Union. The fact that such incompletely trained

[60] *Entsiklopediya,* cols. 1163, 1164, and 1178.

[61] United States data from J. Frederic Dewhurst and associates, *America's Needs and Resources,* pp. 236, 242. New York: Twentieth Century Fund, 1947.

medical personnel are required, however, is perhaps the best indication of the inadequacy of Soviet doctors for the requirements of that country's large population.

The quality of Soviet medical service is naturally open to question in view of the very rapid expansion in the number of doctors and other medical personnel from the very low levels at which the Soviet regime began. There can be little doubt that at its best Soviet medicine is extremely good. However, the repeated complaints in the Soviet press about incorrect diagnoses, carelessness and rudeness in handling patients, lack of equipment, failure of doctors to keep up to date in their knowledge, scarcity of even common drugs, and similar faults, all suggest that the average standard of medical care leaves much to be desired.[62] The persistence of part-time private medical practice by doctors employed by the state is also indicative of the unsatisfactory quality of service in the socialized system. The same doctor may be consulted without charge in a government clinic, yet a significant number of patients apparently feel it worth their while to consult him at home and pay him to get what they consider better care. As one Soviet physician wrote in mid-1950: ". . . in the hospital or clinic we still work inadequately well if the sick are ready to pass us by on the way to doctors practicing privately."[63]

Other Services

The provision of ordinary consumer services such as laundry, shoe repair, and the like is perhaps the most primitive and undeveloped section of the Soviet economy affecting the standard of living. Such services are apparently best developed in Moscow and Leningrad, though even in these cities they are by no means adequate. Elsewhere they are much less available. Consumer services are frequently performed by *artels*, i.e., cooperatives of craftsmen who can be hired for fees to perform work in their line. The low standards in this area are suggested by the following quotation from a speech made by Politburo member A. I. Mikoyan in 1939:

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[62] Cf., for example, the typical complaints in *Trud*, December 26, 1948; *ibid.*, January 25, 1950; *Literaturnaya Gazeta*, April 15, 1950; *Leningradskaya Pravda*, June 29, 1950. Cf. also the translated material on this subject in *Current Digest of the Soviet Press*, September 9, 1950, pp. 13–17.

[63] *Literaturnaya Gazeta*, June 28, 1950.

> We must open more public laundries and dry cleaning shops, more shops for repairing shoes, pressing clothes, etc. Moscow and Leningrad already have quite a number of Americanized repair shops where—if they are properly organized, as we can and must make them—people can hand over their shoes to be repaired; the job is done in fifteen or twenty minutes and at the same time you can have your suit ironed while you sit reading the newspaper. (Laughter, applause.)[64]

The same Soviet official was saying the same thing eleven years later, in 1950:

> The work on organization of services for the population must receive especially great extent: organization of every kind of repair of shoes, clothes, household articles, laundering and dry cleaning of clothes, the work of *artels* engaged in building and repairing individual homes to the population's order. It is necessary to guarantee accurate, exact, conscientious work in all these cooperatives serving the population. Here is still a virgin field of work.[65]

In mid-1949, *Izvestia* summarized the situation in these terms:

> There are many inadequacies in living services for the population. Plans for repairing clothes, shoes and household articles are not being fulfilled. The quality of repair work is low, shops are poorly equipped and unsatisfactorily supplied with materials and instruments.[66]

The reality behind these complaints may be suggested by summarizing a few of the items on this subject that appeared in the Soviet press during 1948–50. Until early 1950 Moscow had no repair shops for metal articles.[67] In mid-1948 *Izvestia* printed a letter from a group of prominent intellectuals, including scientists and writers, complaining that there was nowhere to take automobiles for repair and pointing out that since their owners were incompetent to fix them, once cars broke down they remained out of use for long periods.[68] Leningrad, a city of over 3,000,000 persons, had only two automobile service stations in early 1950.[69] Moscow laundries do a very poor job of cleaning clothes and dislike to work for private citizens, preferring to contract with enterprises and institutions for large quantities of work. Their equipment is obso-

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[64] *Land of Socialism Today and Tomorrow*, p. 368.
[65] *Pravda*, March 11, 1950.
[66] *Izvestia*, August 6, 1949.
[67] *Moskovskaya Pravda*, April 7, 1950.
[68] *Izvestia*, July 7, 1948.
[69] *Leningradskaya Pravda*, March 30, 1950.

lete, and up to early 1950 there had been little progress in building new laundry equipment.[70] Similar complaints could be cited at length, but the above are representative.

It seems likely that in the future Soviet authorities do intend to improve services of these kinds for the population. The higher-income groups among Soviet citizens are particularly desirous of securing these benefits and urgent in their demands. But the failure to solve the comparatively simple problems in this area of the economy provides an eloquent index of the degree to which Soviet planners have ignored consumer needs.

[70] *Trud,* March 29, 1950.

CHAPTER XII

THE SOVIET FINANCIAL SYSTEM

MONEY AND THE financial institutions concerned with money play an important role in the Soviet economy. Along with the economic plan, they help to integrate and coordinate the functioning of the many different parts of the complex productive distribution mechanism in the USSR. The supply and distribution of money, the operation of the banking system, and other activities of Soviet financial organizations are all ruled by the economic plan. The planners utilize these parts of the Soviet economy as instruments to help them accomplish their basic production and other goals. The notion once held by some Soviet leaders that money would die out in a socialist economy has long since been repudiated by the present rulers of the USSR. They regard money and the accompanying system of financial institutions as indispensable for the operation of the USSR's complex economy.

Money performs many of the same functions in the Soviet economy that it does in the United States. It is a medium of exchange and a repository of generalized purchasing power. All personal incomes—whether of officials, ordinary workers, farmers, or others—are paid entirely or partially in cash. Individual owners of money may expend it as they please to purchase the commodities and services they desire. Money serves as a unit of account in transactions between different enterprises. All purchases and sales in the Soviet economy are expressed in money terms and are paid for either by actual currency or by some type of bank document such as a check. Money is also a repository and store of value in the USSR. Money deposited in a savings bank will draw interest. It may be used to buy government bonds, which also bring in an un-

earned income. If a Soviet citizen wishes, he may hoard money at home and save it there until he needs it at some future date. There are two important uses of money in our economy, however, that are illegal in the USSR. Money cannot be used to finance a private undertaking requiring the employment of others for private profit. It also may not be legally used by private individuals to buy commodities in order to resell them at a higher price. Such purchase and sale, normal from the point of view of a capitalist economy, are regarded as "speculation" in the Soviet Union.

The operation of the monetary aspects of the Soviet Union is governed by the financial plan. The financial plan, as we have seen in Chapter V above, is an integral part of the over-all economic plan. It parallels and is integrated with the production and distribution plans for each period of time. From the most general point of view, the financial plan provides in advance for the income and expenditure levels and patterns of all major portions of the Soviet economy. The three most important component parts of the financial plan include: (1) the government budget, which embraces a much larger portion of the national income in the Soviet Union than it does in any noncommunist nation; (2) the credit plan, which governs the granting of short- and long-term credits by the Soviet banking system to industrial and other enterprises during the period involved and, (3) the cash plan, which controls the supply of money in circulation. Through the financial plan, the Soviet government attempts to insure that the working of the monetary and fiscal aspects of the economy will be dovetailed with that of the other parts of the economy. In so far as possible, the Soviet government seeks to make certain that money and banking forces will not exercise any independent influence upon the course of events, i.e., any influence at variance with the objectives of the over-all economic plan.

The present situation, in which money plays an important and indispensable role in the Soviet Union, is a far cry from that envisaged at the beginning of the present regime's hold on power. The attitude that existed in the first year or two after the October revolution is summarized by the following extract from a resolution adopted at the Eighth Congress of the Russian Communist Party in March 1919:

> During the early stage of transition from capitalism to Communism, while Communist production and distribution have not been fully or-

> ganized, it is impossible to abolish money. Hence, during this period the bourgeois elements will continue to make use of money. . . for the purpose of speculation, gain, and the robbing of the toiling classes. Leaning upon the nationalization of banks, the Russian Communist Party aims to carry through a number of measures which will widen the sphere of moneyless settlements and which will pave the way for the abolition of money: the compulsory keeping of money in the People's Bank; the introduction of budget books; the displacement of money by checks, and short term tickets entitling one to products, etc.[1]

As late as May 1921 Soviet economists were busily engaged in drawing up a plan to wipe out money entirely and replace it by a labor unit of accounting to be called the "tred."[2] The Commissar of Finance, appearing before the first All-Russian Congress of the Council of National Economy in 1918 declared, "In a Socialist society finance is not supposed to exist, and therefore I beg to be excused for its existence and for my own appearance here."[3] But even in those early years, Lenin and others warned that money had important uses and that serious consideration had to be given to assuring that money was properly employed so that the economy might operate.

Soviet Inflation 1917–24

From 1917 to 1924 the Soviet Union underwent one of the classic runaway inflations of human experience. In this period, when production and trade were at relatively low levels, the printing presses operated almost incessantly to turn out a flood of paper money that drove the old ruble's value down to virtual nothingness while sending the price level soaring to astronomical heights. In these frantic years the value of the ruble often depreciated from hour to hour, and ordinary monetary calculations for business purposes became nightmarishly difficult. Barter exchanges and payments in commodity form even for government taxes assumed major proportions. Recipients of currency sought to rid themselves of it as soon as possible before it had lost much of the value it had had when they accepted it. This of course helped increase the velocity of currency circulation, thus accelerating the inflationary pressures. Only the revival and rapid growth of production and trade after

[1] Quoted in Arnold, *Banks Credit and Money in Russia,* p. 106.
[2] *Ibid.,* pp. 107–08.
[3] Quoted in *ibid.,* p. 112.

the institution of the New Economic Policy made it possible to lay the groundwork for, and finally accomplish the institution of, a relatively stable currency.

The statistical anatomy of this super-inflation is shown by the data in Table 46.

TABLE 46. Volume of Currency in Circulation and Price Level on Selected Dates, 1918–24 in Soviet-Ruled Area.

Date (FIRST OF EACH MONTH)	*Notes in Circulation* MILLION RUBLES	INDEX JULY 1 1914 = 1	PRICE INDEX 1913 = 1
Jan. 1918	27,650	17.0	21
Jan. 1919	61,326	37.6	164
Jan. 1920	225,015	138.0	2,420
Jan. 1921	1,168,597	716.7	16,800
Jan. 1922	17,539,232	10,757.6	288,000
Jan. 1923	1,994,464,454	1,223,597.8	21,242,000
Jan. 1924	225,637,374,014	138,427,836.8	5,457,000,000
Mar. 1924	809,625,216,667	496,702,886.9	61,920,000,000

Source: Arthur Z. Arnold, *Banks Credit and Money in Soviet Russia*, pp. 76, 91, 128–29, 186–87.

Merely to keep pace with the enormous numbers in which ordinary calculations had to be carried on during this inflation, the government had to devalue the ruble twice. A decree of November 3, 1921, ordered that one ruble of the 1922 issue should be equal to 10,000 rubles of earlier issues. On October 24, 1922, a ruble of the 1923 issue was declared to be equal to 100 rubles of the 1922 issue, i.e., to 1,000,000 pre-1922 rubles.

The underlying cause of this inflation between 1917 and 1924 was the fact that the Soviet government operated throughout this period with enormous deficits. This budgetary deficit was the result of two factors. In the first place, many of the old sources of governmental income had been wiped out by the revolution. Production was low and the Soviet government's ability to collect adequate revenues from its population was far below its needs to meet its expenses. On the other hand, the Soviet government's requirements for money were far greater than those of the Czarist regime. In the early years of war communism, it had to meet the great expense of fighting civil war and foreign intervention. In addition the nationalized industries and railroads operated at large deficits, which had to be made up from the government budget. The Soviet government had little alternative but to turn to the printing

press to cover the difference. The relationship between Soviet government incomes and expenditures during these early years is indicated by the data in Table 47.

TABLE 47. Soviet Government Income, Expenditures, and Deficits, 1918–21.

Year	*Income*	*Expenditure*	*Deficit*	*Deficit as % of Expenditures*
		(MILLION RUBLES)		
1918	15,580	46,706	31,126	66.6
1919	48,959	215,402	166,443	77.3
1920	159,604	1,215,159	1,055,555	86.9
1921	4,139,900	24,471,900	20,332,000	83.1

Source: V. P. Dyachenko, *Sovetskiye Finansy v Pervoy Faze Razvitiya Sotsialisticheskogo Gosudarstva*, pp. 185, 307. Moscow: 1947.

From the beginning of the New Economic Policy in 1921, Soviet authorities realized the necessity of creating a stable currency and wiping out the inflationary disorder that so hindered economic development in those years. The Soviet government acted vigorously from 1921 to 1924 and finally reached its objective. Among the important early reforms were such measures as the separation of state industry from the state budget, so as to make the latter no longer responsible for the deficits of the former; the reform of the tax system, with the objective of increasing the income of the government; and the attempt to institute a rigid policy of economy in government expenditures, so as to decrease the need for further issue of currency. However, as trade and output increased after 1921, the need for more currency also grew.

The first major monetary step toward a stable currency was taken in October 1922, when the state bank was empowered by government decree to issue a new unit of currency, the *chervonets*, which was declared equal to 10 czarist gold rubles. This new monetary issue was to be fully secured, 25 per cent of the value to be covered by gold and foreign currencies and the remaining 75 per cent by short-term notes of various kinds and by easily marketable goods owned by the state bank. These *chervontsy* (plural of *chervonets*) were not made legal tender. They were declared to be acceptable in payment to the state or by the state in all cases where gold payment was required by law. The state bank could demand the repayment in *chervontsy* for all loans made in that currency. The *chervontsy* were issued in limited amounts and remained fully backed, in order that popular confidence in this

currency might be kept as high as possible. From the time of the beginning of the issuance of the *chervontsy* to the final Soviet monetary reform in 1924, the USSR had two paper currencies consisting of the State Bank's *chervontsy* and the ordinary Soviet rubles issued by the government itself. These latter rubles were known as *sovznaki.* By October 1, 1923, *chervontsy* accounted for 75 per cent of the total value of all money in circulation, and the *sovznaki,* ordinary rubles, accounted for 25 per cent. The number of *sovznaki* in circulation, of course, far exceeded the volume of *chervontsy,* but the value of each ordinary Soviet ruble was now infinitesimal.[4]

By early 1924 all was ready for the final completion of the monetary reform, which was carried out by a series of decrees issued in February and March of that year. The Soviet government treasury was authorized to issue a new currency in units of 1, 3, and 5 gold rubles. These were decreed to be legal tender, i.e., they had to be accepted for all purchases and in payment of all debts. The printing and issuance of the old *sovznak* currency was ordered stopped. On March 7, 1924, the redemption of the old *sovznak* currency was ordered, the rate being fixed at 50 thousand rubles of the 1923 pattern *sovznak* (equivalent to 50 billion rubles of the pre-1922 *sovznak* issues) for one of the new gold rubles. Redemption took place during April, May, and June 1924. Provision was made for the issuance of silver and copper coins of 10, 15, and 20 kopeks, and of half rubles in silver, as well as of copper coins of 1, 2, 3, and 5 kopeks. Beginning with July 1, 1924, the issuance of paper money to cover state budgetary deficits was ordered discontinued.[5]

Soviet Money 1924–47

From 1924 to 1947 the Soviet Union continued to have two major types of paper money, the *chervontsy,* each unit of which was equal to ten ordinary rubles and which were issued for the most part in notes of 1, 3, 5, and 10 *chervontsy;* and ordinary ruble currency, circulating in denominations of 1, 3, and 5 rubles. The *chervontsy* were technically issued by the State Bank and came to be called simply bank notes; the ordinary ruble notes were issued by the government treasury nominally, but actually were also governed by the State Bank. The bank notes were

[4] Baykov, *The Development of the Soviet Economic System,* pp. 89–90.
[5] *Ibid.,* p. 91.

backed by gold, foreign currencies, and short-term notes owned by the State Bank. The treasury ruble notes were a purely fiat currency, i.e., their value basically came from a government decree ordering their acceptance as money. The official Soviet position was that they were backed by all the property of the Soviet regime and therefore did not need any special reserves to give them intrinsic value. In addition, in 1946, bronze and nickel coins worth 1, 2, 3, 5, 10, 15, and 20 kopeks circulated (100 kopeks equal one ruble), as well as remains of earlier silver and copper coinage.[6]

No sooner had a relatively stable domestic currency been obtained than Soviet leaders became conscious of the fact that this stability was threatened by depreciation of the ruble on foreign monetary exchanges. The government in 1924 had arbitrarily set the parity between its own and foreign currencies at the prewar mint ratios, so that an American dollar was declared equal to 1.943 rubles, a pound sterling to 9.458 rubles, 100 francs to 7.616 rubles, and so on.[7] Ruble quotations on foreign exchanges abroad, however, gave the Soviet currency far less favorable quotations, as smugglers paid for their purchases abroad with large exports of bank notes. In this way foreign exchange markets reflected the fact that high prices existing in the USSR made the purchasing power of the ruble far less than that established by the official foreign exchange parities. It was these high domestic prices that created profit opportunities for smugglers, who could buy goods much more cheaply abroad even if they exchanged bank notes at less than official government rates for foreign money. The Soviet government, of course, could have supported the foreign exchange rate of the ruble by purchasing foreign-owned bank notes with gold or precious metals, but its supply of these commodities in the early 1920's was far too low to permit the extensive purchases that would have been required. A decree of July 9, 1926, therefore forbade the export of bank notes, and the State Bank discontinued redemption of its notes owned abroad. For a time foreigners visiting the USSR were permitted to bring ruble notes in with them, so that there continued to be a foreign market for Soviet currency at substantial discounts from the official rates. To stop this, the government

[6] M. Boguslavsky, Y. Greben, and A. Proselkov, *Operativnaya Tekhnika i Uchet v Gosbanke SSSR*, p. 252. Moscow: 1946.

[7] Arnold, *op. cit.*, pp. 264, 447.

decree of March 21, 1928, prohibited the import as well as the export of banknotes, thus making the ruble a completely internal currency. In this way the ruble was protected from the shifting valuations given it by foreign markets, but to do this the government has had to conduct its foreign economic relations in other currencies.[8]

During the 1930's and 1940's the exchange rates between the ruble and other foreign currencies were set arbitrarily by the Soviet government, primarily for the purpose of providing a basis on which foreigners bringing their currency into the USSR could exchange it for rubles. The ruble was grossly overvalued as judged by any comparison of its purchasing power with the purchasing power abroad of the nominally equal amounts of dollars, pounds, and so on. In general the Soviet government changed ruble rates so as to reflect changes in the value of freely fluctuating foreign currencies based on gold. Thus, when the American dollar was devalued by President Franklin D. Roosevelt, its ruble value was cut to 1.15 rubles as against 1.943 rubles earlier. In 1935 and 1936, however, the government made more adequate recognition of the great inflation of domestic prices that had occurred and devalued the ruble. Beginning April 1, 1936, fine gold was valued at 5.6807 rubles per gram, as against 1.29 rubles per gram earlier, a devaluation of 77.5 per cent. This resulted in new foreign exchange values of the ruble, including a rate of 5.06 rubles for the dollar. In 1937 the dollar was declared equal to 5.3 rubles, and the nominal ruble parity of other currencies was calculated by multiplying their dollar values by 5.3.[9] These new ratios also overvalued the ruble, however, the margin of overvaluation increasing as Soviet prices went up after 1936. During World War II, official exchange rates remained unchanged, despite the great inflation of nonration Soviet prices. Some allowance was made, however, for diplomatic personnel, members of the American Embassy staff being permitted to get 12 rubles for an American dollar rather than the 5.3 rate maintained nominally. The changes in foreign exchange rates for the ruble put into effect in late 1949 and early 1950 will be discussed later in this chapter.

The monetary reform of 1924 provided a much more stable currency than had existed earlier. In the years that followed, up to World War II production increased many times, so that the volume of commodities

[8] *Ibid.*, pp. 262–63.
[9] *Ibid.*, pp. 447–49. Boguslavsky, Greben, and Proselkov, *op. cit.*, p. 265.

that could be bought in the USSR with ruble notes greatly increased. However, the late 1920's and 1930's were also years of inflation in the USSR, although this inflation proceeded more slowly than during 1917–24. The tremendous industrialization program of the first three five-year plans required the diversion of much of the country's output of capital investment, while holding down the growth of consumer-goods production to a much slower pace. The catastrophic events in agriculture during the early 1930's sharply curtailed the availability of many important foods and agricultural raw materials. Meanwhile the number of industrial workers being paid money wages and relying on the market for the commodities they needed increased sharply. The severest impact of these forces before World War II was felt in the early 1930's, when the USSR had to impose stringent rationing upon its urban population in an effort to stretch supplies of food and consumer goods so that they would meet at least minimal needs. Concurrently the supply of money in circulation and the volume of credit grew rapidly. The increase of money in circulation is shown in Table 48.

TABLE 48. Currency in Circulation in the USSR 1928–36.

Date	*Bank Notes*	*Treasury Notes and Coins* (THOUSANDS OF RUBLES)	*Total Currency in Circulation*
Jan. 1, 1928	1,002,900	664,900	1,667,800
Jan. 1, 1930	1,501,000	1,272,000	2,773,000
Jan. 1, 1932	2,784,413	2,888,897	5,673,310
Jan. 1, 1934	3,342,502	3,429,046	6,771,548
Apr. 1, 1935	3,978,041	3,901,366	7,879,407
Apr. 1, 1936	5,934,994	Unavailable	Unavailable

Source: Arnold, *op. cit.*, pp. 412–13.

The inflationary impact of these forces upon the prices of basic foods is indicated by the data in Table 49.

It is clear from Table 49 that prices of many basic foods rose tenfold

TABLE 49. Prices of Food Items in Moscow, 1928, 1936, and 1940.

	Rye Bread	*Rice*	*Potatoes*	*Sugar*	*Beef*	*Butter*	*Eggs*
			(RUBLES PER KILOGRAM)				(PER EGG)
1928	.08	.48	.11	.62	.87	2.43	.19
1936	.85	8.00	.30	4.10	8.00	16.00	.40
1940*	.85	8.00	1.20	5.50	16.00	23.00	.85

* April 1940. Prices were raised later in the year.
Source: S. N. Prokopovicz, *Russlands Volkswirtschaft unter den Sowjets*, p. 305.

or more between 1928 and 1940, a very substantial inflationary movement by any standard. To speak of the stability of the Soviet ruble after the monetary reform of 1924 is justifiable only if one has in mind a comparison with the much wilder gyrations of the ruble before that reform.

World War II and its aftermath completed the inflationary depreciation of the monetary system inaugurated in 1924. Production of consumer goods and food for market sale to civilians dropped precipitously during the war, both because much of the USSR's production capacity was lost to the Germans and because of government measures aimed at maximizing output for the needs of the armed forces. At the same time, the government had to renew printing of currency to meet its budgetary deficit, especially in 1942. The total volume of currency in circulation in the USSR increased by 2.4 times during three war years, thus increasing the inflationary pressure upon the greatly reduced supplies of commodities available for purchase.[10] The Soviet government attempted to keep a restraining hand on prices by instituting a rigid rationing system at the outset of the war and by draining off a larger part of the civilian population's income through higher taxes and large bond issues sold to the public. Goods sold under the rationing system were for the most part sold at the same prices as before the war. The pressure of inflationary forces expressed itself, therefore, in 1942 and 1943 primarily in the collective farm markets, where farmers could sell their surplus produce at any price they could get without requiring ration tickets. Prices prevailing in these free markets, sometimes termed black markets—mistakenly, for these were legal transactions—soared far above the old prices, sometimes exceeding them by 100 times or more. In late 1943 rye bread, selling for 1 ruble per kilogram in the ration stores, cost 130 rubles a kilogram in the free market. In the same period sugar, which was almost unobtainable in the ration stores, where it cost 5 rubles a kilogram, sold for 1,100 rubles in the Moscow free market.[11] These are extreme cases, but they illustrate the magnitude of inflationary pressures existing in the early years of World War II.

From 1944 to 1947 the Soviet government sought to strengthen the value of the ruble by a number of different measures. "Commercial"

[10] Voznesensky, *The Economy of the USSR During World War II*, pp. 73, 76.
[11] Schwartz, "Prices in the Soviet War Economy," *op. cit.*, p. 877.

stores were opened in 1944, at which goods could be bought without ration cards but at much higher prices. These prices were reduced a number of times in the years that followed, causing pressure for similar price reductions in the competitive open markets. Price reductions were made possible by the increasing supply of food and consumer goods that became available in the last year of World War II and after the end of hostilities. The price differential between the commercial stores and the ration stores was narrowed considerably in September 1946 by a government order roughly tripling the prices of foods sold under the rationing system, but this differential still remained substantial. The narrowing of the gap in prices between the same commodities sold under the rationing system and in the commercial stores, plus the greatly increased supply of food and consumer goods provided the groundwork for the Soviet monetary and ration reform of December 1947, the most important government decree dealing with money since the reform of 1924.

The 1947 Monetary Reform

The decree of the Council of Ministers announcing the 1947 reform declared that the volume of money in circulation had increased greatly, both because of war needs and because invading forces had introduced large quantities of false ruble notes. It acknowledged that this increase in money supply, together with the decline in goods available for sale, had increased prices ten or fifteen times over the prewar level. This admission, of course, understated the extreme inflationary peaks pointed out above. The decree accused "speculative elements" of using the gap between government ration prices and free market prices to enrich themselves. It made no mention of farmers, although those among them who had been able to sell significant quantities in the free markets had been the chief beneficiaries of the extremely high prices prevailing there. The purpose of the decree, it was declared, was both to establish a full-valued monetary system and to prevent the "speculative elements who enriched themselves during the war and accumulated considerable sums of money" from buying up goods after the abolition of rationing.[12] In other words the government sought to distort the dis-

[12] An English translation of this decree was printed in *The New York Times*, December 15, 1947.

tribution of purchasing power that had resulted from the war and early postwar price situation so as to penalize those who had benefited—the farmers primarily, though the decree did not mention them—and to improve the position of those who had been at a disadvantage earlier. This latter group consisted primarily of the urban population.

To achieve these objectives a complex set of measures was ordered. Rationing and the two-price system (commercial and ration prices) were abolished, and one system of state-owned stores set up, selling goods to all comers without ration tickets at one state-fixed level of prices. All cash owned by the population was ordered exchanged for new 1947 rubles at the rate of 10 old rubles for one new ruble. This very low exchange rate reflected the real depreciation of the ruble even after the recovery of 1944–47. It also affected primarily those who had hoarded cash, i.e., farmers with little faith in banks or government bonds and speculators who kept cash for fear that depositing it in banks would make their profits known to the state. Accounts in government banks were also ordered revalued at a sliding scale. Accounts up to 3,000 rubles were maintained without change, i. e., converted at a 1-to-1 ratio. All accounts of from 3,000 to 10,000 rubles were revalued at a 1-to-1 ratio for the first 3,000 rubles and at a rate of 3 old rubles for 2 new ones for the amounts in excess of 3,000 rubles. Accounts in excess of 10,000 rubles had the first 10,000 rubles revalued as indicated above and all sums over 10,000 rubles revalued at the rate of 2 old rubles for 1 new ruble. Government bonds outstanding were ordered exchanged for new bonds at the rate of 3 old rubles for 1 new ruble, although two bond issues—those of 1938 and 1947—were handled somewhat differently. Current accounts of cooperative organizations and collective farms in Soviet banks were ordered devalued at the rate of 5 old rubles for 4 new rubles. All taxes, obligations to the state, wages, and other fixed obligations were ordered unchanged, to be paid at the same rates in new currency as in the past.

With one move, therefore, the Soviet government considerably altered the distribution of real wealth among its people, introduced a new currency, abolished rationing, and considerably simplified the distribution and price system for consumer goods and food. In a democratic society, such a far-reaching move affecting tens of millions of people would have been the subject of bitter parliamentary and public debate and contro-

versy. In the Soviet Union, it was carried out by authoritarian government decree, with no consultation of either those who lost or those who gained from the move. Inflationary pressure was thus virtually wiped out for the time being by the expedient of declaring all paper money owned by the population worth only 10 kopeks on the ruble. The alternative of course would have been to raise prices almost tenfold, but this would have been bad from the foreign propaganda point of view and also would not have produced the internal social consequences that flowed from the differential rates of devaluation actually used.

The monetary system of the USSR since the 1947 reform has consisted of three elements: bank notes, treasury notes, and metallic coins with denominations under one ruble. This system is of course formally similar to the pre-reform system, despite the drastic devaluation carried out in December 1947.[13]

The "Gold Standard" Ruble

As pointed out above, the official value of the ruble in terms of foreign currencies for more than a decade after 1937 was determined by the Soviet government on the basis of its unilateral declaration that 5.3 rubles were equivalent to one dollar. As other currencies fluctuated in terms of the dollar, their ruble values were changed on the basis of the 5.3 ratio. From 1937 to early 1950, foreigners visiting the Soviet Union and wishing to exchange their own currency for Soviet money had to accept this ratio of exchange, unless they were diplomatic personnel, who obtained a more favorable rate. The ruble did not serve as an actual medium of foreign exchange outside the USSR during this period, and its export or import continued to be forbidden. Soviet foreign trade continued to be conducted in foreign currencies, and Soviet trade agreements with other nations were usually expressed in terms of dollar amounts.

A decree of February 28, 1950, made important changes in this situation. The decree announced a comprehensive series of price cuts on consumer goods and food and declared that this and earlier price reductions had raised the actual value of the ruble above that indicated by prevailing foreign exchange rates. Moreover it declared that the Ameri-

[13] F. D. Livshits, *Bankovaya Statistika*, p. 401. Moscow: Gosfinizdat, 1948.

can dollar had proved to be unstable currency, so that the USSR could no longer base the ruble upon it but must shift to a gold base. The Council of Ministers ordered, therefore, on the basis of this reasoning that: (1) the gold content of the ruble should be declared equal to .222168 grams of pure gold; (2) the State Bank of the USSR should buy gold thereafter at a price of 4 rubles and 45 kopeks per gram of pure gold; (3) the official exchange rate between the dollar and the ruble should be changed from 5.3 rubles to the dollar to 4 rubles to the dollar; and (4) the exchange ratio of the ruble in relation to other currencies should be changed in the same ratio as in the case of the dollar, and that where foreign currencies fluctuated in the future their ruble exchange values should be altered accordingly.[14] At the same time diplomatic personnel in the USSR were informed that after June 30 they would no longer receive any preferential ruble exchange rate.

Although Soviet commentators hailed these changes as putting the ruble on the gold standard, this was not true. The Soviet government put an arbitrary gold valuation on the ruble and announced that its gold purchasing monopoly would pay a corresponding price for gold. But in a true gold standard situation, holders of a given currency must be able to obtain gold from the government at roughly the same price as that for which the government will purchase gold. The Soviet announcement of the new ruble "gold standard" made no mention of what ruble price it was willing to accept from those who wished to buy gold. Other sources reported after the reform that while the official government purchase price was 4 rubles and 45 kopeks per gram of gold, the state sold industrial gold in different alloys for 99 rubles per gram of pure gold, a price 22 times as high.[15] The Soviet government's claim that postwar price cuts had raised the exchange value of the ruble above its previous exchange rate ignored the fact that the government had made no revision of the exchange rate during the entire preceding period—particularly during World War II—when this rate overvalued the ruble tremendously. More important, the government gave no evidence of the ruble's undervaluation. This was wise, since any comparison of the

[14] *Pravda*, March 1, 1950.
[15] *East Europe*, July 6, 1950, p. 2.

ruble's purchasing power with that of the dollar would have shown the claim that 5.3 rubles were equal in purchasing power to one dollar to be a gross exaggeration. Soviet commentators pointed to the devalution of many foreign currencies in the summer of 1949 as justifying ruble revaluation, ignoring the fact that the value of the ruble in relation to those currencies had already been shifted to reflect these changes. This is shown in Table 50.

TABLE 50. Official Ruble Foreign Exchange Rates, July 1, 1949, November 1, 1949, and March 2, 1950.

Foreign Currency	*Exchange Value in Rubles*		
	JULY 1, 1949	NOVEMBER 1, 1949	MARCH 2, 1950
U.S. Dollar	5.3	5.3	4.0
British Pound Sterling	21.36	14.84	11.20
Egyptian Pound	21.93	15.24	11.52
Australian Pound	17.09	*	*
Canadian Dollar	5.3	4.82	3.63
100 Swedish Kroner	147.22	102.32	77.22
100 Swiss Francs	122.90	121.84	91.47
100 Albanian Leks	*	10.60	8.00
100 Afghan Afghani	*	31.55	23.66
100 Belgian Francs	*	10.62	8.00
100 Bulgarian Leva	*	1.86	1.40
100 Hungarian Forints	*	45.49	34.10
100 Dutch Guilders	*	139.29	105.26
100 Danish Kroner	*	76.59	57.91
100 Indian Rupees	*	111.83	84.30
100 Iranian Rials	*	16.43	12.40
1,000 Italian Lire	*	8.34	6.40
100 Mongolian Tugriks	*	131.40	100.00
100 Norwegian Kroner	*	74.20	56.00
100 Pakistan Rupees	*	160.76	121.05
1,000 Polish Zlotys	*	13.25	10.00
1,000 Rumanian Lei	*	35.33	26.74
100 Turkish Lire	*	188.35	142.86
1,000 Finnish Finnmarks	*	22.95	17.47
1,000 French Francs	*	15.15	11.46
100 Czech Crowns	*	10.60	8.00

* Data unavailable.
Sources: *Izvestia*, July 1 and November 1, 1949; March 2, 1950.

The consequences of this reform upon foreign trade will be discussed in a later chapter, but one more aspect of this reform requires attention. The Soviet move in putting the ruble upon a nominal gold base focused attention upon the possibility that the USSR might some day repeal restrictions upon ruble exports and imports and try to make it an inter-

national currency. The possibility exists of course that the USSR may some day permit free purchase of gold by ruble holders at a price in line with the government's ruble purchase price for gold. This would require both a realistic foreign exchange rate for the ruble and a large stock of gold. The possibility that Soviet gold reserves may have reached very substantial amounts by 1950 cannot be ruled out, since gold production and reserve figures have not been published since before 1940. The belief that substantial Soviet gold reserves may exist is based upon information indicating very substantial output in the 1930's. In addition, when Henry Wallace visited the Kolyma gold area in 1944, he found that gold production had been continued there.[16] The magnitude of Soviet gold output before World War II is indicated approximately by the data of Table 51, which is based on estimates of the Director of the U. S. Mint.

TABLE 51. Estimated Gold Production in the USSR, 1918–40.

Year	*Fine Ounces*	*Year*	*Fine Ounces*
1918	554,588	1929	707,300
1919	173,610	1930	1,501,083
1920	73,945	1931	1,655,725
1921	65,907	1932	1,038,000
1922	191,614	1934	3,858,089
1923	305,425	1935	4,784,030
1924	546,550	1936	5,173,000
1925	632,390	1937	5,358,982
1926	760,605	1938	5,235,909
1927	688,492	1939	5,000,000
1928	385,800	1940	4,000,000

Source: From annual reports of the Director of the United States Mint for 1935 and subsequent years as cited in Chee Hsien-Wu, *Two Decades of Soviet Foreign Trade*, p. 237.

Available data on Soviet gold shipments abroad during the 1920's and 1930's indicate that a large fraction of the gold produced in the USSR, particularly in the 1930's, remained there, accumulating. With the addition of output retained since 1940, total gold reserves in the USSR may well be very substantial.[17]

[16] Henry A. Wallace, *Soviet Asia Mission*, p. 35. New York: Reynal and Hitchcock, 1946.

[17] Chee Hsien-Wu, *Two Decades of Soviet Foreign Trade*, p. 246. Cambridge, Mass.: Harvard University, 1947. Unpublished Ph.D. Thesis.

The Soviet Budget

The state budget of the USSR for each year consists of the projected program of government expenditures and the planned volume of government revenues for that period. The Soviet budget provides funds for the country's armed forces, for social security needs, education, and the other usual functions of government. These expenditures are met in the main by taxes paid directly or indirectly by the population of the Soviet Union. The annual budget is prepared by the Ministry of Finance and presented for approval each year by the Finance Minister to the highest legislative body of the country, the Supreme Soviet. Once approved, the budget's execution is supervised by the Finance Ministry, which checks on expenditures by government organs and collects authorized taxes and other government revenues.

In the matters enumerated above, the Soviet budget and budgetary practice resemble more or less the United States budget and budgetary practice. A number of important differences exist, however, which deserve careful attention. These differences flow from the fundamental dissimilarities in political and economic organization between the Soviet Union and capitalist countries.

First, the Soviet budget governs a much wider area of the life in the USSR than is governed in the United States by our budget. All the Soviet economy is planned by the regime, and—with the major exception of the collective farms—almost all production is carried on by governmental quasi-corporations that own and operate industrial plants, mines, railroads, and other enterprises. The Soviet budget is the major source of funds for new capital investment and for the increase or replenishment of working capital. Accumulation and distribution of funds for this purpose through the state largely substitute in the USSR for private individual and corporate capital accumulation and investment in other countries. Moreover the USSR has a complete system of socialized medicine, which is completely financed through the state budget. There are no privately owned schools, theatres, newspapers, book publishing houses, art museums, or the like in the USSR. Consequently all educational and cultural institutions in the country are financed through the state budget, except in so far as they meet part of their costs through tuition fees, ticket sales, and the like. The almost all-inclusive function-

ing of the Soviet state is thus naturally reflected in the extensive area covered by its budget. On the other hand, the incomes and revenues of production trusts, combines, and other government quasi-corporations that have been set up on the basis of economic accountability (khozraschet) are not part of the state budget, though the latter draws upon their profits, if any, and may provide capital investment funds or working capital. In 1937, it has been estimated, Soviet government revenue was 36 per cent of the USSR's gross national product. The corresponding figure for the United States in that year was 17 per cent.[18]

Second, the Soviet budget is part of the country's over-all economic and financial plan for each year, not an isolated document. The budget's monetary allocations provide for the distribution and allocation of the country's resources in accordance with the production program outlined by the economic plan. In the process of executing the budget, officials of the Ministry of Finance are required to supervise simultaneously the execution of the economic plan by the enterprises and institutions with which they work. This integration of economic plan and government budget is an obvious necessity. Without such integration much confusion and waste would result. But, consequently, this means that Soviet legislatures cannot have the same independence in reviewing budgets and changing them as American legislatures. Any major change in the budget would require similar changes throughout the entire annual economic plan, a matter far outside the customary competence of the Soviet legislature. It is no surprise, therefore, that the budgetary review by the Supreme Soviet each year is little more than a formality, marked usually only by most minor proposals for changes with regard to either expenditures or revenues. Indicative of this absence of real legislative control over the budget is the fact that the Soviet budget is usually presented to and approved by the Supreme Soviet in February or March, or even later, well after the government has begun functioning on the basis of the new budget for that calendar year. Only large global totals of incomes and expenses are presented publicly to the Supreme Soviet.

Third, the Soviet budget is exceedingly centralized. The expenditures

[18] Abram Bergson, "Soviet National Income and Product in 1937," *Quarterly Journal of Economics*, May 1950, pp. 236–37.

and revenues approved by the Supreme Soviet in Moscow cover not only those of the all-union government, but also those of the individual constituent republics and the complex of all lower provincial, city, and rural governmental units. The budgetary system is hierarchical, so that the legislatures and authorities at each level of government have extensive powers over the budgets of all government units under their jurisdiction. The Supreme Soviet of the USSR determines the budgetary revenues and expenditures of the constituent republics and also the relationships between the budget of each republic and the total budgets of all local governmental units in that republic. Then in each republic—the Ukraine or the RSFSR for example—the same process is repeated downward, and so on through the entire hierarchical organization. The expenditures permitted each level of government depend upon the activities for which each is given primary responsibility. The all-union government, for example, has control of financing capital expansion of all major industry subordinate to it, while republican and local governments deal with less important industry and pay much more attention, relatively, to such matters as fire protection, medical care, and the like. The incomes that each independent budget below that of the all-union government may draw upon are also determined both in source and in amount by the integrated national budget. Local governments are consulted regarding their wishes, and they supply estimates of needs and incomes to the central authorities of the Ministry of Finance, who draw up the integrated national budget. But these local units have far less fiscal independence than states, cities, and counties in this country.

Fourth, for more than two decades the Soviet budget has usually been balanced with an excess of revenues over expenditures, except in the early years of World War II, when large-scale currency issue had to be used to cover deficits. This balance is in part only nominal, since Soviet budgetary practice lumps the revenue from government bonds sold to the population and to financial institutions along with tax income and other nonreturnable payments to the government (tuition fees in schools, license fees, and so on). In terms of United States practice, therefore, the Soviet budget has often been unbalanced, i.e., it has had an excess of outgo over nonreturnable income. The need to resort to government borrowing to meet current revenue needs is of course the hallmark of a deficit in American public finance.

A democratic government's ability to balance its budget in a period of increased and heavy expenditure, such as war, is often impaired by popular and legislative resistance to higher taxes. The Soviet government has no fear of opposition to its tax program in the rubber-stamp Supreme Soviet, but it does have to take account of popular reaction. In World War II, for example, tax revenues fell far short of meeting expenditures. Before 1944 substantial deficits had to be met by printing money. The Soviet government could have raised taxes adequately to meet its expenditure needs, though administrative confusion early in the war may have been some obstacle. But sharply higher indirect (sales) taxes would have raised the price level substantially, creating popular discontent and perhaps endangering attainment of the goal of assuring the minimum subsistence needs of essential workers. To have raised direct income taxes adequately to meet revenue needs would have reduced the incentive effect of higher incomes as means of securing increased output. The Soviet government compromised, therefore, raising its revenue in part by issuing money and in part by increasing direct and indirect taxes. It also greatly increased the sale of government bonds, sources of unearned income for their purchasers and means of saving for future consumption. The impact of its fiscal policies upon morale and incentives is a factor in the Soviet government's calculations in time of peace as well as of war.

The inflationary pressures upon the Soviet economy during World War II are clearly indicated in the growth of government revenues and expenditures between 1938 and 1949. In 1946, when Soviet production was well below the prewar level, both income and outgo were about two and a half times as great as in 1938.

The Turnover Tax

The turnover tax is the most important single source of Soviet government revenue, accounting for about 60 per cent of all income in time of peace and roughly 40 per cent even in the war year 1942. This tax is the basic weapon the Soviet regime employs to divert a large part of the national income from consumption to capital investment and other government objectives. It is essentially a differentiated sales tax imposed heavily but with differing rates upon all significant articles of consumption. Products of heavy industry were initially subject to the turnover

TABLE 52. Chief Soviet Budgetary Revenues and Expenditures in Selected Years.

	1938	*1940*	*1942*	*1944*	*1946*	*1948*	*1949*	*1950**
				(BILLION RUBLES)				
				Revenues				
Total Revenue†	127.5	180.2	165	268.7	325.4	410.5	437.0	433.2
Turnover Tax	80.4	105.9	66	94.9	190.9	247.3	245.5	239.1
Profit Tax	10.5	21.7	15.3	21.4	16.2	27.2	42.2	40.0
Direct Taxes on Population	5.1	9.4	22‖	37.2	22.7	33.2	33.7	36.4
State Loans and Gifts	7.6	11.5	17.5	37.5	24.7	23.9	27.6	31.8
Income from Social Insurance Levies	7.2	8.5	‡	9.0	‡	16.2	17.5	‡
				Expenditures				
Total Expenditures†	124.0	174.4	182.8	263.9	307.5	370.9	412.3	427.9
Military§	23.1	56.8	108.4	137.9	73.6	66.3	79.2	79.4
National Economy	51.7	58.3	31.6	53.7	106.2	149.6	161.9	164.4
Social-Cultural Measures	35.3	40.9	27.8	51.3	80.0	105.6	116.0	120.7
Administration and Justice	5.4	6.8	‡	7.4	11.8	13.1	13.5	13.9
Surplus (+) or Deficit (−)	+3.5	+5.8	−17.8	+4.8	+17.9	+39.6	+24.7	+5.3

* Plan.

† Totals include items not enumerated as well as those enumerated in table.

‡ Not available.

§ Includes only direct expenditures for armed forces.

‖ Estimated.

Sources: K. N. Plotnikov, *Byudzhet Sovetskogo Gosudarstva; Entsiklopediya; Finansy SSSR za XXX Let;* N. A. Voznesensky, *The Economy of the USSR During World War II;* M. I. Bogolepov, *Sovetskaya Finansovaya Sistema; Planovoye Khozyaistvo,* No. 2 (1949): A. Zverev's budget messages for 1946–50; *Bolshevik,* No. 12 (1950); *Bulletins on Soviet Economic Development,* No. 3 (August 1950).

tax but at low tax rates. However, the trend over the past two decades has been toward freeing nonconsumer goods from the tax or making its impact upon them negligible. The tax is levied upon commodities at the time of fabrication and upon government purchases at low requisition prices of peasant obligatory deliveries. The tax must be included in the price of the commodity thereafter, so that it is passed on fully to the final consumer. Because it is levied initially upon the manufacturing enterprise (or, in the case of farm commodities, upon the government requisitioning organization), Soviet budgetary statistics list it as revenue from socialized production, though ultimately it is paid in full by consumers and is clearly a sales tax. The impact of the turnover tax is shown by the comparison of the relative importance of different industries in relation to production and in relation to turnover tax payments given in Table 53.

TABLE 53. Importance of Major People's Commissariats in Production and as Sources of Turnover Tax Revenues, 1939.

Commissariat	*Per Cent of Total Gross Output*	*Per Cent of Turnover-Tax Revenue*
Petroleum Industry	3.1	8.0
Meat and Dairy Industry	4.5	7.3
Food Industry	11.7	29.7
Textile Industry	10.2	13.0
Light Industry	7.9	2.6
Agricultural Requisitions	2.5	34.4
Other Commissariats, primarily in Heavy Industry	60.1	5.0

Source: A. K. Suchkov, *Dokhody Gosudarstvennogo Byudzheta SSSR*, page 16.

It is apparent from the data above that food items and consumer goods were the source of almost 90 per cent of all turnover tax receipts in 1939. The high proportion of this tax revenue paid by the People's Commissariat of Agricultural Requisitions is a measure of the success of the Soviet government in squeezing a substantial surplus out of agriculture. Farmers receive only nominal prices for their obligatory deliveries of many foodstuffs and raw materials. The costs of these commodities as they go on to further processing and sale are much higher, since they contain the substantial turnover tax imposed.

The turnover tax was established by the tax reform of September 2, 1930, which wiped out a whole host of special taxes on commodities and on different stages of production, substituting for them the turnover tax

and the profits tax discussed below.[19] Later changes during the 1930's were made to remedy weaknesses in the original enactment, aiming at such goals as defining precisely the production unit responsible for paying the tax and the value of goods to be used as a base for calculating the tax. As it now exists, the turnover tax is very complex, with many different rules of payment for a large variety of commodities. The tax may be imposed as a percentage of the selling price at retail, as a percentage of the wholesale price, as an absolute sum per unit of commodity, or on some other base. Rates of taxation on the same goods may vary from region to region and from selling place to selling place, i.e., one rate may be established for cities, another for rural areas, and so on.[20] Rates are changed from time to time as deemed necessary by the Ministry of Finance, but their impact upon many important goods is indicated by the following list, effective in 1934:[21]

Commodity	*Tax Rate as % of Selling Price*
Wheat and Rye	75–76
Meat	63–69
Butter and Eggs	70–75
Dairy Products	50–62
Sugar	84–87
Vegetable Oils	70–75
Cheese	75–86
Canned Foods	72–81
Salt	82.9
Potatoes, Vegetables, Mushrooms, and Tomatoes	30
Textiles, Knit Goods	74.2
Boots and Shoes	70–86
Soap	62.3
Matches	69.8
Alcohol	90
Tobacco	80

The profits tax—or more precisely the deduction from profits for the government budget—was introduced by the tax reform of 1930, at the same time as the turnover tax. The tax rate applied differs from industry to industry and from year to year, so that the contributions of different industries to the state's income from this tax are not proportional to their profits. In setting profits tax rates, the government takes into ac-

[19] *Finansy SSSR za XXX Let*, p. 44. Moscow: 1947.
[20] A. K. Suchkov, *Dokhody Gosudarstvennogo Byudzheta SSSR*, pp. 22 ff.
[21] Cited by A. Yugow, *Russia's Economic Front for War and Peace*, p. 131.

count the needs of each industry for expanding its fixed and worked capital. The state leaves relatively more of its profits to an industry or enterprise whose capital is to be expanded rapidly than to one whose capital is not to be so expanded. The differing treatment given different branches of the economy in 1940 is shown below:[22]

Branch of Economy	*Total Profit* (BILLION RUBLES)	*Profits Tax* (BILLION RUBLES)	*Rate of Tax* (PER CENT)
Petroleum	.4	.14	35.0
Machinery	1.2	.77	63.8
Iron and Steel	1.0	.25	25.0
Chemicals	.59	.28	48.1
Light and Textile Industries	2.7	2.4	90.0
Food	4.2	3.6	84.1
Transport and Communications	6.4	3.3	51.9

The imposition of the profits tax upon a given enterprise is determined by the size of its profits, if any, and by whether or not the enterprise is scheduled to have capital investment expenditures or to increase its working capital. An enterprise for which it is not planned to increase the fixed or working capital surrenders to the state its entire planned profit, save for the amount going to the director's fund and other authorized deductions. In other cases the government takes the excess of profit over the enterprise's needs for its own capital expansion and for the director's and other funds. But in no case may the government receive less than 10 per cent of the profit. Before the last war even enterprises operating at a loss were required to pay the government a profits tax equal to 10 per cent of the profit planned for them, but this requirement was apparently suspended during World War II.[23] In this way the government is able to drain off profits from different enterprises and industries, for reinvestment in other industries and enterprises that may be making no profits or inadequate profits, or for other government expenditures.

Income Taxes

Income taxes are levied separately upon Soviet citizens, depending upon whether they work for wages; are independent artisans, writers, or

[22] Suchkov, *op. cit.*, p. 86.
[23] *Ibid.*, pp. 86–89.

the like; or are collective or individual farmers. As we shall see below, these income taxes have rate schedules and define taxable income in such a way as to aid accomplishment of government policy outside the fiscal field, as well as to provide budgetary revenue.

Ordinary hired workers do not have to pay any income tax if they receive less than 150 rubles a month. Above that level a progressive rate schedule exists, as follows:[24]

Monthly Wage (RUBLES)	*Monthly Tax*
150–200	2.25 rubles + 5.5% of excess over 150
201–300	5 " + 6% of excess over 200
301–400	11 " + 7% of excess over 300
401–500	18 " + 8% of excess over 400
501–700	26 " + 10% of excess over 500
701–1,000	46 " + 12% of excess over 700
1,001 and higher	82 " + 13% of excess over 1,000

Members of industrial cooperatives have their incomes taxed at rates 10 per cent higher than those above. Writers, artists, and workers in related fields are taxed at the same schedule as that above for incomes up to 1,000 rubles a month; above that level higher tax rates are imposed, i.e., progression of the tax rate continues beyond the 1,000 ruble mark. The low rates of income tax applied, relative to the United States or Great Britain, and the moderation of the top tax rate in most cases—13 per cent—suggest that Soviet authorities do not wish to weaken the incentives offered by high incomes through application of very progressive and very high income tax rates. The average income of a worker or employee in the USSR at the end of the 1940's was well below 1,000 rubles monthly, but that income was surpassed by those of many outstanding workers, as well as by those of technicians, industrial directors, government officials, and the like. It is the latter group who benefit from the flat 13 per cent tax rate imposed on incomes in excess of 1,000 rubles.

In an effort to encourage marriage and the raising of large families, the income tax for urban employees and workers is higher for those who are unmarried or have only one or two children. Unmarried adults and married persons without children must pay 6 per cent of their income as an additional tax. Persons having only one child pay 1 per cent of their

[24] *Ibid.*, p. 134.

income as an additional tax, and persons having only two children an additional ½ per cent of their income.[25]

Collective farms are taxed both on their incomes in kind and their money incomes. The value of output delivered to the government at low requisition prices or to Machine Tractor Stations in payment for their services is not taxed. Farm production used for the collectives' own needs, i.e., for seed and for farm insurance reserves, is valued at the low government requisition prices, and a tax of 4 per cent is levied on the monetary value computed for this portion of output. Grain and other products distributed to the collective farmers in payment for the labor days they have earned working on the farm are valued at the higher purchase prices paid by the government for nonobligatory sales to it. A tax rate of 8 per cent is applied to the value of this share of the farm's output. The monetary income of the collective farm is also divided into two parts for taxation purposes. Money income received from the sale of technical crops (sugar beets, flax, cotton, and the like), fruits and vegetables, animals and other products under contracts with government organizations, or from nonobligatory sales to the government, are taxed at the rate of 4 per cent. Other money income of the collective farm—mainly income received from the sale of its products on the free market, where much higher prices are received than those paid by the government—is taxed at the rate of 8 per cent. Partial or complete exemptions from these taxes are decreed from time to time by the Soviet government in order to stimulate certain types of production by making them more profitable, or to help achieve some other state objective.[26]

All farm products received by Machine Tractor Stations from collective farms in payment for their services are handed over to the Ministry of Requisitions and credited at the low requisition prices. Hence much of the state's net income from these deliveries also appears as part of the turnover tax credited to this ministry.[27]

Income taxes applying to the farm population directly are differentiated as between collective farmers and individual peasants, the latter being taxed much more heavily. The tax system is so constructed as to give the collective farmer substantial advantages over the individual

[25] *Ibid.*, p. 154.
[26] *Ibid.*, pp. 109–110.
[27] *Ibid.*, p. 113.

farmer through lower taxes. It is also aimed at reducing the profitability of the collective farmer's work on his own small allotment, thus increasing his incentive to devote more time to work on the collective farm fields. After the revelation of widespread violations of the collective farm charter by collective farmers who spent too much of their time on their own little allotments, a new agricultural income tax law passed in September 1939 tightened up government taxation of noncollective income. The rates of taxation on this noncollective income were further increased in 1948. A collective farmer's income from the collective farm, received in payment for the labor days he has earned, is not taxed at all. The collective farmer's taxable income is calculated on the basis of government-fixed norms, which set the amount of income to be credited to each collective farmer on the basis of the number of acres in his private allotment and the use to which these acres are put, and the number of livestock he has and their utilization by him. Thus in the RSFSR a hectare of the farmer's allotment planted to grain is calculated at a norm of 40 rubles, while a hectare of vegetables has a norm of 160 rubles. A cow is considered worth an income norm of 3,500 rubles; a horse 2,500 rubles; and so on. Before 1948 the total income of a collective farmer from his own allotment was taxed at rates rising from 8 per cent for incomes under 2,000 rubles annually to 30 per cent on any portion of income exceeding 8,000 rubles annually. In 1948 these rates were changed, being fixed at 11 per cent on incomes under 2,000 rubles and rising to 40 per cent on any portion of income exceeding 8,000 rubles annually. The increased rates established in 1948 and the many complaints in the Soviet press of excessive attention by collective farmers to their own allotments suggest that the 1939 tax revision had proved inadequate to secure proper collective farm labor discipline during and after World War II. A decree of August 7, 1950 increased the rates on higher incomes of collective farmers to a top of 45 per cent on incomes over 8,000 rubles annually.[28]

Individual peasant farmers are discriminated against, in comparison with collective farmers, in several ways. Their income from sales in the open market is included in their taxable income base, as is not done for the collective farm member. The norms applied for evaluation of

[28] *Ibid.*, pp. 137–42; *Pravda*, July 14, 1948; *Vedemosti Verkhnogo Soveta SSSR*, August 16, 1950.

taxable income on the basis of the amount of land and livestock are the same for individual peasants as for collective farmers. But the tax rate at which an individual peasant is taxed is twice the rate at which a collective farmer with the same income is taxed.[29] This discrimination is, of course, motivated by the Soviet government's desire to eliminate all private farming and to have its agriculture consist exclusively of collective and state farms. Individual peasants owning horses have also been required, since 1938, to pay a substantial tax, ranging in different areas from 275 to 500 rubles for one horse, and from 450 to 800 rubles for each additional horse.[30]

Since the early 1920's the Soviet government has annually obtained a significant amount of income by selling bonds to its people and to banks and other institutions.

Although an individual's decision to purchase state bonds is nominally voluntary, there is strong pressure exerted on workers to make them subscribe three to four weeks' earnings annually for this purpose. Bonds issued to the general public in the postwar period have been mainly lottery bonds. Thus, bonds issued in 1950 gave their holders the right to participate in annual lotteries, which pay out prizes totaling up to 25,000 rubles, the total amount of prizes each year being equal to 4 per cent of the value of the bond issue. Over the 20 years of the issue's term, 35 per cent of all bonds will win prizes and be redeemed by the state. The remaining 65 per cent of the bonds will be redeemed at face value, their owners getting no interest at all.[31] Before all Soviet bonds sold to the general public were made lottery bonds, they were issued in conventional form, each bond-owner receiving the required interest. In the early 1920's short-term bonds received 5 per cent interest. Later loans issued to help finance the industrialization program paid a rate of 11 to 13 per cent. The great volume of government bonds issued during World War II carried a nominal 4 per cent interest rate, but the Monetary Reform of 1947 ordered these exchanged for bonds paying only 2 per cent, the old bonds being exchanged for new ones at the rate of 3 rubles' worth of old bonds for 1 of the new conversion issue.

Bonds are also sold to banks and other Soviet institutions, thus per-

[29] Suchkov, *op. cit.*, p. 144.
[30] *Ibid.*, pp. 146–47.
[31] *Pravda*, May 4, 1950.

mitting the government to include in its budget the free funds of financial and other enterprises active in the economy. In 1939, over a quarter of all revenue from state bond sales came from enterprises and banks.[32]

Besides the major sources of income discussed above, the Soviet budget has a number of other sources of revenue, including local taxes on buildings (dwellings and plants), nonagricultural land, livestock owned by urbanites, and the like. Since 1938 the payments made by Soviet enterprises to social insurance funds have been included in budgetary revenues. Money deposited in savings banks is counted as a state revenue on a par with income from bond sales. Customs duties accounted for 3 billion rubles of the government's income in 1940, or 1.7 per cent of all revenues.[33] A fuller exposition of these tariff duties will be given in a later chapter.

Income Division Among State Budgets

The balance of incomes and expenditures in the Soviet budget is primarily a balance for the comprehensive total budget. The latter includes the budgets of the all-union government, the different republics, and provincial, city, and other local governmental units. Different taxes and other revenues are usually designated as going primarily to particular levels of government—the great bulk of revenues going to the all-union budget. To obtain balance in the subordinate budgets—whose expenditures usually substantially exceed the revenues going to them directly—the all-union government allocates part of its revenue to them. If necessary, direct subsidies may be given subordinate governmental units by higher units, but effort is usually made to assure balance by preallocation of certain percentages of different types of income.

In general the all-union budget receives the revenues from profits of major industry, trade, means of transport, communications, banks, insurance organizations, and other such sources. It also receives the incomes of Machine Tractor Stations, customs dues, almost all fines levied for breaking the law, consular fees, proceeds of state bond issues, and the income of social insurance organizations. Republican budgets re-

[32] Suchkov, *op. cit.*, p. 178.
[33] *Ibid.*, p. 129.

ceive the profits from industrial and trade enterprises under republican control. Local budgets receive directly the profits tax on industrial and trade enterprises under local control, rents of houses controlled by local authorities, incomes of municipal public service enterprises (water supply, trolleys, sewage systems, and the like) and the specifically designated local taxes mentioned above.

All basic national taxes are considered parts of the all-union budget, but some minor ones, such as taxes on cooperative enterprises, go directly to republican or local budgets. Fixed percentages of the major all-union tax revenues, however, are allocated to republican and local budgets to help make up the deficit between their planned expenditures and the incomes directly assigned them. This practice has the additional virtue in the Soviet view of enlisting the self-interest and cooperation of local authorities in collecting these taxes. Thus rural governmental units receive part of the turnover tax collected as the result of the government requisitions and purchases of farm products in their areas. In the case of the taxes on horses owned by individual peasants, 25 per cent is allocated to the budget of the republic in which it is collected and 75 per cent to the budget of the province or territory in which it is obtained. A law of December 21, 1931, provided that republican and local budgets receive part of the turnover tax collected as the result of processing of cotton, tobacco, oil, and other products grown or obtained in their areas. Part of the government revenue from the mining of precious metals and the production of alcoholic beverages is similarly transferred to local budgets.

The most important device for insuring the balancing of subordinate governmental budgets is the practice of assigning proportions of major national taxes or revenue items to different provincial, city, and other local budgets. The percentages of the revenues from different taxes collected in a given area and allocated to that area's budget vary sharply from region to region, depending upon the budgetary problem encountered in each case. The diversity of practice followed is indicated by the following schedule, which lists 1950 percentage allocations of different items of major revenue to the budgets of several regions:[34]

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[34] *Pravda*, July 9, 1950. Rovinsky, *Gosudarstvenny Byudzhet SSSR*, pp. 41–48.

Tax	Altay Territory	Khabarovsk Territory	City of Moscow	Novosibirsk Province	Tuvinian Autonomous Province
Farm Income Tax	25	100	100	30	100
Urban Income Tax	70	30	10	100	100
Tax on Bachelors, Childless Couples, and Small Families	80	10	10	80	–
Machine Tractor Station Incomes	25	100	–	35	100
Forestry Income	30	50	50	100	100
State Bond Subscriptions	60	40	10	90	100
Turnover Tax	12	2.5	2.4	17.5	36.9

The division of Soviet government budgetary revenues among different levels of government for the year 1941 is shown in Table 54.

TABLE 54. Revenues of Soviet Governmental Units' Budgets in 1941.

	All-Union Budget	Republican Budgets	Local Budgets	Total
		(BILLION RUBLES)		
Turnover Tax	113.3	2.9	8.6	124.8
Profit Tax	19.2	6.3	6.2	31.7
State Loans	9.5	0.9	2.9	13.3
Taxes on Population	7.4	–	5.1	12.5
Local Taxes and Revenues	–	–	2.5	2.5
Customs Duties	3.0	–	–	3.0
Taxes on Enterprises and Organizations	1.3	–	3.9	5.2
Social Insurance Payments	7.7	2.3	–	10.0
MTS Income	1.9	0.3	0.4	2.6
Forest Income	–	–	0.7	0.7
Rental Income on Property of Local Governments	–	–	0.8	0.8
Other Incomes	7.2	0.5	2.0	9.7
Funds Available on Jan. 1, 1941	4.8	0.2	0.5	5.5
Total	175.3	13.4	33.6	222.3

Source: Rovinsky, *Gosudarstvenny Byudzhet SSSR*, p. 48.

About 60 per cent of the all-union budgetary revenues came from the turnover tax, with the profits tax providing somewhat over 10 per cent of the total. In the republican budgets, the profits tax provided almost half the revenue and the turnover tax about 20 per cent. About a quarter of all local budgetary revenues came from the turnover tax and

about 20 per cent from the profits tax, with the most significant other revenues coming from the direct taxes on the population and on various enterprises and organizations.

Budgetary Expenditures

In peacetime, the largest single group of Soviet budget expenditures are those aimed at financing the national economy. These appropriations cover a large fraction of the cost of new capital investment in productive facilities (plants, railroads, machinery) and also provide additional working capital for the economy. New enterprises receive fixed capital from the state when they begin operation, so that they may work in accordance with the principles of *khozraschet* (economic accountability); existing plants may receive additional working capital from the state if they are expanding their activities; enterprises that are running at a deficit may receive budgetary grants as subsidies to make up their losses, particularly if their losses were provided for in their financial plans. The distribution of government expenditures for the national economy among different areas is indicated in Table 55.

TABLE 55. Budgetary Expenditures for Financing the National Economy in Selected Years.

	1938	*1940*	*1942*	*1944*	*1946*	*1948*	*1949*	*1950**
	(BILLION RUBLES)							
Total	51.7	58.3	31.6	53.7	106.2	147.5	161.9	164.4
Industry	23.6	28.6	†	27.3	68.8	94.1	75.5*	85.3
Agriculture‡	11.4	12.2	5.1	7.0	12.3	20.5	30.8	36.6
Transport and Communications	7.4	6.8	†	7.7	10.0	14.3	14.7*	15.0
Trade and Requisitions	†	2.0	†	1.2	3.2	4.1	7.9	9.3
Municipalities and Housing	2.9	2.5	†	1.8	†	4.4	6.0*	†

* Plan.
† Not available.
‡ Includes forestry in 1948, 1949, and 1950.

Sources: Same as Table 52.

Budgetary appropriations are by far the most important source of funds for capital investment. In 1948, for example, the total capital investment of the USSR amounted to 86.2 billion rubles, of which 57.2

billion rubles came from budgetary appropriations. The rest came from the profits, amortization reserves, and other resources of economic enterprises and institutions. The growth of working capital over recent years has been substantially the result of budgetary appropriations too. In 1940, such appropriations provided 49.3 per cent of the increase in enterprises' working capital; in 1947, 68.6 per cent of the increase; in 1948, 62.3 per cent; while in 1949 it was planned to provide 42.9 per cent of the growth from this source.

As we have seen earlier, capital investment during any period is provided for in the capital investment plan, which lists specific projects. The budgetary appropriations for capital investment parallel and are coordinated with this part of the over-all economic plan. All major investment projects—defined as those exceeding certain minimum amounts in terms of estimated cost, the minimum in each case depending upon the branch of the economy—must be approved by the Council of Ministers. Thus the Soviet government keeps tight rein upon economic expansion, through both the capital investment plan and the budget.[35]

It may be added that for many years a significant percentage of the appropriations for financing the national economy has been devoted to military purposes. The production of armaments of all types is carried on by economic ministries, such as the Ministry of Aviation Industry. The building of armaments plants and their provision with working capital have presumably been financed by this portion of Soviet government expenditures and are not counted in the direct military budget of the USSR. The rapid development of nonmilitary heavy industry, accomplished mainly through budgetary appropriations, has also obviously been a major factor in increasing Soviet military strength, though less directly.

The second largest component of Soviet government expenditures during the postwar period has been the financing of the so-called social and cultural measures. The categories included in this component, and the changing size of their appropriations since before World War II, are shown in Table 56.

The magnitude and composition of the items coming under the category of social and cultural measures reflect the tremendous social service functions of the Soviet state. Care must be taken in interpreting this

[35] *Planovoye Khozyaistvo*, No. 2 (1949), pp. 42, 45; Rovinsky, *op cit.*, pp. 71–72.

TABLE 56. Budgetary Appropriations for Social and Cultural Measures of the Soviet Government in Selected Years.

	1938	*1940*	*1946*	*1948*	*1949*	*1950**
			(BILLION RUBLES)			
Total	35.3	40.9	80.4	105.6	116.0§	120.7
Education	18.7	22.5	38.1	55.1	60.8§	59.5
Health†	7.6	9.0	13.8	19.9	21.9§	22.0
Social Insurance	6.0	5.4	7.3	8.7	11.8§	‡
Aid to Widows and Mothers of Many Children	‡	1.2	3.6	2.5	3.4§	4.0
Social Security	‡	2.9	17.6	18.4	21.4§	22.4

* Plan.
† Includes physical culture work.
‡ Data unavailable.
§ 1949 total is actual. Other figures are on planned basis and do not add up to total.

Source: Same as Table 52.

portion of the budget, however, since not all categories are adequately described. The item labeled education above is a case in point. This includes not only expenditures for schools of all types but also the cost of political propaganda, scientific research institutes, museums, expositions, all newspaper and book publishing, theatres, orchestras, and so on.[36] The health appropriation pays not only for medical personnel, hospitals, and the like, but also for the maintenance of some kindergartens, children's homes, and the like.[37] Social insurance expenditures provide for payments to persons unable to work because of illness, accident, or related cause; for funeral expenses; for pensions to permanently incapacitated or retired elderly workers; for maintenance of sanatoria, rest homes, parks, and so on. Social security expenditures are primarily those made to or for persons invalidated during war or in military service. This explains the sharp rise in the appropriations for this purpose between 1940 and 1946. Other individuals, including victims of accidents or persons making outstanding contributions to the Soviet state in some capacity, for example, also may receive aid from social security funds. Invalids, if totally disabled, receive pensions; or they may be put into special homes for invalids. If possible, however, they are retrained so as to permit them to work and to earn a living despite their war injuries or other handicaps.[38]

[36] Rovinsky, *op. cit.*, p. 206.
[37] *Ibid.*, p. 223.
[38] *Ibid.*, pp. 230–40.

The organizations engaged in the activities financed by the social-cultural appropriations of the budget are entirely controlled by the overall economic plan and the financial plan, including the budget itself. The economic plan allocates to them personnel and other required resources, while the budget allocates the funds to pay for these resources. The institutions—hospitals, schools, rest homes, and the like—submit estimates of their requirements to higher authorities. The latter in turn make such changes as they deem desirable and finally approve the budgets and programs for each future period. All incomes received by such institutions—tuition fees in schools, for example—are turned over directly to the government; the institutions do not have the right to use their incomes for their own needs. This method of operation is aimed at assuring complete government control of their activities. Institutional budgets are set up on the basis of norms. Thus a hospital will be entitled to a quota of doctors and a particular allowance for wages and other expenses depending upon the number of beds it has, the average number of days a bed is occupied, and the location of the hospital.[39]

Little has been published on the detailed composition of the military section of the Soviet budget. The available evidence indicates that it covers only the direct costs of the land, sea, and air forces of the Soviet Union. The military organizations presumably purchase their requirements of food, arms, and the like from other government organizations. Presumably, also, there is little or no turnover tax levied upon munitions and arms purchased by the armed forces. The buying power of the ruble used for such purchases reflects primarily the actual cost of production and hence is relatively greater in real terms than rubles used by ordinary customers to buy food, clothing, and the like. The relative value of military appropriations in real terms is therefore also higher than the proportion these appropriations are of total budgetary expenditures. Members of the armed forces are also paid wages in addition to receiving food, clothing, and equipment, as are military personnel of other nations.

The distribution of government expenditures among the different levels of government reflects the different functions assigned them. The all-union budget provides for the financing of most of the national economy and military expenditures. The republican budgets finance only those parts of the economy subordinate to them and are occupied much more with executing the social and cultural aspects of the budget. Local

[39] *Ibid.*, Chapter 14 and pp. 223–25.

governments are primarily concerned with social and cultural measures. Thus in 1941 the all-union budget provided over 96 per cent of all budgetary funds for industry and transport, but only about one third for education and under 10 per cent for health services. Local budgets on the other hand provided over 96 per cent of all expenditures on municipal construction and housing, almost 55 per cent of all education expenditures, and almost 80 per cent of all health service spending.[40]

The Banking System

Financial transactions among enterprises, institutions, and other organizations in the USSR are conducted through the aid of a complex banking system, all part of the Ministry of Finance. The central institution of the Soviet banking system is the State Bank *(Gosbank)*, an organization with about 5,500 offices all over the USSR and millions of clients. In addition there are four specialized banks occupied primarily with the problems of long-term investment. These are the Industrial Bank (*Prombank*), the Agricultural Bank (*Selkhozbank*), the Trade Bank (*Torgbank*), and the Municipal Bank (*Tsekombank*). There is also a national network of savings banks, in which individuals may keep their own savings.[41]

The State Bank is the basic source of short-term credit for all enterprises and institutions in the USRR, extending this credit in accordance with the credit plan for each part of the economy as approved by the Council of Ministers. All transactions between government enterprises and institutions requiring the transfer of money go through the State Bank's books by means of credits for sellers and debits for purchasers. The State Bank acts as the government's fiscal agent, receiving all taxes and other payments to the state and paying out budgetary appropriations to enterprises and institutions within the limits provided by the budget. The State Bank issues money and withdraws it from circulation, thus regulating the volume of currency available to individuals and organizations at any time in accordance with the Cash Plans approved by the Council of Ministers. All supplies of precious metals and foreign currencies owned by the Soviet government are entrusted to the care of the State Bank, which also handles settlements with foreigners through its accounts with correspondent banks abroad.

[40] *Ibid.*, pp. 34–35.

[41] Boguslavsky, Greben, and Proselkov, *op. cit.*, p. 16; and *Pravda*, May 18, 1949.

The Credit Reform of 1930 and subsequent legislation concentrated virtually all short-term credit operations in the State Bank by prohibiting the granting of credit by one enterprise to another, and by eliminating other banks—with minor exceptions—from the short-term credit field. The volume of credit rose rapidly during the 1930's, loans granted rising from 140,000,000,000 rubles in 1934 to 475,000,000,000 rubles in 1938. The volume of indebtedness of economic organizations to the State Bank grew from 3,800,000,000 rubles on January 1, 1930, to over 40,000,000,000 rubles on January 1, 1941.[42] Initially, short-term credit was conceived of as primarily important for the financing of seasonal peaks of operation in industry, trade, and other branches of the economy. It aimed at providing the funds needed to accumulate seasonal reserves of raw materials and other goods, to pay production expenses at times of maximum operation, and to bridge the time gap between shipment of goods and receipts of payment. In the late 1930's, however, the relatively nonseasonal heavy industries, such as machine construction, were brought into the orbit of the State Bank's operations by requiring them to finance a substantial portion of their current operations through credit from this source. State Bank credit is of major importance to trading organizations. As of early 1949, 70 per cent of all trading organizations' purchases were financed through the State Bank.[43] In general the Soviet government attempts to set the working capital granted economic enterprises free of charge at the minimum level possible, and to require these enterprises to meet their working capital needs in excess of this minimum by resort to the State Bank's credit facilities. This policy is motivated by the desire to make the area of the State Bank's control activities as wide as possible.[44]

Loans granted by the State Bank to enterprises are usually for specific purposes and for fixed periods; must be repaid; carry interest charges; and are within the maximum limit set by the enterprise's credit plan. Loans may be granted outside the enterprise's credit plan in case of unexpected emergency or other unanticipated situation, where such credit will aid accomplishment of the state's goals or their overfulfillment. Since the enterprise receiving the loan is paid by means of transfers to its State Bank account, the bank is able to receive payment at the

[42] *Entsiklopediya*, col. 1058.
[43] *Pravda*, May 18, 1949.
[44] *Planovoye Khozyaistvo*, No. 3 (1946), p. 52.

time the purpose for which the loan was granted is accomplished and the resulting goods are sold. In this process the State Bank is required to keep a sharp eye on the actual operations of the plant, making sure that it is observing its physical production and financial plans and is using any credits granted it for the specific purpose intended. This "control by the ruble" makes the State Bank an overseer of the entire Soviet economy in all its ramifications and operations. Bank officials are praised if they fulfill their control functions properly and show initiative in aiding enterprises to improve their work and speed up their utilization of working capital and credit.[45] Enterprises that fail to fulfill their obligations to the State Bank punctually and properly may have sanctions applied to them, i.e., they may be denied further credit; the commodities put up as security for loans may be sold by the bank; and so on. Enterprises establishing a good credit record may be rewarded by being granted additional credits at favorable terms to help them overfulfill their production or other plan.[46]

The total volume of credit the State Bank issues is determined by the Credit Plan approved by the Council of Ministers quarterly and covering the entire economy. The resources upon which the Bank draws in issuing credits are the following: the Bank has its own reserves, including its original charter capital, its accumulated reserves from profits, and other special funds; all the funds deposited in the Bank by the enterprises and institutions required to have accounts in it are also available as a base for credit operations; finally, as the currency-issuing authority of the country, the State Bank can increase its resources by printing additional money. Of these main sources, the chief is usually the total of deposits entrusted to it. The Bank's freedom to print money to increase its resources is checked by the fact that it is governed by the government's Cash Plan, which is worked out in concordance with the over-all Credit Plan. The State Bank can therefore never independently cause inflation by excess credits or currency issuance; it is purely a tool of higher authorities, limited to executing their instructions.[47]

From the point of view of Soviet enterprises, the activity of the State

[45] *Pravda,* May 18, 1949.

[46] *Finansy SSSR za XXX Let,* p. 128.

[47] V. M. Batyrev and V. K. Sitnin, *Finansovaya i Kreditnaya Sistema SSSR,* pp. 64–5. Moscow: 1945.

TABLE 57. Distribution of Short-Term Credits in the USSR, 1933, 1938, and 1941.

	Jan. 1, 1933	*Jan. 1, 1938* (BILLION RUBLES)	*Jan. 1, 1941*
Heavy Industry	.9	4.7	10.0
Light and Textile Industries	.7	6.6	9.1
Food Industry	1.7	8.5	10.7
Requisitions Commissariat	1.6	2.8	3.3
Lumber Industry	.5	1.3	2.5
Transport	.4	1.4	1.5
Agriculture	1.4	1.7	2.2
Trade	2.3	10.7	11.1
Foreign Trade	.3	.4	.9
Local Industry and Industrial Cooperatives	.5	.8	1.4
Other	.2	1.8	2.3
Total	10.5	40.7	55.0

Source: *Finansy SSSR za XXX Let*, p. 127.

Bank as a financial transfer agent is most important, since all payments from buyers to sellers are effectuated by the Bank's bookkeepers upon receipt of orders from the appropriate authority, usually the seller's acceptance of his purchase. Because one bank does the whole job, there is no need for interbank clearing houses such as exist in the United States and other countries. The magnitude of the State Bank's operations, however, has led it to organize Mutual Clearing Bureaus in key areas of the country. These Mutual Clearing Bureaus arrange for settlement of accounts between concerns having frequent transactions with each other so that the volume of work involved can be reduced considerably. Each enterprise belonging to the Mutual Clearing Bureau has a clearing account in which are entered all its debits and credits. At the end of each period an enterprise receives the net credit or net debit to which it is entitled, the great bulk of the money value of its transactions having been canceled by the comparison of credits and debits. Although this system resembles somewhat the check-clearing organizations of the American banking world, it should be noted that checks—i.e. negotiable paper instruments—are comparatively little used in the USSR. Accounts between enterprises are instead usually paid for by so-called giro-orders, which direct payment to only one recipient and cannot be transferred by endorsement, as checks can.[48] Aside from

[48] G. A. Shvarts, *Beznalichnyye Vzaimnyye Raschety v SSSR, passim.* Moscow: 1946.

the reduction of labor, this system also reduces the amount of currency required in the economy while permitting strict control over all payments to, and payments by, economic organizations. The use of currency in the Soviet economy is thus confined largely to the payment of wages (including collective farmers' money receipts as shares of the farm's money income) and the consequent use of these money wages by the population for purchases of goods and services.

Savings Banks

The Soviet government encourages its people to save money for future needs. For this purpose there exists a wide network of State Labor Savings Banks throughout the country. These had over 32,000 branches at the beginning of 1947, 7,653 of them in cities and 24,444 in rural areas. The motivation for personal saving is probably less strong, however, in the Soviet Union than in capitalist countries. A Soviet citizen has little fear of unemployment and has at least a minimal security arising from the widespread system of government pensions and aids for those who become disabled or too old to work. At the time of the German invasion of the USSR, total deposits in these banks totaled about 6,800,000,000 rubles. The volume of deposits grew rapidly during and immediately after the war, in part because of increased incomes during this period of great shortages of things to buy. Also, during the war, the Soviet government prohibited vacations and ordered, instead, that monetary compensation be deposited in blocked accounts in the savings banks. Over 30,000,000 such accounts were opened, but the money in them was not released until after the conflict. At the beginning of 1946 total deposits in savings banks were 9,000,000,000 rubles; by the middle of 1947 they exceeded 13,000,000,000 rubles. Presumably the total value of deposits fell below this level as the result of the conversion from old to new money—at rates of 1:1, 3:2, and 2:1, depending upon the size of the account—at the end of 1947. Whatever the magnitude of this reduction, it was soon made up. In mid-1950 the total deposits in savings banks exceeded 17,000,000,000 rubles.[49]

In the late 1930's the interest paid on deposits of individual citizens, with the right of withdrawal at any time, was established at 3 per cent

[49] *Finansy SSSR za XXX Let*, pp. 307–14; *Pravda*, June 14, 1950.

annually, while similar deposits of organizations received 1 per cent interest. In 1939 a system of time deposits was established, paying 5 per cent interest on savings left for six months or longer. For most depositors the interest on such savings is an insignificant source of income, since the great majority of accounts are extremely small. A sample study conducted on January 1, 1938, found the following distribution of these accounts:[50]

Size of Account	*Per Cent of Depositors*	*Per Cent of Savings*
Under 100 rubles	67	5
100–1,000 rubles	23	28
Over 1,000 rubles	10	67

The fact that 10 per cent of all savings depositors owned two thirds of the value of all deposits is an interesting commentary on the inequality of wealth in the USSR. During the war the average size of accounts probably increased, along with the over-all increase in the volume of savings in these banks. One indication of this probability is the fact that only 80 per cent of the accounts remained unchanged at the time of the monetary conversion in late 1947;[51] since accounts up to 3,000 rubles remained unchanged, this indicates that 80 per cent of all depositors must have been in this category, a substantially smaller percentage than that indicated by the data for January 1, 1938. During the war, savings bank deposits were solicited, with interest to be paid in the form of lottery prizes ranging from 50 to 200 per cent of the winners' total deposits. This lure apparently did not prove attractive; most depositors preferred to receive a straight interest return rather than accept a chance in a lottery.[52]

The functions of savings banks were expanded during World War II so as to make them agents for collecting taxes due the government from individuals. They also pay out pensions and government monetary awards to winners of medals and other honors. As noted earlier, the assets of the savings banks—consisting chiefly of the deposits made in them—are invested in government bonds, and the annual increases in

[50] Batyrev and Sitnin, *op. cit.*, p. 75.
[51] *Pravda*, February 1, 1948.
[52] *Finansy SSSR za XXX Let*, p. 310.

these assets are treated as additions to the state's budgetary revenue, on a par with money received from the sale of bonds.

Investment Banks

The four major long-term investment banks are essentially concerned with making available to different economic organizations funds for capital construction. The great majority of these funds are allocated to the banks by the government through the budget and are nonreturnable grants, not loans. The investment banks also have available obligatory amortization allowances accumulated by economic organizations, funds from the profits tax, and the capital funds of collective farms. Strict control over the execution, progress, quality, and financial discipline of construction projects is exercised by these banks. This control is usually far more detailed and closer even than that exercised by the State Bank over recipients of short-term loans.

The Industrial Bank (*Prombank*)—known more fully as the Bank for Financing Industrial and Electrical Capital Construction—makes available government construction grants to industrial, transport, communications, and road-building organizations under different economic ministries, or, in the case of roads, to organizations subordinate to the Ministry of Internal Affairs (MVD). It also makes long-term credits available to local and provincial industrial enterprises to help them organize or expand output of consumer goods, food manufactures, construction materials, and fuel.

The Municipal Bank (*Tsekombank*)—known more fully as the All-Union Bank for Financing Municipal and Housing Construction—works with local municipal governments, giving them credits or nonreturnable grants for housing, public utility, and related construction. It also finances the building of entire new communities. In recent years this bank has also granted long-term credits to individuals to enable them to build or repair homes, as well as loans to demobilized soldiers, war invalids, families of dead soldiers, and needy families of persons serving in the armed forces. It cooperates with a system of local municipal banks.

The Trade Bank (*Torgbank*)—known more fully as the Bank for Financing Capital Construction of Trade and Cooperatives—provides funds for capital investment by cooperatives as well as by domestic and foreign trade enterprises and organizations of the Ministry of Requisi-

tions. Cooperatives must repay credits from this bank, but government organizations receive nonreturnable grants, as in other areas of the economy.

The Agricultural Bank (*Selkhozbank*) gives long-term credits to collective farms for construction, repair of building, purchase of equipment or cattle, irrigation works, and so on. It also makes short-term loans of less than a year's duration to the collective farms for some capital expenditures. Long-term loans are made by this bank to collective farmers and to other individual borrowers, particularly invalids of the last war and families of soldiers. Government agricultural organizations, such as state farms, are also financed by this bank.

These banks can only finance construction projects that have been specifically authorized by the government, and usually, also, only those for which complete cost estimates and architectural plans have been prepared. Financing is provided only within the limits of the estimated cost for different types of work. The banks may refuse to provide funds if costs exceed estimates, or if they observe wasteful utilization of funds and resources made available for construction. The banks keep close check on the progress of each construction project, analyze the balance and other accounting records of each project, and inform responsible organs of economic control if they find any abnormality in the financial or economic situation of a project. To facilitate control over the cost and progress of construction work, such activity is usually not carried on by the enterprise that is finally to operate the new plant, mine, or other productive facility being built. Special construction organizations subordinate to construction agencies receive contracts to carry on the work and are supervised by the banks. Where an enterprise does carry on its own construction activity, all funds available for and expenditures required by this construction work are kept in separate accounts and are not intermingled with the financial record of the enterprise's normal activity, thus also facilitating direct control over the construction work.

The funds assigned to a given project are placed in an account maintained by the enterprise for whom the new facility is being built. This enterprise transfers to the contracting construction organization at the beginning of the work 15 per cent of the estimated amount to be spent that year on the project. Further financing of the contractor is made as each section of work is completed, payment being based on the esti-

mated cost agreed on initially. The banks keep constant checks over the correctness of the prices paid and the accuracy of reports regarding the volume of work actually completed. One result of this system is that if the cost of construction exceeds that originally estimated, the additional cost must be paid out of the contracting organization's funds and not from the allocation given the enterprise to finance the project. This requirement is obviously aimed at stimulating the contractor's interest in doing the most economical job most expeditiously. Short-term credits may be granted construction organizations by the investment banks in order to help them make a seasonal accumulation of materials, fuel, and other resources. The expenditure of these short-term credits is also very closely controlled.[53]

[53] Boguslavsky, Greben, and Proselkov, *op. cit.*, pp. 334–37. Batyrev and Sitnin, *op. cit.*, pp. 77–85.

CHAPTER XIII

HIRED AND PRISON LABOR

ARTICLE 12 of the Soviet Constitution declares: "Work in the USSR is a duty and a matter of honor for every able-bodied citizen, in accordance with the principle: 'He who does not work, neither shall he eat.'" In practice this article is taken to mean that every physically able adult must engage in direct productive activity, unless supported by the earnings of a relative, as in the case of a wife maintained by her husband.

Workers in the USSR today fall into one of the following categories: members of collective farms, hired employees of the government, employees of industrial and consumer cooperatives, individual artisans who work alone, household servants—maids, cooks, chauffeurs, gardeners, and the like—employed by individuals, and involuntary laborers forced to work at particular jobs in the course of serving a penal sentence. The employment of workers for the profit of an individual employer is now forbidden, though it existed on a significant scale during the 1920's. Collective farmers have already been discussed in an earlier chapter. The number of household servants and individual artisans in the USSR is relatively very small, and almost no information is available about them as groups. Soviet labor statistics combine in one category those working for the state and those working for industrial or consumer cooperatives, so that we may think of these as forming the total hired labor group. Although the members of this last group work under a number of severe restrictions on their liberty, they are also sometimes referred to as "free" workers in contradistinction to the unfree or forced laborers in the final category listed above. Most of this chapter will be

concerned with the relatively free persons composing the hired labor group. The remainder will summarize the incomplete information available concerning prison labor.

The Supply of Hired Labor

During 1917–20 famine conditions in the cities forced a large-scale migration to the countryside. This, combined with the need for soldiers to fight the enemies of the Soviet regime, created a severe shortage of workers for industry, transport, and trade, a shortage that was combatted by the militarization of labor. Workers were mobilized and labor armies were put to work on urgent tasks of production and transportation under conditions of strict military discipline. With the relaxation and abolition of many government controls during the years of the New Economic Policy, labor was made free again. Demobilization of the armed forces and new migration from the rural areas to nonagricultural occupations provided the increased manpower required to raise the level of economic activity from the very low depth of 1920 back to and beyond that achieved before World War I. The number of workers in large industry had fallen from 2,885,000 in 1913 to 1,601,700 on January 1, 1922, the latter figure representing already some recovery from the lowest point. By 1929 there were 3,353,000 workers in these industries, over twice the number in 1922. Similarly construction workers increased from 194,000 in 1923–24 to 923,000 in 1929. Other urban areas of the economy experienced similar rises.[1] In 1928 about 8,700,000 persons were employed in nonagricultural occupations of all kinds, exclusive of domestic servants. Of these about 7,400,000 worked for the government, almost 1,100,000 for cooperatives, and 349,000 for private employers. By 1930, the number privately employed was only 51,000 and became virtually zero soon thereafter.[2]

The First Five-Year Plan began in 1928 and inaugurated a period of unprecedentedly rapid economic development. Tremendous numbers of new workers were needed to build and man the new factories, mines, oil fields, railroad lines, and other productive enterprises, as well as to provide the administrative and other services required by the increasingly complex and growing economy. The growth that took place may

[1] *Narodnoye Khozyaistvo SSSR*, pp. 410–13.
[2] *Ibid.*

be illustrated by Soviet data on the number of workers and employees in the national economy, i.e., government employees predominantly,[3] plus those working in cooperatives. The average annual number of workers and employees in the national economy grew from 11,539,000 in 1928 to 23,681,200 in 1934 and over 30,000,000 in 1940.[4] Part of the 1940 figure is attributable to hired workers in the newly annexed territories of the USSR, the Baltic States, Eastern Poland, and other areas. Allowing for these, it is clear that the number of hired workers in the USSR increased by approximately 18,000,000 persons in little more than a decade, a rise of roughly 150 per cent. If we take into account the new workers who replaced the losses due to death and retirement, it seems likely that almost three out of every four hired workers in the USSR in 1940 had assumed that status after 1928.

Most of these new workers came from agriculture, the area of the economy where an excess supply of labor had been chronic and where birth rates were highest. The basic overpopulation of most rural areas had been intensified by the collectivization of many small farms to form a relatively small number of large farms and by the increasing mechanization of crop production, though the exact number of workers freed by these measures is difficult to measure. When abundant new employment opportunities opened outside of agriculture, many farm people flocked spontaneously to fill the new jobs, hoping thus to improve their standards of living. Others were recruited by the numerous agents sent into the countryside by enterprises needing labor to negotiate labor recruitment contracts with collective farms. The competition for surplus farm labor grew so intense that the central government had to intervene in 1938 and reserve particular areas exclusively for recruitment by particular industries.[5]

According to the Soviet government unemployment in the USSR disappeared at the beginning of the 1930's. In the latter half of the 1920's, about a million workers were usually registered on the rolls of the government labor exchanges as seeking work, the number in April 1929 be-

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[3] Government employees include not only those in industry, transport, trade, finance and other nonagricultural work but also those working on state farms and at Machine Tractor Stations.

[4] *Sot. Stroi.*, pp. 508–09; Voznesensky, *The Economy of the USSR during World War II*, p. 7.

[5] Baykov, *The Development of the Soviet Economic System*, p. 354.

ing as high as 1,741,000, or almost 10 per cent of the total number reported employed in the national economy that year. These figures understate the actual number of unemployed at the time, since they do not include many young people looking for their first job. But as work on the First Five-Year Plan progressed, the earlier labor surplus was converted into a labor shortage. When the scarcity of workers became acute in 1930, the government decided it would cease supporting with unemployment insurance those who chose not to accept jobs offered them. Accordingly on October 11, 1930, the People's Commissar of Labor announced the end of unemployment insurance payments and ordered that all those registered as unemployed be compelled to accept any job offered them. Henceforth the only acceptable excuse for not working was to be sickness, which had to be proved by a hospital certificate. The same month the labor exchanges were directed to register all workers without jobs, and all wives and older children in urban communities, even if they had no special training and had not worked before. All those registered were to be offered employment. If they refused, they were removed from the rolls and forbidden to accept a job for a fixed period. Thus administrative pressure was applied to force women and youngsters who did not want to go to work to become hired laborers.[6] One result of these and later measures was that the number of women workers and employees in the USSR increased from 3,900,000 in 1930 to over 11,000,000 in 1940, including many housewives who would probably not have worked if it had not been for government pressure.[7] These constituted over one third of the total hired labor force, and 41 per cent of all production workers in industry, in the latter year. The increasing disparity between wages and prices during much of the 1930's also provided a potent stimulus for women to add to family income by taking jobs outside the home.

Since the early 1930's the Soviet government has claimed that there is no unemployment in the USSR. This claim has been a valuable propaganda weapon, although it is largely a matter of definition whether the claim is to be accepted or rejected. All through the 1930's, for example, the Soviet press complained bitterly about the high rate of labor turnover in industry and transport. Millions of workers changed jobs annu-

[6] *Ibid.*, pp. 212–13.
[7] *Entsiklopediya*, col. 1125.

ally. In the United States such workers would be recorded as unemployed in the period between leaving one employment and entering another and would appear in the statistics of unemployment. In the USSR this "frictional" unemployment was ignored. The Soviet claim, in short, is based upon a very narrow definition of unemployment, accompanied by the abolition of all statistics on the subject.

This criticism, however, should not blind us to the true state of affairs in the Soviet labor market since the early 1930's. Since that time there has usually been an over-all shortage of labor as the result of the steady production increase, which was interrupted only by the German invasion. Probably throughout the past two decades any Soviet citizen who wished a job could find one, though it might not be the job he really wanted and it might be in another community than that in which he lived. These conditions were approximated in the United States during World War II, when unemployment, including the "frictionally" unemployed discussed above, fell below the 1,000,000 mark. The Soviet Union has probably had what might perhaps be called "over-full" employment during the past two decades, in the sense that many hired workers would have preferred not to work at all or to work only part-time and would have willingly accepted the corresponding income reductions if they had been permitted to do so. All this has been the result of the monopoly government control of the Soviet economy, which has permitted steady development to take place unhindered by fluctuating consumer demand and other factors producing capitalist business cycles.

But whether it is termed "full employment" or "over-full employment," it is clear that for two decades Soviet hired workers have been free of the insecurity that rises from fear of prolonged involuntary unemployment, though they have been plagued by many other insecurities and fears. This state of affairs has had important repercussions on the labor market, on the stability of employment, and on labor discipline. In particular the Soviet worker's confidence that he can find a job relatively easily if he loses his present one has created attitudes toward work that the Soviet government has characterized as "irresponsible" and against which it has turned the force of penal regulations. These replace in part the pressures exerted in a capitalistic society by the fear of unemployment.

The expansion of the labor force did not occur uniformly in all fields,

since growth of output and worker requirements was uneven among the different branches of the economy. This unequal development is shown by the data on the distribution of the hired labor force shown in Table 58.

TABLE 58. Workers and Employees in Different Branches of the Soviet Economy, 1928, 1932, 1937, and Original Goal for 1942.

Branch	*1929*	*1932*	*1937*	*1942 Goal**
	(MILLIONS)			
Industry	3.1	8.0	10.1	11.9
Construction	.7	2.8	2.0	1.8
Railways	1.0	1.3	1.5	1.7
Waterways	.1	.15	.18	.23
Other Transport	.2	.6	1.1	1.7
Communications	.1	.22	.38	.5
Trade	.5	1.4	2.0	2.5
Communal Feeding	.06	.5	.4	.6
Education	.8	1.4	2.3	2.9
Health Services	.4	.6	1.1	1.6
State, Administrative, and Other Institutions†	1.2	2.2	2.5	2.9
Banking Institutions	.1	.13	.19	.23
Agricultural Institutions‡	1.7	2.9	2.5	2.7

* Goal set in Third Five-Year Plan, whose attainment was interrupted by war.
† Includes housing and municipal services after 1928.
‡ Employees of state farms, Machine Tractor Stations, etc. In 1928 included almost 1.3 million workers employed by private farms.
Sources: 1928—*Sot. Stroi.*, p. 508; 1932 and 1937—*Sot. Stroi.* (*1933–38*), p. 138; 1942—Baykov, *The Development of the Soviet Economic System*, p. 343.

In expanding its labor force during 1928–40, the Soviet regime had to contend with the problem of quality as well as quantity. The great majority of new workers recruited for nonagricultural employment during these years had never had any previous experience or familiarity with machines and their operation. They were not accustomed to the discipline required in a factory or on a railroad. At a higher level of competence, the newly expanded productive system required far larger numbers of engineers, chemists, metallurgists, accountants, executives, and other directing personnel than had ever been required in the Soviet Union before. Thus at all levels of the labor force an immense training program had to be undertaken. The primary education system was widely extended as well, in an effort to provide that basic literacy essential for almost all workers in an industrial society. In the decade between 1928–29 and 1938–39, the number of students in the Soviet primary and

secondary schools of all kinds increased 2½ times, from 12.1 million to 31.5 million. The number of Soviet citizens studying in schools of all types, including extension-course students, reached 47.4 million in 1938–39, probably close to half the entire population if we exclude the aged and preschool children.[8]

Some notion of the rapid increase in the number of technically trained workers may be obtained by considering the growing enrollment of major types of schools during the First and Second Five-Year Plans. Thus the number of students in institutions of higher education grew from about 160,000 in 1928 to 516,000 at the beginning of 1936. Enrollment in secondary schools training technicians rose from 254,000 in 1928 to 754,000 at the beginning of 1932 and declined slightly thereafter. Enrollments in factory schools training skilled workers of all types increased from 178,000 students in 1928 to a peak of 975,000 in 1932, but fell sharply thereafter.[9] The frenzied educational drive of the 1930's, accompanied by the enormous increase in students and graduates, was quite naturally accompanied by an appreciable decline in the quality of training. University courses were cut to three years; some requirements were abolished; the supply of teachers competent to teach could not be expanded rapidly enough to cope with the influx; training became too specialized in many cases; all these factors contributed to the decline in quality.[10] Under these conditions many skilled workers, technicians, and directing personnel had to finish their education on the job, a costly process. In the late 1930's changes were made aimed at improving the quality of the educational system. Out of the confusion and frenzy of this period were born both the new labor force and the new technical-managerial force of the Soviet economy, both of which have been developed greatly since the early years of the 1930's. Without the 1,500,000 specialists graduated by Soviet secondary schools and higher educational institutions, the realization of the country's industrialization would have been impossible.

Labor Discipline Problems

Another major facet of Soviet labor force development during the 1930's was the high rate of turnover and the frequently low discipline of

[8] *Sot. Stroi. (1933-38)*, p. 116.
[9] *Sot. Stroi.*, p. 572.
[10] Baykov, *op. cit.*, pp. 218–19.

the new army of workers. In the atmosphere of ever increasing labor demand and accompanying shortage, workers had little fear of unemployment and often shifted from job to job, their shifting usually being prompted by the hope of improving working and living conditions, both of which were frequently extremely poor. At the extreme, in 1930, all branches of large-scale industry hired during the year 176 per cent of the average number of workers employed in these branches, while 152 per cent of this average left their jobs during the year. Even in 1935, when a much greater degree of stability had been achieved, hirings were 91.6 per cent of the labor force, and workers leaving their jobs composed 86.1 per cent of the total. In 1932 the average worker in large industry was absent from work almost six days without an acceptable reason. The high labor turnover and frequent truancy of workers raised major difficulties in the way of the smooth operation of production and slowed down considerably development of a trained work force.[11] Many workers left before they had even been trained for new jobs, and others left after having gained some experience, both groups disrupting the proper working of their enterprises.

To combat these destructive tendencies the Soviet government used many techniques, imposing increasingly tighter control upon workers and entrepreneurs in an effort to achieve stability, discipline, and faithful performance of duties. As early as 1930, an enterprise manager guilty of luring workers from other enterprises was liable to prosecution. Workers who evaded transfer to work ordered by the government or who changed jobs frequently were denied the right to be referred to industrial jobs for six months. Beginning in May 1930, engineers and technicians getting over 250 rubles a month could not get salary increases in most cases if they moved to another enterprise without getting the permission of their former employer. This move was obviously aimed at preventing "pirating" of badly needed trained workers by competing plants. Before the end of 1932, plant managers were given the right to issue ration cards to employees, so that dismissal meant the loss of ration cards for food and consumer goods, as well as eviction from housing owned by the employing enterprise. A decree of November 15, 1932, ordered that workers absent for one day without an acceptable excuse be fired and deprived of their housing. No one could be hired without a certificate from his former employer giving the reason for his leaving

[11] *Sot. Stroi.*, pp. 530–31.

his old job. Any managerial personnel failing to enforce government penalties for absenteeism were liable to prosecution.

These measures did not cause any immediate drop in labor turnover, which was almost as bad in 1933 as in 1932. But absenteeism declined sharply, falling in large industry from 5.96 days per worker in 1932 to less than 1 day per worker in 1933. "Comradely production courts" were set up in 1931 and afterward in different enterprises and institutions to try workers for violating labor discipline or carelessly handling property. These courts could fine errant employees, suggest their dismissal to management, or propose their expulsion from their union for a fixed period.[12]

Nevertheless labor turnover remained high throughout the 1930's, while absenteeism and lateness to work continued to be problems. Under the conditions of labor shortage in those years, it is not surprising that many managers succumbed to the temptation to look the other way rather than to dismiss workers who were truant. In late 1938 a new campaign began against workers shifting from job to job or unjustifiably absent from or late to work, culminating in two major decrees. One, adopted December 20, 1938, required that all workers employed by the state or cooperative enterprise have labor books, giving their employment history, reasons for shifting from one enterprise to another, and any praise or honors won by them. This was intended as a type of passport for workers, hindering them from shifting around too much among jobs. Even more pointed was the decree of December 28, 1938. Workers late in reporting to work, leaving early for lunch, returning late from lunch, leaving their job early, or loafing on the job were to be punished by reprimand or transfer to a lower job for up to three months. Three such violations in a month or four in two months were to be considered equivalent to absenteeism and therefore ground for automatic dismissal. Under the original statute, "tardiness consists in arriving for work not more than ten or fifteen minutes after work has begun, and if a worker comes later than that he is considered absent," and loses a day's pay. Nine days later, worker reaction had been so violent that the limit was raised to twenty minutes.[13] Workers dismissed for absenteeism lost all seniority rights and were ordered discriminated against in the granting

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[12] *Ibid.*, and Baykov, *op. cit.*, pp. 214–15 and 228–29.

[13] Baykov, *op. cit.*, pp. 350–51, and Manya Gordon, *Workers Before and After Lenin*, pp. 122–23.

of social insurance benefits such as pensions, disability allowances, maternity leaves, and the like.

The logical culmination of this legislation came with a decree of June 26, 1940, prohibiting workers from leaving their jobs without permission of their employers, unless for reasons of health or for enrollment in a university or vocational school. Violation was punishable by imprisonment for two to four months. Since workers desiring to leave their jobs might have deliberately absented themselves from work in order to be dismissed, the penalty for absenteeism was changed from dismissal to compulsory work in the same enterprise for up to six months. During this period 25 per cent is deducted from the worker's wages. A decree of October 19, 1940, gave the government the right to transfer skilled workers and technical personnel anywhere in the country, without regard to the employees' wishes.[14]

This tightening up of labor discipline seems clearly to have been inspired by the growing danger of war as Hitler advanced in the late 1930's, but all these regulations have been retained or made more stringent up to 1950. The labor book, it should be mentioned, serves as an effective aid to enforcement of some of this legislation. The book is held by the employer and surrendered only if the employer consents to a worker's leaving his job. Under the law, the worker may not get a job unless he has his book. Unless a worker can find a new employer willing to violate government regulations, his old employer has him at his mercy. But the chronic labor shortage in the Soviet economy offers great temptations to employers to accept workers without being too fussy about the legality of their position.

In the late 1930's, the problem of skilled workers again became increasingly acute. In part this may have been a reflection of the inadequate flow of new laborers into the expanding nonagricultural sectors of the economy. In part, too, it seems likely that with increasing education of large numbers, many more young people were competent to hold, and wanted, white-collar jobs, rather than to do manual labor in the factories, mines, and railroads. Under these circumstances, the Soviet government felt it necessary to assure itself of a flow of new trained workers adequate to meet its plans for the future, even if this required sharp limitation of freedom of occupational choice for many. Accord-

[14] Gsovski, *Soviet Civil Law*, vol. I, pp. 828–30.

ingly, the decree of October 2, 1940 authorized the annual draft of between 800,000 and 1,000,000 boys between 14 and 17 years of age. Those 14 or 15 years old were ordered to enter trade and railroad schools for two years of training designed to make them skilled workers, while those 16 or 17 years old were ordered to take six months' training in factory schools preparing less skilled categories of labor. At the end of their training periods, these youths are required to work for four years at such places as ordered by the government, even if this means that they are sent far from their family and friends.[15] So far as possible the Soviet government attempts to get voluntary recruits for these schools, stressing that all students' expenses are paid during training. The deficit between government labor requirements and the number of volunteers is made up through the compulsory draft.

When this decree first appeared, many believed it was purely an emergency measure dictated by the threat of war. The State Labor Reserves, as this program is termed, has apparently become a permanent feature of the Soviet labor scene, however. During the war the draft was extended so as to cover girls 16 to 18 years of age for training in the factory schools. A decree of June 19, 1947 revised the earlier provisions somewhat, providing for the drafting of boys 14 to 17 and girls 15 and 16 years of age for trade and railroad schools, and of boys and girls 16 to 18 years old for industrial training schools. Boys up to 19 years of age may be drafted for work in the most important industries—coal and other mining, metallurgy, petroleum, and so on. Labor Reserve draftees need not fulfill their compulsory military service term until after their training and their four years of obligatory assigned work have been completed. During World War II, over 2,000,000 young workers were graduated from the Labor Reserve Schools, providing what must have been a most vital addition to the nonagricultural labor force. The Fourth Five-Year Plan provided that 4,500,000 young skilled workers should be graduated from these schools during 1946–50, over 10 per cent of the number of workers and employees planned for the national economy in 1950. Graduates of universities and technical schools are also subject to compulsory assignment for several years after being graduated.[16]

World War II brought major changes in both the supply of and de-

[15] *Ibid.*, pp. 830–31.

[16] *Ibid. Entsiklopediya*, col. 1130.

mand for workers in the Soviet economy. The available supply was cut sharply by large-scale military mobilization as well as by the loss of the population in the large western area occupied by the Germans. Requirements were cut, too, by German capture of productive resources—factories, mines, power plants, and the like—in the west, but requirements in the eastern areas free of German control rose sharply, since some 1,300 plants were moved there from the occupied zone. In addition, many new mines, factories, power plants, as well as some stretches of railroad, were built in the east during the war, requiring construction workers first and then manpower to operate the new installations. The repercussion of wartime events on the supply of workers is suggested by the available data on the number of workers and employees: 31.2 million in 1940; 19.3 million in 1943; and 27.2 million in 1945.[17] The changes that took place in the geographical distribution of the Soviet labor force during the first two years of World War II are suggested by the following data on the number of workers and employees in industry:[18]

	1940	*1943*
	(THOUSANDS)	
Total USSR	10,920	7,527
Volga Area	327	563
Urals	927	1,538
West Siberia	436	675
Central Asia and Kazakhstan	382	600
Rest of the USSR	8,848	4,151

To meet the labor needs of the nonagricultural economy during the war, the Soviet government resorted to stern measures. A decree of December 26, 1941, declared that all those employed directly or indirectly in war industry were to be considered mobilized for the duration of the war and permanently assigned to their jobs. Unauthorized departure of those mobilized was to be considered desertion, to be tried by court martial and punished by imprisonment for five to eight years. Two decrees issued in 1943 placed all railroad, merchant marine, and river craft workers under martial law. At the very beginning of the war, the chief areas of the country were placed under martial law, and military authorities were authorized to draft workers for work in connection with the war emergencies. Later, a decree of February 13, 1942, mobil-

[17] Harry Schwartz, "Soviet Labor Policy, 1945–1949," *The Annals of the American Academy of Political and Social Science*, May 1949, p. 75.

[18] Voznesensky, *op. cit.*, p. 60, gives basic data for this calculation.

ized the able-bodied adult population of the cities for work "in industries and construction projects, primarily in the aviation and tank industries, in the armament and munitions industries, and in the metallurgical, chemical, and fuel industries." Later decrees in the same year mobilized urban adults and high school students for farm work. A labor draft for invalids even was enacted in August 1942.[19] The utilization of these measures is indicated by the fact that in 1943 some 7,609,000 persons were drafted for essential work, about half of them for agriculture—probably mainly during the harvest season—and the rest for industry, construction, and forestry.[20]

During the war, therefore, almost every able-bodied civilian in the cities could be assigned to any task where labor was needed, just as if he were in the armed forces. Many less essential activities—including production of consumer goods, operating stores of all kinds, maintaining service establishments, and so on—were closed down so that their workers could be shifted to more essential occupations. Since the bulk of able-bodied Soviet manpower went into the armed forces, the role of women in the labor force increased sharply over even the high point of 1940. Women had composed 38 per cent of all workers and employees in 1940; by 1942 they were 52 per cent of the total, and accounted for more than half the work force in industry, trade, communications, communal feeding, medical services, and government administration. By the end of 1942, 40 per cent of all stevedores, over one third of all molders, 44 per cent of all compressor operators, and 50 per cent of all power-station electricians were women. The proportion of all workers under 18 and over 50 increased sharply between 1940 and 1942. Moreover, refugees from the west poured into eastern areas for new jobs, while a new wave of migrants came from the farms to fill urban jobs left vacant by men drafted for the armed forces as well as to provide workers for the many new enterprises built during the war. So far as possible, in short, every man, woman and youngster capable of working was given a role in fighting or producing for the fighters.[21]

As the Red Army reconquered the western areas of the USSR, the resident population there was put to work again operating such enter-

[19] Gsovski, *op. cit.*, vol. I, pp. 832–34, and vol. II, pp. 548–50.
[20] Voznesensky, *op. cit.*, p. 60.
[21] *Ibid.*, pp. 60–61.

prises as were fit to work and rebuilding those that had been damaged or destroyed. About 8,000,000 workers and employees were added to the total between 1943 and 1945. After World War II, demobilization of the armed forces sent large numbers back to urban and farm work. The number of workers and employees in the national economy increased by about 3,000,000 in 1946, exclusive of the substantial increase in the collective farm labor force, and by over 1,000,000 in 1947. By the end of 1949 the number of workers and employees in the national economy exceeded 35,000,000, a total some 15 per cent higher than in 1940.[22] All through the postwar period, the Soviet government maintained constant pressure to get a maximum number of its citizens working. In late 1946 rations for nonworking adults, such as housewives, were reduced below their previously low level. The monetary reform of December 1947 was a blow to persons who had made their living buying and selling goods in the favorable atmosphere created by the previous two-price system. The bulk of their previous cash accumulations was largely wiped out and their opportunity for future gains became relatively very bad, so that they had to go to work in more conventional types of Soviet employment. By the spring of 1948, less than six months after the reform, a writer in *Pravda* was able to report that large numbers of additional city people were flocking to seek factory employment. The labor situation had improved so much, he wrote, that many factory directors could now pick and choose among applicants for work, rather than having to accept all who came to their door.[23]

Important problems remained to be solved in the postwar labor situation despite the rapid increase in the number of workers and employees. Millions of demobilized veterans had never held a peacetime job before and, except for their familiarity with military machinery, presented the same training problems as the millions of new workers from the farms had in the early 1930's. Large numbers of skilled workers, specialists, and technicians of all kinds had died during the war, so that the economy suffered from a great shortage of such personnel. Both these circumstances called for a major effort in training new factory, railroad, mine, and other workers, and also help explain the continued utilization

[22] Based on Schwartz, "Soviet Labor Policy 1945–1949," *op. cit.*, p. 75; and *Pravda*, January 18, 1950.

[23] *Pravda*, May 28, 1948.

of the Labor Reserve draft technique in the postwar period. In 1949 alone, 723,000 youngsters graduated from Labor Reserve Schools, while 6,600,000 workers were trained or given new skills in on-the-job training courses.[24] The educational system was rapidly rebuilt so as to help it recover from the great ravages of war and enable it to turn out the engineers, doctors, architects, and other professional workers needed so badly if the country's economic plans were to be achieved. Great efforts and progress were made toward solving these problems during the first half-decade after the war's end. Yet even as late as the spring of 1950, *Pravda* complained of the serious shortage of engineers and technicians in the Donbas and suggested stripping research institutes of young engineers to help meet the problem.[25] It seems most unlikely that the difficulty was confined only to this area, the most important of Soviet coal fields.

Labor discipline too was a serious problem, at least in the early postwar years, though the strict legislation of 1940 remained in effect, as did the imposition of martial law upon transport workers. The use of the labor book as a means of reducing turnover proved inadequate in the early postwar years. Many workers did not have labor books, either because they had never been issued one during the confusion of the war and early postwar years, or because their books had been lost. Many employers, pressed by the need for workers to meet their goals, simply disregarded the requirement that they must not hire any one lacking a labor book. The result was that many workers could and did move freely from job to job, without getting the consent of each employer they left, despite the law's prohibition. The incentive for such turnover and shifting was the same as for the similar phenomenon in the early 1930's. Conditions of work and life through the USSR were difficult, with food, housing, clothing, and other necessities in short supply generally but varying in availability from place to place. Under these circumstances workers naturally moved from place to place in response to reports of better conditions at places other than where they worked. The Soviet press warned factory heads repeatedly in 1946 and 1947 that to curb labor turnover they had to improve workers' conditions, but this was more easily said than done under the prevailing scarcities. In the summer of 1946 a major effort was made to insure that all workers had labor

[24] *Ibid.*, January 18, 1950.
[25] *Ibid.*, March 29, 1950.

books and that the law authorizing use of this device to cut down turnover was observed. But three years later, complaints were still appearing in the press that many employers continued to hire workers who had no labor book, thus facilitating their illegal departure from their previous employment.[26]

The Work Week

In the postwar period, the basic work week in the Soviet Union has consisted of six eight-hour days, forty-eight hours in all. Sunday is the common rest day for most workers. Individuals whose jobs require them to work under specially dangerous or harmful conditions have a shorter labor day—four to seven hours—depending upon the particular occupation. Legally, overtime work is usually forbidden, except for those working in defense industries, or in case of emergency, or where technical or natural conditions require it. Overtime is paid for at a higher rate than normal working time. Some categories of workers—including women in the fourth or later month of pregnancy, nursing mothers, invalids, persons with active tuberculosis, and the like—may not be required to do overtime work. Night work is defined as that done between 10 P.M. and 6 A.M. and consists usually of a seven-hour rather than an eight-hour shift. Where operations must be conducted continuously throughout all twenty-four hours, however, night shifts are the same length as those done during the day. Workers who have been employed in one enterprise for at least eleven months are entitled to two weeks' leave with pay each year.[27]

During World War II, the work week was considerably lengthened in an effort to compensate for the reduced civilian labor force. A decree of June 26, 1941, permitted enterprise directors to require up to three extra hours daily. Many workers labored eleven hours a day six days a week, or sixty-six hours weekly, receiving 50 per cent more than their base pay for the hours worked overtime. Youngsters under 16 years were required to work no more than ten hours daily under this decree, while women more than five months pregnant or in the first month of nursing a new baby were exempted from overtime. All vacations were abolished

[26] *Ibid.*, July 27, 1946, and *Trud*, September 17, 1949.

[27] N. G. Aleksandrov and D. M. Genkin, eds., *Sovetskoye Trudovoye Pravo*, pp. 175–84. Moscow: 1946. Gsovski, *op. cit.*, vol. I, p. 826.

during the war, workers being paid for the unused leave, at first in cash and later in blocked bank credits, which were paid after the war. The two weeks' annual leave was reinstituted by a decree of June 30, 1945.

During the late 1920's and the 1930's, the seven-hour day was the standard in the USSR, but the work week varied. In order to get maximum utilization of productive equipment, a continuous work week was ordered, i.e., enterprises operated every day of the week. At first a decree of September 1929 provided that most workers labor four days, rest the fifth day, and then begin again. Later this was changed to five days of work with the sixth day off. Thus, for an individual worker, the rest day might be Thursday during one six-day period, Wednesday the next time, and so on. Not until June 27, 1940, was the seven-day week, with Sunday as the common rest day, introduced. The same decree lengthened the work day from seven to eight hours. Although this move increased hours substantially, no compensating wage increase was granted.[28]

Labor Incentives

Ideally, a worker can be most useful in the production process if he works at top efficiency all the time, if he keeps his eyes open for ways to improve methods of work and shows initiative in suggesting such changes, and if he strives to improve his own knowledge and qualifications so as to help him increase his output or to enable him to move up to a more responsible job. The problem of how to induce the millions of Soviet workers to behave in such a manner, or at least to move toward this type of behavior, has preoccupied the makers of the USSR's economic policies for over two decades. The naive notion that workers in a socialist state would necessarily become maximally productive because they felt themselves the owners of all resources has long since been discarded. By the early 1930's, it had become clear to the top leaders of the USSR that self-interest and the desire for personal gain were still the primary factors in the individual worker's reckoning. Only by enlisting the worker's self-interest could productivity be increased. This meant, of course, that monetary and nonmonetary rewards had to be offered for those contributing most to production, in accordance with

[28] Baykov, *op. cit.*, pp. 214, 351, and Gsovski, *op. cit.*, vol. I, p. 826.

the formula: "From each according to his ability, to each according to his work."

Soviet wages policy, however, was at first greatly influenced by an egalitarian philosophy born of the widespread early belief that the revolution would wipe out great inequalities of income and welfare. Wage schedules established in 1918 and 1919 therefore provided for much smaller differentials between the earnings of the highest- and the lowest-paid workers than had formerly been prevalent. Under the pressure of need to improve production, a sharp reversal of attitude took place in 1920 and 1921, a government decree on wage policy in the latter year declaring that "any thought of equalitarianism must be discarded." In 1926 and 1927, a reverse turn in the opposite direction took place, epitomized by the declaration of M. P. Tomsky before the Seventh Trade Union Congress:

> The direction of our wage policy must be along the line of a leveling of wages, on the one hand of the low-paid workers of separate industries . . . and on the other hand, within the working class itself in the direction of a leveling of the increasingly incongruous gap between the wage of qualified labor and the wage of simple, unqualified labor . . . the difference between the pay of qualified and unqualified labor is of such a colossal magnitude as does not exist in Western Europe. . . . In the future we must reduce the gap in wages between qualified and ordinary labor.[29]

While Tomsky undoubtedly exaggerated the actual differentiation in earnings at the time, in 1927, the policy he urged was put into effect so that earnings inequalities were reduced substantially in the following two years.[30]

By 1931, the pendulum had once again swung in the other direction: a speech made by Joseph Stalin set the policy that has been followed in general ever since. Raising the question of the reasons for the great turnover and instability of the labor force, he said:

> The cause is the wrong structure of wages, the wrong wage scales, the "Leftist" practice of wage equalization. In a number of our factories wage scales are drawn up in such a way as to practically wipe out the difference between skilled labor and unskilled labor, between heavy work and light work. The consequence of wage equalization is that the

[29] Quoted by Abram Bergson, *The Structure of Soviet Wages*, p. 187. Cambridge, Mass.: Harvard University Press, 1944.

[30] *Ibid.*, pp. 188–89.

> unskilled worker lacks the incentive to become a skilled worker and is thus deprived of the prospect of advancement: as a result he feels himself a "sojourner" in the factory, working only temporarily so as to earn a little and then go off to "seek his fortune" elsewhere. The consequence of wage equalization is that the skilled worker is obliged to wander from factory to factory until he finds one where his skill is properly appreciated.
>
> . . . In order to put an end to this evil we must abolish wage equalization and discard the old wage scales . . . we must draw up wage scales that will take into account the difference between skilled labor and unskilled labor, between heavy work and light work. We cannot tolerate a situation where a rolling-mill hand in a steel mill earns no more than a sweeper.[31]

Here again the existing situation was described in exaggerated fashion, but the new direction Soviet wage policy was to take had been laid down unmistakably.

Wage Determination

In the 1920's trade unions played a very important role in setting wage rates and schedules. The Central Council of Trade Unions, representing all unions, set the maximum number of wage categories and the maximum percentage difference between highest- and lowest-paid workers in all industries. The actual wages to be paid different groups of workers in all industry, within the limits set by the higher authorities, as well as the classification of the industry's employees were set by the union in that industry after consultation with the administrative personnel of People's Commissariats and enterprises. On this basis the earnings of individual workers were determined by collective agreements between unions and management or on the basis of individual employment contracts.[32]

In the late 1920's and early 1930's, however, the central government itself began to set more and more wage scales directly. Well before World War II, therefore, wages for virtually all types of employees were set by the central government as part of its comprehensive economic planning, all direct influence of unions on wages being eliminated. Since then wages have not been subject to bargaining between workers and

[31] Stalin, *Problems of Leninism,* pp. 371–72.
[32] Bergson, *op. cit.,* pp. 170–71, and Gsovski, *op. cit.,* vol. I, p. 807.

employers. Collective agreements reached between the two groups merely incorporate the rates set by state authorities. The Council of Ministers may approve wage schedules directly or authorize the head of a particular Ministry or Institution to set them.[33] In its economic planning, therefore, the government is able to determine the wages total for the economy and its branches by multiplying the planned number of workers by the rates of wages it has set. Wages are changed as seems necessary to effectuate government policy and achieve particular production ends, rather than in response to direct pressure from workers. For example, in order to attract more workers to a given industry, wages paid by it may be raised while others remain static.

Most Soviet workers and employees are paid on the basis of a rate schedule consisting of several categories, each of which has a wage coefficient, that of the lowest category being one. The rate for a worker in any category is then obtained by multiplying the rate for the lowest category by the wage coefficient of the worker's group. Payment may be either on the basis of time worked or by piece rate, i.e., per unit of product of work accomplished. Scales are usually set so as to make it possible for workers receiving piece-rate compensation to earn more than those paid on a time basis, since the Soviet government believes that payment on the basis of production results tends to stimulate output. This may be illustrated by the scale set for construction workers in 1940:[34]

Wage Category	*I*	*II*	*III*	*IV*	*V*	*VI*	*VII*
Wage Coefficient	1.0	1.17	1.40	1.71	2.15	2.75	3.66
Time Rate in Rubles/Hour	3.84	4.49	5.38	6.57	8.26	10.56	13.82
Piece Rate in Equivalent Rubles/Hour	4.96	5.80	6.94	8.48	10.66	13.64	17.86

The hourly piece rate is obtained in the following manner: each worker has an output norm setting the number of units of production he is to turn out per hour (or day, or week, as the case may be). This norm is multiplied by the payment per unit of output to get his hourly (or daily, or weekly) wage. Straight piece-work schedules give the worker a fixed payment per unit of product regardless of whether he falls below, equals, or exceeds his norm. Progressive piece-rate schedules pay a fixed

[33] Aleksandrov and Genkin, *op. cit.*, pp. 211–12, 218, and Gsovski, *op. cit.*, vol. I, pp. 806–09.

[34] Aleksandrov and Genkin, *op. cit.*, p. 218.

amount per unit until the worker reaches his norm. Beyond that a higher rate is paid per unit of output, the higher rate sometimes ranging from a 10 per cent increase for small output in excess of the norm to perhaps a 100 per cent increase for exceeding the norm substantially. This progressive piece-rate system aims at creating a strong incentive for the worker to exceed his norm substantially. Under both the straight and progressive piece-rate systems, however, workers producing less than their norm receive proportionally less earnings.

The above discussion has focused on individual workers' piece rates, but collective piece rates also exist. These provide for a team or brigade of workers to receive a fixed total sum for the completion of some major task on which all are engaged. Piece rates were applied in Soviet industry in the early 1920's, and by 1928 about 58 per cent of all workers in large-scale industry were paid on that basis. By 1935 almost 70 per cent of all workers in large-scale industry worked for piece rates.[35] In 1949, V. V. Kuznetsov, the head of all Soviet trade unions, reported that the majority of Soviet workers received payment on the basis of piece rates, including 71 per cent of those making machine tools, 83 per cent making cotton textiles, 84 per cent in the woolen goods industry, and 92 per cent in lumber milling.[36]

Premiums and bonuses are also paid workers and employees in an effort to stimulate improved work. Bonuses may be paid periodically as part of the wages of workers who reach specified quantitative or qualitative production goals, who economize on the use of raw materials or fuel, or who help lower the cost of production. Premium payments may also be made to those who show special initiative at their work, who help introduce technical improvements, or who perform assignments not entering into their usual duties. Bonuses may be paid from the director's fund discussed earlier or from a special premium fund at the disposal of top economic directors, this special fund varying between ¼ and 2 per cent of the total wages fund for the institution or economic organization involved. Bonuses and premiums apparently have a particularly important role in the compensation of enterprise directors, engineers, technicians and other supervisory officials who play a key role in seeking fulfillment or overfulfillment of state eco-

[35] *Sot. Stroi.*, p. 526.
[36] *Pravda*, April 21, 1949.

nomic plans.[37] Somewhat similar to the bonus system in its incentive effect is the institution of "personal rates." Persons of outstanding ability entitled to such rates can negotiate for themselves salaries up to 150 per cent of the government-fixed salaries of ordinary specialists in their field.[38]

Since the beginning of the First Five-Year Plan, strong inflationary pressures have influenced the course of Soviet money wages and caused them to rise very substantially. Whether the sharp rise in average money wages has been accompanied by a corresponding increase in real wages seems dubious, in view of the rapid increase in prices for food and consumer goods during the 1930's and through 1946, as well as the scarcities of these commodities and housing during most of the past two decades. Among the forces making for the rise in money wages have been: competitive bidding for labor between plants; government efforts to attract workers to nonagricultural jobs; the institution of incentive wage-rate systems such as straight and progressive piece rates, bonuses, and so on. These forces have usually combined to send wages up more rapidly than provided for by government plan, so that wages in turn have tended to act as an inflationary force upon other parts of the Soviet price system. Some increases in wages, as in the mid-1930's and in 1946, were instituted in order to compensate workers partially for sharp rises in prices of goods they bought as the state sought to end rationing and to institute a system of unlimited sale of goods at higher fixed prices. The change in average annual money earnings of workers and employees in the Soviet economy is shown by the data below, in terms of rubles:[39]

1928	703	1936	2,856
1929	800	1937	3,047
1930	936	1938	3,467
1931	1,127	1940	4,100
1932	1,427	1946	6,000
1933	1,566	1947	7,100
1934	1,858	1948	7,400
1935	2,269		

[37] Aleksandrov and Genkin, *op. cit.*, pp. 208–10.

[38] *Ibid.*, pp. 214–15.

[39] Sources: *Sot. Stroi.*, pp. 512–13; Abram Bergson, "A Problem in Soviet Statistics," *The Review of Economic Statistics*, November 1947, p. 236; Harry Schwartz, "Soviet Labor Policy 1945–1949," *The Annals of the American Academy of Political and Social Science*, May, 1949, p. 80; *Itogi Vypolneniya Vtorogo Pyatiletnego Plana*, p. 105.

Real Earnings

The data on money earnings given above are very misleading guides to changes in the purchasing power of workers' incomes, since they do not take into account the great rise in prices since 1928. It is difficult to correct satisfactorily for these price changes because of the lack of adequate price data and because of the Soviet government's failure to publish a cost-of-living index for most of this period. A somewhat more satisfactory insight into changes in real earnings may be obtained, however, by employing the index of state store food prices in Moscow discussed in Chapter XI above. The great importance of food in Soviet workers' budgets suggests that it is not unreasonable to use an index of food prices as a crude measure of changes in living costs, particularly since changes in the most important ordinary consumer goods' prices have usually been in the same direction as food price changes. If we use the Moscow food price index to deflate the money earnings figures given above, we obtain the following interesting results:

TABLE 59. Money Earnings of Soviet Workers Deflated by Food Price Index.

Year	*Average Annual Earnings*	*Food Price Index* (1928=100)	*Earnings in Terms of 1928 "Food Rubles"*
1928	703	100	703
1932	1,427	201	710.0
1936	2,856	830	344.1
1937	3,047	835	363.8
1938	3,467	858	404.1
1940	4,100	1,180*	347.5
1948	7,400	2,954	250.5

* January 1941.

No great precision can be claimed for the results above. For 1932 the figure derived above in the last column grossly exaggerates the relative purchasing power of earnings in terms of food, since it does not reflect the fact that strict rationing was in effect in that year. The absence of data for the war and immediate postwar years of 1940–47 also hides the depths to which purchasing power sank in the worst times. On the other hand, it must be pointed out that we cannot be certain that clothing and consumer goods prices of all kinds

rose as much as food prices did over this period, though we know that clothing prices did rise very sharply. Also the calculations above ignore the stability of Soviet rent rates over most of the period indicated, a stability that resulted in rents becoming a very small fraction of urban workers' budgets by 1948; and the deficiencies of our food price index, based on a small sample of Moscow prices, as a measure of national price changes are clear.

Yet, after all the technical weaknesses and the mitigating factors relevant to the data above have been taken into account, the story told by these data is too striking and too clear to be dismissed. The order of magnitude of the changes shown are too great to have the over-all picture altered substantially. The cost of Soviet industrialization in the early and mid-1930's was partially paid by the workers through a sharp decline in their real earnings and standard of living. Some improvement took place in the late 1930's, but even this may have been entirely or almost entirely wiped out on the eve of Nazi invasion in 1941. The full depth of the decline in purchasing power and standard of living during the war is hidden from us. It is suggested however, by the fact that in 1948, after great improvement had taken place, real earnings were still far below the worst indicated prewar figures. The deficiencies of the 1932 "food ruble" figure shown above have been mentioned. Taking this into account, the striking conclusion is suggested that never since the early 1930's has the Soviet worker's purchasing power been anywhere near the level he enjoyed in 1928.[40]

The Soviet government has claimed, "The average income of the factory or office worker in 1949, measured in comparable prices, was 12 per cent greater than in 1948 and 24 per cent greater than in 1940."[41] This statement is obviously quite inconsistent with the data in the table above. The contradiction involved cannot be resolved because of the Soviet government's failure to support its claim with detailed statistical evidence. Nevertheless, if, for the sake of discussion, we tentatively accept the Soviet claim that real earnings in 1949 were 24 per cent greater than in 1940, the resulting comparison with

[40] The standard of living implications of this statement are strengthened in probability by the discussion of the deterioration of urban housing conditions since 1928 given in Chapter XI.

[41] *Pravda,* January 18, 1950.

1928 is still unfavorable. Applying 124 per cent to the 1940 figure in "food rubles" above gives a result of about 430.9 rubles, less than two thirds of the 1928 food-purchasing power. Actually, of course, the Soviet claim is suspect because of the lack of supporting data, so that the real earnings of Soviet workers in 1949 may have been much less favorable, either with respect to 1928 or with respect to 1940. The price reductions inaugurated on March 1, 1950, undoubtedly increased real earnings appreciably, but again available data are inadequate to make any precise evaluation of their importance, since, as this is written, we have no reasonable basis for estimating average earnings in 1950. It may well be, however, that after these price reductions the purchasing power of Soviet workers' earnings had increased near to or perhaps had even equaled the level of 1940.

Soviet spokesmen have argued, explicitly or implicitly, that comparisons of wages and prices such as that made above do not tell the entire story because of the added "social income" of workers, i.e., free medical care, subsidies to large families, social insurance payments, and so on.[42] This argument obviously has some truth to it and must be considered. Nevertheless, over the period considered above, the additions to real income from this source can hardly have been great enough to change the over-all picture very appreciably. In the Soviet Union, as in other countries with low standards of living, real income in terms of food, housing, and basic consumer goods is still the dominant element in judging the changing well-being of the mass of the population.

Differences in Earnings

Wages differentiation in the Soviet economy takes a number of forms: differentiation among industries and branches of the economy as well as differentiation among various grades of workers in one industry or plant. The differentiation in average annual earnings among different branches of the economy and their changes over time may be illustrated by the following data in rubles:[43]

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[42] Cf. Voznesensky, *The Economy of the USSR during World War II*, p. 64.
[43] *Sot. Stroi.*, pp. 512–13.

Branch of Economy	*1928*	*1935*
Large Industry	870	2,375
Construction	996	2,497
Transport	861	2,389
Agriculture	290	1,566
Forestry	395	1,525
Communications	776	1,944
Trade	783	1,851
Restaurants	623	1,552
Education	678	2,328
Medical Services	638	2,249
State Administrative Personnel	903	3,246
Banking	981	2,664
Entire National Economy	703	2,269

If we look at the most dynamic single branch of the economy during the 1930's, large-scale industry, we also find a rapidly changing pattern of wages marked by strong differentiation among particular industries. The trend of change among industries was such as to raise most sharply the earnings of workers in heavy industries, while those producing consumer goods found their wages lagging behind, as a reflection of the lower importance attached to them. Thus average wages of coal miners in 1928 were fourteenth in rank among seventeen branches of large industry; by 1935 they were fourth. On the other hand, printing workers' wages fell from second highest in 1928 to eighth in rank in 1935, while shoe workers' wages fell similarly from fourth to ninth place over the same period. In 1935 the ranking of industries by wages, from highest to lowest, was: petroleum, electric power stations, metal-working and machine construction, coal, iron and steel, iron-ore mining, chemicals, printing, shoes, fur and leather, woodworking, cotton textiles, paper, wool textiles, clothing, processed food, and linen textiles.[44] By the mid-1930's, therefore, the important wage advantage of heavy industry over light industry must have given the former a substantial edge in the competition for workers.

All the available evidence indicates that sharp differences exist among the earnings of different workers in the Soviet Union. These arise from differences in output and types of work performed. Presumably inequality of earnings has increased substantially since Stalin's attack on equalitarianism in 1931, but comprehensive data are lacking

[44] *Ibid.*, p. 525.

since the mid-1930's. In October 1934 the distribution of earnings for wage earners and salaried workers in Soviet industry was as follows:[45]

Monthly Earnings in Rubles	*Per Cent of Wage Earners and Salaried Workers Receiving These Earnings*
Less than 60.1	4.7
60.1 to 120.0	28.4
120.1 to 180.0	30.5
180.1 to 240.0	15.8
240.1 to 300.0	9.0
300.1 to 380.0	5.6
380.1 to 500.0	3.8
500.1 to 580.0	.9
580.1 to 660.0	.5
660.1 to 780.0	.4
780.1 to 940.0	.2
940.1 to 1100.0	.1
Over 1100.1	.08

Prof. Bergson has pointed out that in October 1934 some Soviet workers earned less than 50 rubles while others received more than 1,420 rubles, indicating that at that time the highest-paid Soviet workers got more than 28.3 times as much as the lowest-paid ones. Comparing the wage patterns of Soviet industries in 1928 with those of American industries in 1904, Prof. Bergson found them remarkably similar, leading him to conclude that in both countries capitalistic wage principles had been paramount.[46]

Inequality of earnings probably increased during World War II. The progressive piece-work system was extended to more workers. In the case of railway train and dispatch crews, the rate of payment for fulfillment of between 100 and 110 per cent of the base quota was twice the base rate, while triple rates were paid for achievement above 110 per cent of the quota.[47] During the war, the monthly earnings of ordinary workers in all-union industry—primarily heavy industry—rose from 375 rubles in 1940 to 573 rubles in 1944, or little more than half. In the same period average earnings of engineering and technical workers rose from 768 rubles to 1,209 rubles. In the iron and steel industry in 1944, the average wage of engineering and technical workers

[45] Bergson, *The Structure of Soviet Wages*, p. 228.

[46] *Ibid.*, pp. 129, 96.

[47] A. E. Pasherstnik, "Problems of Legal Wage Regulation in Wartime," *The American Review on the Soviet Union*, May 1946, pp. 64–65.

reached 1,725 rubles, roughly three times the average for ordinary industrial workers.[48]

In the early postwar period, inequality of earnings was apparently reduced somewhat by the government decree providing for arbitrary increases in wages, the highest rise going to the lowest-paid workers. These increases were intended to compensate partially for the approximate tripling of ration food prices in September 1946. The results may be illustrated by the machinery industries. Before the reform, two wage payment systems existed in these industries, one giving the highest-paid worker 3.2 times as much wage as the lowest-paid, and the other giving him 3.6 times as much. After the reform, these ratios were reduced to 2.1:1 and 2.65:1 respectively, a fact deplored by a Soviet analyst. The same writer pointed out that the incentive functioning of the graded wage system in the postwar period was weakened by the unjustified upgrading of workers. He cited plants where few or no workers received the lowest wage rates, while a more-than-justifiable number received a medium wage rate.[49]

Data on wages actually paid to individual workers in the postwar period are extremely fragmentary. Those published are usually selected to emphasize the heights to which wages can go for workers who show outstanding production results. Published data are not a random sample showing the full range of variation of all workers' earnings. Nevertheless these figures serve to point up the extremes of inequality of earnings during this period. It was indicated above that in 1948 the average annual earnings of all workers and employees were about 7,400 rubles or not quite 620 rubles a month. Reports made public in 1948 and 1949 told of outstanding skilled miners receiving incomes of 5,000 to 10,000 or more rubles monthly.[50] At the other extreme it seems most likely that some workers earn only 150 or 200 rubles monthly, so that the extreme ratio between the highest-paid industrial workers in the USSR and the lowest-paid may well be 50:1 or even higher. College teachers are reported to receive between 4,000 and 5,000 rubles monthly, while heads of research institutes receive 8,000 rubles monthly. A member

[48] *Voprosy Ekonomiki*, No. 10 (1948), pp. 26–27.

[49] *Ibid.*, pp. 28–29.

[50] Cf., for example, *Pravda*, December 8, 1948; *Izvestia*, September 1, 1949; *Trud*, January 1, 1949; *Zarya Vostoka*, July 26, 1949.

of the Academy of Sciences receives 5,000 rubles a month just by virtue of his position. Since many academicians also head institutes or laboratories, their monthly earnings are apparently 13,000 rubles, supplemented in many cases by royalties, prizes, consultants' fees, and the like. Similar or higher earnings are received by top industrial and government officials, while authors of successful novels, plays, and other books probably receive even higher incomes than any of those mentioned above. Stalin Prize Winners may get up to 200,000 rubles, at least 100 times as much as the annual income of the lowest-paid Soviet workers.

Nonmonetary rewards and incentives also play an important role in spurring Soviet citizens on to increase their output and their qualifications. Outstanding workers are widely publicized and acclaimed as heroes who should be emulated. They are awarded decorations and honors, such as the Order of Lenin or the Order of the Red Banner. They are made Heroes of Labor. They are elected to the Supreme Soviet and other legislative bodies. Material rewards are given them, such as preference in allocation of housing space or—during the period of greatest shortages during and after World War II—priorities in receiving food and consumer goods. The outstanding worker is more likely to get the right to a vacation in the Crimea or other resort area than the one who merely fulfills his quota. On the other hand, the backward worker often finds his name posted on a plant bulletin board with the objective of shaming him into improving his performance. Also he is likely to fare worst in the sharing of scarce housing and other resources.

Appeals are made to the worker's loyalty to his factory or other production unit in order to increase productivity. Socialist competitions are held frequently between different plants, railroads, mines, or the like, the objective of these competitions being to attain the highest quantitative production, or the best quality output, or the lowest cost, or some similar goal. Cash prizes were introduced during the war for plants winning all-union socialist competitions. These prizes provided bonuses for managerial and production workers. During the war, plants engaged in armament or iron and steel production were paid first prizes ranging up to 700,000 rubles for plants having more than 30,000 workers. In 1949 it was reported that, during each quarter of the year, 1,000 Red

Banners and 2,500 cash prizes were awarded to the victors in socialist competitions.[51] Such competitions may be called in honor of May Day or in honor of an anniversary of the Bolshevik revolution; or they may be initiated by one enterprise challenging all others of its type. The notion behind them is always that of utilizing the worker's team spirit to spur him on. Soviet press accounts often claim that these competitions arouse great enthusiasm among workers and spur them on to new achievements. At other times, however, the press complains that competitions are carried on only in the most formal sense, indicating that they sometimes mean little or nothing to the workers whom they are supposed to spur on to better performance.

The Stakhanovite movement has also been used as a means of raising productivity. It was initiated in 1935, when Alexei Stakhanov, a coal miner, set a new production record by reorganizing his own and his fellows' work technique. His achievements were publicized throughout the country, and soon similar outstanding and phenomenal production records were being chalked up by Stakhanovites in many different industries. Often these production records were made possible only by the creation of specially favorable conditions of work and by placing strains upon equipment far greater than those it was meant to stand, but in its propaganda the Soviet government cited the Stakhanovites' production records as examples of what could be attained if workers tried harder and improved the organization of their daily routines. Work norms for all workers were raised several times in the late 1930's, the increases being justified in part on the basis of the much higher output achieved by Stakhanovites. The output of these outstanding workers is often many times the average of their fellows, many of whom lack the strength or the skill to emulate the record achievements.[52] In the postwar period more emphasis has been put upon creating Stakhanovite work teams, but rewards to the large number of individual Stakhanovites remain high. Enterprise directors are constantly urged to base production quotas for all workers upon the average of the best workers, rather than upon the simple average performance of all workers, good and bad.

[51] Aleksandrov and Genkin, *op. cit.*, pp. 210–11; *Pravda*, April 21, 1949.
[52] Gordon, *Workers Before and After Lenin*, pp. 171–76 and 406–09.

Productivity

At the beginning of the five-year plans in 1928, the productivity of Soviet nonagricultural labor was clearly far below that of workers in comparable occupations in the United States and Western Europe. Soviet equipment was antiquated, and the techniques employed were often obsolete. Hand workers predominated in many occupations that had been taken over by machinery in other countries, while the influence of modern time and motion studies and other rationalizing techniques had been scarcely felt in the Soviet Union. Since that time much effort and expense have gone into the task of improving productivity. Tens of thousands of new modern machines have been introduced in every production field. Time and motion studies and related techniques similar to those sponsored by Taylor and others in the Western world have been applied widely. Great pains have been taken to spur workers on to improve the intensity of their labor, to increase their skills, and to improve the quality of their performance. All these forces have undoubtedly done much to raise worker production per man-hour, although they have been applied under very difficult conditions. The great expansion of the nonagricultural labor force during the 1930's and the war and postwar convulsions in the labor market in the 1940's brought millions of untrained and unskilled new workers into factories, mines, and railroads. The speed with which productivity rose depended on the rate at which these new workers could be trained and assimilated into the work force.

Soviet data on the average productivity in the 1930's and the 1940's were obtained by dividing gross output in terms of 1926–27 prices by the number of workers. The deficiencies of these prices mentioned earlier in this volume apply equally well to the measurement of productivity as to that of gross production. In both cases they tend to exaggerate the actual increase achieved.[53] For this reason Soviet statements on productivity gains during the 1930's and 1940's are probably too high, though there is no question but that real gains of a substantial nature were made. The official claim is that between 1928 and 1940 productivity per worker in industry increased by more than 3.5 times, or at an average

[53] *Slovar-Spravochnik po Sotsialno-Ekonomicheskoi Statistike,* p. 218.

of about 11 per cent annually.[54] The initial impact of the Nazi invasion upon the Soviet economy, with its attendant confusion, disruption, and changeover from civilian to military goods, must have reduced productivity substantially below the 1940 level. During the war itself, however, substantial gains were made from the original low levels. The Soviet claim is that productivity per industrial worker rose about 40 per cent on the average during World War II, the sharpest gains being made in armaments production, where productivity is said to have risen 70 to 90 per cent.[55] This claim is no doubt also exaggerated, for the reasons indicated above, but it is clear that substantial if lesser gains must have been realized. Factories reconverted from, say, tractor to tank production undoubtedly produced much more efficiently in 1944 than in 1941. A similar gain occurred in this country during the years of World War II.

The Fourth Five-Year Plan called for labor productivity in industry in 1950 to be 36 per cent above the prewar level. Initially, however, labor productivity in 1946 fell, as the result of the difficulties experienced in reconverting from war to peace production. This decline seems confirmed by the failure of the State Planning Commission to mention any increase in productivity in its report on economic progress during 1946. Increases of 13, 15, and 13 per cent in average labor productivity were reported for 1947, 1948, and 1949, respectively, as against each preceding year, or a total increase by 1949 over 1946 of 43 per cent. Productivity in 1946 was substantially below the prewar level, and not until 1948 was the prewar level of industrial productivity reported exceeded. Whether the prewar level would have been recorded as surpassed if a less inflationary measure of productivity had been employed is uncertain. At any rate, in 1946, in terms of the USSR's own indicator, industrial productivity was probably 20 per cent or more under that of 1940.[56]

Before World War II, Soviet economists calculated the per capita output of industrial workers in other leading countries in terms of rubles and compared these figures with the corresponding ones for the Soviet Union. They expressed the average productivity of Soviet workers in 1928, 1932, and 1937 as percentages of the average productivity of

[54] Sh. Turetsky, *Proizvoditelnost Truda i Snizheniye Sebestoimosti v Novom Pyatiletke*, p. 49. Moscow: 1947.

[55] *Ibid.*

[56] Schwartz, *op. cit.*, p. 77.

American, British, and German workers in those years, and got the following results:

	Soviet Industrial Productivity as Per Cent of		
Year	USA	GREAT BRITAIN	GERMANY
1928	16.2	55.3	44.6
1932	26.2	70.7	60.5
1937	40.5	103.1	97.0

Full details of these calculations have never been made public, so their accuracy has not been subjected to proper check. Nevertheless the conclusion that in 1937 Soviet industrial productivity per worker was still well below half that in the United States seems unquestionable. The comparisons with Great Britain and Germany seem more open to doubt.

Supplementing these data for all industry, Soviet economists also compared worker productivity in particular industries. Soviet coal output per worker-hour in 1937, they found, was 67.4 per cent of the American, 106.4 per cent of the British, and 76.9 per cent of the German level. Soviet pig-iron output in tons per worker-year in 1937 was 46.7 per cent of that in the United States, 128.2 per cent of the German level in 1935, and 142.6 per cent of the English level in 1936. Similar comparisons were found for other industries.[57]

Soviet studies of the reasons for lower productivity in the USSR than the United States focused attention upon the great number of workers required in their plants to supplement those directly engaged in production. In the automobile industry of the USSR, for example, such ancillary service employees were 55.3 per cent of the total in 1937. In 1929, they formed only 29.3 per cent of the workers in the United States automobile industry. Surface workers in the Soviet coal industry formed 24 to 25 per cent of the total, but were only 14 to 18 per cent of those employed in the United States.[58] A comparison of the Soviet Kemerovskaya power station with the South Amboy station in the United States found that though the American installation produced somewhat more power and though both operated under much the same conditions, the Kemerovskaya station employed 480 men, 9.5 times as many as the South Amboy plant. In the case of an American coal mine producing three

[57] *Planovoye Khozyaistvo*, No. 3 (1939), pp. 152–54.
[58] *Ibid.*, No. 9 (1939), p. 33.

times as much as the Kizelugol Trust in the Urals, a study showed that the latter had eleven times as many technical workers, twice as many miners, three times the number of surface workers, eight times as many office workers, and twelve times the number of supervisory officials. The Inland Steel Company in this country employed 9,200 persons to turn out 1,500,000 tons of steel annually, while the Soviet Dzerzhinsky plant used 20,000 workers to produce 1,200,000 tons in 1939.[59] Commenting on productivity differences between American and Soviet workers, an American engineer who worked many years in the USSR has written:

> The unfavorable comparison of the productivity of the Soviet worker with that of his American colleague is in no way an expression of Russian laziness or lack of dexterity. The Soviet worker as an individual does more physical work in his eight-hour shift than the American. But each department needs 50 to 100 per cent more men than a similar American department. The reasons are inferior quality or absence of automatic controllers for flows, pressures, etc., and of photoelectric and electronic equipment; inferior quality or absence of hand and machine repair tools; shortage of spare parts and materials; and inferior organization.
>
> The American engineer can hardly realize the difficulties facing his Russian colleague. Small tools, a reasonable stock of spare parts, and the ready availability of parts not in stock are taken for granted in the U.S. The Russian usually has machines and equipment from the most widely separated sources, and no spare parts at all. In Voroshilovsk, for example, in the by-products department, we had pumps from Skoda, run by motors from Germany's A.E.G., some on Italian ball bearings and some on Swedish S.K.F. bearings. The steam pumps came from Worthington, in the U.S., while some small turbine pumps came from Britain's Metro-Vickers. Some relays came from G.E., and the motor controllers from Cutler-Hammer. No catalogues were available and, even if we had been able to select the necessary replacement or spare parts, currency was obtainable only under the most extreme circumstances.[60]

Soviet leaders are undoubtedly well aware of these weaknesses. Much of their current effort is directed toward raising productivity by improving the quality of equipment available to their workers as well as the efficiency of work organization. The increasingly wide introduction of assembly lines and related mass-production techniques in the past decade is illustrative of the moves being taken to improve industrial productivity both absolutely and relatively vis-a-vis the United States. Yet it

[59] A. Yugow, *Russia's Economic Front for War and Peace*, p. 180.
[60] Louis Ernst, "Inside a Soviet Industry," *Fortune*, October 1949, p. 172.

is most significant that as late as September 11, 1950, *Pravda* found it necessary to print a long article complaining about the frequently low productivity in Soviet plants. In terms reminiscent of those employed a decade earlier, the article inveighed against the great dominance of hand workers in ancillary branches of production, such as loading and unloading, intra-plant transport, and the like. In many plants, the article revealed, such ancillary workers outnumber those employed in direct production, the same situation denounced before World War II.

In any consideration of Soviet productivity, it must be remembered that at any given time the level of output per worker differs considerably between different plants in the same major industry. The best and most modern plants in the USSR probably enjoy a very high rate of worker productivity, perhaps equalling or exceeding that of some plants in the United States, while far worse productivity is obtained in less modern and less well-run factories. A vivid example of the differences in worker productivity among Soviet plants is provided by the following data on per capita iron and steel output for workers on blast furnaces and open-hearth furnaces in various plants in 1939.[61]

Plant	*Pig Iron* (METRIC TONS PER WORKER)	*Steel* (METRIC TONS PER WORKER)
Magnitogorsk Combine	2,840	1,168
Kuznetsk Combine	2,324	1,389
Krivoy Rog Plant	1,733	–
Zaporozhstal	1,579	1,074
Azovstal	1,642	664
Kirov Plant	2,102	523
Dzerzhinsky Plant	785	529
Petrovsky Plant	799	299
Kramatorsk Plant	725	293
Ordzhonikidze Plant	707	400
Frunze Plant	636	403

In the data above, pig-iron productivity at Magnitogorsk was more than four times as great as that at the Frunze plant. The variation in steel productivity between the Kuznetsk and Kramatorsk plants was almost five to one. Obviously, therefore, conclusions about Soviet productivity based on observations at one or a few plants may be misleading, while reliance on averages alone conceals the great differences between different plants.

[61] Bardin and Banny, *Chernaya Metallurgiya v Novoy Pyatiletke*, p. 166; a very illuminating analysis of such variation is given in *Voprosy Ekonomiki*, No. 6 (1950), pp. 30–40.

Labor Unions

Soviet labor unions differ in functions and objectives from similar groups in capitalist countries. They are completely creatures of the state, the employer of their members. As such their chief goal and purpose is to stimulate in every way possible the growth of production and worker productivity. They act as instruments of the state in administering social insurance legislation and helping to enforce legislation regarding industrial safety, housing, and other matters. Soviet unions are under the complete control of the same ruling Communist Party hierarchy that controls the USSR's government and economic system. Under these circumstances it is not surprising that strikes have been virtually unknown for over two decades, that wages are set by government order rather than by collective bargaining, and that some of the most repressive measures now governing Soviet workers have been announced by the government as originating in response to union wishes. The Soviet justification for the "company union" character of these organizations derives from the assumption that the USSR is a workers' state. It is argued that there can be no basic difference of interest between employee and employer such as is normal in a capitalist economy. The Soviet emphasis on trade-union stimulation of production is defended on the ground that the real income of all workers can only be increased if production rises. Since there is no unemployment in the Soviet Union, it is argued, workers and their unions need not be afraid that higher production or technological advance will harm them, and therefore they need not follow the restrictionist or anti-innovation policies of unions in capitalist countries. It is impossible to tell whether ordinary workers in the USSR are convinced by these arguments, since under the conditions of Soviet life expression of contrary opinion is not permitted. The apparent lack of opposition to this type of unionism need not necessarily reflect worker support or acceptance.

It took more than a decade of debate and controversy after the 1917 Bolshevik revolution, however, before the present philosophy of trade-union role and function became indisputably dominant. In the first five years after Lenin's seizure of power, several different viewpoints contested the issue. Trotsky, in a 1920 pamphlet, took a position similar to that which finally triumphed, arguing that since workers now controlled

the state, trade unions should be merged with the government. He saw their new functions as centering primarily about the creation of an "atmosphere of productivity" so as to help the state gain its economic goals. He urged that Soviet unions wage war against the spirit of "trade unionism"—by this he meant the objectives and tactics of unions in a capitalistic society where the interests of workers are considered opposed to those of employers. At the same time, Mikhail Tomsky, head of the Soviet trade unions, argued that unions must have a separate and independent existence apart from the state so that they could defend workers against the government administrators who were their direct employers. Lenin himself at times seemed to lean toward this position, for he told the Tenth Party Congress in March 1921:

> Ours is a workers' government with a bureaucratic twist. Our present government is such that the proletariat, organized to the last man, must protect itself against it. And we must use the workers' organizations for the protection of the workers against their government.[62]

At other times, however, Lenin argued that the unions must be the "faithful ally" of the employing state, and he envisaged them as "reservoirs of state power, a school of communism, a school of management."[63] By this he apparently meant that trade unions should concentrate on indoctrinating workers, rather than on actually taking over administration of the economy itself as had been urged in the 1919 program of the Russian Communist Party.

Under Tomsky's leadership during most of the 1920's, Soviet trade unions did do much to defend workers' interests, fighting particularly against excessive differentials between highest- and lowest-paid workers. The struggle between those who shared Tomsky's view that unions must emphasize the protection of the workers' interests as sellers of labor power, and those, like Stalin, who maintained that the unions must be instruments of the state emphasizing maximum worker productivity, came to a head in 1928 and 1929. Tomsky and his supporters were removed from their positions and replaced by men like N. M. Shvernik, who supported Stalin's policies, so similar to those Trotsky had advo-

[62] V. I. Lenin, *Sochineniya*, 3rd edition, Moscow, vol. 26, p. 104.

[63] V. I. Lenin, *Selected Works*, vol. IX, p. 70. New York: International Publishers, 1943.

cated a decade earlier. The official evaluation of the sins committed by Tomsky and his cohorts was put in these terms:

> Instead of mobilizing all the forces of the working class for the development of an increased tempo in socialist construction, for the fulfillment of the Five Year Plan . . . the old leadership of the trade unions gave precedence to the "defensive" work of the trade unions as against the problems of their participation in socialist construction. Through Tomsky the old leadership urged that "it is impossible at the same time to manage an enterprise on the basis of commercial cost-accounting and yet be the exponent and defender of the workers' interests." . . . This was an expression of narrow "trade unionism."[64]

The Sixteenth Congress of the Communist Party, held in 1930, set down the new conception of trade-union functions and objectives in these terms:

> Under the leadership of the party, the trade unions have now removed their bankrupt leaders and have begun a determined fight against the elements of "trade unionism" and opportunism in the trade union movement. Today the basic factor in energizing and improving the entire work of the trade unions must be Socialist competition and its offspring, the shock brigades. Socialist competition and the shock brigades must become the primary concern of all the constructive activities of the unions. The problem of the trade unions is the organization of the Socialist competition and the shock brigades.

Union Organization

Soviet labor unions are organized on the industrial principle, i.e., a union in a given field will include all workers employed in plants in the industry or industries within the union's jurisdiction. Thus there is one union for all metallurgical workers, another for coal miners, another for employees in all branches of lumbering, and so on. The jurisdictional scope of different unions has varied sharply from time to time, with the result that there have been great fluctuations in the number of individual unions existing in different periods. In the fall of 1937, the existing 47 unions were broken up into 154 smaller groups. In the fall of 1945 there existed 168 unions in the USSR according to the report of the CIO group that visited there at that time. Thereafter another change

[64] *Pravda,* April 12, 1932.

in policy took place, with the result that unions were reamalgamated again, so that in April 1949 there were only 67 individual unions.[65]

Membership in trade unions is nominally voluntary, and not all Soviet employees belong to them, though the overwhelming majority do. There is undoubtedly much social pressure on workers to join the unions, and in addition members have certain advantages over nonmembers. These include the right to receive greater social insurance payments than nonmembers, preference in admission to rest homes and sanatoria, free legal aid, and like privileges. New members pay an initiation fee of 1 per cent of their wage and then monthly dues equal to 1 per cent of their net monthly wage. The growth of Soviet labor union membership has been roughly parallel to the growth of the number of nonagricultural workers in the USSR, and enrollment has varied between 65 and 90 per cent of those eligible for membership. In January 1918 Soviet trade unions had 2,532,000 members. This number increased to almost 11,000,000 by 1928. The rapid industrialization of the country was reflected in membership growth during the 1930's, so that by the beginning of World War II, there were about 25,000,000 members, out of more than 30,000,000 wage earners. In 1947 there were 27,000,000 members; by April 1949 this total had risen to 28,500,000.[66]

No recent figures have been published on the membership of different Soviet unions, but data for October 1, 1935, showed that some unions, such as those of agricultural workers, had over 1,500,000 members, while at the other extreme there were only 65,200 union paper workers and 94,000 union sugar refinery workers. The percentage of workers in different industries belonging to unions varied at that time from slightly over 90 per cent among clothing workers and hotel and restaurant employees to 48 per cent among sugar refinery workers and 60.8 per cent among forestry workers. In most industries at that date between 80 and 90 per cent of the workers were unionized.[67] In general highly seasonal occupations had the lowest percentages of union members.

The structure of Soviet trade unions is pyramidal. The primary unit is the shop or factory group, the former in large enterprises. The branches of a particular union are combined into district, regional, re-

[65] *New York Herald-Tribune,* March 18, 1946; *Pravda,* April 21, 1949.
[66] *Entsiklopediya,* cols. 1753–54; and Pravda, *op. cit.*
[67] *Trud v SSSR,* pp. 56–62. Moscow: 1936.

publican, and finally all-union organizations, the latter of course being the national union itself. The branch meeting of members is the primary source of authority at the local level, and its participants elect both a factory committee (or shop committee if it is a shop unit) and an auditing committee. The former attends to the local's business between branch meetings and the latter checks on the factory or shop committee's work. At the district, regional, republican, and all-union levels, conferences of elected delegates are held from time to time, and these elect corresponding district, regional, republican, and all-union committees to operate the organization, as well as corresponding auditing committees. Thus each national union's central committee is at the apex of a hierarchical pyramid whose broad base is the multitude of local branches throughout the country.

Integration of the different unions is also realized at all levels. The All-Union Trade-Union Congress—which under present rules must meet at least once every four years—includes delegates from all Soviet trade unions, and is nominally the ultimate source of power in general union policy. This Congress elects the All-Union Central Council of Trade Unions (AUCCTU), which functions between congresses as the directing and policy-making body for the entire union movement. In the postwar period republican, territorial, and provincial trade-union councils were formed to integrate union activities in each area of the country. Earlier experience had apparently shown that lack of such coordinating groups resulted in many deficiencies in trade-union work.[68]

Soviet trade unions are organized on the principle of "democratic centralism," by which is meant that all trade-union officials are elected by the membership or the membership's delegates, that decisions are made by majority vote, and that at any stage in the hierarchical pyramid the decision of a higher body (say, a republican organization or the all-union central committee of a union) is binding on all units subordinate to it. In actual practice control of the trade-union organization is highly centralized, but the adherence to democratic practices—as distinguished from merely democratic forms—has often been poor. Perhaps the most striking example of this was the failure to hold any All-Union Congress of Trade Unions for seventeen years, between 1932 and 1949, a period in which many major decisions were taken and executed without any

[68] *Pravda,* October 16, 1948.

direct reference to the membership's wishes. In 1935 the Soviet press raised a hue and cry about the lack of democracy in the trade unions, revealing that many officials were appointed rather than elected and that these officials often abused their power.[69] Reforms made then apparently did not end bureaucratic violations of trade-union democracy, for such complaints have frequently appeared in the Soviet press since then.[70] In any case, of course, the Communist Party leadership controls the trade unions and bends them to its will, and no effort is made to poll the membership before many major decisions are taken. The Tenth All-Union Congress of Trade Unions, which finally took place in April 1949, saw no complaints voiced about the failure to meet for almost two decades. There was no free debate about union policy at this congress either.

Union Functions

The statutes and bylaws of Soviet trade unions set down nine categories of functions for these organizations. These follow together with comment on them:[71]

> 1. Organize socialist competition of workers and employees for fulfilling and overfulfilling state plans, increasing the productivity of labor, improving the quality and lowering the cost of production.

This, we have seen above, is the primary function. Not infrequently attention has been focused so single-mindedly upon this function that trade-union officials have neglected to protect the interest of workers.

> 2. Participate in planning and regulating wages of workers and employees, in devising a system of wages guided by the socialist principle of pay according to amount and quality of labor; strive to introduce new progressive output norms; keep track of the correct calculation of labor and the application of piece-work and progressive bonus pay for labor.

It will be noted that there is no mention here of trade-union negotiation with employers regarding wages, but merely of participation in devising wage scales that will have maximum incentive effect. There is little information on the extent, if any, to which trade-union leaders actually influence Soviet government wage policy and act as advocates of workers'

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[69] Gordon, *op. cit.*, pp. 110–13.

[70] See, for example, *Trud,* October 28 and November 16, 1948.

[71] *Trud,* May 11, 1949. An English text of these statutes and bylaws is given in the *Current Digest of the Soviet Press,* May 31, 1949, pp. 26–32.

interests in the formulation of the economic plan that sets the over-all amount and division of total wages paid. It is clear, however, that in practice this provision is intended to spur union officials at the local level to be constantly alert for means of changing the wage payment system in particular enterprises so as to strengthen its incentive nature. In current practice, Soviet wage scales are set by the government agencies that employ workers. Wages are not and may not be disputed by unions at the local level once they have been promulgated.

> 3. Help workers and employees to raise their production and business qualifications; spread the work-experience of leading workers and employees, the innovators in production and science, and assist in introducing progressive techniques in industry.
>
> 4. Conclude collective agreements with the administration of enterprises.

The collective agreements referred to in this paragraph are the Soviet equivalent of the agreements reached between American unions and their employers. In the 1920's and early 1930's, these agreements were widely concluded between unions and enterprises throughout the USSR's economy. From 1936 to early 1947, however, collective agreements apparently vanished, a phenomenon explained by Soviet writers in these terms:

> Experience has shown that the restoration of the practice of concluding collective agreements is not expedient. *The collective agreement as a special form of legal regulation of labor relations of workers and employees has outlived itself.* [Italics in original.] Detailed regulation of all sides of these relations by normative acts of governmental power does not leave any room for any contractual agreement concerning one labor condition or another.[72]

In March 1947 the practice of concluding such collective agreements was resumed by order of the Presidium of the All-Union Central Council of Trade Unions, which listed the objectives and subjects to be covered by these agreements in the following order: increasing productivity of labor; improving the wage system as a stimulus to higher production by substitution of piece rates for time rates and more intensive use of work norms based upon technical possibilities rather than average performance; programs for training workers and technical personnel; methods

[72] Aleksandrov and Genkin, *op. cit.*, p. 106.

for improving labor discipline; measures to improve safety of working conditions; methods of improving plant recreational facilities.[73] The level and amount of wage rates are not a subject of negotiation in the making of these agreements, since rates fixed by the state are mandatory. Collective agreements have been concluded annually each year since 1947, unions assuming obligations for raising productivity and managements promising to improve various aspects of working and living conditions. Checkups on the observance of these agreements have frequently revealed failures to observe the obligations and promises made in them. In 1948, 40,000 collective agreements were concluded, covering some 17,000,000 workers and employees.[74]

> 5. Carry out control over the condition of labor safeguards and safety techniques in enterprises and institutions; participate in settling labor disputes; conclude agreements with the management of enterprises regarding the method of expending resources on measures for safety techniques and labor safeguards.

Supervision of safety measures in enterprises of all kinds is performed by trade-union inspectors, whose duty it is to recommend changes and improvements where required. The above paragraph also indicates that labor disputes do occur in the USSR and have to be settled. Strikes as a means of settling such disputes are virtually unknown in the USSR. There is no legal prohibition against strikes, but severe punishment would undoubtedly be meted out to a union official or anyone else who called an unauthorized work stoppage. One of the few examples noted in the past two decades of an incident resembling a strike took place in early 1946. After two years of attempting to secure badly needed improvements in safety precautions, an inspector of the Electrical Workers Union ordered workers to walk out temporarily. But this demonstration may have been officially arranged so that it could be publicized as an example of Soviet workers' freedom to strike.[75]

Most labor disputes in the postwar period are said to arise over improper implementation of labor laws, factory rules, or collective or individual labor agreements, as well as over "unjustified demands of individual unscrupulous workers." Wage rates, hours, and working conditions are determined by law and are not subject to dispute. Workers hav-

[73] *Trud,* March 16, 1947.
[74] *Izvestia,* February 3, 1949.
[75] *The New York Times,* April 7, 1946; account based on an article in *Trud.*

ing grievances submit them to their shop or factory committee, as the case may be, which investigates the matter. If the complaint is found to be justified, management is asked to correct matters. In this way, it is claimed, most disputes are settled. If management fails to mend matters, the dispute is usually taken to the shop or factory Appraisement and Disputes Commission (in Russian, this is termed the *Rastsenochno-Konfliktnaya Komissiya,* or RKK for short), which is usually composed of two representatives each of workers and management. The commission holds a public hearing on the matter and then reaches a decision, which must be unanimous if it is to be binding. If the commission disagrees, the dispute can be taken to public courts. A unanimous decision of the commission can be appealed to higher trade-union organs, which may confirm it or annul it; in the latter case the matter is directed back for reconsideration to the original commission or is sent to the people's courts. If the commission's decision is affirmed through all appeals procedure, management becomes subject to legal prosecution if it fails to carry out the decision.[76]

> 6. Direct state social insurance, determine and issue relief (payments) to workers and employees for temporary disability, strive for better organization of medical aid for workers and for safeguarding the health of women and children, build sanatoriums and rest homes, organize mutual loan societies, participate in allocating living space in housing belonging to enterprises and institutions, exercise mass control over fulfillment of plans for housing and cultural construction, the work of restaurants, shops, municipal welfare enterprises and transport.

In administering the complex system of Soviet social insurance, including disability payments, old-age pensions, and the like, trade unions act as agents of the government and distribute funds from the state budget appropriated for these purposes. The unions took over this function in the early 1930's, when the People's Commissariat of Labor was abolished. Using their own and government funds, Soviet trade unions build and operate numerous sanatoria, rest homes, and children's camps. Union inspectors check the work of the distributive system to help insure its proper operation. In conducting these activities, Soviet unions exercise a great deal of influence over the welfare of all workers, expending large sums and employing many persons in the process. This

[76] *Labor Abroad,* December 1949, pp. 36–40.

work is not always performed well, however, as complaints in the Soviet press testify.

> 7. Help members of trade unions to raise their ideological-political and general-educational standards, spread political and scientific knowledge, conduct widespread production-technical propaganda, form clubs, houses and palaces of culture, Red corners and libraries, and develop among the workers and employees mass amateur art participation, physical culture, sports and touring.

In early 1949 Soviet trade unions operated about 8,000 clubs, homes of culture ,and palaces of culture; over 8,000 libraries; more than 5,000 movie units; and over 4,000 stadiums, gymnasiums, sports fields, swimming pools, and ski runs.[77]

> 8. Draw women into state, industrial and social life; help workers and employees in the communist education of children.
>
> 9. Appear in the name of workers and employees before state and social agencies on problems of labor, living conditions, and culture.

From this recital of Soviet trade-union functions, it is apparent that their activities are both more comprehensive in some directions and less comprehensive in other directions than those of unions in the United States. They are not fighting organizations of workers. Their influence upon the centralized formulation of wage policy and the centralized decisions regarding the allocation of the national income is obscure, and presumably is never at variance with Politburo policy. On the other hand, to the extent that they force enterprise managements to observe safety regulations and other measures protecting workers, they do exercise an important influence. As the administrative agency for state social insurance, trade unions perform functions confined to government agencies in capitalist countries. Their cultural and welfare activities resemble strongly functions undertaken by some unions in this country, such as the International Ladies Garment Workers Union. But in the forefront of Soviet union consciousness at all times is the obligation to spur production. When contradictions arise between the demands of increased production and workers' interests, it is the former that frequently triumphs, as evidenced by union assent to such measures as the higher postwar work week, strict labor book requirements and other control

[77] *Pravda,* April 21, 1949.

over workers, and by many reports in the Soviet press of union neglect of workers' safety or welfare. All too often, apparently, trade-union officials have looked the other way when enterprise directors have required illegal overtime or Sunday work, have failed to build promised housing, have not provided proper rest or safety facilities, and the like.[78] It is a commentary on the situation that the Soviet government has had to remind union officials from time to time that they must protect workers as well as advance output.

The thesis that a free trade-union movement devoted primarily to the immediate interests of its members is incompatible with a planned economy is one that the Soviet Union's experience would seem to support though not necessarily to prove. What is clear is that in the late 1920's Stalin and his supporters reached the conclusion that a worker-oriented union movement would be incompatible with the high rate of industrialization and the consequent sacrifices in consumption toward which the five-year plans were directed. The difficulties experienced by the British labor government in restraining union wage-increase demands in the postwar period are probably indicative of the troubles that would have plagued Soviet planners after 1928 if the union movement had remained under Tomsky's control and had pursued an independent policy reflecting workers' aspirations. As it was, deprived of the ability to strike or otherwise take collective action in protest against the low standard of living to which they were subjected in the 1930's, millions of individual workers showed their dissatisfaction by moving from job to job, until state controls were made sufficiently stringent to stop this unorganized type of resistance. Along with collectivization of agriculture, therefore, the subjugation of the labor unions and the application of coercive restrictions upon workers' liberties have been most important factors in the rapid economic development of the USSR since the late 1920's.

Prison Labor

We have seen above that there is an important element of coercion in all Soviet labor relations. A worker may not leave his job without his employer's permission; graduates of the Labor Reserve Schools and all

[78] Cf. the typical complaints in *Trud*, April 13, 1948; September 2 and October 16, 1949; and *Pravda*, October 16, 1948.

universities and technical institutes must work for several years after their graduation wherever the Soviet government assigns them; large numbers of peasants are conscripted annually to do obligatory work in repairing roads; and so on. The ordinary Soviet worker must be punished if he is absent from work without a legally acceptable reason or if he is late to work, and there are other restrictions that severely limit his freedom. But these controls and limitations characterize what is normally termed the free hired labor force in Russia. In addition to this group there is also a significant number of prison and forced laborers.

The topic of prison labor in the Soviet Union is probably the most controversial in the entire area of Soviet economics. It is also the subject on which reliable and comprehensive information is most difficult to obtain. The matter has been a cause for warm international dispute in the early 1930's and since World War II. In the former period efforts were made in a number of countries to secure prohibitions against imports of Soviet goods on the ground that these were produced by forced labor. In the more recent period the subject of prison labor in the Soviet Union has been hotly debated before the United Nations, and both official and unofficial demands have been raised for comprehensive investigation of the situation within the Soviet Union. These demands have been refused by the Soviet government. In the early 1930's some foreigners were allowed to inspect Soviet prison labor camps and came back with reports that the importance and the nature of this type of labor had been much exaggerated and distorted abroad.[79] The reports of these observers have been challenged by some writers, who point out that it would have been simple for the Soviet authorities to alter true conditions in any area before the foreign delegation arrived there. As a result, it is alleged, these observations must be discarded entirely.[80]

Because of the controversial nature of this subject, it seems wise to begin with an indication of the nature of the evidence upon which current belief that large numbers of prison laborers are used in the Soviet Union rests. It is known first, that Soviet law provides that the Ministry of Interior (formerly known in Russia by its initials NKVD and now known as MVD) has the authority to send individuals to prison in

[79] Joseph Freeman, *The Soviet Worker*, pp. 259–63. New York: Liveright, 1932.
[80] D. J. Dallin and B. I. Nicolaevsky, *Forced Labor in Soviet Russia*, pp. 224–25. New Haven: Yale University Press, 1947.

"camps of correctional labor," to exile them to a definite locality in the Soviet Union with or without confinement, or to prohibit residence in certain places.[81] The official Soviet position seems to be that these correctional labor camps are simply prisons in which law breakers are confined, given useful work to do under humane conditions, and thus re-educated into socially useful citizens. While no official statistics on the number of these prisoners have been published for many years, Soviet statements seem to imply that the number of prisoners is not excessive and compares relatively favorably to the number of prisoners in other countries, who are also required to do work of various kinds while serving their terms.

As against this official position of the Soviet government, there exists widespread belief that the USSR has millions of prison laborers who are put to work under extremely harsh conditions, with the result that many die or are permanently injured before they have finished their terms. Reports to this effect, which circulated abroad in the 1920's and 1930's, were to a large extent based on the accounts of individuals who had fled from the Soviet Union and who claimed to have been incarcerated in these camps. Some of these reports may have been exaggerated by groups interested either in stimulating dislike of the USSR or in limiting competition from Soviet exports. Nevertheless, from the present perspective it seems clear that many of these accounts were true in all essentials, though they were often received with incredulity by the outside world because of the difficulty in documenting them and because of the unbelievable character of the conditions described. Since World War II, however, the outside world has received a much more abundant stream of information about this aspect of Soviet life. Today both its existence and great importance seem beyond doubt. The evidence has come from literally thousands and tens of thousands of persons who spent some time as forced laborers in these camps and then later reached the outside world. Many of these individuals were Polish nationals who were living in eastern Poland when it was taken over by the Soviet Union in 1939. At first sent to forced labor camps, where they remained for some time, these individuals were freed after the Soviet Union entered World War II against Germany and concluded

[81] Gsovski, *op. cit.*, vol. I, pp. 238–239. *The New York Times*, July 23, 1949.

an agreement with the Free Polish Government providing for their release so that a Free Polish army might be formed in Iran.[82] In addition to the accounts of these Polish citizens, the outside world has received similar accounts in recent years from many Soviet citizens who had been imprisoned in forced labor camps and who were able to flee the Soviet Union after the Nazi invasion of 1941.[83] There are also occasional references to forced laborers in Soviet publications that suggest they are a significant group. Thus a Soviet statistical dictionary has this reference:

> The wage fund is calculated, however, not only for hired workers and employees and cooperative artisans, but also for military personnel and other categories who are not free workers.[84]

Occasionally, too, Soviet officials desert the USSR and bring along with them materials showing the outside world something of the extent and nature of the forced labor system in that country.[85] The volume of this assorted evidence, combined with the blanket refusal of the Soviet government to permit outside investigation since World War II of the truth or falsity of these reports, raises a most strong presumption that forced labor is a significant factor in the USSR's economy.

The number of prisoner laborers in the USSR and changes in that number over past years are not known with any precision because of the natural reluctance of the government of the USSR to release statistics on this topic. Estimates by various observers in recent years have varied widely, ranging from one to two million to over 20 million persons. In some cases efforts have been made to estimate this figure by compiling lists of prison camps, on the basis of interviews with former forced laborers, and then multiplying the number of camps found in this fashion by some estimated number of prisoners per camp.[86] Another approach has been through analysis of Soviet data on wages and employment, utilizing the fact that published Soviet statistics on the total

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[82] The experiences of these Polish citizens is best summarized in the collective work, *The Dark Side of the Moon,* and also in such accounts of individual experiences as Gliksman, *Tell the West.*

[83] See the typical account in V. Petrov, *Soviet Gold, passim.* New York: Farrar, Straus, 1949.

[84] *Slovar-Spravochnik* . . ., p. 213.

[85] *The New York Times,* February 28, 1950.

[86] Dallin and Nicolaevsky, *op. cit.,* pp. 49–87.

wage fund of the economy show that this figure is substantially above the product of the number of hired workers and employees and the average annual earnings. The difference between the wage fund and the product described above is apparently due to wages paid military personnel and unfree workers as indicated in the quotation cited above.[87] But these and other methods of estimation require that arbitrary assumptions be made at one point or another and are therefore incapable of giving more than very approximate results.

The prisoners sentenced to forced labor are apparently of three kinds: ordinary criminals, officials and others who violate Soviet economic laws, and political prisoners. The latter, who are usually alleged to be the great majority of these unfortunates, include persons who have expressed political opinions at variance with those approved by the Soviet regime, farmers who have resisted collectivization, members of nationality groups distrusted by the Soviet government, persons who carried on illegal religious activities during the period of violent government opposition to religion, and the like. Some sources claim that at various times the MVD has arrested large groups of people simply in order to augment its supply of forced laborers, though none of the arrested group was guilty of any crime, even in the broad Soviet concept of that term. In the postwar period an important component of the forced labor group has consisted of German, Japanese, and other prisoners of war, as well as dissident citizens of areas in Eastern Europe and Asia that were occupied by the Red Army at the end of World War II. Large numbers of Poles, Estonians, Latvians, and Lithuanians have also apparently been deported from their homelands in the postwar period and added to the ranks of this group.

Since prison labor camps are spread over much of the area of the Soviet Union, forced laborers perform many different types of productive work. They mine gold and other metals; build railroads, factories, canals and other production installations; and are an important portion of the forestry labor force of the Soviet Union. Some of their work is done directly on important economic projects assigned to the MVD, such as the Dalstroi operations in the Soviet Far East. On other projects these laborers work for ordinary Soviet ministries, which ap-

[87] Harry Schwartz, "A Critique of 'Appraisals of Russian Economic Statistics,'" *Review of Economic Statistics*, February 1948, pp. 38–41.

parently rent them from the MVD, presumably paying the latter organization for their services. The labor camps themselves are believed to be under the supervision of a division of the MVD known as GULAG, whose English title is Chief Administration for Labor Camps.[88] One report made available by a refugee Soviet official indicates that in recent years prison laborers have mined 75 per cent of all gold and 40 per cent of all chromium produced in the USSR, as well as accounting for one eighth of all timber production. The same source credited the MVD with performing 14 per cent of all capital construction in the USSR, more than that alloted any other ministry.[89]

The conditions under which these prison laborers live and work, as described by those who have been through the experience, are appalling. Semistarvation is apparently chronic, and great brutality is common in the conduct of guards and supervisors. Lodging is of the poorest and usually most inadequate for the rigorous climates in which many of the camps are located. Workers apparently receive some small monetary payment, but far less than that received by ordinary hired workers. Presumably some of the differential between the pay given these individuals and ordinary workers covers the cost of food and lodging provided prisoners by the state, though the value of this can hardly be very great in view of the low standards prevailing in prison camps. From the economic point of view, the utilization of this unfree labor force frees the Soviet government from the necessity of having to attract large numbers of workers through high wages and special privileges for some of the harshest types of work in some of the most unpleasant areas of the USSR. Such coercion may seem more profitable than recruitment based on usual economic incentives if the calculation omits such factors as the low productivity common among forced laborers and if it neglects to consider what these laborers might have contributed to the Soviet economy had they been employed elsewhere on a voluntary basis. It must be remembered that political rather than economic factors explain the genesis of this forced labor system, though a short-sighted system of accounting may perhaps explain the continuance and expansion of large-scale Soviet employment of involuntary workers.

[88] The preceding discussion is based on Dallin and Nicolaevsky, *op. cit.*, *passim*, as well as on accounts by former forced laborers.

[89] *The New York Times*, February 28, 1950.

In the nature of things, any satisfactory discussion of the Soviet forced labor system cannot be prepared in the outside world because of the great paucity of basic information. But enough is now known to make it clear that this is an important facet of the USSR's economy and one that cannot be ignored in any comprehensive study of that economy. Our earlier discussion of the conditions under which "free" hired workers are employed in the USSR, however, suggests that state compulsion is an important element in all Soviet labor relations, and that the difference between "free" and "unfree" workers there is one of degree rather than necessarily of kind. All Soviet workers are affected by the fact that in their country coercion has been allied with planning to replace the free operation of market forces in capitalist economies.

CHAPTER XIV

FOREIGN ECONOMIC RELATIONS

SOVIET FOREIGN ECONOMIC RELATIONS consist of many varied activities: foreign trade, international financial transactions, foreign loans and investments, collection of reparations, tourism, participation in international postal and other communications arrangements, and so on. The USSR is a signatory to various international economic agreements and a member of some international governmental organizations dealing with economic subjects.

The manner in which Soviet foreign economic relations are conducted and the objectives they serve reflect the political and economic structure of the Soviet Union. With insignificant exceptions, all these activities are conducted by agencies of the Soviet state. Foreign trade and financial transactions are integrated with the over-all economic plan of the USSR and are themselves carefully planned. A government monopoly of foreign trade was instituted in April 1918 and has been in effect ever since. Usually goods have been sold or bought abroad for government account or for the accounts of government-owned enterprises whose independence is merely a legal fiction, as pointed out in an earlier chapter. In making decisions on foreign economic policy, the Soviet government takes into account political as well as economic factors. As a result, the Soviet regime does not necessarily buy in the cheapest market or sell in the dearest market, as would an independent entrepreneur operating under capitalist conditions. Before World War II, these facets of Soviet foreign economic policy differed considerably from the corresponding arrangements prevalent in most other countries of the world. These different arrangements raised complex problems

for other nations and citizens of other nations doing business with the USSR. In more recent years, of course, state trading and direct government participation in foreign economic relations have become much more commonplace.

The reasons for centralized government dominance of this area of Soviet life are both ideological and practical. Foreign trade and related aspects of international economic relations have long been regarded as among the most important "commanding heights" that any socialist state must hold if it is to control its entire economy. In addition, it would obviously be most difficult to operate a domestic planned economy unless foreign trade were integrated with the domestic planning. For example, the foreign-trade monopoly is far more effective than any tariff system in assuring that government plans to develop high-cost domestic industries will not be hindered by cheap, competitive imports. Conversely, the monopoly's export policy can be based on considerations deriving from the domestic plan rather than merely upon considerations of profitability in the light of fluctuating world market prices. Direct government control and operation of all foreign economic relations is therefore a most important means of insulating the domestic economy so far as possible from the fluctuations of the world economy as a whole. It may be pointed out, however, that experience has shown that this insulation is by no means perfect.

When properly operated, this centralized system gives the Soviet regime important tactical advantages in dealing with foreign buyers and sellers. At any given time, the Soviet government knows its position in relation to the rest of the world and each foreign country separately, thus greatly simplifying formulation of policy. This has been particularly important in the past two decades, when foreign currencies have not been freely interchangeable, raising complex problems of currency control and clearing in foreign trade. It also facilitates the utilization of foreign economic relations for political objectives. There have been times, however, when the USSR has sold goods abroad on consignment, thereby exposing itself to unpredictable price fluctuations. As the sole buyer and seller of goods and services for the USSR, the Soviet government has a strong bargaining position as against competing buyers and sellers in other countries. There is no competition among Soviet buyers and sellers on the foreign markets to affect prices adversely from their point of view.

Its monopoly of foreign trade permits the Soviet government to insulate its domestic price system from prices prevailing in world markets. The prices at which the Soviet Union buys or sells goods abroad need not and frequently do not have any close relationship to the prices of the same commodities in the Soviet Union itself. In advancing its economic interests abroad, the Soviet government is able to back them with all its political, economic, and military might, giving it substantial advantages frequently over individual foreign enterprises or weaker foreign states. In formulating and executing its foreign policy, the Soviet regime is not under the pressure of conflicting domestic interests such as those that exert so powerful and contradictory a set of influences upon, say, the tariff policy of the United States. Where and when necessary, the managers of the USSR's economy can and do act against the interests of particular groups of Soviet producers and consumers in making decisions about foreign transactions.

On the other hand, of course, there are disadvantages too. The lack of competition among Soviet buyers and sellers may mean reduced initiative and less favorable results on occasion. The problem of coordinating all the manifold foreign economic activities of the USSR is no easy one, and confusion must sometimes affect operations. The fact that foreigners must do all their business through the Soviet government's agencies makes the USSR's foreign economic relations particularly vulnerable to political tensions between the USSR and other countries. As a result Soviet trade abroad has often been hindered by boycotts, blockades, embargoes, penalty rates, and other discriminatory restrictions arising from political causes. But whatever the advantages or disadvantages of the organization of Soviet foreign economic relations, it is clear that the USSR's regime regards that monopoly as an inseparable part of its planned economic system and has no intention of modifying it substantially in the foreseeable future.

Viewed most generally, the primary objective of Soviet foreign economic policy and activity has been the increase of the USSR's political, economic and military strength by the use of foreign resources on unilaterally advantageous terms. The specific means employed to further this objective have differed from period to period in Soviet history, depending upon the circumstances at each time. Two particular goals derived from this general objective deserve particular attention. In the economic sphere Soviet policy for more than two decades has been di-

rected at establishing maximum self-sufficiency. The effort to achieve such autarky required the importation of large quantities of foreign materials, machinery, and technical knowledge. These had to be paid for regardless of the burden imposed upon the domestic economy. As the Soviet economy developed, goods formerly bought abroad were produced at home, and corresponding reductions were made in purchases abroad.

In following this policy the Soviet government has put little value on the advantages arising from international division of labor, prizing more highly the security advantages of maximal domestic production of all commodities considered essential. Soviet export policy for the most part—but not exclusively—has been dictated by the requirements for essential imports rather than by any desire to attain a maximum "favorable" balance of trade or payments. There are no private interests in the Soviet Union putting pressure on policymakers to maximize exports and minimize imports; on the contrary, the pressures have been in the other direction for the most part. It is not surprising, therefore, that the Soviet Union has eagerly sought large quantities of goods in payment of reparations after World War II. This policy has differed sharply from that of many of the victor nations after World War I, when reparations in goods were in effect frequently refused because of the complaints of domestic interests adversely affected by such free imports.

Second, the Soviet government uses foreign trade and other aspects of foreign economic relations as weapons for increasing its political influence or domination in weaker foreign countries. Before World War II, this factor was most noticeable in the Soviet foreign-trade policy in Asia, particularly Persia, Afghanistan, Turkey, Mongolia, Tannu Tuva, and Western China.[1] The USSR utilized the advantages of its geographical position to absorb the surpluses of these nations and to make them dependent upon Soviet imports, dictating prices at which goods were exchanged and seeking to hinder economic changes in these countries that might weaken Soviet influence. In the postwar period this policy has been extended to all of Eastern Europe under Soviet domination, North Korea, and all of China.

The Soviet government also uses trade as a weapon in political dis-

[1] Violet Conolly, *Soviet Economic Policy in the East*, pp. 4–5. London: Oxford University Press, 1933.

putes with foreign countries, as in the case of the reductions in Soviet purchases ordered at various times in the 1920's and 1930's during political disputes with Great Britain.[2] At times, too, it has conducted business with foreign countries in such a way as to aid local communist parties there. For example, in the spring of 1946, just before the French parliamentary elections, the USSR offered to sell 500,000 tons of grain to France, negotiating directly with Maurice Thorez, head of the French communist party and then a Vice-Premier in the French government.[3] The Soviet refusal to join with the Western European nations in the Marshall Plan in the period following World War II was obviously influenced, in part, by the fear that its influence in its Eastern European satellite nations would be threatened if the Soviet Union and its satellites were to receive American aid through the European Recovery Program. Soviet economic pressure upon Yugoslavia both before and after the latter country's break with the Cominform in 1948 illustrates this facet of the USSR's foreign economic policy. Yugoslavia's "hostile attitude" was cited by the Soviet government as the reason for reducing trade with that country in 1949 to one eighth of its former level.

Foreign-Trade Organization

The foreign-trade organization of the Soviet Union has undergone many changes over the more than three decades of that country's existence. We shall be concerned here primarily with the organization that has existed relatively unchanged since the mid-1930's.

Pyramidal organization is common in the Soviet Union. Foreign trade follows this pattern. At the apex is the Ministry of Foreign Trade, which has direct control over all these activities and exercises general administrative, planning, and coordinating functions. Among the more important activities of the Foreign Trade Ministry are the following: it negotiates international trade agreements and other economic pacts with foreign nations; prepares the foreign-trade plan annually and quarterly, in terms of amounts and kinds of commodities, countries of sale and purchase, and financial balances; arranges for credits to be obtained from or given abroad; supervises the administration of Soviet customs;

[2] Stella K. Margold, *Let's Do Business with Russia*, pp. 140–41. New York: Harper's, 1948.
[3] Schwartz, *Russia's Postwar Economy*, p. 86.

directs the activities of all Soviet export and import agencies abroad; directs and coordinates the activities of procurement and sales organizations in the USSR dealing with commodities to be exported or imported; formulates regulations and issues authorizations for all aspects of foreign-trade activity. At the head of the Ministry is a Minister of Foreign Trade, who is a member of the Council of Ministers. The activities of the Ministry of Foreign Trade are, of course, subordinate to the Politburo, the Council of Ministers, and other higher organs of the Communist Party and the Soviet government. Its plans must be integrated with the general economic plan and approved by the government before they go into effect.[4]

Under the Foreign Trade Ministry there is a complex group of organizations that carry on the actual work required to realize the export and import plans of the Soviet government. The most important of these are the monopolistic export and import organizations and the trade delegations resident in foreign countries. Thus the ministry has a wide network of agents throughout the USSR and in virtually all foreign countries to transact its business. The monopolistic export and import corporations carry on the actual foreign trade of the USSR. Most of them fall into two categories, which export or import—or sometimes both export and import—specified groups of commodities to most countries of the world. The smaller group consists of enterprises that handle all trade with a particular country or group of countries, usually in Asia and the Middle East. In addition there are specialized organizations for shipping and tourism. Each organization handles all business falling within its jurisdiction, and foreign firms or individuals can effect transactions only with the appropriate Soviet state enterprise.

These monopolistic organizations conclude contracts at home and abroad for procurement and sale of the articles assigned to them, and their representatives are to be found in many different countries. Since the end of World War II, most Soviet business has been transacted abroad, though more important and particularly sensitive transactions have been conducted in Moscow, and Soviet furs are sold at auction in Leningrad in July of every year. These corporations are nominally independent enterprises, having their own balance sheets and bank accounts and operating on a commercial basis in accordance with the

[4] Baykov, *Soviet Foreign Trade*, p. 24.

principles of economic accountability (*khozraschet*). In 1947 the following twenty-three corporations were listed as being active in their respective fields:[5]

Soyuzpromeksport. Exports industrial chemicals, metallic ores, asbestos, minerals, pig iron, and the like.

Eksportles. Exports lumber, pulpwood, plywood, and related commodities.

Eksportkhleb. Exports and imports grains, meat products, butter, sugar, fish, and other foods.

Eksportlen. Exports flax, hemp, linen products, peasant handicraft products in the form of textiles and hand-woven articles, and so on. Imports cotton.

Soyuzpushnina. Exports furs, fur garments, and animals for zoos.

Tekhnoeksport. Exports machinery of all kinds, metals, and metal articles.

Tekhnopromimport. This organization imports machinery, mainly for consumer goods industries and agriculture, as well as laboratory equipment and supplies.

Raznoeksport. Exports a wide variety of miscellaneous products such as skins, hair, and casings; textile and other waste products; carpets; pharmaceutical chemicals; tobacco; glass and chinaware; and so on. Imports hides, skins, and leathers. The products of domestic industries have usually been most important in this organization's exports.

Mezhdunarodnaya Kniga. Exports books, magazines, and newspapers all over the world and imports foreign publications of all kinds.

Promsyryeimport. Imports industrial raw materials such as metals, rubber, textile materials; and manufactures of these products.

Stankoimport. Imports machine tools of all kinds.

Mashinoimport. Imports machinery of all kinds for the metallurgical and machine-building industries.

Soveksportfilm. The title of this organization indicates that it is engaged in the export of Soviet films. It may be a successor organization to *Intorgkino,* which exported and imported films, photographic chemicals, and motion picture equipment. The latter organization operated under the administration of the motion picture industry rather than under the Ministry of Foreign Trade.

Soyuzneftеksport. This organization presumably handles petroleum exports abroad.

Raznoimport. Imports many miscellaneous articles, particularly foods

[5] *Finansy SSSR za XXX Let,* p. 323.

and consumer goods, as well as livestock, chemicals, paints, medicines, and so on.

Sovmongoltorg. Handles all import and export relationships with the Mongolian People's Republic.

Dalintorg. This organization, as its name suggests, handles trade with Far Eastern countries.

Vostokintorg. Handles all trade with Turkey, Iraq, and Afghanistan.

Sovfrakht. This is a transport organization that arranges for the chartering of foreign and domestic ships to carry Soviet cargoes. Soviet ships are chartered through the Ministry of the Trading Fleet.

Dalvneshtrans. The name of this organization suggests that it handles Soviet export and import transportation matters in the Far East.

Lenvneshtrans. Arranges shipping, storage, insurance, and related matters with regard to commodities passing through ports on the North and Baltic Seas, particularly Leningrad.

Iransovtrans. This organization deals with problems of foreign trade transport concerning Iran.

Inturist. Makes arrangements for foreign tourists visiting the Soviet Union, such as provision of guides, hotel space, transportation, and related matters.[6]

The first fifteen organizations listed above carry on export and import operations primarily with countries to the west of the USSR and North and South America. As noted above, the commodities in which they may deal are strictly defined by their charters. The organizations dealing with specific countries or groups of countries are apparently authorized to handle all trade and all commodities for those countries.[7] In addition to these organizations, other divisions of the Ministry of Foreign Trade presumably handle problems related to the collection of reparations from Germany, Austria, and other defeated nations of World War II. A former high Hungarian government official reports that this aspect of the Ministry's work is headed by secret police generals of the MVD and the MGB.[8] The Ministry of Foreign Trade also supervises Soviet participation in the joint-stock companies formed in various countries in Eastern Europe and Asia to operate various aspects

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[6] The organizations listed from *ibid.* The description of their functions is largely derived from Margold, *op. cit.*, pp. 31–38.

[7] *Finansy SSSR za XXX Let,* pp. 323–24.

[8] *The Reporter,* Janaury 31, 1950, p. 7. The MGB is the Ministry of State Security.

of those country's economies. An example of such an organization is the joint Soviet-Rumanian petroleum enterprise in Rumania. Soviet-owned property abroad is directed by an organization called GUSIMSK, headed in the late 1940's by General V. N. Merkulov.[9] Postwar Soviet reparations claims and the operation of joint enterprises abroad will be considered later in this chapter.

In foreign countries the Ministry of Foreign Trade is usually represented by a Trade Commission. This is a fairly elaborate organization; it forms part of the Soviet Embassy and its three chief officials have diplomatic status. Organizationally the commission is a replica of the ministry. It represents the export and import corporations, acts as their agents, makes market surveys for them, and negotiates contracts with buyers and sellers for commodities offered or required by export-import organizations. In addition the trade delegations keep sharp watch over economic conditions and market opportunities in each country and supply information about Soviet foreign trade needs and requirements to foreign firms.[10] In the United States, the functions of a trade delegation are performed by the Amtorg Trading Corporation. Legally Amtorg is a regular commercial corporation formed under the laws of the state of New York. All its stock, however, is owned, through the frequently rotated chairmanship of the board of directors, by the Bank for Foreign Trade in Moscow. Like trade commissions in other countries, but without their official or diplomatic status, Amtorg negotiates and signs contracts with buyers and sellers for most Soviet commercial transactions in the United States. The personnel of Amtorg includes representatives of the various export and import combinations as well as representatives of several other economic ministries concerned with foreign trade. Amtorg officials were compelled in 1949 to register their corporation as an agent of the Soviet government.[11]

Planning Foreign Trade

The annual and other foreign-trade plans of the Soviet Union consist of both material and financial balances somewhat similar to those composing the general economic plan of the country. It will be recalled

[9] *Ibid.*
[10] Baykov, *op. cit.*, pp. 27–28.
[11] Margold, *op. cit.*, pp. 52–55. *The New York Times*, December 9, 1949.

that, in the general economic plan, material balances make allowances both for imports as part of the supply and for exports as part of the utilization of each commodity. Before World War II, the procedure seems to have been that the Soviet government first determined the irreducible minimum of foreign imports—of goods, technicians, technical information, and services—required to achieve its plans. In this way the quantities to be imported and their approximate cost were determined. A roughly equal volume of exports was then set by taking into account the fact that imports had to be paid for, except in so far as they could be financed by credits, gold shipments, or similar devices. The commodities to be exported, and the amounts of each to go to each country, were then determined in the light of the USSR's needs for its own production, also taking into account market conditions, prices, and demand abroad. For each commodity, therefore, the material balance of imports or exports would specify the amounts to be bought from or sold to different foreign countries, the total in each case being the total import or export item allowed for in material balances of the general economic plan. Even before World War II, however, political considerations were taken into account in determining these plans, as in the case of the systematic Soviet effort to obtain dominance in the markets of Middle Eastern and Asiatic countries.

Since World War II, political factors have become much more important. Late in 1950 it seemed most unlikely that foreign-trade plans were based primarily upon determination of minimum import needs and the selection of commodities to be exported in payment. Rather, Soviet interests in developing and dominating the satellite nations in Eastern Europe and Asia also undoubtedly played a major role in this planning.

Paralleling the material balances, foreign currency and other financial balances are prepared to shape the financial relationships between the Soviet Union, the rest of the world as a whole, and each individual country with which the Soviet Union does business. These financial plans take account of all currency receipts and expenses of the Soviet Union abroad, including not only those arising from merchandise and service transactions but also such items as the cost of maintaining Soviet representatives abroad, costs of borrowing, tourism incomes, and so on. The State Bank works closely with the Ministry of Foreign Trade in drawing up these financial plans. Before World War II, when

Soviet foreign trade was largely of a multilateral character, financial planning was not directed at balancing Soviet expenditures in each country with its income from sales made in that country, but rather at obtaining an over-all balance with the rest of the world. This effort, of course, had to take into account the difficulties raised by the nonconvertibility of many foreign currencies. In the postwar period the increasingly bilateral nature of Soviet trade, as evidenced by the conclusion of many agreements providing for balanced annual exports and imports to and from particular countries, has narrowed the area in which a multilateral balance has been sought. Soviet postwar foreign financial planning has also had to deal with the extraordinarily complex currency conditions prevailing after World War II, particularly the nonconvertibility of sterling and sterling-based currencies into American dollars.[12]

Since the prohibition of exports or imports of rubles was instituted in the late 1920's, all actual payments and receipts between the USSR and foreign countries have been made in foreign currencies. Until 1950, bilateral trade agreements drawn up between the Soviet Union and other nations used the American dollar as the unit of account for determining both prices and the aggregate value of trade, though no actual payments were required if an actual balance of trade was achieved. The ruble was an entirely domestic currency divorced from the fluctuations of prices and currencies in foreign markets. The arbitrary exchange value for the ruble set by the government from time to time had little or no practical significance, except for foreigners arriving in the Soviet Union who wished to convert their own currencies into Soviet money. From June 1937 to March 1, 1950, the ruble was officially valued in terms of foreign currencies by declaring 5.3 rubles equal to one dollar and then establishing the ruble values of other currencies in terms of their parities with the American dollar. This 5.3 ratio was maintained all through World War II and the years immediately after it, when the purchasing value of the ruble was lower than at the time this ratio was initially set. The resulting gross overvaluation of the ruble had no effect upon Soviet foreign trade because the ruble was not utilized in foreign transactions and domestic prices were set by the Soviet regime without regard to the prices for similar commodities in other countries.

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[12] Condoide, *Russian-American Trade,* pp. 34–38, 45–49.

On March 1, 1950, the Soviet government announced a new gold value for the ruble, making it nominally equivalent to twenty-five cents. Instead of 5.3 rubles to the dollar, a new ratio of 4 rubles to the dollar was established. This move did not make the ruble a truly gold-backed currency, since gold cannot in general be obtained for rubles by private individuals in the Soviet Union. Nor did it remove the prohibitions against exporting or importing rubles. The immediate effect of this reform seems to be a tendency to use the ruble, not necessarily as the unit of account, but as the unit employed for public announcements of Soviet foreign relations with weaker nations, as exemplified by the Finnish trade agreement concluded in June 1950.[13]

To the extent that the USSR employs world prices, this "shift" from the dollar to the ruble merely requires multiplying dollar figures by four to put them in ruble terms. Poland has announced that she will maintain her public foreign-trade accounts in terms of the ruble as a unit of measure though apparently not necessarily as a unit of transaction. The ruble is grossly overvalued in relation to Western currencies, and perhaps also in relation to currencies of Soviet satellite nations. To the extent that trade is based on prices within each country, nations that can be induced to accept the arbitrary Soviet valuation of the ruble in fixing prices for Soviet goods they buy and for their own commodities sold to the Soviet Union will find themselves paying higher prices for Soviet commodities and receiving lower prices in return for their own goods.[14]

All financial transactions involving foreign countries pass through the State Bank of the USSR. It has correspondent banks all over the world, which credit and debit its account as transactions occur. This centralized control of all financial transactions permits the Soviet State Bank to have an up-to-date picture of the state of its financial relationships with each country of the world. When necessary to balance ac-

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[13] *The New York Times*, June 14, 1950.

[14] The overvaluation of the ruble-exchange ratio introduced on March 1, 1950, is easily evidenced by translation of Soviet prices for important commodities into other currencies, using the 4:1 ruble-dollar ratio. Thus, as pointed out in a United States State Department protest to the Soviet government in March 1950, a kilogram (2.2 lbs.) of butter cost $1.52 in Washington, D.C., but between $8.58 and $11.03 in Moscow at the official exchange rate. First-grade beef costing $1.39 a kilogram in Washington was $6.07 in Moscow. White bread costing $.26 a kilogram in Washington cost $1.40 in Moscow, etc. *The New York Times*, March 28, 1950.

counts, it can shift convertible foreign currencies from one country to another. Alternatively, to reach a general balance with the rest of the world, it may export or import gold bullion or other precious metals or stones. This arrangement also permits the State Bank to act as a major control organization over the economic relations of the USSR with foreign countries, in somewhat analogous fashion to the manner in which it controls the activities of domestic economic enterprises borrowing short-term credit from it. Presumably, if a Soviet enterprise tried to import goods illegally, it would not receive authorization of payment from the State Bank; conversely, any illegal exports would be detected in the unexpected payments made to the State Bank in terms of foreign currencies.

Soviet Tariff Policy

Although the Soviet government determines directly the kinds and amounts of commodities to be bought abroad, it maintains a system of tariffs on most imports and some exports. Unlike tariffs in a free-enterprise society, Soviet customs duties do not play a significant role in determining the nature and volume of foreign trade. Tariffs paid by enterprises importing goods, for example, are, in reality, merely bookkeeping transactions between agencies of the same state. The tariff has real significance only for the very limited amount of goods brought into the Soviet Union through nongovernmental channels—for example, parcel post, goods brought in in the luggage of visitors, goods imported by the diplomatic missions in Moscow, and the like. Soviet tariff rates are in general rather high, but they serve no real protective function as do high tariffs in a free-enterprise society. The Soviet system of monopoly of foreign trade is a much more effective barrier against imports of cheap foreign goods that might compete with domestic industry than any simple tariff or quota device such as is common in capitalist countries. From an accounting point of view, Soviet import tariffs may help equalize the cost of foreign commodities with the cost of those same commodities made domestically.

The latest available data on Soviet tariffs pertain to those in effect in 1945, rates that had apparently remained unchanged since early 1937. The rates were divided into four different groups. The first and presumably the most important group at that time covered all imports

and exports from Western Europe and overseas countries. The second group consisted of special preferential tariff rates established for trade with eastern countries through Caspian Sea ports and also over the land border of the USSR from the Black Sea eastward covering goods from Turkey, Iran, Afghanistan, Mongolia, and Western China. The third group of special tariffs was established for certain basic goods produced in Afghanistan and sent from there. A special fourth group of differential tariffs existed for goods brought in through the port of Murmansk. These were generally at a lower level than the tariffs applied in the first category, in order to make up for the higher transport expenditures required for goods coming through that port. Besides this, there were some special tariff rates established by agreements between the USSR and foreign countries.

The major group of tariffs, presumably applicable to the first group of countries indicated above, consisted of nine basic group-rates. Imports of food products were either duty-free or taxed at very low rates, at a fixed amount per unit of weight. Livestock entered duty-free, but livestock products were taxed at differing rates, ranging from 50 per cent of price for animal fats to 1 to 15 per cent for leather and related products. Lumber entered duty-free, but furniture of every kind paid a duty of 10 rubles per kilogram. Other wood products were taxed at a rate of 150 per cent of price. Mineral construction materials paid a duty of 150 per cent of the base price; graphite, 100 per cent; raw natural rubber, 100 per cent; and aspirin, 1 per cent. Metallic ores of all kinds were duty-free, but iron and steel were taxed at 50 per cent of the price; tin, 10 per cent; lead and zinc, 60 per cent; gold, silver, and platinum were duty-free. Optical, scientific, and medical instruments were taxed at 1 per cent of price; watches, 300 per cent; and typewriters, 200 per cent. Paper pulp was taxed at 40 per cent of the price; paper, 100 per cent; but newspapers and periodicals entered duty-free. Cotton and cotton-wool mixtures were taxed at 20 per cent of price; raw wool, 35 per cent; yarns and threads, from 100 to 200 per cent of price. Haberdashery raw materials were taxed at 400 per cent of price; precious stones, 150 to 300 rubles per kilogram; women's shoes, 150 to 350 rubles per kilogram.

Very few exported products are taxed, the most important of these being certain types of livestock, such as horses and karakul and merino sheep.

Customs duties are a relatively small source of Soviet government revenues. In 1939 they amounted to almost 2,100,000,000 rubles, or 1.3 per cent of all state budgetary income. In 1940 they amounted to about 3,000,000,000 rubles, or about 1.7 per cent of all state budgetary income.

In countries where foreign trade is carried on by private interests, governments seek to influence the character and volume of their countries' foreign trade by the imposition of tariffs, import quotas, export subsidies, and the like. All these are designed to influence the transactions of private importers and exporters by affecting the price relationships they take into account or by setting limits to their activities. The Soviet control of foreign trade, on the other hand, is much more direct, and the tariff system has little real importance in determining import policy. This difference between Soviet and non-Soviet policy on foreign-trade control has raised problems. Illustrative is the case of countries wishing to conclude trade agreements with the USSR providing for reciprocal most-favored-nation treatment and barring discrimination. When concessions on tariff rates were extended to the USSR, its exports to the country reducing these duties were naturally aided, because private importers there responded to the changed price situation. But any Soviet tariff reductions need not have a corresponding influence on the other contracting nation's exports to the USSR. Similiarly, efforts to ban "discrimination" in foreign trade could have little relevance to Soviet state trading organizations, which did not necessarily behave like private foreign traders and which did not have to expose the motivation for sales or purchase policy in public. To overcome these difficulties, a number of Soviet trade agreements concluded in the 1930's, including several reached with the United States, provided that the USSR would purchase at least a minimum amount of goods in the other contracting country during a fixed period in return for the concessions—tariff or otherwise—granted to ease entrance of Soviet goods. This provision helped assure that trade between these countries would increase, but it evaded the problem of trade discrimination and may actually have fostered it. Thus the USSR may have had to purchase more goods in a given country to meet its obligation than it would have done if it had bought all commodities in the cheapest markets.[15]

[15] Suchkov, *Dokhody Gosudarstvennogo Byudzheta SSSR*, pp. 130–32. Alexander Gerschenkron. "Russia and the International Trade Organization," *American Economic Review*, May 1947, pp. 626–27.

Foreign Trade Before World War II

The development of Soviet foreign trade between the Bolshevik Revolution and the outbreak of World War II followed roughly a normal curve. Starting off from the negligible levels of the first postrevolutionary years the volume of trade steadily increased until the early 1930's, imports playing a major role in accelerating the industrialization of the country. As the Soviet Union found it possible to produce more and more goods formerly imported, the volume of imports, and consequently of exports to pay for them, fell off after the early 1930's, up to 1938. In 1940, trade was at about the 1938 level despite wartime difficulties, because of Soviet efforts to stockpile deficit raw materials in fear of involvement in World War II and also because of the large volume of trade provided for in the Soviet-German economic agreement of 1939.

At no time in the 1920's and 1930's was Soviet trade large in comparison with the country's population and resources. Its maximum share of world imports before World War II was 2.7 per cent in 1931; the corresponding maximum for exports was 2.3 per cent in 1932. These percentages were on a par with those recorded for relatively small countries like Switzerland and Sweden having populations well under 5 per cent of that of the Soviet Union. [16]

In the early 1920's Soviet trade developed very slowly. Exportable surpluses were small or nonexistent in many of these years. In addition many of the major powers of the world sought to blockade the Soviet Union, and in particular refused to accept gold shipped from the USSR in payment for goods. In general the low level of foreign trade in the early 1920's reflected both the chaos and disorganization of this period internally, the political animosity of major capitalist nations, and the resentment engendered abroad by the Soviet repudiation of the debts contracted by the Czarist and Kerensky regimes.

As production increased within the Soviet Union, more goods became available for export. At the same time foreign countries came to be reconciled to the existence of the USSR and began to reach credit arrangements with it, ending the former gold blockade and otherwise making arrangements to facilitate trade. As early as 1923 the USSR began to receive three-to-six-month credits from individual foreign firms

[16] Alexander Gerschenkron, *Economic Relations of the USSR*, p. 20. New York: Committee on International Economic Policy, 1945.

for its purchases, and the volume grew rapidly thereafter. The credits received in these early years were guaranteed almost entirely by Soviet-owned gold deposited in foreign banks. Beginning with 1926, a number of countries, including Germany, Italy, Norway, and Austria, extended government guarantees for private credits given the USSR. These were mainly short- and medium-term credits for purchase of goods, ranging up to 39 months in duration and usually carrying extraordinarily high interest charges because of the risks believed to be involved in extending credit to the communist government. By adhering to a policy of scrupulously paying all its obligations in full and on time, the Soviet government soon improved its credit position and was able to receive more favorable terms. Soviet indebtedness abroad reached a maximum of 1,400,000,000 rubles in 1931, but by the end of 1935 this figure had been

TABLE 60. Soviet Foreign Trade, Prewar and 1918–38.

Year	*Export**	*Import**	*Balance**
		(MILLIONS OF RUBLES)	
1909–1913 average	6,513.9	4,994.1	+1,519.8
1913	6,596.4	6,022.5	+ 573.9
1918	35.5	460.8	— 425.3
1919	0.4	14.0	— 13.6
1920	6.1	125.7	— 119.6
1921	88.5	922.9	— 834.4
1922	357.4	1,181.7	— 824.3
1923	954.8	627.2	+ 327.6
1924	1,476.1	1,138.8	+ 337.3
1925	2,664.4	3,620.9	— 956.5
1926	3,173.7	3,016.5	+ 157.2
1927	3,267.0	3,320.5	— 53.5
1928	3,518.9	4,174.6	— 655.7
1929	4,045.8	3,857.0	+ 188.8
1930	4,539.3	4,637.5	— 98.2
1931	3,553.1	4,839.9	—1,286.8
1932	2,518.2	3,083.5	— 565.3
1933	2,167.5	1,525.1	+ 642.4
1934	1,832.4	1,018.0	+ 814.4
1935	1,609.3	1,057.2	+ 552.1
1936	1,359.1	1,352.5	+ 6.6
1937	1,728.6	1,341.3	+ 387.3
1938	1,331.9	1,422.9	— 91.0

* These data are in terms of the constant exchange value of the ruble adopted April 1, 1936. The original data on which this table is based are in terms of current prices for 1925 to 1938; for the years 1918 to 1924, values were given in terms of prices of 1913. Up to September 1923 the figures of foreign trade apply to only the European frontiers of the USSR; for the remaining years they apply to all frontiers.

Source: *Finansy SSSR za XXX Let*, p. 318.

reduced to 120,000,000 rubles, largely as a result of the USSR's success in exporting more than it imported during 1933 to 1935. Soviet shipment of gold, silver, platinum, and precious stones abroad also helped provide the funds to pay for the great imports required during the early 1930's.[17]

The changing volume of Soviet foreign trade to 1938 is shown by Table 60.

The peak of Soviet imports was reached in the early years of the First Five-Year Plan, after the USSR had begun its rapid industrialization program. This period was also the time of the largest foreign-trade deficit. That deficit would have been even larger if it had not been for exports of a number of commodities, particularly grain, that Russia

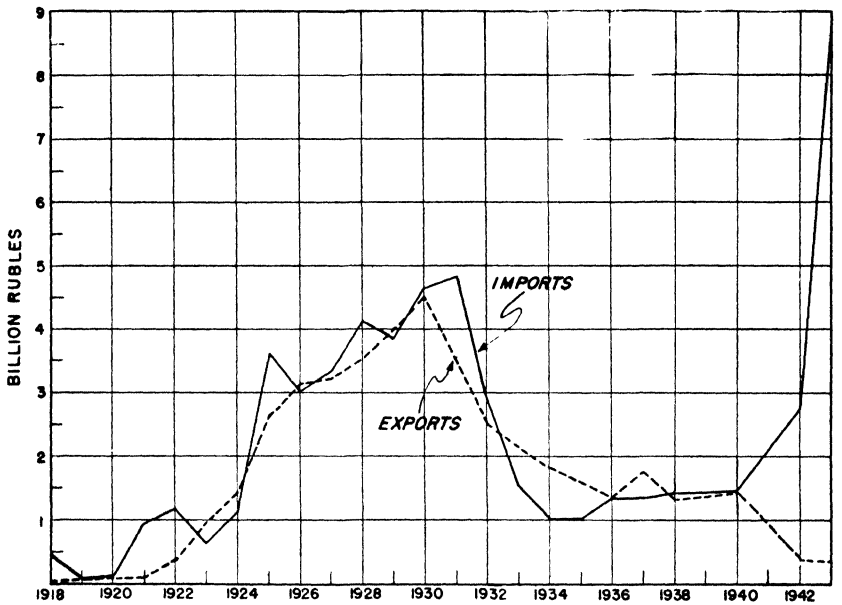


FIGURE 5. *Soviet Foreign Trade, 1918–43.*

Sources: See Table 60 and p. 511.

could ill afford to spare. Grain was exported in the early 1930's despite widespread famine conditions in the Ukraine. It was the Soviet misfortune that its need for extensive machinery imports came at a period in world history when the "terms of trade" had turned against the USSR, i.e., in this period world prices fell generally as a result of de-

[17] I. S. Ginzburg, *Vneshnyaya Torgovlya SSSR*, pp. 110–60. Moscow: 1937.

pression, but prices on industrial goods paid by the USSR fell significantly less than prices paid for Soviet raw materials exported abroad. As a result the USSR had to ship out much more in physical terms than it would have otherwise.

The desperate Soviet need for foreign currency and the low prices at which the USSR was willing to sell its products in order to meet that need led to widespread foreign charges of Soviet "dumping," and to efforts to prohibit the receipt of Soviet exports in a number of countries. Some opinion in this period held that the Soviet exports at very low prices were designed to ruin the capitalist system. It seems much more likely that it was the pressing need for funds with which to meet its foreign obligations that explains the USSR's readiness to sell at extremely unfavorable prices; at other times and in other circumstances it has given abundant proof of a desire to receive as high a price as it can for its products.

As strictly programmed by the government, Soviet imports throughout these years were overwhelmingly composed of production goods. After 1925, production goods made up more than 80 per cent and sometimes more than 90 per cent of all Soviet imports, while consumption goods were usually under 10 per cent of the total after 1929 and were as low as 4.6 per cent in 1931. From 1925 to 1938 roughly two-thirds of Soviet exports consisted, usually, of industrial goods, including industrial raw materials; the remaining third consisted of agricultural commodities.[18]

Machinery of all kinds, iron and steel goods, nonferrous metals and products, and electrical equipment made up well over half of all Soviet imports in the early 1930's. In later years of the 1930's, imports of these commodities continued to be most important, but the absolute volume of imports decreased as Soviet factories turned out more and more machines and other goods formerly imported from abroad. An important example of the same trend is provided also by Soviet cotton imports, which aggregated 145,000 metric tons in 1927–28, when they were over 16 per cent of the value of all Soviet imports. In 1938 they had fallen to 16,500 metric tons, only 1.8 per cent of all Soviet imports. This reduction was of course made possible by the great expansion of cotton-growing in Central Asia during the 1930's.[19] These and other import data re-

[18] Baykov, *op. cit.*, Appendix Table II.
[19] *Ibid.*, Appendix Table VI.

flect clearly the big strides toward self-sufficiency that were being made in the USSR in those years.

Generally speaking, the most important items of Soviet export in the 1930's were foods and industrial raw materials. Timber and lumber-mill products were about 15 per cent in value of all Soviet exports in the early 1930's, and over 20 per cent of the total in the late 1930's. Grain exports fluctuated violently in these years, from highs of 21.9 per cent of the total in 1938 and 19.4 per cent of the total in 1930 to a low of 4.5 per cent of the total in 1934. Petroleum and petroleum products were third in importance, accounting for between 11 per cent and 19 per cent of all Soviet exports during most of the 1930's. The Soviet government had to wage a fierce struggle with foreign oil companies before it could establish its position in the world petroleum market. Fur exports averaged roughly about 10 per cent of total Soviet exports in value during the late 1920's and 1930's, being particularly important in Soviet trade with the United States. Other major articles of Soviet export during these years included cotton tissues, flax and flax products, manganese ore, and coal. An important development in the middle and later 1930's was the increase of Soviet exports of machinery, iron and steel products, cotton, and some other products for which the USSR had formerly been greatly or almost entirely dependent upon imports and which had been formerly exported in small quantities or not at all.[20]

Soviet trade during the 1920's and 1930's was of a distinctly multilateral character. Deficits were incurred in some countries and credit balances in others, the two balancing off for the most part. From the middle 1920's to 1938 the Soviet Union had a favorable balance of trade every year with most Western European countries except Germany, where major unfavorable balances were frequently the rule. The Soviet Union bought more from the United States than it sold here in almost every one of those years. The USSR usually had an excess of imports over exports during this period with Czechoslovakia, Poland, the Scandinavian countries, and Iran, though only Iran among them usually accounted for more than 1 per cent or 2 per cent of the USSR's export or import trade.[21]

The over-all geographical pattern of Soviet foreign trade during the

[20] *Ibid.*, Appendix Tables IV and V.
[21] *Ibid.*, Appendix Table VII.

1930's may be indicated by the data on its regional distribution given in Table 61.

TABLE 61. Regional Distribution of Soviet Foreign Trade in 1931 and 1937.

Region	*Exports*		*Imports*		*Balance*†	
	1931	*1937*	*1931*	*1937*	*1931*	*1937*
	(MILLIONS OF RUBLES*)					
Central Europe	599.1	136.6	2,039.2	229.5	−1,440.1	− 92.9
Western Europe	1,692.7	1,012.9	553.8	425.2	+1,138.9	+587.7
Northern Europe	126.7	63.2	194.7	24.5	− 68.0	+ 38.7
Balkan Countries	50.2	14.6	4.6	5.6	+ 45.6	+ 9.0
Near East, Middle East, Far East	592.9	271.4	616.9	207.9	− 24.0	+ 63.5
American Continent and British Dominions	113.4	139.2	1,062.8	346.7	− 949.4	−207.5
Baltic Countries	212.2	42.7	215.5	27.7	− 3.3	+ 15.0
Japan	86.8	11.7	55.5	54.4	+ 31.3	− 42.7
All Others	79.1	36.3	96.9	19.8	− 17.8	+ 16.5
Total	3,553.1	1,728.6	4,839.9	1,341.3	−1,286.8	+387.3

* Rubles used in this table are calculated on the basis of April 1936 exchange ratios.
† + = export surplus; − = import surplus.
Source: Gerschenkron, *Economic Relations of the USSR*, p. 33.

Trade During World War II

World War II resulted in a profound transformation of the Soviet foreign-trade pattern. The most summary view of this change is given by the data below:

Year	*Exports*	*Imports*
	(MILLIONS OF RUBLES)	
1938	1,331.9	1,422.9
1940	1,412	1,446
1942	399	2,756
1943	373	8,460

It is believed that these data are in terms of 1936 rubles and are therefore comparable with the ruble data in tables above.[22]

It is clear from the above data that while commodity imports in 1943 increased almost sixfold, commodity exports fell to almost one fourth of the 1940 level. It is likely that 1944 data, if available, would show a much larger rise in imports and little if any increase in exports.

[22] Voznesensky, *The Economy of the USSR during World War II*, p. 40.

This remarkable transformation in the pattern of Soviet foreign trade was the consequence of the tremendous military struggle inaugurated when the German army invaded the USSR in June 1941. Within a short time after the initial blow, German forces occupied many of the richest agricultural and industrial areas in the USSR west of Moscow, reducing sharply the economic resources available to the Soviet government and making normal economic life impossible. From the point of view of foreign trade alone, the German invasion cut the Soviet Union off from virtually all of continental Europe. At the same time the Soviet Union's need for supplementary production and resources of all kinds, from armaments to foods and medicines, increased greatly, yet it was virtually impossible for it to pay for any significant fraction of the required imports through exporting commodity surpluses since there was no really surplus production. The result was a revolutionary change in the pattern and volume of Soviet foreign trade.

To meet the desperate Soviet need for immediate outside aid, the American Lend-Lease and the British and Canadian Mutual Aid programs were set up, under which the USSR received tremendous amounts of commodities of all kinds on generous credit terms. The Soviet foreign-trade pattern during World War II, in consequence, consisted of the importation of record volumes of goods, almost entirely from the United States, Great Britain, and Canada, and the simultaneous export of only very small quantities of goods. Almost $13,000,000,000 worth of goods were received by the USSR from the three major Western allies during World War II, of which about $11,200,000,000 worth came from the United States.[23] This is an average of about $3,000,000,000 annually. Both in quantity and in value, these imports far exceeded even the peak of prewar Soviet purchases, reached in 1931.[24]

About half the American Lend-Lease shipments to the Soviet Union during the war consisted of military items, including 14,500 airplanes, 7,500 tanks, and almost one billion dollars' worth of ordnance and ammunition. The published figures on Soviet munitions production during the war suggest, however, that by far the greater bulk of Soviet armaments was produced in the USSR itself.[25] Relatively, the nonarmament component of Lend-Lease and Mutual Aid shipments probably played

[23] Schwartz, *op. cit.*, p. 15.
[24] Baykov, *op. cit.*, p. 78.
[25] See Joseph Stalin's speech of February 9, 1946.

an even greater role in meeting vital Soviet needs that did the armament component. For example, the United States sent the USSR over two million tons of food; more than 475,000 trucks, and other motor vehicles; 30,000 machine tools; 11 million pairs of boots and shoes; almost 2,000 locomotives; well over 300,000 tons of aluminum, copper, and other nonferrous metals and metal alloys; over 20 million yards of army textile material; and many other miscellaneous commodities. Great Britain sent more than 100,000 tons of food; a similar quantity of rubber; power plant equipment with total capacity of over 370,000 kilowatts; over 15,000 electric motors, over 100,000 tons of nonferrous metals; and other miscellaneous products. Canada sent over 200,000 tons of wheat and flour; almost 100,000 tons of aluminum, copper, zinc, nickel and other nonferrous metals; over 13,000 tons of rails and other commodities. Every sector of the USSR's military and economic apparatus received vital equipment and raw materials that eliminated bottlenecks and shortages and permitted the Soviet war effort to attain the enormous magnitude it did.[26]

It seems clear that without this great aid from its three Western allies the continued survival of the Soviet Union would have been enormously more difficult during the dark days of the wars, if it were possible at all.

The Soviet Union provided a small volume of goods and services as "return lend-lease" during the war. It made available bases for American planes in the Ukraine, food and other commodities and services for American personnel in the USSR, repair services for American ships in Soviet ports, and other miscellaneous free services. But the chief return for this Western aid was the tremendous Soviet war effort, which helped so vitally in defeating Germany.

In the later stages of the war, when the Soviet army had occupied Eastern Europe and entered into Germany and Austria, the USSR began to receive immediate tangible economic aid from these military victories. The Soviet army customarily lived off the country. USSR policy from the beginning in these areas was aimed at securing most speedy return of goods looted and stolen from the Soviet Union by the former invading forces, and also at seizing capital goods and consumer goods that would be of benefit to the Soviet economy. These trends in Soviet foreign economic relations matured more fully in the postwar period and will be discussed in the next section.

[26] Schwartz, *op. cit.*, pp. 15–16, and Baykov, *op. cit.*, p. 78.

Postwar Foreign Economic Policy

Emerging as one of the two leading world powers in the postwar era, the Soviet Union has played a much more direct and far-reaching role in world economic relations since 1945 than ever before in history. The policies it has followed in its foreign economic relations have been determined primarily both by its bitter political struggle against the West, and particularly against the United States, and by the urgent needs for outside resources to help heal the enormous wounds of World War II. Initially in this period, the occupation by Soviet troops of an immense area, including all of Eastern and much of Central Europe as well as Manchuria and North Korea in Asia, permitted the USSR to derive important economic benefits. Subsequently the creation of communist-dominated satellite regimes in all the regions first occupied by Soviet troops, plus the conquest of China by the communist forces in that country, have further enhanced and consolidated Soviet influence, both economic and political, in a vast area of the earth embracing more than one third of all the peoples of the world. Conversely, in the areas free from Soviet or communist control, the increasing apprehension over the USSR's territorial and political ambitions has had serious restrictive effects upon the volume of trade and other economic relationships between the West and the Soviet Union.

In the latter period of World War II and shortly thereafter, high hopes were held by many in the Western world that cooperation with the Soviet Union could be continued in the postwar era. To help achieve continued economic cooperation between the Soviet Union and its Western allies, a number of important steps were taken in 1945 and 1946. The United States granted the USSR a credit of over $250,000,000, payable in thirty years with interest rate of 2⅜ per cent, to permit the latter country to receive Lend-Lease commodities that had been ordered or were otherwise earmarked for the USSR at the time of World War II's conclusion. The United Nations Relief and Rehabilitation Administration, financed largely by the United States, provided the Soviet Union with more than $200,000,000 worth of sorely needed food, textiles, seeds, farm machinery, and other commodities to help two of the most distressed areas of the USSR, the Ukraine and Belorussia. Soviet participation was invited in the formation of all international economic organizations in process of creation during 1944–46. Soviet delegates

actually played a prominent part in the deliberations at Bretton Woods and at some other meetings for these purposes.

Yet these efforts came to naught. The USSR refused to join any of the independent international economic organizations, including the World Bank, the International Monetary Fund, the Food and Agricultural Organization, and others. When U. S. Secretary of State Marshall proposed his now famous plan for European recovery in June 1947, the Soviet Union was invited by France and Great Britain to join with them in helping to bring about European cooperation in order to make possible the enlistment of American aid to further European economic recovery. But after a short and unpleasant conference in Paris in July 1947, the Soviet Union refused to participate in what became the European Recovery Program and rather brusquely ordered two of its satellites to reverse their decision to participate. Behind these events, of course, was the sharp political antagonism between the Soviet Union and the West, born of the West's suspicion that the USSR aimed for world domination through its communist fifth columns in every significant country of the world. The USSR for its own part apparently chose the road of noncooperation with the West as the most advantageous of the alternatives open to it at the close of the Second World War. The high hopes held by many in 1945 were thus rudely shattered. The actual pattern of world economic and political relationships since then has been far different from that hoped for at the time of the common victory over the Axis nations.

The main objective of Soviet foreign economic policy in the postwar period seems to have been the acquisition of maximum foreign resources for its own needs, both to rehabilitate the devastated areas of the western USSR and to facilitate the further economic expansion projected by the Fourth Five-Year Plan. In addition, the Soviet policy has used economic weapons as a means of consolidating the USSR's influence and dominance in satellite countries and as aids in Soviet political warfare against the Western world. In the late 1940's and early 1950, there appeared clear signs that the USSR was seeking to shape and consolidate all its satellite nations into a closely knit economic group that would be maximally independent of the outside world but maximally dependent upon the Soviet Union, both economically and politically. These tendencies found their expression in such events as the formation of a Coun-

cil of Mutual Economic Aid, consisting of the USSR and its Eastern European satellites; the signing of the Soviet-Chinese trade and loan agreement in February 1950, Soviet extension of loans to a number of countries, particularly Poland, Czechoslovakia, and China; and the wide publicity given to official assertions that the USSR's aid would be the primary outside force making industrialization of Eastern Europe and of China possible. In the same period the USSR and its satellites engaged in many forms of provocative behavior that antagonized the rest of the world, with resulting restrictions of economic relationships between the two groups of nations. The most striking evidence of the USSR's success in creating an integrated economic bloc dependent upon it was the fact that in 1949, two thirds of the total foreign trade of the USSR was accounted for by the "people's democracies," i.e., the satellite nations. Before World War II these nations probably accounted for only 10 per cent or less of Soviet trade. Western Europe, the United States, and other countries, who accounted for 90 per cent or more of Soviet trade in 1940, accounted for only one third of it in 1949.[27]

The postwar Soviet economic objective of securing a large surplus of imports over exports so as to facilitate reconstruction within the USSR was achieved, as we shall see below. At the beginning of 1945, Soviet policymakers undoubtedly realized that this goal could be reached in one or in both of two fashions. They might have relied primarily upon securing large long-term reconstruction loans from Western countries and international economic agencies such as the World Bank. One such loan of roughly a quarter of a billion dollars was actually received from the United States to finance receipt of Lend-Lease "pipeline" products. But on the whole this method of making an import surplus possible was ruled out by the political antagonism between the Soviet Union and those nations most likely to provide such funds. In particular, the Soviet wartime request for a $6,000,000,000 loan and the American counteroffer of a $1,000,000,000 loan never reached a compromise.

The alternative route, which actually played the most significant role in making a large import surplus possible for the entire period of 1945–49, was that of extorting enormous amounts of commodities, services, capital equipment, and financial values from the countries defeated or occupied by Soviet troops. The largest part of this import surplus was probably made possible by German reparations deliveries, almost en-

[27] *Pravda*, December 21, 1949.

tirely from the Soviet-occupied zone of Eastern Germany. These were scheduled to amount to $3,658,000,000 by the end of 1950,[28] but there is no certainty that this accounting includes all the capital equipment, food, and other commodities taken by the Soviet Union from Germany or utilized for the support of Soviet troops occupying that country. Eastern Europe also suffered large losses from Soviet takings in the first year of Soviet occupation; thereafter reparations deliveries were regularized in accordance with the peace treaties reached with those defeated nations.

Soviet seizures of capital equipment and other resources in Manchuria in the latter half of 1945 were also very great. Edwin W. Pauley, chief American representative at the Moscow Reparations Conference of 1945, who visited Manchuria after it had been occupied by Soviet troops, declared upon his return: "On their arrival Soviet troops began a systematic confiscation of food and other stockpiles and certain complete industrial installations, the Soviets took by far the greater part of all functioning power-generating and transforming equipment, electric motors, experimental plants, laboratories and hospitals. In machine tools they took only the newest and best, leaving antiquated tools behind." Mr. Pauley charged that Russian removals and damage had caused a $2,000,000,000 loss to the Manchurian economy, though presumably the actual value of Russian takings for the Soviet Union was substantially less. *Izvestia,* denouncing Mr. Pauley's estimate, valued the industrial part of the war booty seized by the Soviet army in Manchuria at $95,000,000.[29]

On the basis of the evidence cited above, it seems clear that by the end of 1950 the Soviet Union had received in reparations from the former enemy or enemy-occupied countries more than $4,000,000,000 and perhaps more than $5,000,000,000. These acquisitions were most substantial aids in permitting realization of the Fourth Five-Year Plan production objectives.

In its commercial trade relations with the rest of the world, the Soviet Union has practiced a much greater degree of bilateralism than before the war. Between 1945 and 1950 it concluded one or more bilateral trade agreements, providing for balanced exports from and imports to

[28] *Pravda,* May 16, 1950.
[29] Quoted in Schwartz, *op. cit.,* p. 106.

another country during a given time period, not only with all of its Eastern Europe and Asiatic satellites, but also with a number of non-Soviet dominated countries, such as England, Sweden, and Norway. Speculation on the motivation of this postwar shift from multilateralism toward bilateralism has centered about a number of reasons: The Soviet Union may feel that it can make a more favorable bargain by arranging for all purchases and sales with a particular foreign country at one time. In this way the predominance of Soviet economic, political, and military power may perhaps be used most advantageously. Second, the postwar fluctuations and nonconvertibility of many foreign currencies may have moved the Russians toward bilateral trade agreements, which eliminate or minimize the need for actual currency transactions. Third, as a country with a planned economy, the USSR may find it more convenient to fix at one time the amounts of goods it will sell to and purchase from a given foreign country, and the prices and values involved, rather than to keep its plans flexible all year around and purchase and sell wherever in the world conditions seem most advantageous at different times of the year. Whatever the reason, it is clear that Russia's flight from multilateralism has not been a short-term phenomenon, for in 1950 it was still pronounced.

The actual volume, content, and geographic pattern of recent Soviet foreign trade have been obscured, as the result of the complete failure of the USSR to publish any detailed foreign-trade statistics for more than a decade. Virtually the only comprehensive postwar statement on this matter was made by A. I. Mikoyan in late 1949, when he declared that the USSR that year had more than doubled the physical volume of its foreign trade as compared with the prewar level. Since Soviet foreign trade in 1940 aggregated over 2,800,000,000 rubles, this would indicate that, in the same prices, 1949 foreign trade was greater than 5,600,000,000 rubles in value. It seems likely that an estimate of 6,000,000,000 rubles in 1940 prices as the total value of 1949 Soviet foreign trade will not be far from the mark.[30] Two thirds of this trade, as noted before, was with the "people's democracies."

In an effort to obtain a detailed picture of the country-by-country pattern of Soviet foreign trade, Prof. Alexander Gerschenkron studied the export-import statistics published by various countries showing

[30] *Pravda*, December 21, 1949, and Voznesensky, *op. cit.*, p. 40.

their trade with the Soviet Union. On the basis of this study he compiled Table 62, which shows the pattern of Soviet foreign trade, excluding reparations imports, in 1946 and 1947.

TABLE 62. Geographic Pattern of the USSR's Foreign Trade in 1946 and 1947.

	1946		1947	
	Exports	*Imports*	*Exports*	*Imports*
	(MILLIONS OF DOLLARS)			
Marshall Plan Countries (excluding Western Germany)	78	94	88	145
Soviet Zone of Influence in Europe (excluding Soviet Zone of Occupation in Germany and Albania)	215	225	240	219
United States	101	422	77	166
Rest of World	6	52	25	74
Total	400	793	430	604

Source: Alexander Gerschenkron, "Russia's Trade in the Postwar Years," *The Annals of the American Academy of Political and Social Science,* May 1949, p. 87.

On the basis of this same study, Professor Gerschenkron estimated that, in terms of physical volume, Soviet exports in both 1946 and 1947 were substantially below the level of 1938. Commercial imports were substantially above the 1938 level in 1946, but only slightly above that mark in 1947. The excess of commercial imports in 1946 and 1947 was made possible by the American Lend-Lease "pipeline" credit, by the United Nations Relief and Rehabilitation Administration relief shipments, and by various credit agreements, particularly that with Sweden. Professor Gerschenkron's calculations indicate that purely commercial trade in 1946 and 1947 was far below the physical volume of the peak year of the First Five-Year Plan.

The picture changes very substantially, however, when reparations imports are included. In 1947, for example, Professor Gerschenkron estimates that Soviet reparations from Eastern Europe and Germany, as well as low-cost coal imports from Poland, amounted to roughly $1,300,000,000, more than twice the value of commercial imports in that year. In 1947, therefore, total Soviet imports may have been 30 per cent higher than in 1931, or perhaps at an all-time high in Soviet peacetime history. Exports, of course, were still far below the peak of the 1930's in that year.

Several important trends in Soviet economic relations with Eastern Europe, including the eastern part of Germany, are worth noting: First, there has been a clear tendency for the Soviet Union to become

the chief single factor in both the export and import trade of these countries. There was some indication in 1947 that this might not be a long-term trend. In that year the relative importance of Soviet trade with several of the Eastern European countries was less than in 1946. This trend was apparently counteracted in 1948, however, and all indications since have testified to the increasing importance of Soviet economic relations with these countries. It seems likely that the Soviet Union's refusal to participate in the Marshall Plan, and its orders to its satellite nations not to do so, reflected the Soviet fear that participation would lessen their economic dependence upon the USSR.[31] To prevent this the USSR had to give some benefits in return, a factor apparently explaining the $450,000,000 loan given Poland to finance machinery purchases from the USSR and smaller loans extended to other countries, including Czechoslovakia and Albania.[32]

Second, there seems some considerable indirect evidence that the USSR has been able to secure much more favorable price terms in its relationships with the countries of Eastern Europe than those countries would have permitted had they been able to bargain freely. This seems indicated by data relating to the trade of Hungary and also by complaints voiced by Yugoslav officials after their break with the Cominform in 1948.[33] A principal Yugoslav complaint—and one that the Yugoslavs say applies also to other satellite countries—is that the Soviet Union frequently determines, unilaterally, "world prices" for commodities that cost the satellite states much more to produce. There have been accusations that the USSR charges highest prevailing quotations for its own goods and pays the lowest market prices for satellite commodities.[34]

Third, the broad objectives of the bloc composed of the Soviet Union and its Eastern European satellites is indicated by the announcement in January 1949 of the formation of the Council for Economic Mutual Assistance, consisting of the USSR, Bulgaria, Hungary, Poland, Rumania, and Czechoslovakia. The purpose of this council was stated by the official announcement to be "the exchange of experience in the economic

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[31] Alexander Gerschenkron, "Russia's Trade in the Postwar Years," *The Annals of the American Academy of Political and Social Science*, May 1949, pp. 94–95.

[32] *Ibid.*, p. 96.

[33] *Ibid.*, pp. 95–96. *The New York Times*, April 3, 1949.

[34] *The New York Times*, October 8, 1949, and *New York Herald-Tribune*, April 1, 1949.

field, the rendering of technical assistance to each other, and the rendering of mutual assistance with regard to raw materials, food stuffs, machinery, equipment, etc."[35] A report by a well-informed observer in mid-1949 asserted that the published statement of the council's objectives concealed a secret protocol that provides for unified economic planning by all these countries, planning that would be clearly dominated by the Soviet Union, presumably in that country's interests.[36]

Fourth, there has been considerable evidence that the USSR has acted as a middleman between many of the Eastern European countries, buying commodities from one of them which it sells to another, or sells to countries outside the bloc, reaping profits that would otherwise have gone to the country of origin.[37] There were similar reports concerning Soviet exports of some Chinese goods in 1949 and 1950.

The nature of Soviet trade with the different Eastern European countries varies, depending upon the economy of each country. Thus, Czechoslovakia, a relatively highly developed industrial country, sends the USSR a great deal of machinery and consumer goods, particularly textiles and shoes. Bulgaria sends the USSR tobacco, cement, rose oil, and other products of its predominantly agricultural economy. Rumanian oil and Polish coal are important exports for those countries. In return the USSR sends primarily industrial raw materials, such as ferrous and nonferrous metals, petroleum, cotton, and some ores. In addition the USSR has been sending some industrial machinery and equipment, including token quantities of trucks, tractors, and other farm machinery; a few selected and much publicized machine tools; metallurgical equipment; and the like. The exact volume of these different items sent cannot be determined for the recent period because of the lack of data, but it is clear that the USSR's own great domestic demand for these commodities precludes any large-scale shipment to its satellites. On the other hand, the industrialization of these countries requires precisely those goods that are needed for the further expansion of the Soviet economy itself. Therefore, the basic needs of the satellites tend to compete with the growing economic aspirations of the USSR. The great wealth of Soviet military equipment employed by North Korean troops in their

[35] *The New York Times,* January 26, 1949.
[36] *Ibid.,* June 3, 1949.
[37] Gerschenkron, "Russia's Trade in the Postwar Years," *op. cit.,* p. 96.

invasion of South Korea suggests that such armaments have been a large part of Soviet exports to its satellites.[38]

Most important for the future are likely to be the agreements signed between the Soviet Union and the new Chinese communist government. These agreements, concluded February 14, 1950, have the following major economic provisions:

1. The USSR agreed to transfer to the Chinese communist state the Soviet interest and participation rights in the Chinese Changchun railroad. The transfer is to take place no later than the end of 1952.

2. The Soviet government granted China a credit of $300,000,000, to be extended in equal amounts during each of the five years following January 1, 1950. The credit carries a 1 per cent rate of interest and is to finance deliveries by the USSR of equipment and materials, including equipment for power stations, metallurgical and machine-building appliances, coal and metal mines machinery, railway and other transport equipment, and the like. Repayment of this credit is to be made over a period of ten years, in equal annual parts, the first payment to be made not later than December 31, 1954, and the last not later than December 31, 1963. Repayment is to be made by deliveries of raw materials, tea, gold, and United States dollars.

3. The Soviet government pledged itself to transfer to China all property "acquired by Soviet economic organizations from Japanese owners in Manchuria." Just what is covered by this provision seems obscure, but at the extreme it might obligate the USSR to return all the machinery and equipment looted from Manchuria in the period of Soviet occupation. Whether the agreement actually does so is not clear.[39]

In April 1950 it was reported that several specific trade agreements had been signed in Moscow between China and the Soviet Union, including a trade agreement for 1950, a barter agreement for 1950, and a contract for the supply of Soviet industrial equipment to China during 1950–52. The barter agreement provides for the exchange of Soviet industrial goods for Chinese raw materials. The goods provided by the

[38] For data on Soviet trade with the satellite nations, recourse must be had to the official announcements of agreements concluded, as in *Pravda*, February 21, 1950; *Izvestia*, February 22, 1950; *Pravda Ukrainy*, March 5, 1950, etc.

[39] An English translation of the text of this agreement is given in the magazine *New Times*, February 22, 1950, in a special supplement.

contract for 1950–52 will be paid for by the Soviet credit granted in February 1950.[40]

In evaluating the Soviet agreement with China concluded in February 1950, it must be borne in mind that the $300,000,000 credit granted at that time is extremely small, in comparison both to China's needs for future industrialization and to the $450,000,000 credit granted the much smaller country, Poland, in early 1948. The fundamental future problem of Chinese-Soviet economic relations is likely to arise from the fact that China's ambitions for rapid industrial development in the future require large-scale imports of capital equipment of all kinds. These needs are of course competitive, not only with the Soviet Union's own future needs, but also with the needs of other Soviet satellites in Eastern Europe. The problem of reconciling these competitive domestic and foreign requirements for the relatively small volume of capital goods produced in the USSR's orbit will undoubtedly be one of the chief matters engaging the attention of Soviet foreign economic directors and the Politburo in the next decade and more.

A most important feature of the postwar Soviet economic relations with other countries, primarily its satellites, has been the direct Soviet participation in the economic life of other countries. In Germany and Austria this has taken the form of Soviet seizure of several hundred firms, which are being operated by the Soviet government for its own account. In Eastern Europe, China, North Korea, and Iran, it has taken the form of the formation of joint companies to operate one or another aspect of a particular country's economy. In theory these companies are formed by contributions of equal amounts of capital by the Soviet Union and by the country in which the enterprise is located. Nominally this gives equal control of the enterprise to both countries, and nominally all the profits and other net incomes are to be evenly split between them. In Eastern Europe the great bulk of the capital contributed by the Soviet Union for these companies has apparently consisted of former German assets, ownership of which was transferred to the Soviet Union under the provisions of the Potsdam Agreement in 1945. In Hungary, for example, such joint companies were set up early in the postwar period to control bauxite production, oil and petroleum refining, coal production, power plants, electrical and agricultural machinery enterprises, chemical pro-

[40] *Pravda*, April 21, 1950.

duction, air and motor transport development, agricultural research, and a major bank to finance these enterprises. In Rumania these enterprises were set up to control petroleum output, Danubian navigation, shipbuilding, hydroelectric production and development, air transportation, timber, glass, mining, and metallurgy.[41] In early 1950 three similar joint-stock companies were formed to conduct activities in China. One of these is to prospect for and produce oil and gas in Sinkiang Province. The second is to prospect for and produce nonferrous metals in the same area. A third is to be a Soviet-Chinese joint-stock company of civil aviation, and will fly civil airplanes along the routes Peking-Chita, Peking-Irkutsk, and Peking-Alma-Ata.[42]

In Eastern Germany and Austria, of course, the favored position of Soviet-owned enterprises is assured by the Soviet occupation of those areas. In the satellite nations, these Soviet joint companies have also received very favorable treatment. In 1947, for example, the Rumanian government agreed to reimburse the Soviet-Rumanian petroleum organization Sovrompetrol for profits it had failed to receive in 1946, and guaranteed this organization a 15 per cent profit on all transactions carried on in 1947. In Hungary a series of decrees issued in April 1947 exempted the five joint corporations existing at that time from paying taxes on income, property, rent, and legal agreements. The civil aviation company was also relieved from the obligation of paying customs duties.[43]

Actual equality between the USSR and a weaker neighbor in the management of one of these companies seems most unlikely. The conclusion is much more probable that these joint organizations are useful devices for assuring that economic development and activity in each country where they are conducted are bent in the direction desired by the Soviet Union. They also help assure that the Soviet Union will receive a good portion of any profits to be made from economic development in these foreign countries. The Yugoslav account of that nation's experiences in the joint Yugoslav-Soviet steamship company indicates some of the ways in which these organizations may be used to exploit

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[41] V. M. Dean, "Russia's Foreign Economic Policy," *Foreign Policy Reports*, February 1, 1947, p. 275.

[42] *Izvestia*, March 29, 1950.

[43] Preliminary Report 20 of the House Select Committee on Foreign Aid, *The Eastern European Economy in Relation to the European Recovery Program*, p. 41. Washington: Government Printing Office, 1948.

the weaker partner. According to Yugoslav statements, this organization's transportation charges were so adjusted that the Soviet Union paid lower rates than anyone else. In addition the USSR contributed only a token amount of the capital it was supposed to furnish, while Yugoslavia had to provide the great bulk of capital actually made available. When the company was dissolved, the USSR took back the whole of its capital contributions, so that the large loss suffered by the organization had to be borne by the Yugoslav state alone.[44] A Soviet spokesman in the United Nations denied these Yugoslav charges and claimed that the reason that the Soviet Union did not provide all the capital it had pledged itself to was concerned with Yugoslav negligence in failing to provide a site for Soviet machinery, an assertion refuted in turn by Yugoslavia.[45] Aside from these difficulties, of course, Marshal Tito's country has been subject to a virtual blockade by the USSR and its satellites since it broke with the Cominform.

Soviet-American Economic Relations

For the most part, Soviet postwar economic relations with the United States have been dominated by the bitter political struggle going on between these two nations. In the early postwar period, as pointed out before, trade flourished, as the United States provided credit for Soviet purchase of "pipeline" Lend-Lease materials as well as most of the goods sent to the USSR under the UNRRA program. It had been anticipated in 1944 and 1945 that the Soviet Union would be a very large customer of the United States in the postwar period, particularly if it could obtain credits to purchase large amounts of machinery and raw materials required for its reconstruction. At one point in the negotiations between the two countries, an American credit of $1,000,000,000 was offered the Soviet Union, provided that the latter permitted equality of economic opportunity in the Eastern European countries dominated by it. This offer was refused. Instead, as the "cold war" worsened, the United States, beginning March 1, 1948, introduced a comprehensive licensing system on exports to Europe and denied licenses for shipment to the USSR and its satellites of machinery and other commodities that

[44] *The New York Times*, October 8, 1949.
[45] *Ibid.*, October 11, 1949.

might contribute to the Soviet war potential. In its administration of the Marshall Plan, too, the United States has exerted influence on the countries receiving American aid under the European Recovery Program to assure that none of the aid provided these countries would be turned into deliveries to the Soviet Union aiding that country's war potential. This selective American embargo on shipments of commodities most desired by the Soviet Union has resulted both in a sharp decline in the volume of trade, particularly in exports to the USSR, and in the emergence of a new trend in commodity exchange, namely, a systematic favorable balance of trade for the Soviet Union. Since 1947, Soviet exports to the United States have exceeded their purchases here, in sharp contradistinction to the previous years' experience. The course of Soviet-American trade relations is shown in Table 63, which is based on American statistics.

TABLE 63. United States Trade with the USSR, 1931–49.

Year	*Exports* (MILLIONS OF DOLLARS)	*Imports*
1931–35 (average)	33.0	13.0
1936–40 (average)	57.9	24.2
1941	107.5	30.1
1942	1,425.4	24.7
1943	2,994.8	29.9
1944	3,473.3	49.6
1945	1,836.4	58.7
1946	357.9	100.6
1947	149.1	77.1
1948	27.9	86.8
1949	6.6	39.1

Sources: *Statistical Abstract of the United States, 1948*, p. 928, and data from the Department of Commerce.

The change brought about by the export restrictions imposed in 1948 may be seen from the fact that in 1947 Soviet purchases of machinery and vehicles in the United States amounted to $109,000,000; in 1949 the value of exports in this category was less than $500,000. Almost 70 per cent of the total value of merchandise exported to the USSR from the United States in 1949 consisted of raw cotton, a commodity not usually exported to the USSR in immediately preceding years. In 1949 more than one half of Soviet exports to the United States consisted of undressed furs of all kinds. Soviet exports of platinum, manganese, and

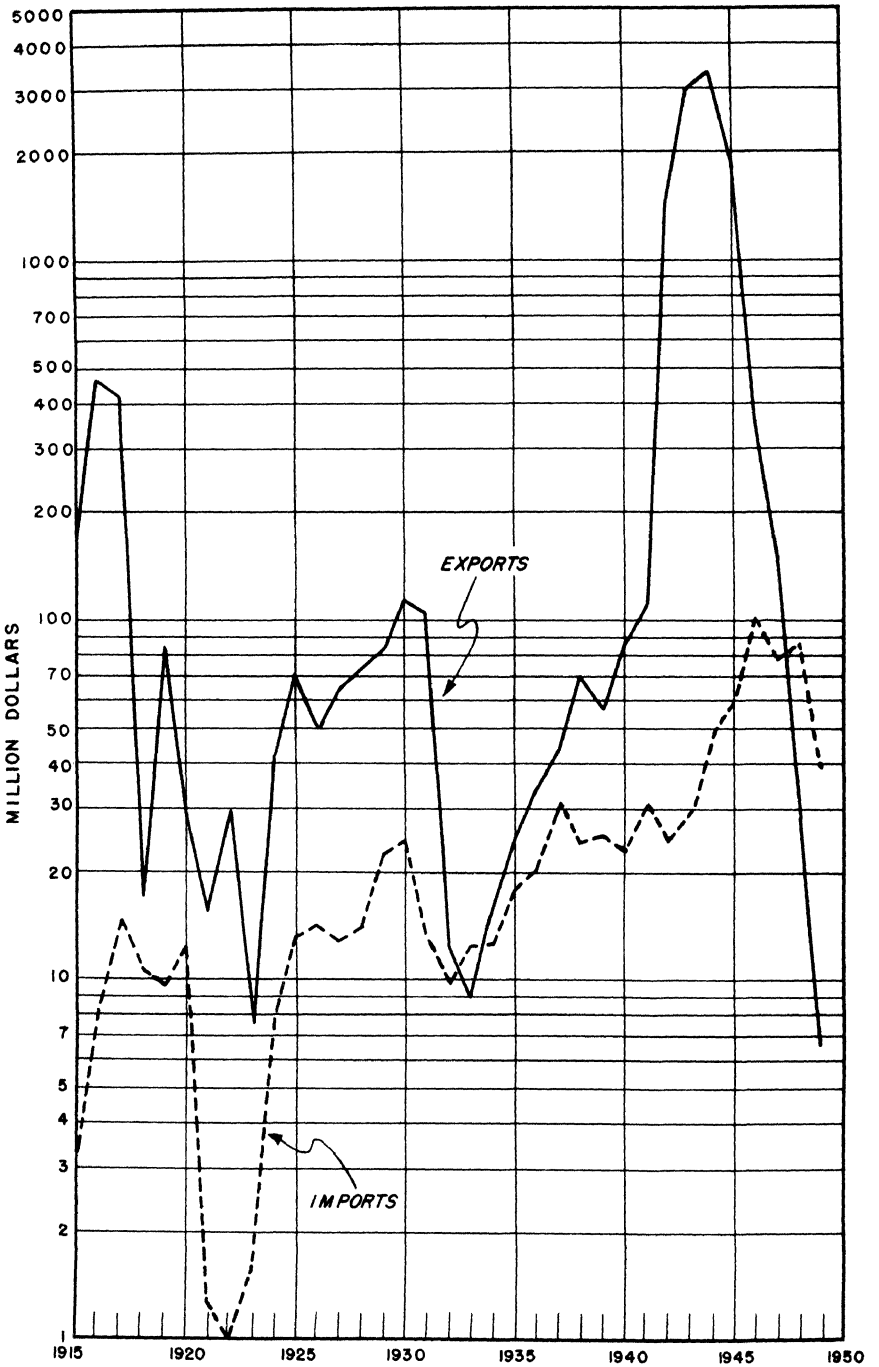


FIGURE 6. *United States Trade with the USSR, 1915–49.*

Sources: Condoide, *Russian-American Trade*, p. 91, and Table 63.

chromium were reduced sharply as compared to preceding years, apparently in retaliation against the barriers imposed on Soviet purchases in this country. Soviet willingness to export more to the United States than was bought here resulted in all probability from the fact that surplus dollars earned in this country could be used by the USSR to purchase badly needed commodities in other parts of the world. It seems not unlikely that heavy Soviet purchases of wool and natural rubber in Southeast Asia and Australia in 1949 and 1950 were financed to a large extent by dollars earned in the United States and then converted into sterling at the relatively favorable dollar-pound ratios existing in the free markets of the world.

Another source of friction in Soviet-American economic relations in the postwar period has been the inability to reach an agreement regarding settlement of the debts arising from Lend-Lease deliveries during World War II. American policy, applied in negotiations with all recipient countries, has been that no payment would be demanded for goods actually consumed in fighting the common enemy, but that payments would be required for goods having peacetime use. Despite prolonged negotiations stretching all through the latter half of the 1940's, no agreement had yet been reached in 1950, the result both of an apparent Soviet unwillingness to provide a detailed accounting of the remaining goods in its possession after the end of World War II and also of Soviet unwillingness to accept American estimates as to the amount of the debt arising from the Lend-Lease operations. One Russian offer for settlement of this matter was reported unofficially to be $200,000,000—i.e., less than 2 per cent of the total value of Lend-Lease sent to the USSR, and well under 5 per cent of the value of the nonmilitary items shipped.[46] Soviet-American economic relations have also been similarly exacerbated by Russian slowness in returning merchant and other vessels lent the USSR during the war. By the middle of 1950, not all these vessels had been returned yet.[47]

There have been indications that the Soviet Union has been counting upon mounting unemployment in the United States to create a need for customers that would force removal of the export prohibitions in effect. On the other hand, the United States position, as expressed in a speech

[46] *New York Herald-Tribune*, May 11, 1950.
[47] *Ibid.*, May 10, 1950.

by Secretary of Commerce Charles Sawyer in May 1949, has been that the restoration of unrestricted trade between the two countries depends upon the end of the political tensions between them.[48] The Ministry of Foreign Trade of the Soviet Union has publicly claimed that the American restrictions on exports to the USSR violate existing Soviet-American trade agreements, which prohibit discriminatory treatment by either of the two nations of trade with the other.[49] Despite these complaints, the United States government in late 1949 imposed a further ban upon the export of nonsecret technical data considered important to the national security. This prohibition first took the nature of an appeal for voluntary compliance and then was made mandatory for special cases as required. The latter step was apparently necessitated by the fear of some firms that if they withheld data without direct government order they would be guilty of breach of contract.[50]

In the late summer of 1950, it became evident that American efforts to prevent shipments of strategic raw materials and machinery that might aid the Soviet war potential were not meeting with complete success. The USSR obtained a large shipment of molybdenum, an important steel-alloying element, from the United States through a British intermediary. From Great Britain came word that that country's sales to the USSR, consisting primarily of machinery, had amounted to 6,600,000 pounds sterling in the first seven months of 1950, suggesting that these exports might total almost 12,000,000 pounds sterling for the entire year, as compared with British sales of goods worth 8,170,000 pounds sterling in 1949 and 6,462,000 pounds sterling in 1938. In the first six months of 1950, it became known, the USSR purchased about 6,370,000 pounds of Malayan rubber, as compared with only 6,000,000 pounds in all of 1949. Soviet buyers were also reported to be heavy purchasers of tin, antimony, and tungsten in Hong Kong. In 1949 the USSR had tried to buy all of Ceylon's rubber crop. Pressure was apparently placed upon Great Britain to restrict its machinery exports to the USSR, for in early September 1950 several public statements were issued by the British government promising that such action would be taken. The United States government moved to tighten its

[48] *The New York Times,* June 1, 1949.
[49] *Ibid.,* August 3, 1948.
[50] *Ibid.,* December 23, 1949.

control of trade with the USSR and its satellites in mid-August 1950 by requiring export licenses for all shipments to them, no matter how small, of some 1,100 controlled commodities. In the same period, American longshoremen in a number of cities refused to unload imports of Soviet furs and other goods, disregarding the fact that such action did not injure the USSR and deprived American citizens of goods they had already paid for.[51]

[51] *The New York Times,* August 19, August 25, and September 4, 1950.

CHAPTER XV

RETROSPECT AND PROSPECT

AGAINST THE BACKGROUND of the preceding chapters, it seems fitting to attempt some evaluation of the complex saga of Soviet economic development. What has been accomplished and at what cost? What are the future prospects for Soviet economic development? The past is prologue to the future. If we are to have any hope of forecasting the future course and speed of Soviet progress, we must comprehend the nature of what has been done.

Among Soviet accomplishments, the first in importance has been the creation of a society and an economy based on noncapitalist institutions and principles. The abolition of private ownership of almost all means of production, the coordination of economic development through a unified economic plan, the collectivization of millions of peasant farmers—these are major and revolutionary achievements with profound consequences. The rulers of the USSR have created an integrated and viable socialist state and economy which have survived successfully through profound crises. Soviet experience has become the model for economic development throughout Eastern Europe and communist-dominated Asia.

Second in the list of accomplishments, we may cite the at least partially successful harnessing of personal ambitions with coordinated and planned economic development. The private initiative and enterprise, based on the desire for gain and power, which built the economies of capitalist countries have been largely curbed in the USSR. Instead a system of incentives and punishments has been created calculated to enlist the energies of the tens of millions of adult Soviet citizens to-

ward the realization of state goals. Nowhere else in the world have the "carrot and the stick" been so carefully joined together to direct the aspirations and energies of a major mass of humanity. Moreover, by intensive and unchallenged propaganda, the Soviet government has undoubtedly enlisted the enthusiasm and moral fervor of millions of its subjects in the work of realizing its objectives. One need not believe all Soviet claims about the "New Soviet Man" to understand that the accomplishments of the past decades would have been impossible if millions had not been persuaded that they were engaged in a crusade worthy of great exertions and great sacrifices. The youngsters of the 1930's who carved Komsomolsk out of a wilderness, and many others like them, were moved by an ideal and by a collective dream. In everyday Soviet life an army of agitators—aided by every possible medium of propaganda and communication—hammers away at the theme that the citizen who serves the government's interest is simultaneously serving his own interests.[1]

Third, and not least important, we may cite the great growth in production and the accompanying technological revolution. The Russia of 1914 stood in fifth place in the ranking of nations according to industrial production. Though it was advancing rapidly, its industry was far from commensurate with the relative importance of its population and of the vast area it covered. Its agriculture still showed important influences of the primitive technology that had been largely abandoned long before in Western Europe. With respect to productivity and technological level, its industry and agriculture were far behind such countries as the United States, Germany, and Great Britain. The USSR of 1950 is the second most powerful nation in the world, in large part because of the growth of industrial production that has provided the sinews of modern war. The bare skeleton of the accomplishment in the field of industry may be shown by the comparison given in Table 64.

In little more than a third of a century, despite the destruction of one civil war and two World Wars, coal output has been increased about ninefold, pig-iron production almost fivefold, steel about sixfold, petroleum more than fourfold, and electric power generated over forty-fivefold. Along with this has gone the comprehensive development of every other branch of heavy industry: machine-building, armaments, chem-

[1] Inkeles, *Public Opinion in Soviet Russia, passim.*

TABLE 64. Soviet Production of Selected Commodities in 1913, 1928, 1940, and Estimates for 1950.

Commodity	*Unit*	*1913*	*1928*	*1940**	*Estimate 1950†**
Coal	mil. metric tons	29.1	35.8	166.0	260.6
Pig Iron	mil. metric tons	4.2	3.4	15.0	19–20
Steel	mil. metric tons	4.2	4.3	18.3	25–27
Petroleum	mil. metric tons	9.2	11.5	31.0	37.5
Electric Power	billion kwh	1.9	5.1	48.3	90.3

* Expanded territory.

† Estimates for coal, petroleum, and electric power based on data for first ten months of 1950 in *Pravda*, November 7, 1950. Upper limit for steel and lower limit for pig iron derived in same way. Lower limit for steel and upper limit for pig iron derived by applying estimated average growth during first three quarters of 1950 to 1949 data in Table 16.

icals, and the like. On the other hand, the gains made in agriculture, though appreciable in some fields, have been of no such magnitude as those in industry.

In the process of development the technological level of most branches of Soviet production has been raised substantially. Engineers, physicists, chemists, and other technicians have been trained in numbers far greater than ever before. The most able of these specialists rank with the best in the world. The Soviet achievement of nuclear fission evidences the strides that have been made. It was accomplished sooner because of the treachery of Klaus Fuchs and others like him, but there can be little doubt that it would have come without them. A country with scientists and mathematicians of the stature of Frenkel, Kolmogorov, and Kapitsa, to name but a few, has the intellectual personnel required to solve the problem, and Soviet economic development provided the material means that made possible the actual achievement of plutonium production and atomic explosion.

Less spectacular, but very important, has been the great rise in labor productivity since 1928. Nevertheless, even in 1950 the supply of technically trained personnel in the USSR was still not adequate for all needs, and much remained to be done to bring labor productivity up to the best levels of the non-Soviet world.

The Soviet achievement in industry must be seen in perpective. The historical records show that the United States had reached the absolute level of Russia's 1913 production of the five commodities shown above in the middle and late nineteenth century, as early as 1867 in the case of coal and as late as 1899 in the case of petroleum. The 1950 output of

these commodities in the USSR is for the most part at the absolute level attained by the United States before World War I–1901 in the case of coal, about 1905 in pig iron, 1910 in steel, 1915 in petroleum, and 1926 in electric power.[2] Looked at in the large, the development of Soviet industry from 1913 to 1950 took roughly as long and covered somewhat the same ground as American industrial growth, from, say, 1875 to 1910. The Soviet achievement was made despite the physical destruction wrought during 1914–20 and 1941–45, destruction that has no parallel in the corresponding American experience. The growth of the USSR's economy, until the 1940's, had to be financed almost entirely from domestic resources without the inflow of capital from abroad such as aided economic development in the United States. Soviet heavy industry in 1950 was far more comprehensive than that of this country in 1910. It included, for example, a major and almost all-embracing chemical industry such as this country did not develop until World War I and afterward. On the other hand, American industrial development did not emphasize heavy industry so lopsidedly, at the expense of consumer goods and services. Finally, the Soviet progress was accomplished with the aid of a far larger population and a much more advanced world technology than were available to the United States in the comparable period of development. But taking all factors into account, the USSR's economic development has obviously been a remarkable achievement.

A satisfactory comparison between the pace of Soviet industrialization and that in the United States or other capitalist countries should be based, of course, upon data regarding over-all industrial output. The inflationary character of Soviet statistics on this matter, based upon 1926–27 prices, has been pointed out before and makes conclusions drawn from them of uncertain value. Perhaps the closest analogues in capitalist experience for the Soviet development are to be found in the cases of Germany and Japan. Both of the latter emerged from technological backwardness comparatively late, and both were able to make very rapid initial progress in industrial output by drawing, as the Soviet Union has, upon the experience and advanced technologies of the countries whose industrialization had preceded theirs. The rapid industrial development of Czarist Russia after 1890 also provides a

[2] Bureau of the Census, *Historical Statistics of the United States 1789–1945, passim.* Washington, D. C.: Government Printing Office, 1949.

parallel for the Soviet experience, though accomplished in a radically different social, political, and economic setting. Some have argued that all the feats of Soviet industrialization could have been accomplished under Czarist rule if World War I and the overthrow of that regime had not interrupted this earlier progress.[3] Like all speculations about what might have been in history, however, such arguments must rest upon assumptions whose validity is unverifiable.

The Cost Involved

Heavy costs have been paid for Soviet progress, both material and nonmaterial in character. They have been of a magnitude and a nature that find no counterpart in the comparable American experience. Only in time of war or the grave threat of war has this country gone through periods even remotely analogous.

From many points of view the most important cost has been the great loss of freedom suffered by those whom the Politburo rules. The Soviet peoples are regimented peoples. Even the nominally free worker or peasant is under virtual military discipline—guaranteed employment and minimal subsistence as is a soldier, but like him completely subordinate to the state, which directs all productive activity. The trend of legal regulations has been ever more toward imposing greater control and limiting freedom of occupational choice. Legally the Soviet worker may not leave his job without his employer's consent, except in extraordinary circumstances. Hundreds of thousands of Soviet youngsters are drafted annually to be trained in vocations selected for them by the state. After their training they must go and work wherever in the vast Soviet Union the state orders them to go. The collective farm peasantry must plant those crops the state wishes; sow, cultivate, and harvest at state-dictated times; and regard its delivery obligations to the state as having first claim upon the product of its sweat and toil. The millions of slave laborers in the Soviet Union are merely the victims of Soviet coercion at its extreme, not an isolated and extraordinary group of unfortunates.

When the restrictions on political freedom, on the liberty of expression and on dissent are taken into account, the picture becomes

[3] N. S. Timasheff, *The Great Retreat,* pp. 374–76. New York: Dutton, 1946.

even blacker. The Soviet economy and society of today are a far cry from the humanitarian visions of generations of socialist idealists. In the name of the working class, the Soviet state has fastened upon its workers chains so strong and so burdensome that they can only be compared with the worst abuses of peonage. No capitalist corporation in democratic Western countries would ever dare treat its workers as the Soviet government, the world's greatest single employer, has treated those who operate its factories, railroads, and mines.

The reader may wonder how these remarks square with the earlier description of the enthusiasm generated by Soviet propaganda to aid accomplishment of its economic objectives, or with the statement about Soviet success in relating realization of personal ambition with accomplishment of government goals. This apparent contradiction may be resolved, however, if we think again of our analogy between Soviet society and an army. The soldier has no freedom, but he may be enthusiastic about realization of the army's military goals and willing to lay down his life to help attain them. Anyone who has ever served in the armed forces knows, too, that within the framework of their constricting regulations there are incentives and punishments that work powerfully. The desire for promotion or fear of being restricted to quarters are potent stimuli for good or improved performance; their analogues are equally powerful in the USSR.

But for a fuller resolution of the conflict, it must be pointed out that the fund of enthusiasm on which the Soviet government could draw was probably much greater in the 1920's and 1930's than it has been since World War II. The very fact that since the mid-1930's the Soviet government has had to increase its coercive measures and to increase the economic and noneconomic incentives offered its people would seem to support that hypothesis. What need would there be in the postwar period for the dreary endless round of socialist competitions, begun on every pretext—such as Stalin's birthday or the Korean conflict—if the naive and unquestioning enthusiasm of the First Five-Year Plan had carried over to the Fourth Five-Year Plan? Would the directors of an economy whose members were moved primarily by hope of a glorious future have to explain that they abolished rationing because it was too egalitarian and did not provide sufficient incentives for greater production? Obviously the same factors and considerations do not move all of

the Soviet millions, yet the system of Soviet incentives makes it clear that personal self-interest, not idealistic enthusiasm, is the primary source of motivation for the USSR's citizens.

The Standard of Living

The Soviet people bore the brunt of the cost of Soviet industrialization, as did their ancestors in the time of Peter the Great when a remarkably similar development took place. It is true that part of the USSR's development was made possible by utilizing more fully resources that had been unemployed, such as many mineral deposits, or that were seriously underemployed, such as agricultural labor. But the pace and the volume of economic development since 1928 have required far greater resources than these. In consequence the standard of living in the USSR fell seriously in the early 1930's. Its recovery thereafter to the end of the decade was at a far slower pace than would have been the case if resources had been employed in accordance with consumer wishes. In the late 1930's, moreover, rapidly increasing military expenditures added to the burden that had to be borne by the economy in general and consumers in particular.

The impressive production achievements of Soviet heavy industry are unmatched in those sections of the economy serving consumers, except for education and medical care, both fields directly related to production efficiency. Throughout the Soviet regime, the diet of consumers has consisted primarily of bread and cereals; they have had little in the way of clothing, and much of that has been of rather shoddy quality; and the housing of those who live in cities and towns deteriorated over most of the Soviet period—even before World War II—to a general slum level of overcrowding and poor quality. The immense efforts put forth in the USSR since 1928 and the enormous resources employed could have made possible a rise in the standard of living to heights far beyond any known before in that country. But the government put guns before butter and factories before homes, failing time and again to realize the glowing promises of improved conditions made to its people. We have quoted earlier Prof. Bergson's observation that around 1937 the real per capita disposable income available to consumers in the USSR was roughly equivalent to that in the United States during the decade 1869–78. At the same time the volume of So-

viet production of chief industrial raw materials was at approximately the level of United States output of these commodities in the first decade of the twentieth century. The thirty year gap indicated between consumption and industrial raw material output is a crude but significant measure of the differential impact of capitalist and Soviet economic development upon standards of living.

An aggravating factor increasing the cost that had to be paid for Soviet economic development between 1928 and 1940 was the fact that it was accomplished wastefully and with many errors. One would hardly expect such a frenzied concentration of resources upon an objective to be otherwise in character. When mistakes and waste came to light or were too heavy to be ignored, Stalin and his colleagues diverted the blame to "Trotskyite saboteurs and imperialist spies." They conveniently overlooked the fact that they had approved all phases of the development and encouraged many of the trends they subsequently denounced with terms such as "gigantomania." In addition, the centralized character of the Soviet economy and the constant fight against efforts to deviate from the plan have required a large bureaucracy and an army of watchmen of all kinds. The support and maintenance of these personnel have had to be borne in addition to the normal costs of economic development.

It may be argued that the sacrifices imposed upon the peoples of the USSR during 1928–40 were justified by the results of World War II. Without such frenzied industrialization, the USSR would presumably not have been able to stand up against the Nazi war machine and help so decisively in defeating it. There is undoubtedly much to be said on this side of the case. It is this interpretation of events that Stalin gave implicitly in his speech of February 1946. But this argument loses at least part of its force when we realize that a large part of the development during 1928–40 took place in the areas that the Germans occupied, regions lost in the first months of the war. The Donbas, the Dnepr hydroelectric installation, and many other major economic facilities built or expanded by the Soviet regime gave almost no help in winning the conflict. The Soviet Army, whose equipment with modern weapons had been so major an objective of economic activity in the 1930's, was forced back to the gates of Moscow by early December 1941. True, Soviet industry recovered and produced most of the arma-

ment to equip the new armies that ousted the invader. Yet one who studies the time table of events and evaluates the role of American Lend-Lease and British Mutual Aid deliveries may well wonder whether collapse could have been avoided had these resources not become available. The list of goods shipped the USSR during the war included almost every commodity needed in the struggle, from guns and planes to machinery, shoes, and food of all kinds. If Soviet industry had had to produce all the trucks, ships, locomotives, and other commodities received from abroad, it could never have produced the volume of arms it did. The industry behind the line of furthest German penetration during the conflict was largely created during the Soviet regime and played an immensely vital role in obtaining victory. But the records of Lend-Lease and Mutual Aid help are the best proof that this alone was inadequate. If military considerations alone are to be used as the justification for Soviet industrialization in the 1930's, then they would seem to point also to inadequate preparation, particularly in the area of locational policy for the industry developed in those years.

Maurice Dobb has referred contemptuously to the "loose and ill-informed chatter in the West" about Soviet "industrialization promoted at the expense of the standard of life of the people."[4] The First Five-Year Plan, he argues, envisaged a rise in the absolute level of consumption during its term. Dobb concedes that "a fall in the standard of life occurred in certain of the 'tight' years of the First Five-Year Plan," but attributes this to extraneous and accidental factors. Yet this most sophisticated apologia for the cost of Soviet industrialization ignores the facts. All the Soviet five-year plans to date have promised far greater benefits to consumers than were actually realized. Promises are cheap and help morale, but the whole Soviet experience has been that when resources prove inadequate it is consumer goods and services that bear the cuts needed to assure fulfillment of goals for heavy industry. The First Five-Year Plan, for example, set a goal for cotton-textile production of 4,670,000,000 meters. Actual output was only 2,694,000,000 meters in 1932. The Second Five-Year Plan set a goal for cotton-textile output of 4,900,000,000 meters; actual production was only 3,-

[4] Dobb, *Soviet Economic Development since 1917*, pp. 25–26.

447,700,000 meters.[5] Shoe production in the last year of the First Five-Year Plan was to be 145,000,000 pairs; it was only 94,500,000 pairs in 1932.[6] In the Second Five-Year Plan, it is true, the shoe-production goal was apparently fulfilled in 1937, but the benefits here must have been far outweighed by the debacle in housing. Instead of 64,000,000 square meters of housing becoming available during 1933–37, as planned, only 26,800,000 square meters were actually put into use.[7] Never since 1928 has the per capita housing available to urban residents come close to the goal set in the First Five-Year Plan for 1932–33.

We do not have adequate data to measure precisely the course of the Soviet standard of living, but the decline in the First Five-Year Plan was far sharper than Dobb indicates, and recovery took an extended period. The world depression that began in 1929 obviously cannot be blamed on the Soviet leaders and is therefore extraneous and accidental in Dobb's sense. But the bloody and costly struggle over collectivization was neither extraneous nor accidental, though it worked great hardship on consumption. If the government had not been able to bend the peasantry to its will, it could not have extorted the grain it needed to feed the urban masses and for export at ruinous prices in payment for foreign machinery. Collectivization was the cornerstone of the foundation that permitted the rapid industrialization of the 1930's, and its costs are properly chargeable against that advance.

One last point may be mentioned in this summing-up of negative aspects of Soviet economic development. This is the rise of new classes and new divisions in Soviet society as a result of the economic policies followed. The hierarchical structure of organization in every field of the USSR's society is paralleled by the hierarchy of persons. At the top is the Politburo, an oligopoly whose like has perhaps never before been seen, measured by the vastness of resources controlled and the freedom of discretion enjoyed. Below the Politburo is a large and complex congeries of groups, each with its special privileges and favored position: the Communist Party bureaucracy; the managers of industry,

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[5] *Pyatiletny Plan Narodno-Khozyaistvennogo Stroitelstvo SSSR*, Tom I, p. 213. *The Second Five-Year Plan*, p. 246. *Itogi Vypolneniya Vtorogo Pyatiletnogo Plana Razvitiya Narodnogo Khozyaistva Soyuz SSR*, p. 85.

[6] *Pyatiletny Plan* . . . , p. 221. *Itogi Vypolneniya* . . . , p. 85.

[7] Cf. Chapter XI above.

trade, and transport; the officials of the collective farms; the successful writers, artists, and scientists, richly rewarded for putting their talents to work for the perpetuation of the ruling oligarchy's sway; the favored members of the secret police, whose incomes are high to assure their loyalty; the mass of Stakhanovites who outproduce their fellows; the officers of the armed forces. In the aggregate these are a substantial number, totaling in the millions. Though many of them live poorly, in comparison with a skilled American worker or small business man, they are the new nobility and the new bourgeoisie of the Soviet society. The bounty given some of these groups flows from their productive contribution and is properly chargeable against production. But the resources devoted to those who keep the Soviet people in thrall fall into quite another category.

Whether these groups total 5, 10, or even 20 per cent of the Soviet population, it is clear they form a small though most important minority. Their composition and numbers, their relative shares of the national income, their absolute level of well-being, these and other matters are hidden from both the Soviet people and the outside world by the statistical blackout that has prevailed for many years. Below them is the great mass of Soviet citizens, who bear the main portion of the cost of economic development and military preparations. To the extent that mobility still exists in Soviet society, talented members of the underprivileged majority can and do enter the ranks of the more privileged groups. The hope and possibility of such rise may perhaps be an important element in reconciling tens of millions to their lot. Yet neither this hope, nor the low standard of living that has always prevailed in what is now the USSR, is obviously adequate. Else why need the state spend so much energy in distorting and misrepresenting the facts about how ordinary workers and farmers live in the United States and elsewhere in the Western world? The tremendous impression made upon Soviet soldiers when they entered the far from prosperous areas of Eastern Europe at the end of World War II is a measure both of their poverty and of the false picture they had been given of life outside their country. Ironically, much of the huge cost of the vast propaganda machine constantly engaged in deceiving the Soviet people about the outside world is included under the "education" item of the Soviet

budget! The size of this item is then trumpeted to the world as proof of the "welfare state" nature of the USSR.[8]

If we break away from Marxist shibboleths, it seems not unfair to characterize the Soviet economy in these terms: From the point of view of organization and objectives it is a military feudal economy based upon industry rather than agriculture and employing twentieth century technology for military, productive, and propaganda tasks. In the last analysis, its internal stability and freedom from overt discontent are guaranteed by the repressive forces of the state and the draconian measures they employ.

U.S. and USSR

In the current struggle for world mastery between the forces led by the Soviet Union and those led by the United States, comparison of the economic strength of the contending groups is of particular interest. For a full evaluation of the relative position of the two groups, the economic strength of all nations on both sides should be compared. We shall restrict ourselves here, however, to the two leaders, because of the limited scope of this volume. The industrial power of Western Europe, including Great Britain, is substantially more than that of Soviet-dominated Eastern Europe. On the other hand, the vast manpower of China is an important asset in the balance sheet of communist strength, particularly if India remains neutral. China's manpower has already become a factor to be reckoned with in the Korean struggle.

Comparison of two such disparate economies as the United States and the Soviet Union is beset with pitfalls, which must be taken into account in advance. In the first place, even in 1950 after the outbreak of the Korean conflict and the ensuing partial mobilization, the United States was working at a level much further below capacity production than was the Soviet Union. The standard work week in the United States is 40 hours, against 48 in the USSR. Moreover, a larger fraction of the female population is employed in the USSR than in the United States. With existing capacity of plant and equipment, therefore, this country could, if necessary, increase its output more, proportionately, than the Soviet Union. Secondly, military production takes a far smaller

[8] Rovinsky, *Gosudarstvenny Byudzhet SSSR*, p. 206.

fraction of American productive capacity in peacetime than it does of Soviet capacity. Even in September 1950, United States production of durable consumer goods—automobiles, refrigerators, television sets, and the like—was at record or near-record levels, though these items are obviously most competitive with armaments in terms of raw materials, machinery, and skilled manpower. Under these circumstances the interval of time required for conversion of American productive capacity to full military production would probably be greater than that of the Soviet Union by a substantial margin. But with conversion completed, the ratio of armaments output in the two countries would be much more nearly proportional to their productive capacities. With these factors in mind, the following comparison may be considered. American output in 1949 is compared with estimated Soviet 1950 output of key industrial commodities, the maximum Soviet levels reached up to that time.

Commodity	*Unit*	*U.S.*	*USSR*
Coal	mil. metric tons	433	260.6
Pig Iron	mil. metric tons	49	19–20
Steel	mil. metric tons	71	25–27
Petroleum	mil. metric tons	252	37.5
Electric Power	billion kwh	291	90.3
Motor Vehicles	millions	6.2	.4

American production of coal, pig iron, and steel in 1949 was substantially reduced by costly strikes. Even so, however, the wide superiority of actual American industrial power is evident from the above tabulation. Given time, in any conflict in the near future American industry could outproduce Soviet and Soviet-satellite industry substantially, even without the production of Western Europe. Only in manpower does the USSR have the edge, the comparable figures in 1950 being about 201,000,000 for the Soviet Union and 151,000,000 for the United States. The comparison above omits agricultural products, but there too a similar picture would be shown, taking into account relative populations. The United States, it should be remembered, helped substantially to feed its allies in World War II, while at no time lowering the level of the American diet below relatively high nutritional levels.

The leaders of the USSR are well aware of their quantitative disadvantage in potential in the event of a long-drawn-out conflict con-

ducted along the lines of World War II. They have undoubtedly made plans to take this into account. Large-scale postwar Soviet purchases abroad of rubber, wool, tin, and other commodities in which the USSR is deficient suggest clearly that it is actively stockpiling raw materials, and probably also food. It is quite probable, in view of past Soviet preparations for World War II, that the USSR scrapped a far smaller fraction of its military equipment than did the United States. The USSR has undoubtedly been stockpiling arms from current production and arming its allies, such as North Korea, on a major scale. In the middle of 1950, all information indicated that the military force in being of the Soviet Union was far stronger than that of the United States, with the conspicuous exception of naval forces. Moreover the central position of the Soviet Union with respect to both Europe and Asia facilitates any action it might take toward bringing its resources to bear upon anti-communist nations on both continents, especially in Western Europe and the Middle East. The United States by comparison has a much more difficult logistics task in bringing its resources to bear in Europe, across 3,000 miles of the Atlantic Ocean, or in Asia, across the more than 5,000 miles of Pacific Ocean. On the other hand the USSR faces the risk of large-scale obsolescence of much of its present vast store of military equipment in the next few years.

The atomic bomb is an important factor in any evaluation of relative military-economic potential. Presumably the United States has a far larger stock of these weapons than the USSR, and this will probably continue to be the case indefinitely. At some date in the future, however, barring the outbreak of war beforehand, the USSR may have a sufficient stock of bombs, long-range aircraft, and perhaps guided missiles to allow it to hope to knock the United States out with a simultaneous attack on all major targets. Yet the Soviet leaders will have to take into account possible retaliation. Their industry is still highly concentrated in a relatively few areas, and the rail and road transportation network east of the Volga River is thin indeed. Soviet petroleum production would be severely strained in any war involving use of large masses of motor vehicles, tanks, and aircraft. Yet the largest single Soviet oil basin, that around Baku, is most vulnerable to attack from relatively nearby non-Soviet territory in the south.

The Politburo has undoubtedly also taken these facts into account.

The relocation and new development of industry since 1940 have created a much more dispersed pattern of location than existed before World War II. The effort to develop the Soviet economy as a series of somewhat self-sufficient major industrial regions has apparently been intensified in the postwar era, though it was begun as early as 1939. To the extent that this program has been and will be successful, it will give the USSR greater assurance in the future against complete economic paralysis resulting from the breakdown of transport facilities. But the basic concentration of petroleum output in a few areas still remains a glaring weak spot, even though large reserves may have been accumulated in areas lacking significant production.

As far as the material factors are concerned, there seems little reason to believe that Soviet economic strength has yet reached such a point as to give the leaders of the USSR confidence of winning a protracted struggle against the United States. But the material factors are not the only ones, of course, and they are not all known. In the light of recent history the meteoric development of new weapons can never be discounted. Barring such development, however, the danger does exist that Soviet leaders may overestimate the possibilities of inducing revolt in this country after a war of some duration, i.e., they may fall victims to their own propaganda about the "oppression" of American workers. This is perhaps unlikely, but somewhat more important may be the belief of Soviet leaders that they could neutralize a large segment of American industrial strength through communist-led strikes and sabotage in this country. Yet even they must be conscious of our vigilance in these areas.

Those charged with the planning of American strategy in relation to the Soviet Union have a twofold task. They must try to prevent the outbreak of a Soviet-American war as well as plan to win one should it occur. In both areas of such planning there is danger that nonmilitary elements may be underestimated. Among the latter none is more important than the continued great poverty of the mass of the Soviet people, more than three decades after the Bolshevik revolution. As pointed out earlier, the rulers of the USSR have felt it vitally necessary for the preservation of their own power to conceal the true situation and to try to convince their people that, poor as their lot is, they are far more fortunate than workers in capitalist countries, particularly the

United States. The Soviet government's fear of the truth on this matter is indicated by the expensive lengths to which it has gone to jam Voice of America broadcasts beamed to the USSR. A more imaginative approach is required to break through the fog of lies spread by the Soviet government on this score. If the Soviet peoples could be informed of the reality of life in the "bourgeois" countries and of our desire for peace, there would be no danger of war. But such knowledge would imperil the stability of Kremlin rule, by demolishing the foundation of lies on which it is built. There is no more important area to which American resources must be devoted if peace is to be maintained or war to be won.

The difference in economic organization between the United States and the Soviet Union could be an important factor in a war between them. The highly centralized control of production in the USSR discourages initiative at lower administrative levels in the making of major decisions. Directors of enterprises have little to say about the volume and nature of output as well as about the interconnections between enterprises at different stages of a productive process. The reliance upon a long-term plan to provide guidance of operations leads to different habits of thought from those that are customary among entrepreneurs who must gauge their work in the light of rapidly shifting market conditions and consumer preferences. These considerations suggest that there is a flexibility and adaptability in the American economy far superior to that in the USSR. Moreover, there is no one source of control in the American economy, comparable to the Politburo and the economic ministries, whose elimination or impaired opportunities for communications with subordinates would so impair over-all economic direction. On the other hand, the ability of the Soviet Union to convert to war production during World War II offered an impressive example of skill and flexibility in meeting combat needs under adverse conditions. These factors are all relevant to any calculation of how either the United States or the Soviet Union would react to such an ordeal from the air as Germany and Japan suffered during World War II. All rational men must hope that the world need never again know such a time. The strained atmosphere of our times, however, makes such speculations of vital importance.

In sum, it is not the quantitative strength of the Soviet economy as

such that raises concern in comparison with that of the United States. Rather it is the concentration of that economy upon direct and indirect military production, in peace and even more in war. By such concentration the Soviet Union has produced the atom bomb and large quantities of first-class planes, tanks, and guns. Yet at the same time it has been unable to guarantee the production of uniformly good-quality articles of common necessity, from shoes and dresses to bricks and clocks. In this evaluation of the two countries and their strength, it should be borne in mind too that the relatively low standard of living in the USSR has some military virtues. The shift from civilian to military life is far less of a change for the Soviet citizen than for his American counterpart. Under the harsh conditions of ground combat, the Soviet citizen can adjust more easily to making do on what is available than the American. The performance of North Korean troops in their offensive sweep of July and early August 1950 provides an indication of the military advantages gained from using personnel accustomed to a low standard of living. But the subsequent performance of American troops against them provided an equally illuminating insight into the value of American weapons. The personnel of the Soviet Army combines the ruggedness of the North Koreans with a high level of armament rivaling and sometimes surpassing the weapons at the disposal of our troops.

Economic Development to 1960–65

Any attempt to consider the future economic development of the Soviet Union must begin by recognizing the basic uncertainty posed by the threat of war between the two great power blocs of our time. That such a conflict would be enormously destructive of life and property on both sides seems certain. It seems fruitless to attempt to speculate here on the nature and economic consequences of such a holocaust. Instead we shall assume here that peace of some kind will continue to prevail, even if interrupted by peripheral outbreaks that do not involve the two major powers of the current world in direct conflict. On this assumption we shall examine Soviet intentions for future economic development for the period in which these intentions have been made most explicit, i.e., to about 1960 or 1965. We shall also examine some questions of longer-run development, to 1970 and beyond.

At the Eighteenth Congress of the Communist Party of the Soviet Union in 1939, both Stalin and Molotov discussed the future goals of Soviet economic growth. They indicated that their objective was ultimately to attain production levels permitting the USSR to equal and exceed what was then the highest per capita industrial output of the United States, that attained in 1929. Molotov's estimate of how long it would take to do this was given in this sentence: "We need another ten or fifteen years at least, another two or three five-year plan periods."[9]

In other words, it was the Soviet hope to outstrip the most advanced capitalist nations by 1947 or 1952 or soon thereafter. Stalin indicated then that for pig iron an annual output of 50,000,000 to 60,000,000 metric tons would have to be attained. Writing in 1940, an outstanding Soviet economist spelled these longer-range goals out more specifically, indicating that steel production would have to reach 70,000,000 to 80,000,000 tons; coal output would have to rise to six times that of 1937, or to over 750,000,000 metric tons; and oil production would have to rise to five or six times that of 1937, i.e., to over 150,000,000 metric tons annually.[10]

World War II rudely interrupted these plans. From 1941 to 1945 much Soviet capital was destroyed and the USSR's production was sharply reduced, despite the wartime development of areas beyond the line of furthest German penetration. In the same years, capitalist nations snapped out of the stagnation of the depression-blighted 1930's. The United States, particularly, increased its production, both absolutely and per capita, substantially. Both of these factors put the goal of equalling and exceeding the best levels of per capita capitalist industrial production much further away than they had seemed in 1939. In describing goals for the future in his famous speech of February 1946, therefore, Stalin omitted all reference to per capita comparisons with the capitalist world. Instead he phrased the objectives in this manner:

> As regards the plans for a longer period ahead, the Party means to organize a new mighty upsurge in the national economy, which would allow us to increase our industrial production, for example, three times over as compared with the prewar period. We must achieve a situation where our industry can produce annually up to 50 million tons of pig

[9] *The Land of Socialism Today or Tomorrow*, p. 119.
[10] *Planovoye Khozyaistvo*, No. 10 (1940), pp. 36–37.

> iron, up to 60 million tons of steel, up to 500 million tons of coal and up to 60 million tons of oil. Only under such conditions can we consider that our homeland will be guaranteed against all possible accidents.

Stalin indicated that might take three or more five-year periods, i.e., to 1960 or 1965 or thereabouts. His reference to guaranteeing his country against "accidents" was obviously an oblique means of stating that the increase of military-economic strength would be the primary objective of future development. Aside from the implicit abandonment of the hope of outstripping capitalist nations in the foreseeable future, his speech is noteworthy because several specific goals given by it are less than those implied by him and Molotov in 1939. This is clearly shown by comparison of Stalin's target figures quoted above with those stated or implied in the article by the Soviet economist referred to earlier. It must be remembered that the territory and population of the USSR in 1946 were both substantially greater than at the time of the Eighteenth Communist Party Congress in 1939.

It is noteworthy that the specific production goals enunciated by Stalin are, in the case of pig iron, steel, and coal, roughly equal to the corresponding American output of these commodities in 1940 or 1941. In the case of petroleum, however, the 60,000,000 metric tons objective is only about one third of the American production in 1940. On a per capita basis, of course, Soviet production of even pig iron, steel, and coal would be far below that of the United States in 1940 or 1941 should these goals be reached by 1960 or 1965. The over-all goal for gross industrial production indicated by Stalin, triple that of 1940, is equivalent to about 400,000,000,000 rubles in 1926–27 prices. This is the same goal indicated by a Soviet source in 1939 as the future target to be attained—presumably by 1947 or 1952—if the USSR were to equal per capita American industrial production in 1929.[11] In 1939, however, Soviet calculations were based on the premise that the USSR would have roughly 200,000,000 persons by the time the 400,000,000,000 ruble output objective was attained. By 1960 or 1965, assuming that all of Stalin's goals are attained then, there will be appreciably more than

[11] Y. A. Ioffe, *Ekonomicheskoye Sorevnovaniye Sotsializma i Kapitalizma*, p. 17. Moscow: Ogiz, 1939. Ioffe does not state specifically that the per capita production of the United States referred to is that of 1929. This seems likely, however, since his discussion is based on Stalin's speech at the Eighteenth Communist Party Congress.

200,000,000 persons in the Soviet Union. Hence even then the USSR will not have attained American 1929 per capita industrial production.

When Stalin enunciated his long-range goals in 1946, he presumably based them on the assumption that the objectives of the Fourth Five-Year Plan would be reached on schedule by 1950. An important insight into the thinking behind this long-range planning is obtained if we assume, as Stalin's economists may have, that the long-range objectives he stated might be reached by about 1962. The interval between 1950 and 1962 is the same as that between 1928 and 1940. While the absolute gains scheduled to be won in the later period are greater than those actually attained in the earlier period, it must be remembered that the Soviet economy begins from a much higher original level in 1950 than it did in 1928. The percentage gains scheduled to be made in the period after 1950 are substantially lower than those actually achieved in the earlier years of most intense economic development. This is shown in the table below.

	Percentage Growth in Production	
	1928–1940	1950–1962
Commodity	ACTUAL	PLANNED
Gross Industrial Output	642	195
Coal	464	200
Pig Iron	441	256
Steel	426	236
Petroleum	270	170

The relative modesty of the percentage gains scheduled to be attained after 1950 is apparent from this comparison.

The following seem likely to have been the most important factors in the considerations that preceded the setting of these long-range postwar goals. First, much of the rapid progress from 1928 to 1940 was obtained by utilizing more fully the initially existing stock of capital. The greatly increased burden placed upon the railroad transport system during this period is an outstanding example of this. Moreover, most earlier development took place in existing centers of population and was made possible by greatly increasing the crowding of existing housing. For future progress, however, Soviet planners must provide for the utilization of less accessible resources in thinly populated areas. More and more they will have to use inferior-grade raw materials for-

merly not required. New rail lines must be built, along with many more new cities and towns. The existing overcrowded stock of housing cannot be relied upon to hold many more people, so that urban housing construction will have to increase proportionally or more than proportionally to the future growth of urban population. It is significant that even before World War II the Soviet government announced a ban against building new productive enterprises in a number of the largest Soviet cities, including Moscow and Leningrad.

Second, it may be that Soviet planners have decided that other branches of the economy must receive a larger share of capital investment in the future. In the postwar period, railroad transport requires great reconstruction and substantial expansion. The road network of the USSR is most inadequate and requires substantial development if the economies obtainable from greater use of automobiles and trucks are to be secured. With the rapid growth of population likely in the future, agricultural output must be increased greatly. This requires not only heavy investment in such activities as irrigation and the major afforestation project begun in 1948, but also investment aimed at still further mechanizing and electrifying agriculture so as to increase labor productivity there. Only by such increased productivity can adequate numbers be released from the rural labor force to provide the workers needed for the expanding nonagricultural economy.

Third, Soviet planners have probably reckoned with the desire of their people for less future sacrifice and a higher standard of living. To meet this desire there must be increased production of food, housing, and consumer goods. In part this must be made possible by increased investment in, and allocation of labor to, the sadly neglected field of consumer services of all kinds. After the sacrifices and hardships of the years since 1928, the Soviet people can hardly be in a mood to sustain similar deprivation to 1960 or afterward. Intent upon remaining in power and minimizing internal dissent, Soviet leaders are probably quite sincere in their avowals that increasing the standard of living is high on the list of their future objectives.

Fourth, the problem of labor must hold a central place in Soviet planning for the future. The development of the 1930's was made possible by moving millions of underemployed workers from agriculture to nonfarm occupations, particularly industry. In the future, such huge

mass migration from the countryside in such a short period will not be possible, since much of the slack of underemployment there has already been taken up. Natural population increase will continue to provide additional labor resources, but for the short run—from 1955 to 1965—the number of young workers entering the labor market will reflect the reduced birth rate and high infant and child mortality of the hard years during World War II. To make their labor supply adequate for their future goals, Soviet leaders will have to, and obviously intend to, press for maximally rapid increases in labor productivity. The best levels attained by capitalist countries are their most obvious objective. But starting from the higher level of productivity existing in 1950, Soviet leaders cannot count upon making progress as rapidly as they did when they started from the abysmally low level of 1928.

The comments above have stressed the factors making for a slower rate of industrial growth after 1950 than was experienced during the 1930's or from 1945 to 1950. It should not be forgotten, however, that one major type of obstacle encountered before World War II will probably not be encountered in the future. In the 1930's major institutional changes had to be made in the Soviet economy, such as farm collectivization and the abolition of worker freedom to change employment at will. These and other institutional innovations resulted in heavy costs because of overt or covert resistance. In the foreseeable future there seems little reason to expect institutional changes of comparable importance that might meet significant resistance. The Soviet pattern has been set, and the costs of establishing that pattern need not be paid again as they had to be in the past. The population has been cowed, as it was not in 1930. The apparent lack of any major resistance to the unification of collective farms in 1950 or to the collectivization of peasant farming in western areas in 1949 is indicative. But if the strength of the Soviet control is ever weakened, the discontent of the peasantry may once again assert itself to shape history, as it did in 1917.

The Geography of Future Development

The speculations above are partially confirmed by a rather detailed outline of the nature of future economic development given in October

1949 by the outstanding Soviet geographer V. F. Vasyutin.[12] He indicated that the great natural wealth of Siberia is to be the basis of much future development. Industry in this area is to be furnished large quantities of cheap hydroelectric power from the Angara and Yenisey rivers. New railroads must be built in Siberia, and new cities and industrial centers must be built along those lines. Kuzbas coal output must be tripled, presumably to about 90,000,000 metric tons annually. Industry is to be developed in this area up to the point where it will require about 75,000,000 metric tons annually, he implies. The Kulundinsk and Barabinsk steppe areas must be turned into great food-production regions to feed the expanded population of the area. Siberia is to become a major lumber, wood-chemistry, cellulose, and paper center of the USSR. The mineral and agricultural resources of the Minusinsk basin are to be intensively developed. Yakutsk and the Tuvinian autonomous province are also be centers of substantial economic progress. In the Far East, emphasis is to be put upon developing metallurgical industry, both ferrous and non-ferrous; expanding forestry activity; and making this area more nearly independent and self-sufficient with regard to food.

In the future development of Kazakhstan, the mineral resources of the Altay mountains and hydroelectric power from the Irtysh river are to be stressed. The region around Lake Zaisan in southeast Kazakhstan is to be developed as a highly intensive food production center and also as a major source of coal and shale. In central Kazakhstan, the nonferrous metallurgy in the neighborhood of Lake Balkhash will be further developed. In addition ferrous metallurgy is to be developed by combining Karaganda coal with iron ore from the Dzhezkazgansk, Ata-Su and Karkoralinsk regions. The Ekibastuz coal basin is to increase its production. Great expansion of irrigation will be needed for agriculture in this territory, and the problem of providing water for industrial uses is also to be worked on intensively. In southern Kazakhstan, hydroelectric power will be obtained from the Ili river and from the numerous smaller mountain rivers there, while the agricultural potential of the area south of Lake Balkhash is to be developed. Metal mining and industry are to

[12] *Izvestia Akademii Nauk SSSR Otdeleniye Ekonomiki i Prava,* No. 3 (1950), pp. 179–92. This discussion here also takes into account various projects announced since Vasyutin delivered his paper, intended to realize objectives he mentioned.

be of major importance. In western Kazakhstan exploitation of the petroleum and natural gas resources of the Emba-Urals area will receive priority along with increased production from local coal supplies. The large area between the Aral and Caspian Seas is envisaged as being of major importance in the future. In this presently lightly populated waste region, new railroad lines are to be built, mineral resources are to be exploited, and agriculture will be developed with emphasis on greatly increased pasturage of livestock and growth of semitropical cultures such as cotton and rice. The Chief Turkmen Canal and the major irrigation works associated with it are apparently to be the chief means used to accomplish this transformation.

The Fergana Valley of Central Asia is also to be a major center of future economic progress, which will be based upon increased exploitation of mineral resources and further growth of cotton production. As noted in Chapter I, uranium ore is found in this area and may be an important basis for present and future development.

Hydroelectric power and irrigation are key features of the development envisaged for the Caucasus. The water resources of the Kura, Araks and Zanga rivers, and of Lake Sevan, are central in these projects. Subtropical crops are to be further expanded in the Kolkhid (Colchis) and Lenkoran areas and on the Black Sea coasts of the North Caucasus and Crimea. Iron ore, petroleum, and natural gas production are to be focal points of attention on the Kerch Peninsula.

Future economic development in the Volga River region is to be based on hydroelectric power, irrigation, and increased oil output in the "Second Baku" region. In late August 1950, the Soviet government announced plans for construction of two of the largest hydroelectric stations in the world on the Volga River at Kuibyshev and Stalingrad.[13] The former is to have a capacity of 2,000,000 kilowatts and the latter of 1,700,000 kilowatts. Each is to have an annual output of 10,000,000,000 kilowatt-hours, given average water conditions. The Kuibyshev station is to be completed in 1955 and the Stalingrad station by 1956. Power from the Kuibyshev station is to be distributed as follows: 6,100,000,000 kilowatt-hours annually to Moscow; 2,400,000,000 kilowatt-hours to the Kuibyshev and Saratov regions; and 1,500,000,000 kilowatt-hours to irrigation projects in the Volga region near Kuibyshev. Of the power gener-

[13] *Pravda*, August 21 and 31, 1950.

ated at Stalingrad, 4,000,000,000 kilowatt-hours will be transmitted to Moscow; 1,200,000,000 kilowatt-hours to the Central Black Earth Region; 2,800,000,000 kilowatt-hours to Stalingrad, Saratov and Astrakhan provinces; and 2,000,000,000 kilowatt-hours for irrigation projects in the Volga and Caspian areas.

New industrial centers are to be created in the Urals on the basis of the iron ore there combined with coal from the Pechora Basin in the north. The Ukhta-Pechora region in the European north is to have forestry, wood-working, cellulose, and paper industries developed, along with an agriculture adapted to the extreme climatic conditions there.

In the Ukraine, the Donbas is to be further developed as a primary center of all kinds of industry. The Kakhovka hydroelectric station will be built on the Dnepr River, and the Carpatho-Ukraine will become an important industrial center. Future economic progress in Moldavia is to be based on exploitation of hydroelectric power from the Dnestr River. The South Ukrainian and North Crimean canals will permit irrigation of large areas and help combat the recurrent crop failures due to drought.

The future economic pattern envisaged for the Moscow-Leningrad region will rest on intensive expansion of local coal and metallurgical production. Exploitation of the Moscow and other coal basins there is to be increased, as is the mining or iron ore from the Kursk Magnetic Anomaly. New metallurgical plants are to be built near Leningrad and in the neighborhood of Moscow.

In all this future development, apparently, it is intended to continue emphasizing the need for partially self-sufficient economic regions, capable of supplying their own requirements of food, consumer goods, and other commodities as far as possible. Vasyutin has declared, however, "We will always use the advantages of correct territorial division of labor between regions, combining specialization with the maximum possible and necessary all around development (literally, complexity)." Where the line is to be drawn between specialization and self-sufficiency is not clearly indicated. Vasyutin has defined the degree of complexity desired for each major region in these terms:

> The problem of complex development of a region is first of all to guarantee the specialized branches of national significance necessary raw materials, fuel, electric power, different raw materials and in the maximally possible degree satisfy the requirements of the region for fuel, metal,

construction materials, chemical fertilizers, agricultural products and consumer goods, in correspondence with the instructions of the 18th Party Congress.[14]

Prof. Khachaturov, the outstanding Soviet specialist on transport economics, has indicated that the reasoning behind this planned geographical pattern of development is the desire to have transport requirements grow more slowly than production. Writing in 1940 and looking ahead to 1947 or 1952, he argued that a more even distribution of industry in the future would permit reduction and elimination of many long hauls required before World War II. By the time the USSR had equaled 1929 per capita United States industrial production, he believed the volume of Soviet railroad freight turnover would be between 900,000,000,000 and 1,000,000,000,000 ton-kilometers per year. This figure is only two and a half times the 1940 volume of 415,000,000,000 ton-kilometers, though the Soviet goals call for tripling 1940 industrial production. Khachaturov estimated that by 1947 or 1952, years now replaced by 1960 and 1965 as terminal points of present long-range planning, Soviet railroads would be carrying about 1,500,000,000 metric tons of freight with an average transport distance of 600 to 650 kilometers.[15] As indicated earlier, however, considerations of military strategy are probably also behind this planned localization of economic activity.

Of special interest from the point of view of standard of living have been the concrete indications in the late 1940's and in 1950 of government intentions in this field. The government three-year livestock-expansion program announced in 1948 and the plan for increased procurement of livestock products promulgated shortly afterward indicated a major effort to increase the availability of meat, dairy products, leather, wool, and other animal products. The scarcity of these products has traditionally been one of the worst features of the Soviet standard of living. A very substantial expansion of cotton output is apparently planned for the near future. It was stated in early 1950 that cotton production in Uzbekistan would be doubled or tripled in the next few years.[16] The formation of a Cotton Ministry in 1950 points

[14] *Izvestia Akademii Nauk SSSR, op. cit.*, p. 190.
[15] *Planovoye Khozyaistvo*, pp. 37–38.
[16] *Izvestia*, January 17, 1950.

similarly in the direction of a great increase in the raw material base of the Soviet clothing industry. In the election speeches that preceded the balloting of March 12, 1950, a number of members of the Politburo took pains to assure the Soviet people that housing construction, expansion of the distributive system, and improved availability of services were to receive high priority in the future. Such promises have been made before in Soviet history without being fulfilled. But, barring the outbreak of actual conflict between the Soviet Union and other major powers, there is little reason to doubt continued, if perhaps not too rapid, progress toward an improved standard of living.

A factor that may be of major importance between 1950 and 1965 is the nature and the magnitude of the obligations of the Soviet Union toward its satellites and allies in Europe and Asia. All of the countries within the Soviet orbit have ambitious plans for industrialization and desire to emulate the meteoric progress of the USSR. They will require machinery, technicians, and industrial raw materials as abundantly as possible. Unlike the Soviet Union's experience of the late 1920's and early 1930's, these communist-dominated countries are unlikely to be able to get vitally needed assistance from the West comparable to that the USSR obtained. They must look to the Soviet Union, therefore, for this aid. Moreover they all want not only the assistance they can pay for but also loans to pay for Soviet equipment and technical personnel.

The requirements of these allies are obviously competitive with the domestic needs of the Soviet Union if it is to achieve the goals set by Stalin in 1946. Yet the USSR cannot very well turn down the requests of these countries in toto. The relatively niggardly credit given Communist China early in 1950 suggests that the Soviet Union is not disposed to extend aid of any magnitude approaching American Marshall Plan help to Western Europe. Yet the problem remains for Soviet planners to decide what portion of their own scarce heavy industrial output they dare supply to their allies and still hope to meet Stalin's time-table. The area dominated by communist governments in 1950 included roughly 800,000,000 persons. In any case the planning of economic development for such a vast territory and population would be more difficult and more complex than planning for the USSR alone. When the internal rivalries and the political considerations involved are included along with the economic factors, it becomes clear that the new

and expanded area that Soviet planning must take into account involves problems of great complexity that frequently are without easy solution.

The Communist Future

At best the shape of the future is not clear, and it becomes dimmer the further into it that we attempt to probe. As Soviet planners look beyond 1960 or 1965, the possibilities before them become more abundant, as do the alternatives among which they may choose. The avowed ultimate goal of Soviet development is the achievement of the blissful state of communism. The people of the USSR have been told for over three decades that the sacrifices demanded of them are worth while because they are building a new society in which human nature will be far different from that existing at present and in which distribution can be in accordance with need rather than productive contribution as at present. Some facets of the problem of building a truly communist society are beyond the scope of this volume. Whether or not the great mass of human beings can be conditioned to work for the joy of working rather than to obtain the necessities and luxuries they want is a question for a treatise on psychology and perhaps on psychiatry. It may be remarked here, however, that the highly differentiated system of rewards and punishments now prevalent in the Soviet Union would hardly seem conducive to the development of that type of attitude toward work. The discussion will be limited here to the economic aspects of the requirements to be met for the attainment of communism.

Soviet leaders have scrupulously refrained from setting any very definite time by which they hope to attain communism, preferring ambiguity that would arouse hopes without committing the state to specific performance. Nevertheless, it seems pertinent to inquire whether it is likely that the USSR can achieve a state of abundance permitting distribution according to needs by 1970. Soviet leaders, like Marx before them, have been ambiguous as to the concept of the needs that would be met in a communist society. Skeptics may argue that since human wants are insatiable no society can ever hope to be sufficiently productive to give people all they want. But perhaps the term 'needs' could be interpreted as consisting of the goods and services comprising a level of high consumption. For exploratory purposes let us assume that Soviet leaders might be able to institute communism if by 1970

they could attain per capita production equivalent to that of the United States in 1948. This would require substantially higher absolute output than was achieved by the United States in that year, because of the higher Soviet population. Even the American 1948 per capita production level might be inadequate for communism, or at least this has been implied by one Soviet economist.[17] In any case it is probably at least a minimum goal that would have to be achieved.

For our exploration of the matter we shall follow Lorimer in assuming that by 1970 the USSR will have 244,000,000 people within its present boundaries. There has been much dispute over such estimates, with other sources giving higher and lower figures, but the possible margin of error here probably would not change the basic picture obtained, if we assume there will be no major war by 1970. In Table 65, therefore, American per capita production of various key commodities in 1948 has been multiplied by 244,000,000 to secure a figure of what Soviet production would have to be in 1970 to give the minimum material base for instituting a communist system of distribution.

TABLE 65. Required Soviet Production in 1970 to Equal American 1948 Per Capita Output of Selected Commodities.

Commodity	*American 1948 Per Capita*	*Required Soviet 1970 Output Equivalent*	*Estimated Soviet 1950 Output*
Steel	549 kg.	134.0 million metric tons	25–27
Pig Iron	372.1 kg.	90.8 million metric tons	19–20
Petroleum	1888 kg.	460.7 million metric tons	37.5
Electric Power	2298 kwh	560.7 billion kwh	90.3
Cotton Cloth	59 meters	14.4 billion meters	3.9
Wool Cloth	3 meters	732 million meters	165
Leather Shoes	3.15 pairs	768.6 million pairs	197
Hosiery	12.0 pairs	2.9 billion pairs	.43

The immensity of the task facing the Soviet economy to achieve the American per capita output of the commodities shown above by 1970 is clear from Table 65. This would require that in the next twenty years steel production be increased over five times, pig-iron output over four times, petroleum over eleven times, electric power over six times, shoes as much as four times, hosiery about seven times, cotton cloth almost

[17] *Izvestia Akademii Nauk SSSR, op. cit.*, No. 3 (1949), p. 223.

four times, and woolen cloth over four times. Even the above comparison minimizes the nature and magnitude of the progress that would have to be accomplished because it leaves out of account the far greater expansion of consumer services that would have to be made to attain the American standard in this field of consumption. In addition, the table above does not indicate the increase in agricutural output that would have to be attained so that Soviet food production per capita might equal that of the United States in 1948. The latter is particularly important because of the fact that until now Soviet food consumption has been heavily based upon grain. Presumably in the future communist society consumers will wish a more diversified diet and one including much more in the way of meat and dairy products. To produce a pound of meat requires between five and ten pounds of grain fed to livestock. Any increase in meat and dairy output to American levels would consequently require a tremendous increase in grain production.

In the area of food production, therefore, the possibilities of raising Soviet per capita output to the American level may be considered on the basis of grain, which, as pointed out above, is also the basis for meat and dairy production. In 1946 American per capita output of six major grains, wheat, rye, barley, oats, corn, and rice, was 970 kilograms. Assuming 244,000,000 persons in the USSR in 1970, the equivalent level of per capita output would require production of 237,000,000 metric tons of grain in that year. Actually, to make the Soviet figures comparable with the American ones, allowance would have to be made for the fact that Soviet grain statistics are on an exaggerated field basis that does not allow for losses. This might perhaps raise the grain requirement, in terms of Soviet harvest statistics, to 260,000,000 or 270,000,000 metric tons. The Fourth Five-Year Plan goal for 1950 is grain output equal to 127,000,000 metric tons. Thus in the twenty years from 1950 to 1970, total Soviet grain output within the present boundaries must approximately double to equal American per capita output in 1946. Whatever may be accomplished toward increasing sown area and yields per acre in the next twenty years, such a stupendous feat seems most unlikely of accomplishment. One student of Soviet agriculture has pointed out that even an increase of Soviet grain production by 1970 to 162.9 million metric tons will be most difficult to achieve, if it

can be done at all.[18] The vastly greater amount required to achieve the standard indicated above seems out of the question. Faced by both an increasing population and a strong demand of their people for an improved quality of diet, it is clear that the Soviet leaders are under great pressure to increase grain output in the future substantially, even if they cannot achieve the very high goal calculated as required for communism under the assumption made here. This is undoubtedly the reason for the ambitious afforestation program, with its related crop rotation and other measures, adopted in 1948 for accomplishment over a span of almost two decades. It is also the motivation for the ambitious irrigation projects announced in August and September 1950. But whatever the gains realized from these and other measures, they can hardly be expected to double grain output in twenty years.

As one surveys the enormous progress that would have to be made by 1970 to achieve even the minimum level of abundance that might make a communist system of distribution practical, it seems most unlikely that it can be done. The gains required to reach American 1948 output per capita in both goods and services will be difficult to achieve by 1980 or perhaps even later. When one takes additionally into account the insatiability of human desires, the increasing differentiation among Soviet consumers and income recipients, the great stratification of Soviet society and the official derogation of egalitarianism, it would not be surprising if the dream of communism in this century proves to be hollow, a vain hope placed before the poverty-stricken masses to impel them to great efforts and sacrifices. So much of the Soviet society is based on lies and falsehoods, on deception and misrepresentation, that even on noneconomic grounds it seems most unlikely that the humanitarian and Utopian society envisaged by Marx and Engels would emerge from that which exists now.

It may be objected that future technological progress is likely to be great and that such developments as the harnessing of atomic power may make accomplishments that now seem far away more easily realizable. The dynamic scientific and engineering advance of recent generations lends point to this objection, yet it is difficult to see what technological

[18] Joseph J. Bulik, "USSR: The Fifteen Year Afforestation Plan," *Land Economics*, November 1949, pp. 358–60.

advances would be sufficiently great to speed very substantially the attainment of contemporary American per capita production. Atomic power is still a distant possibility. American studies have shown that on the basis of contemporary technology atomic power is relatively expensive where abundant resources of coal and electric power are available.[19]

Soviet spokesmen, it is true, have boasted of their intention to use atomic power for peaceful purposes. It may be that the Soviet evaluations of the costs of atomic power and its relative economies are brighter than those made by American economists because investment calculation in the USSR does not take into account any explicit charge for interest, an important item in view of the high capital costs involved. There is also the possibility that Soviet calculations on this matter may envisage use of atomic power for very large-scale plants where economies of scale may reduce costs well below those estimated in the case of the 75,000 kilowatt plant, the plant that has been most carefully analyzed in this country.[20] Nevertheless it seems significant that no specific indications have been given as to when the USSR expects to have significant commercial use of atomic power. On the contrary, serious technical discussion of future Soviet power expansion published in the USSR has focused upon hydroelectric power projects, the most conspicuous examples being the huge Kuibyshev and Stalingrad stations announced in August 1950 and discussed above. For the next decade, however, it seems likely that economic factors will play a secondary role in determining Soviet policy on atomic power. The USSR will probably attempt to get an atomic power plant into operation, regardless of expense, because of the political and propaganda prestige resulting from such an accomplishment. But such an advance, even if made before corresponding progress in countries where costs play a more decisive role, is still a long way from making atomic power a significant major element in economic expansion.

The pessimistic conclusions drawn above regarding the possibility of the attainment of sufficient abundance to permit a communist system of distribution in the foreseeable future should not be misunder-

[19] Walter Isard and Vincent Whitney, "Atomic Power and the Location of industry," *Harvard Business Review*, March 1950, p. 46.
[20] *Ibid.*, pp. 47–48.

stood, however. Given peace and stability, the USSR will continue to make substantial progress both in heavy industry and in standard of living, after the goals set by Stalin for 1960 or 1965 have been attained. Once these goals have been reached, there will probably be a further reduction in the rate of growth, to 100 or 50 per cent every ten or fifteen years, rather than the 200 per cent envisaged after 1950. This will still be very substantial progress. If we assume that Stalin's targets set out in 1946 are reached by 1962, then a 100 per cent further increase by 1974 would bring the *total* output of Soviet heavy industry at least to well above present American levels. Steel output might rise to over 100,000,000 metric tons; coal production to well over 700,000,000 metric tons; and so on. This is not to be construed as a prediction in any sense. Rather it is intended to point out that even substantial lowering of past rates of Soviet progress would bring its total industrial production much more nearly abreast that of the United States twenty-five years from now than it is at present, assuming only moderate continued economic expansion of the more mature American economy. All this would be true even though per capita industrial production would still be far behind that in this country because of the discrepancy in population. The story in agriculture, of course, is far different, for no comparable rapid rates of growth are to be expected there. It is conceivable that rapid future Soviet population growth, if unmatched by corresponding improvement in crop and livestock yields and food supply, might result in serious pressure on the Soviet regime, forcing it to export capital equipment in exchange for food, or perhaps reinforcing other motives for imperialistic adventures. Such speculations about the possible situation two decades or more ahead of us must obviously be very inconclusive, especially in view of the grave problems that must be overcome in the near future in the international arena.

The future development of Soviet foreign economic relations will be influenced very greatly by the world political and military situation. If present strained relationships between East and West continue, as seems most likely, the world will tend more and more to be divided into two great trading blocs having relatively little to do with each other economically. In such a situation, the already substantial integration of the economies of the Soviet satellite countries with that of the USSR will increase. The vast area from the Pacific Ocean to the

western borders of East Germany beyond the Elbe River will tend to become a single economic unit coordinated effectively from a single center, Moscow. This will be a latter-day colonial empire reminiscent of that created by Nazi Germany in the Balkans before World War II. As the core and chief power within this bloc of nations, the USSR is in a position to benefit from the economic development of its satellites. It can unilaterally impose terms of trade favorable to it; through present and future joint development corporations operating in satellite countries, it can profit handsomely from their economic progress. The complete political subservience of its satellites provides abundant prerequisites for such economic exploitation.

China is a special case. The relationships between China and the USSR are and will be obviously far different from those between, say, Bulgaria and the USSR. The Soviet government can hardly look forward with pleasure to the rise of a strong and economically well-developed China on its southern border. Yet fear of Tito-like defection exerts strong pressure to accede to Chinese demands for economic aid. Even with the best of will, however, the Soviet government is not now in any position to give Mao Tse-tung and his associates anything like the volume of economic development assistance they want and need. In this area, surely, there is fertile soil for the seeds of rancor and discord. The area of Chinese-Soviet economic relationships is both influenced by and influences political relationships between the two countries. The course of those relationships in the years ahead will be one of the decisive factors of world history.

Whatever the future may hold for the Soviet economy, the lessons of its past are clear. Like other dictatorships before it, the Kremlin oligarchy has been able to accomplish great feats with the vast resources at its command, but only at enormous cost. The high hopes once held that the Bolshevik revolution might usher in an era of freedom and abundance have long since been destroyed. Deprived of political liberty, the Soviet masses have received neither economic liberty nor a satisfactory standard of living. Deceived by lies and cowed by the secret police, they are powerless, as the fruits of their toil are diverted to support the new Soviet aristocracy and to maintain the largest military establishment in the world. The existence of freedom and truth anywhere in the world endangers the Kremlin's rule, for from them

may come exposure of the colossal deception that is being practiced on the 200,000,000 citizens under the Politburo's rule. As the free world struggles to prevent further advances by Stalinist totalitarianism, it will do well to remember that the poverty-stricken masses of the USSR can become our most valuable allies if the fog of falsehood and ignorance that obstructs their understanding can be swept away.

APPENDIX

FULFILLMENT OF THE FOURTH FIVE-YEAR PLAN

WHILE THIS VOLUME was on press, additional economic information appeared in the Central Statistical Administration's report for the third quarter of 1950 and in the speech by Politburo member N. A. Bulganin at the celebration of the thirty-third anniversary of the Bolshevik Revolution. Some account of these new materials has been taken as appropriate in the preceding pages. In particular, however, it is possible, on the basis of these materials, to present a preliminary evaluation of the fulfillment of the Fourth Five-Year Plan. Some of the data given in Bulganin's speech seem inconsistent with earlier information, if it can be assumed that his percentages for the first ten months of 1950 will apply for the entire year. For this reason some of the data and estimates below are given in the form of upper and lower limits. The data follow.

Area of Economy	*Unit*	*1950 Goal*	*Estimated 1950 Actual*
National Income	billion 1926–27 rubles	177	205
Gross Industrial Output	billion 1926–27 rubles	205	235
Steel	million metric tons	25.4	25–27
Pig Iron	million metric tons	19.5	19–20
Coal	million metric tons	250	260.6
Petroleum	million metric tons	35.4	37.5
Electric Power	billion kilowatt-hours	82.0	90.3
Motor Vehicles	thousands	500	405
Tractors	thousands	112	96
Machine-Building	per cent of 1940	200	220
Cotton Cloth	million meters	4,786	3,900
Wool Cloth	million meters	168	165
Leather Shoes	million pairs	240	197
Hosiery	million pairs	580	430
Grain	million metric tons	127	124

Area of Economy	*Unit*	*1950 Goal*	*Estimated 1950 Actual*
Cotton	million metric tons	3.1	3.8
Sugar Beets	million metric tons	26.0	23.4
Housing Construction	million square meters*	84	90
Railroad Freight Volume	billion ton-kilometers	532	585

* Includes housing newly built or restored during 1946–50.

The pattern which emerges from the data above is that of rather uneven fulfillment of the Fourth Five-Year Plan's objectives. Major industrial raw materials apparently equaled or exceeded the production targets set them. The worst showing in industry was apparently made in the case of the USSR's basic consumer goods, including cotton cloth, leather shoes, and hosiery, none of which are indicated as having reached even 1940 goals in 1950, let alone the higher 1950 production goals. The success of Soviet machine-building in exceeding its 1950 objective, although some important types of machines—such as tractors and motor vehicles—failed to reach their targets, raises a question as to the areas in which these failures were balanced off by overfulfillment. In agriculture the cotton production target was exceeded, while grain and sugar beets fell somewhat below their planned levels. Bulganin's failure to refer to other industrial crops specifically may perhaps imply that their 1950 production was unsatisfactory in the light of the Fourth Five-Year Plan. Similarly, Bulganin referred only to the growth of livestock on collective farms, rather than to the growth of all livestock: this area of the Soviet economy has been laggard, it was pointed out in Chapter IX above. The overfulfillment of the housing construction goal is undoubtedly one of the brightest features of the Soviet economy's performance during 1946–50, though it was undoubtedly inadequate to end substantially the overcrowding of Soviet cities in postwar years. All in all, however, it seems clear that at the end of 1950 the USSR had reached the highest production level of its history in industry, at least, but that this was due primarily to the feverish expansion of all branches of heavy industry. In the Fourth Five-Year Plan period, as had been true earlier, consumer goods production was still relatively neglected, though great progress was made over the abysmally low levels prevalent at the end of World War II.

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